



**WAGNER-MEINERT LLC**

Engineers – Contractors

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Refrigeration & HVAC  
Mechanical & Plumbing  
Food Process  
**PSM-RMP & Safety Services**  
Controls & Automation  
Planned Maintenance

## ARM LC (Ammonia Refrigeration Management – Low Charge) Program Development and Maintenance

Wagner-Meinert, LLC has developed an extensive implementation and maintenance program for Low Charge Ammonia Systems.

### Implementation Program:

1. Develop a Management System strategy
  - A. Draft Policy
  - B. Draft Responsibility Flow Chart
  - C. Develop a Review Schedule
  - D. Perform a Program Audit (5 years)
2. Refrigeration System Documentation
  - A. Draft Policy
  - B. Develop a Refrigeration Equipment List
  - C. Develop A Charging Document
  - D. Develop a Relief Valve List
  - E. Develop the Relief System Capacity Calculation
  - F. Compile Operation and Maintenance Manuals
  - G. Acquire Manufacturer's Data Reports and Certified Drawings for Vessels, heat Exchangers, and other ASME certified components
  - H. Electrical Diagrams
  - I. Develop Refrigeration Flow Schematics
  - J. Develop Design Specifications
  - K. Develop the Ventilation System Capacity Calculation
  - L. Perform a Maximum Intended Inventory Calculation
  - M. Document Safety Systems
  - N. Develop Refrigeration Plan Views
  - O. Develop a Pre-Charging Checklist
  - P. Develop a Pre-Startup Safety Review Checklist
3. Safety Review Procedures
  - A. Draft Policy
  - B. Conduct a Safety Review
  - C. Develop Follow-up Forms
4. Operating / Maintenance Procedures
  - A. Draft Policy
  - B. Draft Operating Procedures
  - C. Draft Maintenance Procedures
  - D. Draft a Procedure review Schedule
5. Maintenance Program
  - A. Draft Policy

- B. Develop Preventative Maintenance (PM) List and Schedule
- C. Establish a Critical Spare parts List
- 6. Training Program
  - A. Draft Policy
  - B. Develop Training Documentation
  - C. Conduct Training
  - D. Ammonia Safety Data Sheet
- 7. Refrigeration Management
  - A. Draft Policy
  - B. Conduct Program Audit
- 8. Incident Investigation Procedures
  - A. Draft Policy
  - B. Develop Investigation forms
  - C. Establish a Master Maintenance Log
- 9. Contractor Program
  - A. Draft Policy
  - B. Develop Approval Forms
  - C. Compile List of Approved Contractors
  - D. Develop Annual Evaluation Program
- 10. Emergency Response Program
  - A. Draft Policy
  - B. Develop an Emergency Action Plan
  - C. Draft a Letter of Coordination with Off-site Responders
- 11. Environmental Safety Evaluation
  - A. Draft Policy
  - B. Perform Off-site Analysis (5-years)
- 12. Refrigeration System Change Procedures
  - A. Draft Policy
  - B. Develop Change Forms
- 13. Additional Items
  - A. Draft Information Request Form
  - B. Draft Definitions List
  - C. Valve Labeling
  - D. Pipe Labeling
  - E. Equipment Labeling
  - F. Annual Ammonia Inspection
  - G. Mechanical Integrity Inspection
  - H. Pre-Startup / Pre-Charging / Decommissioning
  - I. Draft Master Document List
  - J. Develop System Rounds Log
  - K. Review Referenced Safe Work Practices
  - L. Develop Site Rules for Contractors