Introduction

- VRU Background
  - Issues with Conventional VRU
  - Objectives of Scroll Pilot
- The Scroll Package
- Benefits
Issues with VRUs

- Conventional VRU units blamed for $O_2$ spikes
- Frequent maintenance required
  - Created additional “down-time”
  - Resulting in increased emissions and valuable loss of high-BTU vapors
  - Could result in possible compliance issues
- Inefficient Operational Design
  - Undersized vent piping and/with 90s creates frictional pressure loss
  - Lengthy connective piping contained “fluid traps”
  - Pressure control at the VRU
Background - Objectives

Operationally enhance our current VRU design
Overcome downstream oxygen “spikes”

- We wanted to overcome our O₂ issue
- Reduce costs of obtaining an oxygen sensor
- Enhance operational design of our connective piping by increasing size and avoiding 90° angles
- Reduce distance from the tanks to the VRU unit and eliminate any “fluid traps”

Increase Efficiency and Reduce Maintenance

- Increase efficiency and run-time of the VRU units
- Eliminate time-consuming and costly maintenance
- Mount remote sensor pressure transducer on tank to better regulate tank pressure
- Current device mounted on the VRU unit
The Scroll Package

The Scroll Module & Compressor

- Commercial refrigeration design basis
- Increased tolerance to liquid slugs or debris events
- Positive displacement, oil flooded design
- Low sound, virtually no vibration, no pulsations
- Hermetically welded motor-compressor, no shaft seals
- Built for variable speed operation (2400-4800 rpm)
The Scroll Package
- Benefits

The Scroll Package - Gunbarrel Service
The Scroll Package - VFD Performance

The Scroll Package - Benefits Over Conventional VRU

- Trailer or Skid-mounted packages
- Hermetically sealed design
- Once per year maintenance
  - Quick
  - Low-cost
- Variable Frequency Drive (VFD)
- Few moving parts
- Low noise levels
- Can optimize HP by installing parallel modules, matching HP to fluctuating flow rates and pressures
The Scroll Package - Designed for Reliability

- Inclusion of a Programmable Blanket Gas Loop which automatically detects a loss in pressure and switches on Blanket Gas to the tank battery which removes the need for leaving thief hatches open and reduces the possibility of O2 (air) getting into the tanks.
- Automated blowcase and patented OMS is the key to handling high BTU vapors.

Thank You.