

**February 16, 2016**

**Amy Leuders, Director  
Bureau of Land Management (BLM)  
New Mexico State Office  
301 Dinosaur Trail  
Santa Fe, New Mexico 87508**

**Re: Submission of Protest by T. L. Hayden to BLM under regulation Title  
43 CFR 3120. 1-3 of proposed auction by BLM of  
Parcel – NM-201604-043 being 258.9 Acres in Denton County  
Texas, Lake Lewisville Project**

**Dear Ms. Leuders:**

**The interest of the protesting party, T. L. Hayden, in the environmental statement and the proposed auction of parcel -043 for the purpose of oil and gas development are the following:**

**T. L. Hayden lives in Double Oak, some two miles from Lake Lewisville and uses it for recreation and is interested in the area maintaining the highest possible air and water pollution standards. My wife and a grandson suffer from allergies and asthma and are very sensitive to pollution. All students in Double Oak (and other areas) that attend Guyer High School need special protection from air pollution from the proposed drilling pads.**

**Furthermore, the water we drink in our residence is obtained from Lake Lewisville and the Trinity Group Aquifers. Possible pollution from drilling and future pollution from plug and abandonment threaten our drinking water quality in Lake Lewisville and the Trinity Aquifers by the auction of parcel- 043.**

**A statement of reasons for filing the protest are presented in the remaining portion of the protest document.**

**The following environmental issues have not been adequately addressed by BLM for Denton County in the Environmental Assessment Report , DOI-BLM-NM-040-2015-61-EA, Oct. 2015.**

**Protest of the auction of Parcel – 043 under current environmental assessment is hereby filed.**

**Issue I. Future Protection of Lake Lewisville Water Supply.**

**Lake Lewisville and the Trinity Aquifers are slated to be a major source of drinking water for over a half million local residents over the next**

century. Loss of these sources would be a major catastrophe. Thus standard plug and abandon practices (P&A) are inadequate for use in closing well sites in parcel -043.

The evidence of cement failure and other "plug and abandon" failures is abundant.

- Sustained casing head pressure (SCP) indicates that a formation with sustainable pressure and inadequate zonal isolation is leaking gas into an annulus. A fifteen year old well has a 50% probability of SCP in one annulus. Of 16,000 Gulf of Mexico wells, 43% reported SCP under the rules of U.S. Minerals Management Service.
- A report to Dept. of Interior (BLM) in 2000 by C-FEA Technologies that due to corrosion, deterioration and other factors predicted an environmental risk threshold of 25 years for Plug and Abandoned wells.
- Oil and gas wells and their integrity, vol. 56. 2014 issue of Marine and Petroleum Geology gives a survey of worldwide data. For example, South Texas wells drilled in 1998 – 2011 had a 61% failure rate (an indication of inadequate RRC P&A practices). In general horizontal fracking wells had a higher failure rate than other well types.

To protect Lake Lewisville and the Trinity Aquifers from P&A failure, BLM should explicitly state the plug and abandon policy for these sites. "Best Practice" should be the standard for this crucial area. Example: Kelm and Faul's 1999 SPE 54344 paper, "Well abandonment a "best practices" approach can reduce environmental risk".

Kelm/Faul best practices: "Each well's abandonment should be individually designed. Optimal P&A should include plugging the hydrocarbon-bearing formation matrix, and filling all casing strings from top to bottom with cement designed for well conditions. The cement should be allowed to set in a clear, gas free environment, and each annulus would be clean before the cement is placed."

Furthermore a 100 year bond should be required to cover the cost of well integrity failure.

#### Issue II. Air pollution protection for Guyer High School.

General air pollution issues for Denton County are only addressed at the county level in the BLM environmental report. The omission of the crucial location of Guyer High School in the vicinity of the proposed wells is a serious oversight. Guyer High School has 2400 students (800 minority) located precisely in the plume of pollution created by the prevailing S-SE winds noted in the BLM report. The campus with outdoor sports facilities is approximately a mile downwind from the proposed well sites. A diffusion model with no wind shows rapid

decrease of pollution with distance. However, with transport added to the model the pollution is several orders of magnitude larger in the downwind plume.

Hence, to protect the students at Guyer in addition to the green completion mentioned by BLM , vapor recovery units must be installed on the condensate tanks to control VOC emissions. Furthermore no-bleed pneumatic valves and fittings must be used on all pipeline networks instead of high-bleed valves. Finally it is necessary to install a 24/7 pollution detection device with an immediate notification transmission to Guyer High School authorities in case of increased pollution by leaks or accidents.

#### **Issue III. Environmental Justice - Section 3.14.2**

Under Executive Order 12898 agencies must develop strategies that identify and address (concerns over disproportional environmental and human health impacts on minority and low income populations) by promoting enforcement of all health and environmental statutes in areas with minority and low income populations; ensuring greater public participation; etc.

Since Dallas has a significant low income minority population that will suffer if their drinking water is polluted by any failure of the proposed oil and gas development in Lake Lewisville, it is incumbent on BLM to fulfill the Executive Order in a meaningful manner. No public evidence of any action has appeared in the papers or on TV from BLM.

What strategies were implemented? What steps were taken to ensure greater public participation? Were any minority members of the Dallas Council notified in order that they could inform their constituents?

The proposed auction of parcel - 043 must be delayed until meaningful Environmental Justice action has been taken. The Flint Michigan disaster should not be repeated.

#### **Issue IV. Safety Issues of Lewisville Lake Dam**

Drastic damage to Lewisville Lake Dam occurred in the Spring of 2015 due to heavy rainfall. The resulting structural weakness of the dam must be taken into account. Standard setback requirements and precautions required by the Army Corps of Engineers for all dam structures are grossly inadequate when applied to the eighth (under study to be upgraded to "critically near failure" – the most dangerous category ) most vulnerable dam in the United States with the potential to kill over 400,000 persons in case of failure.

The Lewisville Lake dam problems include seepage under the foundation in 2008 creating pressure and uplift at one end of the dam. Continued seepage, even during drought, in "Seepage area No. 1" of the dam signals instability problems. In May 2015 during heavy rainfall, disaster was narrowly averted when the dam field operations team led by

Jason Vazquez found a "sand boil" that looked like a small whirlpool spinning and spouting water and sand in the seepage area. They quickly arranged sandbags around the "sand boil" till the water rose to a level to equalize the pressure. On June 23<sup>rd</sup> of 2015, a slide occurred resulting in a giant hole in the side of the dam 160 feet long and 23 feet wide. This is the second large slide in this area.

There is a temporary fix underway for these problems consisting of a "coffer dam". A study for a permanent fix is due in six months with estimates of cost from \$50 to \$500 million.

BLM has taken the position that there is no risk to Lewisville Lake dam due to the proposed drilling activities. The following analysis indicates that there is a non-zero probability that drilling activity may cause damage to the dam. Since any disturbance in the delicate balance of the present conditions of the dam might result in a failure of structure and lead to a large loss of life, every minute risk is multiplied exponentially from this life and death perspective. The following risks are small but non-zero and must not be sugar coated by standard oil industry platitudes.

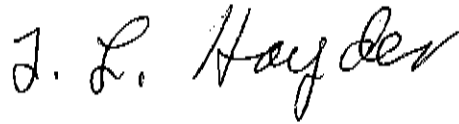
- Fracking can induce earthquakes. An oil company admitted a fracking operation induced an earthquake felt in Blackpool, England. An August 2012 report "Investigation of Observed Seismicity in Horn River Basin" (in Canada) found more than 200 events that were caused by "fluid injection during hydraulic fracturing". Injection wells were not involved in the events. Forty of these events ranged in magnitude between 2.2 and 3.8. These are small earthquakes but are non-trivial when an unstable structure is nearby. An NRC report indicated that only one earthquake of magnitude large enough to be felt (above 2 in magnitude) could be directly attributed to fracking in USA. As previously stated smaller events nearby a critically unstable dam have the potential for catastrophic damage.

- BLM has noted that there have been no ill effects to the dam from previous wells that were drilled on the proposed drill pads. However, these wells were drilled in a N-S direction and not under BLM land. There are several fault structures under Lake Lewisville which run in a SW-NE direction which is the general fault structure direction in the Barnett Shale. The direction of the proposed wells under Lake Lewisville will be near some of these faults and increase the probability of small fracking events not observed in the existing wells.

The bottom line is that the risk of damage to Lake Lewisville dam by oil and gas drilling at this time is not zero. No chances must be taken under current conditions. The BLM must wait until a permanent fix of the dam is completed and the results are evaluated before any auction of drilling parcels in the Lake Lewisville Project is considered.

**Since the above issues show that the environmental assessment by the BLM have failed to fully address all requirements of the National Environmental Protection Act, you are urged to remove parcel – 043 from the April 20 proposed auction.**

Sincerely,



**T. L. Hayden  
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**cc: Congressman Michael Burgess  
cc: Michael Jansky, EPA  
cc: D. Halley, Guyer High School**