



JOHN BEL EDWARDS  
GOVERNOR

State of Louisiana  
DEPARTMENT OF NATURAL  
RESOURCES  
OFFICE OF CONSERVATION

THOMAS F. HARRIS  
SECRETARY

RICHARD P. IEYOUB  
COMMISSIONER OF CONSERVATION

October 23, 2018

**SECOND SUPPLEMENTAL AND AMENDING  
DECLARATION OF EMERGENCY AND DIRECTIVE**

**Pursuant to the authority** granted to the Commissioner of Conservation and Assistant Secretary of the Louisiana Department of Natural Resources under La. R.S. 30:1, et seq., particularly La. R.S. 30:6.1;

**It is hereby declared** that thermogenic natural gas has been detected in, reported to have entered into, and currently remains present in the Carrizo-Wilcox aquifer (aquifer) in Sections 22, 27, 28 and 34 of Township 13N, Range 15W in DeSoto parish. Natural gas has also been reported to be present in the Wilcox aquifer in Section 26, Township 13N, Range 15W, DeSoto Parish.

**It is hereby declared** that gas may have migrated laterally and be present in one or more water-bearing zones above the Midway Shale in the aquifer in at least Sections 21, 23, 33 and 35 of Township 13N, Range 15W, DeSoto Parish.

**It is hereby declared** that Comstock Oil & Gas, LLC (C332), Covey Park Gas, LLC (C3020), Indigo Minerals, LLC (60005), Nelson Energy, Inc. (N054), and XTO Energy, Inc. (X004) (hereinafter collectively referred to as "Operators") have permitted oil and gas wells in at least one of Sections 21, 22, 23, 26, 27, 28, 33, 34 and/or 35 of Township 13N, Range 15W, DeSoto Parish (Smyrna EMER18-003 Area of Investigation or "AOI") that one or more may be the source and/or migration pathway for thermogenic natural gas to enter into and charge the water-bearing zones of the aquifer in the AOI.

**It is hereby declared** that with the recent delivery of the Weatherford Laboratories September 2018 OilTracers Updated Report No. 18-2242 (Report), the following summary represents what is reported and known at this time about the origin of the stray gas discovered in the aquifer at the Hanson 31-5054z aquifer relief well (Hanson RW):

a. Natural gas sampled and tested from the Hanson RW "appears most closely related to the overmature gas produced from the Sampson Est 33 #1 well", Serial No. 229084, a Hosston Formation gas producing well in the nearby vicinity of the Hanson RW.

b. "Maturity of the Hosston Formation strata in the study area are in the early ( $VR_e = 0.55$  to  $0.7\%$ ) to peak ( $VR_e = 0.7$  to  $1.0\%$ ) oil window, thus the produced gas collected from the Sampson Est. 33 #1 must have a significantly deeper source. Indeed, the  $VR_e \sim 2.5\%$  interpreted for the Sampson Est. 33 #1 gas produced from the Hosston Formation in this well indicates that the hydrocarbons were generated in the dry gas window as implied in Figures 6 and 7. Only Smackover Formation attained this level of thermal maturity in the study area (Nunn, 2012)."

Environmental Division

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c. The Sampson Est. 33 #1 gas sample “is the most thermally mature produced gas in the data set (VR<sub>e</sub> ~ 2.5%; Figure 9).” The Sampson Ext. 33 #1 gas “is most likely sourced from the Smackover Formation” as detailed in the Report.

d. “Fractures associated with the Louann Salt tectonics and the Sabine uplift must be a major control on the distributions of hydrocarbons in the Lower Cretaceous reservoirs in DeSoto Parish (Bartberger and others, 2002).”

**It is hereby declared** that recent AOI well location case studies provided by Indigo Minerals, LLC received on or after September 17, 2018, by the Office of Conservation included gamma ray log information below the Midway Shale indicating the presence a fault or faults at wells studied in sections 27 and 28 in the western reaches of the AOI.

**It is hereby declared** that the Smackover Formation is an older and deeper formation than Haynesville Shale Formation and other natural gas formations explored here to date for oil and gas development and production in the AOI and surrounding sections of DeSoto Parish. Therefore, there are no known exploration and production penetrations in this area extending to the depth of the Smackover Formation.

**It is hereby declared** that the earliest report of the presence of natural gas in the aquifer in the AOI dates back to 2014.

**It is hereby declared** that Indigo Minerals, LLC is the predominate active operator in AOI sections 27 and 28 where the findings above indicate faulting may be a contributing migration pathway of natural gas entering and charging the aquifer in the AOI.

**It is hereby declared** that the presence of natural gas in formations and sands shallower than the Midway Shale and in the aquifer of the AOI has the potential to cause harm to people, environment, property and operations, sites and facilities under the regulatory authority of the Commissioner of Conservation.

**It is hereby declared** that to date, the source and migration pathway of the gas charged in the aquifer in the AOI has not been identified.

**It is hereby declared** that this is an emergency that requires immediate action by the Office of Conservation to protect the environment and the health, safety and welfare of the general public.

**Therefore, it is hereby declared** that Indigo Minerals, LLC (60005) be specifically directed and ordered to perform all of the following:

1) Provide on or before Friday, November 2, 2018, a written plan to conduct an investigation to determine whether or not a fault or faults exist within or near the vicinity of the AOI which is/are or could be a, or the source of migration of, or contributing pathway for thermogenic natural gas to enter and charge the aquifer in the AOI. The plan may include use of existing seismic data for the area, scholarly geophysical studies or other professionally acceptable research on the topic specific to the AOI, and/or other information to provide scientifically derived, objective and conclusive results as determined acceptable by the Office of Conservation. Delivery of a final report pursuant to this directive must be on or before Friday, December 14, 2018.


2) Concurrently, Indigo Minerals, LLC shall provide a work plan no later than November 2, 2018, to procure any available new seismic, shoot new seismic across the AOI and nearby surrounding area, and/or other geophysical data specific to the AOI and nearby surrounding area to be interpreted and integrated with current geologic information as soon as possible, in the event the means described in paragraph “1)” above are insufficient or not available, any work plan and revisions submitted to the agency pursuant to paragraph “1)” above is not acceptable to the agency to meet the above final report deadline, or a final report pursuant to paragraph “1)” above

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fails to provide conclusive results to the satisfaction of this Office. Such new data would be accompanied by a written report summarizing the results, findings and conclusions and then followed by a final report to be submitted to the agency. In this situation, the subsurface investigation must be complete and the final report delivered to the Office of Conservation no later than March 31, 2019.

**It is further declared** that, consistent with La. R.S. 30:6.B, if Indigo Minerals, LLC (60005) fails to comply with the actions set forth herein by respective deadlines set herein and hereafter, orders demanding compliance and civil penalties may be issued to respective non-compliant parties. R.S. 30:1, et seq.

SO DECLARED, ORDERED, AND DONE this 23<sup>rd</sup> day of October 2018 at Baton Rouge, Louisiana.

  
Richard P. Ieyoub  
Commissioner of Conservation