U.S. House of Representatives
Committee on Natural Resources
Washington D.C

May 13, 2019

Re: Invited testimony before the Subcommittee on Energy and Mineral Resources
"Oil and Gas Development: Impacts of Water Pollution Above and Below Ground".

To be held on May 16, 2019, 10:00 AM, 1324 Longworth House Office Building, Washington D.C.

Attention: Alan S. Lowenthal
Chairman
Subcommittee on Energy and Mineral Resources

Dear Chairman Lowenthal,

It is an honor and a privilege to be invited to testify in front of you and your Committee. Please find attached my submitted written statement that will form the basis of my oral testimony.

Thank you for the opportunity to appear and to speak.

Sincerely,

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"Oil and Gas Development: Impacts of Water Pollution Above and Below Ground"

Invited written statement before the Subcommittee on Energy and Mineral Resources
May 16, 2019, 10:00 AM
Submitted by: John James Tintera, Texas P.G. #325

Dear House Subcommittee Members on Energy and Mineral Resources:

Good regulations are built on three fundamental principles: science, fact and due process. As scientific knowledge expands and new facts are uncovered, it is important that the due process employed by regulators in drafting rules keep pace with technology and operations of the industry they regulate.

Politics is an obvious part of government policy, but it should not be part of regulations. A politicized regulator should be of grave concern to lawmakers and citizens. Under-regulation creates potential risk to public safety and the environment, and over- regulation will damage economies and livelihoods. Skillful regulators should follow the "Goldilocks" principle; not too big, not too small, but just right.

In the regulatory world, words matter. The words that are crafted by lawmakers and codified in rule by regulators are the first tools that implement policy. There is a lot more that regulators must do to be successful, but it begins with the statutory authority, definitions, and directions given to it by government.

Let me start this testimony with a Texas sized fact.

There has not been a single documented groundwater contamination case associated with the process of hydraulic fracturing in Texas. (*Note: Data from Texas Joint Groundwater Monitoring and Contamination Report – 2017)

This fact becomes more impressive when one recognizes the volume of Texas oil and gas production:

- More than 1.5 billion barrels of crude oil was produced in Texas in 2018
- Approximately 8.9 trillion cubic feet of natural gas was produced in 2018
- Texas daily crude oil production exceeded 5 million barrels in first quarter 2019
- Texas accounts for approximately 40 percent of U.S. national crude oil production

How has Texas compiled this strong track record?

Texas has a comprehensive state oil field regulatory framework, well funded by the State Legislature, with modern and updated regulations, and competently administered by accountable state regulators. From spud to plug, state regulations are designed to protect water above and below the ground surface.

Well over a million wells have been drilled in Texas over the past 120 years. Today there are approximately 185,000 producing oil wells and 90,000 producing gas wells. The

Texas Rig Count is at a current level of 485, up from 484 last week and down from 515 one year ago.

To keep pace with this level of intense oil field activity, Texas maintains hundreds of oil field inspectors. These state employees are located in the oil field centers and work in a decentralized management concept where field personnel called "outriders" work remotely from the district offices, receive daily assignments, and have comprehensive data internet access with them in the field.

But it takes more than logistics to ensure the protection of surface and subsurface water of the state.

As directional drilling began to dominate the Texas oil field landscape, and hydraulic fracturing became commonplace, Texas regulations have served the state well. There are many regulations designed to protect the environment. Some are new, some have been updated, and others have a value that has stood the test of time.

Water protection in the Texas oil fields has two key statutory definitions:

Pollution of surface or subsurface water *-- The alteration of the physical, thermal, chemical, or biological quality of, or the contamination of, any surface or subsurface water in the state that renders the water harmful, detrimental, or injurious to humans, animal life, vegetation, or property, or to public health, safety, or welfare, or impairs the usefulness or the public enjoyment of the water for any lawful or reasonable purpose.* (Source – Texas Water Code, Title 2, Subtitle D, Water Chapter 27 and Rule 3.8: Water protection)

Surface or subsurface water *-- Groundwater, percolating or otherwise, and lakes, bays, ponds, impounding reservoirs, springs, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Gulf of Mexico inside the territorial limits of the state, and all other bodies of surface water, natural or artificial, inland or coastal, fresh or salt, navigable or nonnavigable, and including the beds and banks of all watercourses and bodies of surface water, that are wholly or partially inside or bordering the state or inside the jurisdiction of the state.* (Source – Title 2, Subtitle D, Chapter 28 and Rule 3.8: Water protection)

In Texas, regulations forbidding oil field pollution of above and below ground water in Texas are crystal clear:

No pollution. No person conducting activities subject to regulation by the commission may cause or allow pollution of surface or subsurface water in the state. (Source Rule 3.8, Water Protection).

A comprehensive regulatory framework has been built around these fundamental water protection pollution regulations. I hope today I can help the Committee understand the commitment Texans have to these pollution prevention regulations.

Here is a short list of 13 key Texas environmental regulations that play a role in water protection. All can be found in the Texas Admin Code Title 16, Part 1, Ch 3

- Rule 3.8 (Rule 8): Water protection
- Rule 3.9 (Rule 9): Disposal Wells
- Rule 3.13 (Rule 13): Casing, Cementing, Drilling, Well Control, and Completion Requirements
- Rule 3.14 (Rule 14): Plugging
- Rule 3.15 (Rule 15): Surface Equipment Removal Requirements and Inactive Wells
- Rule 3.16 (Rule 16): Log and Completion or Plugging Report
- Rule 3.17 (Rule 17): Pressure on Bradenhead
- Rule 3.20 (Rule 20): Notification of Fire Breaks, Leaks, or Blow-outs
- Rule 3.21 (Rule 21): Fire Prevention and Swabbing
- Rule 3.29 (Rule 29): Hydraulic Fracturing Disclosure Rule
- Rule 3.46 (Rule 46): Fluid Injection into Productive Reservoirs
- Rule 3.91 (Rule 91): Cleanup of Soil Contaminated by a Crude Oil Spill
- Ch 4 Subchapter B, Division 1-6: Commercial Recycling

The combination of these regulations addresses almost all water protection concerns that can be presented to regulators by the oil and gas industry activity.

Thank you for the opportunity to be here today, and I will do my best to answer your questions.

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Below is an abbreviated summary on how these regulations address specific topics of public concern regarding water protection during modern horizontal drilling and well completions, like hydraulic fracturing.

Drilling and well safety: Rule 13 outlines the technical requirements and safety equipment needed to drill and complete a producing oil or gas well. It defines the double layer of protection of casing and cement, with surface casing to protect shallow fresh water and production casing to ensure no leakage.

Hydraulic fracturing: Rule 8 in general, and Rule 13 specifically, address hydraulic fracturing. Fracturing is bifurcated between deep intervals and shallow intervals, with separated procedures and practices. Operators are required to monitor pressure closely, report malfunctions, stop operations and notify the RRC if problems occur.

Well bore integrity: Rule 13 requires specific well design and component testing requirements to ensure below ground water is protected. Rule 14 requires specific well

plugging procedures to ensure a well bore is safely plugged so no fluids can migrate under pressure to shallow groundwater. Rule 17 requires pressure gauges at the well head to reflect subsurface well bore conditions, so inspectors can quickly identify troublesome wells. Oilfield operators are also required to report mechanical well bore problems immediately upon occurrence.

Earthquakes: Texas has addressed seismicity concerns in a 3-step process. First, Texas now has data available for public, regulator and industry review. TEX-NET is a state funded, statewide seismic array managed by the University of Texas Bureau of Economic Geology, with a public web page that tracks virtually all seismic events from any source, natural or industrial. Second, an applicant for a disposal well permit must include with the permit application seismic information regarding the locations of any historical seismic events within a circular area of 100 square miles (a circle with a radius of 9.08 kilometers) centered around the proposed disposal well location. The regulators take this information, and may ask for significant additional technical information, based on this submittal. Finally, the regulators have the authority to shut in, or close, any injection well they deem necessary as part of any investigation into seismicity.

Surface spills: Rules 8, 15, 20, 21, and 91 all play a role in surface spills. Rule 8 defines and forbids pollution as well as outlines permitting requirements for wells and facilities. Rule 20 requires immediate notification of oil spills with follow up reports. Rule 91 outlines cleanup criteria for oil spills. Rule 15 requires the removal of surface equipment so residual oil or other materials are not a surface threat. Rule 21 allows the regulators to require dikes or containment around equipment so surface spills are contained.

Waste disposal: Rules 8, 9 and 46 address either liquid or solid oil field waste streams. Oil field waste is heavily regulated by the state to protect surface and subsurface water. For example, injection wells are specially designed with multiple layers of water protection, and the federal delegation under the Safer Drinking Water Act authorizes an annual audit by the EPA of this underground injection control program, the largest in the country, if not the world.

Waste recycling and waste water treatment and use: Rules 8 and Ch. 4 commercial recycling rules are innovative regulations designed to safely encourage oil field waste water recycling. Some recycling is permitted by rule (PBR) while other large, stationary facilities require complex engineering designs and special permits prior to construction.

Public transparency and outreach: Rule 29 requires operators to record hydraulic fracturing data and well locations on a public Internet chemical registry hosted by the Ground Water Protection Council (GWPC) called Frac Focus.

In addition, regulators have recently implemented an online public search engine for oil field inspection and enforcement data that can focus on specific leases.

Regulators in Texas have 24-hour emergency and complaint lines that the public can contact with concerns. Complaints are tracked, investigated and a formal report prepared as part of the complaint resolution.

Statewide coordination is critical. The unequivocal statement regarding the absence of groundwater contamination caused by hydraulic fracturing beginning this testimony is the result of 11 Texas state agencies who compile a Texas Groundwater Protection Council annual report that documents all groundwater contamination cases from every industry and reports on their status.

National cooperation is also a goal, one example is the Interstate Oil and Gas Compact Commission. Where the Texas Governor appoints a regulator to serve as the Texas representative. Officials from all across the country meet regularly to discuss policy and issues.

Enforcement and Fines: The maximum regulatory penalty for a rule violation in Texas is $10,000 per day for each day the violation exists. However, this only reflects a part of the penalty spectrum that can be applied to violators. All state expenditures of funds are referred to the Texas Attorney General for reimbursement. Bonds can be revoked. If enforcement penalties are not corrected, the officers of the company can even be banned from operating or being involved in oil companies in Texas.

Safety Net: Texas has employed an environmental safety net funded primarily by permit and regulatory fees paid by the industry and used by the state to plug orphaned wells and cleanup abandoned pollution sites. This safety net address historical contamination or recent events. It holds the responsible party, not innocent landowners, liable for the cost of the cleanup. To date, Texas regulators have plugged over 37,000 orphaned wells, plugged at a cost of $277 million, and cleaned up more than 6,400 abandoned sites.