



January 22, 2015

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

Dear Chairman Nance:

As you may already be aware, the Florida Department of Environmental Protection (DEP) recently released a report regarding the Collier-Hogan 20-3H oil well. The report, prepared by ALL Consulting, LLC, examined whether a workover procedure performed by the Dan A. Hughes Company on the Collier Hogan well was designed and carried out in such a way that it was not likely to result in violations of applicable groundwater quality standards in the freshwater aquifers.

This report released by DEP indicates that the workover procedure performed by the Dan A. Hughes Company on the Collier-Hogan oil well had no adverse impact on Collier County's freshwater aquifers or the surrounding environment. Furthermore, Collier Resources Company (CRC) believes this report supports the conclusions reached in the report by Conestoga-Rovers & Associates concerning potential vertical migration of fluids and confirms the AECOM risk analysis, as the report indicates that the fluids used during this workover procedure could not have reached the underground source of drinking water.

Southwest Florida's unique geophysical features, such as the region's deep boulder zone, and the multiple anhydrite zones are impermeable and provide a barrier between the lower formations and the upper surficial aquifers, combined with oversight by DEP, protects Collier County's groundwater resources and environment.

While reviewing this recently-released study, CRC Company developed a summary, which we have enclosed for your review, which highlights the major key findings that are fleshed out in this report.

In addition, CRC has enclosed a letter previously sent to the Board of County Commissioners indicating that, until such a time DEP has issued clear regulations regarding more modern workover procedures, CRC will ensure future lessees are limited to oil exploration using a "conventional" approach that has been accepted and understood in Florida since 1943. We would like to ensure the Board of County Commissioners that commitment remains in place.



CRC is a proud community partner with a 70-year track record of strong environmental stewardship; and, we are pleased that these science-based studies, including this report released by DEP, indicates that there were no adverse effects to Collier County's groundwater resources or aquifers as a result of this workover procedure.

Should you have any questions or comments please contact me at 403-6805.

Sincerely,

A handwritten signature in black ink that reads "Tom Jones". The signature is written in a cursive style and is positioned above the printed name.

Tom Jones  
Sr. Vice President

Cc:

Commissioner Donna Fiala  
Commissioner Georgia Hiller, Esq.  
Commissioner Penny Taylor  
Commissioner Tom Henning  
County Manager Leo Ochs, Jr.



## Key Findings: Expert Evaluation of the D.A. Hughes Collier-Hogan 20-3H Jan. 8, 2015

**The Florida Department of Environmental Protection (DEP) released a report, prepared by ALL Consulting, LLC, examining whether a workover procedure performed by the Dan A. Hughes Company on the Collier Hogan 20-3H oil well was designed and carried out in such a way that it was not likely to result in violations of applicable groundwater quality standards in the freshwater aquifers. Below are the key findings of this report.**

### Key Findings

#### ▶ Surface Aquifer

- Groundwater Quality: Based on June 2014 sampling results from shallow groundwater monitoring and supply wells, there is no indication that fluids injected during the workover procedure at the Collier-Hogan 20-3H well resulted in adverse impacts to the Shallow Aquifer System (SAS) exceeding applicable drinking water standards. *(Expert Evaluation of the D.A. Hughes Collier-Hogan 20-3H, pg. 3)*
- The existing monitoring well network installed by DEP surrounding the Collier-Hogan 20-3H well pad does not indicate the presence of adverse impacts to shallow groundwater being monitored. *(Expert Evaluation of the D.A. Hughes Collier-Hogan 20-3H, pg. 6)*
- The upward vertical extent of induced fracture height at the Collier-Hogan 20-3H well was approximately 14.365 feet, based on modeling by Baker Hughes. This is well within the Sunniland Formation. Therefore, the induced fractures and hydraulic fracturing fluids could not have reached the shallow freshwater aquifer. *(Expert Evaluation of the D.A. Hughes Collier-Hogan 20-3H, pg. 43)*

#### ▶ Underground Source of Drinking Water

- Considering the presence of approximately 10,000 feet of intervening strata between the targeted lower Sunniland Formation and the base of the underground source of drinking water (USDW) and also the presence of multiple confining strata and low pressure zones with that intervening stratigraphic section, induced fractures, and hence hydraulic fracturing fluids or formation waters, could not have reached the USDW. *(Expert Evaluation of the D.A. Hughes Collier-Hogan 20-3H, pg. 2)*
- Considering the various site-specific and regional technical considerations, it appears improbable that the lowermost USDW was adversely impacted as a result of the design or implementation of the Collier-Hogan 20-3H well workover. *(Expert Evaluation of the D.A. Hughes Collier-Hogan 20-3H, pg. 6)*
- The depth of the lower Sunniland Formation (approximately 11,900 feet below grade) at the Collier-Hogan 20-3H assures that fracture propagation could not reach the shallow USDW with its base at approximately 1,850 feet below grade. *(Expert Evaluation of the D.A. Hughes Collier-Hogan 20-3H, pg. 41)*

#### ▶ Wells 103 & 106

- For the well stimulation treatment performed in the Collier 20-3H well to have resulted in adverse impact in the lowermost USDW, pressure would have had to travel first at least 993 feet laterally (horizontally) through the formation in order to communicate with the Permit 86 well; however, Baker Hughes' stimulation modeling indicated lateral propagation was limited to 28.884 feet. The pressure would then have had to overcome the three cement plugs and the hydrostatic pressure exerted by the heavy drilling mud and forced fluid upward in the USDW. It is highly unlikely that this occurred. *(Expert Evaluation of the D.A. Hughes Collier-Hogan 20-3H, pg. 47)*
- For the well stimulation treatment performed in the Collier-Hogan 20-3H to have resulted in adverse impact in the lowermost USDW, pressure would have had to travel first 3,534 feet laterally. The pressure would then have had to overcome the three cement plugs and the hydrostatic pressure exerted by the heavy drilling mud and forced fluid upward into the USDW. It is unlikely that this occurred. *(Expert Evaluation of the D.A. Hughes Collier-Hogan 20-3H, pg. 51)*

▶ **Well Integrity**

- Data records do not appear to suggest an abnormal formation reaction, well integrity loss, or other potentially concerning issues. *(Expert Evaluation of the D.A. Hughes Collier-Hogan 20-3H, pg. 4)*
- Review of the various data and plots from the Post-Stimulation Report show common results for HVHF jobs. Upon assessing the subject data in detail, no specific irregularities or data that would indicate a concern were noted. Maximum BHTPs were noted to approach approximately 9,000 psi, but the scale of the charts made actual maximums difficult to assess. There was no indication that any of the seven treatment stages circulated up the backside of the 7-inch casing to 4-1/2-inch casing annular space during the well stimulation process, which would be indicative of external mechanical integrity failure. This is further supported by the zero pressure recordings on this annular space during all seven stimulation stages. Data records do not appear to suggest an abnormal formation reaction, well integrity loss or other potentially concerning issue. *(Expert Evaluation of the D.A. Hughes Collier-Hogan 20-3H, pg. 29)*



July 7, 2014

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

Dear Chairman Henning:

In recent months, Collier Resources Company (CRC) has closely followed the public debate regarding the activities of the Dan A. Hughes Company of Texas (Hughes), which is one of our lessees, not a contractor as some have reported.

The public debate was initially focused on Hughes's plans to drill an exploratory well in a farm field adjacent to eastern Golden Gate Estates. More recently, much attention has been paid to a well that was completed by Hughes in an area south of Lake Trafford. DEP has publicly stated that Hughes was "caught" using a new and unapproved exploration method when it completed this well. It is our understanding that Hughes has denied any wrongdoing, and that it asserts that it has not broken any laws. It is important to note that neither the cease and desist order or the consent order issued by DEP have asserted any illegal activity.

Regardless, during the months following DEP's initial announcement, we have been highly concerned by a flurry of inaccurate and misleading media reports regarding a business that CRC has operated without any issues whatsoever since World War II. The resulting public confusion has created an environment where a number of groups, well intentioned or otherwise, have made unsubstantiated and inaccurate claims about unplugged oil wells, oil drilling in the Everglades, threats to the Florida panther and, most recently, the safety of our drinking water.

When we learned of these allegations – particularly as it relates to clean drinking water – we were the first to raise our hands and volunteer to immediately undertake water quality testing and groundwater modeling in the area adjacent to the Hughes well. We agreed to pay for the testing, and we also agreed to utilize an independent subject matter expert that has been vetted and approved by Collier County staff. We would expect the subject matter expert to evaluate all reasonable recommendations, including recommendations from The Conservancy of Southwest Florida, regarding the nature and scope of any necessary testing. We only insist that the testing is to be based on sound science, and that it is guided by modeling and is independently verifiable. We wholeheartedly endorse DEP's decision to begin its own testing on June 24, 2014, and we look forward to learning of the results as they become available.



In general, it seems that much of the recent controversy stems from the fact that in its first (and only) exploratory well, Hughes apparently used a well completion method that is new to Florida. Although this method is very common in other parts of the country, it is a method that DEP has requested additional time to study. At the June 24, 2014 meeting of the Collier County Board of Commissioners, Commissioner Hiller requested that CRC meet with Hughes and seek agreement that this method would no longer be used until such time as DEP has done whatever it needs to do to determine whether it is an acceptable method or not. CRC agrees with this request, and Hughes has agreed as well. Additionally, until such time as DEP has issued clear regulations regarding these new well completion methods, CRC will make sure that any future leases with third party exploration companies are limited to oil exploration using a "conventional" approach that has been well accepted and understood in Florida since 1943.

CRC is a dedicated community partner that has been involved in oil exploration and development in Collier County, Florida for decades. We trace our roots to the founder of Collier County. This is our home – it is where we live and work and raise our children – and we take the issue of clean water and public safety very seriously.

Sincerely,

Tom Jones  
Sr. Vice President

Christian Spilker  
Sr. Vice President

Cc:  
Commissioner Fred W. Coyle  
Commissioner Donna Fiala  
Commissioner Georgia Hiller, Esq.  
Commissioner Tim Nance  
County Manager Leo Ochs, Jr.