



Monday, December 13, 2010

## EPA Wrong – Barnett Shale Gas Not In Water Wells

By Gene Powell, Publisher/Editor – *Powell Barnett Shale Newsletter*®

The *Powell Barnett Shale Newsletter*® research team began Wednesday, December 8, 2010, researching the accusation by the EPA, Region 6, that Range Production Company, the operating company of Range Resources, Inc., had brought two Barnett Shale horizontal wells into production that caused natural gas to contaminate two private domestic water wells in Hood County, Texas. The EPA Region 6 sent a letter<sup>1</sup> to Range on December 7, 2010, declaring an *“imminent and substantial endangerment to a public drinking water aquifer has occurred (or may occur) through methane contamination which is directly related to oil and gas production facilities under your operation”*... *“The Order describes the actions you must take to ensure the Butler Unit and Teal Unit production facilities pose no imminent and substantial endangerment to public health through methane contamination of an underground source of drinking water.”* The letter goes on to demand *“Within five (5) days of receipt of this Order, Respondents shall submit to EPA a survey listing and identifying the location description (latitude and longitude) of all private water wells within 3,000 feet of the Butler wellbore track and 3,000 feet of the Teal well bore track and all of the Lake Country Acres (TXII 10059) public water supply system wells.”* There are many more demands and time tables in the Order submitted by John Blevins, Director, Compliance Assurance & Enforcement Division, under the direction of Al Armendariz, EPA Region 6 Administrator.

The 11 page Emergency Administrative Order Docket No. SDWA-06-2011-1208<sup>2</sup> is dated December 7, 2010, and has many statements not of fact and numerous misleading statements. Two misleading examples are found in 8. and 9. of the Order which state *“Domestic Well 1 lies approximately 120 feet in horizontal distance to the east-northeast from the track of the horizontal section of the Butler Well bore”* and *“Domestic Well 2 lies approximately 470 feet in horizontal distance to the southeast from the track of the horizontal section of the Butler Well bore”* but fails to mention that the horizontal section under the water wells is 5,821 feet deep and the deepest of the two Domestic wells is only 200 feet deep, a difference of well over a mile.

It is not the intention of this research to judge the EPA documents nor the response from the Railroad Commission of Texas<sup>3</sup>, the response from Range Resources to the EPA on December 8, 2010,<sup>4</sup> or the call for a meeting of the EPA and Range Resources at the Railroad Commission of Texas<sup>5</sup> on January 10, 2011.

<sup>1</sup> [EPA Findings & Emergency Order Ltr to Range Prod Co 12-7-2010](#)

<sup>2</sup> [EPA Imminent & Substantial Endangerment Order 12-7-2010](#)

<sup>3</sup> [RRC Response To EPA Order 12-7-2010](#)



This *PBSN Research Report* is independent of any input or correspondence from Range Resources, Inc.; the EPA; or any documents filed at the Railroad Commission of Texas in relation to this case. The research team consisted of the writer, two Texas Certified Petroleum Engineers, and two Petroleum Geologists, together with over 150 years experience in all phases of research in the oil and gas industry. The writer conducted the interviews.

The two contaminated water wells are: Domestic Well 1 – State of Texas Well Report Tracking #108518<sup>6</sup> drilled and completed on April 11, 2005 to depth of 200 ft. and owned by Steven & Shyla Lipsky, 127 River Oak Court, Weatherford (13.733 acres) and Domestic Well 2 – State of Texas Well Report<sup>7</sup> drilled and completed on August 4, 2002, to depth of 220 ft. by Rodney Godfrey and now owned by Richard & Devyn Hayley, 175 Old Ranch Court, Weatherford (3.544 acres).

Our research looked at the area prior to January 1, 2006 (prior to any Barnett Shale activity in the area) and discovered the first neighboring Hurst Water Well<sup>8</sup>, drilled to a total depth of 180 feet on October 15, 2005, the Driller's Report of October 15, 2005, stating:

Comments: *Surface Completion: Steel Sleeve  
Well has natural gas coming into well  
at intermitting times.*

Larry Peck, owner of Peck's Well Service, drilled many of the wells in this area including the well above that produced natural gas, more than likely from the Strawn Sand which lies directly beneath the Paluxy water sand in this area. We interviewed Mr. Peck, Saturday, December 11, 2010, and he said he took nine photos of the gas burning and gave us a photo copy of one he took October 15, 2005, which shows a 5 – 6 ft. flare:



<sup>4</sup> [Range Responds To EPA Allegations 12-08-2010](#)

<sup>5</sup> [RRC Call For EPA & Range Resources Meeting 12-8-2010](#)

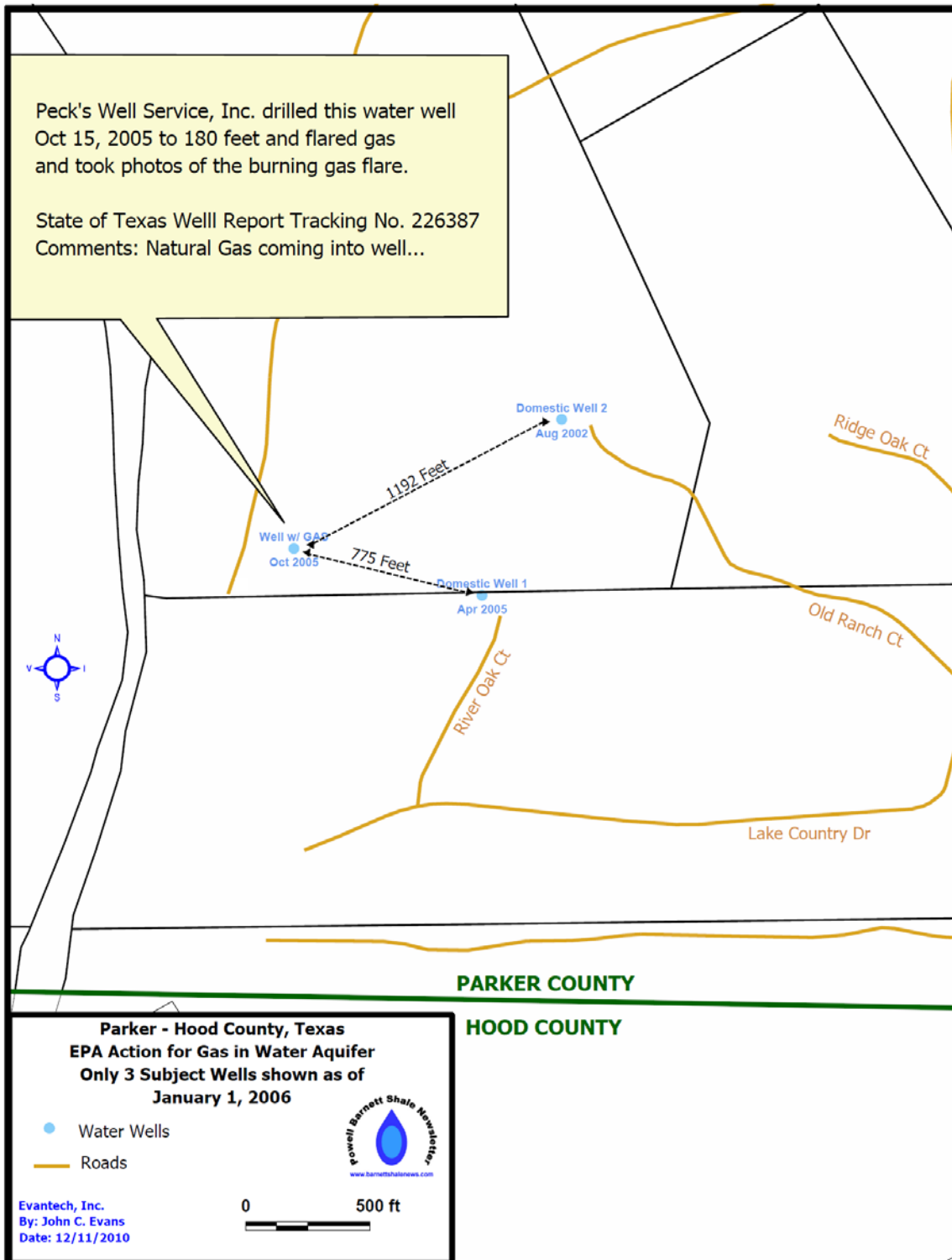
<sup>6</sup> [EPA Domestic Well 1 Driller Report Steve Lipsky Tracking #108518 4-11-2005](#)

<sup>7</sup> [EPA Domestic Well 2 Driller Report Hayley Orig. Godfrey 8-4-2002](#)

<sup>8</sup> [Gas In Water Hurst Water Well Report Tracking #226387 10-15-2005](#) 1<sup>st</sup> Hurst Well 10-15-2005



A map, using GIS coordinates, was created showing the three wells in relation to one another. The other area water wells are not shown and there had been no oil and/or gas producers of record in this area as of January 1, 2006.



Mr. Peck said directly across the Brazos River from these wells to the west the occurrence of natural gas is not uncommon in drilling water wells. We asked what he does



when natural gas appears in these shallow private water wells. He said he plugged them. When asked why the first Hurst well drilled October 15, 2005, that had natural gas in with the water was not plugged, he said that the owner told him he had experience with gas and wanted the well water produced, even with the gas. First, Mr. Peck said, the well was flowed to see if the gas was limited and would quit but it did not. Then Mr. Peck said his client decided to use the water from the well to water his landscape and not hook it up to his home. Mr. Peck did not know the source of the natural gas.

Mr. Hurst had Mr. Peck drill a second well<sup>9</sup> two days later only about 300 feet from the first well. This well was only drilled to 120 feet and did not encounter any natural gas, at that time. This *PBSN Research Report* shows it is not unusual as the Upper Strawn sands are present as either individual lenticular reservoirs or sheet-like inter-fingering bodies penetrating the Paluxy water sand as it has been proven in this area as both move closer to the surface as the deposits move west. In addition, as this area on the Brazos River, with development 'canals' for boats and docks, becomes more urbanized, more homes drill their private water wells dropping the water level in the Paluxy Sand. This reduces the hydrostatic pressure on the low pressure gas in the Strawn Sand underneath and more wells are negatively affected. Any natural gas reservoirs that have been so penetrated will undergo this pressure depletion, and, because of particular sandstone geometric configurations, wells that once delivered only water will begin to produce natural gas as well as this area has demonstrated since 2005.

Prior to the natural gas showing up in Domestic Well 1 in December, 2009, and in Domestic Well 2 in May, 2010, a third Hurst private water well was drilled<sup>10</sup> to 120 feet on January 22, 2009. This well was drilled by a driller other than Mr. Peck, who drilled the first two wells. It was drilled away and SE from the first two Hurst wells and nearer the Brazos River. The possibility of the Hurst 2<sup>nd</sup> Well, drilled on October 17, 2005, becoming contaminated with natural gas, should be considered and investigated.

There has been shallow Upper Strawn Sand natural gas produced in the area approximately 6,600 feet to the southeast in the Expanding Energy / Carl Brite-Ruth #6<sup>11</sup>, API 42-221-30760 which produced open hole from a depth of 358 – 376 feet. Directly south of this well was the Expanding Energy / Carl Brite-Ruth #5<sup>12</sup>, API 42-221-30761 drilled to a total depth of 416 feet and produced open hole from 418 – 426 feet. Near that well was the Expanding Energy / Carl Brite-Ruth #4<sup>13</sup>, API 42-221-30755 drilled to a total depth of 414 feet and produced open hole 407 – 414 feet. The three wells produced in the Center Mill (Strawn) Field and produced 1,598 MCF gas from 1985 – 1986 before being plugged and abandoned.

<sup>9</sup> [Hurst 2<sup>nd</sup> Water Well Tracking #226388 10-17-2005](#)

<sup>10</sup> [Hurst 3<sup>rd</sup> Water Well Tracking #167075 01-22-2009](#)

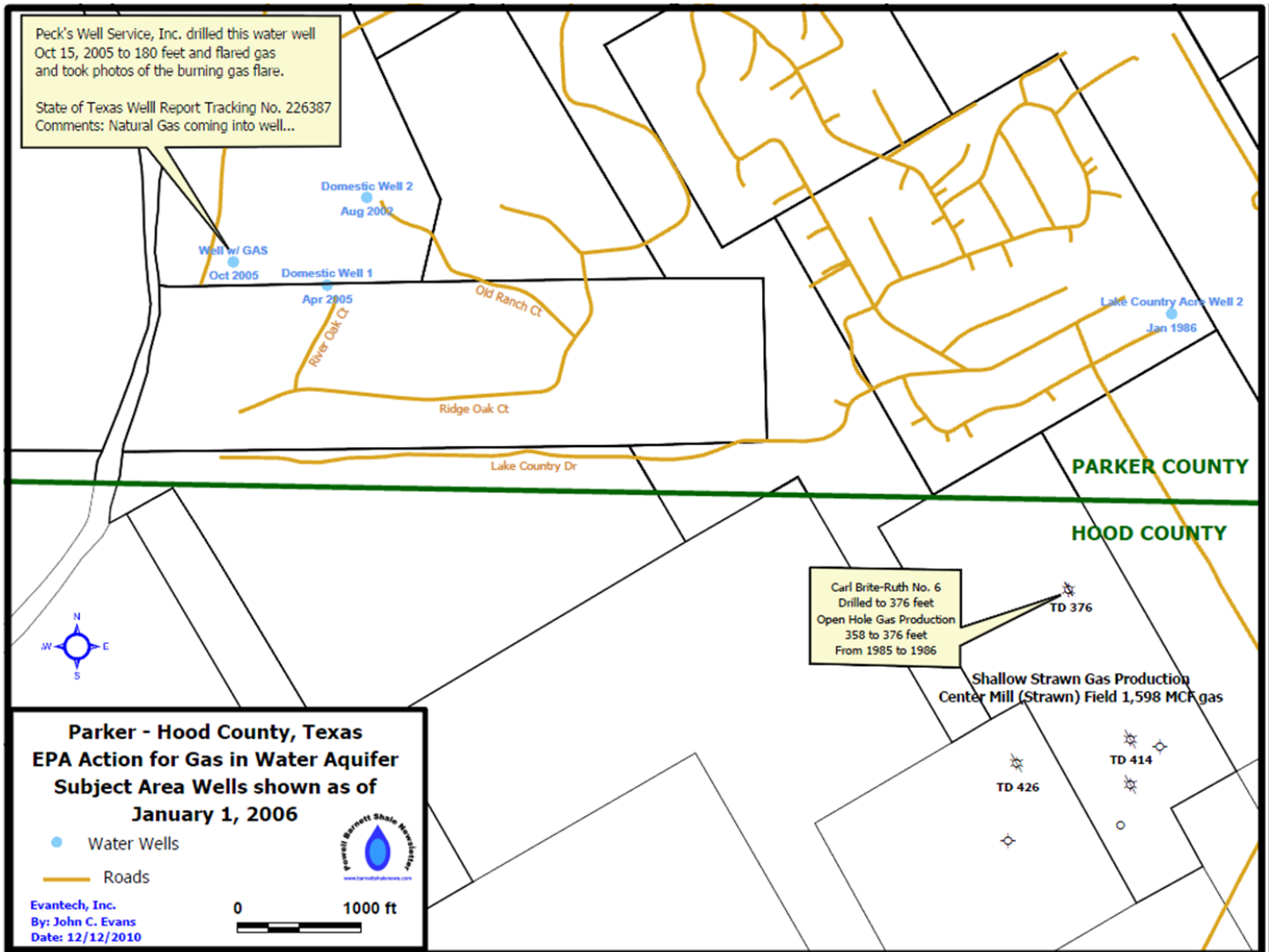
<sup>11</sup> [Expanding Energy / Ruth Brite #6 Shallow Gas Producer API 42-221-30760](#)

<sup>12</sup> [Expanding Energy / Ruth Brite #5 Shallow Gas Producer API 42-221-30761](#)

<sup>13</sup> [Expanding Energy / Ruth Brite #4 Shallow Gas Producer API 42-221-30755](#)



The EPA Order was concerned with "...all of the Lake Country Acres (TXIII0059) public water supply system wells". We researched the Lake Country Acres State Water Well #2 #3226602<sup>14</sup> drilled to a total depth of 385 feet into the Strawn Sand on January 14, 1986. The well was cemented from 250 feet to surface with 7" slotted casing and gravel packed. Water pumping level at 240 feet was 40 gpm when drilled. This well is about 1.5 miles east of the EPA Domestic Well 1 and 2. It is shown on the following map to January 1, 2006. All producers are shown but only the water wells discussed are shown on the map.



All of the producers east of the Brazos River in the map areas studied had surface pipe set to 350 feet to protect the area fresh water tables. The two Range Production Company horizontal wells, the Butler Unit #1H and Teal Unit #1H surface locations and vertical sections of the horizontal wells are only about 53 feet apart on the same drilling pad. The Butler Unit #1H<sup>15</sup> API 42-221-31812 had 394 feet of 20 lb. 7" casing cemented to surface. The Teal Unit

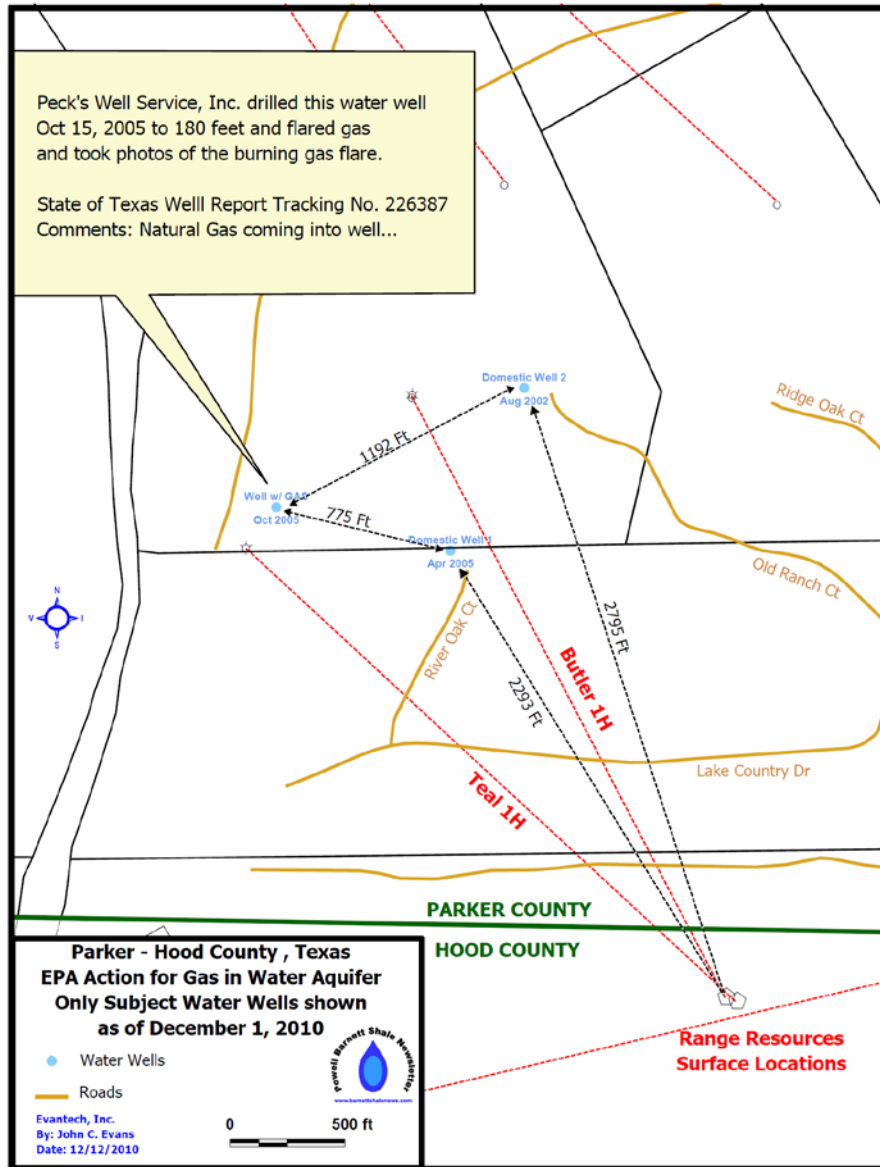
<sup>14</sup> [Lake Country Acres Well #2 State Water Well #3226602](#)

<sup>15</sup> [Range Prod Co / Butler Unit #1H Deep Gas Producer API 42-221-31812](#) 8-14-2009



#1H<sup>16</sup> API 42-221-31798 had 427 feet of 20 lb. 7” casing cemented to surface. Both were well below the fresh water tables as determined by the TCEQ and its predecessors, and deeper than area older producers, offering more fresh water protection.

The Range Production Co. / Butler #1H surface location is 2,795 feet south from the Domestic Well 2 and is 2,293 feet south/southeast from the Domestic Well 1. The Hurst well of October 15, 2005, which has/had natural gas in the water is only 775 feet from Domestic Well #1 and 1,192 feet from Domestic Well #2 and produces shallower than the two water wells now showing natural gas from the Strawn Sand. The following map to December 1, 2010, shows the distances.

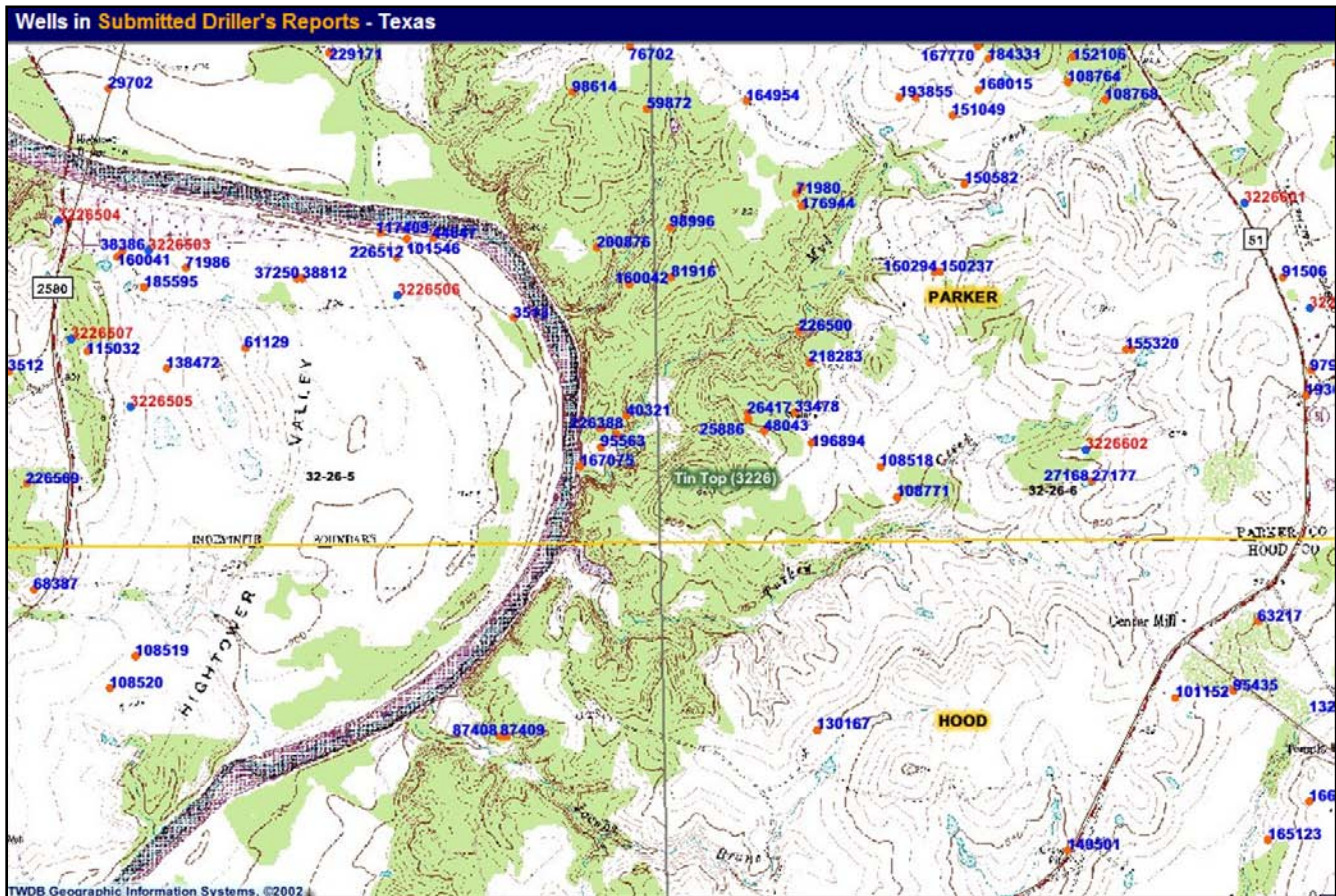


**Rule of Capture** in Texas allows a property owner to ‘capture’ the water under his land. This is done by drilling water wells. No permit is required, that we could find, for a land owner to drill a water well on his own property for his own use for the wells in this research report.

<sup>16</sup> [Range Prod Co / Teal Unit #1H Deep Gas Producer API 42-221-31798](#) 4-24-2009



Drillers are supposed to file a report on each well but there are no checks and balances. If a driller is found to have drilled a well and not filed a report then the driller is subject to a fine. It is our understanding that before 2005 those Driller's Reports were sent to the Texas Water Development Board (TWDB). Since 2005, the reports are being sent to the Texas Department of Licensing and Regulation (TDLR). We interviewed several knowledgeable state employees at agencies involved in water wells in Texas. One thing made clear was that the private water wells shown by the TWDB, TDLR and TCEQ on maps such as the one below from the TWDB WIID System only represent as few as 10% of the private water wells drilled, by one estimate. The area of interest in this research are the wells directly above the Tin Top (3226). The blue numbers are the Tracking Numbers for private water wells reported.



The EPA stated that explosion was an imminent possibility in the two homes where their water wells showed natural gas. It is our understanding that Domestic Well I had been disconnected for many months at the Lipsky home.

### Conclusion of Research

All of our research proves, by fact, and documents/photo, that the natural gas in the water in area private water wells is from the shallow Strawn Sand beneath and intertwined



with the Paluxy Sand in this area. Each water well in this area should be tested for natural gas and those that show intrusion should be plugged. Continuing to water landscapes with well water containing even very small amounts of natural gas 'pulls' it further into the depleting water reservoir adding to eventual natural gas intrusion into other area private water wells, in our opinion.

Our research of Hood County found natural gas production from gas wells as shallow as 224 feet (Strawn Sand formation) and as shallow as 216 feet (Cisco formation) in Parker County.

The final map below shows all the producers in the area map but only the three primary water wells discussed.

