Hydraulic Fracturing Ban Proposal for Presentation to The Town of Knox Town Board

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The town of Knox is a geologically unique and significant area that contains areas of Karst topography limestone regions. Due to the unique characteristics of this topography, the underlying caves, sinking streams, sinkholes and drainage systems are particularly susceptible to contamination from a number of sources. This is especially important to note as these underlying water supplies do not have the benefit of filtration as the vast majority of water flows unimpeded through natural conduits from their source(s) to their end points.

Certain biological contaminants cannot be easily regulated, i.e.: animal carcasses, etc. near sink holes or other areas of ingress for water. However, other types can be addressed and it is the Conservation Advisory Council's recommendation that there be regulations to address these other potential sources of contamination of this vitally important resource.

The subject of hydraulic fracturing has been especially newsworthy within the past years and with good reason. It is a process for extracting natural gas from underlying shale formations that can be economically viable in the short term, but can have permanently damaging, irreversible environmental effects in the long term. It is the regulation and prohibition of this process and its surrounding support structure – the transport of proprietary noxious chemicals necessary for the extraction and treatment of the natural gases – that will be discussed.

Since the acceptance of the comprehensive plan by the Town of Knox in 1995, two of the first general goals have been to:

(5.2.1) Protect the Town's groundwater and other natural resources.

and

(5.2.2) Preserve the rural character of the Town.

These two goals should be first and foremost in the minds of those tasked with the administration of town laws and regulations. The CAC would like to offer the following to assist the Town Board with passing the necessary legislation to keep these two very important goals maintained.

As noted above the process of hydraulic fracturing has been a popular topic that requires discussion and regulation if not outright prohibition. The process of natural gas extraction requires the creation of entry ways into existing shale deposits. Although at the current time, the existence of viable deposits within the Town is very limited, this is not to say that future technology and energy needs could not change this. That said, it's vitally important to have an understanding of the dangers posed by such a process in our local geography. The Karst topography upon which a large area of the Town sits is unique in that it allows for natural aquifers and connecting conduits to carry water virtually unimpeded from

point to point. As most Town residents are aware, our water supply can be a fragile commodity and, as such, must be protected at all costs.

Due to the nature of Karst topography, the vast water supply system is unimpeded by natural soil filtrations found in other areas. This lack of filtration also allows for rapid transport of water and, more importantly, the threat of rapid diffusion from introduced contaminants. The most logical step to take would be those that would undertake the prohibition of the hydraulic fracturing process in the first place and with it the exclusion of the transport and storage of the required toxic chemicals needed for processing.

By outright prohibition the Town could avoid many deleterious effects for its residents - the contamination of the groundwater being one of the most important factors to be avoided. There have been studies undertaken in our area showing the quick dispersion of contaminants from one point to another (and many other points unknown due to the intricate system of underground waterways found in Karst) among them the Rubin report in 1990 and the Lundy report in 2004. These reports showed the interconnected nature of the Karst water system – the very system that Town residents rely upon for their drinking water. Lundy suggests in his study that, in addition to known insurgence points, the water system, "is receiving additional water probably from diffuse recharge areas." This is an important point to include as it shows that the intricate, complex Karst waterways are vaster than can be quantified and, as such, every possible step should be undertaken to ensure its purity. By introducing the hydraulic fracturing process into this system, the entire water supply could face permanent contamination from the release of natural gases to the introduction of the carcinogenic extraction chemicals. This is doubly dangerous because in addition to the immediate contamination of the water supply the carcinogens could be absorbed into the limestone and continue to be an ongoing contaminant for many years to come. Additionally, there could also be the danger of fires or explosions from collected pockets of natural gases being released into homes.

Secondarily to the immediate dangers there are also infrastructure concerns to consider. The amount of truck traffic necessary to transport the chemicals to and from the extraction points as well as the extra traffic taking the gas from the collection point for further processing would pose a serious burden upon our existing roadways. In addition to the actual wear and tear on the road surfaces the quality of life to the residents would be adversely affected. The continual road traffic would produce excessive noise & air pollution, increase the danger of traffic related accidents and also give yet avenue for the introduction of carcinogenic contaminants into the environment in the event of spills or leaks occurring during transport.

Surrounding municipalities have taken steps to safeguard their residents and town water supplies. By passing an outright ban on the hydraulic fracturing process and the storage and transport of the proprietary chemicals and the residual waste products, the safety, health and welfare of Town of Knox residents can be greatly maintained. Due to the unique Karst topography located in the Town, the Conservation Advisory Council, tasked with providing stewardship over the local natural resources, would advise passage of similar legislation for the Town of Knox.