



Partner Experience: Western Gas Resources, Inc.

Don Anderson



Natural Gas Star
Producers and Processors Workshop
Wyoming



Outline



- Western Gas Resources' Gas STAR Program
- Methane Emission Reduction Activities
- Successes and Challenges

WGR's Gas STAR Program



WGR's Gas STAR Program

- Signed MOC in 2001
- First Report for FY2002
 - Included Historical Review back to 1990
- Reports Submitted Each Year
- Cumulative Emission Reductions
 - Approximately 3 Bcf
- Awards Received in 2003, 2004 and 2005



Methane Emission Reduction Activities



Methane Emission Reduction Activities

- Hot Taps/Clamp and Fuse
- Convert Gas to Pneumatic Controls
- Replace Dehy with Methanol Injection
- Change Gas to Solar Powered Pump
- Compression Consolidation and Optimization
- Installation of a Stabilizer Skid
- Install Flare for Pipeline Maintenance
- Route Dehy Overheads to Flare



Methane Emission Reduction Activities



- Use IR Camera for Leak Identification
- Install Electric Starters
- Redesign Blow Down Systems/ Alter ESD Practices

Replace Dehy with Methanol Injection



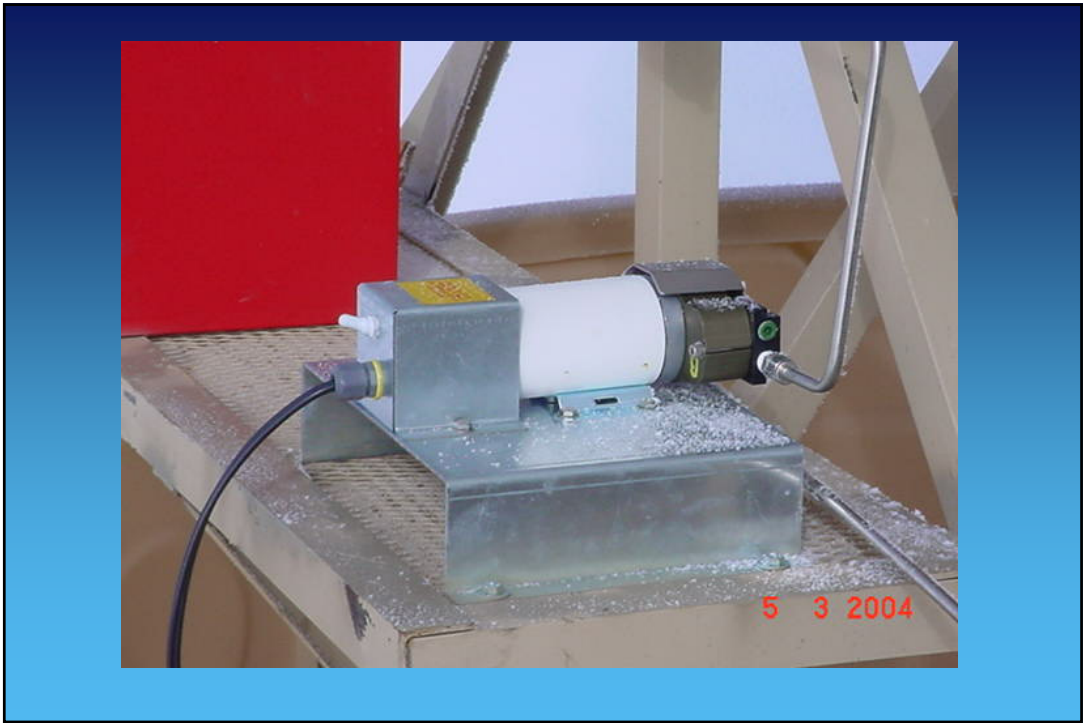
- Cold winter temperatures (Wyoming)
- Low pressure gathering system
 - 50 to 400 psig
- Wet gas freezing up in glycol pumps
 - Downtime
- Solution
 - Injection of a glycol or methanol
 - To lower the hydrate formation temperature at a given pressure

Solution



- Methanol Injection
- Solar Powered Pumps
- Manufactured by Solar Injection Systems, Inc.
 - www.Sunpumper.com







Benefits Solar Pumps

- Eliminate Dehys
- Lower Emissions
 - VOC's, methane and CO₂
- Fewer Environmental Problems
- Lower Fuel and Gas Usage
- Ease of Operations



Solar Pumps-Other Uses



- Any gas driven chemical pump
- Any electric chemical pump
- Any instrument air pump
- Examples
 - Corrosion inhibitor
 - H₂S Scavenger
 - O₂ Scavenger

Compression Consolidation and Optimization



IR Camera for Leak Detection



Successes and
Challenges



Successes and Challenges



- ★ Buy-in with Executive Management
- ★ Emissions reduction is becoming part of WGR culture
- ★ Field Operations Manager training provided semi-annually
- ★ Internal Awards Program
- ★ Gas STAR is now an important of our corporate image

Contact Info



- Don Anderson
Western Gas Resources, Inc.
1099 18th Street Suite 1200
Denver, CO 80202
Ph. 303.450.8411



Questions and Answers



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