



FIRE
EMERGENCY

NEW ZEALAND

Feederlines

Lessons identified from the incident ground

Confined Space Rescues and Firefighting

Operational Assurance Case Study

Overview

Confined spaces come in all shapes and sizes. When we perform rescues or firefighting in these places there are many factors to consider.

There have been serious near-miss events in confined spaces during FENZ operations while in ships holds, working around conveyor belts and other machinery, silos, and tanks. Our luck won't last forever, we must be aware of the dangers and use all available resources to mitigate them.

Safety of responders is our priority – if we become victims, we add complexity and stress to what is already a dynamic situation. Safety of patients comes after a dynamic risk assessment and clearly communicated incident action plan.

This event was the subject of a Level 2 ICAM Investigation and Operational Review which acknowledged the sound tactical decisions of the OIC and crew when faced with a time critical rescue and minimal resources. It shows how things can change quickly as the situation rapidly deteriorates. The crew involved performed above and beyond and 9(2)(a)

There is no criticism here, we thank them for the opportunity to learn from this event and acknowledge the challenges they faced in extremely stressful working conditions.

The Event

The crew were turned out as a one pump response to a medical incident – 9(2)(a) Kitted and prepared for a medical, what they found on arrival required a rapid re-assessment and snap rescues in challenging circumstances.

The incident was at an industrial premises. They found a 3000-litre chemical mixing tank with a 600mm diameter top entry hatch, up on a tank stand with limited access. (Fig1) 9(2)(a)

The tank had held chemicals to make paint brush cleaner and was being cleaned. The interior of the tank had a central mixing arm which reduced the internal space to 3 cubic meters. 9(2)(a)

The OIC (SSO) made a Priority Message

to Comcen, gave a Sitrep and upgraded the response, making pumps two.

He then undertook a rapid size up, gathering information from his own observations (no HAZCHEM notices were visible at this entrance to the business) and from the 9(2)(a)

Based on the limited information at hand, the OIC formed a plan to undertake a snap rescue, and whilst he was very aware of the high-risk factors involved, 9(2)(a)



Fig1 – 9(2)(a) in right hand (blue) tank in the pair, a portable ladder/platform provides access

The second appliance arrived in support, and firefighters donned BA and climbed up to the hatch on top of the tank. Due to the restricted working space only Firefighter 'A' entered the tank and utilised the working at heights harness from the appliance 9(2)(a)

Firefighter 'B' has then entered the tank to help Firefighter 'A' 9(2)(a)

9(2)(a)

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9(2)(a)

He believes they have time to complete the rescue within the safety margin of his air supply.

9(2)(a)

Observations, Insights and Lessons Identified

There are some great opportunities to learn from this incident.

1. Turnout information can be very different to the scenario you arrive to – be prepared to rapidly reassess and reset on arrival.
2. The OIC and crews involved undertook a Dynamic Risk Assessment (DRA) and used the Safe Person Concept (SPC) in their decision to affect a snap rescue. They assessed the urgency and the opportunity to save saveable lives.
3. There was a missed opportunity to use the appliance MultiRae Gas Detector – it was discussed, but due to concerns it wouldn't read the type of chemicals present and the alarm noise in a confined space it was discounted. As was calling for a PID (Photoionisation Detector) due to the time it would take to arrive on the incident ground.
4. Note - Personal Gas Monitors, where issued, should be worn for every incident type no matter what it is or what PPE is worn. Also see The National Notice <https://portal.fireandemergency.nz/documents/multirae-gas-detector-quick-guide/>

5. The decision to use the working at heights harness 9(2)(a) was a great use of resources available and the right choice in the situation.

6. The crew had considered BA air management in their DRA and had positioned a spare BA set at the base of the gantry in case it was needed. Unfortunately, events overtook them. 9(2)(a) He applied the SPC to his decision due to the time critical nature of the situation.

9(2)(a)

Refer Pages 36 – 42

<https://portal.fireandemergency.nz/documents/e3-2-rg-respiratory-protection-equipment-reference-guide/>

7. Due to the time critical nature of the rescues and the confined working space, crew rotation was not done. 9(2)(a) and should be a key learning point. Air consumption rates in this type of situation would be significantly increased and effective working time reduced to minutes.
8. Further information can be found here [Planning entry and working safely in a confined space | WorkSafe](#)
9. Entries were made into Safe@Work to record the safety events and near-misses 9(2)(a)

Next Steps

Discuss this FeederLines with your crew – how would you approach a similar incident with the resources you have available on your appliance?

Build confined spaces, air management, gas detection and Mayday procedures into your drill schedule taking note of the challenges faced by the crew in this incident.

Consider potential hazards and risks and what you would do to mitigate these.

If you have knowledge gaps or questions, discuss these with your OIC or Region Trainer.