

**Public Safety Committee**  
**Monday, June 7, 2010 3:30 PM**  
Scott Heyman Conference Room

*Approved*

**Call to Order**

<b>Attendee Name</b>	<b>Title</b>	<b>Status</b>
Nathan Shinagawa	Chair	Present
James Dennis	Member	Present
Leslyn McBean-Clairborne	Member	Present (arrived at 3:55 p.m.)
Brian Robison	Member	Excused
Peter Stein	Member	Excused

Ms. Robertson appointed herself as a Temporary Member until Mrs. Mc-Bean-Clairborne arrived.

Staff: G. Potter, Director of Information Technology Services; J. Mareane, County Administrator; M. Pottorff, Chief Deputy Clerk of the Legislature; M. Lynch, Public Information Officer; S. Zhang, Administration Intern; P. Buechel, Director of Probation and Community Justice; P. Meskill, Sheriff; L. Shurtleff, Director of Emergency Response; S. Cook, Chair of Criminal Justice Advisory/Alternatives to Incarceration Board

Legislators: M. Robertson, Chair

Guests: S Shackford, Ithaca Journal Reporter; J. Carey, WHCU; W. McDermott, Assigned Counsel Interim Supervising Attorney

**Call to Order**

The meeting was called to order at 3:30 p.m.

**Changes to Agenda**

Mr. Shinagawa said there were no changes to the agenda. However, he requested the Sheriff's resolution be moved up on the agenda for action prior to a Committee member needing to leave the meeting.

**Assigned Counsel Statistics**

Ms. Robertson said one of the recommendations of the Assigned Counsel Task Force was to look at how many students are using the Assigned Counsel Program and whose families might be able to pay for the cost. A preliminary discussion with Cornell took place where it was decided to proceed with determining what actual the costs involved are and then then decide how to move forward. Included in agenda packets are three years worth of statistics for students of Ithaca College, Cornell, TC3, and high school using the Assigned Counsel Program. Ms. Robertson said after reviewing these costs she does not think there would be enough savings to justify pursuing this further at this time. As an example, the costs for Cornell ranged from \$7,400 in 2006 to \$3,500 in 2008.

**Presentation on the History and Evolution of the Natural Gas Industry by Theodore F. Them, MD, MS, PhD, MPH of Guthrie Clinic in Sayre, Pennsylvania**

Dr. Them made a Powerpoint Presentation on the history and evolution of the natural gas industry. In his presentation he explained how it is being done, why it is being done, and its impact on communities. He began the presentation by showing a six minute video by Talisman Energy (formerly known as Fortuna, about how gas is being taken out of the ground). Throughout his presentation he referred to "risk vs. benefit" and said many activities associated with natural gas drilling are based on that philosophy. Dr. Them outlined his many years of experience with the subject of gas drilling and explained his current position as Chief of the Section of Occupational and Environmental Medicine at Guthrie Clinic. He stated currently from his office at Gurthrie Clinic he witnesses many drilling trucks that are traveling to Bradford County where many well sites are being established.

Mr. Them said natural gas is going to be a major commodity in the country, it burns cleaner, there is less pollution, engine wear is about one-third, it is easy to store, it is a high-energy material, and it is relatively safe; the driving forces in the natural gas industry are energy independence and money.

The following text is from Dr. Them's presentation with comments made during the presentation incorporated.

### **Ancient History of Natural Gas**

- Sometimes, lightning strikes would ignite natural gas that was escaping from under the earth's crust. It would create a fire coming from the earth, burning the natural gas as it seeped out from underground
- These fires puzzled most early civilizations. Were the root of much myth and superstition
- One of the most famous of these types of flames was found in ancient Greece. On Mount Parnassus, approximately 1,000 B.C.; herdsman came across what looked like a "burning spring". Flame rising from a fissure in the rock
- The Greeks believed it to be of divine origin; built a temple on the flame
- Temple housed a priestess – known as the Oracle of Delphi; gave out prophecies she claimed were inspired by the flame
- Extends to antiquity - In America, was known to the Indians
- Observed it issuing from the ground in various spots
- Chiefly along the western side of the Appalachian Highlands
- As early as 1626, French explorers discovered natives igniting gases that were seeping into and around Lake Erie
- America natural gas industry got its beginnings in the Lake Erie area. In 1959, Colonel Edwin Drake (a former railroad conductor who adopted the title "Colonel" to impress the townspeople) dug the first well in Titusville, Pennsylvania
- Drake hit oil and natural gas at 69 feet below the surface of the earth
- Most in the business characterize this well as the beginning of the natural-gas industry in America.
- Two-inch diameter pipeline built, running 5½ miles from well to the village of Titusville, Pennsylvania
- Construction of this pipeline proved that natural gas could be brought safely and relatively easily from its underground source to be used for practical purposes.

1821 – first well specifically intended to obtain natural gas was dug in Fredonia, New York, by William Hart

- After noticing gas bubbles rising to the surface of a creek, Hart dug a 27-foot well to try and obtain a larger flow of gas to the surface
- Hart is regarded by many as the "father of natural gas in America"
  - The Fredonia Gas Light Company was eventually formed
  - The first American natural gas company
- Effect was so striking compared to gas made from coal that a German scientist hailed the beautiful, clear gas lights as the "eighth wonder of the world". The first use of natural gas was to light the streets for safety purposes.
- Gas associated with Pennsylvania oil was first used for industrial purposes in Pittsburgh
  - General use then spread to other industrial centers
- Most of the 19<sup>th</sup> century – natural gas used almost exclusively as a source of light
- Without a pipeline infrastructure, difficult to transport the gas very far, or into homes to be used for heating or cooking
- Most of the natural gas produced in this era was manufactured from coal, as opposed to transported from a well

- Near end of 19<sup>th</sup> century, with the rise of electricity, natural gas lights were converted to electric lights
  - Led producers of natural gas to look for new uses for their product
- 1885 - Robert Bunsen invented what is known as the Bunsen burner
  - Managed to create a device that mixed natural gas with air in the right proportions, creating a flame that could safely be used for cooking and heating
  - Invention of the Bunsen burner opened up new opportunities for the use of natural gas in American and throughout the world
  - Invention of temperature-regulating thermostatic devices allowed for better use of the heating potential of natural gas
  - Allowed the temperature of the flame to be adjusted and monitored

Mrs. McBean-Clairborne arrived at this time.

- Without any way to transport it effectively, natural gas discovered pre-WWII was usually just wasted
  - Vented into the atmosphere
  - Burnt, when found alongside coal and oil, or
  - Simply left in the ground when found alone
  - One of the first lengthy pipelines was constructed in 1891 and was 120 miles long; carried natural gas from wells in central Indiana to the City of Chicago; very rudimentary – did not transport natural gas efficiently
  - It wasn't until the 1920's that any significant effort was put into building a pipeline infrastructure
  - After World War II, welding techniques, pipe rolling, and metallurgical advances allowed for the construction of reliable pipelines; led to a post-war pipeline construction boom lasting well into the 1960's; created thousands of miles of pipeline in America.
  - Once the transportation of natural gas was possible, new uses for natural gas were discovered: to heat homes, operate appliances such as water heaters and oven ranges, manufacturing and processing plants, heat boilers used to generate electricity
  - Transportation infrastructure made natural gas easier to obtain and expanded its uses

Dr. Them displayed a map showing the network of the natural gas pipeline network. It is growing dramatically; the "Tennessee" pipeline in Northern Pennsylvania comes directly through to New York City and they are already pumping millions of cubic feet of natural gas per day through this pipeline.

Before Marcellus Shale:

- So-called "proved reserves" in the US are around 160 trillion cubic feet of gas
- As with oil, finding a gas is the job principally of geologists; many of the same techniques are used, especially seismic studies
- The discovery of gas is often a byproduct of the search for oil
- Many states have large, scattered supplies of natural gas; in this area there is a large, concentrated supply

Current price of natural gas is \$6 per thousand cu. ft. retail; by the time it gets to the home is \$15 per cu. ft.

### **“Evolution of the Local Gas Industry”**

What is Marcellus Shale? It is a black, low-density organic-rich shale left from rotting, decaying vegetation from millions of years ago. As it decayed it was covered with more sediment and trapped the gas. The gas is trapped in the rock and does not flow in the shale. It is a low-pressure gas until it is released.

- Also referred to as the Marcellus Formation
  - Middle Devonian-age black, low-density, carbonaceous (organic-rich) shale
  - Occurs in the subsurface beneath much of Ohio, West Virginia, Pennsylvania, and New York
  - Small areas of Maryland, Kentucky, Tennessee, and Virginia are also underlain by the Marcellus Shale
- A few years ago, every geologist involved in Appalachian Basin Oil and gas knew about the Devonian black shale called the Marcellus;
  - Black color made it easy to spot in the field
  - Its slightly radioactive signature made it a very easy pick on a geophysical well log
- However, very few of these geologists were excited about the Marcellus Shale as a major source of natural gas
  - Wells drilled through it produced some gas but rarely in enormous quantity
  - Few, if any, in the natural gas industry suspected that the Marcellus might soon be a major contributor to the natural gas supply of the United States – large enough to be spoken of as a “super giant” gas field
- As recently as 2002, the United State Geological Survey, in its *Assessment of Undiscovered Oil and Gas Resources of the Appalachian Basin Province*, calculated that the Marcellus Shale contained an estimated undiscovered resource of about 1.9 trillion cubic feet of gas
- That’s a lot of gas, but, spread over the enormous geographic extent of Marcellus, it was not that much per acre
- Range Resources – Appalachia, LLC, may have started the Marcellus Shale gas play
  - 2003 – drilled a Marcellus well in Washington County, Pennsylvania, and found a promising flow of natural gas
  - Experimented with drilling and hydraulic fracturing methods that worked in the Barnett Shale of Texas
  - First Marcellus gas production from the well began in 2005
  - Between then and the end of 2007, more than 375 gas wells with suspected Marcellus intent had been permitted in Pennsylvania

Dr. Them said they are going to drill 300 gas wells in Bradford County this year, 1,000 next year, 2,000 the next year, and 4,000 the following year. They don’t know how many wells they have to drill to optimize the flow and maximize the gas they get out of the ground and they may be drilling 15-20 wells per square mile.

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- Early 2008 – Terry Englander, a geoscience professor at Pennsylvania State University, and Gary Lash, a geology professor at the State University at Fredonia, surprised everyone with estimates that the Marcellus might contain more than 500 trillion cubic feet of natural gas
  - Using some of the same horizontal drilling and hydraulic fracturing methods that had previously been applied in the Barnett Shale of Texas, perhaps 10% of that gas (50 trillion cubic feet) might be recoverable
  - That volume of natural gas would be enough to supply the entire United States for about two years and have a wellhead value of about one trillion dollars

Dr. Them said the shale deposit begins in the Syracuse area and extends down to Pennsylvania, West Virginia, Kentucky, and Tennessee. At this time he displayed a diagram showing the Barnett Shale Deposit vs. the Marcellus Deposit. He said they have been drilling Barnett Shale for 20 years and are not close to getting all the gas out. The Marcellus Deposit is probably 15 to 20 times larger than the Barnett Shale in terms of surface area. The thickness of the shale is a maximum of 250 feet. The depth varies, in this area it is about 3,000-5,000 feet below ground; in Bradford County it is about 7,000. He said there is a lot of interest in drilling in this area and it will eventually happen. He spoke of the increased truck traffic in Troy, PA.

- The fractures (also known as “joints”) in the Marcellus Shale are vertical
  - A vertical borehole would be expected to intersect very few of them
  - A horizontal well, drilled perpendicular to the most common fracture orientation should intersect a maximum number of fractures

The most promising wells drilled into the Marcellus employ two technologies that are relatively new to Appalachian Basin gas shale production. One is horizontal drilling, in which a vertical well is deviated to horizontal. It will penetrate a maximum number of vertical rock fractures and penetrate a maximum distance of gas-bearing rock. The second is “hydrofracking” (or hydraulic fracturing). A portion of the well is sealed off, and water is pumped in to produce a pressure that is high enough to fracture the surrounding rock. The result is a highly fractured reservoir penetrated by a long length of well bore.

Dr. Them said approximately 90% of what is going into the well during the hydrofracking process is water and it takes about 3 million gallons of water to fracture each well. There is about 8% sand in the mixture that keeps the cracks open so the rock can’t collapse and re-trap the gas. He said the remainder of the mixture (1.1 %) is proprietary and equates to 3,300 lbs of chemicals that are likely soaps, acids, bases, and surfactants. He said what goes down the well isn’t necessarily what comes back up because the wells are approximately 216 degrees inside. In his opinion the problems emergency responders are experiencing are above ground because of the 3,300 lbs of concentrated chemicals that are prepared to go into the well. Once the chemicals are placed into the ground they are 7,500 feet below ground, is well below and sealed off from drinking water.

Dr. Them said it costs the gas company about \$10 million to complete a well; however, they pay for their wells within a matter of months. They will have to come back and fracture repeatedly to optimize the gas flow and stimulate the wells. Current estimates are that may take anywhere between 30 and 60 years. At present, the natural gas pipeline capacity in the Marcellus Shale region is inadequate to carry the volume of gas that will be produced. Several major pipelines are needed to transport millions of cubic feet of gas per day to high-population markets. In addition, thousands of miles of natural gas gathering systems must be built to connect individual wells to the major pipelines.

With 3 million gallons of water needed to fracture each well, there are many trucks on the road. These trucks hold 10,000 gallons; it takes 300 trucks to bring the needed water to fracture one well. The gas companies want to reduce the number of trucks on the roads and have built sealed impoundment

ponds. When they are done they are put back to the way they were or the landowner has the option of using it as a pond. Dr. Them said these ponds may contain fracking water or may be a “cuttings pond” where they drain the water out, filter it and reuse it. Ms. Robertson questioned whether the water in the impoundment ponds is toxic water. Dr. Them said the waste water is captured in lined-ponds that are transported to a wastewater treatment plant and the frack water doesn’t get the chemicals put into it until it is injected into the well.

At this time Dr. Them addressed what the impending occupational hazards associated with natural gas drilling are likely to be. He said many of the issues that will need to be addressed will be the likely result of human error. Ms. Robertson asked what training could help. Dr. Them said that for municipalities the vast majority of events will not be anything new, it will be much more of what they already deal with. He said issues that will need to be dealt with will be related to people, traffic, and movement above ground (accidents and injuries).

The influx of new workers will bring with it more:

- Crime: robbery, burglary, shootings/stabbings
- General violence
  - Drugs/alcohol
  - Housing shortages
  - Dramatic changes in property values
  - Traffic
  - Families/children
  - School overcrowding
  - Poaching
  - Money

Dr. Them spoke of damage done to roads by the trucks and said although there is an interim problem with potholes and mud, gas companies are very good about returning roads to their original condition.

Mr. Dietrich spoke of the need for rural fire department, emergency services, and highway personnel to be educated on this. Dr. Them said he will be giving a speech on occupational risks and hazards related to natural gas drilling in September and is an opportunity for emergency responders to become educated.

### **Sheriff’s Report**

Sheriff Meskill reported the population in the Jail is down to the mid-70’s and he is beginning to bring back some of the inmates that have been boarded out to other facilities.

### **Report on CAD (Computer Aided Dispatch) System**

Mr. Shurtleff provided a brief overview of the CAD mobile data and records management system. He explained the CAD system is the heart of the County’s emergency response operations and contains the database for telephone lines, addresses, response plans, and incident records that are created. Mobile data is the final piece of the communications system upgrades that the County has been working on for ten years. It is a function that needs to be restored but is built on having a sound CAD system in place. The records management piece builds off the CAD system and is primarily used by law enforcement agencies but has the potential to be extended to the fire and emergency management agencies. With the records management system they are attempting to build a comprehensive records management system and give access to all agencies.

Minutes  
Public Safety Committee  
Monday, June 7, 2010

Mr. Shurtleff said the current CAD system is beyond its useful life and can no longer be supported by vendors that installed it. Mobile data is built on that and cannot be restored until the CAD system is upgraded or replaced; the records system is attached to that also. He said they are at a point of trying to fulfill the LETSS (Law Enforcement Technology Shared Services) group's mission of having an integrated shared system and maximize its use through the CAD system. In March approval was given to issue a Request for Proposals; six responses were received and thoroughly reviewed and narrowed down to two that best met the functional requirements. Those companies were brought in and a lot of information was provided and they are at a point where they are close to selecting a preferred vendor and would like to bring a recommendation back to this Committee in the next few weeks for approvals.

Ms. Robertson inquired about costs. Mr. Shurtleff said there needs to be further negotiation but expects the cost to be within the allotted budget. He will also be looking into some grants that have been identified that may be able to be applied to this. This will need to be included in the Capital Program budget in addition to next year's County budget.

#### **Approval of Minutes of May 3, 2010**

It was MOVED by Mr. Dennis, seconded by Mrs. McBean-Clairborne, and unanimously adopted by voice vote by members present, to approve the minutes of May 3, 2010 as submitted. MINUTES APPROVED.

#### **Adjournment**

The meeting adjourned at 4:59 p.m.

Respectfully submitted by Michelle Pottorff, Chief Deputy Clerk