

Can Oil and Water Mix?



TEXAS STATE QUALIFYING EVENT: DECEMBER 1, 2012



ISSUE SUMMARY

1. List course(s) in which instruction occurred including the number of students involved in the instruction of the issue.

- Energy and Natural Resources Technology (47 students) – studied the water cycle, processes used to purify water, and renewable and non-renewable forms of energy. Charted major aquifers across Texas and major shale oil exploration areas across the United States. Examined potential sources of pollution in our community. Demonstrated factors influencing groundwater contamination to 7th grade students using a rainfall simulator.
- Wildlife, Fisheries, and Ecology Management (66 students) – investigated regulation on industrial waste water and the enforcement of these laws. Toured a well site and tested water samples for pH, iron, lead, nitrates, and chlorine. Examined the interrelation of various elements of a habitat.
- Biology (104 students) – collaborated with the science department to perform a laboratory activity using cooking oil to simulate an oil spill and visualize the challenge of cleansing oil contamination.
- Economics Dual Credit (4 students) – Team member Adrianna Culbreth and three of her classmates compiled a report on the financial impact of oilfield workers on three local restaurants.
- Professional Communications (10 students) –utilized sound interviewing etiquette and developed oral presentation and written communication skills. Did a case study on presidential debates evaluating non-verbal communication techniques and the impact of media in influencing opinions.
- Business Information Management (26 students) – covered online research techniques and the use of Microsoft PowerPoint® software.

2. Why is this issue important now?

Recent technological advances have enabled the petroleum industry to harvest oil and gas from formations that were previously not economically feasible to drill (Clean Water Action, n.d.). By sending a mixture of water, sand, and additives into the well bore at high pressure, oil and natural gas output is typically four to six times that of a traditional vertical well (Joyner, personal communication, 2012). This has led to a spike in petroleum production, with oil and gas yield increasing to levels not seen in more than a decade (American Oil and Gas Historical Society, 2012). This new technology, however, relies heavily on groundwater. This has caused concern as Texas is still recovering from the worst single year drought experienced by any state in recorded history in 2011 (Nielsen-Gammon, 2011). This coupled with a state population of over 25 million and predicted increases to 46 million by 2060 (Texas Water Development Board, 2012), have led many to question whether Texas' groundwater should be used for oil and gas extraction (Dutzik, Ridlington, & Rumpler, 2012). From January 2011 to August 2012, 31 billion gallons of groundwater was used for fracking in Texas, enough to supply the yearly water needs of 566 thousand people (EcoWatch, 2012). This issue has come to the forefront in our county as the number of operating mineral wells increased from 26 in January 2012 to 288 in August 2013 (Newton, personal communication, 2013). This is a critical issue in our community as decisions being made now regarding the use of water for oil and gas production are impacting our property owners, our economy, and our environment.

3. What is the nature of the issue?

Our forum falls under the topic areas of "Environmental Issues" and "Economy and Trade Issues" as listed in the *Focusing on Agricultural Issues* instructional materials (The Council for Agricultural Education, 2012). Our presentation focuses specifically on the use of water for hydraulic fracturing (fracking). As this practice has become widely used across our state and nation, clear battle lines have emerged (Environment America, 2009). Continuing quarrels over how to best meet energy needs while protecting natural resources and necessary inputs for agriculture production have certainly brought this issue to the attention of the public. In our county, industry proponents credit increased oil production to an expected 2.8 million dollars in additional tax revenue in 2013 (Holland, 2013) and 41% more sales tax income in 2012 than the previous year (Kliener, 2012). Yet, during the last two years, an estimated 500 million gallons of our county's groundwater has been utilized in gas and oil production and complaints have been voiced that our water supply is being abused (FracFocus, n.d.)(Bailey, personal communication, 2012). If fracking does contaminate and deplete soil and water resources (Earthworks, 2012), the sustainability of our area's agricultural based economy could be in jeopardy.

4. Who is involved in the issue?

Oil and gas companies are obviously impacted as using water to fracture formations has allowed for major production gains (Fox Business, 2012). Owners of mineral rights have the potential to see thousands of dollars in monthly revenue from mineral leases and royalty payments (Sheppard, personal communication, 2012). Agricultural producers have a large stake in the struggle over groundwater as 80% of all groundwater

extracted state-wide is used for agricultural irrigation and livestock production (Texas Water Development Board, 2012). Any property owner can be impacted by surface lease agreements and potential water contracts from oil drillers using his/her own or surrounding tracts of land (Bailey, personal communication, 2012). Municipal impacts are part of this debate as cities can gain revenue from taxation and oilfield worker spending but lose water resources and infrastructure due to increased traffic and drilling (Ashby, personal communication, 2012). Environmental concerns also come into play as the fracking process uses one hundred times more water than traditional wells and transfers much of this water to a state that is difficult to cleanse (The Wall Street Journal, 2011). In reality, this topic involves all citizens as decisions regarding petroleum regulation will influence the economy and natural resources of our state and nation. The interrelation of these factors means that millions will be impacted positively or negatively by the oil industry's continued use of fracking.

5. How can the issue be defined?

The issue can be defined in its simplest terms by asking: Should fracking be continued? This question has spurred numerous scientific studies and a flurry of public opinion on both sides. Fracking allows for faster oil production which contributes to our economy and energy independence. Yet, this is done by using two to five million gallons of water per well (King, n.d.). Various individuals and groups have raised concern over the quantity of water being used and the quality of the water after it has been used for fracking (Miller, 2011). Environmental concerns and public sentiment that fracking causes irreversible damage have led to moratoriums on fracking in New York and New Jersey (Williamson, 2012). Yet, oil production companies maintain the process is safe (Energy in Depth video, Truthland, 2012). Should fracking continue? The question is simple, but the answer is not.

6. What is the historical background of the issue?

Significant dates relevant to our discussion of the interrelation of oil and water are:

- 1901 – The Lucas Well at Spindletop hits a major oil strike, beginning the first Texas oil boom and the emergence of oil and gas production as a major industry in Texas. (Ramos, 2001).
- 1947 – The first experimental fracturing treatment is performed in Grant County, Kansas (American Oil and Gas Historical Society, 2012).
- 1970's – Motivated by a nationwide energy crisis, the United States government invests heavily in fracking research in an effort to increase domestic oil production. (American Oil and Gas Historical Society, 2012).
- 1997 – Mitchell Energy successfully uses slick water hydraulic fracturing to profit by forcing oil from tightly held pockets in the Barnett Shale in North Texas (Ramos, 2001).
- 2011 – The United States exports more petroleum products than we import for the first time since 1949. 37,000 wells, an estimated 90% of active wells in the United States, utilize fracking within this year. (U.S. Energy Information Administration, 2012, September 7).
- January 2011 to August 2013 – 235 new drilling permits are approved for Madison County. As of August 2013, Madison county has 488 gas/oil leases, 153 producing operators, and 288 active wells (Texas Data Applications, 2013) (Holland, 2013).

7. What caused the issue?

Consumers in the United States spend one trillion dollars on fossil fuels each year (Environment America, 2009). This high demand for oil and gas provides ample motivation for oil companies to seek new ways to capture oil. But as the latest drilling techniques are now using over 50 billion gallons of water nationwide per year (Ottens, 2012), many are starting to question if we are sacrificing our resources for short term profit.

8. What are the risks?

Opponents of fracking:

- Believe that the oil and gas industry is using too much water.
- Argue that fracking is responsible for soil and water contamination.
- Allege that the Texas Railroad Commission is unable to enforce safety standards.
- Maintain that local government has no regulatory ability over gas and oil companies in their area.

9. What are the benefits?

Supporters of fracking:

- Emphasize that landowners and state and local economies will benefit financially from fracking.
- Stress that domestic fossil fuel production is necessary for our county's stability.
- Applaud the mandatory and voluntary safety practices performed within the petroleum industry.
- Declare fracking is safe and has not been conclusively tied to environmental problems.



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Tour of Well Site – Parten Operating



LOCAL FORUM PRESENTATIONS

When	Where	To Whom	# Present
October 30, 2012	Madisonville, TX	Madisonville Area Revitalization Initiative	11
November 1, 2012	Austin, TX	Texas Water Development Board	14
November 1, 2012	Austin, TX	Railroad Commission of Texas	9
November 1, 2012	Austin, TX	Texas Commission on Environmental Quality	2
November 2, 2012	Madisonville, TX	Daughters of the Republic of Texas	10
November 2, 2012	Madisonville, TX	Madison County Beef and Forage Committee	12
November 4, 2012	Madisonville, TX	Methodist Church Breakfast Meeting	33
November 5, 2012	Madisonville, TX	Bedias Creek Soil and Water Conserv. District	10
November 5, 2012	Madisonville, TX	Madisonville CISD School Board	27
November 5, 2012	Madisonville, TX	Community Open House	175
November 6, 2012	Madisonville, TX	KMVL Radio	2 + Listeners
November 6, 2012	Madisonville, TX	State Representative Elect – Trent Ashby	2
November 7, 2012	Midway, TX	Parten Operating Regional Meeting	44
November 12, 2012	Madisonville, TX	Alpha Delta Kappa Sorority*	17
November 15, 2012	Madisonville, TX	Lions Club	8
November 15, 2012	Madisonville, TX	Madison County Republican Party Meeting*	7
November 15, 2012	Madisonville, TX	Madison County Farm Bureau Board	12
November 19, 2012	Midway, TX	Ferguson Unit, Texas Dept. of Criminal Justice*	8
November 19, 2012	Madisonville, TX	Madisonville Volunteer Fire Department	28

* Independent documentation available but not included in this document due to portfolio ten page maximum contest rule.

Madisonville Area Revitalization Initiative
October 30, 2012 – Woodbine Hotel, 12:00 P.M.
Number in Attendance: 11



This group asked many questions on the economic impact of increased petroleum production in our county. We appreciated hearing the views of local business owners.



Madisonville Area Revitalization Initiative Inc.
P.O. Box 445
Madisonville, TX 77864

Dear Ag Issues Team,

The Madisonville Area Revitalization Initiative is appreciative to the members of the Madisonville Ag Issues Forum FFA team for presenting an excellent program for our group of eleven individuals on Tuesday, October 30 at noon during our regular monthly meeting at the Woodbine Hotel. As always, the students represented both sides with confidence and equality. Your selection of this topic that is so current for our community is commendable. Thank you for your work.

Sunny Clouser

Sunny Clouser, President
 Madisonville Area Revitalization Initiative, Inc.

Texas Water Development Board
November 1, 2012 – TWDB Office, 9:00 A.M.
Number in Attendance: 14



Mrs. McCall included an article about our visit in "The Monthly Drip" a TWDB newsletter. We gained valuable insight on the water shortage predictions for Texas.



FFA Agricultural Issues Team presents to TWDB staff
 -by Linda Ruiz McCall

On November 1, TWDB staff heard a presentation by the Madisonville High School Future Farmers of America Agricultural Issues Forum team. FFA Ag Issues Forum teams compete nationwide to develop their critical thinking, problem solving, and communication skills. Winning teams receive scholarship funds as awards.

The Madisonville team, led by teacher Ms. Lynita Foster, chose the effect of hydraulic fracturing on agriculture as their topic. TWDB staff from Water Science and Conservation and Communications listened to the team members

passionately present the pros and cons of the topic. The team's hard work and expert guidance from their teacher was evident in the presentation.

This was the second year that Ms. Foster brought her team to TWDB and other state agencies for feedback and practice with an authentic audience prior to the competition. Last year's team chose groundwater rights as a topic and won second place nationwide. This year's team was equally impressive. We wish them the best of luck in the competition and in their future.





Texas Water Development Board

P.O. Box 13231, 1700 N. Congress Ave.
Austin, TX 78711-3231, www.twdb.state.tx.us
Phone (512) 463-7847, Fax (512) 475-2053

Dear Judges of the Ag Issues FFA Contest:

On November 1, 2012, at 9:00 a.m., fourteen staff members of the Texas Water Development Board (TWDB) participated in a meeting with the Madisonville FFA Team at our office in Austin. We listened and provided feedback as they presented a forum on the increasing use of water for oil and gas production.

The tremendous pressure being placed on our water supply is of great concern. Without strategic planning, our state can never hope to meet future water demand. Decisions regarding the most productive use of this resource and meaningful action to make sure we are using water in the most efficient manner are critical. We congratulate these youth for taking an interest in an issue so critical to our future.

With Best Regards,

Comer Tuck Jr. P.E.

Comer Tuck Jr., P.E.

Director of Conservation Division

Railroad Commission of Texas

November 1, 2012- RR Comm. of Texas Office, 11:00 A.M.

Number in Attendance: 9



The Texas Railroad Commission is the regulatory agency for oil and gas wells in Texas. The screen shot below is from their webpage and was featured for two months.



Texas Commission on Environmental Quality

November 1, 2012- TCEQ Office, 2:00 P.M.

Number in Attendance: 2



The TCEQ regulates surface water and air pollution in Texas. They work closely with the Railroad Commission and enforce penalties for ecosystem damage.



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

P.O. Box 13087 Austin, TX 78711-3087

Dear Sir or Madam:

It was our pleasure to meet with Madisonville FFA students on November 1, 2012, at 2:00 p.m. at our agency in Austin. We enjoyed visiting with these bright young people and were impressed with their knowledge and passion on the issues surrounding water protection and environmental regulations as they pertain to oil and gas harvesting in Texas. We wish the group well in competition.

Dan Duncan

Dan Duncan

Daughters of the Republic of Texas
November 2, 2012 – Madison Co. Museum, 10:00 A.M.
Number in Attendance: 10



These ladies are very civic minded and involved in our community. They asked specific questions about water contamination. County Judge Art Henson also attended.



Daughters of the Republic of Texas

Dear Madisonville FFA Ag Issues Team:

On behalf of the Rev. John Haynie Chapter of the Daughters of the Republic of Texas I want to say thank you for the wonderful program that you presented at our Stephen F. Austin Birthday Celebration to ten individuals on November 2, 2012 at the Madison County Museum at 10:00 A.M.

We look forward to having you as our guests each year. Your topic was well chosen as oil exploration is now exerting a major influence in our area. Our members were gratified to learn from your presentation and are now more informed on the benefits and risks of oil exploration in our community. Thank you.

Berna Hendrix

Madison County Beef and Forage Committee
November 2, 2012 – County Extension Office, 11:30 A.M.
Number in Attendance: 12



This group allowed us better insight from ranchers' viewpoints. Mr. Thad Joyner, technician with Stanford Oil was present and helped us clarify some questions.



Madison County AgriLife Extension Service
 300 W. School St. Ste. 101
 Madisonville, TX 77864-3280
 Phone: 936-348-2234 Fax: 936-348-9685



Thank you to the Ag Issues Team for attending the Madison County Beef and Forage Meeting on Friday, November 2, 2012. The meeting was held at the Madison County Extension Office at 11:30 A.M. with twelve people present. We appreciate the information that the team brought as well as a willingness to learn from those present. We could see the students working hard to prepare themselves to become strong leaders and advocates in promoting and protecting the industry of agriculture. Keep up the good work!

Leslie Lazenby
 Asst. CEA, Madison County

Leslie Lazenby

First United Methodist Church Breakfast
November 4, 2012 – Methodist Church, 7:30 A.M.
Number in Attendance: 33



Meeting with this group has become an annual tradition. Questions focused on fracking techniques, water supply sources, and landowner rights.



First United Methodist Church
 Madisonville, Texas

Subject: November 4, 2012
 FFA Agricultural Issues Presentation – 33 Present
 First United Methodist Church – Prayer Breakfast, 7:30 A.M.

Thank you for your passionate presentation of the positives and negatives of oil and gas production by the means of hydraulic fracking. This is a very relevant topic with the increased drilling in our area.

The "Ag Issues" team brought forth many of the conflicting demands at the heart of this debate. No one can argue the need for water or the need for domestic energy sources. The presentation and the responses to audience questions demonstrated excellent understanding of the issue. We are proud of the students and this wonderful FFA program.

Sincerely,

Jim Madole

Jim Madole, November Meeting Chair

Bedias Creek Soil and Water Conservation District
November 5, 2012 – Living Truth Church, 9:00 A.M.
Number in Attendance: 10



This presentation was followed with a lively discussion of the long term impacts of fracking. There was much concern over waste water contamination and disposal.



BEDIAS CREEK
SOIL & WATER CONSERVATION DISTRICT #428
 120 South Elm, Suite #110, Madisonville, Texas 77864 (936) 348-2173
 Post Office Box 217, Centerville, Texas 75833 (903) 536-2940

November 5, 2012

Fax 936-348-5792

Dear Ag Issues Team Members,

The **Bedias Creek Soil & Water Conservation District** would like to thank you for your presentation titled **"Can Oil and Water Mix"** at our Board Meeting on Monday, November 5, 2012 at the Living Truth Church at 9:00 A.M. The Team was very well researched in each point of view; well articulated in their expression of those points and gave a wonderful informative presentation. The 10 individuals that were present were honored to hear the presentation and were edified by visiting with your team. Thank you again!

Ernest Strack
 Vice-Chairman

Ernest Strack

Madisonville Consolidated ISD School Board
November 5, 2012 – Madisonville CISD Office, 5:30 P.M.
Number in Attendance: 27



Our presentation prompted talk among the board about increases in land valuation due to mineral production and the resulting impact on the school's finances.



Keith Smith
 Superintendent

Dr. Robert Cope
 Board President

James Sanders
 Assistant Superintendent

The Madisonville Consolidated Independent School District Board of Trustees was honored on Monday, November 5, 2012 to have your group present at the monthly school board meeting held at the MCISD Administration Building at 5:30 P.M. The discussion truly made an impression on the 27 people present that evening with the debate concerning the pros and cons of fracking to increase mineral production. The presentation was very informative and the team was extremely genuine in assuming the roles of key players in the debate. The members of the MCISD Board of Trustees and the staff commend you for your hard work. We are proud of each of you and wish you well in future competitions. God Bless and Go Mustangs!

Keith W. Smith
 Keith W. Smith
 Superintendent

Community Open House
November 5, 2012 – MHS Ag Building, 6:30 P.M.
Number in Attendance: 175



We had a very large attendance at our open house. We were able to answer questions regarding treatment of produced water.



To the Judges of the Ag Issues FFA Competition:

One of the highlights of attending the Madisonville FFA Community Open House on November 5, 2012 at 6:30 P.M. in the High School Ag Building was seeing the Ag Issues Team discuss the water that is being used for oil and gas exploration in Texas. I was unaware that the recent oil boom in our town was utilizing our water in this way. I was amazed when the team opened the time for questions from the approximately 175 people present. The young people exhibited poise in the face of some very difficult questions. I compliment this group on an excellent presentation.

Laney Smith

KMVL Radio
November 6, 2012 – KMVL Radio Station, 8:00 A.M.
Number in Attendance: 2 + Listeners



We joined Paul Wright and Bill Cavill on the morning show.
The discussion focused on water scarcity and the role both industry and individuals play in conserving water.



102 West Main Street
 Madisonville, Texas 77864
 (936) 348-9210
 FAX: (936) 348-9201

To whomever it may concern:

Please be advised that Madisonville FFA Ag Issues Team members were guests on KMVL's morning show from 8:00 A.M. to 8:30 A.M. on Tuesday, Nov. 6, 2012. They participated in a live broadcast from the KMVL studio with morning show hosts, Paul Wright and Bill Cavill. The students provided information on oil and gas drilling in Texas and the positive and negative impacts of fossil fuel production on soil, water, and agriculture production.

Thank you,
 Paul Wright

State Representative Elect District 57 – Trent Ashby
November 6, 2012 – MCISD Central Office, 9:30 A.M.
Number in Attendance: 2



Rep. Ashby helped us understand how oil production impacts tax revenue for counties and schools. He served on the Natural Resources House Committee this spring.



Trent Ashby
 2915 Atkinson Drive
 Lufkin, TX 75901



(936) 634-2762
 www.trentashby.com
 tashby@communitytitle-tx.com

Dear Madisonville FFA Ag Issues Team:

I was honored to visit with you on November 6, 2012 at 9:30 a.m. in the MCISD administration building to discuss an issue very important to our state's economy, property owners, and natural resources. As the technology in oil and gas drilling continues to advance in Texas, wise decisions will need to be made, assuring we are balancing the important priorities of domestic energy production and job creation with the moral obligation we have as a state and individual citizens to protect the precious water and soil that is the lifeblood of our agriculture production. Linda Parker and I were thoroughly impressed with your research and powerful delivery. We were honored to discuss the topic at length and wish you well through your FFA competitive events.

Yours sincerely,

Trent Ashby



Parten Operating Inc. Regional Meeting
November 7, 2012 – Midway Comm. Center, 11:30 A.M.
Number in Attendance: 44



Parten Operating in one of the leading drilling companies in our area. They provided firsthand knowledge of how fracking in accomplished and took us on a job site tour.



To Whom It May Concern:

Parten Operating Inc. held a regional safety meeting at 11:30 a.m. on Wednesday, November 7, 2012. The meeting was held at the Midway Community Center in Midway, Texas and 44 were in attendance.

The Madisonville FFA Ag Issues Team presented a lively debate over fracking. We recognize the controversial nature of this issue and appreciated the interest the young people took in learning the procedures we follow to minimize the impact to the surrounding soil and the water table.

Thank you,
 Troy Sheppard

Madisonville Noon Lions Club
November 15, 2012 – Woodbine Hotel, 12:00 P.M.
Number in Attendance: 8



The Lions invited us to speak at their monthly meeting. They asked great questions on a well's impact on the surrounding soil and the rights of surface acre owners.



MADISONVILLE NOON LIONS CLUB

To whom it may concern:

On November 15, 2012 the Madisonville FFA Ag Issues team members were the guests speakers of the Madisonville Noon Lions Club at our weekly meeting held at the Woodbine Hotel. During the meeting the team presented their research to eight members of the Lions Club over the impact hydraulic fracturing has on our state. The presentation was both enlightening and entertaining. The students should be commended for their hard work and an excellent presentation.

Sincerely,

David W. Stiver

David W. Stiver

Madisonville Noon Lions Club Representative

Madison County Farm Bureau Board of Directors
November 15, 2012 – Farm Bureau Office, 8:00 P.M.
Number in Attendance: 12



Our Farm Bureau is seeking to limit oil companies to using the deepest aquifer for water. Chairman Bill Parten is also a board member of our water district and is our city mayor.



MADISON COUNTY FARM BUREAU

402 W. MAIN • MADISONVILLE, TEXAS 77864 • PHONE (936) 348-2753 • FAX (936) 348-3267

Dear Judges of the FFA Ag Issues Contest:

We were honored to have students from Madisonville FFA present an informative and thought provoking program on water and oil production. When challenged with questions, the students stood by their research and were able to speak very intelligently on the topic with our Board of Directors at our monthly meeting, held November 15, 2012. Twelve were in attendance for the 8:00 P.M. presentation at the Madison County Farm Bureau Office. We hope to have Madisonville FFA students as our guests again in the near future.

Sincerely,

Donna Taylor

Donna Taylor
Agency Manager

Madisonville Volunteer Fire Department Training Meeting
November 19, 2012 – Madisonville Fire Dept., 7:00 P.M.
Number in Attendance: 28



We wanted to speak to this group to learn about the additional pressure small town emergency responders are placed under when oil drilling moves into a rural area.



MADISONVILLE VOLUNTEER FIRE DEPARTMENT

1617 E. Main St. Madisonville, TX 77864 • (936)348-9297



Dear Judges:

The Madisonville Volunteer Fire Department was grateful to host the FFA Ag Issues Team on November 19, 2012 at the fire station. The meeting was held at 7 o'clock in the evening and 28 people were in attendance. We were glad see these young people take an interest in county and discussed with them the impact increases in oil production have had on emergency response services in our area.

Thom Jones

Thom Jones
Fire Chief – Madisonville Volunteer Fire Department