Testimony Regarding the Sunset of Texas Railroad Commission

My name is Rita Beving, I am here today on behalf of Public Citizen and Clean Water Fund as the North Texas organizer and outreach coordinator for both organizations.

Today I'm here to support many of the Sunset staff's recommendations and want to bring up some additional insight on Issue 5 regarding Pipeline Oversight and raise concerns about drilling and induced seismicity.

Pipeline Oversight - Sunset Staff Issue 5

In their report, the Sunset staff recommended that the Railroad Commission should ask for additional statutory authority over interstate pipelines to more effectively protect public safety. As Sunset staff has stated, "Neither the federal government nor the Railroad Commission enforces damage prevention rules for interstate pipelines. This regulatory gap limits Texas' ability to fully enforce damage prevention rules."

Sunset staff added,

"While the Railroad Commission has required pipeline operators to receive a permit from the agency to operate a pipeline for almost 100 years, it has never had the authority to have operators pay a permit fee to support this function.

Key Recommendations:

- Authorize the Railroad Commission to enforce damage prevention requirements for interstate pipelines.

- Authorize the Railroad Commission to create a pipeline permit fee."

I agree with those recommendations due to this additional background.

According to a 2013 federal PHMSA budget estimate report, there are only 400 federal and state inspectors <u>combined</u> for more than 2.6 million miles of pipeline in the United States.

PHMSA's current website notes that it has only 100 full-time federal inspectors. The Southwest Regional office, based out of Houston, oversees inspection in the 5 states of Texas, Oklahoma, Louisiana, New Mexico, and Texas. Upon visiting the website for the Houston Southwest office, there are only 11 investigators or field support staff for the aforementioned states -- five of the most oil and gas intensive states in the country.

<u>State</u> pipeline inspectors make up around 75 percent or of all pipeline inspectors nationally, approximately 300. State pipeline safety inspectors are responsible for inspecting and enforcing pipeline safety regulations over 80 percent of <u>intrastate</u> transmission and distribution pipelines (exception is Alaska and Hawaii).

Therefore, it is important that the State of Texas, with its 46,000 miles of interstate pipelines, ask for this additional authority to help ensure public safety with the oversight of both interstate natural gas and hazardous liquid pipelines.
Under the Pipeline Safety Act, states may enter agreements with the Pipeline Hazardous

Materials and Safety Administration (PHMSA) allowing them to take on certain aspects of interstate pipeline transportation oversight, including incident investigations, new construction, and other inspection duties. This oversight is provided under *49 U.S.C. § 60106*.

The Office of Pipeline Safety (OPS) or PHMSA can certify state agencies annually to perform their regulatory duties, and OPS also can authorize states to inspect interstate pipelines, although the agency retains enforcement responsibilities.

Recent accidents and increasing dependence on U.S. natural gas supplies have sharpened concern for pipeline security and safety. After the San Bruno natural gas pipeline explosion in California in September 2010, state lawmakers discussed changing state law to increase oversight of natural gas pipelines during a legislative hearing in October 2010.

Incidents in Pennsylvania have also raised questions about the safety of the nation's massive, aging pipeline infrastructure and due to explosions in that state legislation (HB 102, SB 325 and HB 344) was put forward to provide civil penalties for gas pipeline safety violations and regulation of certain operators.

Currently, there are 9 states (Arizona, Connecticut, Iowa, Michigan, Minnesota, New York, Ohio, Washington and West Virginia) that are authorized to act as interstate agents over natural gas pipelines, and there are 5 states with interstate authority over hazardous liquid lines pursuant to interstate agent agreements.

Washington is one such state that has that extended authority with interstate agent agreements in place for both interstate gas and liquid lines. In a report, Washington along with other authorized states point out that the benefits of state oversight result in:

- Shorter incident response time
- Greater knowledge of facilities and their operational history;
- More thorough inspections
- Better oversight of pipeline construction projects

The issue of Texas seeking expanded authority over interstate pipelines was brought up to the Railroad Commission staff several sessions ago during Sunset and the legislative session. This issue of asking for the ability to inspect and monitor interstate pipelines still needs to be pursued for the sake of public safety.

Induced Seimicity – New Issue Requiring Legislative Action

Currently, the Bureau of Land Management has just placed more than 1500 acres near Choke Canyon Lake and more than 800 acres of parcels near Somerville Lake up for a 2017 auction of 10-year drilling leases in Texas. Somerville Lake is almost 50 years old, built in 1967, and provides water for the City of Brenham. Choke Canyon Reservoir was built in 1987, almost 40 years old, and provides water for the City of Corpus Christi.

Just this past February, numerous cities, river authorities, and the U.S. Forest Service along with numerous statewide environmental organizations successfully protested leases for more than 34,000 acres offered for drilling in Texas, getting them all pulled

from the auction which was to be held in April 2016.

Those Texas parcels under auction consideration this year included land near or on the drinking water sources including Lake Lewisville, Lake Conroe, Choke Canyon Reservoir, and Somerville Lake – all drinking water supplies for DFW, Houston, Corpus Christi, and Brenham respectively.

The reason why these cities, river authorities and environmental groups joined together in their concerns were due to possible danger that additional drilling activity on these lakes could impose with induced seismicity. Additional drilling could inflict structural damage or even a catastrophic breach to these drinking water supplies.

Geologists have known for years that various forms of hydrocarbon production, from drilling and pumping to injecting and fracturing, can cause man-made earthquakes. Experts call the phenomenon "induced seismicity."

The U.S. Army Corp of Engineers, which is responsible for the safety of 640 dams, is also getting alarmed, with many Texas lakes under their continued supervision.

In North Texas, the Corps' Lewisville Lake provides drinking water for almost 2 million people in DFW. Lewisville Lake was built in 1955 – more than 60 years ago.

Within the last year, Lewisville Lake has undergone a $6.4 million repair after a 161-foot long, 23-foot wide breach after heavy rains. The breach is located almost in direct line with one of the 4 lineaments underlying the lake pointed out by former senior oil and gas geologist and GIS expert Jerald Barz (See attached map).

The Corps has rated Lewisville Lake as one of the 8 most hazardous dams in America due to its aging infrastructure. The Corps has estimated that a breach or catastrophic flood would put 431,000 people, 53,000 structures, and place $21.1 billion of land and property at risk. A less severe flood event without a breach could place 240,000 people at risk with $9 billion of land and property at risk.

As Anita Branch of the Ft. Worth Corps District which supervises Lewisville Lake has noted with the media and other presentations, "These dams were never built to anticipate what kind of hazard the high pressure of drilling or what effect horizontal drilling under these dams would pose."

Ms. Branch has raised concerns that the extreme pressures of fracking (in the neighborhood of 8,000 pounds per square inch).could lead to differential movement of layers, shifts along natural faults, and hence the weakening of dam foundations.

In 2011, the Corps placed a 3,000-ft buffer zone around dams and other impoundments due to worries about tremors caused by multi-stage horizontal fracturing. This order covered Corps operations in all or parts of Texas, Oklahoma, Louisiana, Arkansas, Kansas and Missouri.

One of the first Texas lakes where this buffer zone was imposed included Joe Pool Lake near Dallas. The City of Grand Prairie was so concerned about the effect of induced seismicity on this lake that they posed a total ban on drilling around this reservoir.

Recently in March of 2016, out of growing concerns that the buffer was not sufficient, the Corps expanded that buffer zone around Joe Pool to 4000 feet.

Many of us wonder in the environmental community if drilling around our precious water supply lakes isn't risky business altogether, not only due to the possibility of a catastrophic breach or damage to infrastructure, but even the possible contamination to drinking water supplies.

As Ms. Branch of the Corps noted in a news account, infrastructure damage "could precipitate a fairly quick failure if it was not detected in time."

In the meantime, the Corps is also considering two other worrisome possibilities -- one is whether extracting large volumes of gas beneath or near a dam might make rock and soil subside. Another is whether huge amounts of liquid waste from drilling, pumped into disposal wells, can trigger earthquakes.

The Corps is not the only entity with concerns over induced seismicity. Just this year, the Tarrant Regional Water District secured Dr. Anand Puppala, a civil engineering professor at the University of Texas at Arlington, to conduct a three-year study on seismic activity and dams for the Tarrant Regional Water District. One of those studies includes Eagle Mountain Lake in the DFW area.

Other Experts Weighing in on Induced Seismicity

The evidence over seismic activity due to drilling and disposal of fracking wastewater by deep injection has been mounting for years. A number of scientists and academics worldwide have weighed in dating all the way back to the 70's on this phenomenon:

- Bruce Tschantz, professor emeritus of civil and environmental engineering at the University of Tennessee, said the lack of scientific research or published studies on fracking's potential effects on dams justify special care. Tschantz is also a former White House adviser and the first chief of dam safety at the Federal Emergency Management Agency.

- Stephen Wright, professor of civil, architectural and environmental engineering at the University of Texas, noted that problems with clay shales have led to at least two dam failures in Texas, although neither resulted in deaths. He said the Corps was right to err on the side of safety.

- A story in *The Tyee* a Canadian publication dated Jan 31, 2014 cited a string of studies, including one by B.C.'s Oil and Gas Commission that have not only implicated hydraulic fracturing but the related practice of pumping dirty wastewater deep underground as the cause of unprecedented swarms of earthquakes in Ohio, Arkansas, Oklahoma, Texas, B.C. and even Alberta.

- Before 2009, Oklahoma experienced 2 earthquakes above 3.0. Since 2009, 2186 earthquakes about 3.0, 71 earthquakes above 4.0 and 2 above 5.0 have occurred. In 2011, a site east of Oklahoma City near Sparks/Prague experienced a 5.6 earthquake. In 2016, an earthquake 5.1 hit near Fairview.

- In March 2013, a peer-reviewed a research team led by seismologist Katie Keranen at the University of Oklahoma in the scientific journal *Geology* reported that "the volume of fluid injected into the subsurface related to the production of unconventional resources continues to rise" and that there was a link between the "zone of injection and the seismicity" potentially triggering the November 5, 2011 Prague earthquake.

- A recent study by the U.S. Geological Survey (USGS) found that the rate of earthquakes greater than a magnitude of three has steadily increased in the U.S. Heartland since 2001, the beginning of the shale gas boom, "culminating in a six-fold increase over 20th century levels in 2011."

- A 2011 fracking operation in the Bowland Shale near Blackpool, England set off 50 minor earthquakes.

- In British Columbia where the drilling industry uses three times more water and often at higher pressures than other shale gas formations, operations set off more than 200 quakes in the Horn River Basin between April 2009 and Dec. 2011.

- William Ellsworth, a geophysicist with the USGS, argues that several of the largest earthquakes in the U.S. Mid-continent in 2011 and 2012 were probably triggered by the practice of disposing of salt and drilling fluids more than 10,000 feet underground in disposal wells.

- Alberta has nearly 2,000 injection well sites and Oklahoma, which experienced a record 2,600 quakes last year, is home to 5,000 injection sites. As of 2007, British Columbia employed more than 100 wastewater wells in its gas fields.

- The natural gas industry sparked a swarm of major earthquakes in the 1970s and '80s in central Alberta. The rapid draining of a sour gas field near Rocky Mountain House triggered as many as 146 quakes in one year.

- Oil sands waste disposal in Cold Lake, Alberta triggered earthquakes in the '60s and '80s.

- The natural gas industry also shook up Gazli, Uzbekistan with earthquakes as high as 7.3 on the Richter scale in the '70s. Russian scientists concluded that a series of major quakes were "the strongest of all the known earthquakes in the plain of Central Asia" and that "the amassed data indicate that the Gazli earthquakes were triggered by the exploitation of the gas field."

In conclusion, the Texas Legislature needs to take a more serious look at both where drilling occurs especially in relation to drinking water supplies, and also the injection of wasterwater from drilling operations as it relates to induced seismicity.

Sincerely,
Rita Beving