

SURVEY RESULTS  
ON  
**INVENTORY AND EXTENT  
OF HYDRAULIC FRACTURING IN  
COALBED METHANE WELLS IN  
THE PRODUCING STATES**

DECEMBER 15, 1998

CONDUCTED BY:



GROUND WATER PROTECTION COUNCIL  
827 NW 63<sup>RD</sup>, SUITE 103, OKLAHOMA CITY, OK 73116

# TABLE OF CONTENTS

**INTRODUCTION**

**STATES RESPONDING**

**SURVEY QUESTIONS**

**SUMMARY OF RESPONSES**

**CONCLUSIONS**

**APPENDIX**

## **INTRODUCTION**

Over the past months, the Ground Water Protection Council (GWPC) has been engaged in discussions related to potential additional regulation of hydraulic fracturing in coalbed methane operations by the states. The GWPC became involved in this matter following a GWPC Board of Directors Resolution in support of the USEPA and its position in a lawsuit brought by the Legal Environmental Assistance Foundation (LEAF). In that suit, the U.S. Court of Appeals for the Eleventh Circuit determined that the definition of underground injection under the Safe Drinking Water Act's UIC provisions was broad enough to include hydraulic fracturing of coalbed methane wells. The court remanded the matter back to EPA for re-examination of the UIC provisions and the practice of hydraulic fracturing in coalbed methane operations. The GWPC filed an Amicus Curiae Brief supporting the EPA's argument in their request for a re-hearing that hydraulic fracturing did not meet the definition of "underground injection". The request for re-hearing was denied and the EPA is now gathering information to assist them in making a regulatory determination on hydraulic fracturing in coalbed methane operations.

The GWPC has not conceded on this issue and will continue to make its position known on a technical basis to the EPA and others as necessary. However, we concurrently took it upon ourselves to conduct a survey of the state oil and gas regulatory agencies that we believe will be useful to the EPA as it responds to the Court's decision.

The survey was developed by a team of state agency representatives and sent to twenty-five oil and gas producing states. Among the twenty-five respondents were all of the major coal producing states in which any coalbed methane gas was produced in 1997. The results of that survey follow. Individual state surveys appear in the Appendix.

A summary of this survey can be found at the GWPC website: [gwpc.site.net](http://gwpc.site.net). Additional hard copies can be obtained by contacting the Ground Water Protection Council at (405) 516-4972.

## SURVEY

### HYDRAULIC FRACTURING IN COAL BED METHANE WELLS

States Replying to Survey	Number of Wells
1. Alabama	~3500
2. Alaska	3
3. Arkansas	-
4. California	-
5. Colorado	1300
6. Florida	-
7. Georgia	-
8. Indiana	23
9. Kansas	~600
10. Kentucky	3
11. Louisiana	-
12. Mississippi	-
13. Missouri	4
14. Nebraska	-
15. New Mexico	2,398
16. New York	-
17. North Dakota	-
18. Ohio	3
19. Oklahoma	250
20. Pennsylvania	-
21. South Dakota	-
22. Texas	-
23. Utah	260
24. Virginia	1,504
25. Wyoming	525

**Total Wells 10,373**

# SURVEY

## HYDRAULIC FRACTURING IN COALBED METHANE WELLS

### I. Extent of Hydraulic Fracturing

1. Is hydraulic Fracturing practiced in you stare for coal bed methane wells?
- 2.a. How many coal bed methane wells are there in your state, regardless of whether they have ever been hydraulically fractured? Do not include wells that have already been plugged and abandoned.
- b. Using your best professional judgement, what percentages of the wells in (2.a) have or will be hydraulically fractured? Are any of these wells likely to be fractured more than one time?
3. How many hydraulic fracturing jobs were performed on your state during 1997 on coal bed methane wells?
4. Is the number of coal bed methane hydraulic fracturing jobs in your state likely to increase, decrease, or remain at about the same level over the next several years? Please explain your answer.

### II. Regulatory Issues

5. Do you currently regulate coal bed methane hydraulic fracturing activities? If so, please explain your regulatory structure for these activities.

### III. Documented Cases of Contamination Attributable to Hydraulic Fracturing

6. Please indicate whether you have had any complaints attributable to coal bed methane hydraulic fracturing activities in you state.
  - a. Was your agency able to substantiate that any of these cases resulted in contamination of a USDW or to increased risk to human health? If so, was your agency able to determine that coal bed methane hydraulic fracturing activities were the cause of the resultant damage? Were any other factors directly responsible for or contributory to such damage?  
Please provide details.
7. What response did your agency make to the complaints?

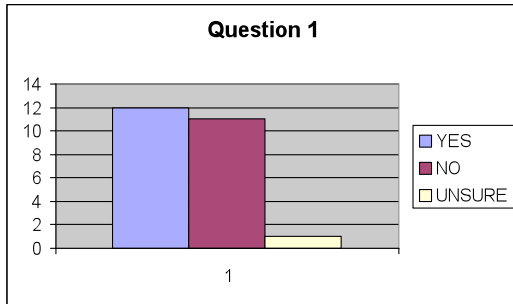
Please mail or fax your responsible to the GWPC. 405-516-4973(fax)

## SURVEY RESULTS

### Hydraulic Fracturing of Coal Bed Methane Wells

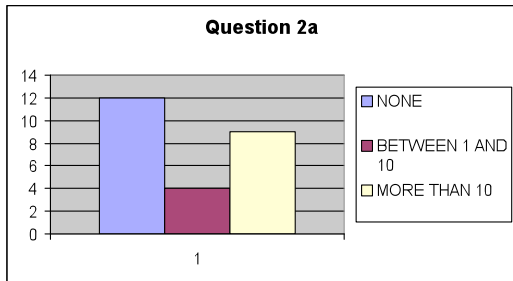
**Question 1:** Is hydraulic fracturing practiced in your state for coal bed methane wells?

**Responses:** Twelve (12) states responded yes, eleven (11) states responded no and one (1) state was unsure.



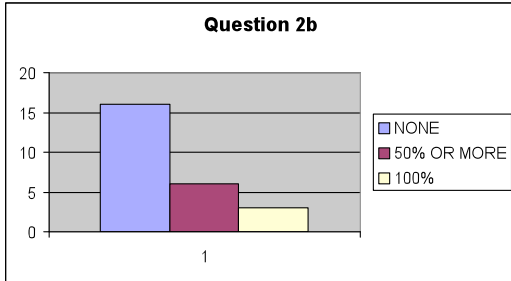
**Question 2a:** How many coal bed methane wells are there in your state, regardless of whether they have ever been hydraulically fractured? (Not including wells that have already been plugged and abandoned.)

**Responses:** Twelve (12) states responded that there were no wells of such nature and (4) states reported that there were between one (1) and ten (10) wells. The remaining states answered as follows: IN-23, OK-250, UT-260, WY-525, KS-600, CO-1300, VA-1504, NM-2398, and AL-3500.



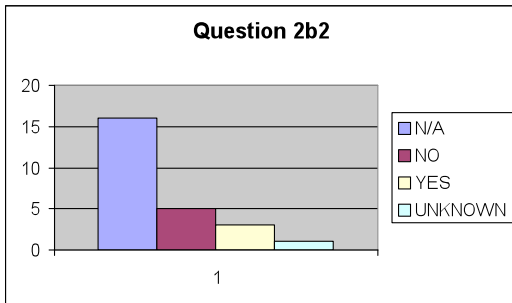
**Question 2b:** Using your best professional judgment, what percentage of the wells in 2a have or will be hydraulically fractured?

**Responses:** Sixteen (16) states responded that no wells would be hydraulically fractured, six (6) states reported that 50% or more have been hydraulically fractured and three (3) states responded that 100% of the wells were hydraulically fractured.



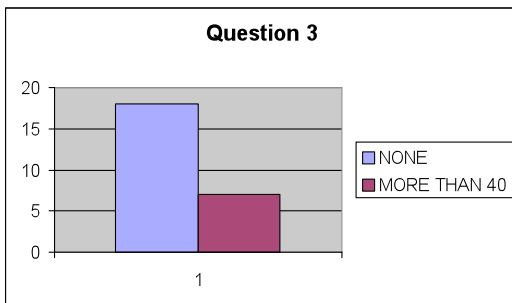
**Question 2b2:** Are any of these wells likely to be fractured more than once?

**Responses:** For sixteen (16) states this question was not applicable, five (5) states responded no, three (3) states responded yes, and one (1) state was unknown.



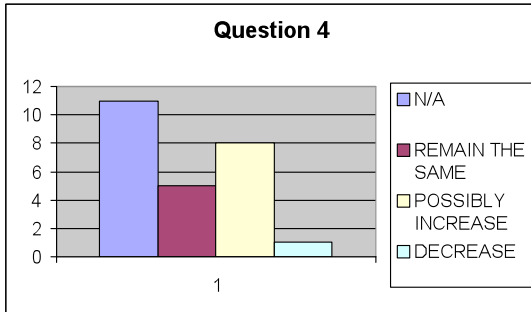
**Question 3:** How many hydraulic fracturing jobs were performed in your state during 1997 on coal bed methane wells?

**Responses:** Eighteen (18) states responded there were no jobs in '97. The remaining states responded as follows: NM-44, UT-60, CO-70, KS-100, OK-175, VA-238, and AL-450.



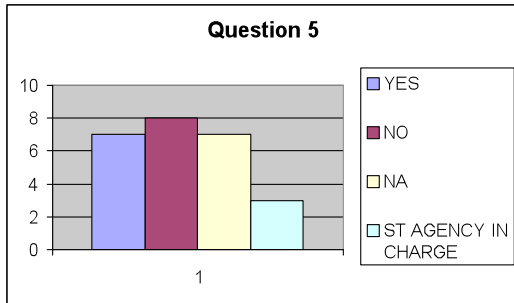
**Question 4:** Is the number of coal bed methane hydraulic fracturing jobs in your state likely to increase, decrease, or remain at about the same level over the next several years?

**Responses:** For eleven (11) states the question was not applicable. Five (5) states responded that the number would remain the same, eight (8) responded that it would possibly increase, and one (1) reported that the number would decrease.



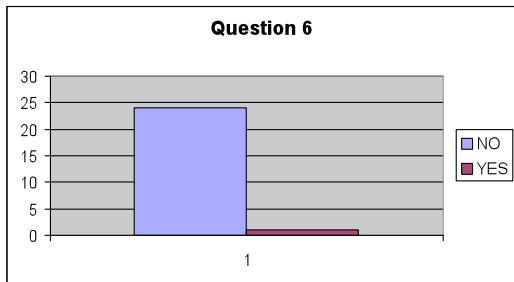
**Question 5:** Do you currently regulate coal bed methane hydraulic fracturing activities?

**Responses:** Seven (7) states responded yes, eight (8) states responded no, and seven (7) states responded N/A. Three (3) states responded that there were other state agencies in charge of regulation.



**Question 6:** Please indicate whether you have had any complaints attributable to coal bed methane hydraulic fracturing activities in your state.

**Responses:** Twenty-four (24) states responded no and one (1) state responded yes.



**Question 6a:** Was your agency able to substantiate that any of these cases resulted in contamination of a USDW or to increased risk to human health?

**Responses:** The one state responding yes to Question 6, AL, found no substantiation to the claims.

**Question 7:** What response did your agency make to the complaints?

**Responses:**

**AL:** Discussions have been held with landowners followed by site investigation of water supply wells that were claimed to have been affected by coal bed methane hydraulic fracturing activities. Water samples were collected and analyzed at the agency's expense.

One complaint involved three (3) regulatory agencies; the State Oil & Gas Board of Alabama; the Alabama Dept. of Environmental Management (the water pollution control agency for the State of Alabama); and the United States Environmental Protection Agency. All three (3) agencies conducted site investigations and collected and analyzed water samples. None of these agencies could confirm that the quality of water had been degraded as a result of coal bed methane hydraulic fracturing activities.

## Conclusions

The purpose of this survey was to establish an accurate assessment (as of 1997) of the number of active coalbed methane wells in the individual states and the extent to which any associated hydraulic fracturing has and will continue to occur. The survey also sought information on state-substantiated contamination that has occurred to a USDW that could be directly related to the fracturing of a coal bed.

In order to minimize the time burden on the state agencies the survey was limited to answering the above. Although there were other questions that might have been added, the state workgroup that designed the survey felt the most important information to collect would be that which helped define the geographic scope of the coalbed methane industry and the level of activity within each state. From this information, any future program reviews would be able to determine the relative potential for contamination and the need, or lack there of, for additional regulation.

Of the twenty-five (25) states surveyed and responding, thirteen reported having any coalbed methane wells. Four of the thirteen had less than ten wells while the remaining nine showed inventories ranging from 23 to 3500 wells. Of the approximately 10,373 wells in the U.S., 10,260 of them are found in eight states: Oklahoma, Wyoming, Colorado, Utah, New Mexico, Kansas, Virginia, and Alabama. The majority of these wells have already been hydraulically fractured to enhance or stimulate gas production. There were approximately 1130 wells hydraulically fractured in 1997.

Of the eight major producing states, four have regulatory or oversight programs in place specifically for coalbed methane wells. In the remaining four, the process is regulated under the states' general oil and gas production rules. To date a total of only one drinking water related complaint of contamination from the hydraulic fracturing of coalbed methane wells has been received and reviewed (Alabama). After hydrologic and reservoir investigation and tests, including collection and analysis of water samples by several agencies, none of the claims were substantiated.

Based upon this survey, as well as previous technical presentations and open meeting discussions among the various member states, the GWPC continues to believe that additional federal regulations regarding coalbed methane wells are unnecessary to protect underground sources of drinking water. There is no evidence to support the claims by some that public health is at risk as a result of the hydraulic fracturing of coalbeds used for the production of methane gas.

Existing state authorities and oversight of this process have been obviously sufficient to protect USDW's from contamination related to these wells. If additional federal regulations were to be imposed they would not be based on scientific observation of associated contamination and there would be little if any increase in protection of public health and the environment. However, new regulations could impose a significant additional financial burden on the states.

The other state programs regulated under the Safe Drinking Water Act have seen their annual federal budget double and triple over the last 10 years. During that same time, the UIC State Grants budget has remained constant at \$10.5 million. This amount must be spread among all 50 states to regulate four different types of UIC programs (Classes I, II, III, V). Adding an additional regulatory burden on the states will only dilute their ability to be responsive in each of these programs. New regulations could also impede oil and gas development within the states and contradict the original intent of the SDWA, Section 1425 legislation.