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## Risk Element

- Asphyxiation;
- Toxic Effect;
- Oil Leakage/Spilling/Slipping;
- Fire;
- Refrigerant Leakage;
- Explosive Environment;
- Refrigerant Burns.

## Precautions to Eliminate/Reduce Risk

- Ensure high speed extraction fan(s) are running;
- Ensure that second engineer is in attendance (safety man) prior to entry into the affected area;
- Wear correct protective personal equipment, use goggles, gloves and a respirator prior to entry into the affected area;
- Trained and qualified personnel only;
- No smoking heat source or naked flames in the building;
- Ammonia ppm & TWA level limitations on entry into affected areas.

## Action in an Emergency

- Evacuate the area immediately;
- Call the emergency services.

## Safe Working Method

- Make sure that your attendance on site is known to site security and/or Client duty manager & consult the site Ammonia Emergency procedures Manual;
- Check operation of Emergency Shower if safe to do so, gain access to the refrigeration switch room and confirm high speed extraction fan(s) are running, if not switch on;
- Interrogate the ammonia leak detection panel for current ammonia ppm levels;
- Identify which sensor card has triggered the alarm;
- If the levels are decreasing, allow the high speed fans to continue dispersing the ammonia to atmosphere. If rising continue to monitor Do not enter the affected area;
- Confirm arrival of second qualified engineer to site before proceeding further;
- Consult emergency shut off valve operation in emergency procedures manual and also view drawings in order to confirm position of isolation valves;
- When the ammonia ppm levels are at/below 700ppm, both engineers begin preparations to enter the affected area by checking all PPE equipment such as respirator and filters, chemical suit and gloves;

**Engineer 1:** to enter affected area to

- Attempt to identify leak;
- Carry out valve isolation procedure on liquid vessels as per site written instructions in Ammonia Emergency Procedures Manual.

**Engineer 2:** to act as safety only, keeping a safe distance, whilst maintaining vision of engineer carrying out above procedures. **MAXIMUM** duration 15 minutes exposure per hour.

- Respirator filter **MUST** be changed on each separate entry into the affected area and at a **MAXIMUM** of 15 minutes duration;
- When valve isolation procedures have been completed continue running high speed extraction fan(s) until concentrations return to normal;
- If concentration levels continue above safe access level but below level 2 for a period of approximately 1 hour contact supervisor/manager to advise of situation and await further instructions.