

UNIVERSAL
WELL SERVICES, INC.



Tom Watkins

Director of Supply Chain
Management

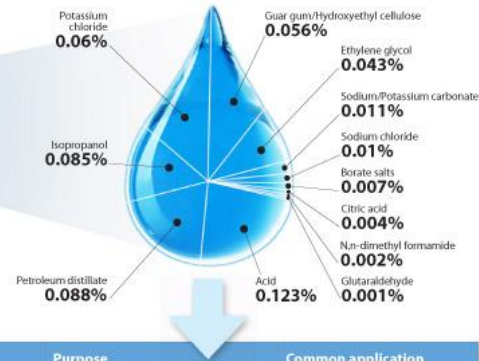






A FLUID SITUATION: TYPICAL SOLUTION* USED IN HYDRAULIC FRACTURING

0.49%
ADDITIVES*



Compound*	Purpose	Common application
Acids	Helps dissolve minerals and initiate fissure in rock (pre-fracture)	Swimming pool cleaner
Glutaraldehyde	Eliminates bacteria in the water	Disinfectant; Sterilizer for medical and dental equipment
Sodium Chloride	Allows a delayed break down of the gel polymer chains	Table Salt
N, n-Dimethyl formamide	Prevents the corrosion of the pipe	Used in pharmaceuticals, acrylic fibers and plastics
Borate salts	Maintains fluid viscosity as temperature increases	Used in laundry detergents, hand soaps and cosmetics
Polycrylamide	Minimizes friction between fluid and pipe	Water treatment, soil conditioner
Petroleum distillates	"Slicks" the water to minimize friction	Make-up remover, laxatives, and candy
Guar gum	Thickens the water to suspend the sand	Thickener used in cosmetics, baked goods, ice cream, toothpaste, sauces, and salad dressing
Citric Acid	Prevents precipitation of metal oxides	Food additive; food and beverages; lemon juice
Potassium chloride	Creates a brine carrier fluid	Low sodium table salt substitute
Ammonium bisulfite	Removes oxygen from the water to protect the pipe from corrosion	Cosmetics, food and beverage processing, water treatment
Sodium or potassium carbonate	Maintains the effectiveness of other components, such as crosslinkers	Washing soda, detergents, soap, water softener, glass and ceramics
Proppant	Allows the fissures to remain open so the gas can escape	Drinking water filtration, play sand
Ethylene glycol	Prevents scale deposits in the pipe	Automotive antifreeze, household cleansers, deicing, and caulk
Isopropanol	Used to increase the viscosity of the fracture fluid	Glass cleaner, antiperspirant, and hair color

On average, **99.5%** of fracturing fluids are comprised of freshwater and compounds are injected into deep shale gas formations and are typically confined by many thousands of feet or rock layers.

Source: DOE, GWPC: Modern Gas Shale Development in the United States: A Primer (2009)

*The specific compounds used in a given fracturing operation will vary depending on source water quality and site, and specific characteristics of the target formation. The compounds listed above are representative of the major material components used in the hydraulic fracturing of natural gas shales. Compositions are approximate.



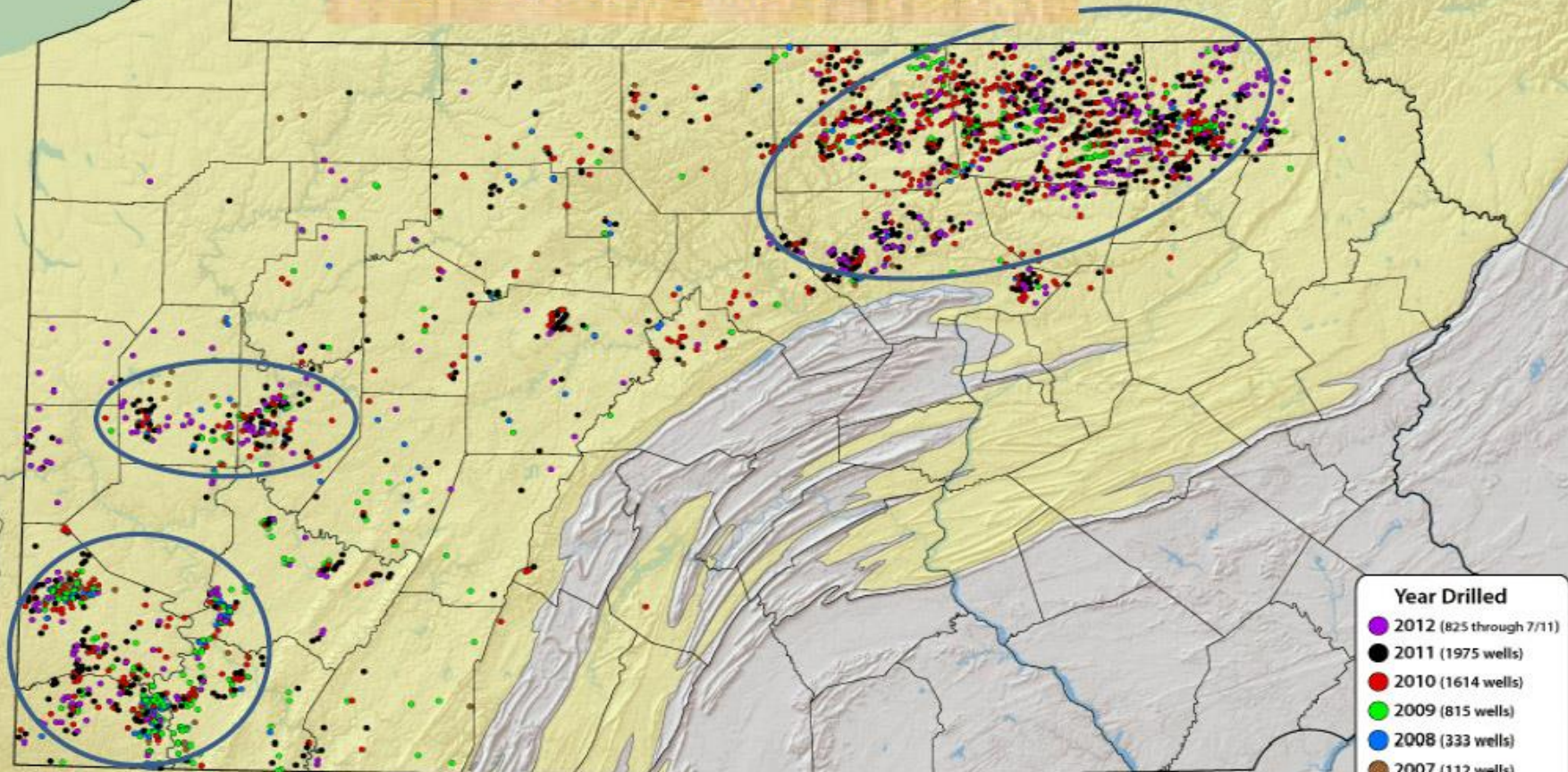








Marcellus Shale Wells



Appalachian Basin Frac Sand Estimated Traffic

State	Rig Count			Frac Jobs Required	Railcars/Mo Required	Railcars/Yr Required	Truckloads/Yr Required
	May-12	Feb-13	May-13				
Pennsylvania	96	59	60	20	2,000	24,000	96,000
Ohio	16	31	32	11	1,100	13,200	52,800
West Virginia	21	24	24	8	800	9,600	38,400
Basin	133	114	116	39	3,900	46,800	187,200

Rig Count Considerations



- Competition for Rigs
 - Oil vs. Natural Gas
- In Gas Fields
 - Wet Gas vs. Dry Gas
- Efficiencies
 - Walking Rigs
 - Pads

PennDot Grant #1



PennDot Grant #2

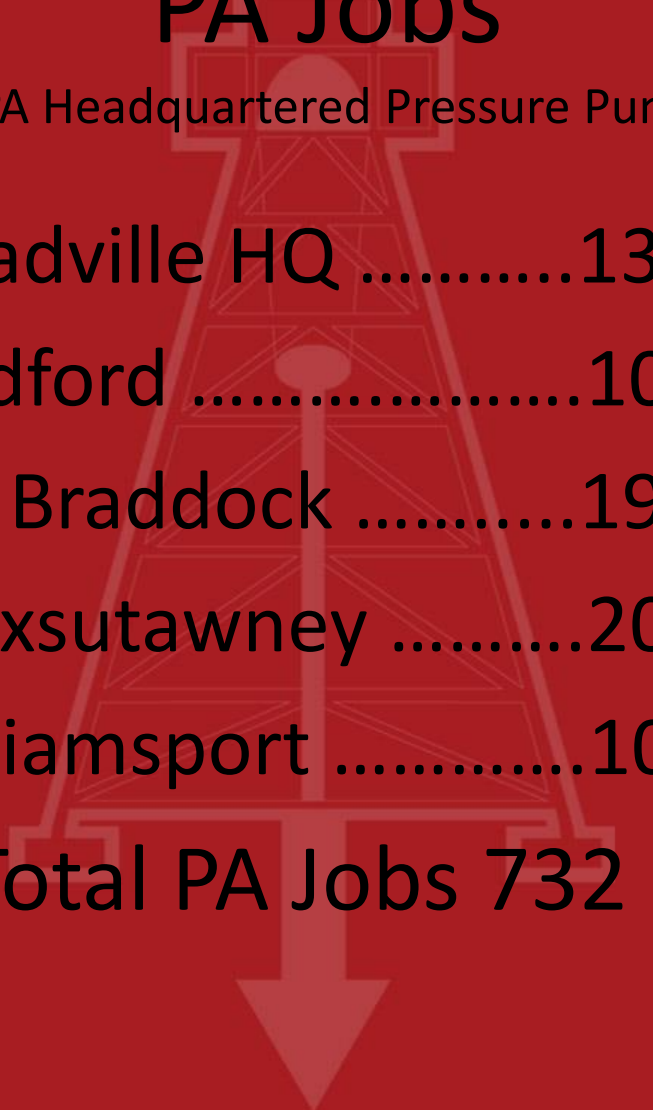


Rail?

- Why?
 - Established Infrastructure
 - Reasonable Transportation Times
- Why Not?
 - Monopolistic Routes = Unilateral Rates
 - Frequent Job Changes = Car Hire + Track Occupancy Costs
 - Expectation of annual rate increases
 - Water is an option

PA Jobs

UWS-Only PA Headquartered Pressure Pumping Entity



Meadville HQ	135
Bradford	103
Mt. Braddock	192
Punxsutawney	202
Williamsport	100
Total PA Jobs	732

Thank You!!!

