IECL
INDOOR ENVIRONMENTAL CONSULTING & LABS

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Murarrie QLD 4172
ABN: 40 636 603 640

MOULD ANALYTICAL REPORT

Report Number:	5557
Property:	WO17802457 Logan Central Police Headquarters
Client:	Octief
Client Address:	34/53-57 Link Drive Yatala, QLD 4207
Date of sampling:	23/01/2023
Date Samples Received:	23/01/2023
Sampled by (Name):	CTPI
(Company):	Octief
Analysts:	CTPI
Reported and released by:	CTPI Mycologist
Date of analysis:	23/01/2023
Date of report:	23/01/2023
Job reference:	J27483
Purpose of Report:	To assess the levels and genera of mould present post-remediation.

1.0 Disclaimers

1.1 This document and its contents are intended for the addressed client only and is based on the samples provided.

1.2 It is to be reviewed by the addressee and is not for general publication without written consent.

1.3 Copying or altering of this document, in full or in part is not authorized without written consent.

1.4 Copyright of this report is retained by the Author, and the Addressee is granted an exclusive licence to its contents.

1.5 Analysis of the samples provided only show information for the period in time which was tested. This data only provides a snapshot of the level of contamination and is subject to change over time.

1.6 Indoor Environmental Consulting and Labs is not a medical authority. If you have any health concerns seek professional medical care.

1.7 Samples received outside of their expiration date may not be representative of the actual mould levels due to deterioration of adhesive or impaction medium.

1.8 Samples should be collected by people with suitable training. Samples collected by untrained personnel may be inaccurate due to sampling errors, poorly selected sampling locations or other factors.

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2.0 Testing & Sampling Details

Table 2.01						
No.	Client No.	Sample ID	Sample Type	Location Information	Mould Genera Predominantly Observed	Mould Levels
1	AS01	34411663	Air-O-Cell	CPIU	Aspergillus/Penicillium like	538
2	AS02	34411641	Air-O-Cell	External Control	Aspergillus/Penicillium like	5414

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3.0 Results - Air & Surface Fungal Structures

Table 3.01: Data of Mould Analysis (for complete results data see appendix)	Sample Type	Air	Air
	Client No.	AS01	AS02
	IECL No.	(1)	(2)
	Sample Location	CPIU	External Control
	Genera Info	FS / m³	FS / m³
Pollen			
Fungal Hyphae			
Unidentified spores			
Alternaria			
Ascospores		77	1382
Aureobasidium			
Aspergillus/Penicillium like		346	2842
Basidiospores		38	154
Bipolaris/Drechslera like			
Chaetomium			
Cladosporium		77	653
Curvularia			38
Cercospora			
Epicoccum			
Fusarium			
Ganoderma			230
Nigrospora			
Oidium/Peronospora			
Pithomyces			
Rust (Pucciniales)			
Smut/Myxomycetes/Periconia			115
Scopulariopsis			
Stachybotrys			
Trichoderma			
Torula			
Tetraploa			
Ulocladium			
Total Fungal Structures		538	5414
Debris		1	1
Detection Limit		38	38

FS	Fungal Structures	RED	Mould genera pose a HIGH RISK to health and wellbeing of people
	Allergenic	ORANGE	Mould genera pose an ELEVATED RISK to health and wellbeing of people
	Cause of Infection	RED	High Spore Concentrations
	Mycotoxin Producing	ORANGE	Elevated Spore Concentrations
	Water Damage Indicator		

4.0 Discussion and Conclusions

Air sampling of the CPIU (1) showed similar composition of mould as compared to the External Control (2), but at lower levels. These data do not indicate significant levels of mould growth in the tested areas.

5.0 Recommendations

5.1 These data provide no evidence that professional remediation is required. Regular cleaning and maintenance of problem areas with techniques including HEPA vacuuming followed by wiping with clean microfibre cloth is always highly recommended.

6.0 References

a. "Standard & Reference Guide for Professional Mold Remediation" ANSI/IICRC S520 -2015, 3rd Edn Institute of Inspection, Cleaning & Restoration Certification, Vancouver, Washington 98661 USA.

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

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

d. "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

e. "Identifying Fungi – A clinical laboratory handbook" 2nd Edn. 2011 Guy St-Germain, Richard Summerbell. Star Publishing Co. Ltd., Belmont, CA, USA. ISBN 978 08986 311 5

f. ASTM D7391-20, Standard Test Method for Categorization and Quantification of Airborne Fungal Structures in an Inertial Impaction Sample by Optical Microscopy, ASTM International, West Conshohocken, PA, 2020

g. Environmental Analysis Associates, Inc. Air-o-cell Method Interpretation Guide, January 2011

h. ASTM D7658-17, Standard Test Method for Direct Microscopy of Fungal Structures from Tape, ASTM International, West Conshohocken, PA, 2017

i. Institute of Medicine (US) Committee on Damp Indoor Spaces and Health. Damp Indoor Spaces and Health. Washington (DC): National Academies Press (US); 2004. PMID: 25009878. ISBN: 0-309-53158-6

7.0 Appendicies

7.1 Methodology and additional information

7.1.1 Analysis of air and surface samples for fungal structures were performed according to the ASTM D7391-20 and ASTM D7658-17 standards respectively.

7.1.2 Sample identification was performed to the genus level.
Samples were received in good condition unless otherwise stated.

7.1.3 This analysis relates only to the samples provided and mentioned in this report.

7.1.4 Air samples were collected using Air-O-Cell (Zefon) slit impaction cassettes. Sampling of 75L of air was collected over a 5-minute period at a flow rate of 15L/min unless specified otherwise.

7.1.5 34% of each air sample was read under 400-600x magnification to count fungal structures and identify to genus level.

7.1.6 A minimum of 1 traverse (2% of slide examined) or 2000 spores were counted for each surface sample without excessive contamination.

7.1.7 Surface samples with very high mould levels were analysed by counting random fields under 400x or 600x magnification and calculating the average of the fields. Average counts were then used to calculate FS/cm² based on area counted. For slides counted in this manner "# traverses" means "# fields counted".

7.1.8 Samples with debris ratings of 2 to 4 may contain negative bias. Samples with a debris rating of 5 are overloaded and values expressed for these samples are estimates only.

7.2 Interpretation of Results

The following guidelines can be used to assess airborne and surface fungal concentrations and types indoors. These guidelines should not be used in preference to comparisons with outdoor reference samples.

Typical indoor Airborne Fungal Spore Concentration Ranges (Ref. g)

Description	Spores (counts/m^3)	Predominant Types
Clean building	Less than 2,000	Total for all spore types
	Less than 700	*Penicillium* , *Aspergillus* , *Cladosporium*
Possible indoor amplification	1,000 – 5,000	*Penicillium* , *Aspergillus* , *Cladosporium*
Indoor amplification likely present	5,000 – 10,000	*Penicillium* , *Aspergillus* , *Cladosporium*
Chronic indoor amplification	10,000 – 500,000	*Penicillium* , *Aspergillus* , *Cladosporium*
Inadequate flood cleanup or active indoor destruction of contaminated surfaces	500,000 – 10,000,000	*Penicillium* , *Aspergillus* , *Stachybotrys Cladosporium* , *Chaetomium* , *Basidiomycetes* , *Trichoderma* , *Ulocladium* , etc.

Total Fungal Hygiene Guide for Indoor Surfaces (Ref. b)

Rating	Total Surface Fungal Spore Concentration
Low	<50 spores/cm^2
Normal	50 to 500 spores/cm^2
Elevated	500 to 1000 spores/cm^2 + prevailing species
Contaminated	>1000 spores/cm^2 + dominant species + Propagules
Extreme contamination	>5000 spores/cm^2 + dominant species + Propagules + confluent spores

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Client & (IECL) No.	AS01		(1)	AS02		(2)
Table 7.01	CPIU			External Control		
Type / Serial / % Viewed	Air-O-Cell	34411663	34.7%	Air-O-Cell	34411641	34.7%
	Raw Count	FS / m³	% of Total	Raw Count	FS / m³	% of Total
Pollen						
Fungal Hyphae						
Unidentified spores						
Alternaria						
Ascospores	2	77	14%	36	1382	26%
Aureobasidium						
Aspergillus/Penicillium like	9	346	64%	74	2842	52%
Basidiospores	1	38	7%	4	154	3%
Bipolaris/Drechslera like						
Chaetomium						
Cladosporium	2	77	14%	17	653	12%
Curvularia				1	38	1%
Cercospora						
Epicoccum						
Fusarium						
Ganoderma				6	230	4%
Nigrospora						
Oidium/Peronospora						
Pithomyces						
Rust (Pucciniales)						
Smut/Myxomycetes/Periconia				3	115	2%
Scopulariopsis						
Stachybotrys						
Trichoderma						
Torula						
Tetraploa						
Ulocladium						
Total Fungal Structures	14	538		141	5414	
Debris	1			1		
# traverses	10			10		
Detection limit	38.4			38.4		
Trace length	2			2		
FOV diameter	0.5			0.5		
Air volume	0.075			0.075		
Length counted	5			5		
Ratio counted	0.3472			0.3472		
Total area counted	10			10		
Multiplication factor	2.88			2.88		
Slide diameter	14.4			14.4		
MF coefficient	28.8			28.8		
Detection limit count	1			1		

Report Issue Date: 24/01/2023 **Job #:** J27483

MOULD INVESTIGATION
LOGAN CENTRAL POLICE HEAD QUARTERS

Client:	Department of Housing & Public Works QBuild
Client Contact:	Gavin Millane
Client Email:	CTPI @epw.qld.gov.au
Client Phone:	CTPI
Project Reference:	J27483 - WO17802457
Site Address:	Logan Central District Police Head Quarters
OCTIEF Field Consultant/s:	CTPI
Date of Investigation:	23/01/2023

OCTIEF were engaged by QBuild (the client) to conduct post remediation sampling to determine the concentration levels of airborne mould present within the CPIU room of the police building located at 11 Civic Parade, Logan Central and whether they pose a potential risk to human health.

Based on the results, at the time of sampling the levels of airborne mould within the CPIU were significantly lower than outdoor levels with the species detected consistent with those identified in the outdoor sample. The CPIU room is considered to be a safe work environment and suitable for its designated use.

Fieldwork by:	Written / Submitted by:	Reviewed / Approved by:
CTPI		
Environmental Scientist	Enviornmental Scientist	Environmental Scientist

EFFICIENT HYGIENE SERVICES

INNOVATION | QUANTIFICATION | ORCHESTRATION

Job Completion Report

JCR ID: JCR-LCPS-J23
JCR Prepared for: Q Build SC Traditional
Gavin Millane

21st January 2023

Logan Central Police Station, 11 Civic Parade, Logan Central, QLD 4114

Efficient Hygiene Services
10/19 Expo Court,
Ashmore, QLD, 4214
ABN: 85 160 809 058

JCR Completed by: CTPI
Works Completed by: CTPI
Technician
1300 222 347
info@ehygieneservices.com.au

Efficient Hygiene Services was commissioned by Gavin Millane from Q Build SC Traditional to undertake the Mould Remediation Works throughout the premises at Logan Central Police Station. We would like to thank you for providing us with the opportunity to complete your required works. Please find the job completion report for the work fulfilled at the above mentioned site location. The following Job Completion Report details the below listed items:

Part 1 – Services Completed

Part 2 – Job Findings

Part 3 – Recommendations

Part 4 – Supporting Digital Images

Part 1 – Services Completed:

Undertake Mould Remediation Works at Logan Central Police Station.

The following Unit labels were accessed, cleaned, disinfected and treated.

- Mould Remediation

Scope of Works with Reasonings:
Mould Remediation:

- All visible mould growth areas were HEPA vacuum using a brush head attachment.
- A hospital grade disinfectant/cleaner was applied to the contaminated areas and allowed to sit for 10 minutes.
- The areas were then wiped aggressively using micro-fibre cloths or magic eraser pads until the contamination was gone.
- The areas were the HEPA vacuumed again.

Part 2 – Job Findings:

Efficient Hygiene Services completed the requested Mould Remediation Works dated 21st January 2023.

All works completed on site were in accordance with the IICRC S500 Standard for Professional Water Damage Restoration and the IICRC S520 Standard for Professional Mould Remediation.

Efficient Hygiene Services is an IICRC Certified Firm and all works were undertaken by or supervised by a qualified IICRC technician.

Mould Remediation:

- Ceiling Grid – Moderate to Heavy Levels of Debris & Microbial Growth

Please refer to supporting digital images attached in part 4 of the report.

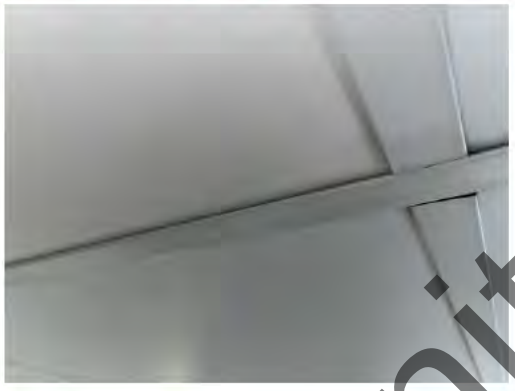
Part 3 – Recommendations:

During the Mould Remediation Cleaning Works, Efficient Hygiene Services discovered the below listed items which are recommended to be undertaken.

Part 4: - Digital Supporting Images – Before and After

Image 1 – Contamination on Ceiling Grid Before	Image 2 – Contamination on Ceiling Grid After
	
Image 3 – Contamination on Ceiling Grid Before	**Image 4 – Contamination on Ceiling Grid After**
	

Image 5 – Contamination on Ceiling Grid Before	Image 6 – Contamination on Ceiling Grid After
	
Image 7 – Contamination on Ceiling Grid Before	**Image 8 – Contamination on Ceiling Grid After**
	
Image 9 – Contamination on Ceiling Grid Before	**Image 10 – Contamination on Ceiling Grid After**
	

Image 11 – Contamination on Ceiling Grid Before	Image 12 – Contamination on Ceiling Grid After
	
Image 13 – Contamination on Ceiling Grid Before	**Image 14 – Contamination on Ceiling Grid After**

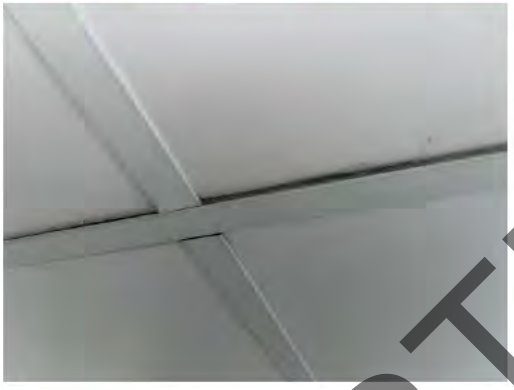



Image 15 – Contamination on Ceiling Grid Before	**Image 16 – Contamination on Ceiling Grid After**
	

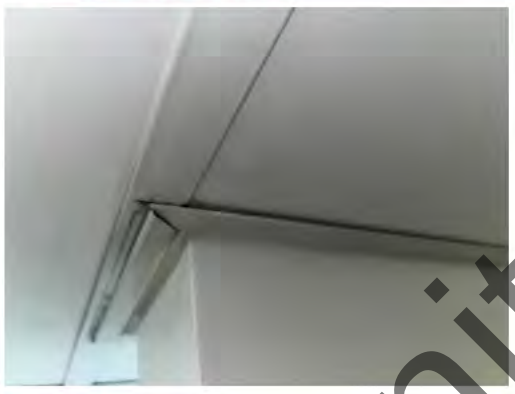
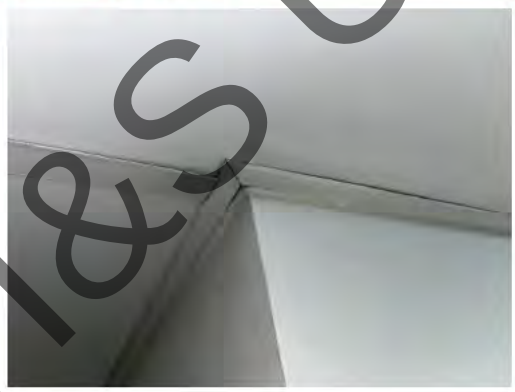
Image 17 – Contamination on Ceiling Grid Before	Image 18 – Contamination on Ceiling Grid After
	
Image 19 – Contamination on Ceiling Grid Before	**Image 20 – Contamination on Ceiling Grid After**
	
Image 21 – Contamination on Ceiling Grid Before	**Image 22 – Contamination on Ceiling Grid After**
	

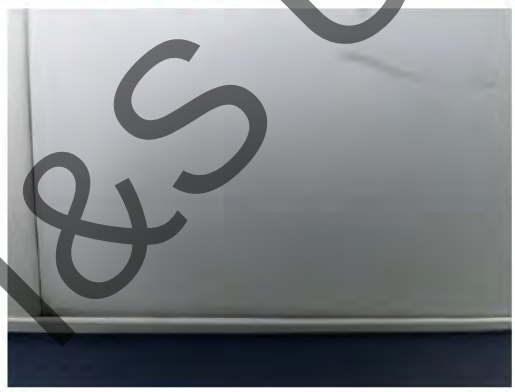
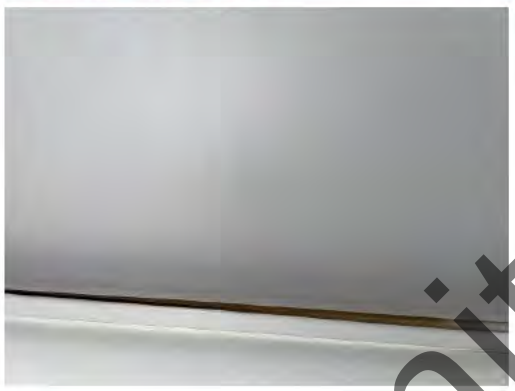
Image 23 – Contamination on Ceiling Grid Before	Image 24 – Contamination on Ceiling Grid After
	
Image 25 – Contamination on Ceiling Grid Before	**Image 26 – Contamination on Ceiling Grid After**
	
Image 27 – Contamination on Ceiling Grid Before	**Image 28 – Contamination on Ceiling Grid After**
	

Image 29 – Contamination on Ceiling Grid Before	Image 30 – Contamination on Ceiling Grid After
	
Image 31 – Contamination on Ceiling Grid Before	**Image 32 – Contamination on Ceiling Grid After**

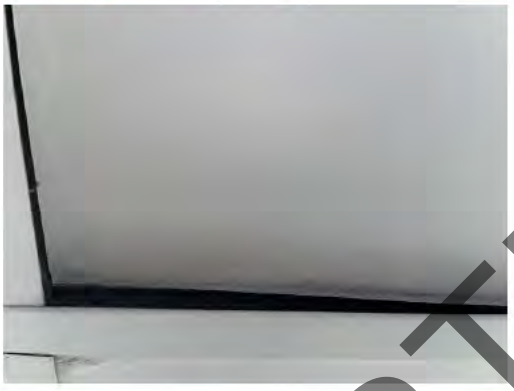
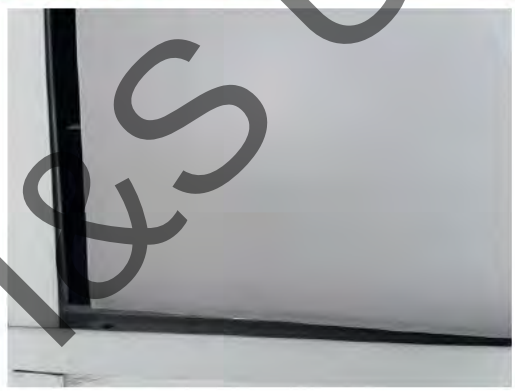

	

Image 33 – Contamination on Ceiling Grid Before	**Image 34 – Contamination on Ceiling Grid After**
	

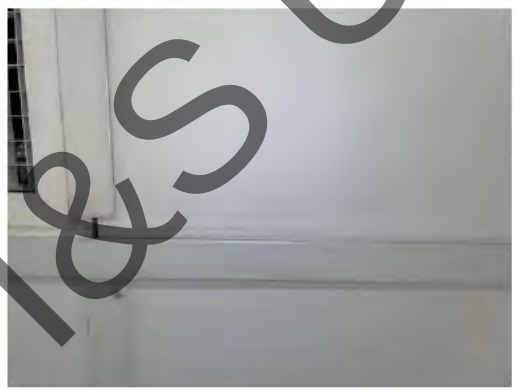
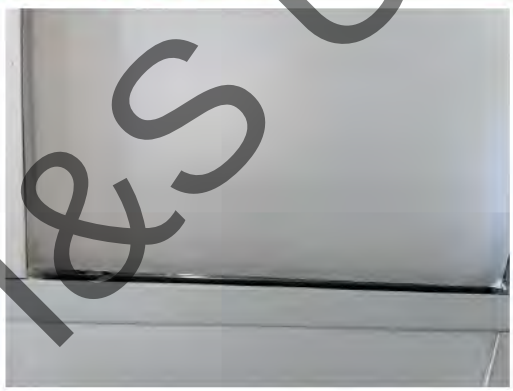
Image 35 – Contamination on Ceiling Grid Before	Image 36 – Contamination on Ceiling Grid After
	
Image 37 – Contamination on Ceiling Grid Before	**Image 38 – Contamination on Ceiling Grid After**
	
Image 39 – Contamination on Ceiling Grid Before	**Image 40 – Contamination on Ceiling Grid After**
	

Image 41 – Contamination on Ceiling Grid Before	Image 42 – Contamination on Ceiling Grid After
	
Image 43 – Contamination on Ceiling Grid Before	**Image 44 – Contamination on Ceiling Grid After**
	
Image 45 – Contamination on Ceiling Grid Before	**Image 46 – Contamination on Ceiling Grid After**
	

Image 47 – Contamination on Ceiling Grid Before	Image 48 – Contamination on Ceiling Grid After
	
Image 49 – Contamination on Ceiling Grid Before	**Image 50 – Contamination on Ceiling Grid After**
	
Image 51 – Contamination on Ceiling Grid Before	**Image 52 – Contamination on Ceiling Grid After**
	

Image 53 – Contamination on Ceiling Grid Before	Image 54 – Contamination on Ceiling Grid After
	
Image 55 – Contamination on Ceiling Grid Before	**Image 56 – Contamination on Ceiling Grid After**
	

I trust you have enjoyed utilising our specialist Mould Remediation cleaning services. If there are any queries regarding the recent services completed at your business please don't hesitate to contact the undersigned at your earliest convenience.

Kind Regards,

EHS | EFFICIENT HYGIENE SERVICES
INNOVATION | QUANTIFICATION | ORCHESTRATION

IICRC CERTIFIED FIRM

CTPI [redacted] | Technician
1300 222 347
info@ehygieneservices.com.au

Archived: Friday, 18 August 2023 18:44:49
From: Logan Central Station[SER]
Sent: Tuesday, 7 February 2023 14:34:14
To: OIC Logan Central
Cc: Staff Officer.Logan District[SER]
Subject: FW: Independent testing
Importance: High
Sensitivity: None
Attachments:
CoP letter of reply_QPUE_Mould Testing Logan Station.pdf;

Good afternoon,

For your information.

Kind regards,

Jennifer Varfis
Administration Officer
\ri-897Logan Central Police Station
\ri-897Queensland Police Service
\ri-897Email: CTPI @police.qld.gov.au
\ri-897Postal Address: 11-13 Civic Parade, Logan Central QLD 4114
\ri-897Phone: CTPI | Ext: CTP

S.73 - OUT OF SCOPE

QUEENSLAND POLICE SERVICE

COMMISSIONER'S OFFICE
200 ROMA STREET BRISBANE QLD 4000 AUSTRALIA
GPO BOX 1440 BRISBANE QLD 4001 AUSTRALIA

Email: CTPI @police.qld.gov.au

Our Ref:

Your Ref:

4 January 2023

CTPI
Industrial Manager
Queensland Police Union of Employees
217 North Quay,
Brisbane QLD 4000

Dear CTPI

I refer to your letter dated 15 December 2022 requesting approval to engage an independent mould testing expert to conduct mould air and surface testing, including HVAC and associated ducting mould surface testing at Logan Central Station.

The Queensland Police Service (QPS) has recently engaged independent workplace environmental consultants who have assessed mould test results and mould related illness complaints at stations across Queensland.

On both 7 and 24 October 2022 OCTIEF were engaged by QBuild to conduct pre remediation sampling to determine the concentration levels and potential risk to human health of surface and airborne mould present within the ceiling cavity of Logan Central Police Station. The results confirmed that the mould contamination is isolated within the ceiling cavity. Mould spores in the office space directly under the impacted ceiling cavity were recorded as lower than outdoor levels and the species detected consistent with those identified in the outdoor samples.

The offices and rooms tested throughout the building are considered to be a safe work environment and suitable for their designated use.

HVAC Hygiene works were conducted on 23 November 2022 and included cleaning, disinfecting and treating two air handling units, including the cooling coils, condensate tray, supply air fan and supply air plenum servicing the Logan Central Police Station. The ceiling is scheduled to be fogged and wiped on 7 January 2023.

Property and Facilities are currently engaging with EHS to wipe down the ceiling grid "T" bars and silver strips around the CPIU office. Once this work is finalised a clearance certificate will be requested.

Property and Facilities Management, Program Delivery Manager Mr Thomas Williams, is able to provide a copy of OCTIEF Mould Investigation report should you require.

The QPS acknowledges growing concern by workers around mould as an indoor air pollutant and encourages members to make themselves aware of the Mould Factsheet on the Health and Safety website, and where necessary raise concerns through management channels.

If you wish to undertake additional independent air and surface mould testing, I ask that you liaise with Mr Thomas Williams to facilitate this activity in line with sampling protocols. Mr Williams is contactable via email at CTPI [redacted]@police.qld.gov.au

Yours sincerely

KATARINA CARROLL APM
COMMISSIONER

0022/21716003

Queensland Police Union of Employees

217 North Quay, Brisbane, Qld 4000. Telephone (07) 3259 1900
ABN 75 781 631 327

15th December 2022

Fax: (07) 3259 1950
Email: police@qpu.asn.au

Katarina Carroll
Commissioner of Police
Queensland Police Service
200 Roma Street
Brisbane QLD 4000

Dear Commissioner:

Since 2017, Logan Central Station and the staff have been exposed to numerous episodes of severe mould growth within the Station.

The QPUE is aware that some of our members have suffered with symptoms of mould related illnesses that included headaches, stuffy nose, wheezing, red or itchy eyes or skin. It is also our understanding that there is a link with indoor exposure to mould and to upper respiratory tract symptoms in otherwise healthy people and that mould exposure can pose health risks to susceptible people especially for those with impaired immune systems.

As you may be aware, the staff at Logan Central Station understand that CTPI

This situation has caused our members to raise serious and valid concerns with the QPUE General President Ian Leavers in relation to the ongoing exposures to mould in the station environment and the effects on their health.

The QPUE South East Region Executive member and WHS team have worked collaboratively with local management and Safety & Wellbeing and I understand that previous mould testing and mould remediation has occurred a number of times. Yet, QPUE members at Logan Central still feel that Logan Central presents as an unsafe work environment and that the QPS may not be providing and maintaining a work environment without risks to health and safety (*WHS Act 2011 Section 19.3 (a) Primary Duty of Care*). There is certainly a level of distrust and QPUE members have asked their Union to act on their behalf.

At the request of the General President, the QPUE; respectfully, requests permission and seeks your approval to engage an independent mould testing expert to conduct mould air and surface testing including HVAC/ducting mould surface testing at Logan Central Station. It is our aim to provide our members with independent testing results that may alleviate their health and well-being concerns.

We appreciate your urgent response and thank you for your consideration.

Yours faithfully,

CTPI

Industrial Manager

19OCTIEF PTY LTD
ABN: 82 163 772 478
Unit 34 / 53-57 Link Drive Yatala QLD 4207
Enquiries: 1800 OCTIEF (628 433)
corporate@octief.com.au
www.octief.com.au

Date: 3/08/2022 **Job #:** J25356

MOULD INVESTIGATION

LOGAN CENTRAL POLICE HQ
11 Civic Parade, Logan Central QLD 4114

Client:	QBuild
Client Contact:	Gavin Millane
Project Reference:	J25198
Site Address:	11 Civic Parade, Logan Central QLD 4114
OCTIEF Field Consultant/s:	CTPI
Date of Investigation:	Thursday 28th July 2022

1.0 SCOPE OF WORKS

OCTIEF were engaged by QBuild to conduct a mould investigation to determine the concentration levels of airborne mould (if any) present in the police building. OCTIEF conducted the site investigation on 28th July 2022.

2.0 INSPECTION DETAILS

2.1 Areas Inspected

The mould investigation was conducted throughout the building, with airborne mould sampling undertaken in the following areas as selected by nominated staff:

- District Intel OIC
- District Intel A04/5
- CPIU Day Room
- CPIU Ceiling Cavity
- Ground Floor Day Room
- DVET
- Ground Floor Hallway
- Level 1 Hallway

2.2 Exclusions

The following are excluded from the inspection and are not covered by this investigation:

- Mould identified at a time later than the time of inspection due to weather events, physical disturbances and mechanical disturbances.
- All other areas not specified within Section 2.1 Areas Inspected.

3.0 SITE INSPECTION RESULTS / RECOMMENDATIONS

During the site inspection on 28th July 2022, it was noted that as per advice provided from QBuild, the building has undergone a HVAC system overhaul complete with the installation of UV air purification systems.

Based on the analytical results of mould airborne samples it is, it is verified that:

- Relative humidity levels monitored throughout the building were within the guideline value of <65%
- No visible mould was evident to accessible areas throughout the building
- Levels of total airborne fungal particulates in the rooms sampled were lower than outdoor levels with the species detected consistent with those identified in the outdoor sample. The areas tested throughout the building are considered to be a safe work environment and suitable for their designated use.

OCTIEF recommends that regular cleaning of the air conditioning and return air registers throughout the building is undertaken to reduce the potential suitability for mould growth.

Fieldwork by:

CTPI

HAZMAT Consultant / Project Coordinator

Reviewed by:

CTPI

Principal Environmental Scientist

4.0 DISCLAIMER

The management and staff of OCTIEF Pty Ltd taken every care in completing the information contained in this report. The interpretation of the scientific data contained in reports of this nature is often subject to professional judgement and it is possible that errors may occur.

In consequence of the often subjective nature of the scientific interpretation of data, OCTIEF Pty Ltd cannot guarantee the completeness of the information provided, and clients are advised they should not rely entirely upon this information when making commercial decisions as a result of information contained in this document.

Any opinion, statement, representation or advice given on behalf of OCTIEF Pty Ltd given in good faith and relies upon the information provided by the client and the client releases and discharges OCTIEF Pty Ltd and its servants, agents or personnel from all actions, suits claims, demands, causes of actions, costs and expenses, legal equitable under statute and otherwise and all other liabilities of any nature which the client may have; or but for this disclaimer, could or might have had against OCTIEF Pty Ltd and its servants, agents or personnel in any way related to the information provided by the client to OCTIEF Pty Ltd.

The works was conducted in accordance with relevant guidelines and approved in-house procedures in conjunction with client instructions. All care has been taken to ensure that this report closely represents the state of the site at the time of the inspection. Sub-surface conditions can change with time, and the report is based solely on data gathered at the noted time of inspection. OCTIEF will not update the report and has not taken into account events occurring after the time its inspection was conducted.

This inspection was limited to the areas inspected at the time of inspection, subject to the exclusions noted and does not allow for changes that have occurred following the time of inspection.

EFFICIENT HYGIENE SERVICES

INNOVATION | QUANTIFICATION | ORCHESTRATION

Job Completion Report

JCR ID: JCR-LCPS-N22

JCR Prepared for: Value Added Asset Management Pty Ltd

CTPI

23rd November 2022

Logan Central Police Station, 11 Civic Parade, Logan Central, QLD 4114

Efficient Hygiene Services
10/19 Expo Court,
Ashmore, QLD, 4214
ABN: 85 160 809 058

JCR Completed by: CTPI
Works Completed by: CTPI
Technician
1300 222 347
info@ehygieneservices.com.au

Efficient Hygiene Services was commissioned by CTPI from Value Added Asset Management Pty Ltd to undertake the full HVAC Hygiene works throughout the premises of the Logan Central Police Station. We would like to thank you for providing us with the opportunity to complete your required works. Please find the job completion report for the work fulfilled at the above mentioned site location. The following Job Completion Report details the below listed items:

Part 1 – Services Completed

Part 2 – Job Findings

Part 3 – Recommendations

Part 4 – Supporting Digital Images

Part 1 – Services Completed:

The HVAC Hygiene works included cleaning, disinfecting and treating 2 x AHU's, including the cooling coils, condensate tray, supply air fan and supply air plenum servicing the Logan Central Police Station.

The following Unit labels were accessed, cleaned, disinfected and treated.

- AHU 1.A
- AHU 1.B

Scope of Works with Reasonings:
Air Handling Unit Cleaning, Disinfecting and Treatment.

- The return air and supply air plenums were contact vacuumed using a brush head attachment and HEPA filtered vacuum cleaners.

(by removing all foreign air particulate by vacuuming prior to any cleaning methods, it creates a less likelihood of agitate particulate matter to become airborne during the cleaning process and prevent cross contamination.)

- The cooling coils were sprayed with AERIS Multi-Enzyme coil cleaner and allowed to sit to penetrate the fins and coils.

(the use of the AERIS multi enzyme coil cleaning detergent helps break down particulate matter into tiny water-soluble fragments to be easily washed away and extracted during the cleaning process.)

- The cooling coils were then high pressure washed with water to remove all lodged contaminants until clear running water was visible.

(regular coil cleaning using a high-pressure cleaner can remove all debris and allow for a greater surface area for air transfer on the heat exchange coils, resulting in better airflow and reduced energy consumption)

- The condensate tray was then also high pressure washed to remove all microbial growth and biofilm. Once cleaned it was then wet wiped clean to remove stubborn stains.

(removing all biofilm and bacteria in the condensate tray will allow for greater indoor air quality within the supply air plenum)

- The supply air fan was also sprayed with AERIS surface cleaner and allowed to sit to penetrate the surface.
- The fan was then high pressure washed to remove all microbial growth.

(clean supply air fans can improve the airflow of the system, reduce the risk of fan damage or imbalances, and greatly improve the indoor air quality of the indoor environment.)

- All internal surfaces of the AHU were then disinfected using AERIS ACTIVE.

(AERIS ACTIVE is a TGA approved hospital grade disinfectant that provides long lasting (7D) antimicrobial protection against bacteria on clean surfaces)

- All internal surfaces of the AHU were disinfected using AERIS bioactive surface treatment.

(AERIS bioactive surface treatment provides 12 months of antimicrobial residual protection against mould, mildew, and fungi)

- The cooling coils were treated with AERIS coil treatment.

(*AERIS bioactive coil treatment provides 12 months of antimicrobial residual protection against mould, mildew and fungi and helps to control biofilm build up in the condensate tray)*

Part 2 – Job Findings:

Efficient Hygiene Services completed the requested HVAC system cleaning works dated 23rd November 2022.

All works completed on site were in accordance with the Australian Standard 1668.2 The use of ventilation and air conditioning in buildings – Ventilation design for indoor air contaminant control and AS/NZS 3666.2 Air Handling and water systems of buildings – microbial control.

All works completed are in accordance with the 2013 NADCA Assessment, Cleaning and Restoration Best Practice Guidelines.

EHS also conduct works in accordance with the AIRAH DA/19 Manual – HVAC-R Maintenance Best Practice Guidelines.

The Work Health and Safety Act 2011 issues a mandate to building owners and managers with the responsibility to prevent a person's, injury or illness being caused by a workplace, by workplace activities or by specified high risk plant. Therefore, building managers and owners are faced with the responsibility to ensure indoor air quality is maintained in workplace tenancies.

AHU 1.A:

- Cooling Coils Air On – Moderate Levels of Dust and Debris
- Cooling Coils Air Off – Moderate Levels of Dust, Debris & Microbial Growth
- Condensate Tray – Moderate Levels of Debris & Biofilm
- Supply Air Fan – Moderate Levels of Dust, Debris, Microbial Growth & Heavy Rust/Corrosion
- Supply Air Plenum – Moderate Levels of Dust, Debris & Microbial Growth
- Return Air Plenum – Heavy levels of Dust and Debris

AHU 1.B:

- Cooling Coils Air On – Moderate Levels of Dust and Debris
- Cooling Coils Air Off – Heavy Levels of Dust, Debris & Microbial Growth
- Condensate Tray – Moderate Levels of Debris & Biofilm
- Supply Air Fan – Moderate Levels of Dust, Debris, Microbial Growth & Heavy Rust/Corrosion
- Supply Air Plenum – Moderate Levels of Dust, Debris & Microbial Growth
- Return Air Plenum – Heavy levels of Dust and Debris

Please refer to supporting digital images attached in part 4 of the report.

Part 3 – Recommendations:

During the HVAC system cleaning works, Efficient Hygiene Services discovered the below listed items which are recommended to be undertaken.

The AHU System should be accessed and thoroughly inspected at minimum once every 12 months, to ensure cleanliness levels are in accordance with the Australian Standard 1668.2 The use of ventilation and air conditioning in buildings – Ventilation design for indoor air contaminant control and AS/NZS 3666.2 Air Handling and water systems of buildings – microbial control and the NADCA ACR Best Practice Guidelines.

EHS Recommends that the fans for AHU 1.A and AHU 1.B be refurbished due to extensive amounts of rust and corrosion. The rust and corrosion has the potential (if not already) to contaminate the entire system leading to rust/paint particles entering the indoor environment that these units service.

Part 4: - Digital Supporting Images – Before and After

Image 1 – AHU 1.A Cooling Coils Air On Before	Image 2 – AHU 1.A Cooling Coils Air On After
	

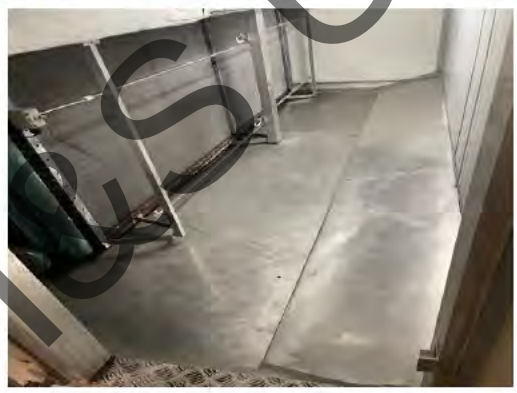
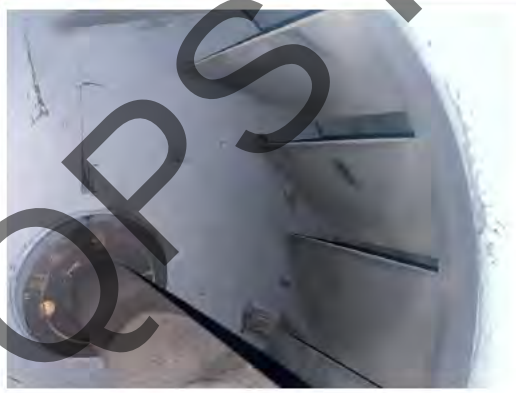
Image 3 – AHU 1.A Cooling Coils Air Off Before	Image 4 – AHU 1.A Cooling Coils Air Off After
	
Image 5 – AHU 1.A Condensate Tray Before	**Image 6 – AHU 1.A Condensate Tray After**
	
Image 7 – AHU 1.A Supply Air Fan Blades Before	**Image 8 – AHU 1.A Supply Air Fan Blades After**
	

Image 9 – AHU 1.A Supply Air Fan Blades Before	Image 10 – AHU 1.A Supply Air Fan Blades After
	
Image 11 – AHU 1.A Supply Air Barrel Fan Before	**Image 12 – AHU 1.A Supply Air Barrel Fan After**
	
Image 13 – AHU 1.A Supply Air Plenum Before	**Image 14 – AHU 1.A Supply Air Plenum After**
	

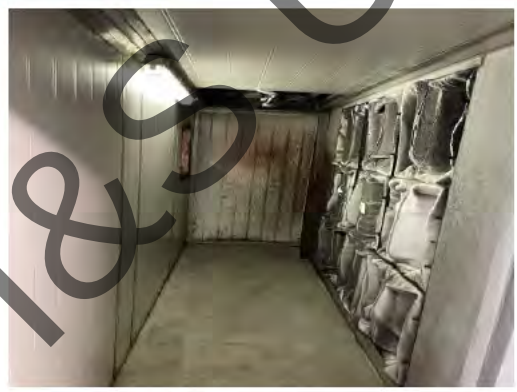
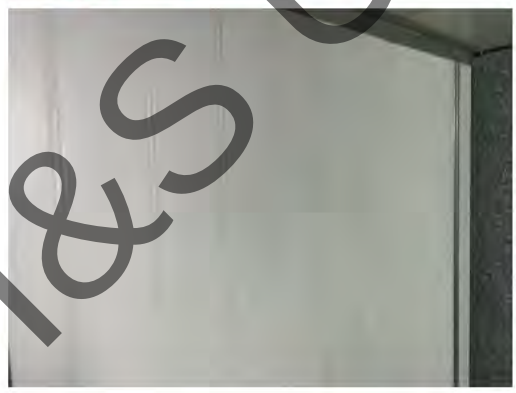
Image 15 – AHU 1.A Return Air Plenum Before	Image 16 – AHU 1.A Return Air Plenum After
	
Image 17 – AHU 1.A Return Air Plenum Before	**Image 18 – AHU 1.A Return Air Plenum After**
	
Image 19 – AHU 1.A Return Air Plenum Filters Before	**Image 20 – AHU 1.A Return Air Plenum Filters After**
	

Image 21 – AHU 1.B Cooling Coils Air On Before	Image 22 – AHU 1.B Cooling Coils Air On After
	
Image 23 – AHU 1.B Cooling Coils Air Off Before	**Image 24 – AHU 1.B Cooling Coils Air Off After**
	
Image 25 – AHU 1.B Condensate Tray Before	**Image 26 – AHU 1.B Condensate Tray After**
	

Image 27 – AHU 1.B Supply Air Fan Blades Before	Image 28 – AHU 1.B Supply Air Fan Blades After
	
Image 29 – AHU 1.B Supply Air Fan Blades Before	**Image 30 – AHU 1.B Supply Air Fan Blades After**
	
Image 31 – AHU 1.B Supply Air Barrel Fan Before	**Image 32 – AHU 1.B Supply Air Barrel Fan After**
	

Image 33 – AHU 1.B Supply Air Fan/Plenum Before	Image 34 – AHU 1.B Supply Air Fan/Plenum After
	
Image 35 – AHU 1.B Supply Air Fan/Plenum Before	**Image 36 – AHU 1.B Supply Air Fan/Plenum After**
	
Image 37 – AHU 1.B Supply Air Plenum Before	**Image 38 – AHU 1.B Supply Air Plenum After**
	

Image 39 – AHU 1.B Supply Air Plenum/Vinyl Transition Before	Image 40 – AHU 1.B Supply Air Plenum/Vinyl Transition After
	
Image 41 – AHU 1.B Plenum Refrigerated Panels Before	**Image 42 – AHU 1.B Plenum Refrigerated Panels After**
	

I trust you have enjoyed utilising our specialist HVAC cleaning services. If there are any queries regarding the recent services completed at your business please don't hesitate to contact the undersigned at your earliest convenience.

Kind Regards,

EFFICIENT HYGIENE SERVICES
INNOVATION | QUANTIFICATION | ORCHESTRATION

CTPI [redacted] | Technician
1300 222 347
info@ehygieneservices.com.au

Logan District 2022 YTD

1. Year to Date and Yearly Comparison

The table below depicts a summary of Logan District hazards and incidents reported 2018 – YTD 25/11/2022:

DESCRIPTION	2018	2019	2020	2021	2022 YTD
S.73					
Mould Related Hazards	1	1	0	5	5
S.73					

Comparison Year to Date Report to 30/09/2022

DESCRIPTION	2018	2019	2020	2021	2022 YTD
S.73					
Mould Related Hazards	1	1	0	5	5
S.73					

S.73

prensa

property › environment › safety ›

Mould Investigation

Logan Central Police Station

11 Civic Parade,
Logan Central, QLD

Queensland Police Union of Employees

February 2023

Client No: Q0039

Job No: 111723B

Executive Summary

Prensa Pty Ltd (Prensa) was engaged by CTPI of Queensland Police Union of Employees (QPUE) to undertake a mould investigation (the Assessment) at the Logan Central Police Station, 11 Civic Parade, Logan Central, QLD (the Site).

Objective

The objective of this Assessment was to determine the extent of water damage and mould contamination within client nominated areas of the Site, and provide remediation strategies, if necessary.

Scope of Works

The Assessment was limited to the areas of the Site which were understood to have been previously impacted by confirmed or suspected mould growth. As requested by the Client, the assessment included an inspection and surface sampling within internal areas of air conditioning (A/C) ductwork and air handling units (AHU's), where safe and practicable access was available.

Findings

The key results of the Assessment have been highlighted below. Please note that only findings relevant to the conclusions presented below have been displayed here. Further details are outlined within the body of this report.

Key Findings					
Location	Visible Mould Growth	Elevated Relative Humidity	Visible Water Damage	Elevated Moisture Content	Air Sampling – Abnormal Fungal Ecology
First Floor, Education Training Office (ETO)	-	✓	-	-	-
First Floor, Locker Room	-	✓	-	-	-
First Floor, Computer Training Room	-	✓	-	-	-
First Floor, CPIU Day Room	✓**	-	-	-	-
First Floor, Major and Organised Crime Squad (MOCS)	-	-	-	-	-
First Floor, Station OIC	✓**	-	-	-	-
Central Internal Staircase – "Exit One"	-	-	✓	-	-
Ground Floor, Kit Room, within Dayroom	-	-	-	-	-
Ground Floor, District Intel	-	-	-	-	-
Ground Floor, CIB Dayroom	-	-	-	-	-

- No significant findings

✓ Significant finding

** Mould spotting observed in the cushion boxes of the supply air register within the Work Area.

Conclusion

Based on Prensa's Assessment the Site is not exhibiting an abnormal airborne fungal ecology. However while the majority of operational areas did not present with visible surface mould or water damage, the results of the assessment including surface sampling concluded some localised areas, including parts of the HVAC system, are presenting with surface mould and as such require remediation work within these areas.

It is Prensa's professional opinion that the areas of the Site inspected are not considered to be an immediate mould risk issue to site personnel. It should be noted however that individual responses to mould exposure may vary depending on a number of underlying factors, including allergic sensitisation, respiratory, immuno-compromised health status and so forth.

Recommendations have been raised to address the several lingering mould issues identified at the Site. The key site specific recommendations are provided below.

Recommendations

Key Recommendations		
Location	**Feature**	**Recommendation**
Both Levels, AHU's	Throughout surfaces, within the chambers:	• At the next scheduled AHU service, perform a full 'sandwich' clean to all internal surfaces including suspected mould affected surfaces, to remove all visible sources of grime and suspect mould. This should include all of the less accessible areas as far as practicable (e.g. around dampers, behind & under supply fans etc.); • Visually assess these areas / surfaces on a frequent basis and during scheduled maintenance activities, and conduct further cleaning as required where grime / suspect mould presents.
Both levels, AHU plant rooms	All surfaces of the general plant room areas (i.e. outside of the AHU's)	• Perform a thorough 'sandwich' clean of all surfaces within the plant rooms to remove visible grime / suspect mould (incl panels, high level areas, grills/dampers, floor etc.); • Assess corroded components and upgrade as practicable (such corroded surfaces can harbour grime & microbial activity & be harder to clean).
Both Levels, Supply Air Registers	Supply Air Registers (including air supply cushion boxes)	• At the next scheduled AHU service, conduct sandwich cleaning to registers and cushion boxes where visible dust / suspect mould is observed; • Inspect & clean internals of cushion boxes as required. Where active mould growth is identified on porous material such as cushion box SMF insulation, such material should be removed & replaced; • As part of this process, conduct additional visual inspections along the internals of supply air ductwork to check for potential heavy dust loading and hidden mould growth between the AHU's & the on-floor duct outlets.

Key Recommendations		
Location	**Feature**	**Recommendation**
Level 1 central internal	Ceiling Hatch, ceilings generally	• Water damaged plasterboard and MDF materials (e.g. ceiling hatch near top of internal stairs, other affected ceiling tiles where encountered) should be removed and replaced.
Both Levels	Throughout Content items & points of water ingress	• Clean or remove any mould affected contents encountered (e.g. dispose of mould affected fabric bags); • Verify all and any roof leaks (or other leaks including from plumbing) are rectified as soon as practicable to minimise the risk of future mould amplification; • Conduct frequent inspections of all occupied spaces for new water stains and suspect surface mould growth, and remediate as required in accordance with Section 12 of this report.

This executive summary must be read in conjunction with the full report that follows.

Statement of Limitations

This document has been prepared in response to specific instructions from Queensland Police Union of Employees to whom the report has been addressed. The work has been undertaken with the usual care and thoroughness of the consulting profession. The work is based on generally accepted standards and practices of the time the work was undertaken. No other warranty, expressed or implied, is made as to the professional advice included in this report.

The report has been prepared for the use by Queensland Police Union of Employees and the use of this report by other parties may lead to misinterpretation of the issues contained in this report. To avoid misuse of this report, Prensa advises that the report should only be relied upon by Queensland Police Union of Employees and those parties expressly referred to in the introduction of the report. The report should not be separated or reproduced in part and Prensa should be retained to assist other professionals who may be affected by the issues addressed in this report to ensure the report is not misused in any way.

Prensa is not a professional quantity surveyor (QS) organisation. Any areas, volumes, tonnages or any other quantities noted in this report are indicative estimates only. The services of a professional QS organisation should be engaged if quantities are to be relied upon.

Reliance on Information Provided by Others

Prensa notes that where information has been provided by other parties in order for the works to be undertaken, Prensa cannot guarantee the accuracy or completeness of this information. Queensland Police Union of Employees therefore waives any claim against the company and agrees to indemnify Prensa for any loss, claim or liability arising from inaccuracies or omissions in information provided to Prensa by third parties. No indications were found during our investigations that information contained in this report, as provided to Prensa, is false.

Recommendations for Further Study

The industry recognised methods used in undertaking the works may dictate a staged approach to specific investigations. The findings therefore of this report may represent preliminary findings in accordance with these industry recognised methodologies. In accordance with these methodologies, recommendations contained in this report may include a need for further investigation or analytical analysis. The decision to accept these recommendations and incur additional costs in doing so will be at the sole discretion of Queensland Police Union of Employees and Prensa recognises that Queensland Police Union of Employees will consider their specific needs and the business risks involved. Prensa does not accept any liability for losses incurred as a result of Queensland Police Union of Employees not accepting the recommendations made within this report.

Investigation Findings

Prensa notes that this report includes findings from a visual inspection and testing for such parameters as humidity, temperature, moisture content and thermal imaging. The process was undertaken to characterise building materials and contents condition where impacted by the specified event and does not seek to identify and characterise building materials or contents that have been impacted by normal occupation of the site pre-event. It should be recognised that this can often be difficult to differentiate.

Findings within this report were as identified at the time of Prensa's site assessment. Given that mould is ubiquitous in the environment and moisture levels can fluctuate on a daily basis (e.g. during rain events), the condition of building materials and contents may change over time. Therefore, Prensa cannot guarantee that conditions will remain the same between the time of the assessment and issuing of this report.

Table of Contents

List of Appendices

Glossary of Terms

Abbreviation	Definition
A2LA	American Association for Laboratory Accreditation
ACGIH	American Conference of Government Industrial Hygienists
AFDs	Air Filtration Devices
AIHA	American Industrial Hygiene Association
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning
ASTM	American Society for Testing and Materials
EMPAT	Environmental Microbiology Proficiency Analytical Testing
HEPA	High Efficiency Particulate Air
HVAC	Heating, Ventilation and Air Conditioning
IICRC	Institute of Inspection Cleaning & Restoration Certification
IOM	Institute of Medicine
MC	Moisture Content
mVOC	Microbial Volatile Organic Compound
NYCDOH	New York City Department of Health
PRV	Post Remediation Verification Assessment
RH	Relative Humidity
WHO	World Health Organization
WME	Wood Moisture Equivalent

1 Introduction

Prensa Pty Ltd (Prensa) was engaged by Queensland Police Union of Employees (QPUE) to undertake a Mould Investigation (the Assessment) within nominated areas of the police station located at 11 Civic Parade, Logan Central, QLD (the Site). The Assessment was undertaken on the 10th February 2023, at the request of CTPI of QPUE. The Site was occupied at the time of the Assessment.

2 Background

The property located at the Site is a circa thirty (30) year old double-storey police station. The building has multiple rooms with a number of private and open plan office spaces and other specialised rooms including secure storage, large locker room and plant rooms. Based on information provided by the client, it is understood that that the roof of the police station has been known to leak on occasion, causing mould growth in a number of locations. While the roof has reportedly been inspected and repaired, it is not known if all water ingress points have been fully rectified.

Prensa understands a mould investigation report, undertaken by another group, already exists for the Site. However the Queensland Police Union of Employees (QPUE) has requested a second independent assessment of the Site to evaluate the extent of mould contamination and water damage (if any), and to provide advice regarding remediation of these areas, if required.

3 Objective

The objective of this Assessment was to determine the extent of water damage and mould contamination within client nominated areas, and provide a report characterising the mould risk status of the building, including recommendations for remediation of water damage and/or mould contamination, if required.

4 Scope of Works

The Assessment was limited to the client nominated areas of the Site (now referred to as the 'Work Area' hereafter). It is understood that these areas have been previously impacted by confirmed or suspected mould growth. As requested by the Client, the assessment included an inspection and surface sampling within internal areas of air conditioning (A/C) ductwork and air handling units (AHU's), where safe and practicable access was available. The investigation areas also included a number of occupied spaces (predominantly on the upper level) where suspected mould and/or water ingress had occurred. To conduct the Assessment, Prensa undertook the following:

- Hold discussions with Site representatives regarding the history of water ingress and mould growth;
- Conduct a visual inspection for evidence of water damage and visible mould growth present within the nominated areas at the Site;
- Undertake airborne total microbiological air monitoring to assess the level of airborne mould spores present within nominated areas at the Site;
- Undertake mould surface sampling to assist in evaluating surface mould contamination;
- Conduct moisture meter testing of building materials and temperature and relative humidity (%RH) testing of the internal air within nominated areas and surrounding unaffected areas; and

- Compile a report detailing the findings of Prensa's Assessment and recommendations for remediation works (if required).

5 Technical Framework

In completing the aforementioned tasks, Prensa undertook the Assessment with reference to the following guidance documents:

- New York City Department of Health (NYCDOH), Guidelines on Assessment and Remediation of Fungi in Indoor Environments (2008);
- American Industrial Hygiene Association (AIHA), *Recognition, Evaluation, and Control of Indoor Mold* (Second Edition 2020);
- American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Standard 55-2020;
- World Health Organization (WHO), Guidelines for Indoor Air Quality – Dampness and Mould (2009);
- Western Australia Department of Health (WADOH), Guidelines for Managing Mould and Dampness Related Public Health Risks in Buildings (2015) (WADOH Guidelines);
- Institute of Medicine (IOM), *Damp Indoor Spaces and Health* (2004);
- Institute of Inspection Cleaning & Restoration Certification (IICRC), *S520 Standard and Reference Guide for Professional Mould Remediation* (2015) (IICRC S520);
- Institute of Inspection Cleaning & Restoration Certification (IICRC), *S500 Standard for Professional Water Damage Restoration* (2021) (IICRC S500); and
- American Society for Testing and Materials (ASTM) International Standard Guide for Assessment of Fungal Growth in Buildings (D7338-14) (2016).

6 Methodology

6.1 Visual Inspection

6.1.1 Air Handling Units

Inspection of Air Handling Units (AHU) was undertaken of the relevant AHUs at the Site, as guided by the site personnel. The condition of the following components of the AHU was assessed during the inspection:

- Heating/cooling coils;
- Condensate drip trays;
- Fans; and
- AHU chambers and filters.

Several representative on-floor supply air registers and cushion boxes were also inspected.

6.1.2 Mould Investigation

Prensa undertook a visual inspection to assess the following, as described in the guidance documents detailed in **Section 5**:

- Source of water and/or moisture ingress;
- Visible mould growth;
- Presence of water staining to building materials;

- Presence of moisture (condensation and / or dampness) to building materials;
- Presence of dust and debris;
- Pre-existing conditions (where possible);
- Previous repairs; and
- Odours such as mould VOC odours (mVOC).

The visual inspection was limited to the nominated areas of the Site, as outlined in **Section 4**.

6.2 Moisture Assessment

Prensa used an *Extech MO290 Pinless Moisture Psychrometer* and *IR Thermometer* device / *FLIR MR277* (moisture meter) to assist in assessing moisture content within building materials throughout the Site. The moisture meter provides relative moisture readings (pinless mode) up to a depth of 19 mm below the surface and/or percentage moisture content/percentage wood moisture equivalent (%MC/%WME) using the external pin mode, depending on the characteristics of the material tested. Such devices are regularly used within the industry to broadly identify areas of concern that may justify a more extensive investigation. Representative testing was undertaken on building materials such as timber and plaster during the Assessment within affected areas, and compared to locations that were unaffected by the water ingress event on a quantitative reference scale to identify building materials which may be retaining excessive levels of moisture.

The above is consistent with Section 5.4 Moisture Meters of the IICRC S520, which states: *'Readings should be taken on materials that are considered to be at acceptable moisture content or have a known moisture content. These readings can be used as target drying goals or dry standards against which all other readings can be compared'*.

It is noted use of the moisture meter provides a representative assessment only and may not locate every possible moisture source.

6.3 Psychrometric Measurements

Relative humidity, temperature and dew point readings within the Work Area were measured using the moisture meter. Relative humidity was also measured within areas outside the Work Area (i.e. outside ambient air) as a reference. The purpose of testing for these measurements is to locate indoor areas that may have elevated humidity and contribute to elevated moisture within the building, which can potentially support mould growth.

6.4 Airborne Total Mould Sampling

Air-O-Cell™ air sampling cassettes were used in conjunction with a high volume air sampler for collecting viable and non-viable airborne mould spore samples. Air samples were collected over a 5 minute period at an airflow rate of 15 litres per minute. Results of the viable/non-viable Air-O-Cell™ cassette samples have been reported in Spores per Cubic Metre of air (Spores/m^3). Samples were analysed by SESALAB, a laboratory that is NATA accredited for "Analysis for Microorganisms" on air sampling cassettes to method ASTM D7391-17 (Accreditation Number 20403). Two (2) external reference samples were also taken on the day of sampling to provide outdoor reference data and a field blank was submitted to evaluate the validity of the results.

6.5 Tape-lift Total Mould Surface Sampling

Tape-lift Surface Sampling was used for mould surface testing. The samples were collected by applying a Zefon Bio-Tape onto a surface to directly transfer surface contamination onto the adhesive. The results are given as a mould growth rating depending on the percentage of the Tape-lift surface covered with fungal matter. A field blank was submitted to ensure the validity of the results. **Table 1** below presents the characteristics of each rating.

Table 1: Mould Growth Rating

Rating	Description
0	No fungal matter or other particles were observed.
1	1-5% of the sample surface is covered with fungal matter or other particles. Does not indicate active growth, and no significant fungal matter.
2	5-25% of the sample surface is covered with fungal matter or other particles. indicates possible contamination
3	25%-75% of the sample surface is covered with fungal matter or other particles. Indicates probable contamination
4	75%-90% of the sample surface is covered with fungal matter or other particles. Indicates probable contamination
5	>90% of the sample surface is covered with fungal matter or other particles. Indicates probable contamination

7 Adopted Guidelines

7.1 Characterisation of Water Loss

The IICRC S500 states that there are three (3) categories of water and refer to the range of contamination within the water, considering both its originating source and its quality after it contacts materials present in the work area. Time and temperature may also affect the quality of water, thereby changing its category. Prensa considers potential contamination to be the presence of undesired substances, the identity, location and quantity of which are not representative of a normal indoor environment and may produce adverse health effects, cause damage to structures and contents or adversely affect the operation or function of a building.

Please refer to **Appendix E: Water Loss Categories** of this Assessment report for further information on categorisation of water loss.

7.2 Visual Inspection

Prensa considers the visual inspection as the primary assessment tool when inspecting work areas for mould contamination. Visual inspections can be supplemented by other verification methods (i.e. moisture testing and sampling for the presence of mould), however, in most scenarios the visual inspection identifies indicators associated with abnormal mould growth and water damage without the need to conduct an extensive amount of other verification assessment methods. This approach is consistent with the various guidance documents detailed in **Section 5** of this report.

An extract from page 7 of the 'Guidelines for Managing Mould and Dampness Related Public Health Risks in Buildings' authored by the WADOH (2015) has been provided below:

'Visual inspection is the recommended method for identification of mould and/or dampness problems. However, surface and air sampling may form part of an extensive assessment or if mould/dampness is suspected but cannot be identified. As there are currently no quantitative health-based microbial exposure guidelines or thresholds, sampling is not recommended for primary health risk management'.

7.3 Psychrometric Measurements

7.3.1 Temperature

In terms of thermal comfort, ASHRAE Standards (2017) recommend that for most people, indoor air temperatures should be maintained between 20-26 °C. Warmer atmospheres within buildings can promote microbial growth, in particular when coupled with high relative humidity levels.

7.3.2 Relative Humidity

The relative humidity guideline adopted is prescribed by the WADOH Guidelines, which states, *'indoor RH% should be maintained below 65% (45-60% if possible)'*. This is based on uncontrolled and high humidity within indoor environments being a known factor in producing excessive moisture, which may lead to abnormal mould growth.

Prensa notes that in certain circumstances relative humidity may be above the adopted criteria of 65% (i.e. environments with naturally high relative humidity or an event that results in an elevated relative humidity for a short period), particularly in non-air-conditioned spaces. As such, comparison testing is also conducted outside of the property (i.e. outside ambient air) to determine whether elevated relative humidity readings correlate with unaffected areas.

7.3.3 Dew Point

Where the dew point is identified to be close to the actual measured temperature within a building, condensation is likely to be formed and may exacerbate the dampness observed. This can result in water suspended in the air condensing and depositing on surfaces. Further to this, low temperatures will restrict the evaporation rate of the moisture on the damp surfaces resulting in prolonged surface moisture which can assist in the production of mould contamination.

7.4 Airborne Mould Sampling

There is no Australian Standard for exposure to airborne mould, and the health effects associated with airborne mould are not fully understood. Internationally, there are numerous publications that provide a broad range of guidelines against which airborne mould and bacteria can be compared, with the US considered an important source of data in the field. Various US industry associations such as the AIHA and American Conference of Government Industrial Hygienists (ACGIH) provide quality and proficiency programmes available to laboratories to ensure consistency in data being analysed.

The ACGIH and WHO do not support any numerical guidelines for the interpretation of bio aerosol data from non-manufacturing environments. The ACGIH Bio aerosol Committee recommendations are to gather the best data possible and use knowledge, experience, expert opinion, logic and common sense to assist in the interpretation of results. It should also be noted that mould exists naturally in both internal and external environments. The ACGIH and WHO suggests the indoor concentrations should be within an order of magnitude of the outdoor reference samples.

The AIHA reference multiple guidelines including the ACGIH and IICRC S520 but also do not support any numerical values for airborne mould concentrations.

For the purposes of this Assessment, Prensa adopted a threshold value for acceptable concentrations of total (viable and non-viable) mould spores based on three (3) tests as follows:

1. Total mould spores in the Work Area are comparable to the average of the outdoor reference samples;*
2. That there are no or low percentages of water-indicating mould genera present, such as *Chaetomium*, *Stachybotrys*, *Trichoderma,* and *Ulocladium*, within the collected samples from the Work Area;** and
3. That there is no fundamental difference between the mould genera detected in the indoor samples and the outdoor reference samples.

*Prensa notes that the concentration of mould spores in the outdoor environment is inherently variable. In the event of high concentrations of spores being recorded in the outdoor reference samples, Prensa will adopt a more conservative acceptance criteria to assess the acceptable concentration of mould spores in the indoor environment.

**Water-indicating mould genera as described in Test 2, are well known to be predominantly associated with abnormal mould growth and water ingress issues within buildings. However, these genera may also be present in small amounts within buildings with no known water ingress or abnormal mould growth issues. As such, the presence of small amounts of water-indicating mould species may be considered acceptable, whereas abnormal amounts may be deemed unacceptable and require further investigation of the Work Area.

7.5 Tape-lift Total Mould Surface Sampling

There are no Australian guidelines for acceptable surface concentrations of mould contamination other than within the food industry. Prensa utilises the scale described in **Table 1** to evaluate if a surface is considered contaminated and requires further mould remediation. As such, Prensa conducted sampling of both reportedly affected areas and areas outside the Work Area for comparison purposes and evaluated the results with consideration given to the remaining findings of the Assessment.

8 Microbiological Contaminants

Microbial organisms are present in every environment including indoor building environments. In buildings these organisms are typically found on surfaces (carpets, ceilings, desks etc.), within building water systems as well as on airborne dust particles and aerosols. Provided there is a supply of moisture and the environmental conditions are suitable, microorganisms can multiply beyond normal levels and this can result in the following conditions:

- Infections;
- Aggravation of allergies, asthmatic responses, or systemic irritation;
- Acceleration of the deterioration of the building's structural materials or fittings;
- Reduction of the performance of ducts, filters and coils within the HVAC system; and
- In extreme cases, drain blockage.

Some common causes of excessive airborne concentrations of microbial organisms include: water ingress and flooding, contamination of carpets and floor surfaces, inadequate ventilation and cleaning of the building as well as entrainment of poor air quality into the building ventilation system.

Fungi exist as single cells (yeasts) or as multicellular structures (moulds). All fungi are heterotrophs, relying on existing organic matter as a nutrient source. Once a fungal spore germinates on a suitable substrate it will typically progress through a lifecycle of growth followed by spore production and

release. The cycle may continue indefinitely under suitable conditions or until either nutrients or moisture become limiting.

9 Findings and Results

9.1 Discussions with the Client

Based on discussions with Client, Prensa understands the following:

- Historically mould has been reported by staff to have appeared on surfaces in various parts of the station, with a malodour noted within several areas of the Site;
- The police station is estimated to be thirty (30) years old, with some rooms within the Site recently refurbished due to mould issues (for example the "Kit Room", within the "Day Room" on the ground floor, underwent refurbishment to prevent mould proliferation);
- Many office areas were reported by staff as exhibiting varying temperatures during the weekdays and weekends;
- During 2022 a number of rooms of the police station underwent a deep clean on the basis of staff concerns of suspect mould proliferation within those areas;
- In January 2023, anti-microbial fogging was used and advised by the contractor at the time as a suitable method for eradicating mould. Also, it was arranged in conjunction with other forms of cleaning (i.e. HEPA vacuuming and/or wet wiping with "Aeris" disinfectant products).The areas understood to have been the target of anti-microbial fogging were:
  - General Day Room, CTPI , and
  - District Intel Room, CTPI
- Due to recent rain events, water ingress was observed by staff working within the Child Protection Investigation Unit (CPIU) located on the first floor. Further, the water seepage was observed to the eastern side of the work area, affecting the area below. Both ceiling tiles and floor tiles were reportedly removed at the time (however extent of this work also not fully known), with air-movers used to dry out the area over a two (2) week period;
- The police station is a 24/7 operational facility and, as such, the air conditioning (A/C) systems run 24 hours per day; and
- Areas that were discussed as being of concern due to suspect mould proliferation are as follows:
  - Education Training Office, CTPI
  - Locker Room, CTPI
  - Children Protection Investigation Unit (CPIU), CTPI ,
  - Finger Print Room, CTPI
  - General Day Room, CTPI
  - Kit Room, within the Dayroom (CTPI
  - District Intel Room, CTPI and
  - CIB Dayroom, CTPI

9.2 Visual Observations

The following observations in **Table 2** below were made during Prensa's visual investigation of the Work Area at the Site, carried out on 10th February 2023:

Table 2: Visual Observations

Location	Observations
Both Levels (general)	• Numerous office and operational areas of various size were observed on both levels of the police station; **(Refer to Photo 1)** • A ducted air conditioning system was observed throughout the police station, using four (4) air handling units (AHU); and • Plasterboard walls were observed throughout the area, with carpet tile floor coverings and suspended ceiling plaster tiles in numerous areas, with set plasterboard ceilings also installed in a number of locations.
CTPI Education Training Office (ETO)	• General work area was observed to be visibly clean, with ceiling tiles and surrounding plasterboard walls noted with scuff marks and staining; **(Refer to Photo 1,2 and 3)** • A representative air supply register within the area was noted to have moderate levels of dust loading and corrosion around frame; **(Refer to Photo 2)** • No visible mould was observed within the area; and • No malodour was perceived throughout.
CTPI Locker Room	• General area was observed to be free of grime, however loose contents noted around and on top of personnel lockers; **(Refer to Photo 4)** • Dust loading was observed to shelving within and on top of personnel steel lockers; **(Refer to Photo 5)** • Several shower cubicles are installed in this area and were observed to be visibly clean with return air registers noted with minor dust loading; • Vinyl floor located to the south-east side of the area, was observed to be warped/rippled; **(Refer to Photo 6)** • No visible mould was observed within the area; and • No malodour was perceived throughout.
CTPI Computer Training Room,	• General work area was observed to be visibly clean, with ceiling tiles and surrounding plasterboard walls noted with scuff marks and some staining; **(Refer to Photo 7 and 8)** • A representative air supply register and air return register noted within the area, revealed moderate levels of dust loading; • No visible mould was observed within the area; and • No malodour was perceived throughout.

Table 2: Visual Observations	
Location	**Observations**
CTPI **Child Protection Investigation Unit (CPIU) Day Room**	• General area visually clean, with ceiling tiles observed with scratch marks; **(Refer to Photo 9)** • A representative air supply register and return air register within the work area, was noted with moderate levels of dust loading (including suspicious mould spotting within the supply register cushion box); **(Refer to Photo 10)** • No visible mould was observed within the occupied area nor within the roof space along the perimeter wall area, where water was reported to have entered previously during a heavy rainfall event; and • No malodour was perceived throughout.
CTPI **Major and Organised Crime Squad (MOCS)**	• General work area visually clean; **(Refer to Photo 11)** • Both air supply register and air refresh register within the work area was noted with lighter levels of dust loading; • No visible mould was observed within the area; and • No malodour was perceived throughout.
CTPI **Station OIC**	• The general area was observed to be visually clean, with the exception of the air supply register and surrounding ceiling tiles, observed with moderate to high levels of dust loading (including suspicious mould spotting within the supply register cushion box); and **(Refer to Photo 12)** • No malodour was perceived throughout.
CTPI **AHU Plant Room; (also refer to Section 9.7)**	• The general area was observed to be affected by low levels of grime and dust, with suspicious mould spotting on some section of pipework, joins, and connections (including on supply air dampers (AHU 1.B)); **(Refer to Photo 27 and 28)** • Visible corrosion was observed to metal walls, doors, latches, ductworks, and AHU housing; and **(Refer to Photo 25, 26 and 27)** • The fresh air intake was heavily affected by dust and debris.
Staircase, CTPI C	• The general area was observed to be visually clean, with the plasterboard walls adjacent to the staircase noted with some scuff marks; **(Refer to Photo 13)** • MDF type ceiling hatch observed to be swelling, with water staining observed to the immediately adjacent area of plasterboard ceiling (located within foyer area within the first floor, adjacent staircase and glass cabinetry). While water staining was observed on top of the ceiling above this access hatch, there was no visible signs of mould in the ceiling space in this area; **(Refer to Photo 14)** • No visible mould was observed within the occupied area; and • No malodour was perceived throughout.

Table 2: Visual Observations	
Location	**Observations**
CTPI Kit Room, within Dayroom	• Various timber shelving containing officer contents (bags etc.) was observed throughout; **(Refer to Photo 15)** • Dust loading was observed within shelves and the floor below; • An permanently installed dehumidifier was noted to be in operation; **(Refer to Photo 15)** • A musty malodour was noted within area; and • No visible mould was observed within the area
CTPI District Intel	• The general area was observed to be visually clean, with a plaster ceiling tile noted to be jutting out in the main office area; **(Refer to Photo 16)** • Air supply registers noted with moderate levels of dust loading; • A musty malodour was noted within area; and • No visible mould was observed within the area.
CTPI CIB Dayroom	• The general area was observed to be visually clean, with one (1) pot plant noted to main office area; **(Refer to Photo 17)** • Air supply registers noted with moderate levels of dust loading; • No musty malodour was noted within the area; and • No visible mould was observed within the area.
CTPI AHU Plant Room CT [redacted] (also refer to Section 9.7)	• The general area was observed to be affected by low levels of grime and dust; **(Refer to Photo 18, 19, 23 and 24)** • Visible corrosion was observed in the supply air chamber, and on the metal walls, under the fresh air intake dampers and around the internal access door frame and surrounding area. **(Refer to Photo 18, 19 and 24)**
CTPI AHU Plant Room CT [redacted] (also refer to Section 9.7)	• The general area was observed to be affected by low levels of grime and dust; • The fresh air intake grill was noted to be mostly blocked by detritus (leaf matter, feathers, etc); **(Refer to Photo 20 and 21)** • Water ingress/leak was observed coming from above, down the adjacent wall, where the return duct exits the wall; and • Supply air dampers observed with suspect mould; **(Refer to Photo 22)**
CTPI Scene of Crime (SOC) Prep Room	• General area was observed to be visually clean; • A slight malodour was noted within area; and • The room contained numerous personal items on shelving such as bags. Suspect mould spotting was observed on a single stored canvas bag, however only several bags were inspected where practicable. **(Refer to Photo 29)**

Areas and building materials that have been photographed are depicted in Appendix A: Photographs of this Assessment report.

9.3 Moisture Assessment

Moisture testing was conducted of representative building materials in several parts of the Work Area targeting locations where visible staining was present. A summary of locations tested, and moisture readings are provided in **Table 3** below.

Table 3: Moisture Assessment Results

Location	Building Material	Affected / Unaffected Area	Moisture Reading (Relative%/MC%/WME%)	Normal or Elevated
CTPI top Of Main Stairwell – Ceiling Inspection Hatch in front of Trophy Display	MDF	Affected	8.2 WME%	Normal
CTPI CPIU – Ceiling near historic water leak (North East)	Plasterboard Ceiling Panels	Affected	Average 13 WME%	Normal

Corresponding photographs have been provided in **Appendix A: Photographs.**

9.4 Psychrometric Measurements

The results from the psychrometric measurements are outlined in **Table 4** below.

Table 4: Psychrometric Measurement Results

Location	Temperature (°C)	Relative Humidity (%)	Dew Point (°C)	Normal or Elevated
External – CTPI	*24.2*	*65.1*	*17.2*	*N/A*
CTPI Education Training Office (ETO)	24.3	65.4	17.1	Border-line
CTPI Locker Room	24.3	65.4	17.2	Border-line
CTPI Computer Training Room	24.1	65.4	17.2	Border-line
CTPI Child Protection Investigation Unit (CPIU) Day Room	24.9	61.7	17.0	Normal
CT Major and Organised Crime Squad (MOCS)	24.4	64.5	17.2	Border-line
CTPI Station OIC	25.4	62.4	17.6	Normal
CTPI Kit Room, within Dayroom **Dehumidifier permanently installed*	26.1	48.1	14.3	Normal
CTPI District Intel	25.2	59.6	16.9	Normal
CTPI CIB Dayroom	24.5	59.6	16.9	Normal

9.5 Airborne Total Mould Sampling

The results and interpretation of the airborne mould sampling are outlined in **Table 5** below, and illustrated as per **Appendix F: Site Plan.**

Table 5: Airborne Mould Sample Results

Sample No.	Location	Test 1 Total Spore Count (Spores/m³)	Test 2 Water Indicating Genera Present (Y/N)	Test 3 Indoors Different to Outdoor References (Y/N)
111723B-001-001	CTPI Education Training Office (ETO)	187	No	Yes
111723B-001-002	CTPI Locker Room	907	No	Yes
111723B-001-003	CTPI Computer Training Room	427	Yes**	Yes
111723B-001-004	CTPI Child Protection Investigation Unit (CPIU) Day Room	133	No	Yes
111723B-001-005	CTPI Major and Organised Crime Squad (MOCS)	160	No	Yes
111723B-001-006	CTPI Station OIC	67	No	Yes
111723B-001-007	Staircase, Mid-Level – CTPI	467	No	Yes
111723B-001-008	CTPI Kit Room, within Dayroom	93	No	Yes
111723B-001-009	CTPI District Intel	120	No	Yes
111723B-001-010	CTPI CIB Dayroom	293	No	Yes
111723B-001-011	*FARS 1 –* CTPI	*453*	No	*NA*
111723B-001-012	*FARS 2 –* CTPI	*493*	No	*NA*
111723B-001-013	*Field Blank*	*<MDL*	*NA*	*NA*

Average concentration of external reference samples[1]: 473 spores/m³

*MDL = Lower Method Detection Limit

** Water indicating species observed to be in minor quantities, however the proportion of this species type among the total spore count is not considered indicative of an abnormal fungal ecology.

[1] Test 1 outlined in **Section 7.4** compares the average concentration of the external reference samples to the results of the internal samples in order to evaluate where elevated concentrations of airborne mould spores may exist within the Work Area.

9.6 Tape-lift Total Mould Surface Sampling

The results from the surface mould sampling are outlined in **Table 6** below.

Table 6: Surface Sampling Mould Results

Sample No.	Location	Mould Growth Rating / Category	Genera of Mould
111723B-T01-001	CTPI [redacted] Plant Room (West Side) AHU GB Supply Chamber Dampers	0-**2**	***Cladosporium Sp***
		0-1	*Aspergillus/Penicillium-Like*
111723B-T01-002	CTPI [redacted] CPIU – Supply Air Cushion Box In Front of Entry	1-**3**	***Cladosporium Sp***
		0-1	*Aspergillus/Penicillium-Like, Epicoccum sp*
111723B-T01-003	CTPI [redacted] Room – Supply Air Duct accessed through inspection hatch	0-1	*Epicoccum sp*
111723B-T01-004	CTPI [redacted] Locker Room – Supply Air Cushion Box at Left Rear (orientated from entry door)	0-1	*Aspergillus/Penicillium-Like, Cladosporium sp*
111723B-T01-005	CTPI [redacted] Station OIC – Supply Air Cushion Box	1-**3**	***Cladosporium Sp***
		0-1	*Curvularia sp, Aspergillus/Penicillium-Like*
111723B-T01-006	*Field Blank*	*0*	*No Fungal Structures Identified*
111723B-T01-007	CTPI [redacted] Kit Room – Supply Air Cushion Box	0-1	*Aspergillus/Penicillium-Like, Epicoccum sp*
111723B-T01-008	CTPI [redacted] ETO – Supply Air Cushion Box, Middle Register	1-**2**	***Cladosporium Sp***
		0-1	*Curvularia sp, Epicoccum sp*

9.7 HVAC Related Inspections

Prensa conducted a visual inspection of the AHUs located within the police station. The visual inspection was limited to four (4) AHUs within plant rooms and the respective AHU components within the ground floor and first floor of the Site.

The findings from the visual inspection of the AHUs are provided in **Table 7** below. Photographs from the visual inspections are provided in **Appendix A: Photographs.**

Table 7 - AHU Visual Inspection				
AHU ID	**AHU – 1A (Level 1)**	**AHU – 1B (Level 1)**	**AHU – GA (Ground)**	**AHU – GB (Ground)**
		Fan Chamber		
Fan	✓	✓	✓	✓
Chamber cleanliness	Generally Clean, Visible Water Staining on Ground at Rear	Grime / Rust on floor, evidence of past cleaning attempts	Minor Corrosion (Rust)	Minor Corrosion (Rust)
		Cooling Coil Chamber		
Cleanliness/ Damage	Minor Corrosion	Minor Corrosion	Visible cleaning marks on inside of door	Minor Grime
Drip Tray	Minor Corrosion	Minor Corrosion	Moderate Corrosion	Minor Corrosion
Drain	✓	✓	✓	✓
		Filters		
Cleanliness	✓	✓	✓	Debris caught in filters, including PVC pipe offcut
Fitting	✓	✓	✓	✓
		Return Air		
Dampers	✓	✓	✓	✓
Duct	N/A – Return air venting directly to plant room	N/A – Return air venting directly to plant room	N/A – Return air venting directly to plant room	N/A – Return air venting directly to plant room
Cleanliness	Heavy corrosion on walls / ceiling	Heavy corrosion on walls / ceiling	✓	✓
		Supply Air Chamber		
Dampers	Minor suspect mould	Build-up of grime / suspect mould	Minor Corrosion	Build-up of grime / suspect mould
UV System	✓	✓	✓	✓
Primary S/A Duct	✓	No Access	No Access	No Access
Cleanliness	✓	✓	Grime and condensate water on floor	Grime on floor under cooling coil

N.B. "✓" denotes "satisfactory"

10 Discussion

As reported by the Client, Prensa understands that the roof of the Logan Central Police Station has been known to leak on occasions, causing mould growth to occur on various surfaces in parts of the Station. While the roof has been subject to repair works, it is not known if all water ingress points have been rectified.

While uncontaminated rainwater would be described as IICRC Category 1, this water ingress would likely be considered as Category 2 water given its potential to pick up dust and miscellaneous contaminant en-route to the Work Area.

10.1 Visual Inspection

The visual inspection undertaken by Prensa on 10th February 2023 revealed that the general work areas where Site personnel were observed to occupy were generally clean, with no obvious mould or water damage noted. However, minor to moderate dust loading and suspect mould spotting including malodour was noted in several localised parts of the work area. Prensa's observations within the Site are described below.

10.1.1 Internal Work Areas

The Scene of Crime Preparation Room (SOC) on the ground floor at the rear of the building was observed to be generally clean, however a slight malodour and suspect mould spotting was observed on a canvas bag on a table within the area. A mild musty malodour was also observed in the kit room on the ground floor (i.e. the small storeroom accessed via the Day Room).

The "Staff Locker" room on the CTPI of the police station was observed to have loose contents and dust/sand accumulations around and on top of personnel lockers. Further, the vinyl floor located to the south-east side of the locker room was observed to be warped/rippled. Suspicious mould spotting was noted within the supply register cushion boxes located in the "Station OIC" and "CPIU Day Room" of the CTPI No malodour was observed throughout the CTPI

The ceiling hatch within the CTPI foyer area, adjacent to the staircase CTPI and glass cabinetry, was observed to be swollen, with water staining noted to the adjacent plasterboard ceiling. This is indicative of a previous water leak through the roof. However there was no visible mould growth observed in the roof space area above this access hatch at the time of the inspection.

10.1.2 Plant Rooms and HVAC

A representative number of the numerous supply and return air registers were inspected throughout the internal work areas of the Site. Some of these registers exhibited moderate to high levels of dust loading, but there were no obvious visible signs of active mould growth at these surfaces. However as noted above, suspect mould spotting was observed in several supply air register cushion boxes where the register outlet was temporarily removed to allow inspection of the cushion box above.

One large air conditioning plant room is located on CTPI housing AHU's 1A and 1B, and 2 smaller plant rooms are located on CTPI separately housing AHU's GA and GB. The general plant room spaces located within the Site were generally observed to contain low to minor levels of surface grime and dust. A moderate level of surface corrosion was observed on metal surfaces in the CTPI plant rooms, and within the "Mixing Chambers" of the First Floor AHUs (AHU1A and AHU1B). Additionally, the CTPI Plant Room, East Side (GA) was observed to have water ingress adjacent to where the fresh air intake enters the wall. The fresh air intake grill was noted to be mostly blocked by detritus (leaf matter, feathers, etc).

While the majority of the internal surfaces of all four (4) AHU's were generally visually clear of dust/grime accumulation and consistent with a recent cleaning program, there were a number of surfaces that did present with residual grime. This included the internal face of the access hatch to the cooling coil chamber of AHU GA, plus a number of less accessible locations / surfaces in all AHU's. Suspect mould was identified on the supply air dampers in AHU GB on CTPI . Suspect mould was also identified on some external surfaces of the CTPI AHU's 1A and 1B and also on and around the supply air dampers within the supply air chambers.

10.2 Airborne Total Mould Sampling

The indoor air samples taken within both levels of the Site generally recorded a comparable total mould spore count to the external "reference" samples. The airborne total mould spore counts are summarised as follows:

- First Floor; range of counts = 67 - 907 spores/m^3, average count = 313 spores/m^3;
- Ground Floor; range of counts = 93 - 467 spores/m^3, average count = 244 spores/m^3;
- External "reference" samples; average count = 473 spores/m^3.

Refer to **Appendix F: Site Plan** showing the approximate location of each air sample.

When considering mould species breakdown, the indoor samples recorded various proportions of *Aspergillus/Penicillium-Like sp.* mould genera, whereas the outdoor reference samples did not record these genera. This indicates a possible internal source of *Aspergillus/Penicillium-Like sp.* Further, water indicating species, *Ulocladium sp.*, was detected in one indoor sample (i.e. CTPI Computer Training Room") in minor quantities, however the proportion of this species type among the total spore count was low, and in the absence of any other evidence of mould issues in this room is not considered indicative of an abnormal fungal ecology.

As indicated in the American Industrial Hygiene Association (AIHA) "*Chapter 10 – Sampling Design Strategy*", in mechanically ventilated buildings with efficient and well-maintained air filtration, the fungi detected in indoor air should normally be lower but similar to those found in concurrent outdoor air samples. Both external references were found to contain similar mould species and quantity results, and the field blank sample was found to be less than the laboratory detection limit. These results indicate that the sampling methods used during the assessment were satisfactory and the validity of the results were not compromised.

As such, the total airborne mould spore concentrations recorded within the Work Areas are considered indicative of a normal airborne fungal ecology. While there were some variations in mould type when comparing indoor with outdoor, when considered in context of the overall weight of evidence, these differences are not considered to be of significance.

10.3 Tape-Lift Total Mould Surface Sampling

Surface tape-lift samples were taken within several supply register cushion boxes across both floors of the Site, the supply chamber of the Ground Floor AHU GB and within the primary supply air duct in the CTPI plant room. The samples indicated a range of results ranging from insignificant mould particulate to probable mould contamination at the point of sampling. The mould growth rating (MGR) for samples **111723B-T01-002** and **111723B-T01-005** (taken within the CTPI CPIU – Supply Air Cushion Box In Front of Entry" and 'CTPI OIC – Supply Air Cushion Box" respectively) indicates active mould growth on the sampled surfaces. This is supported by the visual observation of suspicious mould spotting noted within the respective supply register cushion boxes within both the Work Areas.

It is noted of a total of six (6) supply air duct / cushion box surface tape lift samples collected, only two (2) recorded a MGR above 2. The remaining results were considered to have insignificant or low level mould accumulation only.

Based on the airborne mould sample results, there is no evidence that these localised areas of surface mould growth are resulting in an elevated or abnormal airborne mould issue.

10.4 Psychrometric and Moisture Readings

When compared to the adopted guideline values for indoor air quality (<65%RH), for an air-conditioned office space, the relative humidity measurements taken during the Assessment at several locations were noted to be at the upper end of the recommended range. As such the HVAC system may not be adequately controlling internal RH in some areas.

Two (2) moisture readings conducted of representative building materials, Medium Density Fibreboard (MDF) and the plasterboard ceiling tiles (within the *"Top of Main Stairwell – Ceiling Inspection Hatch in front of Trophy Display" and "CPIU – Ceiling near historic water leak (North East)" respectively)* revealed moisture content levels below 16% WME/MC, which is the IICRC S520 upper range before mould growth would be expected.

11 Conclusion

Based on Prensa's visual inspection and total mould sampling results the site is not exhibiting an abnormal airborne fungal ecology. Additionally, the majority of surfaces, including accessible areas of ceiling cavities, plant rooms and various surfaces within the AHU's and internal on-floor supply air registers, did not present with visible mould growth. This included in areas of apparent previous fugitive moisture incursion. However, suspect mould spotting was identified in several cushion boxes with the corresponding surface samples indicating the presence of surface mould. Suspected surface mould was also identified in several locations with the AHU's. However there is no evidence that these localised areas of surface mould growth are resulting in an elevated or abnormal airborne mould issue.

It is Prensa's professional opinion that the areas of the Site inspected are not considered to be an immediate mould risk to site personnel. It should be noted however that individual responses to mould exposure may vary depending on a number of underlying factors, including allergic sensitisation, respiratory, immuno-compromised health status and so forth. Should concerns about health issues be raised by individuals, it is recommended that these individuals consult with an appropriate health professional.

Recommendations have been raised to address the several lingering mould issues identified at the Site. Site specific recommendations are presented in **Table 8**.

12 Recommendations

Site specific recommendations are presented in Table 8 below:

Table 8: Key Recommendations

Location	Feature	Recommendation
Both Levels, AHU's	Throughout surfaces, within the chambers:	• At the next scheduled AHU service, perform a full 'sandwich' clean to all internal surfaces including suspected mould affected surfaces, to remove all visible sources of grime and suspect mould. This should include all of the less accessible areas as far as practicable (e.g. around dampers, behind & under supply fans etc.); • Visually assess these areas / surfaces on a frequent basis and during scheduled maintenance activities, and conduct further cleaning as required where grime / suspect mould presents.
Both levels, AHU plant rooms	All surfaces of the general plant room areas (i.e. outside of the AHU's)	• Perform a thorough 'sandwich' clean of all surfaces within the plant rooms to remove visible grime / suspect mould (incl panels, high level areas, grills/dampers, floor etc.); • Assess corroded components and upgrade as practicable (such corroded surfaces can harbour grime & microbial activity & be harder to clean).
Both Levels, Supply Air Registers	Supply Air Registers (including air supply cushion boxes)	• At the next scheduled AHU service, conduct sandwich cleaning to registers and cushion boxes where visible dust / suspect mould is observed; • Inspect & clean internals of cushion boxes as required. Where active mould growth is identified on porous material such as cushion box SMF insulation, such material should be removed & replaced; • As part of this process, conduct additional visual inspections along the internals of supply air ductwork to check for potential heavy dust loading and hidden mould growth between the AHU's & the on-floor duct outlets.
CTPI central internal	Ceiling Hatch, ceilings generally	• Water damaged plasterboard and MDF materials (e.g. ceiling hatch near top of internal stairs, other affected ceiling tiles where encountered) should be removed and replaced.
Both Levels	Throughout Content items & points of water ingress	• Clean or remove any mould affected contents encountered (e.g. dispose of mould affected fabric bags); • Verify all and any roof leaks (or other leaks including from plumbing) are rectified as soon as practicable to minimise the risk of future mould amplification; • Conduct frequent inspections of all occupied spaces for new water stains and suspect surface mould growth, and remediate as required in accordance with Section 12 of this report.

The presence of visible water and mould damage has caused deterioration and may lead to weakening of the materials in the future, and also increases the likelihood of further mould growth. As such, the remaining water and mould affected materials should be appropriately remediated. The following general recommendations have therefore been made:

- The affected areas should be suitably contained from remaining unaffected areas of the property. The size of the containment should take into consideration work practices that will be undertaken within the containment and the likelihood of surrounding areas that may require additional mould remediation works;
- Fixed timber cabinetry, timber skirting and timber floor boards will have to be removed to gain access to areas where concealed visible mould growth or water damage may be present;
- Non-porous materials (e.g. ceramic floor tiles) should be cleaned using warm soapy water or detergent;
- Semi-porous materials (e.g. timber) can be cleaned and dried provided they are in otherwise sound condition. Cleaning can be accomplished using warm soapy water/detergent;
- In some cases, the surface of the timber may require sanding to remove the visible damage. If sanding is undertaken, a HEPA-filtered vacuum cleaner should be used simultaneously to limit mould spore/dust aerosolisation;
- Porous materials (e.g. plasterboard and SMF insulation) should be removed at least 150 mm beyond the visibly affected sections;
- Waste materials should be suitably bagged or wrapped within the contained work area and then wet-wiped clean before being removed from the contained work area. Waste should be handled carefully and not dropped, thrown or handled roughly whilst moving it to a disposal container or site;
- Dust and debris should be removed using HEPA-filtered vacuum cleaners;
- If any further hidden water or mould damage is identified, further remediation works would be required, as per the points above;
- Implement the use of mechanical air filtration devices within the contained areas as soon as practicable to assist in removal of air contaminants, such as mould spores and dust;
- Remaining building materials and surfaces within the affected areas should be left in a clean and dry state;
- Remediation works should be undertaken in accordance with the guidance documents outlined in **Section 5** of this report; and
- A competent hygienist should be engaged to undertake a post-remediation mould assessment following completion of the remediation works, and prior to reinstatement of building materials, to evaluate the effectiveness of the remediation works.

13 Limitations

The following limitations should be noted while interpreting this report:

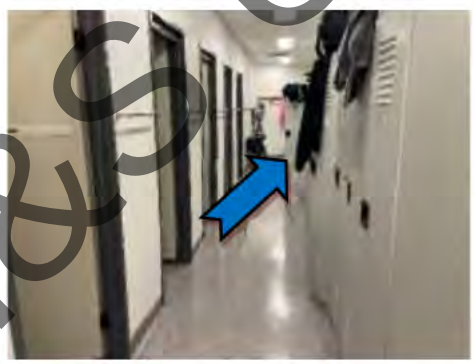
- The Assessment was limited to the areas of the Site where water ingress and/or suspect mould growth was understood to have occurred, as indicated by the client, as outlined in **Section 4** of this report. No determination on the condition of building materials in the remainder of the Site was made as part of the Assessment. It is noted the building contains multiple rooms / operational areas including high security areas, and Prensa was escorted into those rooms where mould issues had been previously reported. Not all rooms were inspected;
- Access was limited within the wall cavities and within ceiling voids throughout the Work Area without destructive access. As such, if further mould and/or water damaged materials are identified during remediation works then additional works should be undertaken in accordance with the recommendations outlined in **Section 12**;
- The surface condition of the bottom section of the baseplates could not be visually assessed. Therefore, the conditions of the bottom sections of the timber or metal baseplates were excluded from this assessment;
- Access was limited within the HVAC systems. Prensa conducted visual assessments in the AHU's and supply air duct components as far as safe and practicable access allowed. However the majority of the internals of the supply air ducts remained inaccessible; and
- While Prensa has provided a professional opinion of the Site with regard to mould exposure risk, Prensa is not a medical authority. It should be noted that individual responses to mould exposure may vary depending on a number of underlying factors. This can include allergic sensitisation, respiratory irritation, immuno-compromised health status and so forth. Should concerns about health issues be raised by individuals, it is recommended that these individuals consult with an appropriate health professional.

Appendix A: Photographs

1. CTPI Education Training Office (ETO) – General work area was observed to be visibly clean, with plasterboard walls noted with scuff marks and staining.

2. CTPI Education Training Office (ETO) – Air Supply register noted with dust loading.

3. CTPI Education Training Office (ETO) – Ceiling tile adjacent window noted with dust staining.



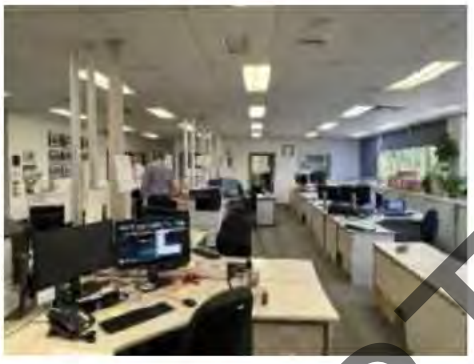
4. CTPI Locker Room – General area was observed to be free of grime, however loose contents and dust noted around and on top of personnel lockers.

5. CTPI Locker Room – Dust loading was observed to shelving within and on top of personnel steel lockers.

6. CTPI Locker Room – Vinyl floor located to the south-east side of the area, was observed to be warped/rippled.

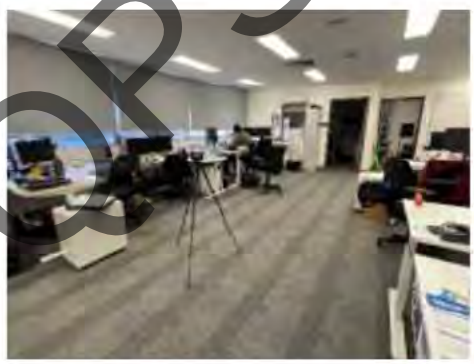
CTPI Computer Training Room – General work area was observed to be visibly clean.

8. CTPI Computer Training Room – Surrounding plasterboard walls within work area noted with scuff marks.



9. CTPI Child Protection Investigation Unit (CPIU) – General work area was observed to be visibly clean.

10. CTPI Child Protection Investigation Unit (CPIU) – Air supply register within area observed with moderate levels of dust loading. Also, suspicious mould spotting noted within supply air cushion box (Tape Lift - 111723B-T01-002).



11. CTPI Major and Organised Crime Squad (MOCS) – General work area was observed to be visibly clean.

12. CTPI Station OIC – Air supply register and adjacent ceiling tiles within area observed with moderate levels of dust loading. Also, suspicious mould spotting noted within supply air cushion box (Tape Lift - 111723B-T01-005).

13. Between CTPI Staircase CTPI – General staircase was observed to be visibly clean

14. Foyer area CTPI, CTPI CTPI - Ceiling hatch observed to be swelling, with water staining observed to the plasterboard ceiling.

15. CTPI Kit Room, CTPI – Various timber shelving containing officer contents was observed throughout. Also, a permanently installed dehumidifier was noted to be in operation.

16. CTPI District Intel – General area was observed to be visibly clean, with a plaster ceiling tile noted to be jutting out in the main office area.

17. CTPI CIB Dayroom – General area was observed to be visibly clean.

18. CTPI Plant Room – The general area was observed to be affected by low levels of grime and dust, with suspicious mould spotting on pipework, joins, and connections. Further there was visible corrosion to metal walls, doors, latches, ductworks, and AHU housing.

19. CTPI AHU Plant Room (East Side) – Visible corrosion was observed on the metal wall under the fresh air intake dampers.

20. CTPI Plant Room (West Side) – The fresh air intake grill was noted to be mostly blocked by detritus (leaf matter, feathers, etc)

21. CTPI Plant Room (West Side) – The fresh air intake grill was noted to be mostly blocked by detritus (leaf matter, feathers, etc)

22. CTPI Plant Room (West Side) – Suspect mould on supply air dampers. Surface sample 111723B-T01-001 was collected here.

23. CTPI Plant Room (East Side) – Residual grime left from past cleaning efforts.

24. CTPI AC Plant Room (East Side) – Representative Grime and Corrosion in Supply Air Chamber & condensate tray

25. CTPI Plant Room – Representative corrosion in Mixing Chamber (AHU 1.A)

26. CTPI Plant Room – Rust and Grime in Fan Chamber (AHU 1.B)

27. CTPI Plant Room – Grime and suspect mould on supply air dampers (AHU 1.B)

28. CTPI Plant Room – Supply Air Duct via inspection hatch downstream of Supply Air Chambers (AHU 1.A and AHU 1.B)

29. CTPI Scene of Crime (SOC) – Suspect g was observed on canvas bag on table.

30. CTPI Scene of Crime (SOC) – Air Supply register observed to have dust loading with adjacent plaster ceiling tile noted to be peeling.

prensa

Appendix B: Analytical Laboratory Report – Airborne Mould

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Laboratory Analytical Report

CONTACT NAME:	CTPI	**NO. OF SAMPLES:**	13	**PROJECT NAME:**	Mould Inv
COMPANY:	Prensa	**DATE COLLECTED:**	10-Feb-2023 10:30	**PROJECT NO:**	111723B
ADDRESS:	2/15 Mayneview Street	**SAMPLED BY:**	KR	**SITE ADDRESS:**	
	Milton	**DATE RECEIVED:**	14-Feb-2023		QPU Inv
	QLD 4068	**DATE ANALYSED:**	16-Feb-23		
PHONE:	CTPI	**DATE REPORTED:**	16-Feb-23	**LAB REFERENCE:**	J23-5020
		REPORT NO:	J23-5020-LR1-160223		

Method of Analysis Based on:
ASTM D7391-17e1 - Standard Test Method for Categorization and Quantification of Airborne Fungal Structures in an Inertial Impaction Sample by Optical Microscopy.

Analysis is performed according to SESALAB Procedure QMS-PR-010 Analysis of Fungi in Air Samples by Direct Microscopic Examination (DME). The slide impacted with air sample is placed on a drop of lacto cotton blue or lacto-fuchsin stain on a clean microscope slide and subsequently the deposition trace length is determined at X40 or X100 magnification followed by a scan at X100 - X200 magnification to give the analyst an overview of sample deposition and the diversity of the spores present on the slide. The slide is then analysed at X400 - X630 magnification by identifying and counting spores in 25%-100% of the sample deposition area. Spores occurring in chains are counted individually. Raw counts are converted to spores/m^3 of air based on the sample air volume supplied. Spores lacking distinguishing characteristics are reported as "Unidentified spores". Where the analyst is able to identify the group to which the spores belong but not the mould they belong to, the spores may be recorded as "Unidentified Basidiospores or Unidentified Ascospores". Spores of *Aspergillus sp.* and *Penicillium sp.* and others ie. *Acremonium sp.*, *Paecilomyces sp.*, *Scopulariopsis sp.* are difficult to distinguish and are reported as *Aspergillus/Penicillium*-Like and differing morphology noted in the comments if encountered.

The method is also used to identify, categorise and enumerate non-fungal particulates such as *Soot, *Char and *Ash where encountered. A scale of 0 to 5+ is used to rate abundance of non-fungal material (debris), with 5+ indicating the largest amount. Large amounts of debris may obscure small spores. Counts from samples with 2-4 non-fungal material may be treated as negatively biased and with 5+ may be treated as overloaded. Except for blanks, samples with no detected spores are recorded as "less than the method detection limit" (<MDL). Results are not corrected for blanks.

Samples analysed as received.

* NATA accreditation does not cover the performance of this service.

Summary Results/Interpretation or Comments (where applicable):

Please see results on page 2.

Approved Signatory:

CTPI

Occupational Hygienist

CTPI

Accredited for compliance with ISO/IEC 17025-Testing. Accreditation Number 20403

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Laboratory Analytical Report

REPORT NO: J23-5020-LR1-160223 **SITE ADDRESS:** , QPU Inv,

Other Sample ID No. - SN.	111723B-001-001			111723B-001-002			111723B-001-003			111723B-001-004			111723B-001-005			111723B-001-006			111723B-001-007		
Lab Sample ID:	J23-5020-A1			J23-5020-A2			J23-5020-A3			J23-5020-A4			J23-5020-A5			J23-5020-A6			J23-5020-A7		
Sample Description	001-001-SN34563929			001-002-SN34563943			001-003-SN34563949			001-004-SN34564078			001-005-SN34563926			001-006-SN34564279			001-007-SN34563899		
Type of sample/Expiry date	Air-O-Cell - Exp.06/23			Air-O-Cell - Exp.06/23			Air-O-Cell - Exp.06/23			Air-O-Cell - Exp.06/23			Air-O-Cell - Exp.06/23			Air-O-Cell - Exp.06/23			Air-O-Cell - Exp.06/23		
*Total Air Volume (L)	75			75			75			75			75			75			75		
Sample Area Analysed (%)	100			100			100			100			100			100			100		
Microscope Magnification	400x Oil			400x Oil			400x Oil			400x Oil			400x Oil			400x Oil			400x Oil		
Fungal spores identified	raw ct.	%	ct./m³	raw ct.	%	ct./m³	raw ct.	%	ct./m³	raw ct.	%	ct./m³	raw ct.	%	ct./m³	raw ct.	%	ct./m³	raw ct.	%	ct./m³
Alternaria sp.				2	3	27	1	3	13				1	8	13				1	3	13
Aspergillus/Penicillium-Like	4	29	53	7	10	93	8	25	107	6	60	80	3	25	40	1	20	13	2	6	27
Chaetomium sp.																					
Cladosporium sp.	8	57	107	58	85	773	14	44	187	1	10	13	8	67	107				13	37	173
Epicoccum sp.																			2	6	27
Fusarium sp.																					
Stachybotrys sp.																					
Ulocladium sp.							3	9	40												
Non-specified Ascospores	1	7	13				1	3	13										8	23	107
Non-specified Basidiospores																1	20	13			
Arthrinium sp.																					
Botrytis sp.																					
Cercospora sp.																					
Curvularia sp.							1	3	13										2	6	27
Drechslera/Bipolaris group																			1	3	13
Coprinus sp.																					
Ganoderma sp.				1	1	13				1	10	13									
Nigrospora sp.																					
Rust/Smut/Myxomyces/Periconia	1	7	13				2	6	27	1	10	13				3	60	40	6	17	80
Pithomyces sp.																					
Polythrincium sp.																					
Spegazzinia sp.																					
Stemphylium sp.																					
Torula sp.																					
Other unidentified Spores							2	6	27	1	10	13									
***Char Particulates**																					
***Ash Particulates**																					
Debris Rating (0-5+)	2+			2+			2+			2+			3+			2+			3+		
Spores/sample	14			68			32			10			12			5			35		
***TOTAL SPORES/M3**	**187**			**907**			**427**			**133**			**160**			**67**			**467**		
***MDL (SPORES/M3)**	13			13			13			13			13			13			13		

1. Legend colors Where noted, count stopped at 100 spores & calculated to sample % trace counted
2. MDL = Lower Method Detection Limit
3. raw ct. = raw spore count
4. Ct./m^3 = spore counts per cubic meter of air
5. The result(s) relate only to the sample(s) tested.
6. Uncertainty = 17% for 100% Trace Ct,19% for 33-44% Trace Ct; *Air Volume = ± 5%

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Laboratory Analytical Report

REPORT NO: J23-5020-LR1-160223 **SITE ADDRESS:** , QPU Inv,

Other Sample ID #/Lot #:	111723B-001-008			111723B-001-009			111723B-001-010			111723B-001-011			111723B-001-012			111723B-001-013		
Lab Sample ID:	J23-5020-A8			J23-5020-A9			J23-5020-A10			J23-5020-A11			J23-5020-A12			J23-5020-A13		
Sample Description	001-008-SN34563913			001-009-SN34563912			001-010-SN34564255			001-011-SN34564029			001-012-SN34563892			001-013-SN34563935		
Type of sample/Expiry date	Air-O-Cell - Exp.06/23			Air-O-Cell - Exp.06/23			Air-O-Cell - Exp.06/23			Air-O-Cell - Exp.06/23			Air-O-Cell - Exp.06/23			Air-O-Cell - Exp.06/23		
*Total Air Volume (L)	75			75			75			75			75			75		
Sample Area Analysed (%)	100			100			100			100			100			100		
Microscope Magnification	400x Oil			400x Oil			400x Oil			400x Oil			400x Oil			400x Oil		
Fungal spores identified	raw ct.	%	ct./m³	raw ct.	%	ct./m³	raw ct.	%	ct./m³	raw ct.	%	ct./m³	raw ct.	%	ct./m³	raw ct.	%	ct./m³
Alternaria sp.				2	22	27							2	5	27			
Aspergillus/Penicillium-Like	1	14	13	1	11	13	10	45	133									
Chaetomium sp.																		
Cladosporium sp.	3	43	40	3	33	40	6	27	80	5	15	67	15	41	200			
Epicoccum sp.													3	8	40			
Fusarium sp.																		
Stachybotrys sp.																		
Ulocladium sp.																		
Non-specified Ascospores							2	9	27	8	24	107	5	14	67			
Non-specified Basidiospores							1	5	13	10	29	133	3	8	40			
Arthrinium sp.																		
Botrytis sp.																		
Cercospora sp.																		
Curvularia sp.																		
Drechslera/Bipolaris group																		
Coprinus sp.																		
Ganoderma sp.																		
Nigrospora sp.																		
Rust/Smut/Myxomyces/Periconia	2	29	27				3	14	40	6	18	80	9	24	120			
Pithomyces sp.																		
Polythrincium sp.																		
Spegazzinia sp.																		
Stemphylium sp.																		
Torula sp.																		
Other unidentified Spores	1	14	13	3	33	40				5	15	67						
Fungal Hyphae				2	22	27							4	11	53			
Pollen										4	12	53						
Debris Rating (0-5+)	2+			2+			2+			2+			2+			0		
Spores/sample	7			9			22			34			37			No spores		
***TOTAL SPORES/M3**	**93**			**120**			**293**			**453**			**493**			**< MDL**		
***MDL (SPORES/M3)**	13			13			13			13			13			13		

1. Legend colors Where noted, count stopped at 100 spores & calculated to sample % trace counted
2. MDL = Lower Method Detection Limit
3. raw ct. = raw spore count
4. Ct./m^3 = spore counts per cubic meter of air
5. The result(s) relate only to the sample(s) tested.
6. Uncertainty = 17% for 100% Trace Ct,19% for 33-44% Trace Ct; *Air Volume = ± 5%

References

1. ASTM Designation: D 7391-09. Standard Test Method for Categorization and Quantification of Airborne Fungal Structures in an Inertial Impaction Sample by Optical Microscopy.

2. Illustrated Genera of Imperfect Fungi. Barnet H.L and B. Hunter Barry. Burgess Publishing Company. Edition 3. 1972. ISBN 8087-0266-1

3. Sampling and Analysis of Indoor Microorganisms. Edited by Chin S. Yang., Patricia Heinsohn. Willey & Sons, New Jersey. 2001
ISBN13: 978-0471-73093-4

4. Sampling and Identifying Allergenic Pollens and Molds. An Illustrated Identification Manual for Air Samples. Edited by E. Grant Smith. Blewstone Press. San Antonio, Texas. 2000. ISBN 0-930961-02-1

5. AIHA FAQs About Spore Trap Air Sampling for Mold for Direct Examination Mold Analysis Document. 2019

6. The Air Spora. A Manual for Catching and Identifying Airborne Biological Particles. Edited by Maureen E. Lacey and J. S West. 2006. ISBN-13 978-0-378-30252

Measurement Uncertainty

Laboratory measurement uncertainty of the analytical method is calculated monthly and upated on the report based on our internal quality control program.

According to AIHA [(5)] "Sampling and analytical error or uncertainty for spore trap samples is generally thought to be between 30 percent and 200 percent. Ideal samples with moderate spore loadings will have a sampling and analytical error closer to 30 percent, while samples with very high or very low concentrations of spores may have a sampling and analytical error closer to 200 percent. This analytical variability must be considered when comparing data from different samples".

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*Laboratory Analytical Report-Air Samples Results Dashboard

CONTACT NAME: CTPI
COMPANY: Prensa
PROJECT NO: 111723B
LAB REFERENCE: J23-5020
ANALYSED BY: CTPI

count./m³	Indoor / Outdoor Moulds						Water Indicator Moulds				Soil-Leaf-Surface Indicator Moulds								Other Moulds												
	Alternaria sp.	*Aspergillus/Penicillium -Like*	*Cladosporium sp.*	*Epicoccum sp.*	*Fusarium sp.*	**Group Total**	*Chaetomium sp.*	*Stachybotrys sp.*	*Ulocladium sp.*	**Group Total**	*Non-specified Ascospores*	*Non-specified Basidiospores*	*Arthrinium sp.*	*Botrytis sp.*	*Cercospora sp.*	*Curvularia sp.*	*Drechslera/Bipolaris group*	**Group Total**	*Coprinus sp.*	*Ganoderma sp.*	*Nigrospora sp.*	*Rust/Smut/Myxomyces/Periconia*	*Pithomyces sp.*	*Polythrincium sp.*	*Spegazzinia sp.*	*Stemphylium sp.*	*Torula sp.*	Other unidentified Spores	**Group Total**	**Fungal Hyphae**	**Pollen**	**Total count/m3**
001-001-SN34563929		53	107			**160**				**0**	13							**13**				13							**13**	**0**	**0**	**187**
001-002-SN34563943	27	93	773			**893**				**0**								**0**		13									**13**	**0**	**0**	**907**
001-003-SN34563949	13	107	187			**307**			40	**40**	13					13		**27**				27						27	**53**	**0**	**0**	**427**
001-004-SN34564078		80	13			**93**				**0**								**0**		13		13						13	**40**			**133**
001-005-SN34563926	13	40	107			**160**				**0**								**0**											**0**			**160**
001-006-SN34564279		13				**13**				**0**		13						**13**				40							**40**			**67**
001-007-SN34563899	13	27	173	27		**240**				**0**	107					27	13	**147**				80							**80**			**467**
001-008-SN34563913		13	40			**53**				**0**								**0**				27						13	**40**			**93**
001-009-SN34563912	27	13	40			**80**				**0**								**0**										40	**40**			**120**
001-010-SN34564255		133	80			**213**				**0**	27	13						**40**				40							**40**			**293**
001-011-SN34564029			67			**67**				**0**	107	133						**240**				80						67	**147**			**453**
001-012-SN34563892	27		200	40		**267**				**0**	67	40						**107**				120							**120**			**493**
001-013-SN34563935						**0**				**0**								**0**											**0**			**0**

Legend: Indoor | Outdoor | less than outdoor average | greater than outdoor average

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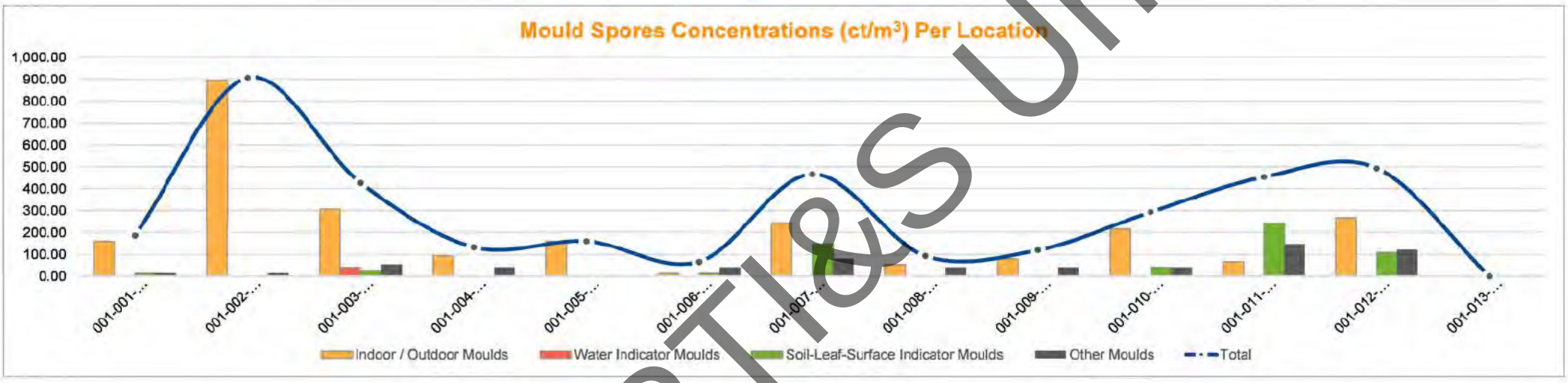
*Laboratory Analytical Report-Air Samples Results Dashboard

CONTACT NAME: CTPI
COMPANY: Prensa
PROJECT NO: 111723B
LAB REFERENCE: J23-5020
ANALYSED BY: CTPI



prensa

Appendix C: Analytical Laboratory Report – Surface Mould

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Laboratory Analytical Report

CONTACT NAME: CTPI
COMPANY: Prensa
ADDRESS: 2/15 Mayneview Street
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QLD 4068
PHONE: CTPI

NO. OF SAMPLES: 8
DATE COLLECTED: 10-Feb-2023 10:30
SAMPLED BY: KR
DATE RECEIVED: 14-Feb-2023
DATE ANALYSED: 16-Feb-2023
DATE REPORTED: 16-Feb-2023
REPORT NO: J23-5020-LR2-160223

PROJECT NAME: Mould Inv
PROJECT NO: 111723B
SITE ADDRESS:
QPU Inv

LAB REFERENCE: J23-5020

Method of Analysis Based on:
- ASTM Standard Designation: D7658 – 17 Standard Test Method for Direct Microscopy of Fungal Structures from Tape

Tape-Lift/Slide, Bulk or Swab samples received in the lab are processed in accordance with SESALAB procedure QMS-PR-011 Analysis of Fungi on Tape, Bulk, Swab by Direct Microscopic Examination. Slides are prepared directly from bulk, tape or swab samples for microscopic examination at X100, X200, X400, X600, or X1000 magnification as necessary. Identification is based on current fungal taxonomic keys and standard reference material. Moulds that do not show enough distinguishing characteristics or structures used for identification are reported as "Unidentified moulds." Where possible, moulds are identified to genus or species where possible noting fungal hyphae, fruiting bodies, or clumps and chains of spores for each fungal type detected. The method is also used to identify and categorise non-fungal particulates such as *Soot, *Char and *Ash where encountered.
Fungal particles loading and non-fungal particles loading are represented as observed in the microscope field of views examined as:

	Category 0	Category 1	Category 2	Category 3	Category 4	Category 5
Fungal/Other Particles Loading	not observed	1 - 5%	5 - 25%	25 - 75%	75 - 90%	>90%
***Interpretation of Fungal Loading**	No fungal material	No significant fungal material	Possible Contamination	Probable contamination		

Notes: * NATA accreditation does not cover the performance of this service. Samples analysed as received. The result(s) relate only to the sample(s) tested.
SESALAB actively seeks and welcomes your feedback, phone 02 9822 8406 or email lab@sesa.com.au.

Summary Results/Interpretation or Comments (where applicable):
Please see results on page 2.

Accredited for compliance with ISO/IEC 17025-Testing. Accreditation Number 20403

Approved Signatory:
CTPI
Occupational Hygienist
CTPI

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Laboratory Analytical Report

REPORT NO: J23-5020-LR2-160223 **SITE ADDRESS:** , QPU Inv,

Lab Sample ID	Your Sample ID - Serial No.	Type of Samples	Lot Number / Expiry Date	Sample Description or Location Where Collected	Moulds & other particulates identified by direct microscopy examination (DME) in rank order	Comments
J23-5020-S1	111723B-T01-001	Biotape	Exp. 05/24	T01-001-B2960530	*Cladosporium sp. (Category 0-2); Aspergillus/Penicillium-Like (Category 0-1)*	Isolated spores observed Fungal hyphae (Category 0) Dirt & Debris (Category 2-3)
J23-5020-S2	111723B-T01-002	Biotape	Exp. 05/24	T01-002-B2971902	*Cladosporium sp. (Category 1-3); Aspergillus/Penicillium-Like, Epicoccum sp. (Category 0-1)*	Mould growth (spores & hyphae) observed Fungal hyphae (Category 1-2) Dirt & Debris (Category 1-2)
J23-5020-S3	111723B-T01-003	Biotape	Exp. 05/24	T01-003-B2971813	*Epicoccum sp. (Category 0-1)*	Few isolated spores observed Fungal hyphae (Category 0) Dirt & Debris (Category 0-2)
J23-5020-S4	111723B-T01-004	Biotape	Exp. 05/24	T01-004-B2983351	*Aspergillus/Penicillium-Like, Alternaria sp., Cladosporium sp., Rust/Smut/Myxomyces/Periconia (Category 0-1)*	Few isolated spores observed Fungal hyphae (Category 0) Dirt & Debris (Category 1-2)
J23-5020-S5	111723B-T01-005	Biotape	Exp. 05/24	T01-005-B2983402	*Cladosporium sp. (Category 1-3); Curvularia sp., Aspergillus/Penicillium-Like (Category 0-1)*	Mould growth (spores & hyphae) observed Fungal hyphae (Category 0-2) Dirt & Debris (Category 1-2)

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Laboratory Analytical Report

REPORT NO: J23-5020-LR2-160223 **SITE ADDRESS:** , QPU Inv,

Lab Sample ID	Your Sample ID - Serial No.	Type of Samples	Lot Number / Expiry Date	Sample Description or Location Where Collected	Moulds identified by direct microscopy examination (DME) in rank order	Comments
J23-5020-S6	111723B-T01-006	Biotape	Exp. 05/24	T01-006-B2995805	*No fungal structures identified (Category 0)*	No mould observed Fungal hyphae (Category 0) Dirt & Debris (Category 0-1)
J23-5020-S7	111723B-T01-007	Biotape	Exp. 05/24	T01-007-B2960538	*Aspergillus/Penicillium-Like, Cladosporium sp., Epicoccum sp., Alternaria sp. (Category 0-1)*	Few isolated spores observed Fungal hyphae (Category 0) Dirt & Debris (Category 1-2)
J23-5020-S8	111723B-T01-008	Biotape	Exp. 05/24	T01-008-B2964941	*Cladosporium sp. (Category 1-2); Epicoccum sp., Curvularia sp. (Category 0-1)*	Isolated spores & hyphae observed Fungal hyphae (Category 0-1) Dirt & Debris (Category 1-2)

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References

1. ASTM Standard Designation: D7658 – 17 Standard Test Method for Direct Microscopy of Fungal Structures from Tape
2. Atlas of Clinical Fungi. Edited by De Hoog, G.S., J. Guarro, J. Gené and M.J. Figueras. CBS Fungal Biodiversity Centre, Centraalbureau voor Schimmelcultures, Utrecht, The Netherlands and Facultat de Medicina, Universitat Rovira i Virgili, Reus, Spain. 2000. ISBN 90-70351-43-9
3. Bioaerosols Handbook. Edited by Cox S. Christopher., Wathes M Christopher. Lewis Publishers. USA. 1995. ISBN 0-87371-615-9
4. Compendium of Soil Fungi. Edited by Domsch, K.H., W. Gams, and T.H. Anderson. London, UK Academic Press, Volume 1
5. CBS Laboratory Manual Series. Food and Indoor Fungi. Samson, R A., Houbraken, J., Thrane, U., Frisvad, J C., and Andersen, B. 2010. ISBN 978-90-70351-82-34.
6. CBS Laboratory Manual Series. Fungal Biodiversity. P.W. Crous, G.J.M. Verkley, J.Z. Groenewald & R.A. Samson. ISBN 978-90-70351-77-9
7. Identification of Common Aspergillus Species. Edited by Maren A. Klich. The Netherlands. Centraalbureau Voor Schimmelcultures, Utrecht. 2002. ISBN 90-70351-46-3
8. Microorganisms in Home and Indoor Work Environments. Diversity, Health Impact, Investigation and Control. Edited by Flannigan, B., Robert A. Samson and J. David Miller. London and New York. 2001. ISBN 0-415-26800-1
9. Sampling and Analysis of Indoor Microorganisms. Edited by Chin S. Yang., Patricia Heinsohn. Willey & Sons, New Jersey. 2001. ISBN13: 978-0471-73093-4
10. Sampling and Identifying Allergenic Pollens and Molds. An Illustrated Identification Manual for Air Samples. Edited by E. Grant Smith. Blewstone Press. San Antonio, Texas. 2000. ISBN 0-930961-02-1
11. New York Committe for Occupational Safety & Health (NYCOSH) - Methods for Evaluation of Indoor Mold Growth (2013) (http://nycosh.org/wp-content/uploads/2014/10/Methods-for-Evaluation-of-Indoor-Mold-Growth-rev-12-20-13.pdf accessed 26/07/2019).

Appendix D: Equipment Conformance Certificates

kenelec scientific

Sampling Pump
Calibration Certificate

Report Number: SP225547

Customer	Prensa Pty Ltd
Address	2/15 Mayneview Street
	Milton QLD 4064
Contact	CTPI
Equipment	Zefon BIO Pump Plus
Model	ZBP-205
Serial Number	09512
Calibration Date	15/12/2022
Condition as Received	*As Left*

ENVIRONMENTAL CONDITIONS	
Ambient Temp	21.1 °C
Humidity	40.7 %RH
Barometric Pressure	1001 hPA

Uncertainty of Measurement

The uncertainty of Measurement values stated in this report are at a confidence level of 95% with coverage factor of K = 2

Kenelec Scientific Pty Ltd Certifies That :-

The above described instrument has been calibrated using standards with accuracies traceable to the standards held by the National Measurement Institute of Australia.

Procedures Followed:	LABP 7
Approved Signatory:	CTPI
Date:	15/12/2022

KENELEC SCIENTIFIC PTY LTD
ABN 88 064 373 717
23 Redland Drive
Mitcham Vic 3132
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F 03 9873 0200
info@kenelec.com.au www.kenelec.com.au

kenelec scientific

Sampling Pump
Calibration Certificate

Report Number: SP225547

REFERENCE EQUIPMENT			
Instrument	**Model**	**Serial No.**	**Calibration Due**
TSI flow meter	4045	4045 1839 004	Jan-23

AS FOUND			
Reference Flow Lpm	**Indicated Flow Rate Lpm**	**Correction to be Added**	**Uncertainty of Measurement**
15.00	N/A	N/A	+/- 0.2

AS LEFT CALIBRATION			
Reference Flow Lpm	**Indicated Flow Rate Lpm**	**Correction to be Added**	**Uncertainty of Measurement**
15.00	15.01	-0.01	+/- 0.2

The flow rate marking on the Cassette was tested using a TSI Flowmeter model 4040 at 15 LPM

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prensa

Appendix E: Water Loss Categories

CATEGORY 1

Water originates from a sanitary water source and does not pose substantial risk from dermal, ingestion, or inhalation exposure. Examples of Category 1 water sources can include but are not limited to: broken water supply lines, bath or sink overflows with no contaminants, appliance malfunctions involving water-supply lines, falling rainwater, broken toilet tanks, and toilet bowls that do not contain contaminants or additives.

However, once clean water leaves the exit point, it may not remain Category 1 upon contact with other surfaces or materials. The cleanliness of Category 1 water may deteriorate to Category 2 or 3 for many reasons including but not limited to: contact with building materials, systems and contents and / or mixing with soils and other contaminants. Some factors that influence the potential organic and inorganic load in a structure include the age and history of the structure, previous water losses, general housekeeping, the type of use of the structure (e.g., nursing home, hospital, day care, warehouse, veterinary clinic), and elapsed time or elevated temperature. Malodours can be an indication that Category 1 water has deteriorated.

CATEGORY 2

Water contains significant contamination and has the potential to cause discomfort or sickness if contacted or consumed by humans. Category 2 water can contain potentially unsafe levels of microorganisms or nutrients for microorganisms, as well as other organic or inorganic matter (chemical or biological). Examples of Category 2 water sources can include, but are not limited to: discharge from dishwashers or washing machines, overflows from washing machines, overflows from toilet bowls on the room side of the trap with some urine but no faeces and seepage due to hydrostatic pressure. The cleanliness of Category 2 water can deteriorate for many reasons including but not limited to: contact with building materials, systems, and contents and / or mixing with soils and other contaminants. Some factors that influence the potential organic and inorganic load in a structure include the age and history of the structure, previous water losses, general housekeeping, and the type and use of the structure, and elapsed time or elevated temperature.

CATEGORY 3

Water is grossly contaminated and can contain pathogenic, toxigenic, or other harmful agents. Examples of Category 3 water sources can include but are not limited to: sewage, toilet backflows that originate from beyond the toilet trap regardless of visible content or colour, all forms of flooding from seawater, ground surface water, rising water from rivers or streams and other contaminated water entering or affecting the indoor environment, such as wind-driven rain from hurricanes, tropical storms, or other weather related events. Such water sources may carry silt, organic matter, pesticides, heavy metals, hazardous materials, or toxic organic substances.

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Appendix F: Site Plan

EVACUATION SIGN & DIAGRAM

Internal air samples taken

External reference air samples

LOGAN CENTRAL POLICE STATION 11-13 Civic Parade, Logan Central Qld 4114

GROUND FLOOR

CTPI

Internal air samples taken

EVACUATION SIGN & DIAGRAM

LOGAN CENTRAL POLICE STATION 11-13 Civic Parade, Logan Central Qld 4114

FIRST FLOOR 111723B - 001- 001

CTPI