



June 18, 2015

The Board of County Commissioners
Attn: Chairman Tim Nance
3299 Tamiami Trail East
Suite 303
Naples, FL 34112

Dear Chairman Nance:

Ms. Jennifer Hecker, director of natural resource policy for the Conservancy of Southwest Florida, appeared on the television show *Naples Daily Newsmakers* on Sunday, May 24, 2015. During that appearance, several statements were made that were either easy to misinterpret or based on a faulty understanding of Southwest Florida's geology. Collier Resources Company (CRC) presents information below in an effort to correct the noted errors.

First, Ms. Hecker states that "Florida has a very unique geologic and hydrologic situation. Our conditions are very different than other parts of the United States. And so, we agree that they should not be allowing these [drilling] techniques in the absence of science, to show that that they can be done safely in our geology." The science indicates that Southwest Florida's geology is unique, but not in the way implied by Ms. Hecker's statement. Southwest Florida is underlain by a highly-conductive layer called the Boulder Zone, which is approximately between 300 and 600 feet thick in Collier County. In addition, numerous anhydrite layers (some also over 1,000 feet thick) limit vertical migration from the oil producing zone over 12,500 feet below land surface. While Ms. Hecker accurately states that this geology is unique (the geology of virtually every region of the United States is unique in some manner), she fails to indicate that it is unique in a way that is much more protective than many other places in the United States. Moreover, Ms. Hecker should be aware that the Boulder Zone has been deemed safe by the State of Florida for use in the disposal of tens of millions of gallons of municipal and industrial wastewater daily – a volume far in excess of that injected over the producing life of an oil well. If the routine injection of liquid wastes by Collier County into the Boulder zone approximately 3,000 feet below land surface have never impacted drinking water supplies (Collier County's injection well program has an outstanding environmental record), it is illogical to believe the short-term injection of much smaller volumes of water over 12,500 feet below land surface would pose a risk to water supplies.

In stark contrast to the Conservancy's claims, the United States Environmental Protection Agency (EPA) recently published a report entitled [*Assessment of the Potential Impacts of Hydraulic Fracturing for Oil and Gas on Drinking Water Resources*](#) dated June 2015, which states the EPA "did not find evidence that these mechanisms have led to widespread, systemic impacts on drinking water resources in the United States" and specifically noting that the risk to public water supplies had been found to be "small." Given Southwest Florida's "unique

geology,” components of which are the Boulder Zone and anhydrite layers, the EPA’s findings simply add to the mounting scientific evidence that oil well installation will not impact drinking water aquifers, and that drilling in Southwest Florida is uniquely safer than in other areas.

Next, Ms. Hecker commonly uses vocabulary that tends to heighten fear, as in the following excerpt “... [drilling] techniques that use *dangerous* chemicals.” While the vast majority of injected chemicals consist of sand and water, some acid, salts, and other organic chemicals are also injected, but they are injected 12,500 feet below land surface into an oil bearing zone. Collier County Utilities and most other utilities that use groundwater in Florida, routinely use acids to stimulate or rehabilitate their production wells for potable water supply with no impacts to water quality.

Ms. Hecker went on to state the following:

“The only ground water monitoring that’s been done to date was at very shallow depths of approximately 13 feet so that is not meaningful groundwater investigation. Part of our legal agreement with DEP was that they were going to install a deep groundwater monitoring well to 1,850 feet deep to monitor right below the aquifers that we use for public supplies to catch any contamination moving upward into those supplies before it happens. That groundwater monitoring well was supposed to be completed at the end of January. Unfortunately, as of today, it still is not complete, so we’re very disappointed that DEP has not upheld meeting its committed-to deadlines for getting that groundwater investigation under way. We still to this date have no meaningful groundwater sampling being done. We are about to go into another rainy season. Every time we go through a rainy season - we’ve already gone through one - that pollution is being allowed to disperse and dissipate, which makes it harder to detect and address.”

Contrary to her statement, the most important results with regard to whether a release has occurred at the Collier-Hogan well site is the shallow groundwater monitoring sampling. Remember, her organization called for immediate testing at the public well fields miles from the Collier-Hogan well site. Now, however, surficial sampling appears to be meaningless. For a relatively small volume (relative to the volume of the aquifer) to travel vertically 12,500 feet through the anhydrite layers and the Boulder Zone is not possible, and no one, including the Conservancy of Southwest Florida, has proposed a viable potential method for injected fluids to reach the surface, except through an accidental release at the ground surface. While no surficial release was reported by the well driller or the Florida Department of Environmental Protection (DEP) while they were on-site during the well installation process, a surficial release is hypothetically possible (although any released injection fluid could not reach the nearest potable well field nearly six miles away). Ms. Hecker failed to note that after more than six months of

groundwater monitoring at numerous locations across the Collier-Hogan well site, no groundwater impacts related to the well installation were detected, thereby firmly establishing that no surficial release occurred during well installation at the Collier-Hogan well site.

The monitoring associated with the deep well at 1,850 feet has little function with regard to detecting injection fluids. The fluids simply could not travel approximately 10,000 feet vertically, including through the Boulder Zone (as they would be diluted immediately in this vast transmissive zone along with the much larger volume of fluids injected by municipalities and industry). This deep monitoring well could be used to measure other scenarios, but not the presence of injection fluids.

Ms. Hecker surprisingly admits that one rainy season could dilute the presence of the injection fluids to below detection (and any risk to the water supply), *if* they had made the impossible journey through the Boulder Zone. While likely a hedge against the inevitable result that injection fluids will not be detected (remembering that the groundwater at 1,850 feet below land surface is salty, undrinkable, and unconnected to the overlying potable surficial aquifer), this statement reveals much more. That is, the injected volume is so small and insignificant that it could be diluted and dispersed within one year to an unimportant (from a safe drinking water perspective) and undetectable level.

Finally, Ms. Hecker has a significant misunderstanding of the hydrogeology at the well site. There is no mechanism for rapid vertical transport between the surficial aquifer and the lower Floridan at 1,850 feet. Wells completed in the Floridan aquifer flow at land surface in Collier County. If the brackish to saline waters in the Floridan aquifer could flow to land surface and shallow aquifers in the Collier-Hogan site vicinity, then the shallow groundwater would have long become contaminated with salts, which is unequivocally not the case.

It is important to understand basic groundwater flow in Florida. Rain falling on the ground at the Collier Hogan site does not travel downwards into the Floridan Aquifer. The closest potential Floridan aquifer recharge areas occur at least 50 miles up-gradient from Collier County in Highlands and Osceola Counties. The travel time from recharges areas to Collier Counties is on the order of 10s to 100s of years (or longer). Rainfall at the Collier-Hogan site either returns to the atmosphere, recharges the shallow aquifer or flows to canals to the Gulf of Mexico. Water within the oil reservoir 12,500 feet below land surface, does not flow, and it has been trapped along with the oil under thousands of feet of non-conductive layers for millions of years. This isolation of the aquifers explains why the surficial aquifer is fresh and the deeper aquifers remain salty even over geologic time.

In summary, the groundwater data that the DEP needed to assess the site, the DEP has, and it indicates unequivocally that no surficial release occurred during the Collier-Hogan oil well installation. Data from the deep well will not add to our knowledge of the fate of the injected fluids (which remain in the oil reservoir), and, based on the recent EPA study, additional site-specific monitoring data are not likely to change what the growing body of scientific literature



considering oil drilling nationally is making clear. If you have any questions or comments please contact me at 403-6805.

Best Regards,

Tom Jones

Tom Jones
Sr. Vice President

Cc:

Commissioner Donna Fiala
Commissioner Georgia Hiller, Esq.
Commissioner Penny Taylor
Commissioner Tom Henning
County Manager Leo Ochs, Jr.
Senator Garrett Richter
Representative Ray Rodrigues
Ms. Paula Cobb, DEP Deputy Secretary