



2015

**PROVISION OF
TRAINING FOR CO₂
AND AMMONIA**

— CASE STUDY





GCAP - Provision of training for CO₂ and Ammonia

ABOUT THE SYSTEM

This case study shows how GCAP trains technicians in order to meet the need for regulatory-compliant, energy-efficient, and safety-conscious technicians, who benefit the industrial world by providing environmentally friendly products to the consumer in the most efficient way possible. Ammonia Operator courses follow the guidelines set forth by the Ammonia Refrigeration Task Force Guidelines (ARTG) that are published by the International Institute for Ammonia Refrigeration (IIAR).

- » **Operator I Course:** Utilizes GCAP's new operator book "*Understanding Industrial Refrigeration from the Inside Out*," authored by Randy Williams and Jeremy Williams. This 14-chapter text, published on June 2, 2014, shows everything an operator/technician needs to know to see the refrigeration world both inside and out.
- » **Operator II Course:** Utilizes the 2012 edition of RETA's IR2 book, Industrial Refrigeration Book 2. This 10-chapter manual focuses on the troubleshooting of industrial refrigeration systems and shows an operator/technician what they need to understand when troubleshooting the system from both a hands-on and analytical perspective. Coupled with GCAP's supplemental material the course introduces operators to engineering diagrams as well as defrost systems, and cascade refrigeration focused on NH₃/CO₂ pumped and compression systems.
- » **Operator III Course:** Uses the Ammonia Refrigeration Library from IIAR and focuses on meeting the requirements an industrial facility must meet to maintain a safe facility, and on the design, safety, maintenance, and installation of a closed-circuit ammonia refrigeration system. The standards covered are ANSI-IIAR-1, ANSI-IIAR-2 including Addendum B, ANSI-IIAR-3, ANSI-IIAR-4, ANSI-IIAR-5, ANSI-IIAR-7, and Bulletins No. 107, 108, 109, 110, 111, 112, 114, & 116. In addition, the course gives a comprehensive look at a system through a review of plant specific P&ID's as well as ventilation calculations, and relief



Visit for more information

<http://www.ammoniatraining.com/>

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ABOUT THE COMPANY

Since 2003, GCAP has been the premier privately owned technical school for Operators, Engineers, Process Safety Managers, and Safety Managers across the United States. Industrial refrigeration training and industrial boiler training are our primary focus. The GCAP team provides education in efficiency, safety, and compliance for the industrial ammonia refrigeration/boiler operator. Our spectrum of ammonia refrigeration and boiler technician training is tailored for everyone from the beginner with no experience to the seasoned operator. GCAP supplies training to over 700 different companies and over 1,800 students per year.

valve calculations to meet the applicable standards

- » **PSM/RMP Course:** Utilizes GCAP's *"Implementing Process Safety Management for Ammonia Refrigeration Systems"* 5th Edition. This 23-chapter manual is focused on PSM/RMP regulations and creating one unified program to satisfy government regulations from OSHA, EPA, and DHS. This is the first book of its kind to not only incorporate the regulations as written, but also provide guidance from the CCPS on writing a successful program. It also has a compilation of citations obtained by GCAP through the *"Freedom of Information Act"* depicting the narrative and 1B reports by OSHA inspectors on the various elements of this program for the past 3 years. Accompanying this book is a CD, which has every document a facility needs to meet these regulatory requirements.
- » **CO₂ Technician Course:** Utilizes **Natural Refrigerant CO₂** 2009 edition. This 8-module manual focusing on CO₂ refrigeration, coupled with GCAP's additional information, prepares the technician for CO₂ transcritical systems as well as NH₃/CO₂ pumped cascade systems and NH₃/CO₂ compression cascade systems.
- » **Boiler Tech 1 Course:** Uses *"High Pressure Boilers"* Fifth Edition as the primary manual. This 13 chapter handbook enables the technician to gain a knowledge and understanding of boilers including steam cycle, fuel/energy source, utility boilers, industrial boilers, co-generation, design/application and heat transfer amongst several other operations.
- » **Boiler Tech 2 Course:** Utilizes *"Stationary Engineering"* 4th edition as the primary manual with supporting material from GCAP and several burner manufacturers. This 15-chapter handbook focuses on the combustion cycle. The seminar the seminar shows the technician how to monitor and test combustion for the reduction of emissions NO_x, O₂ trimming from a computer monitoring-system or hand held- devices, carbon dioxide formation and release, carbon monoxide generation, thermal heat transfer, and flame temperature.



RESULTS

GCAP's Mission Statement: *"Enhance the technology, efficiency, safety and educate the industrial technician through commitment"* has proven that with proper trained technicians/operators/engineers the Industrial/ Commercial World can have safe, efficient, and environmentally secure systems not only now but in the future.





Get in touch with shecco's Market Development team to learn more about the market for natural refrigerants in North America or find out how we can help you in gathering market intelligence and proactively building your business with our tailored market development services, to get your technology faster to market.

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<http://publication.shecco.com/publications/view/guide-north-america-2015>

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