

IDAHO OIL AND GAS CONSERVATION COMMISSION

April 19, 2011
Regular Agenda

SUBJECT

Approval of Hearing Officer's Recommended Order for Spacing of Gas Wells

BACKGROUND

The Idaho Oil and Gas Conservation Commission's (Commission) duties in Idaho Code § 47-319(b) (Oil and Gas Conservation Act) include preventing waste of oil and gas, protecting correlative rights, and enforcing all other oil and gas development requirements in the Oil and Gas Conservation Act. If a conflict occurs, the duty to prevent waste is paramount.

Idaho Code § 47-321(a) requires the Commission to "promptly establish spacing units" when resources are discovered. The size of the spacing units shall not be smaller than the maximum area that can be efficiently and economically drained by one (1) well (Idaho Code § 47-321(b)). Well spacing, therefore, is a function of the specific reservoir characteristics. Land ownership and other factors are not considered when spacing units are established.

The default gas well spacing in the Rules Governing Conservation of Crude Oil and Natural Gas in the State of Idaho (IDAPA 20.07.02) is one well per 640 acres. A Spacing Order issued by the Commission is required to change this well density. In the absence of a Spacing Order, any party can request that the Commission establish spacing for a given pool. A public hearing is held to gather information regarding this request. A Spacing Order must be supported by the hearing record or it can be overturned on appeal by an affected party.

A public hearing was held at 6:00 pm on March 31, 2011 at the Nampa Civic Center to review a Spacing Order requested by Bridge Energy, Inc. Rick Vine, an engineer from Casper, Wyoming, was contracted to be the hearing officer. Attachment 1 is the hearing notification.

DISCUSSION

Bridge Energy, Inc. submitted a request for a spacing order on December 29, 2010. IDL worked with Bridge Energy to develop a process whereby a qualified hearing officer could be contracted by IDL but paid for by Bridge Energy. Since no production has occurred to date, IDL did not have sufficient funding in the Oil and Gas Conservation Fund to pay for a hearing officer. The Memorandum of Agreement (MOA) approved by the Commission at the February meeting was the vehicle used to memorialize this process. The MOA with Bridge Energy was signed on March 28, 2010, and they submitted a payment of \$15,000 as per the MOA. This was IDL's estimated costs associated with this type of hearing.

Bridge Energy requested a well spacing of 160 acres, or approximately four (4) wells per square mile. The request is on the last two pages of Attachment 1. The area covered by the request included parts of 28 Townships, or approximately 930 square miles across four (4) counties. This area is referred to as the "Western Idaho Basin." At the hearing, however, Bridge Energy, Inc. reduced the request to parts of two (2) Townships, or approximately 52 square miles. The

request for the revised area remained at a spacing of four (4) wells per square mile. The revised request is included as Attachment 2.

The public hearing was advertised in five newspapers across the area covered by the Western Idaho Basin. In addition, the potentially affected counties and cities, as well as state agencies, were notified of the hearing via e-mail.

Several comments were made during the public hearing by representatives of local jurisdictions and members of the public. None of the comments addressed the technical details of the spacing request, and many comments related to issues outside the authority of the Commission. The stated comments and the Department's response are summarized in Attachment 3.

Rick Vine's Recommended Order is included as Attachment 4.

RECOMMENDATION

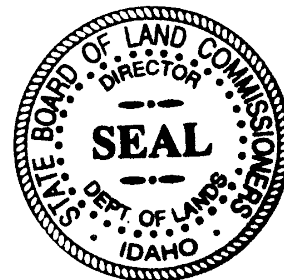
Adopt the Recommended Order prepared by Rick Vine.

BOARD ACTION

Attorney General Wasden moved that the Commission adopt the Recommended Order as prepared by Rick Vine. Secretary of State Ysursa seconded the motion. The motion carried on a vote of 5-0.

ATTACHMENTS

1. Hearing Notification
2. Amended Spacing Request
3. Comment Summary
4. Recommended Order from Rick Vine



ADMINISTRATION
DIRECTOR'S OFFICE
300 North 6th St Suite 103
Post Office Box 83720
Boise ID 83720-0050
Phone (208) 334-0200
Fax (208) 334-2339



GEORGE B. BACON, DIRECTOR
EQUAL OPPORTUNITY EMPLOYER

STATE BOARD OF LAND COMMISSIONERS
C. L. "Butch" Otter, Governor
Ben Ysursa, Secretary of State
Lawrence G. Wasden, Attorney General
Donna M. Jones, State Controller
Tom Luna, Sup't of Public Instruction

March 23, 2011

To: City and County Officials
City and County Clerks

Idaho Oil and Gas Conservation Commission
Public Hearing, March 31, 2011
Amendment to Notice of Public Hearing

Idaho Department of Lands (IDL), on behalf of the Idaho Oil and Gas Conservation Commission (IOGCC), has scheduled a public hearing for 6 pm on Thursday, March 31, 2011, at the Nampa Civic Center, to hear a Spacing Order Request.

Bridge Energy Inc. has requested that the IOGCC adjust the default production well spacing identified in Idaho Administrative Code at §20.07.02.330.02 from one production well per 640 acres to one production well per 160 acres for lands within Canyon, Gem, Payette and Washington counties. Your municipality lies within or adjacent to the spacing order application area.

The proposed spacing, if approved by the IOGCC, would not authorize additional drilling by Bridge Energy Inc. within the Western Idaho Basin. Future requests for drilling permits would be processed separately. To date, Bridge Energy Inc. has drilled eleven wells, all of which have been limited to the area near New Plymouth, Idaho.

The Notice of Public hearing has been amended from the original notice mailed to you on March 17, 2011, in that written comments may only be submitted to the hearing officer the night of the public hearing. **No comments may be submitted at any other time.** This provision supersedes the provision in the original notice of hearing allowing submission of comments directly to the Department of Lands up to eight days after the hearing.

The following documents are enclosed:

- Amended Notice of Public Hearing
- Spacing Order Area Map
- Spacing Order Request from Bridge Energy Inc.

Should you have additional questions, please call me at (208) 334-0200.

Regards-

Mike Murphy
Bureau Chief
Surface and Mineral Resources

LEGAL NOTICE OF PUBLIC HEARING - AMENDED

LEGAL NOTICE IS HEREBY GIVEN THAT the Idaho Oil and Gas Conservation Commission (IOGCC) will hold a public hearing on March 31, 2011 at 6:00pm MST in the Nampa Civic Center located at 311 3rd Street South, Nampa, to hear a Spacing Order Request. Bridge Energy Inc. has requested that the IOGCC adjust the default production well spacing indentified in Idaho Administrative Code at §20.07.02.330.02 from one production well per 640 acres to one production well per 160 acres for the following lands within Canyon, Gem, Payette and Washington counties:

Township 10 North, Ranges 2, 3, 4, and 5 West, Boise Meridian;
Township 9 North, Ranges 2, 3, 4 and 5 West, Boise Meridian;
Township 8 North, Ranges 2, 3, 4 and 5 West, Boise Meridian;
Township 7 North, Ranges 2, 3, 4 and 5 West, Boise Meridian;
Township 6 North, Ranges 2, 3, 4 and 5 West, Boise Meridian;
Township 5 North, Ranges 2, 3, 4 and 5 West, Boise Meridian;
Township 4 North, Ranges 2, 3, 4 and 5 West, Boise Meridian.

These lands shall be referred to as the "Western Idaho Basin."

In accordance with Idaho Code § 47-321 and Idaho Administrative Code §20.07.02.330.04, Bridge Energy Inc. is requesting the adjustment in spacing based on regional geology and exploration data that indicates one production well per 160 acres will be necessary to prevent significant quantities of gas reserves from remaining in place.

The proposed spacing, if approved by the IOGCC, would not authorize additional drilling by Bridge Energy Inc. within the Western Idaho Basin. Future requests for drilling permits would be processed separately. To date, Bridge Energy Inc. has drilled eleven wells, all of which have been limited to the area near New Plymouth, Idaho.

A public hearing will be held to allow Bridge Energy Inc. to provide evidence in support of its request and to allow for public testimony and written comments. The hearing officer will review the record and make a recommendation to the IOGCC at its April 19, 2011 meeting. The hearing officer's recommendation and any action taken by the IOGCC will be posted on the Department of Lands website (www.idl.idaho.gov).

Written comments may be submitted to the hearing officer the night of the public hearing. No comments may be submitted at any other time. NOTICE: This provision supersedes the provision in the original notice of hearing allowing submission of comments directly to the Department of Lands up to eight days after the hearing.

Requests for assistance for persons with disabilities are to be submitted three days prior to the public hearing so that arrangements can be made. Please call 208-334-0200.

Idaho Oil and Gas Conservation Commission, George Bacon, Secretary.

IDAHO OIL AND GAS CONSERVATION COMMISSION
Office of State Oil and Gas Director
300 North 6th Street, Suite 103
P.O. Box 83720
Boise, Idaho 83720-0050

APPLICATION FOR SPACING ORDER

FIELD: CANYON, GEM, PAYETTE and WASHINGTON COUNTIES COVERING THE FOLLOWING PART:

Township 10 North, Ranges 2, 3, 4, and 5 West, Boise Meridian;
Township 9 North, Ranges 2, 3, 4 and 5 West, Boise Meridian;
Township 8 North, Ranges 2, 3, 4 and 5 West, Boise Meridian;
Township 7 North, Ranges 2, 3, 4 and 5 West, Boise Meridian;
Township 6 North, Ranges 2, 3, 4 and 5 West, Boise Meridian;
Township 5 North, Ranges 2, 3, 4 and 5 West, Boise Meridian;
Township 4 North, Ranges 2, 3, 4 and 5 West, Boise Meridian;

The above area is referred to as the "Western Idaho Basin."

OPERATOR: Bridge Energy Inc.
Address: 1580 Lincoln Street, Suite 1110
Denver, CO 80203

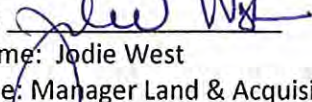
Technical Data Contact: Kim Parsons
Telephone: 303.831.9022
Email: ksp@bridgeresourcescorp.com
Regulatory Contact: Jodie West
Telephone: 303.831.9022
Email: jbw@bridgeresourcescorp.com

Bridge Energy Inc. submits this Application for Spacing Order to the Idaho Oil and Gas Conservation Commission requesting that the default spacing under Idaho Administrative Code at §20.07.02.330.02 of 640 acres be modified as to the entire pool underlying the "Western Idaho Basin" to 160-acre spacing by quarter section in order to avoid waste, as defined in Idaho Administrative Code at §20.07.02.010.33, for the reasons explained in the following page.

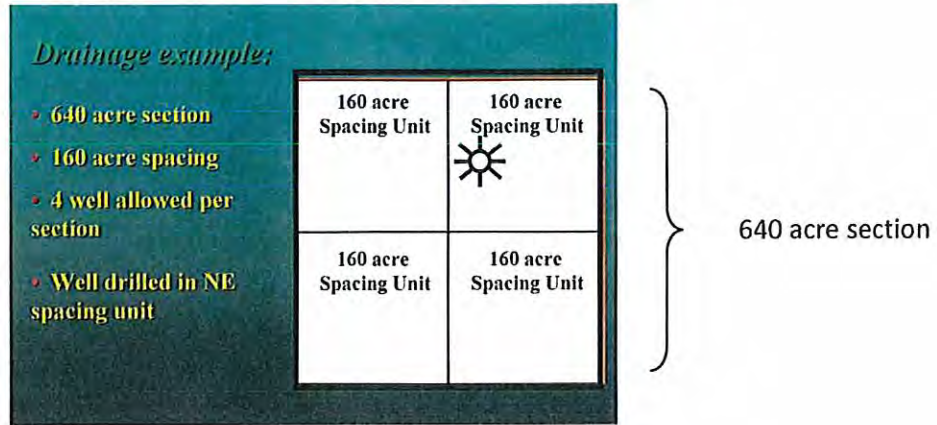
The authority for this request is Idaho Code § 47-321 and Idaho Administrative Code §20.07.02.330.04. Bridge Energy Inc. respectfully requests the Director to appoint a hearing officer for the presentation of evidence on the issue of spacing size for the "Western Idaho Basin."

Respectfully submitted this 29th day of December, 2010, by:

Bridge Energy Inc.

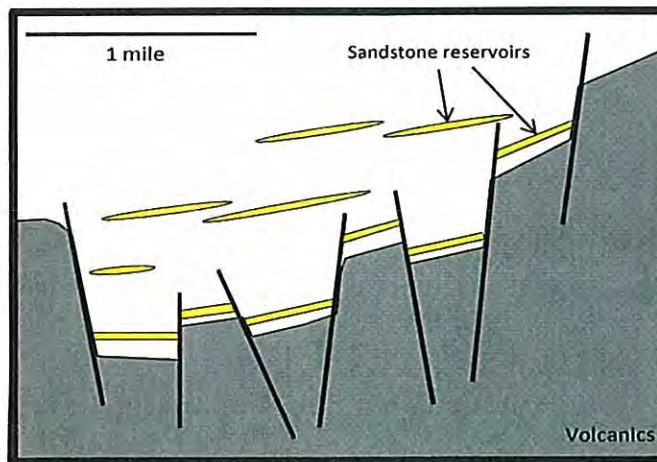
By: 
Name: Jodie West
Title: Manager Land & Acquisitions

Bridge Energy Inc. respectfully requests the current 640-acre well spacing in the Western Idaho Basin be downsized to 160 acres for effective reservoir management. Bridge is seeking a well spacing that balances the expenditure and surface impact of drilling a well with the most efficient and realistic representation of gas reservoir drainage. After drilling 11 wells, it is apparent that the subsurface is complex in a stratigraphic and structural sense such that the current 640-acre spacing would leave behind significant quantities of gas reserves.



The reservoir in the Western Idaho Basin is Tertiary age porous and permeable sandstone bodies interbedded with lacustrine shales. The areal extent of these lenses is highly variable, as proven by drilling. The overprint of structural complexity in the highly faulted volcanic basement also compartmentalizes the sandstones and traps. A well spacing of 160 acre or 1/2 mile would enable more effective and responsible reservoir management and drainage.

Schematic Cross-section



BAIRD • HANSON • WILLIAMS LLP

A T T O R N E Y S A T L A W

W. KIRK WILLIAMS 5428 S. Broadwing Way
Boise, Idaho 83716
Phone: (208) 333-9505
Facsimile: (208) 333-9506
Email: wkwilliams@bhwlaw.net
www.bhwlaw.net

W. Kirk Williams
Licensed in CA, ID, NV and WY

Joseph H. Baird
(208) 388-0110
Licensed in CO and ID

Brian R. Hanson
(303) 447-9800
Licensed in CO and ID

Idaho Oil and Gas Conservation Commission
Office of State Oil and Gas Director
300 N. 6th Street, Suite 103
Boise, Idaho 83720-0050

March 31, 2011

Re: Amendment to Application for Spacing Order submitted December 29, 2010 by Bridge Energy Inc.

Gentlemen:

In conformity with Rule 305 of Subchapter B – Contested Cases, under the Idaho Rules of Administrative Procedure of the Attorney General, Bridge Energy Inc. is amending its application for a spacing order submitted December 29, 2010, that was originally intended to be applicable to the entire Western Idaho Basin, to be applicable only to all pools within the Willow and Hamilton Fields, which are more precisely described below:

Willow Field:

Township 8 North, Range 4 West, Boise Meridian
Sections: 1 - 4, 8 – 17 and 21 - 24

Hamilton Field:

Township 8 North, Range 4 West, Boise Meridian
Sections: 25 – 28 and 31 – 36
Township 7 North, Range 4 West, Boise Meridian
Sections: 1 – 24

A plat of the revised area for applicability of the spacing order is attached.

Very truly yours,



W. Kirk Williams



Comments Heard at 3/31/11 Spacing Hearing

Comments	Response
Operators need to work with landowners and minimize surface impacts.	Idaho does not have a comprehensive landowner protection statute. Only the surface owners of land with state reserved minerals are required to be compensated under Idaho Code § 47-708 and IDAPA 20.03.16. IDL provides oversight as part of state lease administration. Payette County also has the ability to issue conditional use permits that regulate land use.
Wells should be clustered to reduce surface impacts.	Clustering wells is not required by Idaho Code § 47-3. The limited surface owner protections in Idaho Code § 47-708 and IDAPA 20.03.16 could serve to encourage clustering in some situations. IDL also provides oversight as a landowner for the leases on state endowment trust lands. As a landowner, IDL will encourage the use of best management practices to minimize surface impacts. In practice, Bridge Energy, Inc. has been negotiating access and surface impacts in good faith with the surface owners.
Deference should be given to local jurisdictions.	The Attorney General's office prepared Opinion 11-1 regarding the preemption of county regulations by the state. Counties still retain their land use planning authorities, but they cannot impose standards where state law has already provided them. IDL administers the state standards in accordance with existing statutes and rules.
Ground water will be harmed, especially if fracing is allowed.	IDL is developing temporary rules to address protections for ground water during well treatments and hydraulic fracturing. These protections are more stringent than the protections offered in most other states. DEQ and IDWR have reviewed the temporary rule. If ground water is impacted, DEQ and IDL will coordinate enforcement actions.
Noise and lights associated with drilling.	Payette County is issuing conditional use permits that could address these issues.
Degradation of roads.	Payette County is issuing conditional use permits that could address these issues in cooperation with the highway district.
Air quality.	DEQ administers the air quality program in Idaho.
Degradation due to additional roads.	Road construction is not addressed by Idaho Code § 47-3 and would likely be handled by the county or state highway authority.
Degradation due to pipelines.	The Public Utility Commission in Idaho will regulate the pipeline if Bridge Energy, Inc. will operate as a utility. Otherwise, we believe that the U.S. Department of Transportation is the regulatory authority.
Impacts to Sage Grouse	The Office of Species Conservation and U.S. Fish and Wildlife Services address impacts to candidate and listed species. Endangered Species issues are not addressed by Idaho Code § 47-3, and it is up to the operator to comply with applicable laws regarding endangered species.

**BUREAU OF SURFACE AND
MINERAL RESOURCES**
300 N. 6th St. Ste 103
PO Box 83720
Boise ID 83720-0050
Phone (208) 334-0200
Fax (208) 334-3698



GEORGE B. BACON, DIRECTOR
EQUAL OPPORTUNITY EMPLOYER

IDAHO OIL AND GAS CONSERVATION COMMISSION
C. L. "Butch" Otter, Governor
Ben Ysursa, Secretary of State
Lawrence G. Wasden, Attorney General
Donna M. Jones, State Controller
Tom Luna, Sup't of Public Instruction

DATE: April 11, 2011

MEMORANDUM

TO: Idaho Oil and Gas Conservation Commission

FROM: Rick Vine, Hearing Officer

SUBJECT: Recommended Order – Spacing Order for Western Idaho Basin

I. INTRODUCTION

The following document, which includes a recommendation for your consideration, was prepared following a public hearing conducted by the above-named hearing officer for the Idaho Department of Lands (IDL). The public hearing was conducted in conjunction with the processing of an Application for Spacing Order in the Western Idaho Basin. Bridge Energy, Inc. is proposing to modify the default spacing of one well per 640 acres to one well per 160 acres. IDL conducted the hearing pursuant to Idaho Code § 47-317, which empowers the State Board of Land Commissioners to serve as the Idaho Oil and Gas Conservation Commission for the conservation of oil and gas on all lands in the State of Idaho, and Idaho Code § 58-119 which authorizes IDL to exercise, under the control and supervision of the State Board of Land Commissioners, all the rights, powers, and duties vested by law in the State Board of Land Commissioners.

This is a recommended order of the hearing officer in a contested case. The only party to the contested case is the applicant, Bridge Energy, Inc. No other persons have petitioned to appear or intervene in this matter as parties.

This recommended order will not become final without action of the Idaho Oil and Gas Conservation Commission ("Commission"). The applicant may file a petition for reconsideration of this recommended order with the hearing officer within fourteen (14) days of the service date of this order. The hearing officer will dispose of any petition for reconsideration within twenty-one (21) days of its receipt, or the petition will be considered denied by operation of law. See Section 67-5243(3), Idaho Code.

Within twenty-one (21) days after (a) the service date of this recommended order, (b) the service date of a denial of a petition for reconsideration from this recommended order, or (c) the failure within twenty-one (21) days to grant or deny a petition for reconsideration from this recommended order, the applicant may in writing support or

take exceptions to any part of this recommended order and file briefs in support of the applicant's position on any issue in the proceeding.

Written briefs in support of or taking exceptions to the recommended order shall be filed with the Commission. The Commission may schedule oral argument in the matter before issuing a final order. The Commission will issue a final order within fifty-six (56) days of receipt of the written briefs or oral argument, whichever is later, unless waived by the applicant or for good cause shown. The Commission may remand the matter to the hearing officer for further evidentiary hearings if the Commission determines that further factual development of the record is necessary before issuing a final order.

II. FINDINGS OF FACT

1. The spacing application was submitted on December 29, 2010 by Ms. Jodie West with Bridge Energy, Inc. The application lands covered by the original application were amended in a letter submitted by W. Kirk Williams with Baird Hanson Williams LLP on March 31, 2011 at the hearing. This letter is attached as Exhibit 5. The application is incorporated into this document by reference.

2. The application proposes to modify the default spacing of one well per 640 acres to one well per 160 acres over an area of approximately 52 sections or approximately 33,280 acres to allow for more effective reservoir management.

3. The application lands subject to the revised application shown as Exhibit 5 are shown as the cross-hatched area shown on Exhibit 8 attached hereto. The revised area comprises an area of less than two townships whereas the original application covered an area of approximately twenty-eight townships. This is a significant reduction in the proposed lands to be spaced.

4. IDL initiated the processing of the Application for Spacing Order pursuant to the Oil and Gas Conservation Act (Idaho Code § 47-3) and the associated Rules (IDAPA 20.07.01 and 20.07.02).

5. In accordance with IDAPA 20.07.01.050, IDL initiated a public hearing process for the Application for a Spacing Order. The public hearing was scheduled for 6:00 pm MST on March 31, 2011 at the Nampa Civic Center located at 311 3rd Street South in Nampa, Idaho. IDL published a Notice of Hearing in the following newspapers on the respective dates. The Notice of Hearing is incorporated into this document by reference.

- a. Idaho Statesman, March 17 and 24, 2011
- b. Independent Enterprise, March 16 and 23, 2011
- c. Idaho Press Tribune, March 17 and 24, 2011
- d. Emmett Messenger Index, March 23, 2011
- e. Weiser Signal American, March 17 and 24, 2011

6. IDL published an Amended Notice of Hearing in the following newspapers on the respective dates. The Amended Notice was needed to make sure all written comments were received by the end of the hearing, as required for Contested Case Hearings. The Amended Notice of Hearing is incorporated into this document by reference.

- a. Idaho Statesman, March 28 through 31, 2011
- b. Independent Enterprise, March 30, 2011
- c. Idaho Press Tribune, March 28 through 31, 2011
- d. Emmett Messenger Index, March 30, 2011
- e. Weiser Signal American, March 31, 2011

7. In a letter dated March 17, 2011, IDL notified the following agencies of the scheduled hearing:

- Idaho Department of Environmental Quality
- Idaho Department of Water Resources
- Idaho Office of Energy Resources
- Gem County
- Owyhee County
- Ada County
- Canyon County
- Washington County
- Payette County
- City of Payette
- City of Middleton
- City of Fruitland
- City of New Plymouth
- City of Parma
- City of Wilder
- City of Emmett
- City of Notus
- City of Greenleaf
- City of Caldwell
- City of Star
- City of Weiser
- City of Nampa
- City of Homedale

In a letter dated March 23, 2011, IDL notified the above agencies and individuals of a change to the original notice. This change was that written comments would only be submitted to the hearing officer at the time of the hearing.

These letters are incorporated into this document by reference.

8. The following comments were received prior to the scheduled public hearing:

- a. A letter from Lee Ann Steppe, Weiser, ID, opposed the proposed spacing due to the potential impacts on lands, water, roads and clean air. It also cited potential damage from hydraulic fracturing operations as a reason for denying the application. This letter is marked as Exhibit 1.
- b. A letter from the Board of Washington County Commissioners requesting more time for comment and research potential effects of the spacing on groundwater, air quality and the limited infrastructure in the Washington County area. This area is outside the amended application lands. This letter is marked as Exhibit 4.
- c. A letter from Randall and Thana Kauffman, ranchers in the Little Willow, Payette, ID area, supporting Bridge Energy's application for the spacing order. This letter is marked as Exhibit 3.

These letters are incorporated into this document by reference.

9. On March 31, 2011 IDL held a public hearing at 6:00 pm MST in the Nampa Civic Center located at 311 3rd Street South in Nampa, Idaho. Mr. Rick Vine served as hearing officer. In attendance were Eric Wilson, Mike Murphy of IDL staff; W. Kirk Williams, Baird Hanson Williams LLC, representing Applicant; and 48 members of the public.

- a. Mr. W. Kirk Williams, attorney for the applicant.

Mr. Williams stated the original application was filed on December 29, 2010, asking to change the default spacing from one well per 640 acres to one well per 160 acres in the entire Western Idaho Basin. Mr. Williams submitted a letter that was marked as Exhibit 5 that amended that application lands to 18 sections in what Bridge is calling the Willow Field and 34 sections in what Bridge is calling Hamilton Field. Bridge is requesting that the spacing order apply to all pools in these two fields.

Mr. Williams then introduced Ms. Jodie West to present testimony regarding land issues involved with the application.

Ms. Jodie West, Manager Land & Acquisitions for Bridge Resources. Ms. West oversees and directs all land functions for Bridge Resources. She has over twenty-five years experience in the land profession working for large (Noble Energy, Amoco) and smaller independents (Axem Resources). She earned a MS in Finance from the University of Colorado in 1996 and a BS in Mineral Land Management from the University of Colorado in 1986.

Ms. West testified that the current application lands involved 18 sections of land in the Willow Field area. There is one section of land in the area that has State minerals and the remainder is Fee mineral with a small portion of Federal minerals. Bridge Resources has leases for these minerals.

Ms. West then stated that the remainder of the amended application lands involve 34 sections of land in the Hamilton Field area. There are four and a half sections that have State minerals with the remainder being Fee minerals. Bridge Resources has leases for these minerals.

Mr. Williams then introduced Mr. Thomas Stewart to present testimony regarding geology and engineering issues involved with the application.

Mr. Stewart is the Vice President of Bridge Resources. Mr. Stewart has over thirty years experience with major (Conoco) and several small independent oil and gas companies. His experience has been developing and managing exploration plays. Mr. Stewart earned a BS in Geology from the University of Wisconsin and has completed all course work for the Masters Program in Geology at the University of Houston.

Mr. Stewart testified that exploration began in the Western Idaho Basin in the early 1900's and that by 1955 approximately 70 exploration wells had been drilled. In 2010, Bridge Resources drilled 11 exploration wells in Payette County and acquired a proprietary 2-D seismic program in the area of Willow Field. Mr. Stewart stated that the reservoir in the application lands area is tertiary age porous and permeable sandstone bodies interbedded with lacustrine shales. The areal extent of these sand lenses is highly variable as evidenced by drilling results. The overprint of the structural complexity in the highly faulted volcanic basement also compartmentalizes the sandstones and traps. Refer to Exhibit 2.

In the Willow Field area, Bridge drilled the ML 1-10 as the discovery well on 640 acre spacing. They then drilled the DJS 1-15 and DJS 1-14 wells. The pay interval in the DJS 1-15 wells was not present in the DJS 1-14 well. A cross section and seismic section between the two wells confirmed this conclusion. The volcanic can be correlated on both the cross section and the seismic section but the pay intervals cannot. There is stratigraphic thinning from the DJS 1-15 to the DJS 1-14. Bridge also drilled the May 1-13 well ~ 4 miles west of the DJS 1-15 well. The result was a dry hole. Refer to Exhibit 2.

In the Hamilton Field area, Bridge drilled five wells. There are also four wells in the Hamilton Field area that were drilled in the 1950's. A cross section between the White #1-10 and the Espino #1-2 wells, one mile offsets, show the pay zones cannot be correlated. Bottom hole pressure data collected on all five Bridge wells at Hamilton Field show that at least three different pressure compartments are present in the field. Bridge also had a feasibility study done by an independent engineering firm, AJM Petroleum Consultants, to determine reserves for Hamilton Field. Based upon well test data, well logs, seismic data and bottom hole pressure data, this independent firm concluded that the three wells evaluated would only drain 160 acres each. Qualifications for AJM Petroleum Consultants are included in Exhibit 2.

The meeting was opened to questions. The only questions raised were how

water quality was protected (Reed Burkholder) and the depths to the gas pay zones (Joe Hinson). Mr. Stewart responded by stating that the shallow fresh water zones are protected by setting surface casing below the fresh water zones and cementing the casing back to the surface. The production casing is then cemented from the bottom of the hole with cement brought at least 300 feet up into the surface casing. Depths range from 1,600' to 4,000', depending upon where you are on the application lands.

Mr. Williams then summarized the reasons for granting the application and asked that the spacing request be granted.

The hearing was then opened for public comment.

b. David Hawk. Boise. Represents Snake River, LLC, Michael Christian. Geologist with BS and MS degrees in geology and over 40 years experience in the oil and gas industry. Offered that he feels Bridge is a good operator, very safety conscience and they try to develop properties with a small footprint. With the amended application lands, he concurs with granting the requested spacing.

c. John Peiserich. Testifying on behalf of Weiser Brown. He feels Idaho has developed good oil and gas policy based upon IOGCC (Interstate Oil & Gas Compact Commission). Feels Willow and Hamilton fields are being developed with methods similar to those used in other states. Supports Bridge's application based primarily on two things: minimizing surface activity and maximizing the recovery of gas.

d. Brad Hawkins-Clark. Emmett. Represents Gem County as the Planning Director. Concerns are less as the revised application lands do not affect Gem County as much. Asked question regarding asking for an exception on an individual well basis vs the spacing hearing process. Eric Wilson, IDL, responded that there is a process for an exception on an individual well basis and that the IDL had granted a couple exceptions during the development phase to allow better characterization of the reservoir but asked that the spacing request be applied for after that to bring the matter before the public hearing process. Exceptions are not open to the public. Mr. Williams added that it is not efficient to handle spacing through the exception process for individual wells.

e. Melinda Harper. Meridian. Property owner in Canyon County. Appreciates our country's need for energy development. Operators need to be responsible to landowners and minimize the impact. The proposed development is surrounding New Plymouth and they just spent over a million dollars bringing on a new water well. There is a great deal of fear regarding water issues and asks that the decision on spacing be made with caution.

f. Reed Burkholder. Boise. His wife has property in New Plymouth. Concerned with fracing wells in Hamilton Field. Concerned with chemicals used

in frac water and potential harm to water wells.

g. A discussion ensued with Tom Stewart and Kim Parsons with Bridge describing how drilling and completion operations are conducted to protect water wells. Water wells in the area are located from 60 to 237 feet. The producing zones are much deeper and casing and cement prevent damage to the shallow zones. Wells are pressure tested and cement bond logs are ran to determine how well the casing is cemented. Kim Parsons explained how cement bond logs work and that copies were provided to the Idaho oil & Gas Commission. Kim added that Bridge was planning an educational meeting to address concerns of people in the New Plymouth area. The meeting will be held in New Plymouth on April 18, 2011.

h. Michelle Sherrer. Emmett. Gem County Commissioner. Not testifying for or against proposed spacing. Would like to see several items considered. She would like to see cluster wells to minimize surface impact, would like to see deference given to local jurisdiction, the county commissioners and their comprehensive plan. Have concerns over contamination due to water from the extraction process.

i. Steve West. Boise. President of Centra Consulting Inc. Environmental engineering consultant for Bridge Energy. Bridge does an evaluation of all drilling and completion fluids. Steve works with the Department of Ground Water Resources. They are establishing a baseline for water parameters in the area to be able to monitor any changes. They will be doing before and after testing on wells and data will be given to the landowner and to the Idaho Oil & Gas Commission and the DEQ. When asked if that data would be made public, he responded that he didn't think it appropriate that that data be given to possible competition.

j. Jennifer King. New Plymouth. Against the 640 acre to 160 acre downspacing. Against the whole development process due to the noise and light caused by the drilling operations. Other concern is the frac fluid issue and what happens to the frac fluid that is not recovered. Concerned that some people testifying did not live in the area and did not have to live with the disturbance.

k. With no further testimony, the written exhibits were accepted into evidence and the hearing was closed.

l. No objections were received based upon the technical aspects of the spacing application either prior to or during the hearing process.

10. Several documents were submitted by the applicant and others on or before the hearing date. All of the following documents are incorporated into this document by reference:

- a. Exhibit 2. Applicant's geologic, seismic and engineering exhibit to support their application for 160 acre spacing.
- b. Exhibit 5. Applicant's letter dated March 31, 2011 to amend application lands to the following:

Willow Field:

Township 8 North, Range 4 West, Boise Meridian
Sections: 1-4, 8-17 and 21-24

Hamilton Field:

Township 8 North, Range 4 West, Boise Meridian
Sections 25-28 and 31-36

Township 7 North, Range 4 West, Boise Meridian
Sections 1-24.

- c. Exhibit 6. Letter from Mary Sue Roach, Weiser, ID, requesting that existing regulations be followed completely.
- d. Exhibit 7. Letter from Melinda Harper opposing the spacing application based upon the risks to ground water and the disturbance caused by drilling operations.
- e. Exhibit 8. Original map showing application area and State lands updated with the amended application lands shown as cross hatched.

11. The applicant presented geologic and seismic data that showed the geology in the area is complex and that the reservoir pay interval is not continuous, drilling operations have shown the areal extent of the sands is highly variable and pressure data have shown the existence of multiple pressure compartments. An independent evaluation of the reservoir data concluded that the appropriate drainage area for the wells is 160 acres. There was no objection to the technical basis for the proposed spacing. All of the above facts confirm that one well per 640 acres is not adequate to effectively and efficiently recover all of the reserves under the application lands. Issues raised in opposition to the proposed spacing application are matters that are beyond the scope of the spacing application and that can be addressed by rules and regulations that are currently in place in the well permitting process.

III. CONCLUSIONS OF LAW

1. The Idaho Board of Land Commissioners (Board) is designated as the Idaho Oil and Gas Conservation Commission (Commission) in Idaho Code § 47-317. The

Commission is designated to prevent waste of oil and gas, to protect correlative rights, and to enforce all other requirements in Idaho Code § 47-319(b). IDL is the administrative agency of the Board, as per Idaho Code § 58-119.

2. Pursuant to Idaho Code § 47-319(d), the Commission has the authority to regulate the spacing or locating of wells.

3. Pursuant to Idaho Code § 47-321(a) the commission shall establish spacing units for each pool.

4. IDAPA 20.07.02.330.02 states in part "Every well drilled for gas must be located on a drilling unit consisting of approximately six hundred forty (640) contiguous surface acres, which shall be one governmental section or lot(s) equivalent thereto, upon which there is not located, and of which no part is attributed to, any other well completed in or drilling to the same pool."

5. Geologic and seismic data showed the geology in the area to be complex and that the reservoir pay interval is not continuous, drilling operations have shown the areal extent of the sands is highly variable and pressure data have shown the existence of multiple pressure compartments. An independent evaluation of the reservoir data concluded that the appropriate drainage area for the wells is 160 acres. There was no objection to the technical basis for the proposed spacing. All of the above facts confirm that one well per 640 acres is not adequate to effectively and efficiently recover all of the reserves under the application lands. Issues raised in opposition to the proposed spacing application are matters that are beyond the scope of the spacing application and that can be effectively addressed by rules and regulations that are currently in place in the well permitting process.

IV. HEARING COORDINATOR CONCLUSIONS AND RECOMMENDATIONS

Based upon the information provided to me as the hearing coordinator, I recommend that the Director of IDL issue a Final Order stating that the Commission should **approve** the amended Application for Spacing Order for all pools in the Willow and Hamilton Fields.

DATED this 11th day of April, 2011.



RICK VINE
Hearing Officer

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that on this 12th day of April, 2011, I caused to be served a true and correct copy of the foregoing document, by the method indicated:

Steve Strack
Idaho Department of Lands
300 N. 6th St. Ste. 103
PO Box 83720
Boise, ID 83720-0050

- U.S. Mail, postage prepaid
- Hand Delivery
- Federal Express
- Facsimile:
- Statehouse Mail

Jodie West
Bridge Energy, Inc.
1580 Lincoln Street, Suite 1110
Denver, Colorado 80203

- U.S. Mail, postage prepaid
- Hand Delivery
- Federal Express
- Facsimile:
- Statehouse Mail

Steve Douglas
Idaho Department of Lands
8355 West State Street
Boise, ID 83714

- U.S. Mail, postage prepaid
- Hand Delivery
- Federal Express
- Facsimile:
- Statehouse Mail

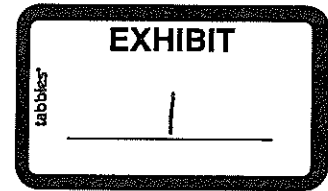
George B. Bacon
Idaho Department of Lands
300 N. 6th St. Ste. 103
PO Box 83720
Boise, ID 83720-0050

- U.S. Mail, postage prepaid
- Hand Delivery
- Federal Express
- Facsimile:
- Statehouse Mail



ERIC WILSON
IDL Minerals Program Manager

Idaho State Board of Lands
Director George Bacon
300 North 6th Street, Suite 103,
PO Box 83720
Boise ID 83720-0050



March 25, 2011

Re: Well Spacing application by Bridge Energy

Dear Mr. Bacon,

Being the steward of Idaho Lands is, undoubtedly, a very difficult job. Weighing the pros and cons of many sides can be a thankless task. The gravity of this seemingly minor request by Bridge holds a potentially catastrophic outcome for the people and land in Payette, Washington, Gem, and Canyon Counties, and perhaps others that are yet unknown.

I urge you to REFUSE the application to increase well density from 1 well per 640 acres to 1 well per 160 acres. The only thing to be gained from this spacing application is more money in the pockets of Bridge Energy. The only "trickle down affect" for the residents of these counties or the state of Idaho will be harmful degredation of our lands, water, roads, and clean air. Our lands cannot withstand such an assault. Please find enclosed information to substantiate a refusal perspective.

Thank you for your time.

Sincerely,

A handwritten signature in cursive script that reads "Lee Ann Steppe".

Lee Ann Steppe



enclosures

THE 570 NETWORK | THE570 | BIZ | CALENDAR | COUPONS | CARS | CLASSIFIEDS | HOMES | JOBS | VARSITY | DIRECTORY | SUBSCRIBE • NEWSLETTERS

thetimes-tribune.com

Enter a search term...

Enter a search term...

Enter a search term...

HOME MYTOWN NEWS SPORTS LIFESTYLES & PEOPLE OPINION CLASSIFIEDS CONTACT SHOPSCRANTON
GAS DRILLING | ELECTION 2011 | BUSINESS | N... | HEALTH-SCIENCE | LOCAL HISTORY | COURTS | STATE

There are 100's more articles on line.

Impact of natural gas drilling environmental woes could linger

BY LAURA LEGERE (STAFF WRITER)

Published: June 20, 2010

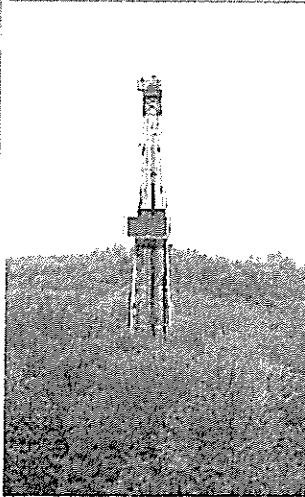
ARTICLE TOOLS

SHARE | FONT SIZE: [A] [A] [A]

OUR SOCIAL NETWORKS

FACEBOOK Recommend

SIGN UP TEXT ALERTS | NEWSLETTER



Michel Boufadel began a recent presentation about Marcellus Shale drilling with a photo of the ruptured Exxon Valdez oil tanker spilling into Alaskan waters, a disaster whose remnants the Temple University engineering professor has been studying for years.

He flipped to a photo of himself and some graduate students standing around a pool of oil in a hole in the sand of an Alaskan beach.

"Everyone assumed in 1992" that the oil from the spill had been properly remediated and was "going to disappear," he said. "Yet it is still there. That is the problem with groundwater pollution. It doesn't go away that fast."

Dr. Boufadel is one of the scientists who study the rocks, water and people directly affected by Marcellus Shale drilling who cautions that everything from the way the rock breaks underground to the way contaminated water travels through an aquifer has not been - or cannot be - thoroughly considered.

Much of the attention about the environmental risks of natural gas drilling in the Marcellus Shale has focused on the potential for hydraulic fracturing to contaminate drinking water aquifers.

According to the industry and both state and federal regulators, there has never been a confirmed case of contamination being caused by the fracturing - a process of injecting millions of gallons of water, sand and chemical additives underground at high pressure to break apart the rock.

The industry takes a narrow view of what such contamination would mean, limiting it to what they say would be an impossible instance of the toxic mixture migrating through the new cracks caused by the fracturing operation, up a mile of rock, and into a drinking water aquifer.

But legislators and federal regulators are increasingly looking at hydraulic fracturing as more than the isolated act of breaking apart the gas-bearing rock; they see it as part of an interconnected series of often hazardous steps, from trucking and storing toxic chemicals on a well site to disposing of the fluid laced with salt, metals and radiation that comes back out of the wells.

In March, the Environmental Protection Agency announced plans for a study of hydraulic fracturing that would consider all of those factors - the whole life-cycle of a well.

Kathryn Klaber, the head of the Marcellus Shale Coalition, a Pennsylvania-based gas drilling cooperative, said the industry supports the EPA study, as long as it does not halt or slow the pace of drilling.

"I don't think you have to stop something in order to study it," she said.

The industry also points to a previous EPA study of hydraulic fracturing that did not find any instances of the practice causing water contamination, but which was limited to only one type of hydraulic fracturing, in coal-bed methane wells.

"What we're missing is that definitive, absolutely unquestionable, science-based, non-politically influenced study," said Dr. Anthony Ingraffea, a Cornell University engineering professor who has two decades of experience working on computer simulation of hydraulic fracturing in oil and gas wells. "And that is what everybody is hoping that the EPA will do."

Have You Signed a Gas Lease?

With the new changes in the tax law, **NOW** is the time to plan

LIMIT TAXES
Protect Your Land for Future Generations

Marshall Parker & Associates, LLC

Scranton
Wilkes-Barre
Williamsport

1-800-401-4552 **PAGasLaw.net**

Broadway Scranton Spinalot Contest

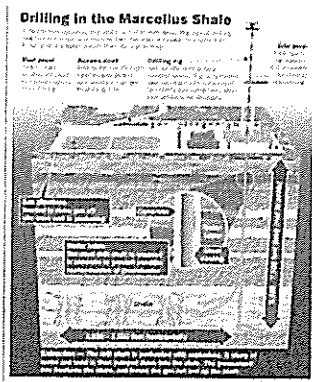
Unscramble the word each day for your chance to win a 4 pack of tickets to Manty Python's Spinalot on opening night at Broadway Scranton!

ShopScranton Now
Check out deals from our advertisers and save!

- ADVERTISERS**
- COMMUNITY MEDICAL CENTER (2)
 - COWLEY REAL ESTATE AUCTIONS (3)
 - COWLEY REAL ESTATE, INC. (4)
 - EYNON BUCK / GMC (2)
 - FERRI'S PIZZA (2)
 - FINE LINE HOMES (3)
 - GIBBONS FORD (4)
 - L.A. Z-BOY FURNITURE GALLERIES (2)
 - R.J. BURNE CADILLAC (2)
 - SCRANTON DODGE / CHRYSLER / JEEP (7)
 - SIMMONS-ROCKWELL FORD
 - SYLVESTER CHEVROLET (2)
 - TOM HESSER BMW (2)
 - TOM HESSER CHEVROLET / HISSAN (2)

[VIEW MORE >](#)

- [Dunmore falls to Villa Maria Academy - with photos & video](#)
- [New owner of Smith's Restaurant in South Scranton is another Smith](#)
- [Mother holds child as police officers raid home, find heroin](#)
- [Police: Scranton man stashes heroin, returns to hiding spot and finds cops](#)
- [LACKAWANNA COUNTY COURT NOTES 3/25/2011](#)
- [Man injured as truck flips on McDade Expressway in Scranton](#)
- [Munchak's lawyer asks to move corruption trial to Scranton](#)



Marcellus Shale
Complete coverage of natural gas drilling in Northeast Pennsylvania.

DEEP IMPACT GAS DRILLING SERIES

Related stories

- DEP gas drilling violations database
- Natural Gas Lenses Database for Lackawanna, Luzerne, Wayne and Wyoming Counties

"What can we live with?"

Many scientists, including Dr. Ingraffea, acknowledge that there are limits to the usefulness of the EPA study, no matter how ambitious the final scope, because it must be completed by 2012, a relatively short amount of time.

"There shouldn't only be one study or awaiting the EPA study," said Dr. Boufadel, who advocates for risk-assessment studies tailored to individual communities near gas drilling. "There should be 10 or 20 studies. That would allow the truth to come out."

He proposes studies that would measure and assign a value to the relative risk of living among a certain number of wells, compressor stations, pipelines, wastewater impoundments and the other infrastructure necessary for drilling and production.

Evaluating risk, he said, is "how insurance companies make decisions. That's how we, as people, make decisions.

"It is not yes or no. It is what can we live with."

Asked if he knew of anyone conducting a study like that he said, "No. Not to my knowledge."

Dr. Boufadel also suggests that several practices that are standard in Pennsylvania for measuring contamination from drilling are questionable.

The weight of any water contaminated with the salty waste produced by Marcellus Shale wells will cause it to sink in an aquifer, he said, below the reach of conventional measuring tools, like groundwater monitoring wells.

"We really need more advanced models than we are talking about now," he said, or the state will risk misjudging the scope of a contamination incident until a "whole aquifer is polluted."

'Nobody knows; no one can know'

Conrad Dan Volz, director of the Center for Healthy Environments and Communities at the University of Pittsburgh, also argues that science has been missing in much of the consideration of long-term or cumulative effects of shale gas exploration.

He lists a number of elements of the drilling process that require further study, and plans to begin researching some of them this summer in southwestern Pennsylvania. His work will include baseline testing of rivers and comparisons of drinking water wells in areas full or free of gas drilling.

"The question is, why didn't we do the science beforehand on this?" he said.

"What we're really bad at - and we have the tools to do this - is anticipate problems. And I don't see where anyone has done much anticipatory work."

Even the most straightforward assurance about the hydraulic fracturing process - that aquifers are protected from fracturing by thousands of feet of layered, solid rock - is not as certain as the industry insists, Dr. Ingraffea, of Cornell, said.

Although he does agree that the chance of contamination through those layers is minuscule, he also knows from experience that the work to predict and measure where fractures go is necessarily inexact, and the rock "unfortunately" is not solid or impermeable.

To say that hydraulic fracturing contamination through direct communication with an aquifer is impossible is "nonsense," he said. "To say that it is inevitable is nonsense.

"We're dealing with a highly probabilistic underground system, where nobody knows, no one can ever know, exactly the geology that's down there, exactly the geometry of what's down there."

Add the very remote risk of fractures causing direct contamination, to the larger risks of well casing failures and human errors on the surface and the total probability of failure during Marcellus Shale gas production "starts looking, to me, high," he said. "Very risky."

Gas drilling companies have financial incentives to avoid mistakes, he said, but the experience of Marcellus Shale exploration so far - what he calls "ground truth" - has been a series of mistakes followed belatedly by attempts at improvement.

"They could have done this totally differently if they weren't in a hurry," he said.

Contact the writer: llegere@timeshamrock.com

BREAKING NEWS:\$25 Car Ins
Do Not Buy Car Insurance until you see this shocking report!
www.News7BreakingNews.com
Mortgage Rates Hit 2.99%
If you owe less than \$729k you probably qualify for govt Refi Programs
www.SeeRefinanceRates.com

Ads by Yahoo!

JOBS570

- Caregiver
- Bus Washer/ Reconditioner
- LPN and CNA (Dunmore, PA)
- Office Help
- Accounts Payable Clerk

More top jobs

- Letters to the Editor - 3/25/2011
9 comments · 1 hour ago
- Union fights for courthouse deputy suspended for nodding off on the job
7 comments · 4 hours ago
- Business owner refuses to take bath salts off shelves, despite pleas of authorities
48 comments · 10 hours ago
- Trio accused of kidnapping man over brothers drug death
26 comments · 29 minutes ago
- Lackawanna commissioner candidates suing over past county jobs
69 comments · 9 hours ago

REALESTATE570

- 3 bedrooms Dalton
- 3 bedrooms Dickson City
- 1 bedroom Dunmore
- 2 bedrooms Peckville
- 3 bedrooms Scranton

- Munchak's lawyer asks to move corruption trial to Scranton
- New owner of Smith's Restaurant in South Scranton is another Smith
- Sisters of Mercy moving out of convent near hospital
- Namedropper, 03/25/11
- Union fights for courthouse deputy suspended for nodding off on the job
- Bolus cited for ripping condemnation sign down
- DEP halts Potter County pad work citing erosion

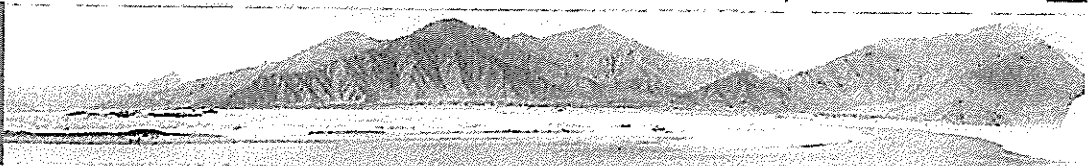
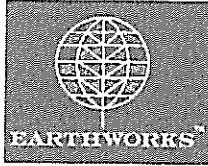
CARS570

- 2003 Chrysler PT Cruiser
- 2004 Mazda RX8
- 2007 Honda CRV
- 1978 Pontiac Formula 400
- 2000 Road King Classic

More top autos

Search

GO



[Mining Reform](#) [Int'l Mining](#) [Oil and Gas](#) [Press Room](#) [Issues](#) [Publications](#) [About Us](#) [EARTHblog](#) [Places and Projects](#)

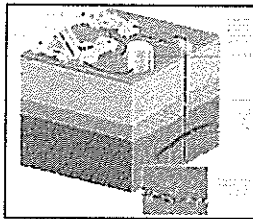
ISSUES

- [Abandoned Mines](#)
- [Acid Mine Drainage](#)
- [Health and Toxics in Colorado](#)
- [Health and Toxics in NM](#)
- [Hydraulic Fracturing](#)
 - [Fracking 101](#)
 - [Regulation](#)
 - [Myths & Facts](#)
 - [Earthquakes](#)
 - [Marcellus Shale](#)
 - [Mercury](#)
 - [Oil and Gas Air Pollution](#)
 - [Oil and Gas Health Effects](#)
 - [Oil and Gas](#)
 - [Landowner Support](#)
 - [Oil and Gas Leasing](#)
 - [Oil and Gas Noise](#)
 - [Oil and Gas Pollution](#)
 - [Oil and Gas Waste Disposal](#)
 - [Stock Raising Homestead Act of 1916 \(SRHA\)](#)
 - [TRI](#)

HYDRAULIC FRACTURING 101

- [Fracking chemicals](#)
- [Potential for groundwater contamination](#)
- [Fracking chemical disposal](#)
- [Hydraulic fracturing best practices](#)
- [Tips for landowners](#)

Often an oil- or gas-bearing formation may contain large quantities of oil or gas, but have a poor flow rate due to low permeability, or from damage or clogging of the formation during drilling.[1] This is particularly true for tight sands, oil shales and coalbed methane. Hydraulic fracturing (also known as fracking, which rhymes with cracking) is a technique used to create fractures that extend from the well bore into rock or coal formations. These fractures allow the oil or gas to travel more easily from the rock pores, where the oil or gas is trapped, to the production well. [2] Typically, in order to create fractures a mixture of water, proppants (sand or ceramic beads) and chemicals is pumped into the rock or coal formation.



Hydraulic Fracturing Operation
Click here for larger view

Eventually, the formation will not be able to absorb the fluid as quickly as it is being injected. At this point, the pressure created causes the formation to crack or fracture. The fractures are held open by the proppants, and the oil or gas is then able to flow through the fractures to the well.[3] Some of the fracturing fluids are pumped out of the well and into surface pits or tanks during the process of extracting oil, gas and any produced water, but studies have shown that anywhere from 20-40% of fracing fluids may remain underground.[4]

Acidizing involves pumping acid (usually hydrochloric acid), into the formation. The acid dissolves some of the rock material so that the rock pores open and

fluid flows more quickly into the well. Fracking and acidizing are sometimes performed simultaneously, in an acid fracture treatment. [5]

Hydraulic Fracturing - Issues and Impacts

Hydraulic Fracturing Chemicals - Coalbed fracture treatments use anywhere from 50,000 to 350,000 gallons of various stimulation and fracturing fluids, and from 75,000 to 320,000 pounds of proppant during the hydraulic fracturing of a single well.[6] Many fracturing fluids contain chemicals that can be toxic to humans and wildlife, and chemicals that are known to cause cancer. These include potentially toxic substances such as diesel fuel, which contains benzene, ethylbenzene, toluene, xylene, naphthalene and other chemicals; polycyclic aromatic hydrocarbons; methanol; formaldehyde; ethylene glycol; glycol ethers; hydrochloric acid; and sodium hydroxide.[7] Very small quantities of chemicals such as benzene, which causes cancer, are capable of contaminating millions of gallons of water.

Potential Groundwater Contamination - As mentioned previously, hydraulic fracturing is used in many coalbed methane (CBM) production areas. Some coal beds contain groundwater of high enough quality to be considered underground sources of drinking water (USDWs). According to the U.S. Environmental Protection Agency (EPA) ten out of eleven CBM basins in the U.S. are located, at least in part, within USDWs. Furthermore, EPA has determined that in some cases, hydraulic fracturing chemicals are injected directly into USDWs during the course of normal fracturing operations.[8] (Read stories by [Penny HOCUTT](#) and [Laura Amos](#) to learn how hydraulic fracturing of coalbeds and other geological formations has affected their lives.)

Chemicals in Fracking Fluids.
Source: EPA. Click here for a larger version.

COMMUNITY VOICES

Custer National Forest, MT

"Rancher Not Informed about Mineral Leasing" is Jeanie Alderson's story about what it means when the federal government owns the minerals below private land - mainly, that surface owners have little or no input into the leasing process or decisions that will greatly affect their lives and livelihoods.

PUBLICATIONS

Safe Drinking Water Act should cover hydraulic fracturing

Protect our drinking water: close the Halliburton Loophole in the Safe Drinking Water Act

Frack fluids: injected and left behind

Protect our drinking water: close the Halliburton loophole to the Safe Drinking Water Act

Safe Drillers Don't Need the Halliburton Loophole

Protect our drinking water: close the Halliburton Loophole in the Safe Drinking Water Act

Congress should close the Halliburton loophole

Fact Sheet: Hydraulic fracturing should be regulated under the Safe Drinking Water Act

Hydraulic Fracturing Myths and Facts

How hydraulic fracturing works

TAKE ACTION

SUPPORT EARTHWORKS

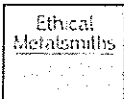
CAMPAIGNS





AFFILIATES

Alaskans for Responsible Mining



Ethical Metalsmiths



Great Basin Resource Watch

PARTNERS



Bikes for the World



Center for Science in Public Participation



SkyTruth



Calculations performed by EPA show that at least nine hydraulic fracturing chemicals may be injected into or close to USDWs at concentrations that pose a threat to human health. These chemicals may be injected at concentrations that are anywhere from 4 to almost 13,000 times the acceptable concentration in drinking water. [9]

Not only does the injection of these chemicals pose a short-term threat to drinking water quality, it is quite possible that there could be long-term negative consequences for USDWs from these fracturing fluids.

According to the EPA study, and studies conducted by the oil and gas industry, [10] between 20 and 40% of the fracturing fluids may remain in the formation, which means the fluids could continue to be a source of groundwater contamination for years to come.

The potential long-term consequences of dewatering and hydraulic fracturing on water resources have been summed up by professional hydrogeologist who spent 32 years with the U.S. Geological Survey:

At greatest risk of contamination are the coalbed aquifers currently used as sources of drinking water. For example, in the Powder River Basin (PRB) the coalbeds are the best aquifers. CBM production in the PRB will destroy most of these water wells; BLM predicts drawdowns...that will render the water wells in the coal unusable because the water levels will drop 600 to 800 feet. The CBM production in the PRB is predicted to be largely over by the year 2020. By the year 2060 water levels in the coalbeds are predicted to have recovered to within 95% of their current levels; the coalbeds will again become useful aquifers. However, contamination associated with hydrofracturing in the basin could threaten the usefulness of the aquifers for future use. [11]

One potentially frustrating issue for surface owners is that it may not be easy to find out what chemicals are being used during the hydraulic fracturing operations in your neighborhood. According to the Natural Resources Defense Council, attempts by various environmental and ranching advocacy organizations to obtain chemical compositions of hydraulic fracturing fluids have not been successful because oil and gas companies refuse to reveal this "proprietary information." [12]

As mentioned above, anywhere from 20-40% of fracing fluids remain in the ground. Some fracturing gels remain stranded in the formation, even when companies have tried to flush out the gels using water and strong acids. [13] Also, studies show that gelling agents in hydraulic fracturing fluids decrease the permeability of coals, which is the opposite of what hydraulic fracturing is supposed to do (i.e., increase the permeability of the coal formations). Other similar, unwanted side effects from water- and chemical-based fracturing include: solids plugging up the cracks; water retention in the formation; and chemical reactions between the formation minerals and stimulation fluids. All of these cause a reduction in the permeability in the geological formations. [14]

Hydraulic Fracturing Chemical Disposal - When companies have an excess of hydraulic fracturing fluids, they either use them at another job or dispose of them. Some company Material Safety Data Sheets include information on disposal options for fracturing fluids and additives. The table below summarizes the disposal considerations that the company Schlumberger Technology Corp. ("Schlumberger") includes in its MSDSs. [15]

Hydraulic fracturing fluids or additive	Recommended Disposal
Foaming Agent F104 Corrosion Inhibitor A135 Organic Acid L36 Chelating Agent Liquid Breaker Aid J318 Breaker J213 Biocide B59 PCG Polymer Slurry J877	Hazardous waste disposal facility
Water Gelling Agent J424	Hazardous waste landfill, incineration, or sanitary landfill in some jurisdictions
Potassium Chloride M117	Hazardous waste landfill. Material may be acceptable in some sanitary landfills.
Coalbed Methane Additive J473	Incineration, disposal well injection or other acceptable methods according to local regulations
Borate Crosslinker J532	Inject in disposal well. Small amounts may be acceptable in sanitary sewer.
Gelling Agent U28	Neutralized material is generally acceptable in sanitary sewers.

As seen in the table, Schlumberger recommends that many fracturing fluid chemicals be disposed of at hazardous waste facilities. Yet these same fluids (in diluted form) are allowed to be injected directly into or adjacent to USDWs. Under the Safe Drinking Water Act, hazardous wastes may not be injected into USDWs. [16]

Moreover, even if hazardous wastes are diluted with water so that the hazardous characteristics of the fluids are removed, the wastes still cannot be injected into USDWs. If unused hydraulic fracturing fluids are indeed "hazardous wastes", it is unconscionable that EPA is allowing these substances to be injected directly into underground sources of drinking water.

Hydraulic Fracturing Best Practices

- From a public health perspective, if hydraulic fracturing stimulation takes place, the best option is to fracture formations using sand and water without any additives, or sand and water with non-toxic additives. Non-toxic additives are being used by the offshore oil and gas industry, which has had to develop fracturing fluids that are non-toxic to marine organisms. [17]
- It is common to use diesel in hydraulic fracturing fluids. This should be avoided, since diesel contains the carcinogen benzene, as well as other harmful chemicals such as naphthalene, toluene, ethylbenzene and xylene. According to the company Halliburton, "Diesel does not enhance the efficiency of the fracturing fluid; it is merely a component of the delivery system." [18] It is technologically feasible to replace diesel with non-toxic "delivery systems," such as plain water. According to the EPA, "Water-based alternatives exist and from an environmental perspective, these water-based products are preferable." [19]
- Oil and gas wastes are often flowed back to and stored in pits on the surface. Often these pits are unlined. But even if they are lined, the liners can tear and contaminate soil and possibly groundwater with toxic chemicals. (Read more about pits.) As mentioned above, toxic chemicals are used during hydraulic fracturing operations. The same chemicals that are injected come back to the surface in the flowed-back wastes. As well, hydrocarbons from the fractured formation may flow back into the waste pits. A preferable way of storing wastes would be to flow them back into steel tanks.

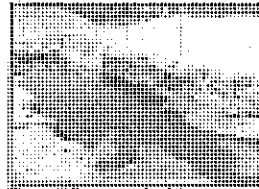


Photo of pit showing some level of groundwater contamination.

Tips for Landowners

- **Obtaining fracking chemical information:** The law requires that all employees have access to a Material Safety Data Sheet (MSDS), which contains information on health hazards, chemical ingredients, physical characteristics, control measures, and special handling procedures for all hazardous substances in the work area. The MSDSs are produced and distributed by the chemical manufacturers and distributors. It should be noted that MSDSs may not list all of the chemicals or chemical constituents being used (if they are trade secrets). [20] Landowners may be able to obtain copies of MSDSs from company employees, the chemical manufacturers, or possibly from state agency representatives.

FOR MORE INFORMATION

Hydraulic fracturing of oil and gas wells

Endnotes

- [1] U.S. Environmental Protection Agency (U.S. EPA). October, 2000. Profile of the Oil and Gas Extraction Industry. EPA Office of Compliance Sector Notebook Project. EPA/310-R-99-006. p.27
- [2] U.S. Environmental Protection Agency. August, 2002. DRAFT Evaluation of Impacts to Underground Sources of Drinking Water by Hydraulic Fracturing of Coalbed Methane Reservoirs. EPA 816-D-02-006.
- [3] See endnote [2]. Chapter 1.
- [4] See endnote [2]. p. 7-3.
- [5] See endnote [1], p.27.
- [6] U.S. Environmental Protection Agency (EPA). June, 2004. Evaluation of Impacts to Underground Sources of Drinking Water by Hydraulic Fracturing of Coalbed Methane Reservoirs. EPA 816-R-04-003. p. 3-11.
- [7] See endnote [2]. Chapter 4.
- [8] See endnote [6]. p.ES-1.

[9] See endnote [2]. Table 4-2.

[10] Puri, R., G.E. King, and I.D. Palmer. 1991. "Damage to Coal Permeability During Hydraulic Fracturing," *Society of Petroleum Engineers Proceedings from Rocky Mountain Regional Meeting and Low-Permeability Reservoirs Symposium*, Denver, CO, p. 109-115; and I.D. Palmer et al. "Comparison between Gel-Fracture and Water-Fracture Stimulations in the Black Warrior Basin," *Proceedings of the 1991 Coalbed Methane Symposium*, pp. 233, 237. Cited in Natural Resources Defense Council. January, 2002. "Hydraulic Fracturing: A threat to drinking water."

[11] Letter from John Bredehoeft, PhD to Joan Harrigan-Farrelly, Chief, Underground Injection Control, Prevention Program, Environmental Protection Agency. May 22, 2003.

[12] See endnote 10.

[13] See endnote 10.

[14] McCallister, Ted. (updated 2002). *Impact of Unconventional Gas Technology in the Annual Energy Outlook 2000*. Energy Information Administration, U.S. Department of Energy.

[15] In October of 2004, OGAP filed a *Freedom of Information Act* request with EPA to obtain the Material Safety Data Sheets (MSDS) supplied to the agency by hydraulic fracturing companies. (Freedom of Information Act, 5 U.S.C. 552, Request Number HQ-RIN-00044-05). The information in this table were contained in MSDS sheets from Schlumberger.

[16] According to EPA's Underground Injection Control Regulations: Class I wells, "shall be sited in such a fashion that they inject into a formation which is beneath the lowermost formation containing, within one quarter mile of the well bore, an underground source of drinking water," (40 CFR Ch. 1 §146.12) and, "in no case shall injection pressure initiate fractures in the confining zone or cause the movement of injection or formation fluids into an underground source of drinking water." (40 CFR Ch. 1 §146.13) For both Class II and III wells, "In no case, shall injection pressure initiate fractures in the confining zone or cause the migration of injection or formation fluids into an underground source of drinking water." (40 CFR Ch. 1 §146.23 and #167;146.33). Class V wells, "inject non-hazardous fluids into or above formations that contain underground sources of drinking water." (40 CFR Ch. 1 §146.51) Class IV wells allow for the injection of hazardous waste directly into USDWs, but these wells have been banned. (EPA. 2002. *Protecting Drinking Water through underground Injection Control*. Drinking Water Pocket Guide #2. EPA 816-K-02-001. p.7

[17] Sumi, Lisa. 2005. *Our Drinking Water at Risk: What EPA and the Oil and Gas Industry Don't Want Us to Know About Hydraulic Fracturing*. p. 53.

[18] See endnote [6]. p. 4-4.

[19] See endnote [2]. p.E5-1.

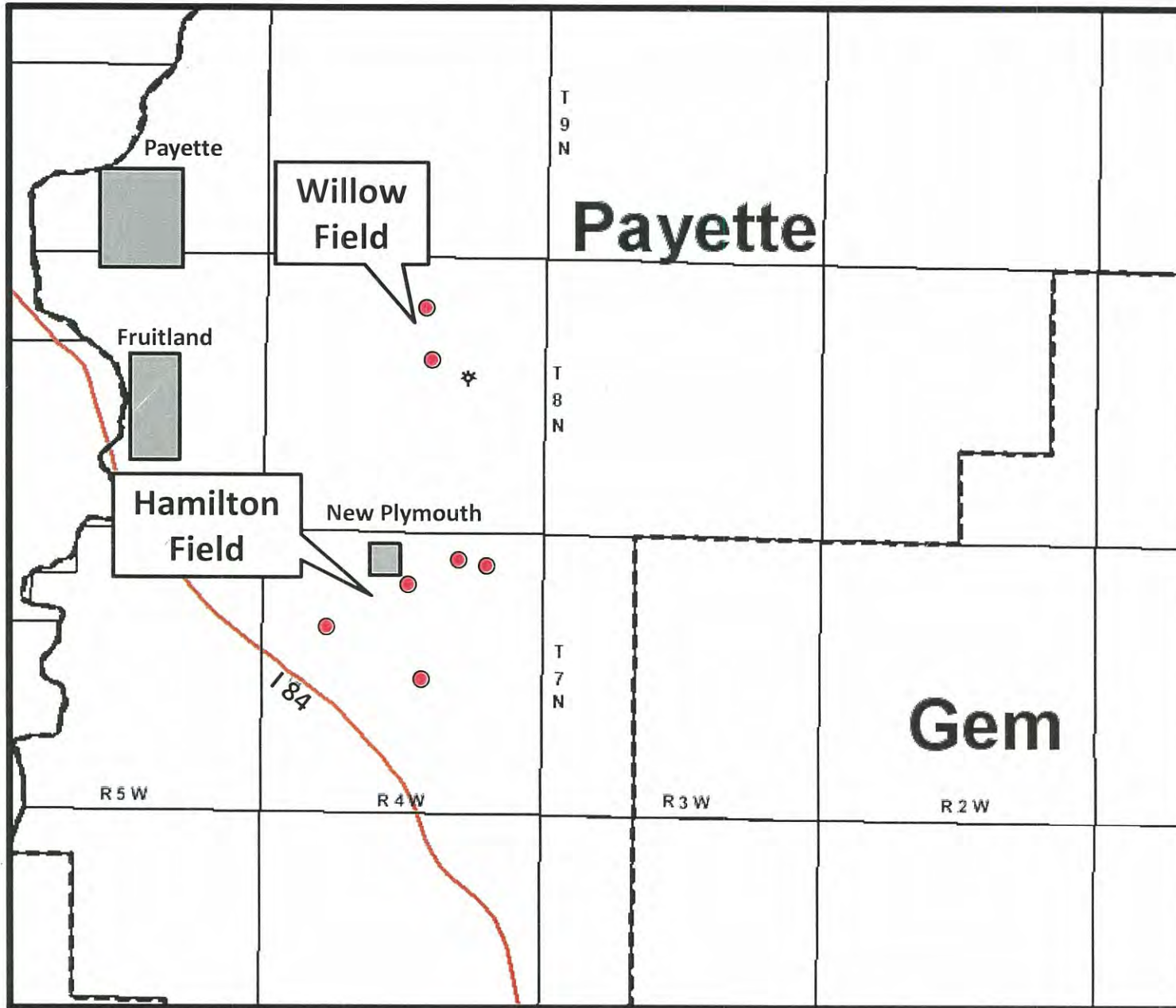
[20] American Federation of State, County And Municipal Employees, AFL-CIO. "How To Read A Material Safety Data Sheet."

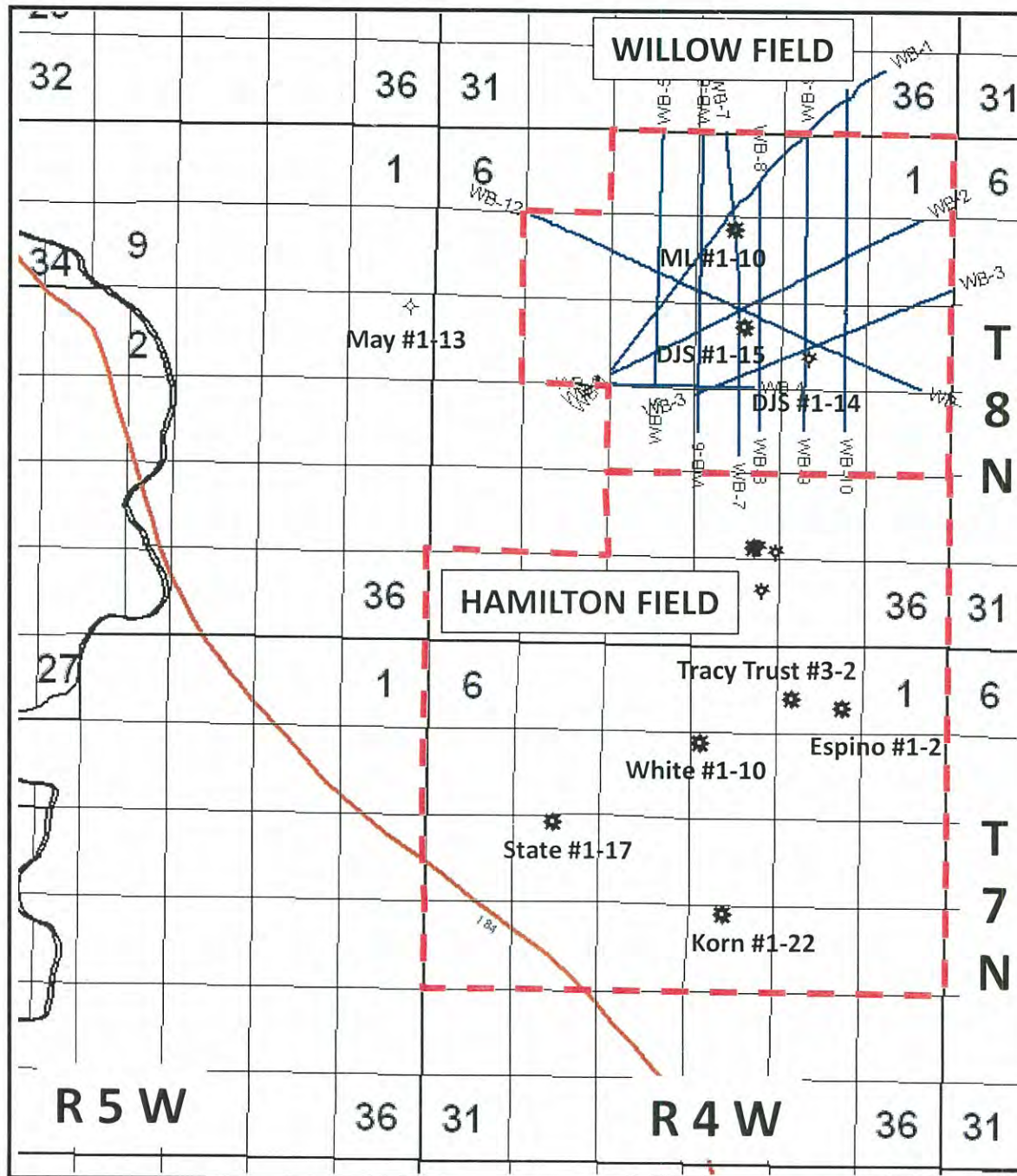
EARTHWORKS | 1612 K St., NW, Suite 808 | Washington, D.C., USA 20006
202.887.1872 | info@earthworksaction.org | [Privacy Policy](#)

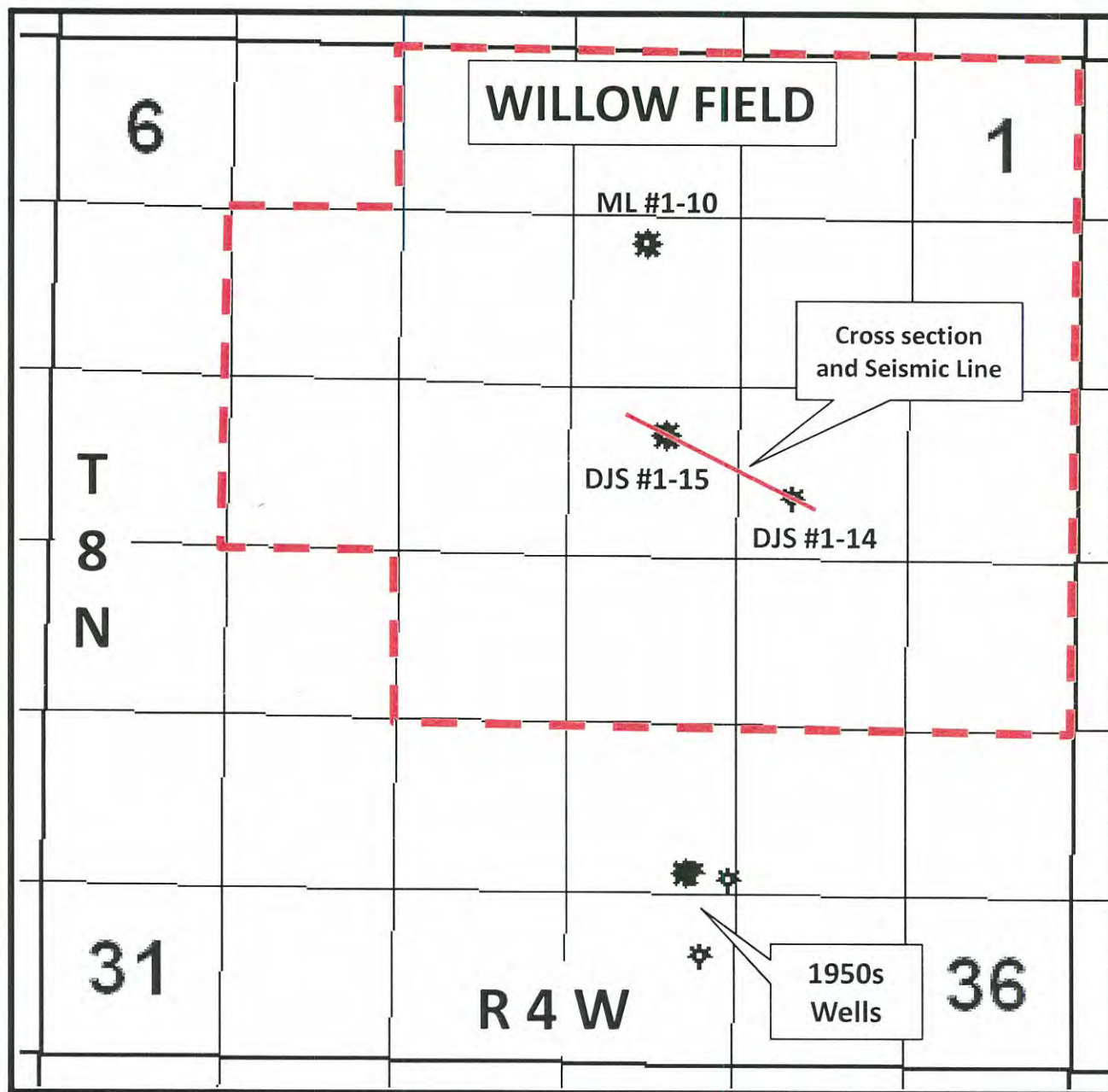


Bridge Energy Inc.

Spacing Hearing
Western Idaho Basin
March 31, 2011



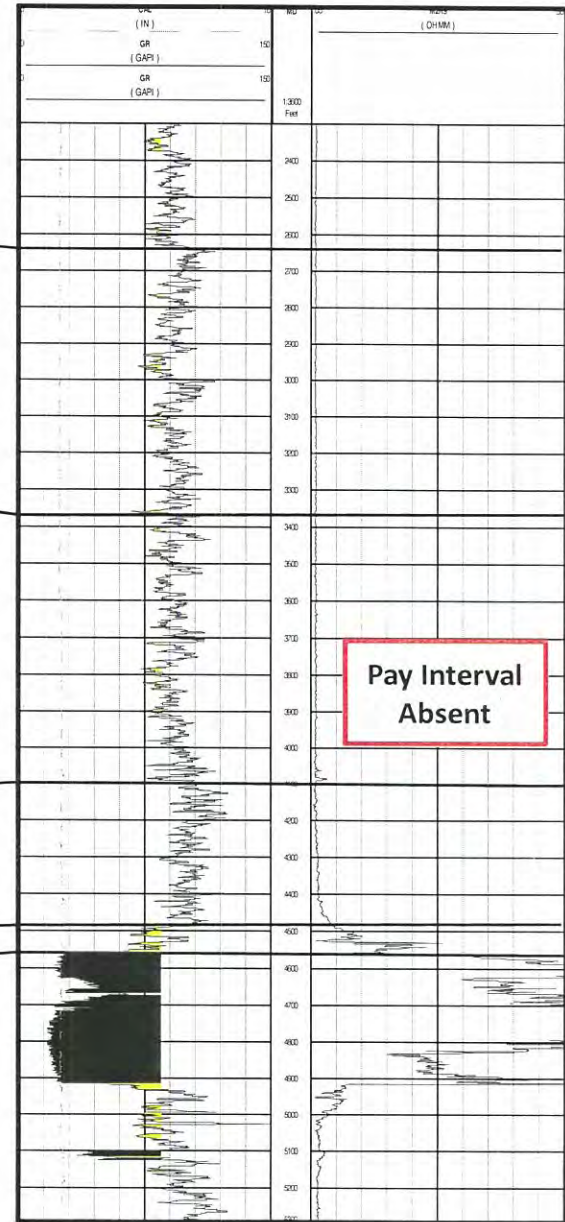
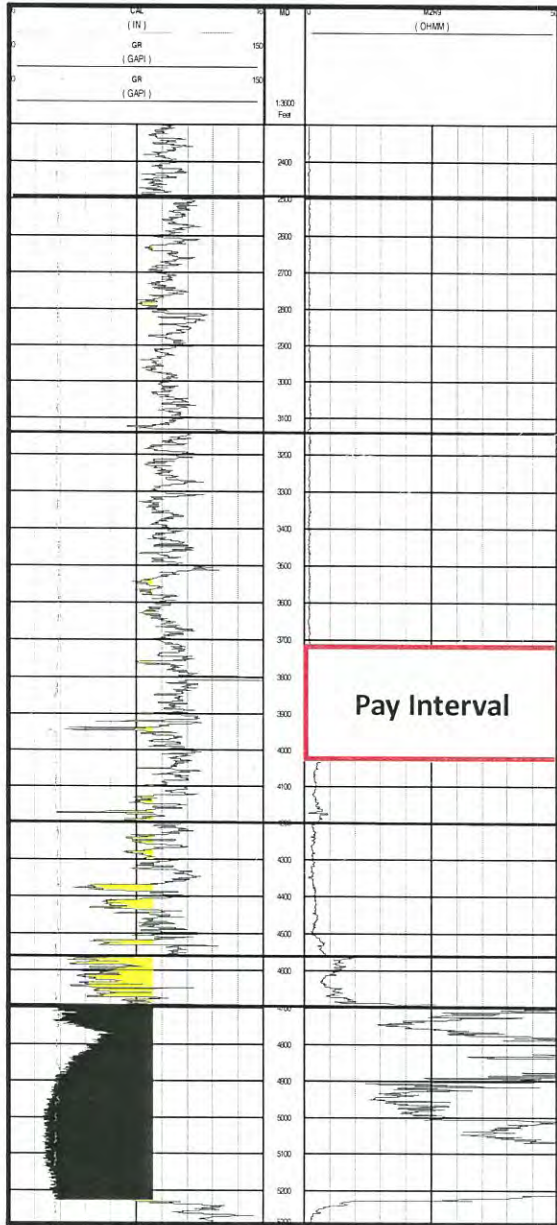




Bridge
DJS #1-15

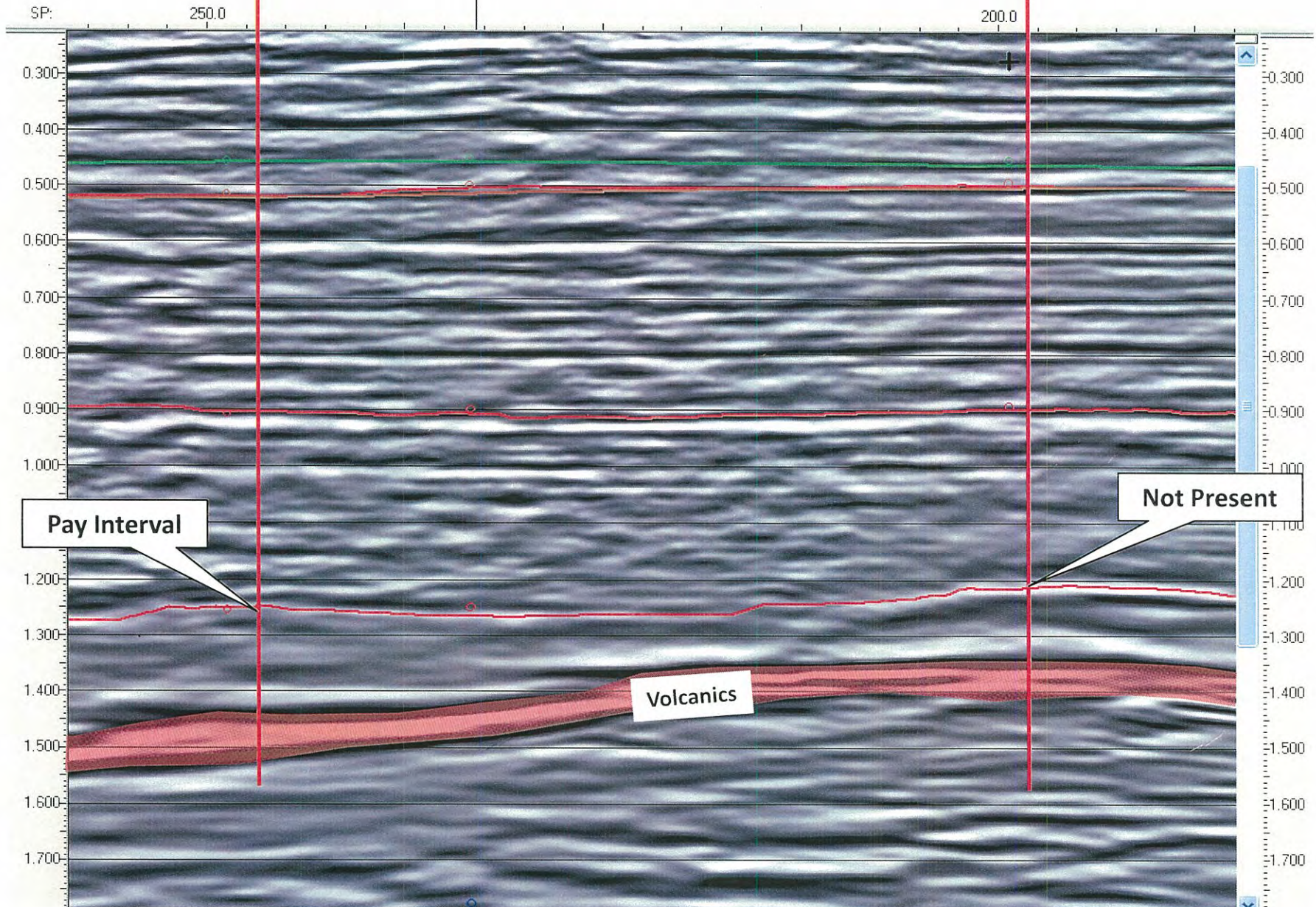
.8 Miles

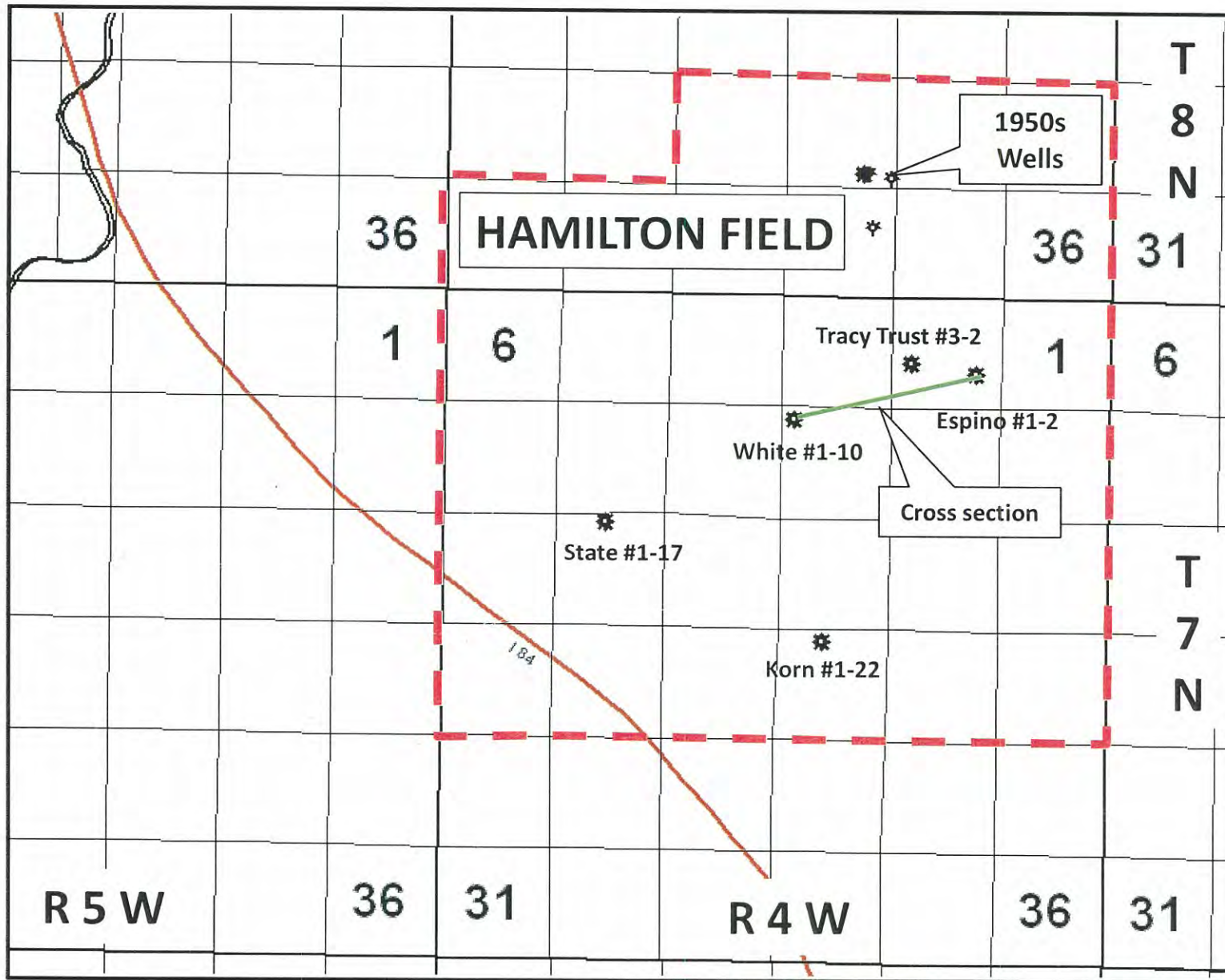
Bridge
DJS #1-14



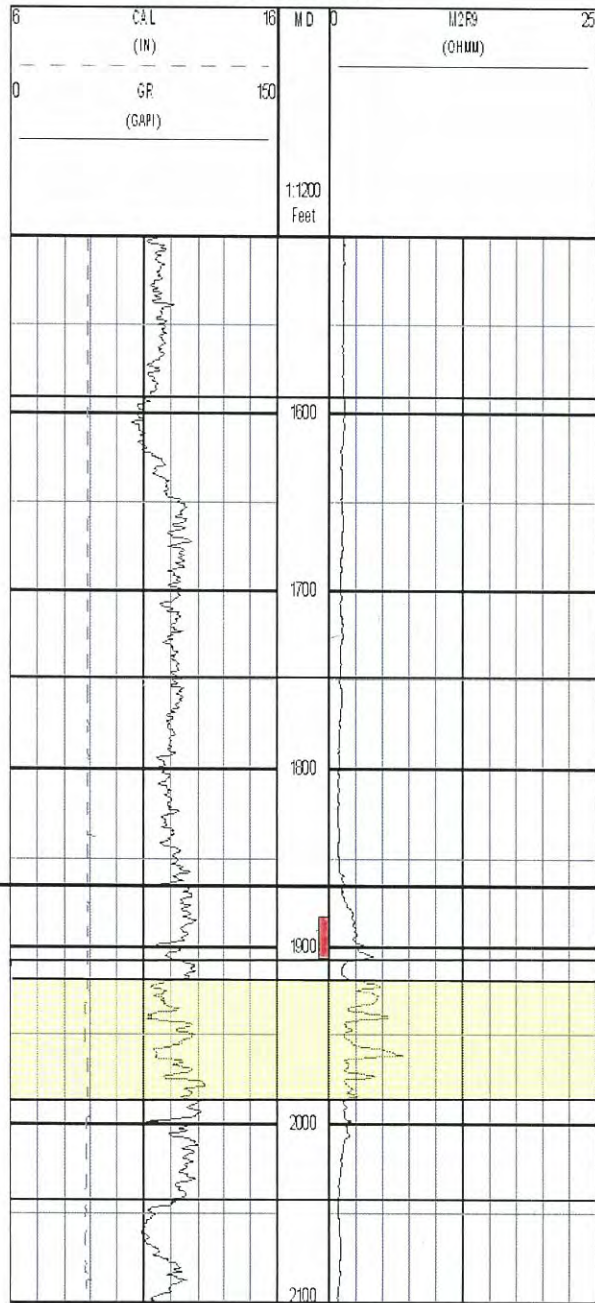
Top Volcanics

DJS #1-15 ← .8 Miles → DJS #1-14

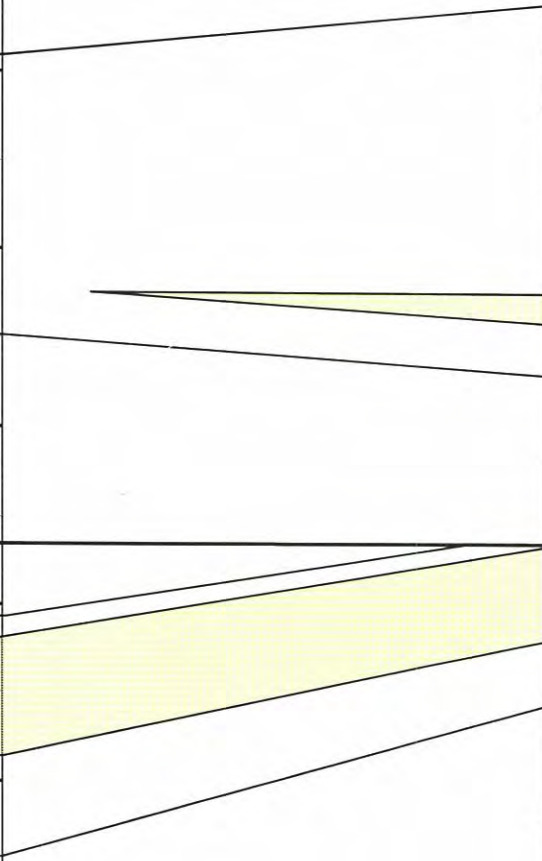
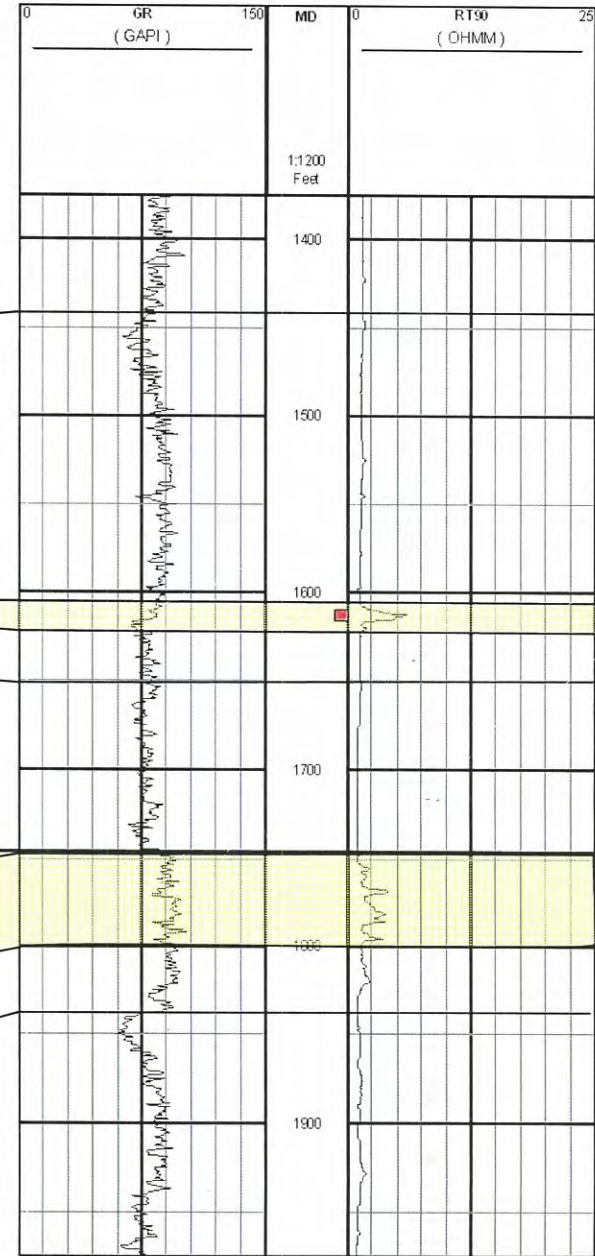




White #1-10

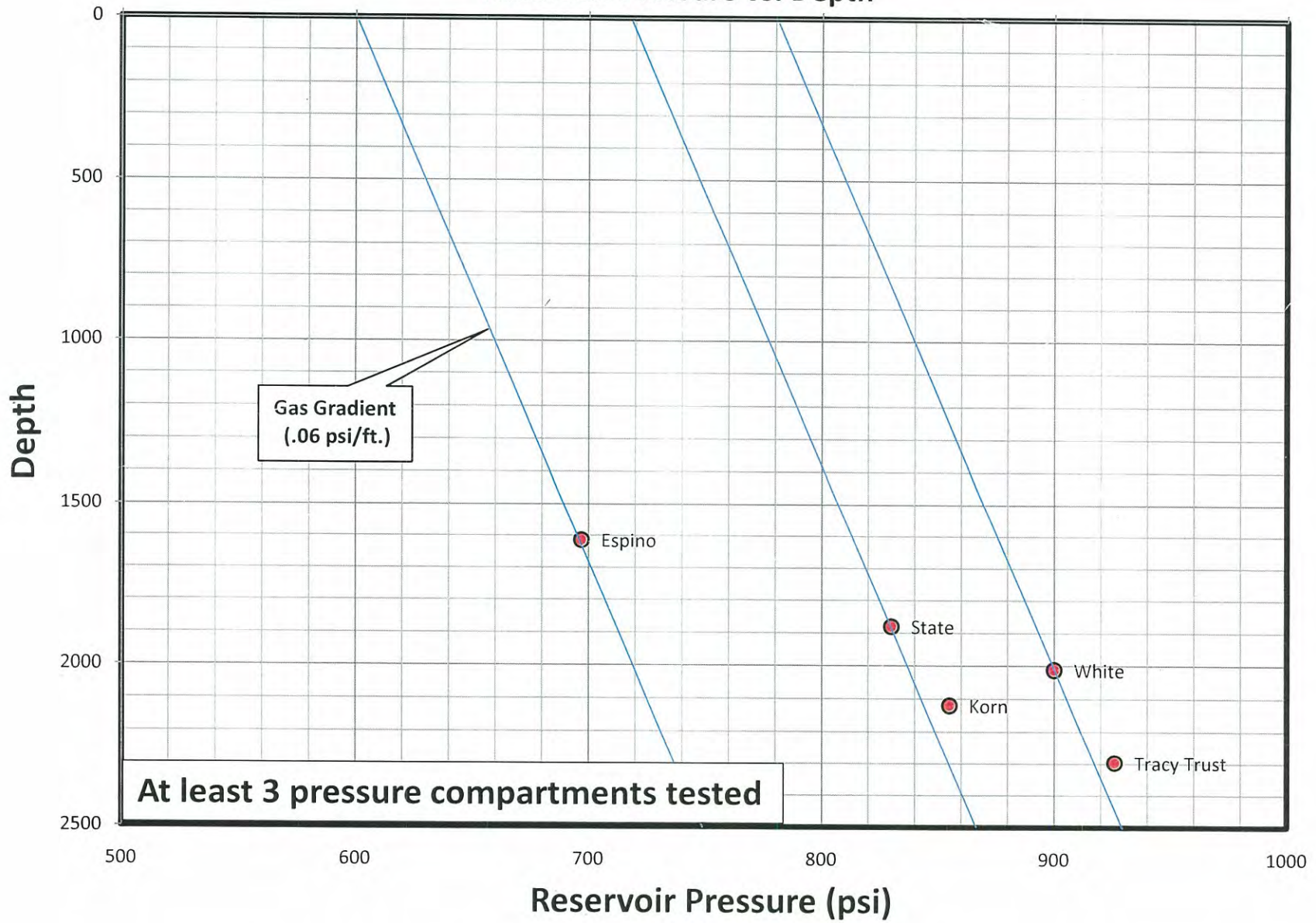


Espino #1-2



Hamilton Field

Reservoir Pressure vs. Depth



Hamilton Field

Bridge Resources Corp.
US DOLLARS

INPUT DATA SHEET

AJM US\$ December 31, 2010 Forecast Pricing (USD)



Effective December 31, 2010

GENERAL

Property:	Boise Basin	Operator:	
Location:	White #1-10	Formation:	Hamilton Sand
Category:	PONP	Calculation Type:	Volumetric
Type:	Gas	Class:	Conventional
Current Status:		Current Status Date:	
Alt ID:			

Reservoir Parameters

Formation Top:	ft
Gas/Oil Contact:	ft
Water Contact:	ft
Production Area:	160 acre

Effective December 31, 2010

GENERAL

Property:	Boise Basin	Operator:	
Location:	Tracy trust #3-2 Upper Hamilton	Formation:	
Category:	PONP	Calculation Type:	Volumetric
Type:	Gas	Class:	Conventional
Current Status:		Current Status Date:	
Alt ID:			

Reservoir Parameters

Formation Top:	ft
Gas/Oil Contact:	ft
Water Contact:	ft
Production Area:	160 acre

Effective December 31, 2010

GENERAL

Property:	Boise Basin	Operator:	
Location:	State #1-17	Formation:	Hamilton Sand
Category:	PONP	Calculation Type:	Volumetric
Type:	Gas	Class:	Conventional
Current Status:		Current Status Date:	
Alt ID:			

Reservoir Parameters

Formation Top:	ft
Gas/Oil Contact:	ft
Water Contact:	ft
Production Area:	160 acre

From: Robin Bertram <rbertram@ajmpc.com>

To: tstewart@bridgeep.com

Cc:

Date: Monday, March 28, 2011 06:56 pm

Subject: RE: Spacing Hearing

Tom,

I have reviewed the document you have sent me and have verified against our report that the assigned drainage areas for the three wells are 160 acres for the proved undeveloped (PDNP) case.

The three wells/zones are:

1. White #1-10, Hamilton sand – 160 acres
2. Tracy Trust #3-2, Upper Hamilton sand – 160 acres
3. State #1-17, Hamilton sand – 160 acres

Regards,

Robin G. Bertram, P.Eng

Executive Vice President

AJM Petroleum Consultants

direct 403.648.3223

mobile 403.617.9043

email rbertram@ajmpc.com

Independent Petroleum Consultants Consent

The undersigned firm of Independent Qualified Reserves Evaluators and Auditors of Calgary, Alberta, Canada has prepared an independent evaluation of reserves and future net revenues derived therefrom, of the Petroleum and Natural Gas assets of the interests of Bridge Resources Corp. according to the Canadian Oil and Gas Evaluation Handbook. If required, these reserves and future net revenues were estimated using forecast prices and costs (before and after income taxes) according to the requirements of National Instrument 51-101 (NI 51-101). The effective date of this evaluation is December 31, 2010.

In the course of the evaluation, Bridge Resources Corp. provided AJM Petroleum Consultants personnel with basic information which included land, well and accounting (product prices and operating costs) information; reservoir and geological studies, estimates of on-stream dates for certain properties, contract information, budget forecasts and financial data. Other engineering, geological or economic data required to conduct the evaluation and upon which this report is based, were obtained from public records, other operators and from AJM Petroleum Consultants non confidential files. The extent and character of ownership and accuracy of all factual data supplied for the independent evaluation, from all sources, has been accepted.

A "Representation Letter" dated January 21, 2011 and signed by both the Chief Executive Officer and the Vice President was received from Bridge Resources Corp. prior to the finalization of this report. This letter specifically addressed the accuracy, completeness and materiality of all the data and information that was supplied to us during the course of our evaluation of Bridge Resources Corp.'s reserves and net present values. This letter is included within.

A field inspection and environmental/safety assessment of the properties was beyond the scope of the engagement of AJM Petroleum Consultants and none was carried out. The "Representation Letter" received from Bridge Resources Corp. provided assurance that no additional information necessary for the completion of our assignment would have been obtained by a field inspection.

The accuracy of any reserve and production estimates is a function of the quality and quantity of available data and of engineering interpretation and judgment. While reserve and production estimates presented herein are considered reasonable, and adhere to the COGE Handbook and NI 51-101 (as applicable), the estimates should be accepted with the understanding that reservoir performance subsequent to the date of the estimate may justify revision, either upward or downward.

Revenue projections presented in this report are based in part on forecasts of market prices, current exchange rates, inflation, market demand and government policy which are subject to uncertainties and may in future differ materially from the forecasts herein. Present values of future net revenues documented in this report do not necessarily represent the fair market value of the reserves evaluated herein.

PERMIT TO PRACTICE

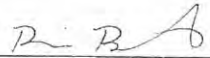
AJM Petroleum Consultants
Permit Number: P-7149

The Association of Professional Engineers,
Geologists and Geophysicists of Alberta

CERTIFICATE OF QUALIFICATION

I, R. G. Bertram, a Professional Engineer, of the 6th Floor, 425 – 1st Street S.W., Calgary, Alberta, Canada hereby certify that:

1. I am an associate of AJM Petroleum Consultants, which company did prepare a detailed analysis of certain US oil and gas assets of the interests of Bridge Resources Corp. The effective date of this evaluation is December 31, 2010.
2. I do not have, nor do I expect to receive any direct or indirect interest in the properties evaluated in this report or in the securities of Bridge Resources Corp.
3. I attended the University of Alberta and graduated with a Bachelor of Science Degree in Petroleum Engineering in 1985; that I am a Registered Professional Engineer in the Province of Alberta; and I have in excess of twenty four years of experience in engineering in Western Canadian oil and gas fields.
4. A personal field inspection of the properties was not made; however, such an inspection was not considered necessary in view of information available from the files of the interest owners of the properties and the appropriate provincial regulatory authorities.



R. G. Bertram, P. Eng.
February 2, 2011
Date



CERTIFICATE OF QUALIFICATION

I, M. T. Thomas, a Professional Engineer, of the 6th Floor, 425 – 1st Street S.W., Calgary, Alberta, Canada hereby certify that:

1. I am an associate of AJM Petroleum Consultants, which company did prepare a detailed analysis of certain US oil and gas assets of the interests of Bridge Resources Corp. The effective date of this evaluation is December 31, 2010.
2. I do not have, nor do I expect to receive any direct or indirect interest in the properties evaluated in this report or in the securities of Bridge Resources Corp.
3. I attended Dalhousie University and graduated with a Bachelor of Engineering in 2005; that I am a Registered Professional Engineer in the Province of Alberta; and I have in excess of five years of experience in engineering in Western Canadian oil and gas fields.
4. A personal field inspection of the properties was not made; however, such an inspection was not considered necessary in view of information available from the files of the interest owners of the properties and the appropriate provincial regulatory authorities.



M. T. Thomas, P. Eng.
February 3, 2011
Date



CERTIFICATE OF QUALIFICATION

I, L. D. Boyd, a Registered Professional Geologist, of the 6th Floor, 425 – 1st Street S.W., Calgary, Alberta, Canada hereby certify that:

1. I am an associate of AJM Petroleum Consultants, which company did prepare a detailed analysis of certain US oil and gas assets of the interests of Bridge Resources Corp. The effective date of this evaluation is December 31, 2010.
2. I do not have, nor do I expect to receive any direct or indirect interest in the properties evaluated in this report or in the securities of Bridge Resources Corp.
3. I attended the University of Calgary and graduated with a Bachelor of Science Degree in Geology in 1976; that I am a Registered Professional Geologist in the Province of Alberta; and I have in excess of thirty three years experience in geological evaluations of Western Canadian oil and gas fields.
4. A personal field inspection of the properties was not made; however, such an inspection was not considered necessary in view of information available from the files of the interest owners of the properties and the appropriate provincial regulatory authorities.


L. D. Boyd, P. Geol.
February 2, 2011
Date



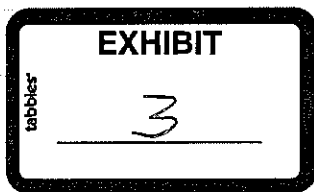
3/28/11.

To the Idaho Oil and Gas Conservation
Commission:

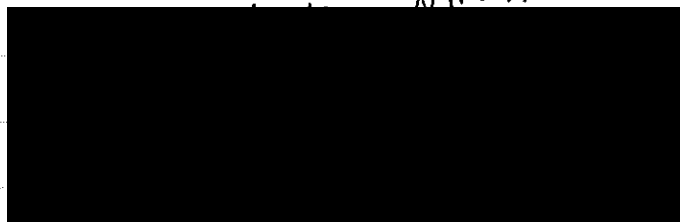
We strongly support Bridge Energy, Inc.
in their effort for a Spacing Order
Request for the "Western Idaho Basin."

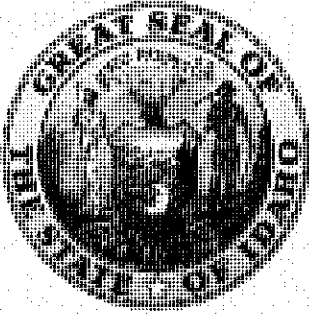
My family has ranched and farmed
land we own on Little Willow,
Payette, ID for almost 100 yrs.

We feel this would be a great
economic boom for this area,
therefore, we hope the IOGCC
will support Bridge Energy, Inc.
in their efforts as well.



Sincerely,
Randall C. Kaufman
Thana M. Kaufman





Washington County, Idaho

Board of County Commissioners

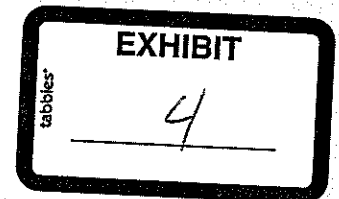
Michael T. Hopkins, Chairman

Rick Michael

David C. Springer

256 E Court Street, P O Box 670

Weiser, ID 83672; 208-414-2789 Fax: 208-414-3925



March 28, 2011

Idaho Oil and Gas Conservation Commission

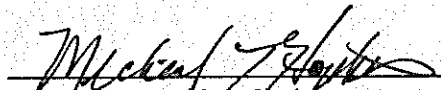
We the Washington County Commissioners are asking for more time for comment and research on the request by Bridge Energy Inc to increase the well density in the Washington County area. We are concerned about the effects on the groundwater and air quality in our county. We are also concerned about the effects on our limited infrastructure. If gas was found what about the impact of the service roads and pipeline? We have sage grouse in our county and are concerned about the potential endangered species listing, would drilling impact any 1eks?

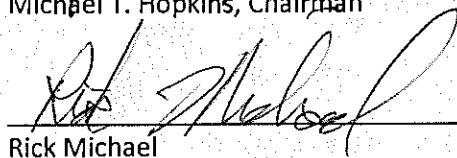
There are a lot of unknowns and misinformation out there and while we don't want to stifle the economy we are charged with the health and safety of the residents of Washington County.

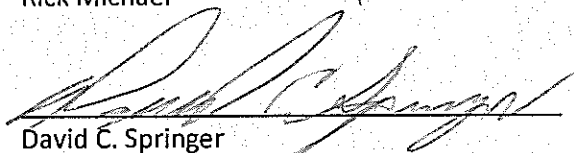
We would ask that you deny the request by Bridge Energy at this time and allow us more time for research so that we can find out if an increase in well density will not have a detrimental effect on the water, air and health and safety of the residents of Washington County.

Sincerely

Board of Washington County Commissioners


Michael T. Hopkins, Chairman


Rick Michael


David C. Springer

BAIRD • HANSON • WILLIAMS LLP

A T T O R N E Y S A T L A W

W. KIRK WILLIAMS 5428 S. Broadwing Way
Boise, Idaho 83716
Phone: (208) 333-9505
Facsimile: (208) 333-9506
Email: wkwilliams@bhwlaw.net
www.bhwlaw.net

W. Kirk Williams
Licensed in CA, ID, NV and WY

Joseph H. Baird
(208) 388-0110
Licensed in CO and ID

Brian R. Hanson
(303) 447-9800
Licensed in CO and ID

Idaho Oil and Gas Conservation Commission
Office of State Oil and Gas Director
300 N. 6th Street, Suite 103
Boise, Idaho 83720-0050

March 31, 2011

Re: Amendment to Application for Spacing Order submitted December 29, 2010 by Bridge Energy Inc.

Gentlemen:

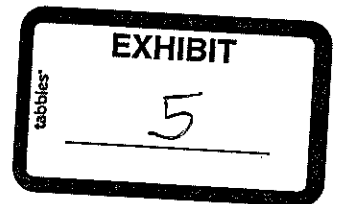
In conformity with Rule 305 of Subchapter B – Contested Cases, under the Idaho Rules of Administrative Procedure of the Attorney General, Bridge Energy Inc. is amending its application for a spacing order submitted December 29, 2010, that was originally intended to be applicable to the entire Western Idaho Basin, to be applicable only to all pools within the Willow and Hamilton Fields, which are more precisely described below:

Willow Field:

Township 8 North, Range 4 West, Boise Meridian
Sections: 1 - 4, 8 - 17 and 21 - 24

Hamilton Field:

Township 8 North, Range 4 West, Boise Meridian
Sections: 25 - 28 and 31 - 36
Township 7 North, Range 4 West, Boise Meridian
Sections: 1 - 24



A plat of the revised area for applicability of the spacing order is attached.

Very truly yours,

A handwritten signature in black ink that reads "W. Kirk Williams". The signature is written in a cursive style and includes a long horizontal flourish extending to the right.

W. Kirk Williams

MARY SUE ROACH



I understand that there are many regulations in place for safety, efficiency, etc.

I respectfully request that those regulations be followed COMPLETELY so to avoid a disaster such as the BP oil spill that was due to not being in compliance with regulations or waiving them.

Thank you!

Mary Sue Roach

March 31, 2011

Written Testimony -

I urge that the Idaho Department of Lands refuse Bridge Energy's request for a variance to change the spacing of natural gas wells, decreasing spacing from 640 acres to 160 acres.

Based upon the area that is under consideration, the city of New Plymouth is basically being surrounded by potential natural gas extraction wells. New Plymouth's newest well, Well #9, was recently brought on line at a cost of over \$1,000,000. Although only 273 feet deep (approx), it is the city's best water producer.

Even though there is a shale layer between the target ng zone and potable ground water, "stimulating" aka hydrofracturing of the sand under the shale layer could easily create a scenario where ground water will transport chemicals and additives to other areas, including New Plymouth's Well #9. This well is less than a mile away and will be subject to increased traffic from trucks & the equipment necessary to develop ng wells and to transport wastes from the extraction of "developed water".

Please consider the needs of public ~~pub~~ water systems and the needs of the communities they serve.

Vote "NO" on the request for a change in spacing
from 640 acres to 160!!!
Melinda Harper

