



CASE STUDY

ENVIRONMENTAL HEALTH AND SAFETY

Odour Investigation, Indoor Air Quality Assessment, and UST Removal

OVERVIEW

CM3 Environmental Inc. was retained to investigate persistent complaints of foul odours reported by building occupants at a multi-use municipal facility. What began as an indoor air quality (IAQ) and odour investigation evolved into a full-scale environmental remediation project, including the discovery and removal of a previously unknown underground storage tank (UST) located beneath the building.



KEY CHALLENGES

Odour investigations present a unique set of challenges due to the subjective nature of smell, fluctuating intensity, and the potential for multiple or hidden sources. Odours may not be constant, making them difficult to track, and often originate from inaccessible areas like crawlspaces or wall cavities. Complicating matters further, there are frequently no visual indicators, requiring specialized air sampling and investigative techniques. In some cases, the true source may be undocumented or unexpected – such as a buried fuel tank – causing the scope of work to evolve significantly. Clear communication and careful management of occupant expectations are essential, especially when health concerns or environmental liabilities arise during the process.



OUR APPROACH

CM3 began with a systematic IAQ investigation that included a visual inspection, IAQ sampling, and interview with building occupants and operators.

The preliminary investigation identified elevated concentrations of volatile organic compounds (VOCs) in the crawlspace, with several occupants specifically describing the odour as resembling diesel fuel. Though VOC levels in occupied spaces remained within acceptable limits, concentrations were noted to rise throughout the day, suggesting environmental infiltration from an unidentified source.

Given the nature of the odour and VOC profiles, CM3 recommended further investigation. This led to the identification of a previously undocumented steel underground storage tank (UST), located in a vault below the custodial supply room near the building's boiler room. Approximately 3,700 litres of diesel fuel were recovered from the tank, which was found to be heavily corroded with multiple perforations.

Working in coordination with a sub-contracted petroleum remediation contractor, CM3 supervised the full removal of the UST. Key activities included:

- Removal of the concrete vault and contaminated soil (10.9 tonnes)
- Collection and laboratory analysis of soil samples for BTEX and PHCs (F1-F4)
- Installation of a passive vapour mitigation system to prevent future odour migration
- Restoration of the flooring system
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RECOMMENDATIONS

The removal of the UST and impacted materials effectively addressed the root cause of the odour within the building, as well as addressing a significant environmental risk. CM3 concluded that the degraded condition of the UST, combined with vapour migration into the crawlspace, was the primary source of the persistent odour issues.

This project highlights CM3's ability to adaptively manage evolving scopes, progressing from an indoor air quality complaint to the successful remediation of a buried fuel storage hazard. By combining building science, environmental engineering, and responsive project management, CM3 delivered a lasting solution that restored comfort, safety, and compliance for the facility and its occupants.

Safeguard your building, protect its occupants, and ensure long-term peace of mind with CM3 as your environmental consultant.

From Indoor Air Quality Assessments to complete remediation projects, you can trust our team of experts to conduct a thorough investigation to determine the best plan of action.

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