

# **City of Coquitlam**

## **Anhydrous Ammonia Exposure Control Plan**

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# Anhydrous Ammonia Exposure Control Plan

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**1.0 DEFINITIONS**

<b>Anhydrous Ammonia</b>	Ammonia gas that has been compressed into a pure liquefied form for use in refrigeration systems.
<b>Cartridge</b>	A filter used in conjunction with a full face respirator that can be used by workers involved in ammonia plant maintenance or entry when ammonia concentration is greater than 0ppm and less than 150ppm.
<b>Controlled Leak</b>	A release of gas which occurs while maintenance work is being done where the source of the release is immediately known and can be quickly remedied or corrected.
<b>IDLH</b>	Immediately Dangerous to Life and Health.
<b>NH<sub>3</sub></b>	The chemical formula for ammonia.
<b>PPM</b>	Parts Per Million.
<b>PPE</b>	Personal Protective Equipment (boots, gloves, respirator, glasses, etc.)
<b>Qualified Personnel</b>	Personnel knowledgeable of the work, the hazards involved and the means to control the hazards by reason of education, training, experience or a combination thereof.
<b>Uncontrolled Leak</b>	A release of gas where the immediate cause of the leak is unknown, or when maintenance work is being done a release of gas occurs of a nature that cannot be quickly remedied, corrected, or controlled.
<b>WHMIS</b>	Workplace Hazardous Materials Information System.

## 2.0 SCOPE

This Ammonia program forms part of the City of Coquitlam's Health and Safety Program and complies with the requirements of WorkSafeBC and the Occupational Health and Safety Regulations (OHSR). This program is specifically designed to be used at the Poirier Sports & Leisure Complex.

The purpose of this Program is to satisfy the OHSR regarding toxic process gasses (Sections 6.116 – 6.132) and also satisfy the requirements of an exposure control plan detailed in section 5.54 of the OHSR. Compliance with these regulations will enable The City of Coquitlam to protect employees from the potential hazards of working with or around anhydrous ammonia.

## 3.0 HEALTH AND SAFETY STATEMENT AND PURPOSE

The City of Coquitlam is committed to providing a healthy and safe working environment for all of its employees. To achieve this goal, the City demonstrates a strong commitment to safety by making it a priority in all of the City's daily operations.

The success of the City's Health and Safety Program is based on the equal commitment of management and employees. This can be accomplished through awareness, leadership, cooperation and participation. To this end, the City strongly supports the Joint Health and Safety Committee and invites input from all employees regarding workplace safety.

## 4.0 AMMONIA PROPERTIES / HAZARDS

### 4.1 AMMONIA – WHAT IS IT?

Ammonia is a colorless gas made up of Hydrogen and Nitrogen ions ( $\text{NH}_3$ ). It can easily be turned into a liquid through a cooling process or when placed under pressure.

Several characteristics of ammonia include:

- Extremely reactive with strong oxidizers such as chlorine, bromine, iodine, calcium, gold, mercury, silver and hypochlorite bleach. The mixture would be explosive in nature.
- Very irritating to the eyes, nose and other parts of the respiratory tract which makes it easy to detect at low concentrations in the air.
- Although ammonia itself has a low fire rating, the presence of oil or other combustibles increases its fire rating.
- Ammonia gas is lighter than air, so it tends to collect in higher areas like ceilings.
- Ammonia is corrosive and can cause chemical burns all over the body. It also corrodes most alloys, rubbers and plastics.

For more information on the characteristics and chemical properties of anhydrous ammonia, refer to its Safety Data Sheet (SDS).

## 4.2 EXPOSURE LIMITS AND HEALTH EFFECTS

**Table 2: Ammonia Exposure Limits**

Exposure Limit (parts per million)	Description of Exposure Limit
25 ppm	Maximum allowable concentration averaged over an 8 hour period
35 ppm	Maximum allowable short-term (15 minutes) exposure limit
300 ppm or more	Immediately dangerous to life and health (IDLH) concentration. The concentration at which a person without appropriate respiratory protection could be fatally injured or could suffer irreversible or incapacitating health effects.

**Table 3: Toxic Effects of Ammonia**

Ammonia Concentration (parts per million)	Effect
2 to 55 ppm	Range of odor threshold *
70 ppm	Stinging or burning of eyes, nose and throat; headache, watering eyes, sneezing, coughing
300 ppm	Severe irritation of eyes, nose and respiratory tract; difficulty breathing, possible burning in lungs (IDLH level)
2000 ppm or more	Can be fatal after a few breaths

*\*Note: This does not apply to workers who routinely work with ammonia, as they are often desensitized to the smell of ammonia and are unable to detect it.*

## 5.0 RISK IDENTIFICATION & ASSESSMENT

The following job descriptions have been identified as having risk of exposure to ammonia in excess of 50% of the established exposure limit:

- Arena Maintenance Supervisor
- Arena Maintenance Worker
- Arena and Building Service Worker

The above mentioned job descriptions were assessed by the Safety and Training Coordinator and some were found to have moderate and high risk levels. Controls were administered to mitigate the risks of exposure and can be found throughout this document.

These controls include but are not limited to:

- Construction of ammonia plant and sealed shafts containing ammonia lines
- Gas detection system that constantly monitors ammonia concentrations in the plant room
- Worker education & training
- Written safe work procedures for ammonia plant tasks
- Emergency facilities and first aid availability
- Use of personal protective equipment
- Emergency response & evacuation procedures

## ➤ Incident Investigation and Exposure Control Plan review

**Table 1: Post Control Hazard Assessment** (1=Lowest; 8=Highest)

Job Description	Hazard Scores (1-8)			Risk Level
	Probability of an incident	Frequency of Exposure	Severity	
Arena Maintenance Supervisor	3	5	3	(45) Low
Arena Maintenance Worker	3	6	3	(54) Low
Arena and Building Service Worker	3	6	3	(54) Low

**6.0 EDUCATION & TRAINING****6.1 WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS)**

A WHMIS Program ensures that those who work near ammonia are trained in the general hazards of chemicals and know how to obtain the necessary information to safely manage chemicals that they may encounter in the workplace. Staff must be WHMIS trained and have access to the SDS for ammonia.

**6.2 QUALIFIED PERSONNEL TRAINING**

A reference to “qualified personnel” is made throughout this document with regards to City of Coquitlam staff that are permitted to enter the ammonia plant and perform routine maintenance on the ice refrigeration system. The following job descriptions are considered to be qualified personnel, providing that they have completed the training noted below:

- Arena Maintenance Supervisor (*Minimum: Refrigeration Operators' Certificate\**)
- Arena Maintenance Worker (*Minimum: Refrigeration Operators' Certificate*)
- Arena and Building Service Worker (*Minimum: Ice Facility Operator Certificate*)
- Employee with Refrigeration Safety Awareness Officer Certification – Limited access and responsibility. Primary role is to initiate emergency response procedures if necessary during the period of time when no individual with an Ice Facility Operator Certificate or Refrigeration Operators' Certificate is on site.

**Table 4: Training**

Training Contents	Frequency
Ammonia Exposure Control Plan (Review)	Annual
Ammonia Plant Components Review Checklist	Annual
Respiratory Protection & Fit Testing	Annual

Certifications have expiration dates. Any individual with an expired certification will be deemed unqualified. Refer to CEDMS# 2796638.

*\*Note: Refrigeration Operators' Certificate is formerly known as Class 5 Engineer.*

## 7.0 PERSONAL PROTECTIVE EQUIPMENT

### 7.1 RESPIRATOR

A full face dual canister air purifying respirator is required when ammonia concentrations are greater than 0ppm. The full face respirator must be equipped with cartridges that protect the worker against ammonia exposure. The worker must be clean shaven while wearing a respirator and have been fit tested within the last year. Workers shall follow the procedures that they have been trained on regarding respirator use and care.

When respirator cartridges are removed from their packaging, they must be labeled with the date of opening. The cartridges are to be disposed of and replaced at a minimum of every three months, pending the usage frequency and ammonia exposure concentration. If at any time the user finds the cartridges cause difficulty in breathing (i.e. clogged), or smells the chemical through the respirator, the cartridges must be disposed of immediately.

If the concentration is at 0ppm, workers may enter the plant without donning a respirator. If the concentration is above 150ppm, workers are **not** to enter the plant.

### 7.2 HAND / FOOT / BODY PROTECTION

Due to the corrosive effects of ammonia it is necessary during some tasks to cover up skin that may be exposed. This may include boots, gloves and coveralls. The individual Safe Work Procedures in this document will outline the protection required for each task. It is important to note that clothing must not be contaminated with grease, lubricants or cleaners as they can react violently with ammonia gas causing severe burns.

### 7.3 EYE PROTECTION

When eye protection is required for certain tasks (see Safe Work Procedures), it will be achieved with the use of the full face respirator. It is very important that contact lenses are **not** worn whenever entering or working in the ammonia plant.

## 8.0 ICE REFRIGERATION SYSTEM / AMMONIA PLANT

### 8.1 AMMONIA STORAGE

Three thousand pounds of liquefied ammonia is stored inside the plant in sealed storage tanks. The refrigeration system is a closed system that continuously uses and reuses the ammonia inside the tanks. Staff are not required to add or remove ammonia at any time. Any correction to ammonia levels is not routine and will be performed by either Brenntag, or Cimco Refrigeration personnel.

Key points regarding ammonia storage include:

- Never apply heat to ammonia storage tanks or valves as rupture could occur

- The temperature of storage containers must never reach 50 degrees Celsius.
- Do not store bleach anywhere inside the ammonia plant
- Do not block access to emergency equipment and doors in the storage area

For more information regarding the storage of ammonia, refer to Ammonia in Refrigeration Systems, WorkSafeBC, 2006 edition.

## 8.2 AMMONIA ALARMS

The following are characteristics of the ammonia gas detection system that is located at the Poirier Sports & Leisure Complex:

- The ammonia plant room includes:
  - Four ammonia gas detection sensors serving the plant room space
  - One ammonia gas detection sensor serving the vent stack
  - Three ammonia alarm stations consisting of an **amber** strobe light, a **blue** strobe light and an audible alarm
- The vestibule (pre-entry room) includes:
  - One digitally displayed alarm monitor (indicates plant room ammonia levels in PPM)
  - One ammonia alarm station consisting of an **amber** strobe light, a **blue** strobe light and an audible alarm
- The skater's lobby includes:
  - One ammonia alarm station consisting of an **amber** strobe light, a **blue** strobe light and an audible alarm
- When ammonia concentration levels in the ammonia plant room reach 25 ppm, the **amber** strobe lights are activated to alert staff of a low level alarm condition.
- When ammonia concentration levels in the ammonia plant room reach 150 ppm, the digital display, **blue** strobe lights and audible alarm sirens are activated to alert staff of a high level alarm condition.
- In addition to these on site indicators of an alarm, an emergency email is automatically sent out to the following staff members when a high alarm is triggered:
  - Arena Maintenance Supervisor
  - Facility Management Coordinators
  - Facility Operations & Maintenance Manager
  - Community Recreation Manager

**Note: The gas detection system is calibrated annually (minimum) and tested monthly, as per the manufacturer's instructions.**

There are three conditions that cause the activation of the **amber** strobe lights:

1. Ammonia concentration levels in the plant room reach 25 ppm or higher
2. The emergency stop button in the vestibule is activated
3. A refrigeration compressor trips off due to activation of a high discharge pressure switch

The ammonia plant room includes an exhaust fan that runs at low speed all the time. In the event of a high level alarm, the exhaust fan automatically increases to high speed. Qualified staff can also manually override it to high speed during routine operations (i.e. Draining chiller pot). The

exhaust fan also includes an air flow proving switch, that in the event the fan stops working, a red light is activated in the vestibule near the gas detection system digital display.

### 8.3 WORKING ALONE / PLANT ROOM ENTRY

There must be a check in system to ensure the continued well-being of workers who are working alone or isolated.

- Entry of the ammonia plant room during a low level alarm state (concentration is between 25ppm –150ppm), or entry to drain the ammonia oil pots is only permitted with a minimum of 2 staff members involved, with one person being a standby to call for assistance if necessary.
- Entry to the ammonia plant room in a non-alarm state (less than 25ppm) and not for the purpose of draining the oil pots or investigating a leak requires the entrant to inform a co-worker of the estimated duration of the entry and subsequent contact with that co-worker upon exit.

In the event that the co-worker is not contacted within the given time frame, the co-worker will investigate and contact the appropriate emergency response agencies if necessary.

In situations where a co-worker is not available, workers must follow the procedures outlined in the City of Coquitlam Working Alone Program.

## 9.0 ROLES AND RESPONSIBILITIES

### 9.1 GENERAL RESPONSIBILITIES

<b>Employer</b>	Will review this program on a regular basis and ensure it is implemented and remains compliant.
<b>Supervisor</b>	Will ensure all workers are trained, have appropriate personal protective equipment (PPE) and comply with these procedures.
<b>Worker</b>	Is responsible to follow all procedures, maintain their PPE and wear it according to procedures.

### 9.2 AMMONIA LEAK RESPONSE RESPONSIBILITIES

#### **Arena Maintenance Supervisor / Arena Maintenance Worker / Arena and Building Service Worker**

These are workers who have received formal ammonia training and are primarily responsible for responding to ammonia leak alarms. They must also read and understand the facility evacuation procedure outlined in CEDMS# 2865227. Staff must perform the following procedures in the event of an ammonia alarm condition:

- Respond to alarm and follow the safe work procedure for leak investigation.
- Determine if the ammonia leak is controlled or uncontrolled.
  - If the ammonia leak is controlled, take corrective measures as required and resume operation when the gas detection system indicates concentrations less than 25ppm.

- If the ammonia leak is uncontrolled and the gas detection system indicates concentrations above 150ppm, initiation the evacuation procedure.

*Note: When a Facility Supervisor is on shift, he/she will lead the evacuation. When the Facility Supervisor is not on shift, an Arena Maintenance Staff member will lead the evacuation.*

### **Facilities Management Coordinator**

During an incident, the Facilities Management Coordinator will:

- Assist with evacuation as required.
- Contact the Arena Maintenance Staff to determine the nature and extent of the potential leak.

After the incident is under control, and the scene has been released by the Coquitlam Fire Department, the Facilities Management Coordinator will:

- Ensure that the facility is secure and not permit workers or members of the public to re-enter the facility unless it is deemed safe to do so.
- Arrange for immediate isolation of hazardous materials (i.e., contaminated chlorine cylinders, clothing, etc.) and proper clean-up of the site by trained personnel.
- Supervise the clean-up process.
- Arrange assistance and first aid for workers if required.
- Ensure that the incident is reported immediately to the Occupational Health & Safety Advisor and Senior Management.
- Conduct an incident investigation and report findings.

### **Facility Supervisor**

These are workers assigned to a supervisory role at the Poirier Sports & Leisure Complex that may be called upon to coordinate a full or partial building evacuation during business hours. They must also read and understand the facility evacuation procedure outlined in CEDMS# 2865227. Upon receiving notice of an alarm condition that requires evacuation, the supervisor shall lead the evacuation procedure and engage other staff as required and as per the written evacuation procedure.

*Note: When a Facility Supervisor is on shift, he/she will lead the evacuation. When the Facility Supervisor is not on shift, an Arena Maintenance Staff member will lead the evacuation.*

### **Facilities Operations & Maintenance Manager / Community Recreation Manager**

The Facility Operations & Maintenance Manager or Community Recreation Manager will be notified of any facility evacuation and will perform the following roles:

- Ensure that the incident is reported immediately to the Occupational Health & Safety Advisor and Senior Management.
- Conduct an incident investigation and report findings.
- Respond to any media requests

## 10.0 EMERGENCY RESPONSE

### 10.1 AMMONIA LEAK EMERGENCY

An ammonia leak is considered an emergency when the concentration in the ammonia plant room reaches 150ppm and the leak is uncontrolled. As previously stated, the blue strobe lights and audible alarms will engage when the ammonia concentration reaches 150ppm. Qualified personnel are to be contacted immediately to address the situation.

### 10.2 AMMONIA LEAK EMERGENCY RESPONSE

In the event of an uncontrolled, high level ammonia alarm, evacuation of the facility is required. Critical components of an ammonia leak emergency response for the Arena Maintenance Supervisor / Arena Maintenance Worker / Arena and Building Service Worker are as follows:

1. Press the emergency stop button in the plant room vestibule (pre-entry room).
2. Activate fire alarm system at nearest pull station.
3. Advise all staff via radio communication that an uncontrolled ammonia leak condition exists and that evacuation is required.
4. Call 911, advise that there is an ammonia leak at the facility, provide the address (633 Poirier Street) and ask for Coquitlam Fire Department to respond.
5. Initiate evacuation procedure. Refer to appendix or CEDMS Doc. # 2865227.
6. When evacuating due to gas leak, determine the wind direction and evacuate upwind of the plant room.
7. Liaise with contractors and senior staff as they arrive and debrief on situation. Provide a floor plan of the facility found in the evacuation kit.
8. The Coquitlam Fire Department will advise when it is safe to allow re-entry into the building.
9. Arena Maintenance Supervisor must report the leak to WorkSafeBC and Technical Safety BC as soon as safe to do so.
10. Complete an incident report.

#### Important Notes:

- **DO NOT open the doors to release ammonia from the plant room.**
- **DO NOT attempt rescue of any employees / members of the public that are unconscious in ammonia contaminated areas. Let the Coquitlam Fire Department know instead.**

### 10.3 EMERGENCY CONTACT LIST

A list of emergency contact numbers for qualified ammonia plant entrants, managers and other key personnel will be kept current. The list will be provided to City of Coquitlam arena staff, Health & Safety Manager and Safety & Training Coordinator. It will be posted in prominent locations as a resource for staff on site.

In the event of a facility evacuation due to a high level ammonia alarm condition, the following people must be called immediately:

- **Coquitlam Fire Department - 911**
- **Arena Maintenance Supervisor – 604-927-6012 or cell @ 604-218-8534**

- **Facilities Management Coordinator** – 604-927-6990 or cell @ 604-374-8253
- **Facility Operations & Maintenance Manager** – 604-927-6055 or cell @ 604-961-3495
- **Community Recreation Manager** – 604-927-6025 or cell @ 604-218-2928
- **Health and Safety Manager** – 604-927-3068
- **Technical Safety BC** – 1-866-566-7233
- **WorkSafeBC** – 1-888-621-7233
- **Cimco Refrigeration** – 604-525-8899

#### 10.4 EMERGENCY EQUIPMENT AND FIRST AID KITS

The Poirier Sports & Leisure Complex has an emergency shower and eye wash station inside the pre-entry room. The shower/eyewash has been plumbed with tempered water to avoid the increased severity of exposures that cold water can cause.

First aid kits are available at several locations in the complex.

### 11.0 FIRST AID & HEALTH MONITORING

Artificial Respiration and CPR are only to be administered by trained personnel.

#### 11.1 INHALATION TREATMENT

Ensure that the concentration in the ammonia room is below 150ppm and you are wearing your full face respirator. Move victim to fresh air. Give artificial respiration **ONLY** if breathing has stopped. Give CPR if there is no breathing and no pulse. Oxygen to be administered by trained personnel. **Obtain medical attention immediately.**

#### 11.2 EYE CONTACT TREATMENT

If liquid or gaseous ammonia contacts the eyes, the employee needs to be removed from the contaminated area and continuously flush eyes with tempered water for 20 minutes. The eye wash station is located directly outside of the ammonia room in the pre-entry room. Ensure that the eyes are held open and there is direct contact between the water and eyes.

#### 11.3 SKIN CONTACT TREATMENT

Liquid ammonia causes the moisture in the skin to freeze (almost instantly with higher concentrations). Skin should be continually flushed with tempered water. If a large area has been exposed, do not remove clothing until you have thoroughly rinsed in the emergency shower. After rinsing, remove any contaminated clothing and obtain medical attention.

#### 11.4 HEALTH MONITORING

WorkSafeBC and OSHA currently have no requirements for medical surveillance of ammonia exposure. Medical surveillance is intended to protect workers from developing occupational disease by detecting early biological indicators or adverse health effects at an early stage.

The effects of ammonia on humans are largely acute and victims of ammonia exposure in excess of exposure limits will often feel the effects immediately. Workers who may be exposed to levels of ammonia in excess of exposure limits are trained to seek medical aid following exposures, regardless of route of entry.

## 12.0 RECORD KEEPING & INVESTIGATION

### 12.1 RECORD KEEPING

Proper activity logbooks will be maintained regarding any ammonia issues. Detailed information will be entered into the logbook for any release large enough to set off the low ammonia alarm (greater than 25 ppm). Investigations are conducted for any release large enough to set off the high ammonia alarm (greater than 150ppm) and or if an evacuation is performed. See the section below for information on ammonia release reporting requirements. Any outstanding maintenance or supplier issues must be noted in the log book and receive follow up promptly.

### 12.2 INVESTIGATION & REPORTING

An 'incident' is an accident or other occurrence which resulted in or had the potential for causing an injury or occupational disease. If enough ammonia is released to set off the high alarm, the City of Coquitlam must conduct an investigation to discover the cause(s) of the incident. The investigation must also examine measures that will prevent similar incidents in the future. The City of Coquitlam must forward copies of the investigation report to the Health and Safety Committee.

Note: The City of Coquitlam must immediately notify WorkSafeBC of any major release of a toxic substance.

A major release of ammonia includes:

- A leak or spill resulting in at least one person receiving professional medical attention; or
- A leak or spill resulting in at least three people receiving first aid.

## 13.0 SAFE WORK PROCEDURES

High hazard job tasks require detailed safe work procedures to be developed and made available for staff performing these tasks. The following tasks have safe work procedures found in this document:

- 13.1 – Ammonia Plant Entry
- 13.2 – Draining Ammonia Plant Oil Pots
- 13.3 – Adding Brine (Calcium Chloride) to the System
- 13.4 – Alarm / Leak Response & Investigation
- 13.5 – Emergency Plant Shut down
- 13.6 – Critical Emergency Components of Ammonia Plant
- 13.7 – Ammonia Plant Power Outage Response
- 13.8 – Adding Oil to the Compressor

**13.1 SAFE WORK PROCEDURE - AMMONIA PLANT ENTRY****PURPOSE**

The purpose of this Safe Work Procedure is to establish a consistent method for entering the Ammonia Plant which is also compliant with all applicable regulations and standards. Health & Safety of Ammonia Plant entrants is of the utmost importance and is the basis for the following procedure.

**SCOPE**

These procedures are applicable to all Ammonia Plant Entrants and are enforceable when the ammonia plant is in operation. This group includes, but is not limited to the following occupations:

- |                                      |                                 |                            |
|--------------------------------------|---------------------------------|----------------------------|
| - Arena Maintenance Workers          | - Arena Maintenance Supervisor  | - Electricians             |
| - Arena and Building Service Workers | - Safety & Training Coordinator | - Contractors / Inspectors |
|                                      | - Coquitlam Fire Department     |                            |

**Entry Requirements:** Entrants **must** possess one of the following:

- Class 4 Power Engineering Certificate
- Refrigeration Operator's Certificate
- Ice Facility Operator's Certificate

Anyone without any one of the above certification must be accompanied by someone with this classification at all times.

**PROCEDURES**

1. Ensure that you satisfy the above entry requirements and are not wearing contact lenses.
2. Let your Supervisor, or Co-worker know that you are entering the Ammonia Plant.
3. View the ammonia concentration digital display located to the left of the door in the pre-entry room and ensure that the reading is less than 150ppm. NO ENTRY WHEN LEVELS ARE ABOVE 150ppm.
4. If the reading is at 0 ppm, an escape respirator (bite block respirator) must be obtained before entry.
5. If the reading is greater than 0ppm, obtain your personal full face respirator. You must have been fit tested within the last year and have no facial hair where the respirator seals against the skin of your face. Escape respirators may not be used in this circumstance.
6. Respirators are to be carried with you at all times and are to be put on when:
  - Concentration are greater than 0ppm
  - An audible / visual alarm is observed while in the Ammonia Plant (after respirator is donned, immediately evacuate the ammonia plant)
  - Minor fluctuations in ammonia concentration are being investigated
  - The strong smell of ammonia is encountered
7. Complete your work / plant logs, and inform your Supervisor or co-worker upon plant exit.
 

**\*\*NOTE – If the audible alarms engage at any point while in the ammonia room, this signifies that the concentration level has reached or surpassed 150 ppm and the plant needs to be evacuated. Once you have evacuated to the pre-entry room, review the ammonia concentration gauge and perform the required action(s) for the displayed concentration.**

### 13.2 SAFE WORK PROCEDURE – DRAINING AMMONIA PLANT OIL POTS

#### PURPOSE

The purpose of this Safe Work Procedure is to establish a consistent method for draining the ammonia room oil pots. When draining the oil pots workers are exposed to levels of ammonia which may exceed 25ppm. This procedure needs to be followed to ensure that workers are protected from these elevated concentrations of ammonia.

#### SCOPE

These procedures are applicable to all Arena Maintenance Workers / Supervisors and Arena Building Service Workers (when supervised).

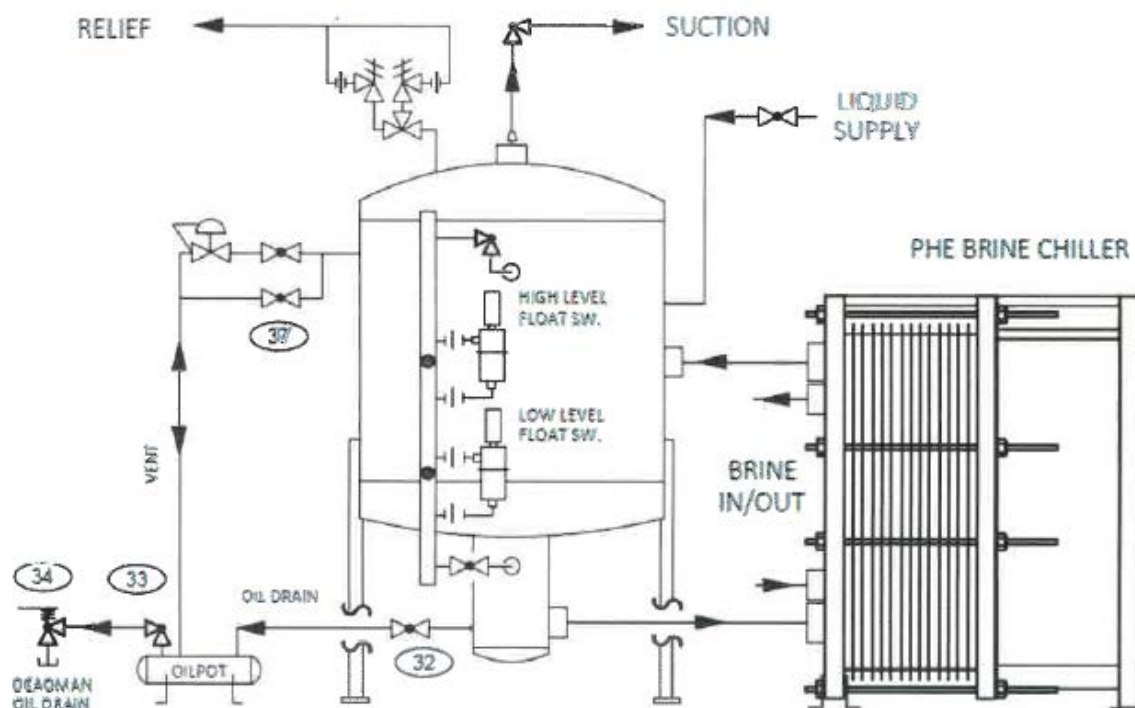
#### PROCEDURES

1. This task requires an additional person to accompany you into the ammonia plant. This person may place themselves anywhere between you and the exit door but must remain within sight and at a distance where conversation can take place.
2. Ensure that you meet the requirements for entry into the Ammonia Plant before entering.
3. Obtain an oil pot draining bucket from the storage room.
4. View the ammonia concentration digital display located to the left of the door in the pre-entry room and ensure that its reading is less than 150ppm. **NO ENTRY WHEN LEVELS ARE ABOVE 150ppm.**
5. Put on your butyl gloves and full face respirator. Perform a positive and negative pressure check to ensure the respirator has made a good seal with your face.
6. Turn the ventilation fan to a “HIGH” setting before entering the ammonia room.
7. Once in the ammonia room, let your partner know where you would like him to be.
8. Turn off the associated brine pump. Place the draining bucket beneath the chiller pot red needle valve and turn the valve in a counter-clockwise direction to open.
9. Close isolation valves from surge drum and oil pot. Reference associated chiller pot draining procedures with its respective diagram at the end of the procedure.
  - Arena 1 chiller pot → close valve 32 and 37.
  - Arena 2 chiller pot → close valve 80 and 85.
  - Arena 3 chiller pot → close valve 9 and 14.
10. Use the dead man’s switch / valve on the oil pot to begin releasing the mixture into the bucket.
11. Drain the mixture slowly until spitting occurs (this signals that draining is complete) and then release the dead man switch.
12. Tighten up the needle valve by turning it in a clockwise direction, being careful not to spill any of the mixture. Allow oil to settle and record the amount of liquid drained.
13. Open isolation valves from surge drum and oil pot. Reference associated chiller pot draining procedures with its respective diagram at the end of the procedure.

- Arena 1 chiller pot → open valve 37 and 32.
  - Arena 2 chiller pot → open valve 85 and 80.
  - Arena 3 chiller pot → open valve 14 and 9.
14. After sealing bucket, transport the filled bucket to the storage room accessible from the outside on the North side of the building. Do not take off your Personal Protective Equipment until the transport procedure is complete.
15. Turn on the associated brine pump.

***\*\*NOTE – If the audible alarm engages at any point while in the ammonia room, this signifies that the concentration level has reached or surpassed 150 ppm and the plant needs to be evacuated. Once you have evacuated to the pre-entry room, review the ammonia concentration gauge and perform the required action(s) for the displayed concentration.***

## ARENA 1 OIL DRAINING PROCEDURE



Please note: Valve tag numbers are as per the site PID diagram. Before using this procedure you must ensure that the valves are physically tagged with the same numbers. If not, the tags must be corrected to match the site PID and this diagram. All must match.

>>> Learn to identify which of your valves apply for this procedure. If you need help with this you may call Fraser Valley Refrigeration for support.

TOROMONT

CIMCO

**Poirier Sport & Leisure Complex**  
**633 Poirier Street**  
**Coquitlam, BC V3J 6B1**

### NORMAL OPERATION:

VALVE 32	&	VALVE 37	Fully Open
VALVE 33	&	VALVE 34	Fully Closed

Oil Pot is Frosted

### TO DRAIN OIL FROM SYSTEM:

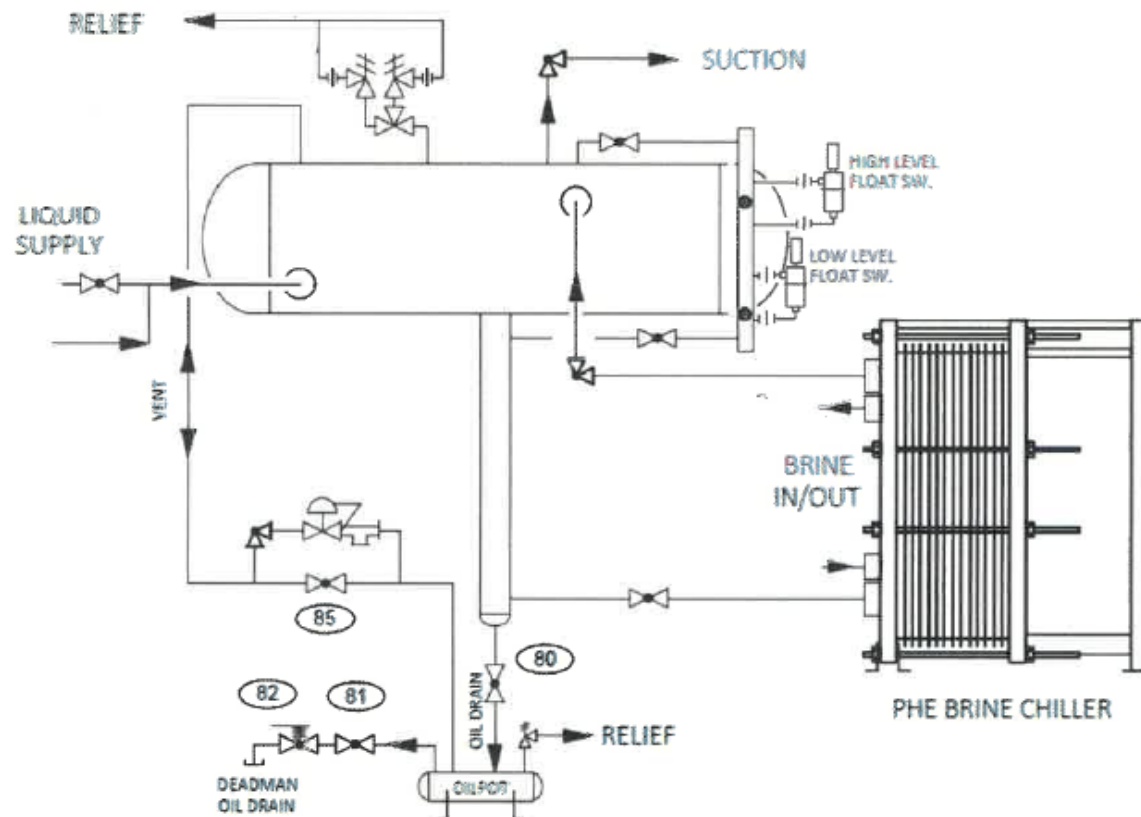
Necessary When Lower Pot Loses Frost.

- close valves 32 & 37
- open valve 33 (Approx. 2 Turns Max.)
- ensure oil will discharge from valve 34 into an empty bucket (via hose if required)
- open valve 34 (dead man valve) gently, allowing oil to flow.

DO NOT PROP THE VALVE OPEN.

- when oil stops flowing, release valve 34 close valve 33
- THEN OPEN valve 34 TO VENT ANY OIL OR GAS TRAPPED BETWEEN valves 33 & 34
- re-open valves 32 & 37 to normal operation.

## ARENA 2 OIL DRAINING PROCEDURE



**Please note:** Valve tag numbers are as per the site PID diagram. Before using this procedure you must ensure that the valves are physically tagged with the same numbers. If not, the tags must be corrected to match the site PID and this diagram. All must match.

>>> learn to identify which of your valves apply for this procedure. If you need help with this you may call Fraser Valley Refrigeration for support.

### NORMAL OPERATION:

VALVE 80	&	VALVE 85	Fully Open
VALVE 81	&	VALVE 82	Fully Closed

Oil Pot is Frosted

### TO DRAIN OIL FROM SYSTEM:

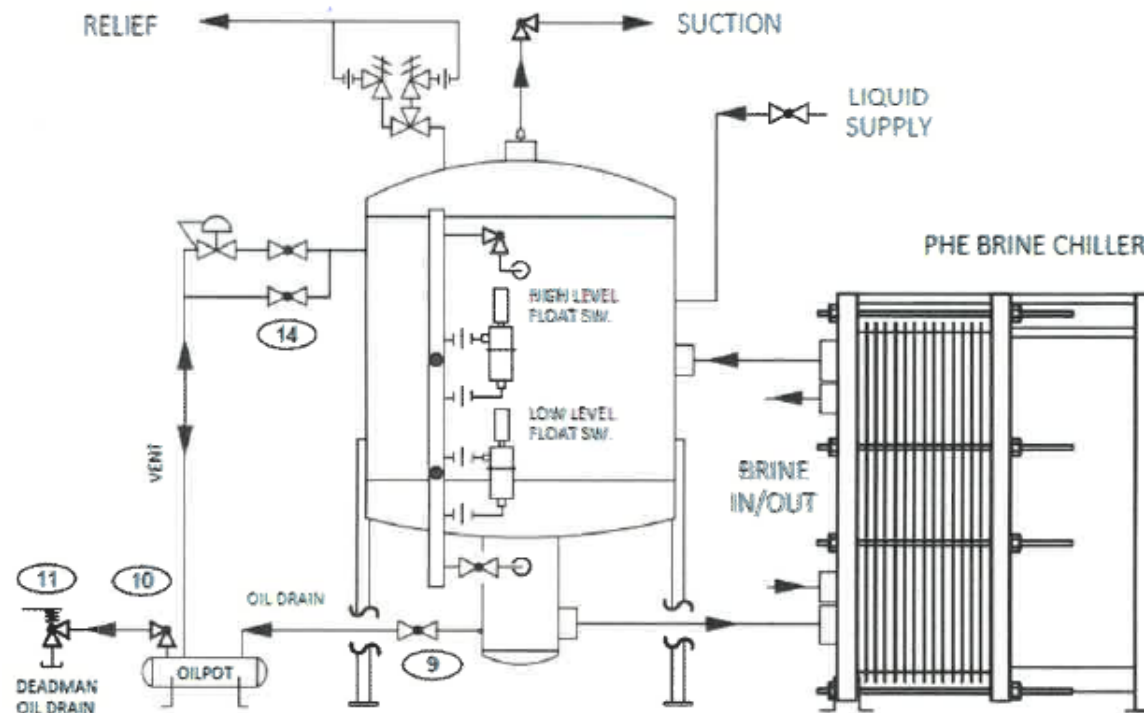
Necessary When Lower Pot Loses Frost.

- close valves 80 & 85
- open valve 81 (Approx. 2 Turns Max.)
- ensure oil will discharge from valve 82 into an empty bucket (via hose if required)
- open valve 82 (dead man valve) gently, allowing oil to flow.  
DO NOT PROP THE VALVE OPEN.
- when oil stops flowing,  
release valve 82 close valve 81
- THEN OPEN valve 82 TO VENT ANY OIL OR GAS TRAPPED BETWEEN valves 81 & 82
- re-open valves 80 & 85 to normal operation.



**Poirier Sport & Leisure Complex**  
633 Poirier Street  
Coquitlam, BC V3J 6B1

## ARENA 3 OIL DRAINING PROCEDURE



**Please note:** Valve tag numbers are as per the site PID diagram. Before using this procedure you must ensure that the valves are physically tagged with the same numbers. If not; the tags must be corrected to match the site PID and this diagram. All must match.

>>> learn to identify which of your valves apply for this procedure. If you need help with this you may call Fraser Valley Refrigeration for support.



**Poirier Sport & Leisure Complex**  
 633 Poirier Street  
 Coquitlam, BC V3J 6B1

### NORMAL OPERATION:

VALVE 9	&	VALVE 14	Fully Open
VALVE 10	&	VALVE 11	Fully Closed

Oil Pot is Frosted

### TO DRAIN OIL FROM SYSTEM:

Necessary When Lower Pot Loses Frost.

- close valves 9 & 14
- open valve 10 (Approx. 2 Turns Max.)
- ensure oil will discharge from valve 11 into an empty bucket (via hose if required)
- open valve 11 (dead man valve) gently, allowing oil to flow.
- DO NOT PROP THE VALVE OPEN.
- when oil stops flowing, release valve 11 close valve 10
- THEN OPEN valve 11 TO VENT ANY OIL OR GAS TRAPPED BETWEEN valves 10 & 11
- re-open valves 9 & 14 to normal operation.

### 13.3 SAFE WORK PROCEDURE – ADDING BRINE (CALCIUM CHLORIDE) TO THE SYSTEM

#### PURPOSE

The purpose of this Safe Work Procedure is to establish a consistent method for adding brine to the Ammonia System. This procedure is consistent with the training that is provided for all Arena Maintenance staff, and failure to follow these procedures may be subjected to discipline.

#### SCOPE

This procedure is applicable to all Arena and Building Service Workers, and Arena Maintenance Workers/Supervisors.

#### PROCEDURES

1. Ensure that you satisfy the required entry requirements listed in *Safe Work Procedure - Ammonia Plant Entry* and are not wearing contact lenses. The Calcium Chloride Safety Data Sheet should be reviewed prior to entry.
2. Let your Supervisor, or Co-worker know that you are entering the ammonia plant.
3. View the ammonia concentration digital display in the pre-entry room and ensure that the reading is at Oppm. If the concentration levels are greater than Oppm, follow the procedures in *Safe Work Procedure - Alarm / Leak Response & Investigation*.
4. Wear the required personal protective equipment prior to entering the plant room, including but not limited to:
  - Goggles
  - Apron
  - Butyl glovesIn addition, a bite block respirator must be carried at all times in the ammonia plant room.
5. Identify the specific brine system you are working on and locate/move a large garbage can next to the system. The three systems include:
  - Arena 1 Brine System
  - Arena 2 Brine System
  - Arena 3 Brine System
6. Fill the large garbage can with ONE AND A HALF bags of calcium chloride mixed with water. Put the brine pipe into the garbage can.
7. There are two different sized valves in the brine system. Open the small valve FIRST, and then close the large valve.
8. Watch the brine enter the system, and when the garbage can is almost empty, open the large valve FIRST, and then close the small valve.  
**NOTE: If there are any problems during the brine addition process, IMMEDIATELY turn off the associated brine pump to prevent the flow of brine into the system.**
9. Check the associated expansion tank sight glass, and ensure that the level is at approximately 12 inches.
10. Record all work performed in the logbook.

**13.4 SAFE WORK PROCEDURE – ALARM / LEAK RESPONSE & INVESTIGATION****PURPOSE**

The purpose of this Safe Work Procedure is to establish a consistent method for investigating minor leaks in the Ammonia Plant. The ammonia plant is only to be entered when the levels inside are under 150 ppm, so leak investigation may only be conducted for minor leaks.

**SCOPE**

These procedures are applicable to all Arena Maintenance Workers / Supervisors and Arena and Building Service Workers.

**PROCEDURES**

1. This task requires an additional person to accompany you into the ammonia plant. This person must have their full face respirator on for the duration of this task and position themselves near the entrance to the ammonia plant with the door open. This person must maintain visual contact throughout leak investigation and be able to monitor the ammonia concentration gauge.
2. Ensure that you and your stand by person meet the requirements for entry into the Ammonia Plant before entering.
3. View the ammonia concentration gauge located to the left of the door in the pre-entry room and if the concentration is below 150ppm you may don your full face respirator and enter the ammonia room with the intent of locating the leak.
4. Enter the ammonia room and ensure that your partner remains near the open door.
5. Begin the investigation by slowly walking around the ammonia room and perform a quick visual inspection in an attempt to identify the general area of the leak.
6. Once the general area is identified, return to the pre-entry room and obtain a sulphur stick.
7. Light the sulphur stick outside the ammonia room and return to the general area of the leak. Hold the stick at different locations to better pinpoint the location of the leak. If ammonia is present, large amounts of white smoke will appear.
8. If the leak is found, locate the source and close the king valve immediately. Turn off the compressors at the emergency stop button.
9. Contact Cimco Refrigeration at 604-525-8899 and advise of leak location. If the leak causes the concentration in the ammonia room to reach 150ppm at any time, evacuation procedures must be implemented.

**13.5 SAFE WORK PROCEDURE – EMERGENCY PLANT SHUTDOWN****PURPOSE**

The purpose of this Safe Work Procedure is to establish a consistent method for shutting down the ammonia plant in the event of an emergency. If the concentration is below 150ppm, you may enter the ammonia plant room and physically close the King valve which stops the flow of ammonia through the system. If the concentration is above 150ppm, then shut down must be performed from the pre-entry room directly outside of the ammonia plant room.

**PROCEDURES**

<b>Uncontrolled leak under 150ppm</b>	<b>Uncontrolled leak over 150ppm</b>
<ul style="list-style-type: none"> <li>• Ensure that exhaust fan is on high setting</li> </ul>	<ul style="list-style-type: none"> <li>• Close all doors leading to the ammonia plant</li> </ul>
<ul style="list-style-type: none"> <li>• Entrant &amp; stand by person must be wearing full face respirator</li> </ul>	<ul style="list-style-type: none"> <li>• Activate the Emergency stop button in pre-entry room</li> </ul>
<ul style="list-style-type: none"> <li>• Enter ammonia plant and close the King Valve</li> </ul>	<ul style="list-style-type: none"> <li>• Commence evacuation procedures as per CEDMS# 2865227</li> </ul>
<ul style="list-style-type: none"> <li>• Immediately exit plant and close door behind you</li> </ul>	<ul style="list-style-type: none"> <li>• Call Cimco Refrigeration at 604-525-8899 to respond and repair cause of leak</li> </ul>
<ul style="list-style-type: none"> <li>• Monitor Plant on digital display system in pre-entry room as it will take time for all ammonia to return to the receiver</li> </ul>	
<ul style="list-style-type: none"> <li>• If at any point the concentration reaches 150ppm, commence evacuation procedures</li> </ul>	
<ul style="list-style-type: none"> <li>• Call Cimco Refrigeration at 604-525-8899 to respond and repair cause of leak</li> </ul>	

**13.6 SAFE WORK PROCEDURE – CRITICAL EMERGENCY COMPONENTS OF AMMONIA PLANT****PURPOSE**

To identify and explain the functions of two plant components that can be used in an emergency to mitigate risk and assist in controlling the hazards associated with a serious ammonia leak (concentration greater than 150ppm) or fire.

**CRITICAL COMPONENT #1 – EMERGENCY REMOTE SHUT OFF**

<b>Location:</b>	Inside the ammonia pre-entry room, to the right of the door leading to the plant at shoulder height.
<b>Description:</b>	2" red, round emergency stop button clearly identified by label
<b>Functions:</b>	When this button is depressed it stops any machinery which is controlled by electrical power. This will cause the fans to stop running, the compressors will stop (which stops the flow of ammonia through the system) and solenoids will close causing the bulk of the ammonia to remain inside the chillers.
<b>When to be used:</b>	When the concentration in the ammonia room exceeds 150 ppm and the leak is uncontrolled. This shut off is used in conjunction with emergency evacuation procedures and the assistance of emergency response teams.

**CRITICAL COMPONENT #2 – AMMONIA PLANT DUMP VALVE**

<b>Location:</b>	Accessible via extension ladder from the north parking lot. The valve is located on the northern most exterior wall of the facility, 12-15 ft high.
<b>Description:</b>	Contained in a red recessed box with a breakable glass front
<b>Functions:</b>	When opened, this valve will drain all of the ammonia contained in the receiver. The ammonia will flow out of a painted red stack on the north side of the roof and disburse into the atmosphere.
<b>When to be used:</b>	<b>This valve is only to be used by the Coquitlam Fire Department</b> in the event of a building fire which has the possibility of entering the ammonia plant and causing a severe explosion. It is critical that the Fire Department be aware of wind direction prior to using this valve as neighborhood notification of this event must occur.

### 13.7 SAFE WORK PROCEDURE – AMMONIA PLANT POWER OUTAGE RESPONSE

#### PURPOSE

The purpose Safe Work Procedure is to establish a consistent method for how to respond to a power outage within the Ammonia Plant, and is compliant with the B52-13 Mechanical Refrigeration Code. Health and safety of Ammonia Plant entrants is of the utmost importance and is the basis for the following procedure.

#### SCOPE

These procedures are applicable to all Ammonia Plant Entrants and are enforceable when the ammonia plant is in operation. This group includes, but is not limited to the following occupations:

- |                                      |                                 |                            |
|--------------------------------------|---------------------------------|----------------------------|
| - Arena Maintenance Workers          | - Arena Maintenance Supervisor  | - Electricians             |
| - Arena and Building Service Workers | - Safety & Training Coordinator | - Contractors / Inspectors |
|                                      | - Coquitlam Fire Department     |                            |

**Entry Requirements:** Entrants must possess one of the following:

- Class 4 Power Engineering Certificate
- Refrigeration Operator's Certificate
- Ice Facility Operator's Certificate

Anyone without any one of the above certification must be accompanied by someone with this classification at all times.

#### PROCEDURES

1. DO NOT enter the refrigeration plant as the detectors are now offline. Proceed with immediate building evacuation of all public.
2. Let your Supervisor know of power outage.
3. Once building evacuated, proceed to electrical room off of cooling tower. Turn off breakers to Brine pump #1 (#13, 15, 17) Brine Pump #2 (#19, 21, 23) Brine pump #3 (#25, 27, 29) Brine pump #4 (31, 33, 35), Capacitor bank, MCC in Mechanical room.
4. Verify from outside that the refrigeration plant exhaust air damper has closed.
5. Once power is restored do not allow public back into building until you confirm there is no leak in the Refrigeration plant and chlorine room in the pool and both systems have been restarted into normal operation.
6. When power has been restored, proceed with plant startup process. At refrigeration plant pre-entry room, view the ammonia concentration digital display located to the left of the door in the pre-entry room and ensure that it is reading is less than 150ppm. **NO ENTRY WHEN LEVELS ARE ABOVE 150ppm.**
7. If the reading is at 0 ppm, an escape respirator (bite block respirator) must be obtained before entry.
8. If the reading is greater than 0ppm, obtain your personal full face respirator. You must be fit tested within the last year and have no facial hair where the respirator seals against the skin of your face. Escape respirators may not be used in this circumstance.

9. Respirators are to be carried with you at all times and are to be put on when:
  - Concentration are greater than Oppm
  - An audible / visual alarm is observed while in the Ammonia Plant (after respirator is donned, immediately evacuate the ammonia plant)
  - Minor fluctuations in ammonia concentration are being investigated
  - The strong smell of ammonia is encountered
10. If the reading is at 0 ppm, proceed into plant room. Turn off compressors #1-4 at MCC panel. Turn off Brine pumps to Arena 1, Arena 2 and Arena 3.
11. Proceed to electrical room off cooling tower. Turn on breakers to Brine pump #1 (#13, 15, 17) Brine Pump #2 (#19, 21, 23) Brine pump #3 (#25, 27, 29) Brine pump #4 (31, 33, 35), Capacitor bank, MCC in Mechanical room.
12. Return to Refrigeration plant. Verify reading is Oppm, obtain escape respirator and enter plant room. Turn on Brine pumps FIRST to Arena 1, Arena 2 and Arena 3. After brine pumps have been turned on turn on Compressors 1 to 4.
13. Monitor plant to ensure normal operation.
14. Once plant back into normal operation the public can be allowed back into building.
15. Ensure to record power outage shutdown and start up in log book.

***\*\*NOTE – If the audible alarm engages at any point while in the ammonia room, this signifies that the concentration level has reached or surpassed 150 ppm and the plant needs to be evacuated. Once you have evacuated to the pre-entry room, review the ammonia concentration gauge and perform the required action(s) for the displayed concentration.***

### 13.8 SAFE WORK PROCEDURE – ADDING OIL TO THE COMPRESSOR

#### PURPOSE

The purpose of this Safe Work Procedure is to establish a consistent method for adding oil to the ammonia room compressors. When draining the oil pots workers are exposed to levels of ammonia which may exceed 25ppm. This procedure needs to be followed to ensure that workers are protected from these elevated concentrations of ammonia.

#### SCOPE

These procedures are applicable to all Arena Maintenance Workers / Supervisors and Arena Building Service Workers (when supervised).

#### PROCEDURES

1. Only a person holding a Refrigeration Operator's Certificate or higher may add oil to the compressors. A person with an Ice Facilities Operator's Certificate (IFO) may act as the stand by person.
2. This task requires an additional person to accompany you into the ammonia plant room. The standby person may place themselves anywhere between you and the exit door but must remain within sight and at a distance where conversation can take place.
3. Ensure that you meet the requirements for entry into the Ammonia Plant before entering.
4. View the ammonia concentration digital display located to the left of the door in the pre-entry room and ensure that its reading is less than 150ppm. **NO ENTRY WHEN LEVELS ARE ABOVE 150ppm.**
5. Put on your butyl gloves and full face respirator. Perform a positive and negative pressure check to ensure the respirator has made a good seal with your face.
6. Turn the ventilation fan to a "HIGH" setting before entering the ammonia room.
7. Once in the ammonia room, let your standby person know where you would like him/her to be.
8. Check the oil level in the compressor sight glass and verify that the level is half way. If the level is less than half way, it will require oil the be pumped in.
9. Make sure there is oil in the oil pump bucket. If the levels are less than  $\frac{3}{4}$  high, fill it back up to  $\frac{3}{4}$ . **Do not proceed** with pumping until the levels are  $\frac{3}{4}$  as this will result pumping in air.
10. Ensure the oil pump hose is firmly attached to the compressor feed line.
11. Open the red valve (oil feed valve) on the compressor feed line. Pump in oil until the oil level in the compressor has reached half way in the compressor sight glass. Count the number of pumps of oil.
12. Close the red valve on the compressor feed line.
13. Record in the logbook the number of pumps of oil added.

**\*\*NOTE – If the audible alarm engages at any point while in the ammonia room, this signifies that the concentration level has reached or surpassed 150 ppm and the plant needs to be evacuated. Once you have evacuated to the pre-entry room, review the ammonia concentration gauge and perform the required action(s) for the displayed concentration.**

**EVACUATION PROCEDURE – POIRIER SPORT & LEISURE COMPLEX****POLICY**

In the event of a threat from fire, bomb, chemical leak, power outage or other emergencies, immediate steps must be taken to safely and efficiently evacuate the facility. The procedure can also be found in CEDMS# 2865227.

**PURPOSE**

- To ensure all staff understand the evacuation procedure methodology.
- To ensure consistent performance of evacuation tasks.
- To provide staff with instructions on how to respond during an evacuation of the facility.

**RESPONSIBILITIES**

At Poirier Sport & Leisure Complex (PSLC), staff changes occur regularly based on daily program variations at the facility. In the event of an evacuation, the highest ranking supervisor on shift at the time will lead the evacuation as per this written procedure.

The rank order is as follows:

- 1) Facility Supervisor
- 2) Coordinator
- 3) Aquatic Program Supervisor (APS)
- 4) Senior Aquatic Leader (SAL)
- 5) Recreation Leader

In the event that a supervisor is not available, a trained Arena Maintenance staff member will lead the evacuation.

**Supervisor**

- Assign tasks to other staff members as required to ensure a safe and efficient evacuation of the facility.
- Ensures all seven areas of PSLC are evacuated.
- Contact applicable supervisors and managers as required.
- Advises the fire department of the evacuation status and relays all important information (i.e. how many people are remaining in the facility, how many people are injured) to ensure all bodied are evacuated safely.

**Front Desk Staff**

- Upon request from evacuation supervisor, call 911, gives name, position, facility name and address.
- Advises that an evacuation is in progress and the purpose of the evacuation.
- Alert the supervisor in charge when first responders have been notified.

**Parks, Recreation and Culture Lifeguard Staff**

- Evacuate all individuals from pools, decks and change rooms.
- Direct patrons to lobby or exits away from trouble area as required.
- Alert the supervisor in charge once the Aquatic Centre areas are cleared of patrons.

**Parks, Recreation and Culture Fitness Staff**

- Evacuate all individuals from second floor of Aquatic Centre including Fitness Centre, Fitness Studio, Offices and Bathrooms.  
*Note: Disabled people on the second floor should be moved to an exterior stairwell as an area of refuge.*
- Direct patrons to lobby or exits away from trouble area as required.
- Alert the supervisor in charge once the second floor areas have been cleared.

**Parks, Recreation and Culture Arena Staff**

- Evacuate all individuals from ice arenas and dressing rooms.
- Direct patrons to lobby or exits away from trouble area as required.
- Alert the supervisor in charge once the ice arenas and dressing rooms have been cleared.

**Facilities Maintenance Arena Staff**

- Evacuate all individuals from mechanical rooms and ice arenas as required.
- Direct patrons to lobby or exits away from trouble area as required.
- In the event of a power outage, follow safe work procedure # 13.6 (noted in the Ammonia Exposure Control Plan) for isolating mechanical systems.
- Alert the supervisor in charge once evacuation duties are complete.

**Facilities Maintenance Pool Staff**

- Evacuate all individuals from the basement pool mechanical and storage rooms.
- Direct patrons to lobby or exits away from trouble area as required.
- In the event of a power outage, isolate mechanical systems as required.
- Alert the supervisor in charge once evacuation duties are complete.

**All Other Remaining Staff**

- Respond to the alarm annunciator panel in the PSLC lobby.
- Aid with the evacuation of the seven areas noted below to the location indicated by the supervisor in charge. In most cases the initial evacuation location shall be the PSLC lobby, unless it is unsafe to do so.

**IMPORTANT NOTES**

- Every evacuation should be treated as an emergency situation. False alarms do occur and may be suspected when a pull station has been pulled and there is no indication of trouble at the pull station location or there is evidence of cigarette or vaping smoke in a stairwell or change room. This facility has heat and smoke detectors that may be activated out of sight and as such every alarm response should be treated as an emergency situation until proven otherwise.
- In the case of an alarm, the elevators will shut down. Disabled people on the second floor should be moved to an exterior stairwell as an area of refuge. The supervisor in charge must be made aware of any people that may be located in an area of refuge so the information can be passed along to the fire department.
- Portable radios are available for communication between the supervisor and staff members as required. Staff assigned to check and evacuate areas may use the radios to communicate important information to the supervisor during the evacuation. The radio charging station is located on the pool admin desk.
- For the purpose of this procedure, the facility has been divided into seven areas. A map for each of the seven areas will be located in the evacuation kit. The supervisor in charge will issue an area map to available staff members in an effort to ensure all seven areas are evacuated in an efficient manner. Upon completing evacuation of an assigned area, staff will return the area map to the supervisor indicating that the area is clear or advising how many people remain in a given area.

**PROCEDURE**

1. Supervisor in charge to pick up evacuation kit from pool admin area and proceed to annunciator panel. Supervisor stays at annunciator panel and coordinates the evacuation from this location unless unsafe to do so.
2. Supervisor in charge must ensure the 911 call has been made.

3. All staff members working on evacuation will wear a reflective vest so as to be identifiable as staff.
4. Supervisor in charge will check the alarm panel for the source and location of alarm.
5. The supervisor in charge will then direct a staff member to check the trouble area indicated by the alarm panel for source of trouble.

*If false alarm:*

- In the event that a false alarm is suspected and no trouble condition exists, the supervisor must ensure all seven zones are cleared. Patrons may be assembled in the lobby where they may remain until such time as the fire department confirms the facility is safe for re-entry.

*If true alarm:*

- In the event that a trouble condition does exist (fire, toxic gas leak, or other emergency), staff will proceed with evacuating the facility in a direction away from the trouble area.
- Supervisor in charge directs staff members to clear each of the seven zones. Staff must report back to supervisor when assigned zone is cleared. Upon clearing a zone, staff may be assigned to clear an additional zone.
- In the event that there are those that refuse to leave, communicate the number of people remaining to the supervisor.
- In the event that there are disabled persons on the second floor, staff members must ensure they are moved to an exterior stairwell's area of refuge and advise the supervisor on how many people remain and where.
- If evacuating due to a toxic gas leak (chlorine or ammonia), staff members must ensure patrons are evacuated in a direction upwind from the source of the leak and to a location determined by the supervisor.
- Refuge site is the Centennial Room across Poirier Street. Centennial Room key and alarm code are in a sealed envelope in the evacuation kit located behind the front desk at PSLC.

6. The seven areas of evacuation at PSLC are as follows (Refer to map in CEDMS#2953708):

- **Area 1** – Arena 1 – Main Floor
- **Area 2** – Arena 1 – 2nd floor
- **Area 3** – Arena 2 and Arena 3 – Main Floor
- **Area 4** – Arena 2 and Arena 3 – 2nd floor
- **Area 5** – Aquatic Centre – Basement
- **Area 6** – Aquatic Centre – Main floor
- **Area 7** – Aquatic Centre – 2nd floor

7. The supervisor in charge must call the following individuals:

- **Community Recreation Manager** – Vinh Truong at 604-218-2928
- **Facilities Management Coordinator** – Peter Buono at 604-374-8253
- **Facilities Division Manager** – Kevan Cornes at 604-961-3495
- **Aquatic Centre Supervisor** – Claire Wheeler at 604-375-4837

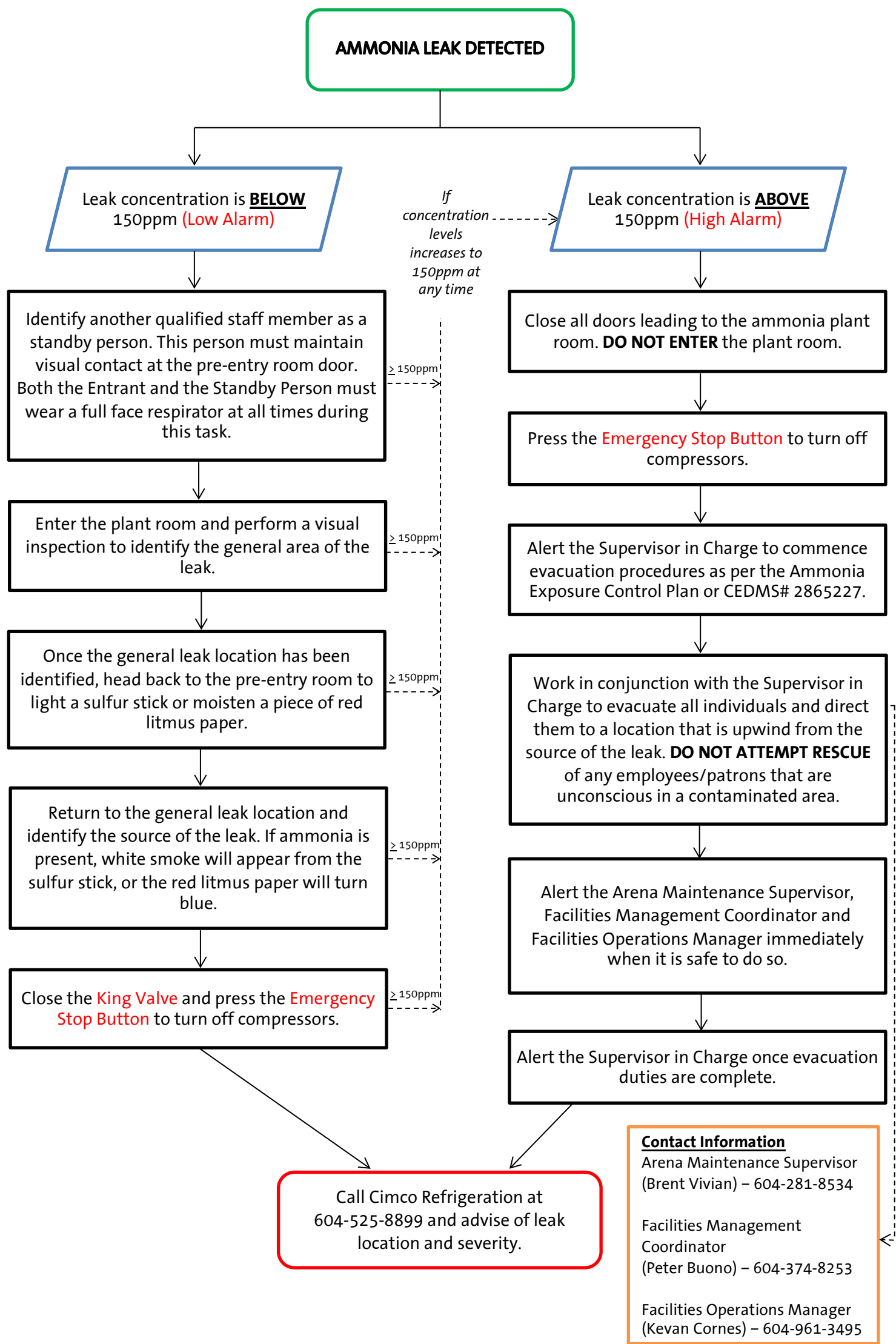
8. Decline comments to media – refer to Manager.

9. Complete incident report.

**AMMONIA PLANT ORIENTATION CHECKLIST**

<b>SECTION A: EMPLOYEE INFORMATION</b>					
<b>Job Title:</b>		<input type="checkbox"/> New Worker	<input type="checkbox"/> Annual Review		
<b>Employee Name:</b> (Print Clearly)					
<b>Certification:</b>	<input type="checkbox"/> Refrigeration Safety Awareness Officer	<input type="checkbox"/> Class 4 Power Engineer or Refrigeration Operator	<input type="checkbox"/> Ice Facility Operator		
<b>Supervisor Name:</b> (Print Clearly)					
<b>SECTION B: MAJOR COMPONENTS</b> <i>(Identify Location and Explain Function in System)</i>					
Component	Employee Initials		Supervisor Initials		
Evaporator (Chiller)					
Receiver					
Compressor(s)					
Expansion Valve					
Condenser / Cooling Tower					
King Valve					
Fire Box					
Brine Pumps					
Gas Detection System					
<b>SECTION C: PROCEDURES</b> <i>(The Following Procedures Must Be Communicated to All Entrants)</i>					
Procedure	Employee Initials	Supervisor Initials	Procedure	Employee Initials	Supervisor Initials
Ammonia Plant Entry			Shut Down		
Building Evacuation			Logbook Use		
Emergency Shut Down			Alarm System Use		
Safety Data Sheet (SDS) System Review					
<i>The Following Procedures Must Be Communicated to Arena Maintenance Workers</i>					
Procedure	Employee's Initials	Supervisor Initials	Procedure	Employee Initials	Supervisor Initials
Draining Ammonia Plant Oil Pots			Alarm / Leak Response and Investigation		
<b>SECTION D: EMPLOYEE AND SUPERVISOR ACKNOWLEDGEMENT</b>					
<b>Employee Signature:</b>			<b>Date:</b>		
<b>Supervisor Signature:</b>			<b>Date:</b>		

AMMONIA LEAK RESPONSE FLOW CHART



**AMMONIA PLANT ORIENTATION FORM  
FOR CONTRACTORS**

**Contractor Company Name:** \_\_\_\_\_

**Contractor Worker Name:** \_\_\_\_\_

I have received an orientation of the Ammonia Plant at Poirier Sports and Leisure Complex from \_\_\_\_\_ on \_\_\_\_\_  
(Coquitlam Arena Staff Name) (Date: MM/DD/YY)

By signing below, I accept that I have received and reviewed the City of Coquitlam's Anhydrous Ammonia Exposure Control Plan (ECP).

I understand that I must have a thorough knowledge of, and abide by, the safety standards and practices outlined in the WorkSafeBC Occupational Health & Safety Regulation and the ECP. Furthermore, I acknowledge that performing my tasks in a safe manner is a condition of my contract with the City of Coquitlam.

**Contractor Worker**  
**Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Arena Maintenance**  
**Supervisor Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_