

Construction on Christchurch Hospital project to re-start

After a comprehensive investigation involving a range of industry experts, works on Waipapa Tower 3 project works can safely re-start from next week, Health New Zealand Te Waipounamu Deputy Chief Executive Martin Keogh says.

After commencing in his role on 16th September 2024, he was made aware of 23 reported fume related incidents between February 2024 and September 2024 in the Waipapa building at Christchurch Hospital.

On being made aware of these incidents, he temporarily ceased construction on Tower 3 site, established an Incident Management Team (IMT) and led out a comprehensive investigation involving multiple internal and external experts with the focus being on the health, safety and wellbeing of staff and patients to ensure future works could be conducted within a safe environment.

Below are its key findings, the recommendations from those key findings, as well the findings and recommendations of an independent Incident Cause Analysis Method (ICAM) investigation.

Scope of the Incident Management Team (IMT)

The IMT review scope covered:

- a. Arranged clinical assessment and clinical management by expert Occupational Health Exposure Specialist Prof David McBride from the University of Otago of affected employees.
- b. An independent ICAM investigation into what had occurred between February 2024 and September 2024.
- c. A review of safe systems of work controls for all contractors entering the Waipapa Tower 3 project along with the entire Christchurch Hospital campus, along with ensuring “best practice” processes were in place going forward.
- d. A review of safety data sheets for all hazardous chemicals on the campus during the exposure period. A total of 122 chemicals were reviewed along with establishing “best practice” review and risk assessment processes going forward.
- e. A review of all fume/smell incidents reported in SafetyFirst between November 2023 and September 2024. The purpose of reviewing reported incidents back until November 2023 was to cover a period prior to isocyanate containing paint products being used on the Waipapa Tower 3 site to ensure we were not missing the root cause of the fume incidents.

- f. Review the need to continue using the specific isocyanate containing paint products specified in the design of the Waipapa Tower 3 construction site.
- g. Review the functionality against design specifications of the Waipapa Tower 2 & 3 Air Handling Unit.
- h. Review front door contractor management processes across the campus.
- i. A review of Christchurch Hospital emergency management critical incident escalation and response processes.
- j. A review of the Christchurch Hospital Health & Safety and Waipapa Tower 3 Project Steering Group Governance Committees and reporting processes.
- k. Development of an action plan and key mitigations to enable the safe resumption of Waipapa Tower 3 project works.

Following IMT review, the ICAM investigation findings, system and process reviews and subsequent improvements, other Christchurch campus non-fume generating capital works projects were progressively re-commissioned between October and December 2024.

Due to the risks associated with any recommencement of the required additional four months of Waipapa Tower 3 steel structure paint works required (due to the isocyanate containing paint being the most likely root cause of staff symptoms), due diligence and expert assessment of proposed mitigations were required and then adequately tested, to ensure a safe environment for both patients and staff before a recommendation could be made to recommence works.

IMT Key Findings

- a. 121 staff came forward claiming they felt they had been exposed to fumes associated with the reported incidents and experienced some level of side effects.
- b. 61 staff were assessed by an independent Occupational Physician and deemed to have confirmed symptoms consistent with exposure to isocyanate containing paint product fumes ranging in severity from minor skin irritations to severe reactions such as anaphylaxis.
- c. 11 staff required subsequent subspecialist follow-up for their symptoms including 8 requiring respiratory specialist assessment and 3 pregnant women had additional precautionary ultrasound scans.
- f. 7 staff have been deemed by the independent Occupational Physician are likely to now have a life-time hypersensitive risk to intumescent paint product

exposures and may require redeployment while the remaining 4 months of painting works are completed.

- g. 43 staff have submitted ACC claims.
- h. The reported exposures were limited to one air handler (number 66) which circulates air from the podium to ground floor main radiology, with a significant number of those reports in and around corridor G540 in the ultrasonography workspace area.
- j. No patients were identified as having exposure symptoms or side effects which correspond to the timeline of reported fume exposure incidents.
- k. Review of all reported fume/smell incidents between November 2023 and February 2024 (prior to isocyanate containing paints being used on the Tower 3 project site) did not determine any other potential root causes for these reported incidents and staff side effects.
- l. Without being able to categorically determine the root cause of the exposures, all available evidence and independent expert opinion points to isocyanate containing paint being sprayed on the Tower 3 steel structure as the root cause.
- m. There was a systematic failure of good Health & Safety governance processes being in place. This included:
- n. Inconsistent compliance with best practice front door contractor management controls and safety data sheet reporting and risk management assessment.
- o. Lack of clarity around key responsibilities, accountabilities and co-ordination functions of incident management and mitigations put in place.
- p. Inconsistent reporting and monitoring of incident data at Hospital, District, Regional and National levels.

IMT Recommendations:

- a. As part of Health New Zealand's duty of care responsibilities, establish an annual health monitoring programme for all identified staff (currently 89 staff) for the lifetime they are employed with Health New Zealand, depending on their exposure severity, symptoms and on-going exposure risks. This will require the engagement of a suitably qualified Occupational Physician as part of the health monitoring team – **established**
- b. Remove the use of isocyanate containing paint products on the Tower 3 project site by sourcing an alternate product. An alternate product has been identified in

collaboration with Naylor Love, the engaged Waipapa Tower 3 Project construction company– **complete**.

- c. Ensure best practice and an updated policy is in place for front door contractor management controls on the Christchurch campus site including processes around review and risk assessment processes of all chemical product safety data sheets – **complete**
- d. Clarification the responsible officer (SR) for all incident reviews on the Christchurch campus (regardless of location) is the site General Manager – **complete**
- e. Refine emergency management/critical incident escalation system and process and ensure shared understanding of role responsibilities across the site - **complete**
- f. Refine Christchurch Hospital Occupational Health & Wellbeing Governance Committees and the Waipapa Tower 3 Project Steering Committee terms of reference, membership, meeting frequency and reporting for the site and the Tower 3 Project – **complete**
- g. Confirmation of the required FTE and reporting lines for H&S and IIG staffing for the Region, District and Hospital – **outstanding**
- h. Incident management and outcomes are reported through both the local site Occupational Health & Wellbeing Committee and a major Project Steering Committee – **process in place**
- i. A Health New Zealand Health & Safety employee is added to the membership of the Tower 3 Project Steering Committees going forward. This role will provide a degree of independence to health and safety matters outside the project membership - **complete**
- k. The independent ICAM reviewer has also made 12 recommendations which the IMT fully endorse - see ICAM recommendations below The IMT recommend adding the following actions to the listed ICAM recommendations – **in progress**
- l. Recommendation 4: Assessment of Materials (incl. hazardous chemicals)
- m. Addit: The responsible officer for co-ordinating the management and review of any incident occurring on a Health New Zealand site is the site Operations lead, regardless of if the incident occurs on a major project site.
- n. Recommendation 5: Formal Steering groups or committees
- p. Addit: A Health New Zealand Health & Safety employee is always a member of major projects Project Steering Committees going forward. This role will provide

a degree of independence to health and safety matters outside the project membership. Appropriate FTE allocation should be incorporated into project business cases at the outset of the project. The responsible officer for co-ordinating the management and review of any incident occurring on a Health New Zealand site is the site Operations lead, regardless of if the incident occurs on a major project site. All learnings and recommendations from both IMT and the ICAM review have implications for all Health New Zealand's sites and projects which should be developed by the Health and Safety team and overseen by the National Health, Safety and Wellbeing Governance Group, with any management response to the ICAM Findings and action plan disclosed to WorkSafe- **in progress**

ICAM Findings & Recommendations

Key findings by the independent ICAM review also point clearly to failures of effective Health & Safety governance along with other key contributors.

The ICAM key findings are summarised below, together with classification as to whether they are localised issues which have been resolved for Tower 3 Waipapa project or wider issues to be addressed at a national governance led by the National Health and Safety Committee as a separate workstream, allocate remediation actions, set due dates, and report to WorkSafe.

#	Key Finding	Local or Nationwide Issue	Health NZ Action Plan/Response
1	Planning missed key impacts	Local and National	Local: Resolved.
	Of the original planning documents and risk registers reviewed, there was an absence of hazardous chemicals, fumes and ventilation control considerations and impacts to the existing campus. Interviewees noted concern regarding impact planning, governance requirements and risk considerations.		Project Team, in collaboration with Naylor Love, has revised risk registers and hazardous chemicals, fumes and ventilation controls based on changed in painting product and the mitigations which have been tested as part of this

			comprehensive review.
			National:
			To be undertaken by the Health and Safety team.
2	<p>Persistence to proceed with project works.</p> <p>There were multiple recounts and evidence in emails to show that the project objectives were prioritised and assumed decision-making was made by roles in the absence of formal campus governance structure.</p>	Local and National	<p>Local: Resolved.</p> <p>Project Team leads aware of ICAM report and improved governance, clarification of responsible officer, committee membership, escalation processes and reporting are now in place as described in this report.</p> <p>National:</p> <p>To be undertaken by the Health and Safety team.</p>
3	<p>Control design and operating effectiveness.</p> <p>There was no evidence identified that the design or operating effectiveness of controls was appropriately tested. Instead, a test-and-learn approach was taken by progressively increasing controls as more incidents occurred, and there was an opportunity to leverage in-house H&S expertise to provide an</p>	Local	Resolved as described in this report.

	independent perspective on control effectiveness.		
4	<p>Organisational restructure impacts.</p> <p>A number of impacts were observed that were attributed to the uncertainty of restructures, hiring freezes and changing of roles across both Health & Safety and at more senior levels.</p>	National	<p>Local: Outstanding.</p> <p>H&S & IIG staff resourcing and reporting lines remains on hold.</p> <p>National:</p> <p>To be undertaken by the Health and Safety team.</p>
5	<p>Governance & decision making.</p> <p>Throughout the period of the timeline, interviewees commented it was not always clear who a governing authority or decision maker was at given times or in given situations.</p>	Local and National	<p>Local: Linked to Key Finding 4</p> <p>National:</p> <p>To be undertaken by the Health and Safety team.</p>
6	<p>Risk Management.</p> <p>There was no evidence of risk management in practice across emails or meetings, including severity evaluation, appropriate escalation or appetite and tolerance management.</p>	Local and National	<p>Local: Resolved, as described in this report.</p> <p>National:</p> <p>To be undertaken by the Health and Safety team.</p>
7	<p>Communicating in bubbles and silos.</p> <p>There were clear silos of engagement across different teams, with information not getting to the right places at the right times.</p>	Local and National	<p>Local: Resolved, as described in this report.</p> <p>National:</p> <p>To be undertaken by the Health and Safety team.</p>

8	<p>Contractor management.</p> <p>It was unclear if there was consistency in contractor management. There was evidence to suggest causation of exposure events due to contractor competency and capability.</p>	Local and National	<p>Local: Resolved, as described in this report.</p> <p>National:</p> <p>To be undertaken by the Health and Safety team.</p>
9	<p>Incident management & reporting consistency.</p> <p>The incident system had limited accessibility, resulting in delayed notifications of reporting to critical stakeholders. Management of incidents was often done “off-system” via email, so incidents lacked critical information and feedback loops. With limited fields in the current configuration/solution, it meant there was limited thematic reporting, with no severity or impact rating to assist guide escalation. Also, incidents on the same day were combined together and treated as a single event when it should have increased the urgency and impact.</p>	National	To be undertaken by the Health and Safety team.
1. 10	<p>Use of hazardous chemicals.</p> <p>Interviews showed a concern as to why the chemicals used were selected, and what the benefits were in doing so. SDS were shared in part, and S&S noted inadequacy of SDS to identify potential health impacts.</p>	Local and National	<p>Local: Resolved, as described in this report.</p> <p>National: To be undertaken by the Health and Safety team.</p>

Recommendation to recommence Waipapa Tower 3 works:

Following the comprehensive investigation completed by IMT in collaboration with industry experts, along with system and process improvements already implemented and key mitigations developed and tested, the IMT Chair, National Manager for Health and Safety, and IMT members are now in a position to recommend Waipapa Tower 3 project works can safely recommence following appropriate staff and broader stakeholder communication.

Industry experts who have contributed and independently overseen the mitigation testing processes included:

ChemSafety

Contractor engaged for independent air quality monitoring.

Safe and Sound

Contractor engaged for independent assessment of mitigations/controls in place.

Professor David McBride (Expert Occupational Physician)

Key improvements and mitigations in place to be able to make a recommendation to recommence works include:

- a. Best practice front door contractor management systems are now in place at Christchurch Hospital.
- b. Stronger Health & Safety Governance Committee arrangements are in place.
- c. Refined incident management processes are in place with refresher education completed with key staff (including the Radiology staff group).
- d. The suspected root cause isocyanate containing paint products (Resene Uracryl 400 Series and Altex Carboquick 200) have been replaced by Altex Carboguard 635. This cross-linking epoxy coating has no HDI content, and its VOC release is rapid so has lower lingering vapour impact than the previous product.
- e. Mitigation controls have been implemented and tested as effective by independent experts. These mitigations include:
- f. Relocating the affected air handling system vent position a further 60 metres west from its original position, removing it from being located within a “pocket” of surrounding buildings with restricted airflows.
- g. Installation of carbon filters to these air handling unit vents minimising particle ingress.

- h. Sealing of all identified at risk ingress points throughout the building, regardless of what levels of the building painting will be occurring.
- i. Installation of chemical monitoring equipment within the affected air handling units, enabling early detection of at-risk chemicals within the system which will automatically shut down the air handling system before any fumes reach staff/patient areas.
- j. Periodic air testing within the Radiology Department while Tower 3 works are under way, as a redundant control to ensure all other control measures have remained effective.

The IMT, including the National Health and Safety Manager, has considered all the findings of this work and agree it is safe to re-start works on Tower 3 from the week commencing 14 April 2025.

Health New Zealand sincerely apologises to those employees who have been harmed as a result of these incidents.