

NEWS FROM THE Barnett Shale Energy Education Council



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Air Pollution Issues in the Barnett Shale

In the first part of 2009, there was a major shift in Barnett Shale issues when the Environmental Defense Fund (EDF – www.edf.org) funded a study about air emissions. With that study, environmental issues became the focus of virtually all criticisms regarding natural gas operations in the Barnett Shale. I wrote an article pointing out the errors in that study, which was first published in the *Fort Worth Basin Oil and Gas* magazine in May 2009. *The Wall Street Journal* recently characterized that article as an attack on the EDF study. I didn't consider it an attack as much as an attempt to point out that the study had a number of flaws in methodology, which called into question the conclusions.

The same can be said for two recent studies produced by Flower Mound, Texas-based Wolf Eagle Environmental Engineers and Consultants (Wolf Eagle – www.wofleaglenvironmental.com) that reported elevated levels of various organic compounds and, in some cases other chemicals including benzene, and attributed the source of those levels to natural gas wells. The first study was conducted on private property, referred to as “Deborah’s Farmstead” in the Westworth Village south of Lake Worth in Fort Worth, and east of Carswell Air Force Base, now named Naval Air Station Joint Reserve Base. This led the City of Fort Worth to commission the Carrollton, Texas-based firm Industrial Hygiene and Safety Technology, Inc. (IHST – www.ihst.com) to evaluate that study. IHST found that the methodology employed by the privately-funded study was not scientifically sound and therefore could not support their conclusions.

Dish, Texas, a small town in Denton County north of Dallas and east of Denton, also commissioned Wolf Eagle to conduct an air analysis. Air samples were collected and the results were reported to show elevated levels of benzene and other chemicals. The Texas Commission on Environmental Quality, or TCEQ, entered the picture and collected its own air samples. TCEQ decided to make public statements that high benzene levels were found at some well sites but said further sampling was needed to determine if elevated benzene levels were “one in two, one in 100, or one in 1000 well sites.” TCEQ said its results would be released by the end of 2009 or the first part of 2010.

This information void paved the way for unsubstantiated speculation about the problem of air pollution from Barnett Shale gas wells. The void was quickly filled by some members of the press and anti-drilling groups. The owner of Deborah’s Farmstead called for a moratorium on new drilling permits pending more test results. Texas Sen. Wendy Davis called for the Lieutenant Governor of Texas to order a study of “the various environmental impacts related to the gas production processes in the Barnett Shale area and other similar fields.” The Fort Worth League of Neighborhoods organized a town hall meeting in November to discuss the issue. A local radio station reported that a “state agency says that natural gas wells all across North Texas are spewing cancer-causing chemicals.” *The Fort Worth Star-Telegram* reported that “tests by the Texas Commission on Environmental Quality reveal high levels of benzene, a carcinogen, near some wells.”


Ed Ireland is executive director of the Barnett Shale Energy Education Council (www.bseec.org), a community resource that provides information to the public about gas drilling and production in the Barnett Shale region. Its intention is to provide fact-based information about urban drilling from sources such as industry, government, organizations and institutions of higher education.

What the TCEQ will reveal in its next report is unknown, but there are some facts that we do know. First, “dry” natural gas is almost pure methane and contains only extremely small trace amounts of other chemicals. If any organic compounds are measured at concentrations that would be expected to result in adverse health effects at natural gas well sites, it will be at well sites that produce “wet” natural gas, where the most likely source will be condensate storage tanks, although the mere presence of condensate tanks does not mean that various organic compounds and benzene levels will be elevated. Second, the majority of Barnett Shale natural gas wells in Fort Worth and the DFW Metroplex are dry wells that produce no condensate and therefore do not even have condensate storage tanks on well sites. This is shown in the table below, which is based on actual production of all Barnett Shale natural gas wells in the nine-county EPA DFW Nonattainment Area in July 2009.

9 County EPA DFW Nonattainment Area Barnett Shale Wells in July, 2009				
County	No. of Zero Condensate Wells	No. of Measureable Condensate Wells	Total Wells	% Wells With <u>Any</u> Condensate (Oil)
COLLIN	0	0	0	0.0%
DALLAS	13	0	13	0.0%
DENTON	1,740	567	2,307	24.6%
ELLIS	35	0	35	0.0%
JOHNSON	2,357	131	2,488	5.3%
KAUFMAN	0	0	0	0.0%
PARKER	459	493	952	51.8%
ROCKWALL	0	0	0	0.0%
TARRANT	2,048	82	2,130	3.9%
9 County Area	6,652	1,273	7,925	19.1%
<i>For informational purposes:</i>				
Wise	1,348	682	2,030	33.6%

Source: IHS Energy Data 7/2009 Powell Barnett Shale Newsletter 11-23-2009

Of the counties in this nine-county non-attainment area, only two, Denton and Parker, have any significant percentages of wells that produce condensate. Wise County, which



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is not in the nonattainment area but is shown for informational purposes, has 33.6 percent of its wells producing condensate or oil. Any elevated levels of benzene in counties other than Denton, Parker and Wise have sources of volatile organic chemicals and benzene unrelated to natural gas well sites. This important fact has been completely ignored.

An example is the *Star Telegram* article in late November that read: "Most natural gas wells produce condensate or drip oil, a lightweight form of crude oil that is collected in tanks along with saltwater and other drilling waste." The table makes it clear that most Barnett Shale natural gas wells in north Texas do not produce condensate. So, if the TCEQ

finds elevated levels of various organic chemicals and benzene, it will most likely be in Denton, Parker and Wise counties because there is more condensate and storage tanks in those areas.

As for the area around Deborah's Farmstead in Tarrant County, the data shows there is zero condensate production.

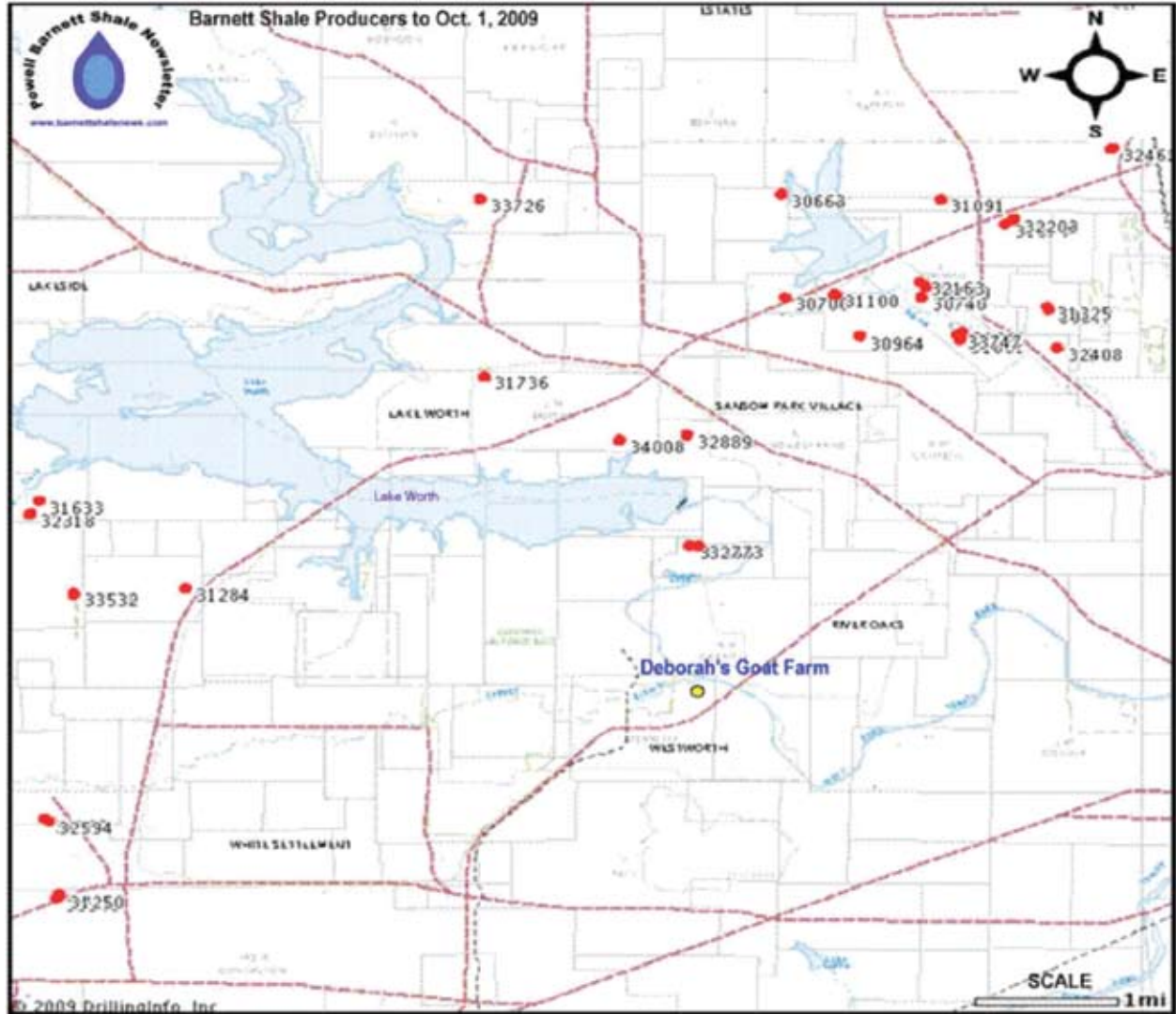
64 Square Miles Around Deborah's Goat Farm, Westworth Village, Tarrant County, Texas Barnett Shale Producers September 2009										
Ave. Oil Sept. 2009 BOPD	Ave. Gas Sept. 2009 MCFGPD	Age Mo.	API No. 42-439-	Reg No.	Operator	Lease	Well No.	Abstract No.	First Prod. Date	Last Prod. Date
0	1	61	30739	205250	XTO ENERGY	L&S LAND	C 1	907	Sep-04	Sep-09
0	338	61	30740	205252	XTO ENERGY	L&S LAND	C #2 H	907	Sep-04	Sep-09
0	120	62	30701	205280	XTO ENERGY	L&S LAND	A 2H	1792	Aug-04	Sep-09
0	296	58	31041	206860	XTO ENERGY	L & S LAND M. SAMSON UNIT	C#3H	907	Dec-04	Sep-09
0	368	55	31074	208814	XTO ENERGY	MARINE CREEK OF TEXAS "G"	G 1H	907	Mar-05	Sep-09
0	411	53	30663	209447	XTO ENERGY	HAYCO	H 3	201	May-05	Sep-09
0	873	54	30987	209861	XTO ENERGY	QUARRY	1H	986	Apr-05	Sep-09
0	171	50	31079	211750	XTO ENERGY	MARINE CREEK GG UNIT	'2-H	907	Aug-05	Sep-09
0	181	52	31091	213291	XTO ENERGY	MARINE CREEK OF TEXAS "E"	E 1H	1102	Jun-05	Sep-09
0	1,271	48	31325	213354	XTO ENERGY	QUARRY UNIT	2H	986	Oct-05	Sep-09
0	220	47	31123	213444	XTO ENERGY	CITCARP UNIT NORTH	1 H	1849	Nov-05	Sep-09
0	195	52	30959	213531	XTO ENERGY	L&S LAND	B1H	629	Jun-05	Sep-09
0	367	52	30964	213532	XTO ENERGY	L&S LAND	B 2H	629	Jun-05	Sep-09
0	277	47	31122	214564	XTO ENERGY	CITCARP UNIT SOUTH	2H	1849	Nov-05	Sep-09
0	1,316	48	31134	215437	XTO ENERGY	SANSOM WEST UNIT	3 H	627	Oct-05	Sep-09
0	378	49	31101	217179	XTO ENERGY	SANSOM, MARION UNIT	2H	629	Sep-05	Sep-09
0	591	53	31100	224764	XTO ENERGY	SANSOM UNIT	1H	629	May-05	Sep-09
0	207	34	31555	226155	CHESAPEAKE OPER.	SIENNA HILLS	1H	1201	Dec-06	Sep-09
0	1,086	29	31284	229634	DEVON ENERGY	HYDE-HICKMAN "A"	1H	306	May-07	Sep-09
0	566	35	31619	230055	RANGE PROD. CO.	WINWOOD	2H	1725	Nov-06	Sep-09
0	402	29	31874	231367	XTO ENERGY	QUARRY	B 1H	806	May-07	Sep-09
0	1,452	6	31833	232125	XTO ENERGY	YMCA	B 2H	721	Apr-09	Sep-09
0	561	5	31835	233419	XTO ENERGY	YMCA UNIT B	B 1H	721	May-09	Sep-09
0	279	30	31948	234602	CHESAPEAKE OPER.	OLD WEATHERFORD	5H	256	Apr-07	Sep-09
0	2,657	3	31733	240299	XTO ENERGY	NW TARRANT PARTNERS	1H	85	Jul-09	Sep-09
0	482	23	32318	237000	RANGE PROD. CO.	WINWOOD	3H	1725	Nov-07	Sep-09
0	169	27	31633	237170	RANGE PROD. CO.	WINWOOD	1	1725	Jul-07	Sep-09
0	1,026	22	31876	237680	XTO ENERGY	QUARRY	B 2H	806	Dec-07	Sep-09
0	304	21	32594	238696	CHESAPEAKE OPER.	CHAPEL CREEK	2H	1201	Jan-08	Sep-09
0	958	23	32163	238130	XTO ENERGY	MARINE CREEK G UNIT	3H	907	Nov-07	Sep-09
0	1,469	22	31601	238256	XTO ENERGY	SANSOM PARK UNIT	3H	907	Dec-07	Sep-09
0	635	14	32462	243143	XTO ENERGY	CITCARP UNIT SOUTH	4H	1849	Aug-08	Sep-09
0	538	24	32314	240764	CHESAPEAKE OPER.	OLD WEATHERFORD	4H	256	Oct-07	Sep-09
0	1,847	7	32407	241354	XTO ENERGY	QUARRY	A 2H	1591	Mar-09	Sep-09
0	1,391	8	32397	240986	XTO ENERGY	QUARRY	A 1H	1591	Feb-09	Sep-09
0	1,399	6	32888	243434	XTO ENERGY	CREAMER UNIT	1H	1584	Apr-09	Sep-09
0	2,781	3	31736	243427	XTO ENERGY	NW TARRANT PARTNERS	2H	85	Jul-09	Sep-09
0	1,659	8	32408	244123	XTO ENERGY	QUARRY	3H	1591	Feb-09	Sep-09

Source: Railroad Commission of Texas by Powell Barnett Shale Newsletter 11-26-2009

In fact, in a 64-square mile area around the goat farm, there are 48 natural gas wells, none of which produce any condensate, based on September 2009 data from the Railroad Commission of Texas and the *Powell Barnett*

Shale Newsletter. The IHS Enerdeq map below also shows the location of these wells to the west and north of Deborah's Farmstead. Any emissions from these wells would be blown away from the farmstead based on the pre-

vailing winds. These data make it clear that, if there are elevated levels of any organic compounds and benzene at Deborah's Farmstead, it is most likely coming from a source other than natural gas wells.



Source: 2009 DrillingInfo, Inc.; Powell Barnett Shale Newsletter

The main point here is that not all Barnett Shale wells are the same and regulatory policies must take these differences into consideration. Specifically, to call for a moratorium on all new drilling permits in the Barnett Shale makes no sense, given these differences. Also, to suggest that all natural gas wells have vapor recovery units makes no sense because many wells have no condensate storage tanks at all. It is also important to note that vapor recovery units require a certain amount of vapor to function at all, so not all condensate tanks need or can operate vapor recovery units. Condensate tanks that are currently required to

have vapor recovery units already have them.

A final point is this is not a "we" versus "them" issue. All companies that work in the Barnett Shale have employees who also live in the Barnett Shale. They have skilled and diligent field and compliance personnel who take their jobs seriously. The TCEQ and EPA have standards that every company must meet. No company knowingly spews carcinogens into the air with the potential of poisoning our families and neighbors. If problems exist that need to be fixed, they will be fixed. In the meantime, the rampant speculation and alarmist rhetoric accomplishes nothing. ★