



Course:	Plant Operator – NZQA 30127v1 included.		
Duration:	1 <sup>st</sup> Day Theory Lesson, applied learning	2 <sup>nd</sup> Day Practical & Observation	3 <sup>rd</sup> Practical & Exam
Pre-Requisites	None.		
Learning Outcomes:	<p><b>NZQA registered unit standard 30127v1 Demonstrate knowledge of Anhydrous Ammonia and its safe use as refrigerant:</b></p> <p>Outcome 1 - Demonstrate knowledge of New Zealand legislation, standards and codes relating to ammonia and its use as a refrigerant.</p> <p>Outcome 2 - Explain the properties of anhydrous ammonia and its use as a refrigerant.</p> <p>Outcome 3 - Describe the use and applications of anhydrous ammonia as a refrigerant.</p> <p>Outcome 4 - Describe the hazards relating to the use of ammonia as a refrigerant.</p> <p>Outcome 5 - Demonstrate knowledge of the procedures and equipment for working with refrigerant grade ammonia.</p> <p>Outcome 6 - Demonstrate knowledge of emergency and incident procedures for ammonia.</p> <p><b>Additional Plant Operator outcomes:</b></p> <p>Outcome 1 - Demonstrate Bowtie and HAZOP process in relation to compliance and risk-based approaches.</p> <p>Outcome 2 - Demonstrate knowledge of legislation and standards and safety assessments</p> <p>Outcome 3 - Demonstrate standard operating procedures for maintenance practices and Emergency response.</p> <p>Outcome 4 - Demonstrate respirator use and demonstrate knowledge of limitations in emergency context.</p> <p>Outcome 5 - Demonstrate emergency procedures in facilitated scenario.</p>		
Cohort:	Minimum of 3 - Maximum of 5, ages 17 and above, various skills and experience.		
Materials, Hosting requirements:	<p>Operational Ammonia Plant (Coldstore preferred)</p> <p>Classroom with Projector &amp; Laptop and white board</p> <p>Teacher Guide &amp; Course booklet(s)</p> <p>Plant Operator - Power Point 2019</p> <p>Videos links tested in PPT</p> <p>Printout of legislation &amp; controls sheet</p> <p>SWMS for SOPS</p> <p>Exam sheets, privacy and medical waiver forms</p> <p>Consumables: Markers, A2 flip charts, Baby wipes</p> <p>7x respirators (2 spare) , 2x CBRN suits</p> <p>Compliant extension leads, HDMI cables.</p> <p>ICP emergency board &amp; TARPS</p> <p>Boots, Glasses, Hiviz, Overalls, Gloves, Personal Gas detector.</p>		
Setup:	U shape tables – White board ready, ICP stuck to wall, space for learners to move freely, Refreshments and snacks available anytime.		

Day one – Active Classroom Session													
Outcomes delivered in this session.		1	☒	2	☒	3	☒	4	☒	5	☒	6	☒
0800	Welcome – Kawhe / Refreshments, Personal Introductions to the course Whanau, personal goals for the course established. Prior knowledge established.												
0815	Formalities; Classroom emergency procedures, group Health & Safety induction. What does health and safety mean to each learner? Icebreaker - what is the correct training pathway to work on Ammonia systems?												
0830	How to use the Course guidebook – (Starting page 9) Homework requirements												
0835	Introduction to Legislation framework, Acts, Regulations, Standards, Codes of Practice, Guides, Transportation & storage. Resource management act. (Check knowledge on pg14,16)												
0845	Group activity – Industrial Refrigeration systems, what are the differences in system design & appearance? Design Safety Critical Elements (SCE)												
0915	Group activity – Bowtie/Hazard Identification (In pairs sketch an Ammonia bowtie chart and use 3 examples of control from the ASNZS 5149.2016 Refrigeration Standards document.												
0930	What is Ammonia? Hazard Classifications, Physiochemical properties, Behaviours in our atmosphere, Flammability, Buoyancy, Environmental effects. Estimating release quantities. Health effects, on & off-site consequences of an Ammonia release, Workplace exposure guidelines decontamination & First aid.												
1000	Paramanawa (Morning Tea) - provided.												
1015	Why we use Ammonia as a refrigerant? pg17 (Check knowledge on pg24)												
1025	Group activity - Personal protection equipment, Legislation requirements, Selection, Storage, Maintenance. How & when to use respirator, White out drill introduction.												
1115	Safety observer/buddy system requirements, Communication, (Check knowledge on pg33)												
1200	Kai o te rānui (Lunch)												
1230	What can go wrong? Failure probabilities, Points of failure, Emergency planning Legislative requirements & effective capability (Check knowledge on pg45,59) Group activity – Investigation reports / Case studies.												
1300	Emergency control strategies – Pressure management, containment, Neutralisation, Evacuation.												
1400	Paramanawa (Afternoon Tea) - provided.												
1415	Group activity - Emergency scenario build												
1445	Desktop emergency scenario												
1530	Scenario Debrief, Recap, Q&A												
1600	Day complete.												

Day two – On site, Practical training, Plant entry procedures, Cursory inspection, Safety evaluation, Standard operating procedures, administration requirements												
Outcomes delivered in this session.	1	☒	2	☒	3	☒	4	☒	5	☒	6	☒
0800	Welcoming – Kawhe / Refreshments, Goals for the session. Revisit learnings from the classroom. Emergency procedures for the site.											
0815	Site approach, how to read wind indication/Signage, establishing staging areas, Engine room entry procedures, Cursory inspection, initial Logbook entry. (Site & Course book)											
0830	System monitoring analysis, using P/T chart, Non condensable's, System contamination. – log.											
0900	Group activity – Write a maintenance plan based on the known current status of plant using an asset management structure. (Housekeeping, Condition monitoring, Preventative checks, Intrusive maintenance.) pg86											
0925	Debrief, Q&A session											
0930	Group activity – Site safety evaluation check list. (Pg60)											
0955	Debrief, Q&A session											
1000	Paramanawa (Morning Tea) - provided.											
1015	Process Safety Management requirements for ammonia plants. – how these systems must be monitored.											
1030	Group activity – P&ID Drawing, draw a section of the plant or own design.											
1100	Debrief, Q&A session											
1115	Write emergency action plan & SWMS (DANCE) for the afternoons activities– Safety, alert, notification, pressure management, containment, Neutralisation, Shelter in place (SIP) /Evacuation. Sign on to SWMS											
1200	Kai o te rānui (Lunch)											
1230	Group activity – White out drill in yard.											
1245	Group activity – White out drill escape from plantroom.											
1300	Group activity – Safety observer duties, How & when to perform snap rescue											
1315	Group activity – White out drill snap rescue, decontamination.											
1400	Paramanawa (Afternoon Tea) - provided.											
1415	Group activity – Standard operating procedures – Starting & Stopping machines											
1430	Group activity – Standard operating procedures – Oil management & refrigerant transfer											
1530	Group activity – Standard operating procedures – Minor ammonia leak inspection											
1630	Debrief, Q&A session. – Complete logbook entry. Establish meeting point for next day's training. – Home work allocation.											

Day three – On site, Practical training, Emergency management, Emergency response procedures, Real world scenario, Examination.													
Outcomes delivered in this session.		1	<input type="checkbox"/>	2	<input type="checkbox"/>	3	<input type="checkbox"/>	4	<input type="checkbox"/>	5	<input type="checkbox"/>	6	<input checked="" type="checkbox"/>
0800	Welcoming – Kawhe / Refreshments, Goals for the session. Revisit learnings from the classroom & the practical session.												
0815	Group activity – Emergency management structures & initial actions. Pg73												
1000	Paramanawa (Morning Tea) - provided.												
1015	Group activity – Emergency scenario (integrated with FENZ & Site where possible)												
1200	Kai o te rānui (Lunch) –Debrief, Q&A session.												
1230	NZQA 30127v1 Invigilated Examination												
1400	Paramanawa (Afternoon Tea) - provided. - Debrief, Q&A session.												