

August 9, 2013

**New Jersey Pinelands Commission**

**Public Meeting**

**New Lisbon, NJ**

**RE: Testimony Kevin Heatley, Restoration Ecologist**

**SUBJECT: South Jersey Gas Company Proposed BL England Plant Gas Pipeline**

Dear Commission Members,

My name is Kevin Heatley and I am a professional restoration ecologist. Restoration ecology is an applied science that deals with the repair and reconstruction of damaged ecosystems. In this capacity, I travel across the United States and work in a wide variety of habitats. As such, I have specialized expertise in understanding the ecological ramifications of dispersed industrialization and linear infrastructure. While there is much that can be done to restore the original structure and function – the “ecosystem benefits” associated with degraded systems, it is never inexpensive. As in most situations in life, it is far more prudent to not break it in the first place.

I traveled almost four hours this morning in order to share with you my comments and concerns regarding the proposed gas pipeline infrastructure that South Jersey Gas Company would like to construct within the Pinelands. I am a native of New Jersey, did my undergraduate work at Rutgers University and have lived in, and worked within, the Pinelands. As I travel across the country, I have grown to recognize how truly unique this region truly is. And, how truly fragile it can be.

While I grew up in New Jersey, I have lived most of my adult life in rural PA. While this has allowed me to raise two sons in a wild, mountainous region, that landscape no longer exists. The land where I lived, where my children learned to appreciate and value the natural world, is now an industrial zone. The industrial sprawl that is inherent in, and defines, the unconventional shale gas industry is rapidly obliterating vast swaths of farm and forest across Pennsylvania, Ohio, and West Virginia.

And why should the Pinelands Commission concern itself with what happens in these other states?

**Cumulative Impacts**

One of the primary lessons of ecology is that everything is connected. You cannot put a fence around the Pinelands and expect that it to survive. The cumulative impact of this industry upon the regional air and water quality in the Mid-Atlantic region will be profound. And the false dichotomy presented to you by South Jersey Gas Company – “coal/oil or natural gas” is just that – a false choice. Research has demonstrated that, when the full life cycle analysis of natural gas extraction is taken into account – the contamination of millions of gallons of water, the degradation of air quality from thousands of compressors, the release of vast quantities of the greenhouse gas methane during drilling and transport,

and the liquidation of millions of acres of habitat for well pads, pipelines, and access roads – natural gas is not “cleaner” than coal.

For example, the industries own studies show that 6% of the gas wells leak within the first year of production. As the concrete and steel casings they use to plug these wells upon decommissioning will eventually degrade, and no contingency plans are required by any of the regulatory agencies in the United States for long term monitoring or plug replacement, ALL of the wells drilled are likely to eventually leak methane and other contaminants into our aquifers and atmosphere. This will be the legacy that will be left if the myth of “clean burning natural gas” is embraced.

Natural gas consumption and production will have dramatic ecological consequences for the Pinelands and other areas within the coastal plain as climate change progresses, sea levels continue to rise and devastating storms like Sandy become more frequent. Methane, pound for pound, is up to 20 times more potent a greenhouse gas than carbon dioxide over a 100 year timeframe. Human activities are the primary source of atmospheric methane at this point in time and the natural gas industry is currently the largest human source of methane.

I urge the Pinelands Commission to do what most regulatory agencies fail to – recognize that what happens outside of the official “limits of disturbance” is of more profound long term significance than local disruption during the initial construction period. Building transmission infrastructure for natural gas will directly facilitate the expansion of this industry upstream. And the Pinelands will be sitting downstream from the air, water, and climatic impacts.

While the system wide impacts are my primary concern, as a restoration ecologist I can also speak to the local disruption that will occur from pipeline infrastructure. The impacts of linear infrastructure on forest communities are well known in the fields of both conservation biology and restoration ecology.

### **Local Impact Concerns –**

**Forest Fragmentation** – forest fragmentation as a result of anthropogenic landscape modification is well recognized within biogeographic theory and conservation biology as a leading cause of local species extinctions (extirpation). It can also cause dramatic shifts in the floral and faunal composition of woodland communities. Sub-lethal impacts to floral and faunal populations (population isolation, reduced genetic fitness and diversity) have also been associated with disruptions to forest connectivity. The proposed pipeline will result in increased forest fragmentation – the impacts of this disturbance on floral and faunal populations must be quantified prior to allowing this activity. The information accompanying the proposed pipeline did not fully identify the vegetative communities potentially disrupted along the existing corridor. Widening, through deforesting, the existing ROW will potentially impact forest dwelling species.

**Edge Impacts** – Edge habitat (the zone where forest meets non-forest land) is characterized by increased light levels on the forest floor, reduced soil moisture, and a high degree of biological invasion from non-native organisms. Dramatic changes can occur in the soil chemistry and associated micro-biota. The top layer of the soil profile begins to dry out and the primary decomposition community

starts to shift from fungal to bacterial. More than mere esoteric considerations of interest to the scientific community, these changes have direct economic implications to both landowners and society. As a general rule of thumb in conservation planning – edge impacts penetrate at least 300 feet into the forest from the tree line. In other words – a 50 foot wide ROW actually impacts a 650 foot wide swath of forest. Vegetative conversion and expansion of the existing ROW will allow edge impacts to penetrate deeper into the adjacent forest. Now management or restoration plan has accompanied the proposed pipeline development.

**Invasive Species** – Invasive (non-native) plant species within terrestrial forest environments tend to be early successional species that respond favorably to disturbance. Disruption of native plant cover and the exposure of the forest floor to sunlight provide an opportunity for these organisms to establish satellite populations. Dispersal (vectoring) mechanisms and/or corridors are required in order for these non-native species to colonize new locations and the pipeline ROWs associated with natural gas transmission are ideally configured to serve this function.

**Directional Drilling** – the directional drilling presented by the applicant for tunneling under water bodies is not without risk. I have personally witnessed “blowouts” where the pressurized drilling mud and lubricants escape to the surface and contaminate the watercourse. The primary material utilized in this process is bentonite clay. This material, if released into a stream or wetland, can coat the bottom the water body and effectively smother the organisms that live in the “benthic” zone (the bottom of the creek). These organisms are the base of the aquatic food chain and are critical to ecosystem health.

**Site Restoration** – The restoration of ecological integrity to the pipeline ROW upon eventual decommissioning is an area of concern. Restoring the full ecological structure and function to these sites is more than a matter of benign neglect. What is the plan to remove this infrastructure upon the end of its useful service life and who will pay for the revegetation effort?

**Catastrophic Failure** – The Pinelands ecosystem is based upon fire ecology. What is the emergency response plan associated with the potential failure of this transmission line? Catastrophic wildfire is a potential threat should a pipeline breach occur when fuel loads are high and atmospheric conditions correct. Who will pay for emergency services?

I wish to thank the Pinelands Commission for the opportunity to enter my concerns into the record. I sincerely hope that my testimony will be of value during the decision-making process. Please feel free to contact me if you require any additional information.

Sincerely,

Kevin Heatley

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