Appendix J - Complete Climate Control Report

COMPLETE CLIMATE CONTROL INC.
Industrial & Commercial • Refrigeration • Gas Detection • H.V.A.C.

Report on findings and work performed at:

Arctic Glacier facility,
790 Sarcee St.
E Kamloops

We were contacted by Jeff Coleman of Technical Safety BC on June 8, 2022, and was contracted for assessment and safety on an Ammonia refrigeration system on a site in Kamloops. (Address above).
We arrived on site Friday June 10, 2022.
At this time, we were read into what was going on and had a safety meeting with WSBC (Work Safe BC). I was then read into the WSBC Ammonia Exposure Control Plan for the site that was being followed.
Once Hazmat (Nucor Environmental Solutions) had finished their site atmospheric testing For NH3, CO, O2 and LEL and everything had tested 0 ppm and 0 LEL. We were able to be suited up, with Hazmat and WSBC approved attire. As per OHSI Ammonia Exposure Control Plan. We were not able to take any photos or touch anything inside currently. We were just able to look and get a preliminary Non-Invasive Dynamic Risk Assessment of any safety concerns and a report on what we observed.
My first assessment on what was observed.

- A lot of cut ammonia piping.
- Valves in use that in my opinion, are not typically ammonia valves. They were Stainless steel ball valves. Refer to picture #1 and #2. (Pictures were taken on the next day.)
  Note valve #1 was open.
- Lots of pipe was taken apart and left open.
- Most gauges were not legible.
- An Evap BAC Condenser outside with no valves or piping hooked up to it. (Open to atmosphere)
- Lots of destruction (melting and black burn marks) from a fire.

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Site map and unit positioning.

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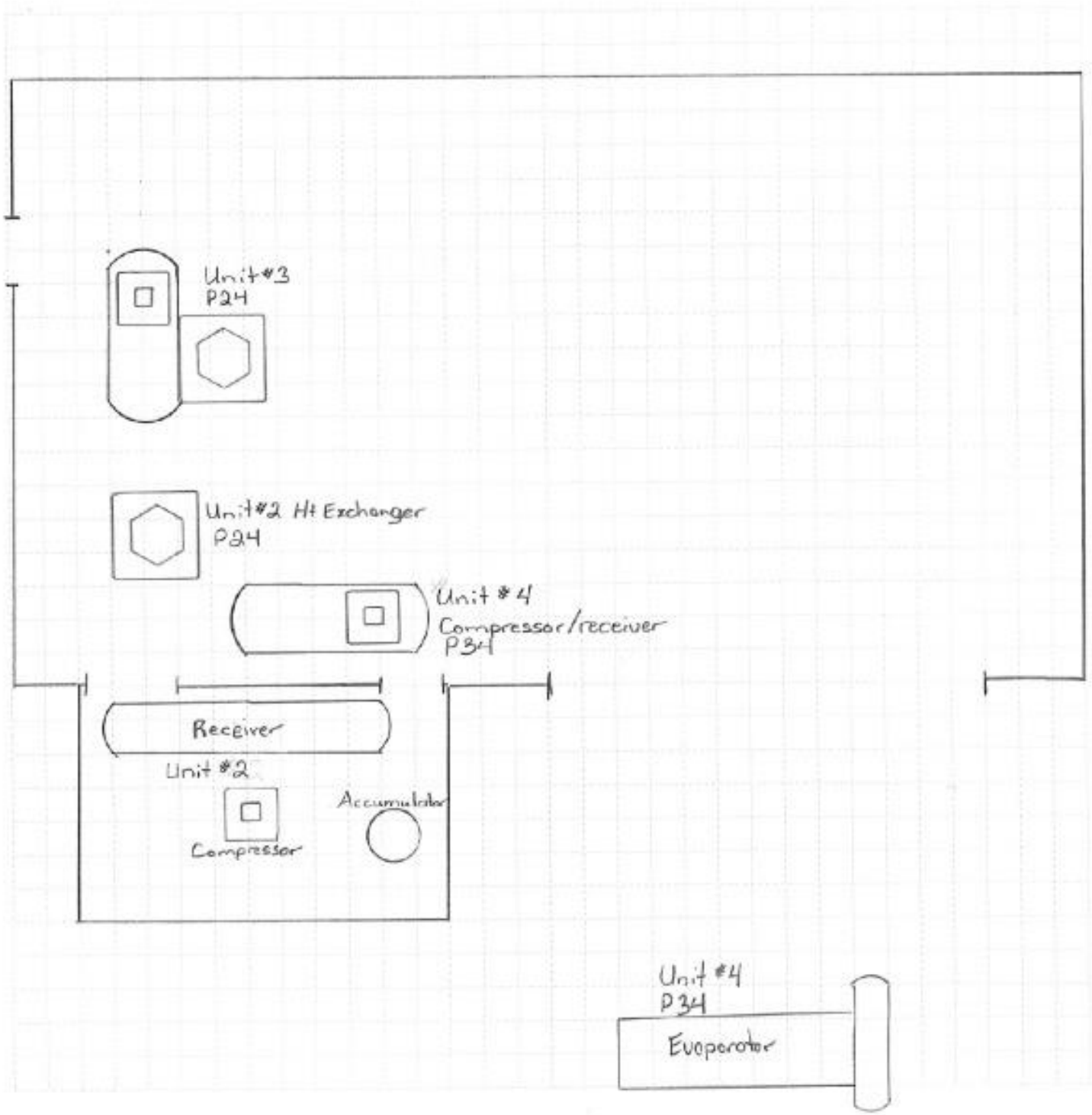
Project: Arctic Glacier Facility - 790 Sorcee St. Kamloops



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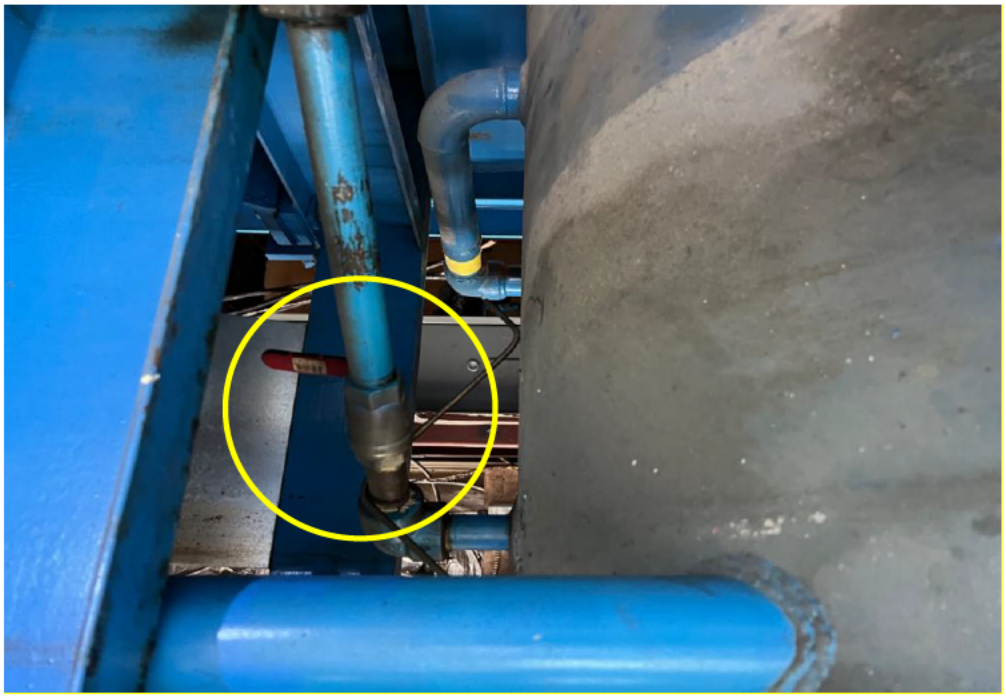
Picture #1.

Picture #2.



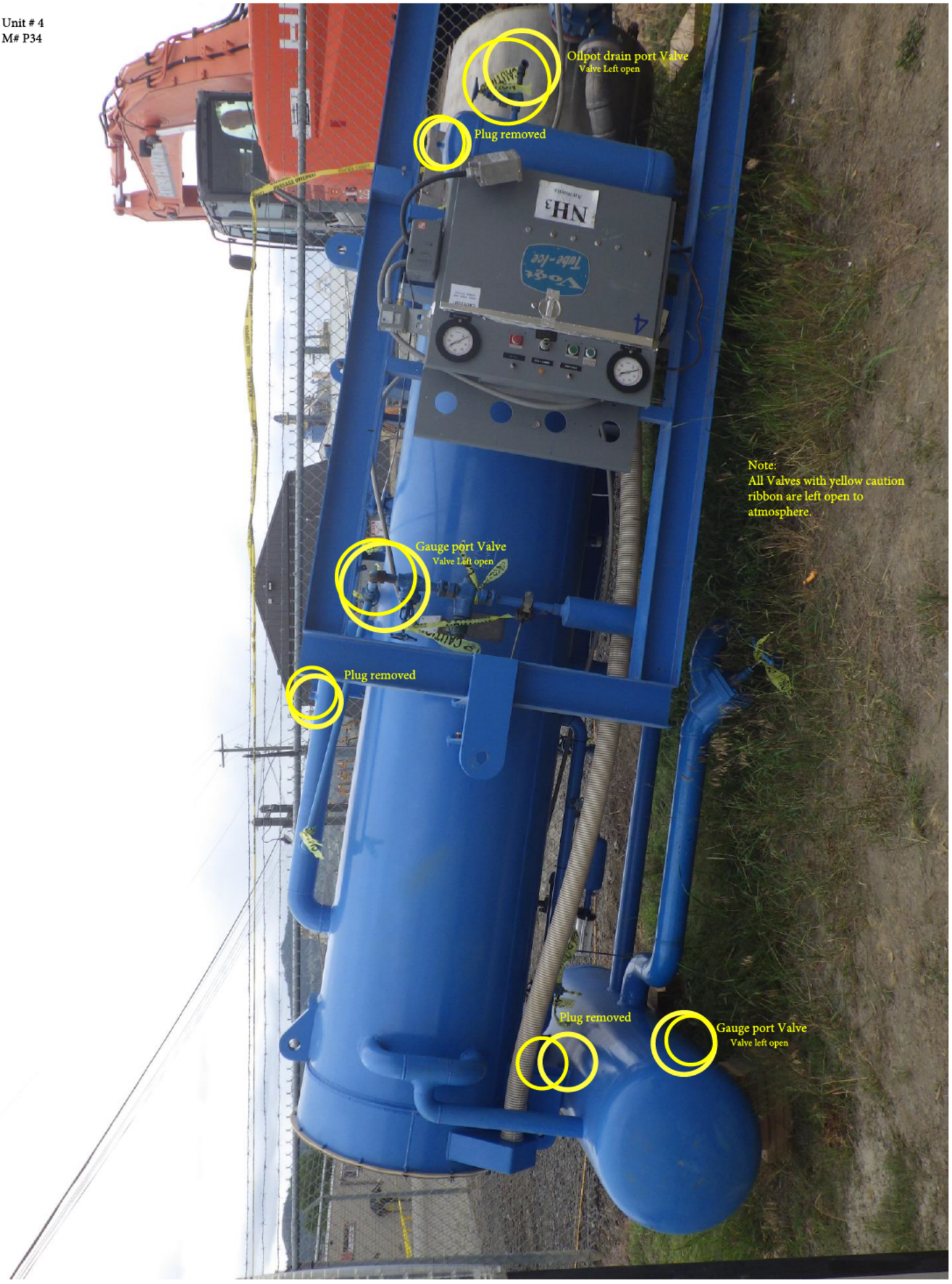
June 12, 2022. (2nd Day)
Next day on site:
We were safety orientated upon arrival.
Helped TSBC with creating the JSA and SWP. Presented JSA to WSBC for analysis and tweaking.
Once approved, [redacted] from TSBC and Myself (Jamie Nicol) we were able to suit up with Hazmat and WSBC approved attire. As per OHSI Ammonia Exposure Control Plan. We were allowed in to do a much closer analysis and start checking the system out.
Following the JSA.
First, we started checking out Unit #4 outside in the yard. Gauges showed 0 PSI to confirm we installed gauges on 3 areas on the unit. Then tried to purge any residual NH3 into a 5 Gallon Bucket of water from all test points.

1. Oil Pot:
- No pressure found.
2. Liquid line:
- No pressure found.
3. Surge Drum:
- No pressure found.
- But found approximately 3 litres oil in surge drum.

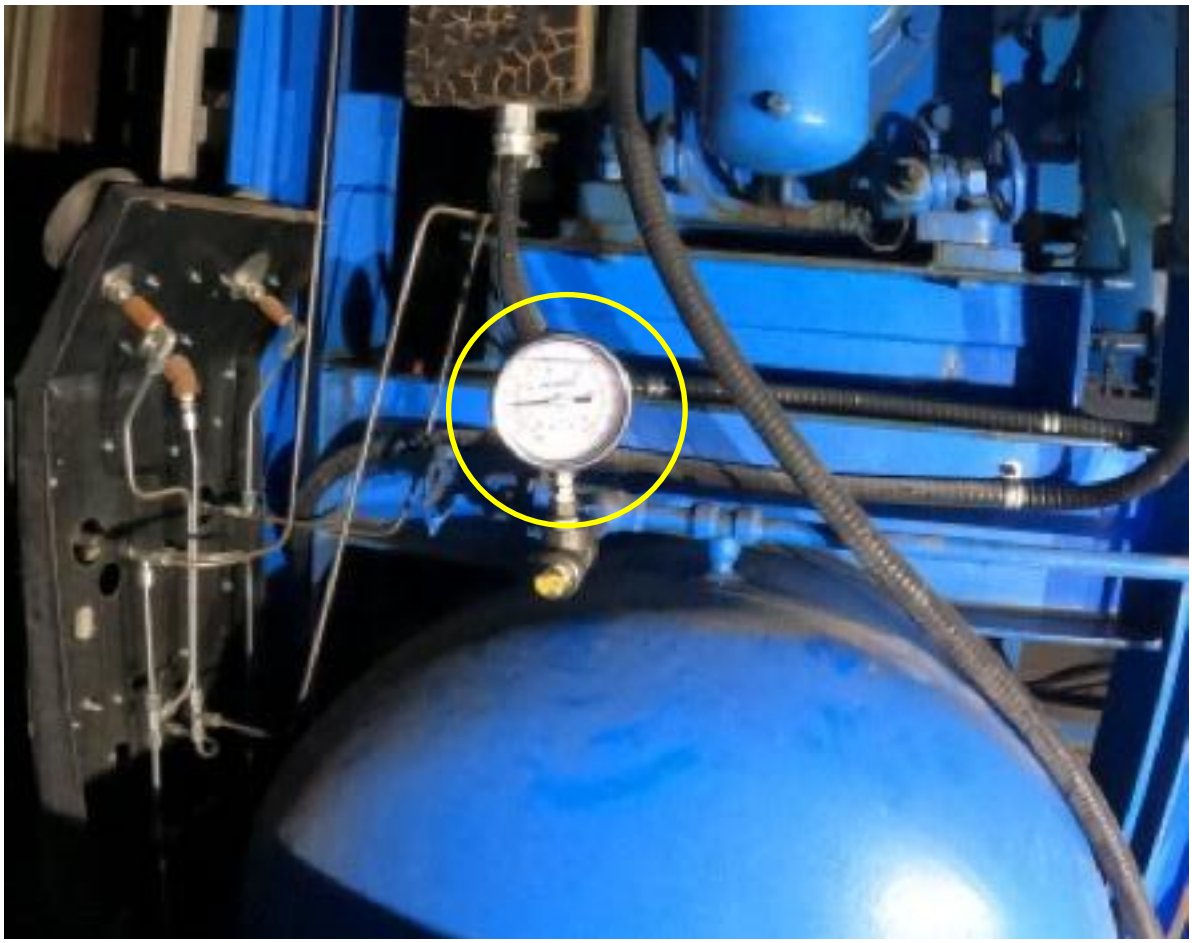
Once it was confirmed that there is no pressure in the system. We removed plugs on the vessels and opened all valve. As shown on picture #3.
Once the pressure vessel Unit #4 evaporator was proven safe to leave. We then moved on to Unit #4 compressor/receiver inside the building.
We first removed the open ball valve installed on the side of the receiver. Refer to Picture #1. We then hooked up the High-pressure nitrogen bottle to receiver at the access port where the ball valve was removed from.
We then pressurized the receiver to 15 PSI with dry nitrogen. Refer to pictures #4 and 14. Someone from TSBC confirmed it held for 10 mins. Refer to Picture #4. At this time, we then unhooked the nitrogen bottle and put the other end of the purge hose in the barrel of water that the Hazmat team supplied. Then proceeded to purge the nitrogen out of the out of the receiver. We then noticed that there was residue NH3 mixed in with the Nitrogen. As our personal NH3 monitors were starting to climb around the barrel.
While we were purging the Nitrogen out of the receiver. I went and checked the unit #2 Ht exchanger for pressure. At the initial walk around, it was noted that this system had pressure showing on the gauge.
I installed a gauge on a purge valve at the bottom of the Ht exchanger Strainer to verify pressure. There was not pressure (0 PSI) shown on my gauge. I hooked up a purge line from the valve to a 5 Gallon bucket of water. Opened the valve and still no pressure. But did find approximately 1 litre of oil thou. Left valve open and let oil gravity drain out into a bucket. Refer to picture #5.
Then installed gauge on liquid line access valve on the Unit #2 receiver. Refer to picture #6. We then opened the valve and found that there was 50 PSI NH3 pressure in the receiver.

Picture #3

Unit # 4
M# P34



Picture #4



Picture #5

Picture #6

June 13, 2022
3rd Day
We were safety orientated upon arrival.
We then made a plan with the information we knew.
Once inside again. We finished purging off Unit #4 receiver to 0 PSI and then removed the gauge and opened all the valves to atmosphere.
We got a 250 Gallon tank ¾ full of water from Hazmat.
We then removed the gauge on Unit #2 receiver and hooked the purge hose to the same valve. We then started purging Unit #2 receiver into the tank of water. Refer to pictures #7 and 8.
The first tank of water was starting to get saturated with NH3 and was starting to smell and off gas NH3. This means that the water cannot hold or absorb any more NH3. So, we stopped and closed the purge valve. We then asked Hazmat for another 250 Gallon tank of water.
Once hazmat was able to supply the tank. We started the purging again.
While we were purging, I went to test Unit #2 accumulator and compressor. Tested both components with my gauge. They both registered 0 PSI. I then hooked up my purge line into a bucket of water and tested it that way as well. (No bubbles). Once I confirmed no pressure, I opened all the valves to atmosphere. Refer to picture #9.
I then started on Unit #2 evaporator again and started testing the upper vessels. Once I confirmed that there was no NH3 in that vessel I opened all valves to atmosphere. Refer to Picture #10.

I started on Unit # 3 (P24)
Checked for pressure on the Oil pot, Liquid line, and Compressor. Each using the same procedure as before. Each showing 0 PSI in each and no bubbles. Opened all valves to atmosphere. Refer to pictures #11 and 12
Once the Unit #2 receiver was at 0 PSI, and no more bubbles in the tank of water. We shut off the valves and hooked up a high-pressure nitrogen bottle to receiver. Then opened the purge valves again to help purge any residual NH3 out of the receiver. Using the same purge line into the tank of water as the original purge. Once we were finish the nitrogen purge. We removed the nitrogen hoses and the purge hoses and opened all the valves the atmosphere.
Note:

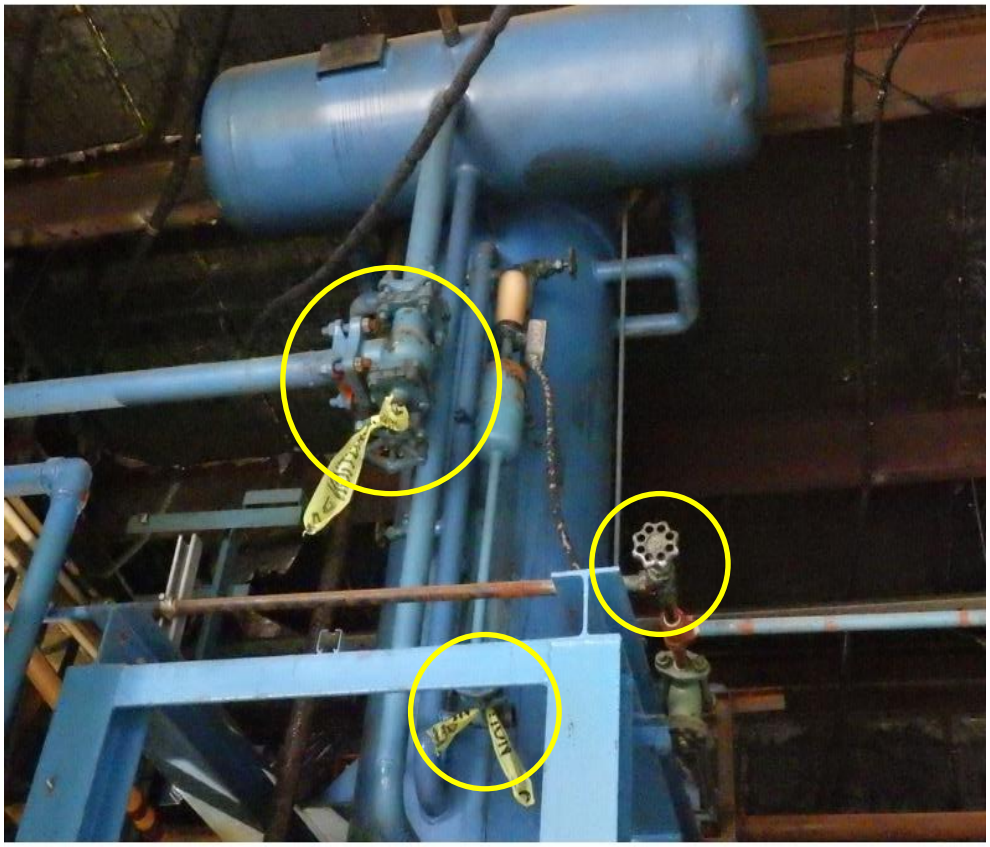
- I found a lot of oil in all the oil pot and bottom of the pressure vessels (Approximately 20 litres). As well as the Unit 2 Receiver (Approximately 1 litre). A sign of operators not doing a proper job.
- All liquid level site glass isolation valves were found closed. But are all open now.
- While purging the Unit #2 receiver we noticed a frost line on the bottom of the receiver. Refer to Picture #13. I estimate that we purged of around 100 lbs of NH3 Liquid out of system, with an undetermined amount of vapour.
- In my professional opinion, I would not allow this machinery to be reused for any reason due to the damage and neglect that this machinery has received. Without major repair and maintenance.

Picture #7.

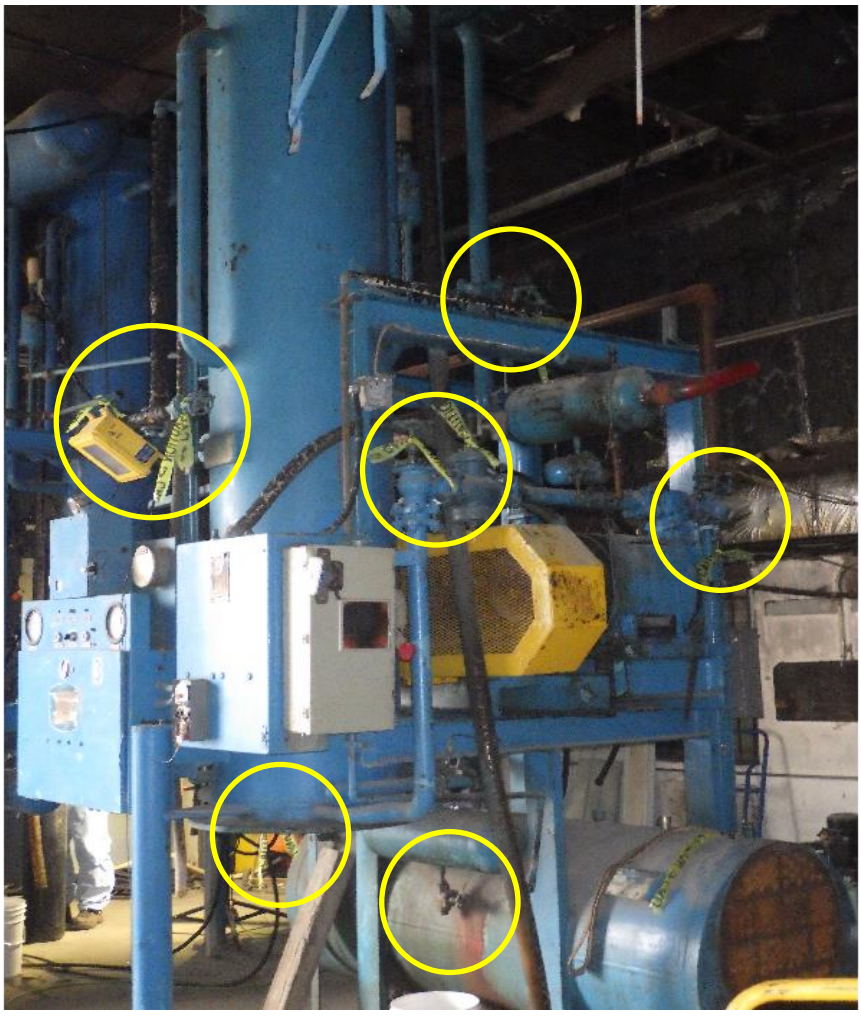
Picture #8.

Picture #9

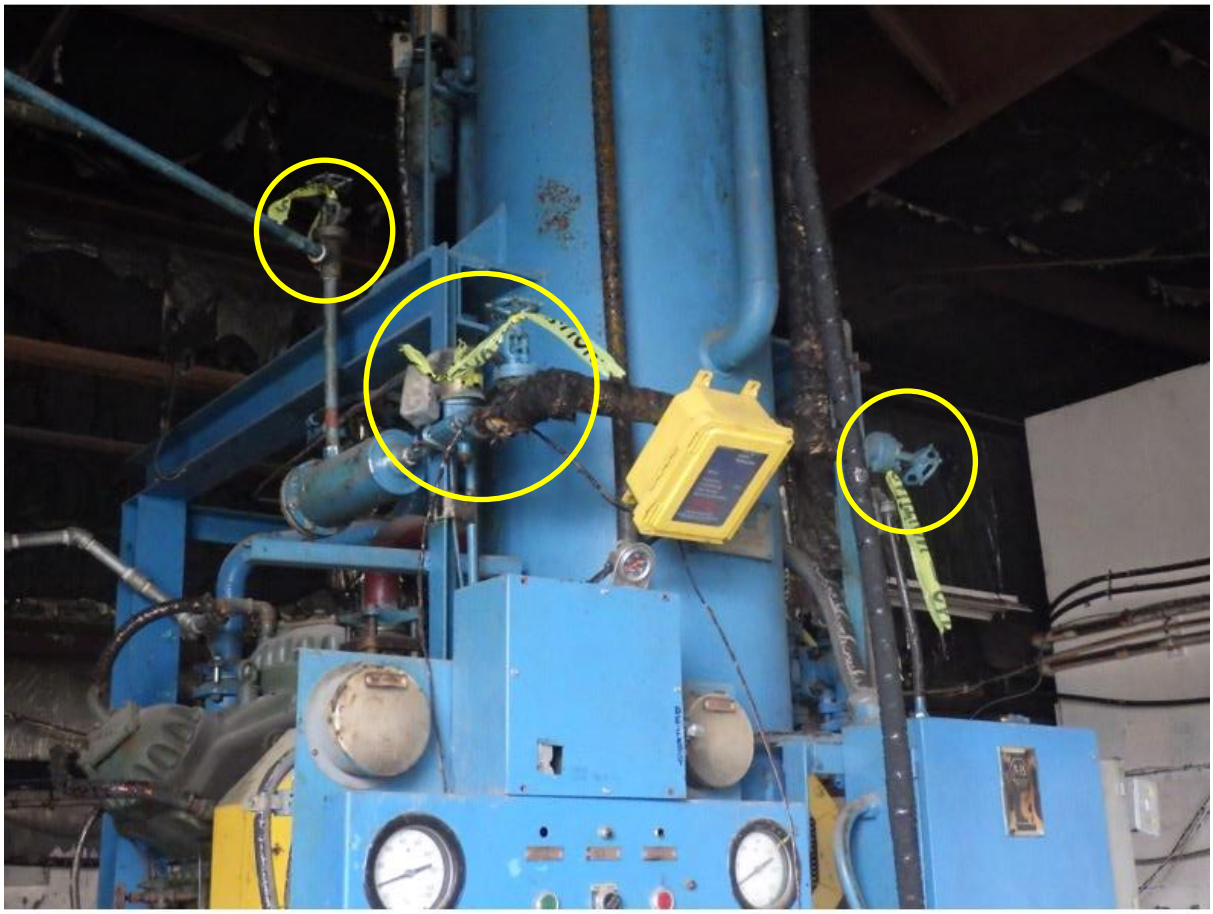
Picture #10



Picture #11

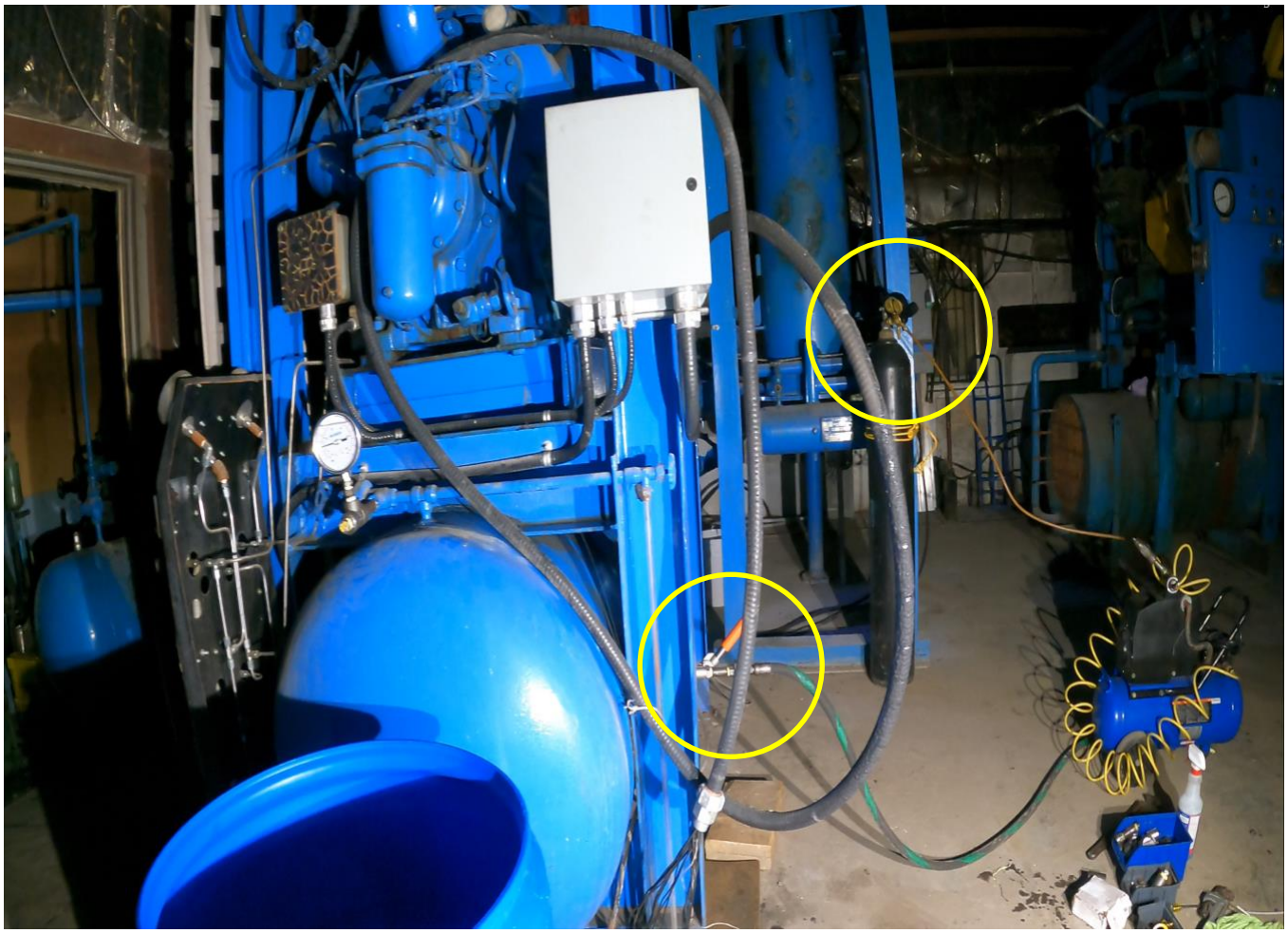


Picture #12.



Picture #13

Picture #14



Note:

- All valve when checked whether they were open or closed. Were first checked whether they were closed and then cracked open to double check for pressure. Then were fully opened and left open. All valves were found in the closed position. Except for the ball valve in picture #1.
- All component valves of Units #2, 3, and 4. Were left open to atmosphere and no pressure in systems.
- All valves circled in the pictures were left open to atmosphere.

Sincerely,

J Nicol

Jamie Nicol
General Manager and Chief Ammonia officer,
Complete Climate Control Inc.