

My name is Dave Knutson. For 6 years I was Chief of the Sapello Rociada Volunteer Fire Department. During my tenure I oversaw the attainment by the SRVFC of one of the first ISO Class 8B ratings ever given to any fire department.

Professionally I am a general and electrical contractor with 35 years of experience and currently run Knutson Construction Co.

The prospect of the drilling and fracturing of horizontal natural gas wells in this county causes a number of concerns for the Emergency Response community. The wells themselves have a history of unpredictable events happening, some of them as spectacular as blowouts and well head fires.

Literature shows the industry needs in the neighborhood of 1800 to 2000 vehicle trips back and forth to the well head **per fracture**, about ½ of these being heavy trucks carrying water, alcohols, oxidizers, hydrocarbons, silicates or other various chemicals necessary for the fracturing process.(1)(2) Obviously, this level of vehicular traffic brings its own concerns, from wear and tear on rural roads themselves to the inevitability of increased vehicular accidents to the possibilities of spills of hazardous and controlled substances, to the possibility that this level of traffic could in and of itself slow emergency response times in already difficult to access rural areas. I'll return to the subject of roads in a few minutes.

San Miguel County's current firefighting capabilities are geared toward structural firefighting, personal safety and EMS operations and wildland firefighting. None of these volunteer fire departments is set up to handle industrial chemical spills, hazardous and controlled substance spills, chemical or well fires, methane or other well byproducts or related Emergency Medical incidents.

Many of the chemicals used in the fracturing process are explosively flammable. Many are toxic to people, animals or flora if breathed, ingested or absorbed through skin by direct physical contact.

To be able to adequately respond to chemical and hazardous substance spills, chemical fires and related EMS incidents our volunteer fire departments will need substantial additional equipment, training, personnel and commitment by that personnel.

To adequately respond to fires involving these materials each Class A fire pumper will need to be equipped with a Compressed Air Foam System for Class A & B foams at a cost of \$50k-\$100k per fire truck. Additionally **each** responding firefighter will need a Self Contained Breathing Apparatus at a cost of \$2k to \$5k each, with 20 minute refill bottles costing \$1k to \$2K apiece. While it has become a priority for our departments have enough SCBA's to support structural entry teams, most are a long way from having enough to support each member having an SCBA, let alone an adequate number of refill bottles for a sustained incident.

The complexity of EMS incidents is also likely to increase, as the potential for EMS responders being exposed to Hazardous Materials, inhalation incidents, confined space rescues and multiple patient scenarios increases. As Mora county is now finding, it may be significantly more expensive to contract with an Ambulance Service willing to operate under these conditions.

While it is probably only practical for county level Emergency Responders to maintain training at the Haz Mat "Awareness" level, due to the extent of training and equipment necessary to move up to the "Operations" level, HazMat first responders will still need to be prepared to set up evacuation zones around these incidents for perimeters of as much as ½ mile in all directions from the incidents. The final costs of cleaning up Hazardous Material spills often runs into many thousands of dollars.

None of the issues I've just discussed will happen without making sure these volunteer fire department and EMS personnel have the adequate training necessary to determine the materials involved and the tools and procedures to use to respond appropriately to the incidents that are sure to arise if well fracking ensues here in San Miguel County.

There are others making presentations here today who are much more qualified than myself to address the issues surrounding the impact on local water resources. From the Emergency Response standpoint, if there is an increase in Emergency Response incidents there will also be an increased demand by the Emergency Responders for already limited water resources. I will leave it to others more qualified than I to deal with water resource issues.

San Miguel County currently has 13 fire districts, 16 main or sub-stations with an additional 10 stations and substations planned or under currently under construction, for a total existing commitment to 26 fire stations or sub-stations, each of which will require upgrading to meet the minimum state of preparedness for this new industrial activity in our county.

If costs per station for Class A & B Compressed Air Foam System fire trucks, SCBA's for responding firefighters, training to operate this suppression equipment, for advanced chemical firefighting, Hazmat and EMS training are \$150K to \$250K per station, the up-front costs for the existing stations & sub-stations exceeds \$2.4 million with the upper end costs for all stations now in planning or under construction being at least \$6.5 million. All of these costs are for preparedness only and do not include any costs that would be incurred from an actual incident happening.

Roads.

Now I'd like to return to roads for a moment.

San Miguel County currently has over 500 miles of roads which it maintains. The costs associated with the development of those roads are currently on the order of \$80k per mile, including grading, drainage, culverts and road base materials. Additionally these same county roads contain a number of bridges, which cost starting at \$30k on up to replace, depending on length, width and load capacity of the bridge. The simple value then of the roads themselves for which San Miguel County is responsible, exclusive of bridges, signs and maintenance then is in excess of \$40 million.

The industry itself cites that horizontal wells which are hydraulically fractured require 2 to 3 times the vehicular traffic to and from the well sites as conventional vertical wells. This amounts to somewhere around 1000 round trips per well (which is 2000 individual trips) for heavy trucks and equipment and a similar number of lighter vehicle trips per well. There are times during the fracturing process itself when the traffic may exceed 250 one way trips per day.(1)

All of this means that there will certainly be accelerated wear and tear on these county roads. Surely culvert ends, bar ditches and bridges will be damaged. For perspective, the Alaska Department of Transportation developed a “rule of thumb” that one trip by a single large truck is equivalent to 9,000 individual automobile trips.(3) The rule of thumb then, implies that one hydraulically fractured well will contribute wear and tear equivalent to 9 million automobile trips.

Even considering the several thousand actual light and heavy truck trips, there also are likely to be vehicular accidents and breakdowns associated with this extra traffic, which will increase the load on the county’s Emergency responders.

I’ve just briefly identified \$46.5 million in exposure the county has in the areas of roads and Emergency Response liabilities alone. My concern is that we need to protect our investment in these valuable resources and include mechanisms in San Miguel County’s Oil and Gas Ordinance to ensure that the industry provide direct and adequate compensation for the impacts it will cause on the county’s Emergency Response System and Road System when this activity begins.

- (1) New York State Department of Environmental Conservation, Revised Draft Supplemental Generic Environmental Impact Statement, September 2011.
- (2) Freeing Up Energy. Hydraulic Fracturing: Unlocking America's Natural Gas Resources published by the American Petroleum Institute, 7-19-2010.
- (3) Alaska Flexible Pavement Design Manual, Published by Alaska Department of Transportation & Public Facilities, effective 4-1-2004.