

## **Railroads, Marcellus Shale and Economic Development**

*This column is presented weekly by the Public Education sub-committee of the Clinton County Natural Gas Task Force in an effort to provide accurate, up-to-date information on activities surrounding the Marcellus Shale formation and the natural gas exploration industry.*

Likely, the average person thinks of railroads only when their travels are interrupted as they sit at a grade crossing to let a train pass. While impatiently watching rail car after rail car rumble with their steel wheels on steel rail, the typical thought is, "I hope this is a short train". A railroader is happiest, however, when it is long one. Despite potential delays for the motorist, long trains operating at reasonable speeds are good for our country and central Pennsylvania. With regard to the Marcellus Shale gas play, rail offers safe and economical transport for many of the necessary commodities, such as sand and pipe.

Consider a single rail car. Let's say it is a covered hopper filled with plastic pellets that is passing in front of you while you keep glancing at your watch. That rail car can carry 100 tons of a commodity that is quite valuable. The price of plastic, for example, follows that of oil. Conservatively, plastic may cost \$2.50 per pound. Some simple math reveals that single covered hopper is carrying something worth \$500,000. There are some lines of traffic that are valued much higher than that, such as some chemicals.

Almost all of the heavy bulk items like plastics and chemicals in this country are handled by rail. Be glad that it is not all going by truck. A rail car typically hauls the equivalent of four truckloads. A frequent site in Lock Haven is a 105-car train of coal headed for PPL's power plant at Washingtonville, PA. That plant burns about that much coal every day. Each coal train is carrying what would take 420 trucks to haul. Say you decide to sit along Susquehanna Avenue in your lawn chair and watch those 420 trucks go by at 25 mph. Allowing for safe following distances it would take over 30 minutes for a "train" of trucks 12 miles long to go by. Thank goodness for railroads.

Yes, trains reduce congestion, but rail freight is a world-class fuel miser. The large railroads tout that they can move "1 ton of freight 436 miles on a single gallon of diesel fuel". That is a fact. A better way to imagine it, though, is in miles per gallon. A standard car weighs about two tons. So a rail car could move that car over 200 miles on a gallon. In rubber-tire speak that would be 200 mpg!

The last factor to think of as you watch the rail cars march by is, where did it come from and where is it going? One thing for certain is there is a job -- a good one -- at either end of a rail car's route. Railroads are the lifeblood of many manufacturers. In most Pennsylvania towns manufacturing provides that community with its highest paying jobs. As important as the service and tourism sectors are to our region they pale in comparison to manufacturing. Recent data from the U. S. Census bureau for Clinton County shows average wages per employee in the manufacturing sector to be nearly double that for people in the service side.

The importance of rail infrastructure was recognized by local community leaders in the early 1980s when Conrail was abandoning lines to get their finances in the black. The SEDA-COG Joint Rail Authority (JRA) was created by five area counties in 1983; the JRA now consists of eight counties, including Clinton. The two board members from Clinton County are Don Kramer and John Gummo. The JRA owns the tracks and engages a contract operator to run the trains, market traffic and maintain the tracks. Two JRA lines are located in Clinton County; the Nittany & Bald Eagle Railroad serves Lock Haven and Mill Hall, and South Avis is served by the Lycoming Valley Railroad from its Williamsport base.

Local rail customers of the Nittany line include First Quality Tissue, Croda Inc., Avery Dennison and Webb's SuperGro. Recently, the line to Castanea was dedicated to welcome two additional customers, PVS Chloralkali and WSP Chemical will need rail in early 2011. Both are related to the Marcellus Shale developments.

In South Avis, Jersey Shore Steel has been a railroad customer for decades. This firm occupies what once were the shops of the New York Central Railroad. What was once a large area of vacant land and disused tracks is now a significant regional asset. In the last 18-months, South Avis has developed in to a Mecca for Marcellus Shale industries that are drilling north of the Lock Haven area. For example, this rail yard is used to transload commodities used in the drilling, such as frac sand and pipe of various dimensions.

The drilling operations use a process called "hydrofracking" or just "fracing" for short. Large quantities of water are pumped into the Marcellus formation 5000-8000 feet below the surface. The water is pumped at very high pressure to fracture the shale to release the maximum amount of natural gas. The fracing process, though, needs more than just water; it needs additives, primarily special sand. Known as "frac sand", its structure under magnification is a sphere rather than the angular sand common to PA. It is generally sourced from the Midwestern states and it is not "garden-variety". Some of it is valued at \$100 per ton.

Other commodities that railroads haul for the Marcellus industry are pipes (both down hole and distribution piping), acids and other chemicals. Locally there are pipe yards in South Avis, Williamsport and Montoursville. Terminals to handle inbound acids are under development - and appropriate scrutiny by state and local authorities - in Castanea and Williamsport. The chemical industries, however, are well versed in handling their commodities in a very safe manner.

The used frac water that is a by-product of the drilling operation was once thought to be a major rail commodity. That is, trucks would haul it to the nearest terminal to transload into a rail tank car and then to a permitted treatment facility. There is a small amount of this rail business now, but it is not expected to grow much as the industry finds ways to recycle the used frac water. Hauling both fresh and by-product water by truck is an expensive matter.

In our area, we are striving to bring the raw materials as close as possible to the drilling sites. That is why the Williamsport and Wellsboro rail facilities have gotten so busy. But there is no way to avoid truck traffic from the rail terminals to the well pads; the tracks just don't go to those areas which, for the most part can be remote. Some have surmised that the Pine Creek Rail Trail will revert from "interim trail use" to a rail line again. We don't see that happening. It really does not get you much other than a connection from Jersey Shore to Wellsboro. The topography of the Pennsylvania Grand Canyon does not have land that could easily be developed as terminals. If we could start our "Way Back Machine" the line that *would* be valuable right now is the former Pennsylvania Railroad's Elmira branch that wound its way north through Canton and Troy. That line was washed out in the '72 flood and was never rebuilt. Its right-of-way would be near impossible to resurrect.

This past year has been significant for the JRA and its contract operator. We have seen 13 new rail sidings or related facilities either built, under construction or in design. That is unprecedented. Traffic is up 25% from the prior year. System-wide the JRA lines should handle about 32,000 carloads. Not all of this increase is due to the Marcellus Shale play. Lines in Centre and Mifflin counties - areas which have yet to see the boom - both saw increases in rail traffic. Importantly, your regional short line operations have been able to smoothly gear up to handle the new business. We expect that ability and capacity to meet the challenges of even more growth in the coming years.

*Jeff Stover serves as Executive Director of the SEDA-COG Joint Rail Authority in Lewisburg, PA ([www.sedacograil.org](http://www.sedacograil.org)).*



**PHOTO:** Frac sand being transloaded from rail cars to trucks at the Newberry Yard in Williamsport.