



Shale Gas Innovation Contest

Water Storage and Distribution

May 12, 2015

Hilton Garden Inn

Southpointe, PA

# FMW

Rubber Products, Inc.

## Purpose



- Provides bulk liquid storage on site
- Reduce transportation cost and permits
- Eliminates unsightly and hazardous pits
- Eliminates risk of waterfowl and wildlife mortality related to pits
- Eliminates risk of damaging underground pipelines and utilities

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## Function

- Various service liquids can be stored and transferred from one central location to service multiple surrounding well sites
- Risk of dangerous vapors will not accumulate as the tank continuously adjust itself to whatever volume of liquid is in storage
- 50% better heat retention than steel
- Water can be cleaned on site and put right back into tanks
- Flexible hose line system can cover miles of terrain, eliminating need for water transfer trucks

# FMW

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### Hose Reel System

- 2 Reel Bases
- 2 Power Units
- 11 Reels with Lay Flat Hose
- 2,400 FT of 6" Lay Flat Hose Per Reel = 5 miles
- One Remote Control
- Ancillary Equipment
- Can transfer 450,000 to 671,000 GPD
- Can be installed at a rate of 13.5 Miles Per Day

### Tank Farm

- Plug and Play System connect as many tanks together as needed
- Each Tank has eight inlet/outlet ports
- Manifold system can be placed as needed to distribute liquid to specific tanks as required
- Tank fabric is tested to 73,000 cycles and is designed to handle all weather conditions from -58°F to +161 °F
- Typical life span is five to seven years dependent on weather and chemicals
- Field tested to more than 200 moves without weld separation
- Can be patched on site with minimal leakage




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## Maneuverability

- One semi-truck can transport several tanks to setup site with a combined storage capacity of over 1 million gallons
- Small crew can set-up or knock down a million gallon system in one day

# Commercialization Status

- Multiple manufacturers throughout US and Canada
- FMW will design a system suitable for each customer's needs utilizing off the shelf items and sub-systems
- Timeline is immediate—driven only by design and delivery of readily available COTS items
-  = \$196,480.00 per 210,000 gallon tank unit
-  = \$45,350.00 per 50,000 gallon tank unit
-  = \$ Lease for \$206.00 per day per tank not including fuel and DOT Fee's

## Examples/comparisons of Competing Technology



➔ 5 X 210,000 Gallon tanks = 1 Million Gallons ➔ 33,440 Sqft area/  
3,000 lbs. per tank empty



➔ 20 X 50,000 Gallon tanks = 1 Million gallons ➔ 42,340 Sqft area/  
1,279 lbs. per tank empty



➔ 48 Fixed axle steel tanks = 1 Million gallons ➔ 45,120 Sqft area/  
29,950 lbs. per tank empty

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## Key Partners

- NGInnovations, Inc.
- Commonly known as NGI, it was established in Feb. 2006 having assembled an experienced management team with a proven track record. Working closely with industry and regulators, NGI has demonstrated and provided water quality solutions, keeping efficiency and cost constantly in mind.
- NGI's current product line includes the NGPure™ Recovery System, the NGPure™ Separation System, the NGPure™ MRU System and the NGPure™ C-FIT System. The technology included in each of these systems is engineered to specifically deal with issues clients encountered in dealing with cleaning up water of varying quality.
- You may obtain additional information by going to:
  - [web page: www.nginnovations.com](http://www.nginnovations.com) or going to our Facebook page at: [nginnovations.com](https://www.facebook.com/nginnovations.com)
- Orange Construction Corporation- On site engineering to prep site and construction of containment berms as needed



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## Current Projects

### GROUND EXPEDIENT REFUELING SYSTEM (GERS)

Ten years of battle proven capability around the globe, with continuous testing and improvements for a variety of customers with unique, demanding requirements



GERS enables fuel to be delivered to equipment when the terrain or the situation won't allow direct fuel truck access





# FMW Rubber Products, Inc.

- First established in 1994 in partnership with Teledyne/General Dynamics to manufacture fuel systems for M-1 Abrams tank
- Entered composite work with NASA and became recognized leader in Titanium Metal Matrix Composite materials
- Designed and built first all-composite flight critical subsystem for the Shuttle program (will go to Smithsonian)
- More than \$100M in grants from USAF, USN, USMC, US Army and NASA since 2000
- Representative companies as sub-contractors to FMW include: Boeing, GE Aviation, Pratt, Rolls Royce, Honeywell, Raytheon
- FMW has manufactured aircraft structures, turbine engine components, warheads, and drilling components for Haliburton
- Awarded multi-year grant from USAF for three concurrent national defense critical technologies—SiC fiber, TMC and ETi (Titanium powder, Ti composites and enhanced Titanium)

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**Rubber Products, Inc.**

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