ORDER / CASE NO: CASE NO. 23-2008

ORDER / NOTICE OF RECOMMENDATION TYPE: UIC

COUNTY: HARDING

LOCATION(S): T. 23N., R.6E., SW1/4NW1/4 SEC. 32

OPERATOR: LUFF EXPLORATION COMPANY

DATE ORDER ISSUED: 12/29/2008

DATE ORDER CLOSED:

AMENDS:

AMENDED BY:

APPROVAL STATUS: APPROVED

FIELD NAME: EAST HARDING SPRINGS FIELD

UNIT NAME: EAST HARDING SPRINGS RED RIVER UNIT
December 29, 2008

Richard George  
Manager of Engineering  
Luff Exploration Company  
1580 Lincoln Street, Suite 850  
Denver, CO 80203  

Dear Mr. George:

Thank you for your application filed October 21, 2008, requesting approval to modify your original permit (Order No. 17-2008) for the 1-P Joyce Miller well, located in 23N-6E-32 SWNW, East Harding Springs Red River Unit, East Harding Springs Field, Harding County, South Dakota, to allow the use of continuous annulus pressure monitoring and automatic water injection shut down for the well in lieu of a 1000 pounds per square inch gauge surface pressure mechanical integrity test, prior to commencement of injection in this well, required by conditions #6 and #7 of the above order.

The department published a Notice of Recommendation (Case No. 23-2008) recommending approval of the application. The date for intervention was December 23, 2008, and no parties petitioned the Board of Minerals and Environment for a hearing on the application by the deadline.

Therefore, in accordance with the Administrative Rules of South Dakota 74:10:09 and 74:10:11.1, approval of the application is hereby granted. Please refer to the enclosed Notice of Recommendation for specific terms and conditions.

Thank you for your interest in protecting the water resources of the state.

Sincerely,

[Signature]  
Steven M. Pirner  
Secretary

Enclosure
STATE OF SOUTH DAKOTA
SECRETARY OF THE
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

IN THE MATTER OF THE APPLICATION OF LUFF EXPLORATION COMPANY TO MODIFY ITS APPROVAL (CASE NO. 17-2008) FOR WATER INJECTION TO ALLOW CONTINUOUS PRESSURE MONITORING AND AUTOMATIC WATER INJECTION SHUT DOWN DURING THE INJECTION OF WATER IN THE EXISTING 1-P JOYCE MILLER HORIZONTAL WELL FOR LONG-TERM SUPPORT FOR THE ONGOING WATER FLOOD IN THE “B” ZONE OF THE RED RIVER FORMATION FOR ENHANCED RECOVERY OF OIL AND GAS LOCATED IN THE SW1/4 NW1/4 SECTION 32, TOWNSHIP 23 NORTH, RANGE 6 EAST, IN THE EAST HARDING SPRINGS RED RIVER UNIT, HARDING SPRINGS FIELD, HARDING COUNTY, SOUTH DAKOTA

NOTICE OF RECOMMENDATION

CASE NO. 23-2008

Notice is hereby given to the public and to all interested persons that pursuant to South Dakota Codified Laws (SDCL) Chapter 1-26 and Chapter 45-9 and further pursuant to the Administrative Rules of South Dakota (ARSD) 74:10:09 and 74:10:11.01 the following matter has come to the attention of the Secretary of the Department of Environment and Natural Resources, hereinafter “Secretary.”

Application is made by Luff for a major modification, in accordance with ARSD 74:10:09:03.04, to modify its existing permit (Order No. 17-2008) to inject produced water into the Red River formation at a depth of approximately 8850 feet in the East Harding Springs Red River Unit, Harding County, South Dakota, for the purpose of continuing the long-term water flood enhanced recovery of oil and gas from the “B” zone of the Red River formation. The application requests approval of the use of continuous tubing and tubing/casing annulus pressure monitoring and automatic water injection shut down for this well in lieu of meeting a 1000 pounds per square inch gauge mechanical integrity test required by conditions #6 and #7 of Order No. 17-2008. All parts of Order No. 17-2008 not specifically recommended for modification will remain in full force and effect.

The Secretary recommends approval of the application with the following conditions:

1. Continuous monitoring records must be maintained by the operator and made available to the Secretary upon request.

2. An automatic shut-in device must be installed that will be set to shut off injection into the well if the tubing/casing annular pressure exceeds 250 pounds per square inch gauge or drops below 50 pounds per square inch gauge.

3. If continuous monitoring records indicate the tubing/casing annulus pressure exceeds or falls below the stated limits, the operator shall shut the well in, notify the Secretary immediately, and may be required to conduct another test agreeable to the Secretary, or conduct corrective action on the well before injection can resume.
4. The well shall be tested through a standard pressure falloff test or other test approved by the Secretary at least once every five years to determine if the mechanical integrity of the well has deteriorated.

Authority for the Secretary to approve this application is contained in ARSD 74:10:09 and 74:10:11.01. Unless a person files a petition requesting a hearing on the above application, pursuant to the provisions of ARSD 74:09:01 on or before December 23, 2008, the Secretary’s recommendation will be considered final and the Secretary will approve the application in accordance with that recommendation. Additional information may be obtained by contacting Fred V. Steece, Oil and Gas Supervisor, 2050 West Main Street, Suite 1, Rapid City, SD 57702, telephone 605.394.2229.

November 21, 2008

[Signature]

Steven M. Pirner
Secretary
STATE OF SOUTH DAKOTA  
County of Pennington

Patricia E. Von Butter, being first duly sworn, upon her oath says: That she is now and was at all times hereinafter mentioned, an employee of the RAPID CITY JOURNAL COMPANY, a corporation, of Rapid City, South Dakota, the owner and publisher of the RAPID CITY JOURNAL, a legal and daily newspaper printed and published in Rapid City, in said County of Pennington, and has full and personal knowledge of all the facts herein stated as follows: that said newspaper is and at all of the times herein mentioned has been a legal and daily newspaper with a bona fide paid circulation of at least Two Hundred copies daily, and has been printed and published in the English language, at and within an office maintained by the owner and publisher thereof, at Rapid City, in said Pennington County, and has been admitted to the United States mail under the second class mailing privilege for at least one year prior to the publication herein mentioned; that the advertisement, a printed copy of which, taken from said RAPID CITY JOURNAL, the paper in which the same was published, is attached to this sheet and made a part of this affidavit, was published in said paper once each week for two successive weeks, the first publication thereof being on the twenty-eighth day of November, 2008, that the fees charged for the publication thereof are One hundred seventy-five Dollars and sixteen cents.

Subscribed and sworn to before me this second day of December, 2008.

Kathy L. Grady  
Notary public.

My commission expires

November 21, 2008

V/A Steven M. Piner  
Secretary
Affidavit of Publication

STATE OF SOUTH DAKOTA:
COUNTY OF HARDING:

Stewart Huntington of said County and State being first duly sworn, on his oath says: That the NATION'S CENTER NEWS is a legal weekly newspaper of general circulation, printed and published in the City of Buffalo, in said County and State by Stewart Huntington, and has been such a newspaper during the times hereinafter mentioned; and that said newspaper has a bonafide circulation of at least 200 copies weekly, and has been published within said County in the English language for at least one year prior to the first publication of the notice herein mentioned, and is printed in whole or in part in an office maintained at the place of publication; and that I, Stewart Huntington, the undersigned, am the Publisher of said newspaper and have personal knowledge of all the facts stated in this affidavit; and that the advertisement headed:

Case No. 23-2008

a printed copy of which is hereto attached, was printed and published in said newspaper for 2 successive and consecutive weeks, the first publication being made on the 27th day of Nov., 2008, and the last publication on the 4th day of Dec., 2008, that the full amount of fees charged for publishing same, to-wit: The sum of $73.24, insures solely to the benefit of the publisher of the NATION'S CENTER NEWS, that no agreement or understanding for a division thereof has been made with any person and that no part thereof has been agreed to be paid to any other person whomsoever.

Subscribed and sworn to before me this 24th day of Dec., 2008

Notary Public, Lawrence County, South Dakota
My commission expires: 10-24-2010
Application is made by Luff for a major modification, in accordance with ARSD 74:10:09:03.04, to modify its existing permit (Order No. 17-2008) to inject produced water into the Red River formation at a depth of approximately 8850 feet in the East Harding Springs Red River Unit, Harding County, South Dakota, for the purpose of continued the long-term water flood enhanced recovery of oil and gas from the "B" zone of the Red River formation. The application requests approval of the use of continuous tubing and tubing/casing annulus pressure monitoring and automatic water injection shut down for this well in lieu of meeting a 1000 pounds per square inch gauge mechanical integrity test required by conditions #6 and #7 of Order No. 17-2008. All parts of Order No. 17-2008 not specifically recommended for modification will remain in full force and effect. The Secretary recommends approval of the application with the following conditions:

1. Continuous monitoring records must be maintained by the operator and made available to the Secretary upon request.

2. An automatic shut-in device must be installed that will be set to shut off injection into the well if the tubing/casing annular pressure exceeds 250 pounds per square inch gauge or drops below 50 pounds per square inch gauge.

3. If continuous monitoring records indicate the tubing/casing annulus pressure exceeds or falls below the stated limits, the operator shall shut the well in, notify the Secretary immediately, and may be required to conduct another test agreeable to the Secretary, or conduct corrective action on the well before injection can resume.

4. The well shall be tested through a standard pressure falloff test or other test approved by the Secretary at least once every five years to determine if the mechanical integrity of the well has deteriorated.

Authority for the Secretary to approve this application is contained in ARSD 74:10:09 and 74:10:11.01. Unless a person files a petition requesting a hearing on the above application, pursuant to the provisions of ARSD 74:09:01 on or before December 23, 2008, the Secretary's recommendation will be considered final and the Secretary will approve the application in accordance with that recommendation. Additional information may be obtained by contacting Fred V. Steege, Oil and Gas Supervisor, 2050 West Main Street, Suite 1, Rapid City, SD 57702, telephone 605-394-2229.

November 21, 2008
Steven M. Firmer
Secretary
#294
Nov. 27
Dec. 4
Affidavit of Publication
STATE OF SOUTH DAKOTA:
COUNTY OF LAWRENCE:

Stewart Huntington, of said County and State being first duly sworn, on his oath says: That the BLACK HILLS PIONEER is a legal daily newspaper of general circulation, printed and published in the City of Spearfish, in said County and State by Stewart Huntington, and has been such a newspaper during the times hereinafter mentioned; and that said newspaper has a bonafide circulation of at least 200 copies weekly, and has been published within said County in the English language for at least one year prior to the first publication of the notice herein mentioned, and is printed in whole or in part in an office maintained at the place of publication; and that I, Stewart Huntington, the undersigned, am the Publisher of said newspaper and have personal knowledge of all the facts stated in this affidavit; and that the advertisement headed:

Case No 23-2008

a printed copy of which is hereto attached, was printed and published in said newspaper for 2 successive and consecutive weeks, the first publication being made on the 26th day of Nov., 2008, and the last publication on the 2nd day of Dec., 2008, that the full amount of fees charged for publishing same, to-wit: The sum of $73.26, insures solely to the benefit of the publisher of the BLACK HILLS PIONEER, that no agreement or understanding for a division thereof has been made with any person and that no part thereof has been agreed to be paid to any other person whomsoever.

Subscribed and sworn to before me this 11th day of Dec., 2008

[Signature]

Notary Public, Lawrence County, South Dakota
My commission expires: 10-24-2010
4. The well shall be tested through a standard pressure falloff test or other test approved by the Secretary at least once every five years to determine if the mechanical integrity of the well has deteriorated.

Authority for the Secretary to approve this application is contained in ARSD 74:10:09 and 74:10:11.01. Unless a person files a petition requesting a hearing on the above application, pursuant to the provisions of ARSD 74:09:01 on or before December 23, 2008, the Secretary's recommendation will be considered final and the Secretary will approve the application in accordance with that recommendation. Additional information may be obtained by contacting Fred V. Steece, Oil and Gas Supervisor, 2050 West Main Street, Suite 1, Rapid City, SD 57702, telephone 605-394-2229.

November 21, 2008

Steven M. Pirner
Secretary

#398
Nov. 26
Dec. 2
AFFIDAVIT OF PUBLICATION

State of South Dakota, County of Hughes

Virginia Jones of said county, being first duly sworn, on oath, says: That he/she is the publisher or an employee of the publisher of the Capital Journal, a daily newspaper published in the City of Pierre in said County of Hughes and State of South Dakota; that he/she has full and personal knowledge of the facts herein stated, that said newspaper is a legal newspaper as defined in SDCL 17-2-2.1 through 17-2-2.4 inclusive, that said newspaper has been published within the said County of Hughes and State of South Dakota, for at least one year next prior to the first publication of the attached public notice, and that the legal display advertisement headed Notice of Recommendation Case No. 23-2008 a printed copy of which, taken from the paper in which the same was published, and which is here-to attached and made a part of this affidavit, was published in said newspaper for 2 successive week(s) to wit:

| Nov 27 2008 | | Dec 3 2008 | |
| 20 | | 20 | |
| 20 | | 20 | |

That the full amount of the fee charged for the publication of the attached public notice inures to the sole benefit of the publisher or publishers; that no agreement or understanding for the division thereof has been made with any other person, and that no part thereof has been agreed to be paid to any person whomsoever; that the fees charged for the publication thereof are: $634.57.

Signed: Virginia Jones

subscribed and sworn to before me this 9 day of December 2008

Mary L. Baker

Notary Public in and for the County of Hughes, South Dakota.
My Commission expires 2-7-2009.
Official: 78 killed in Mumbai shootings

BY BRUNO J. TOOHER BOSTON

Mumbai: Last month, a series of bomb blasts targeted crowded places in Mumbai, killing a total of 191 people. The bombs were sewn into women's saris and strapped to female suicide bombers who took their own lives in three blasts days apart, terrorizing the city's Muslim community.

The bombings, which claimed more than 200 lives, were the deadliest in India's history. The attacks were carried out by a group of suicide bombers, who were killed in the explosions.

The bombings were the latest in a series of attacks in India, which has been experiencing a wave of terrorism in recent years. The attacks have been blamed on Islamic extremists, who have been carrying out attacks in various parts of the country.

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November 24, 2008

John Morrison
Attorney at Law
400 East Broadway, Suite 600
P. O. Box 2798
Bismarck, North Dakota 58502

Dear Mr. Morrison:

Enclosed is a copy of the Notice of Recommendation for your application, Case No. 23-2008, in Harding County, South Dakota. The Notice of Recommendation has been sent to the following newspapers for publication two times on or before December 3, 2008: Rapid City Journal, Capital Journal (Pierre), Black Hills Pioneer (Lead), and the Nation’s Center News (Buffalo).

The purpose of this letter is to advise you that it is your responsibility to serve notice on those persons “…whose property may be affected…” as specified in South Dakota Codified Laws 45-9-58.

Please file with this office the following:

1. Affidavit of Notification
2. Certified mail return receipts – at least 10 days prior to the intervention date
3. A list of persons notified

Thank you for your cooperation.

Sincerely,

[Fred V. Steece]
Oil and Gas Supervisor

Enclosure
STATE OF SOUTH DAKOTA
SECRETARY OF THE
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

IN THE MATTER OF THE APPLICATION
OF LUFF EXPLORATION COMPANY TO MODIFY
ITS APPROVAL (CASE NO. 17-2008) FOR WATER
INJECTION TO ALLOW CONTINUOUS
PRESSURE MONITORING AND AUTOMATIC
WATER INJECTION SHUT DOWN DURING THE
INJECTION OF WATER IN THE EXISTING 1-P
JOYCE MILLER HORIZONTAL WELL FOR
LONG-TERM SUPPORT FOR THE ONGOING
WATER FLOOD IN THE “B” ZONE OF THE RED
RIVER FORMATION FOR ENHANCED
RECOVERY OF OIL AND GAS LOCATED IN THE
SW1/4 NW1/4 SECTION 32, TOWNSHIP 23
NORTH, RANGE 6 EAST, IN THE EAST
HARDING SPRINGS RED RIVER UNIT, HARDING
SPRINGS FIELD, HARDING COUNTY, SOUTH
DAKOTA

NOTICE OF
RECOMMENDATION
CASE NO. 23-2008

Notice is hereby given to the public and to all interested persons that pursuant to South Dakota Codified Laws (SDCL) Chapter 1-26 and Chapter 45-9 and further pursuant to the Administrative Rules of South Dakota (ARSD) 74:10:09 and 74:10:11.01 the following matter has come to the attention of the Secretary of the Department of Environment and Natural Resources, hereinafter "Secretary."

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November 21, 2008

[Signature]

Steven M. Pirner
Secretary
STATE OF SOUTH DAKOTA
BEFORE THE SECRETARY OF
THE DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

IN THE MATTER OF THE
APPLICATION OF Richard D. George

CERTIFICATION OF APPLICANT

STATE OF Colorado SS
COUNTY OF Denver SS

I, Richard D. George, the applicant in the above matter after being duly sworn
upon oath hereby certify the following information in regard to this application:

South Dakota Codified Laws Section 1-40-27 provides:

"The secretary may reject an application for any permit filed pursuant to Titles 34A or 45,
including any application by any concentrated swine feeding operation for authorization to operate
under a general permit, upon making a specific finding that:

(1) The applicant is unsuited or unqualified to perform the obligations of a permit holder based
upon a finding that the applicant, any officer, director, partner, or resident general manager of the
facility for which application has been made:

(a) Has intentionally misrepresented a material fact in applying for a permit;

(b) Has been convicted of a felony or other crime of moral turpitude;

(c) Has habitually and intentionally violated environmental laws of any state or the United
States which have caused significant and material environmental damage;

(d) Has had any permit revoked under the environmental laws of any state or the United
States;

(e) Has otherwise demonstrated through clear and convincing evidence of previous actions
that the applicant lacks the necessary good character and competency to reliably carry
out the obligations imposed by law upon the permit holder; or
(2) The application substantially duplicates an application by the same applicant denied within the past five years which denial has not been reversed by a court of competent jurisdiction. Nothing in this subdivision may be construed to prohibit an applicant from submitting a new application for a permit previously denied, if the new application represents a good faith attempt by the applicant to correct the deficiencies that served as the basis for the denial in the original application.

All applications filed pursuant to Titles 34A and 45 shall include a certification, sworn to under oath and signed by the applicant, that he is not disqualified by reason of this section from obtaining a permit. In the absence of evidence to the contrary, that certification shall constitute a prima facie showing of the suitability and qualification of the applicant. If at any point in the application review recommendation, or hearing process, the secretary finds the applicant has intentionally made any material misrepresentation of fact in regard to this certification, consideration of the application may be suspended and the application may be rejected as provided for under this section.

Applications rejected pursuant to this section constitute final agency action upon that application and may be appealed to circuit court as provided for under chapter 1-26."

Pursuant to SDCL 1-40-27, I certify that I have read the foregoing provision of state law, and that I am not disqualified by reason of that provision from obtaining the permit for which application has been made.

Dated this 10th day of November, 2008.

[Signature]

Applicant

Subscribed and sworn before me this 10th day of November, 2008.

[Signature]

Notary Public

My commission expires: 8/21/2010

(SEAL)

PLEASE ATTACH SHEET DISCLOSING ALL FACTS PERTAINING TO SDCL 1-40-27 (l)(a) THROUGH (e). ALL VIOLATIONS MUST BE DISCLOSED, BUT WILL NOT AUTOMATICALLY RESULT IN THE REJECTION OF AN APPLICATION.
SUNDAY NOTICE AND REPORT ON WELLS

Operator Name: Luff Exploration Company

Address: 1580 Lincoln Street, Suite 850, Denver, CO 80203

<table>
<thead>
<tr>
<th>Permit #</th>
<th>API No.</th>
<th>Well Name and Number</th>
<th>Location (Qtr-Qt, Sec, Twp, Rge, County)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1694</td>
<td>40 063 20474</td>
<td>Joyce Miller 1-P</td>
<td>SNNW, Sec. 32, T23N, R6E, Harding City</td>
</tr>
</tbody>
</table>

Notice of Intention To:
- Temporarily Abandon
- Plug and Abandon
- Pull, Alter, or Test Casing
- Perforate
- Acidize
- Fracture Treatment
- Squeeze Cement
- Other ___________________________

Subsequent Report of:
- Drilling Progress
- BOP Pressure Test/Program
- Gas/Oil Ratio
- Work-Over (Perf, Frac, Acidize)
- Shut-In Pressure
- Spill
- Mechanical Integrity Test
- Other Sqz Md Fm & Conv to Inj

Request for change of:
- Location
- Elevation
- Producing Method
- Producing Formation
- Injection Pressure
- Injection Volume
- Injection Fluid
- Other ________________

Luff Exploration Company, as Operator of the East Harding Springs Red River Unit has cement squeezed the Dakota formation and converted the Joyce Miller 1-P well from production to water injection. Reference Case No. 17-2008.

1. The Dakota Formation was perforated and cement squeezed at 4700' w/150 sks Class "G" cement on 7/30/08. See Attachment #1, the Daily Chron Report. A CBL run on 8/29/08, and previously submitted, confirms cement bond across the Dakota.

2. The wellbore was also squeezed through leaks identified @ 3755', 2109', and 1030'. Subsequently, the casing would not hold pressure, but the holes could not be pumped into. See Attachment # 1, Daily Chron Report.

3. New, internally coated tubing and a Md R, double-grip coated packer were run in the hole, packer was set at 8752' KB. Packer fluid consisting of corrosion inhibited water was placed in the tubing/casing annulus prior to setting the packer.

4. The MIT was performed on 9/15/08. Casing/tubing annulus was pressured to 1000 psi. Bleed back to 800 psi on 15 min test.

5. Well set up for water injection with automatic pressure shut off between the casing/tubing annulus. Automation as described in Attachment #2.

I hereby certify that the foregoing as to any work or operation performed is a true and correct report of such work or operation.

Signature: _____________________________
Name (Print): David A. Norby
Operations Manager
Title: Operations Manager
Date: 10/2/08

FOR OFFICE USE ONLY

Approved by: ____________________________
Name: "E" Superv
Title: E Supervisor
Date: OCT 21 2008

Conditions, if any:
JOYCE MILLER 1-P, EHSRRU, SWNW, SEC 32- T23N-R6E
HARDING COUNTY, SOUTH DAKOTA AFE #W08-25 Squeeze Kd/Convert to Injection

07/22/08 MIRU Nabors Rig #328. Hang of well. Unseat pump. Lay down 1” rods. SDFN.
Cost: $3,116

07/23/08 Finish laying down rods and pump. Install BOP. Release AC. Dig out surface casing valve. POOH w/tbg, tallying on way out. SDFN.
Cost: $5,987 Accum Cost: $9,103

07/24/08 Pick up 4½” bit, 5½” casing scraper, 4¾” string mill. RU Hydro-tester. RIH testing tbg to 6000#. Found no leaks. POOH w/tbg and tools. Pump 50 bbls produced water down casing. SDFN.
Cost: $7,613 Accum Cost: $16,716

07/25/08 RU High Plains. RIH with 4½” OD gauge ring and junk basket to 5000’. Set CIBP @ 4900’. Fill csg, test CIBP. Pressure went to 700# then to 0#. Had returns up surface csg. Pick up packer. RIH. Try isolating holes. Have good csg from 3875-4900 (CIBP). Last packer setting was @ 1531’. Had circulation up surface csg. Will run tension packer Monday morning.
Cost: $10,885 Accum Cost: $27,601

07/28/08 RU Model C-1 cup type BP, ret-head and Model C Full Bore Tension Packer. Set BP at 3963’, isolating bottom hole @ 3755’. Set pkr, test BP to 1000# - OK. Isolate top hole @ 1030’, establish inj. rate of 2 BPM at 600#. Isolate middle hole at 2109’, establish inj. rate of 1 BPM at 650#. RIH, latch on to BP, release. Pull up and set BP at 2045’, set packer @ 1063’, test casing to 1000’-OK. RIH, latch on to BP, release, reset BP @ 3826’, pkr @ 3730’, establish inj rate of ½ BPM @ 1100# on bottom hole. SDFN.
Cost: 9,600 Accum Cost: $37,201

07/29/08 Rig crew had safety meeting. Release BP. POOH w/tubing and tools. RU High Plains. RIH, perforate 4 SPF at 4700’. PU Model R Double Grip Packer. RIH. Set packer at 4578’. Try to get injection rate. Pressure up to 2000#. Release packer. POOH w/tubing and packer. RIH, open-ended. Place end of tubing at 4713’.
Cost: $6,589 Accum Cost: $43,790

07/30/08 RU Halliburton. Pump a 15 sk balanced plug of 15.8# Class G cmt across perfs @ 4700’. Pull 10 jts. Reverse out, saw no cmt in returns. Pressure to 400#. Let set 1 hr. POOH w/tbg. Pick up cmt-ret. RIH. Set cmt-ret @ 3624’. RU Halliburton. Spot 10.2 bbls of 15.8# Class G cmt (50 sks) to 5 bbls short of stinger. Sting in displace 7 bbls cmt through ret. Pressure up to 1500#. Stage cement three times for 10 minutes. Reverse out; saw 5½ bbls cmt in returns. POOH w/tbg and stinger. Pick up cmt-ret. RIH. Set cmt-ret @ 1977’. SDFN.
Cost: $27,709 Accum Cost: $71,499
JOYCE MILLER 1-P, EHSRRU, SWNW, SEC 32- T23N-R6E
HARDING COUNTY, SOUTH DAKOTA

07/31/08 RU Halliburton. Get injection rate, 1 BPM @ 600# (cement retains @ 1977'). Pump 20.5 bbls of 15.8# Class G cement (100 sks). Displace cement. Pressure up to 800#. Stage cement four times for 15 minutes. Pressure up to 850#. Sting out, reverse out. Saw ½ bbl cement in returns. POOH w/tbg and stinger. RIH open ended tbg @ 898’, holes @ 1030’. Pump 60.5 bbls of 15.8# Class G cement w/43 bbls, circ cement at surface valve. Shut valve, squeeze rest of cement away, cleaned end of tbg by 2 bbls. Shut well in @ 800#. SDFN.

Cost: $50,706
Accum Cost: $122,205

08/01/08 POOH w/tbg. Pick up 4½” bit, 5 ½” casing scraper, 4 9/16” string mill, 6 – 3 ⅝” drill collars. RIH tag cement @ 1010’. RU power swivel and mud pump. Drill down to 1030’. Cement soft. Roll hole clean. SDFN.

Cost: $6,345
Accum Cost: $128,550

08/04/08 Drill up cement on top hole. Stand back power swivel. Pressure casing to 1000#. Fell back to 500#. Get injection rate of 0.3 BPM @ 950#. POOH w/tbg and tools. Wait on tension packer. Pick up Model C full bore tension packer. Isolate hole to 1030’. POOH w/tbg and packer. RIH w/tbg to 1030’. SDFN.

Cost: $7,071
Accum Cost: $135,621

08/05/08 RU Halliburton. Get injection rate of 0.4 BPM @ 1000#. Pump a 50 sk (10.2 bbls) balanced plug of 15.8# class G cement across hole @ 1030’. Pull 18 jts. Reverse out; saw no cement in returns. Squeeze 6½ bbls behind casing; staging 2 times for 15 minutes and 1 time for 30 minutes. Squeeze off @ 1275#. SDFN.

Cost: $23,851
Accum Cost: $159,472

08/06/08 POOH w/tbg. Pick up 4½” bit, 5½” casing scraper, 4⅜” string mill and 6 – 3⅝” drill collars. RIH, tag cement @ 850’. RU power swivel. Get circulation. Drill up cement. Roll hole clean. Pressure casing to 1000#. Held. Stand back power swivel. RIH, tag cement @ 1960’. SDFN.

Cost: $8,260
Accum Cost: $167,732

08/07/08 RU power swivel. Drill cement off ret. Drill on ret. SDFN.

Cost: $9,366
Accum Cost: $177,098

08/08/08 Finish drilling up ret. Drill cement down to 2115’. Hit void spot for 5’ then drill cement again down to 2194’. Roll hole clean. Try to pressure casing. Could pump into casing @ 0.8 BPM @ 950#. POOH w/tbg and tools. SDFW.

Cost: $9,109
Accum Cost: $186,207

08/11/08 Pick up Model C full bore tension packer. Isolate bottom hole @ 3190’ and top hole @ 1030’. Get
JOYCE MILLER 1-P, EHSRRU, SWNW, SEC 32- T23N-R6E
HARDING COUNTY, SOUTH DAKOTA

AFE #W08-25 Squeeze Kd/Convert to Injection

Injection rate on bottom hole of 0.8 BPM @ 900#. POOH w/packer. Pick up cement-ret. RIH. Set cement-ret @ 3118’. SDFN.

Cost: $5,940
Accum Cost: $192,147

08/12/08 RU Halliburton. Get injection rate of 0.5 BPM @ 1000#. Mix and pump 15.3 bbls (75 sks) of 15.8 Class G cement. Displace cement away, staging cement 3 times for 15 minutes. Sting out. Pressure @ 950#. Reverse out; saw ¾ bbl cement in returns. POOH w/tbg and stinger. Pick up Model C-1 cup type BP, ret-head and Model C full bore tension packer. RIH. Set BP @ 3065’. Pull up. Set packer @ 2172’. Test casing to 1000#, held. Pull up, check hole @ 2109’. Pressure up to 1000#. Lose 100# in 15 minutes. Pull up. Set BP @ 2045 and set packer @ 1065’. Test casing to 1000#, held. Get injection rate in hole @ 1030’ of 0.6 BPM @ 800#. POOH w/tbg and tools. RIH open-ended. Set tbg @ 1057’. SDFN.

Cost: $24,787
Accum Cost: $216,934

08/13/08 RU Halliburton. Get injection rate of 0.5 BPM @ 900#. Pump a 10.2 bbl (50 sks) balanced plug of 15.8# class G cement across hole @ 1030’. Pull 18 jts. Reverse out. Saw no cement in returns. Displaced 1½ bbls cement away. Squeezed off @ 1200#. Shut in well. SDFN.

Cost: $25,972
Accum Cost: $242,906

08/14/08 POOH w/tbg. Pick up 4½” bit, 5½” casing scraper, 4¾” string mill, and 6 – 3½” drill collars. RIH. Tag cement @ 710’. Rig up to drill. Drill up 253’ of cement. SDFN.

Cost: $8,530
Accum Cost: $251,436

08/15/08 Finish drilling up cement. POOH w/tbg and tools. RIH w/packer. Set packer @ 1095’. Hole @ 1030’. Get an injection rate of 0.3 BPM @ 1000#. POOH w/tbg and packer. RIH open ended to 1057’. SDFW.

Cost: $8,444
Accum Cost: $259,880


Cost: $5,223
Accum Cost: $265,103

08/19/08 Wait for cement crew. RU Halliburton. Circulate well. Pump a 8.4 bbl (32 sks) balanced plug of 11.5# Micro Matrix across hole @ 1030’. Pull 18 jts. Reverse out of cement. Saw no cement in returns. Displaced 1 bbl cement away. Shut in well with 1000# on it. SDFN.

Cost: $20,942
Accum Cost: $286,045

08/20/08 Standby. Wait on cement to cure.

Cost: $2,800
Accum Cost: $288,845
JOCY MILLER 1-P, FHSMRU, SWNW, SEC 32- T23N-R6E
HARDING COUNTY, SOUTH DAKOTA

08/21/08 POOH w/tbg. Pick up 4½” bit, 5½” casing scraper, 4⁹/₁₆” string mill and 6 – 3½” drill collars. RIH. Tag cement @ 913’. Rig up to drill. Drill cement down to 1068’. RIH w/tbg to 2248’. Circulate hole clean. POOH w/tbg, bit, scraper and mill. RIH w/packer, set @ 1100’. Pressured up to 1000 psi; held OK. POOH w/tbg and packer. RIH w/tbg open ended. End of tbg @ 2141’. SDFN.
Cost: $7,849  Accum Cost: $ 296,694

08/22/08 RU Halliburton. Circulate well. Pump 25 bbls KCL water ahead. Pump 10 bbls Perm Seal. Pump 9 bbls KCL water. Pull up 10 stands. Reverse out with fresh water. Pump up well to 1080 psi; fell off to 860 psi in 15 min. Pressure up well to 1040 psi; fell off to 880 psi in 15 min. Pressure up well to 1009 psi; fell off to 960 psi in 15 min. Shut well in with 900 psi. Rig down Halliburton. SDFW.
Cost: $22,605  Accum Cost: $ 319,929

08/25/08 POOH w/tbg. Pick up 4½” bit, 5½” casing scraper, 4⁹/₁₆” string mill, and 6 – 3½” drill collars. RIH to 1941’. Circulate out Perm Seal from 1941-2643’. Pressure up to 1000#. Held OK. TIH to 3093’ Rig up to drill. Cement ret @ 3118’. Drill on ret for 1½ hrs. Circulate hole clean and clean mud tank. SDFN.
Cost: $8,829  Accum Cost: $ 328,128

08/26/08 Drill up retainer and cement to 3257’. Pressure up to 1000#. Held OK. RIH w/tbg. Tag cement @ 3571’. Drill to 3607’. SDFN.
Cost: $10,708  Accum Cost: $ 338,836

08/27/08 Drill cement to 3624’. Drill on cement retainer @ 3624’ for 3 hrs. Bit plugged. POOH to check bit. RIH. Rig up to drill on cement retainer. Drill on retainer. SDFN.
Cost: $10,862  Accum Cost: $ 349,698

08/28/08 Drill on cement ret. Drill out cement to 3834’. Circulate hole clean. Pressure up to 1000 psi. Fell off to 800 psi in 10 minutes. RIH w/tbg. Tag cement @ 4595’. Drill cement to 4740’. RIH to 4855’. POOH w/56 jts. SDFN.
Cost: $9,892  Accum Cost: $ 359,590

08/29/08 POOH w/rest of tbg. RU High Plains. Run CBL across the Dakota w/1000 psi. Cement bond looks good across Dakota. RD High Plains. RIH w/tbg and packer. Isolate hole @ 3190’. POOH w/tbg and packer. RIH to 3236’ open ended. Try to get injection rate. Pressured up to 1000 psi, bled back to 800 psi in 10 min. SDFN.
Cost: $10,613  Accum Cost: $ 370,203

09/02/08 RU Halliburton. Try to get injection rate. Pressure up to 1000 psi; bleed off to 800 psi in 10 minutes. Pump 40 bbls KCL water ahead, 10 bbls Perm Seal and 15 bbls KCL water for balanced plug. Pull 20
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HARDING COUNTY, SOUTH DAKOTA  AFE #W08-25 Squeeze Kd/Convert to Injection

jts. Reverse circulate. Pressure well up to 1050 psi, fell back to 860 psi in 5 minutes. Pressure to 1030 psi, fell back to 900 psi in 10 minutes. Pressure to 1040 psi, fell back to 900 psi in 15 minutes. Pressure to 1040 psi fell back to 950 psi in 15 minutes. Pressure to 1050 psi. Shut well in @ 1000 psi. Got 0.9 of a bbl of Perm Seal squeezed away.  SDFN.

Cost: $20,568  Accum Cost: $ 390,771

09/03/08  POOH w/tbg. Pick up 4½” bit, 5½” casing scraper, 4½” string mill and 6 – 3½” drill collars. RIH w/76 jts of tbg. Wait on Perm Seal. SDFN.

Cost: $20,568  Accum Cost: $ 393,761

09/04/08  RIH. Tag Perma Seal @ 2810’. Circulate out Perma Seal. Fell through @ 3261’. Pressure casing to 1000 psi. Held on a 15 minute test. Clean mud tank. RIH. Tag CIBP @ 4900’. Drill up CIBP. Stand back power swivel. SDFW.

Cost: $8,638  Accum Cost: $ 402,399

09/05/08  RIH. Tag TD @ 8901’ to make sure CIBP was on bottom. POOH w/tbg and tools. Will Hydro-test Monday morning.

Cost: $4,678  Accum Cost: $ 407,077

09/08/08  RU Hydro-tester. RIH testing tbg to 6000#. Found no leaks. Run BHP survey. Pressure @ 207 psi, temperature 226º F. Set packer @ 8765’. Fill casing. Pressure casing to 1050 psi. Bleed off to 850 psi in 15 minutes. Pressure casing to 1100 psi. Shut well in. SDFN, Extrapolated 270 psi at 8909 ft

Red River B Porosity
Accum Cost: $ 416,558

09/09/08  Casing pressure 250 psi. Release packer. POOH w/tbg and packer. Pick up Model G ret-BP, ret-head and a Type II ret-matic packer.  RIH. Set BP @ 8700’. Pull up 2 jts. Set packer. Pressure BP to 1000 psi, held. Fill casing. Pressure casing to 1000 psi. Bleed off to 800 psi in 5 minutes. Pull up, set packer @ 5021’, held 1000 psi down tbg. Pull up to 3500’, held 1000 psi down tbg. Pull up to 3057’, leak down tbg and backside. Pull up to 1979’, held 1000 psi on backside.

Cost: $9,481  Accum Cost: $ 424,126

09/10/08  Isolate holes @ 2109’ and 3190’. RIH. Latch onto BP. Work on getting BP released. POOH w/tbg, packer and BP. SDFN.

Cost: $7,352  Accum Cost: $ 431,478

09/11/08  Pick up Model G Ret BP, ret-head and Type II Ret-matic packer.  RIH. Set BP @ 3168’. Pull up 2 jts. Set packer. Test BP to 1000 psi, held. Pull up to 2138’. Set packer. Test casing from 2138-3168’ to 1000
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HARDING COUNTY, SOUTH DAKOTA

AFE #W08-25 Squeeze Kd/Convert to Injection

psi, held. RIH. Latch onto BP. Release BP. POOH w/tbg and tools. RIH with tbg and lay down 158 jts of tbg. SDFN.

Cost: $19,154
Accum Cost: $450,632

09/12/08 Finish laying down tbg. Laid down drill collars. Move in coated tbg. Pick up Model R double grip coated packer and 18 jts coated tbg. SDFW.

Cost: $6,728
Accum Cost: $457,360

09/15/08 Finish picking up coated tbg. Remove BOP. Pump 160 bbls packer fluid. Set packer with 25,000 psi compression @ 8752’. Pressure casing to 1000 psi. Bleed back to 800 psi on 15 minute test. RD and move.

Tubing Detail – New 2¾” 6.5# J-55 Coated
KB 14’
260 jts TK 99 Coat 8440’ 8454’
9 jts TK 505 Coat 292’ 8746’
Model R Packer 6’ 8752’

Cost: $111,684
Accum Cost: $568,988
Joyce Miller 1-P
East Harding Springs Red River Unit
SWNW Section 33-T23N-R6E
Harding County, South Dakota

Casing/Tubing Safety & Monitoring Procedure
Sundry Notice dated 10/1/08

1. The casing and tubing pressure will be monitored at the Joyce Miller 1-P with real
time pressure transmitters manufactured by Noshok, Inc., Model # 621-3000-1-1-8-6.
The rated pressure is 3000 psi.

2. Transmitters will be located at the wellhead; one on a casing valve and one on the
flow line.

3. Pressure information to be relayed to a controller at the EHSRRU water injection
plant with Omnex wireless transmitters, Model #RAD-ISM-900-SET-DC-UD.

4. Injection shut down will be set to occur at 500 psi pressure detection on the
casing/tubing annulus.

5. Continuous monitoring will be relayed to the Bowman office.
August 21, 2007

Merit Energy Company
Attn: Bob Georgius
2553 Hamilton Dome Road
Thermopolis, WY 82443

Re: UIC Variance
Frannie 21
API No. 29-06660
Park County, WY

Dear Mr. Georgius:

Please be advised that I have reviewed your request for a UIC variance for the following injection well:

Frannie 21   Sec 23, T58N, R98W

The well failed the initial mechanical integrity test and the annulus will take fluid indicating a small leak in the casing. Since I am in accord with your request, permission is granted to continue injection operations with the stipulation that you monitor the well on a weekly basis and run an injection profile log to show that all injected fluid is entering the target formation. Please notify this office of any changes in the well during this next five year period.

Sincerely,

Mark Watson
Conditional Approval of MIT’s

Conditional approval of initial or periodic MIT’s has in the past been granted to wells with pressure losses of greater than 10% of the starting test pressure. This conditional approval may be dependent upon several factors, including injection pressure, surface casing depth, top of cement, operator’s surveillance schedule, and operator’s record of monitoring and reporting problems. These wells are put on a more frequent testing schedule (most often annual) and are required to undergo additional monitoring such as chart recorders, telemetry, and occasionally radioactive tracer surveys. This additional testing and monitoring gives us the earliest indication of continued wellbore degradation and also serves as an added incentive for the operator to remediate the problem or plug and abandon the well and replace it.

Ex. The #1-19 Victor well (File # 14254) was converted to an injection well on February 18, 2008. During the initial MIT, the well was pressured up three times to 1000 psi and each time it bled down to approximately 850 psi in 15 minutes. The following factors influenced our decision to grant a Conditional Approval for this well:

- The well has surface casing cemented to surface set into the Pierre Shale. The Pierre Shale is below the lowermost USDWs in this area.
- The top of cement is approximately 5,984 feet, approximately 4,000 feet above the injection zone.
- Injection pressure was expected to be minimal at approximately 150 psi.
- The operator has a history of regular inspections and maintenance.

Ex. The #1 Eightmile SWD well (File # 10758) was converted to saltwater disposal on August 8, 1985 and passed several MITs with no bleed-off. In May 2007 this well developed casing leaks at approximately 5,208 feet which the operator squeezed with 100 sacks of cement. During the subsequent MIT the well was pressured up to 880 psi and bled down to 720 psi in 15 minutes. The following factors influenced our decision to grant a Conditional Approval for this well:

- The well has surface casing cemented to surface set into the Pierre Shale. The Pierre Shale is below the lowermost USDWs in this area.
- The top of cement is approximately 4,899 feet, approximately 200 feet above the injection zone.
- Normal injection pressures of 1,050 psi were comparable to the 880 psi test pressure.
- The operator has a history of regular inspections and maintenance.
Post Permitting Cement Program

1010' 5 1/2" casing in 7 3/8" hole
Basic 5.7719 linft/ft. 1505x
Class "G" Cement @ 1.1543/56x .8 duty to loss to formation
Squeeze @ 4900'

Hole @ 2109'
(1505x)(1.1543/56x5.7719 linft/ft)x.8)
796 linft cement on top of
4910' previous cement top (cbl) =
4114' new calculated T.O.C.,

Hole @ 3190'
However, new cbl shows top
of good cement zone @ 4486'

4317' previous highest top of
4486' inyan kara exposed

4492' most accurate
T.O.C. @ 4587'
(NEW CBL)

9910' inyan kara protected
T.O.C. (OriGinal)

'6 1/2 bbls squeezed behind casing @ 1030',

6 1/2 bbls class "G" cement @ 5.6147/38x,
(30 total ft)(5.7719 linft/ft)x.8) =
168 linft cement on top of 4492
T.O.C. (new cbl) = 4317' newest
calculated top of cement

Final Holes Isolated @ 2109'
3190' deep (Pierre shale &
Nobara Chalk respectively-
Neither formation is used in
this area, it: no usos in-
Danger)

TOTAL DEPTH 9185' Plugged back to depth 8940'
Luff Exploration Company, as Operator of the East Harding Springs Red River Unit has cement squeezed the Dakota formation and converted the Joyce Miller 1-P well from production to water injection. Reference Case No. 17-2008.

1. The Dakota Formation was **perforated and cement squeezed at 4700' w/150 sks Class "G" cement on 7/30/08. See Attachment #1, the Daily Chron Report. A CBL run on 8/29/08, and previously submitted, confirms cement bond across the Dakota.**

2. The wellbore was also **squeezed through leaks identified @ 3755', 2109', and 1030'.** Subsequently, the casing would not hold pressure, but the holes could not be pumped into. See Attachment #1, Daily Chron Report.

3. New, internally coated tubing and a Md R, double-grip coated packer were run in the hole, packer was set at 8752' KB. Packer fluid consisting of corrosion inhibited water was placed in the tubing/casing annulus prior to setting the packer.

4. The MIT was performed on 9/15/08. Casing/tubing annulus was pressured to 1000 psi. Bleed back to 800 psi on 15 min test.

5. Well set up for water injection with automatic pressure shut off between the casing/tubing annulus. Automation as described in Attachment #2.

I hereby certify that the foregoing as to any work or operation performed is a true and correct report of such work or operation.

[Signature]

David A. Norby
Name (Print)
Operations Manager
Title

10/2/08
Date

FOR OFFICE USE ONLY

Approved by: 
Title: 
Date: 

Conditions, if any:
Luff Exploration Company

1580 Lincoln Street, #850, Denver, CO 80203  Phone: (303) 861-2468  Fax: (303) 861-2481

Well Report of Operations

JOYCE MILLER 1-P, EHSRRU, SWNW, SEC 32- T23N-R6E
HARDING COUNTY, SOUTH DAKOTA  AFE #W08-25 Squeeze Kd/Convert to Injection

07/22/08  MIRU Nabors Rig #328.  Hang of well.  Unseat pump.  Lay down 1” rods.  SDFN.
  Cost: $3,116

07/23/08  Finish laying down rods and pump.  Install BOP.  Release AC.  Dig out surface casing valve.  POOH w/tbg, tallying on way out.  SDFN.
  Cost: $5,987  Accum Cost: $9,103

07/24/08  Pick up 4½” bit, 5½” casing scraper, 4¾” string mill.  RU Hydro-tester.  RIH testing tbg to 6000#.  Found no leaks.  POOH w/tbg and tools.  Pump 50 bbls produced water down casing.  SDFN.
  Cost: $7,613  Accum Cost: $16,716

07/25/08  RU High Plains.  RIH with 4½” OD gauge ring and junk basket to 5000’.  Set CIBP @ 4900’.  Fill csg, test CIBP.  Pressure went to 700# then to 0#.  Had returns up surface csg.  Pick up packer.  RIH.  Try isolating holes.  Have good csg from 3875-4900 (CIBP).  Last packer setting was @ 1531’.  Had circulation up surface csg.  Will run tension packer Monday morning.
  Cost: $10,885  Accum Cost: $27,601

07/28/08  PU Model C-1 cup type BP, ret-head and Model C Full Bore Tension Packer.  Set BP at 3963’, isolating bottom hole @ 3755’.  Set pkr, test BP to 1000# - OK.  Isolate top hole @ 1030’, establish inj. rate of 2 BPM at 600#.  Isolate middle hole at 2109’, establish inj. rate of 1 BPM at 650#.  RIH, latch on to BP, release.  Pull up and set BP at 2045’, set packer @ 1063’, test casing to 1000’-OK.  RIH, latch on to BP, release, reset BP @ 3826’, pkr @ 3730’, establish inj rate of ½ BPM @ 1100# on bottom hole.  SDFN.
  Cost: 9,600  Accum Cost: $37,201

07/29/08  Rig crew had safety meeting.  Release BP.  POOH w/tubing and tools.  RU High Plains.  RIH, perforate 4 SPF at 4700’.  PU Model R Double Grip Packer.  RIH.  Set packer at 4578’.  Try to get injection rate.  Pressure up to 2000#.  Release packer.  POOH w/tubing and packer.  RIH, open-ended.  Place end of tubing at 4713’.
  Cost: $6,589  Accum Cost: $43,790

07/30/08  RU Halliburton.  Pump a 15 sk balanced plug of 15.8# Class G cmt across perfs @ 4700’.  Pull 10 jts.  Reverse out, saw no cmt in returns.  Pressure to 400#.  Let set 1 hr.  POOH w/tbg.  Pick up cmt-ret.  RIH.  Set cmt-ret @ 3624’.  RU Halliburton.  Spot 10.2 bbls of 15.8# Class G cmt (50 sks) to 5 bbls short of stinger.  Sting in displac 7 bbls cmt through ret.  Pressure up to 1500#.  Stage cement three times for 10 minutes.  Reverse out; saw 3½ bbls cmt in returns.  POOH w/tbg and stinger.  Pick up cmt-ret.  RIH.  Set cmt-ret @ 1977’.  SDFN.
  Cost: $27,709  Accum Cost: $71,499
Luff Exploration Company
Attachment 1

1580 Lincoln Street, #850, Denver, CO 80203  Phone: (303) 861-2468  Fax: (303) 861-2481

Well Report of Operations

JOYCE MILLER 1-P, EHSRRU, SWNW, SEC 32- T23N-R6E
HARDING COUNTY, SOUTH DAKOTA

07/31/08 RU Halliburton. Get injection rate, 1 BPM @ 600# (cement retails @ 1977”). Pump 20.5 bbls of 15.8# Class G cement (100 sks). Displace cement. Pressure up to 800#. Stage cement four times for 15 minutes. Pressure up to 850#. Sting out, reverse out. Saw ½ bbl cement in returns. POOH w/tbg and stinger. RIH open ended tbg @ 898’, holes @ 1030’. Pump 60.5 bbls of 15.8# Class G cement w/43 bbls, circ cement at surface valve. Shut valve, squeeze rest of cement away, cleared end of tbg by 2 bbls. Shut well in @ 800#. SDFN.

Cost: $50,706  Accum Cost: $122,205

08/01/08 POOH w/tbg. Pick up 4½” bit, 5½” casing scraper, 4 ¾” string mill, 6 – 3¼” drill collars. RIH tag cement @ 1010’. RU power swivel and mud pump. Drill down to 1030’. Cement soft. Roll hole clean. SDFW.

Cost: $6,345  Accum Cost: $128,550

08/04/08 Drill up cement on top hole. Stand back power swivel. Pressure casing to 1000#. Fell back to 500#. Get injection rate of 0.3 BPM @ 950#. POOH w/tbg and tools. Wait on tension packer. Pick up Model C full bore tension packer. Isolate hole to 1030’. POOH w/tbg and packer. RIH w/tbg to 1030’ SDFN.

Cost: $7,071  Accum Cost: $135,621

08/05/08 RU Halliburton. Get injection rate of 0.4 BPM @ 1000#. Pump a 50 sk (10.2 bbls) balanced plug of 15.8# class G cement across hole @ 1030’. Pull 18 jts. Reverse out; saw no cement in returns. Squeeze 6½ bbls behind casing; staging 2 times for 15 minutes and 1 time for 30 minutes. Squeeze off @ 1275# SDFN.

Cost: $23,851  Accum Cost: $159,472

08/06/08 POOH w/tbg. Pick up 4½” bit, 5½” casing scraper, 4 ¾” string mill and 6 – 3¼” drill collars. RIH, tag cement @ 850’. RU power swivel. Get circulation. Drill up cement. Roll hole clean. Pressure casing to 1000#. Held. Stand back power swivel. RIH, tag cement @ 1960’. SDFN.

Cost: $8,260  Accum Cost: $167,732

08/07/08 RU power swivel. Drill cement off ret. Drill on ret. SDFN.

Cost: $9,366  Accum Cost: $177,098

08/08/08 Finish drilling up ret. Drill cement down to 2115’. Hit void spot for 5’ then drill cement again down to 2194’. Roll hole clean. Try to pressure casing. Could pump into casing @ 0.8 BPM @ 950#. POOH w/tbg and tools. SDFW.

Cost: $9,109  Accum Cost: $186,207

08/11/08 Pick up Model C full bore tension packer. Isolate bottom hole @ 3190’ and top hole @ 1030’. Get
Luff Exploration Company

1580 Lincoln Street, #850, Denver, CO 80203  Phone: (303) 861-2468  Fax: (303) 861-2481

Well Report of Operations

JOYCE MILLER 1-P, EHSRRU, SWNW, SEC 32-T23N-R6E
HARDING COUNTY, SOUTH DAKOTA

AFE #W08-25 Squeeze Kd/Convert to Injection

injection rate on bottom hole of 0.8 BPM @ 900#. POOH w/packer. Pick up cement-ret. RIH. Set cement-ret @ 3118’. SDFN.

Cost: $5,940  Accum Cost: $192,147

08/12/08  RU Halliburton. Get injection rate of 0.5 BPM @ 1000#. Mix and pump 15.3 bbls (75 sks) of 15.8 Class G cement. Displace cement away, staging cement 3 times for 15 minutes. Sting out. Pressure @ 950#. Reverse out; saw 3/4 bbl cement in returns. POOH w/tbg and stinger. Pick up Model C-1 cup type BP, ret-head and Model C full bore tension packer. RIH. Set BP @ 3065’. Pull up. Set packer @ 2172’. Test casing to 1000#, held. Pull up, check hole @ 2109’. Pressure up to 1000#. Lose 100# in 15 minutes. Pull up. Set BP @ 2045’ and set packer @ 1065’. Test casing to 1000#, held. Get injection rate in hole @ 1030’ of 0.6 BPM @ 800#. POOH w/tbg and tools. RIH open-ended. Set tbg @ 1057’. SDFN.

Cost: $24,787  Accum Cost: $216,934

08/13/08  RU Halliburton. Get injection rate of 0.5 BPM @ 900#. Pump a 10.2 bbl (50 sks) balanced plug of 15.8# class G cement across hole @ 1030’. Pull 18 jts. Reverse out. Saw no cement in returns. Displaced 1½ bbls cement away. Squeezed off @ 1200#. Shut in well. SDFN.

Cost: $25,972  Accum Cost: $242,906

08/14/08  POOH w/tbg. Pick up 4½” bit, 5½” casing scraper, 4¾” string mill, and 6 – 3½” drill collars. RIH. Tag cement @ 710’. Rig up to drill. Drill up 253’ of cement. SDFN.

Cost: $8,530  Accum Cost: $251,436

08/15/08  Finish drilling up cement. POOH w/tbg and tools. RIH w/packer. Set packer @ 1095’. Hole @ 1030’. Get an injection rate of 0.3 BPM @ 1000#. POOH w/tbg and packer. RIH open ended to 1057’. SDFW.

Cost: $8,444  Accum Cost: $259,880


Cost: $5,223  Accum Cost: $265,103

08/19/08  Wait for cement crew. RU Halliburton. Circulate well. Pump a 8.4 bbl (32 sks) balanced plug of 11.5# Micro Matrix across hole @ 1030’. Pull 18 jts. Reverse out of cement. Saw no cement in returns. Displaced 1 bbl cement away. Shut in well with 1000# on it. SDFN.

Cost: $20,942  Accum Cost: $286,045

08/20/08  Standby. Wait on cement to cure.

Cost: $2,800  Accum Cost: $288,845
08/21/08 POOH w/tbg. Pick up 4½" bit, 5½" casing scraper, 4¾½" string mill and 6 – 3½" drill collars. RIH. Tag cement @ 913'. Rig up to drill. Drill cement down to 1068'. RIH w/tbg to 2248'. Circulate hole clean. POOH w/tbg, bit, scraper and mill. RIH w/packer, set @ 1100'. Pressured up to 1000 psi; held OK. POOH w/tbg and packer. RIH w/tbg open ended. End of tbg @ 2141'. SDFN.

Cost: $7,849  
Accum Cost: $296,694

08/22/08 RU Halliburton. Circulate well. Pump 25 bbls KCL water ahead. Pump 10 bbls Perm Seal. Pump 9 bbls KCL water. Pull up 10 stands. Reverse out with fresh water. Pump up well to 1080 psi; fell off to 860 psi in 15 min. Pressure up well to 1040 psi; fell off to 880 psi in 15 min. Pressure up well to 1009 psi; fell off to 960 psi in 15 min. Shut well in with 900 psi. Rig down Halliburton. SDFW.

Cost: $22,605  
Accum Cost: $319,299

08/25/08 POOH w/tbg. Pick up 4½" bit, 5½" casing scraper, 4¾½" string mill, and 6 – 3¾" drill collars. RIH to 1941'. Circulate out Perm Seal from 1941-2643'. Pressure up to 1000#. Held OK. TIH to 3093' Rig up to drill. Cement ret @ 3118'. Drill on ret for 1½ hrs. Circulate hole clean and clean mud tank. SDFN.

Cost: $8,829  
Accum Cost: $328,128

08/26/08 Drill up retainer and cement to 3257'. Pressure up to 1000#. Held OK. RIH w/tbg. Tag cement @ 3571'. Drill to 3607'. SDFN.

Cost: $10,708  
Accum Cost: $338,836

08/27/08 Drill cement to 3624'. Drill on cement retainer @ 3624' for 3 hrs. Bit plugged. POOH to check bit. RIH. Rig up to drill on cement retainer. Drill on retainer. SDFN.

Cost: $10,862  
Accum Cost: $349,698

08/28/08 Drill on cement ret. Drill out cement to 3834'. Circulate hole clean. Pressure up to 1000 psi. Fell off to 800 psi in 10 minutes. RIH w/tbg. Tag cement @ 4595'. Drill cement to 4740'. RIH to 4855'. POOH w/56 jts. SDFN.

Cost: $9,892  
Accum Cost: $359,590

08/29/08 POOH w/rest of tbg. RU High Plains. Run CBL across the Dakota w/1000 psi. Cement bond looks good across Dakota. RD High Plains. RIH w/tbg and packer. Isolate hole @ 3190'. POOH w/tbg and packer. RIH to 3236' open ended. Try to get injection rate. Pressured up to 1000 psi, bled back to 800 psi in 10 min. SDFN.

Cost: $10,613  
Accum Cost: $370,203

09/02/08 RU Halliburton. Try to get injection rate. Pressure up to 1000 psi; bleed off to 800 psi in 10 minutes. Pump 40 bbls KCl water ahead, 10 bbls Perm Seal and 15 bbls KCl water for balanced plug. Pull 20
JOYCE MILLER 1-P, EHSRRU, SWNW, SEC 32- T23N-R6E
HARDING COUNTY, SOUTH DAKOTA
AFE #W08-25 Squeeze Kd/Convert to Injection
jts. Reverse circulate. Pressure well up to 1050 psi, fell back to 860 psi in 5 minutes. Pressure to 1030 psi, fell back to 900 psi in 10 minutes. Pressure to 1040 psi, fell back to 900 psi in 15 minutes. Pressure to 1040 psi fell back to 950 psi in 15 minutes. Pressure to 1050 psi. Shut well in @ 1000 psi. Got 0.9 of a bbl of Perm Seal squeezed away. SDFN.

Cost: $20,568
Accum Cost: $390,771

09/03/08 POOH w/tbg. Pick up 4 1/2" bit, 5 1/2" casing scraper, 4 9/16" string mill and 6 - 3 3/4" drill collars. RIH w/76 jts of tbg. Wait on Perm Seal. SDFN.

Cost: $20,568
Accum Cost: $393,761

09/04/08 RIH. Tag Perma Seal @ 2810'. Circulate out Perma Seal. Fell through @ 3261'. Pressure casing to 1000 psi. Held on a 15 minute test. Clean mud tank. RIH. Tag CIBP @ 4900'. Drill up CIBP. Stand back power swivel. SDFW.

Cost: $8,638
Accum Cost: $402,399

09/05/08 RIH. Tag TD @ 8901' to make sure CIBP was on bottom. POOH w/tbg and tools. Will Hydro-test Monday morning.

Cost: $4,678
Accum Cost: $407,077

09/08/08 RU Hydro-tester. RIH testing tbg to 6000#. Found no leaks. Run BHP survey. Pressure @ 207 psi, temperature 226 F. Set packer @ 8765'. Fill casing. Pressure casing to 1050 psi. Bleed off to 850 psi in 15 minutes. Pressure casing to 1100 psi. Shut well in. SDFN, Extrapolated 270 psi at 8909 ft

Red River B Porosity
Accum Cost: $416,558

09/09/08 Casing pressure 250 psi. Release packer. POOH w/tbg and packer. Pick up Model G ret-BP, ret-head and a Type II ret-matic packer. RIH. Set BP @ 8700'. Pull up 2 jts. Set packer. Pressure BP to 1000 psi, held. Fill casing. Pressure casing to 1000 psi. Bleed off to 800 psi in 5 minutes. Pull up, set packer @ 5021', held 1000 psi down tbg. Pull up to 3500', held 1000 psi down tbg. Pull up to 3057', leak down tbg and backside. Pull up to 1979', held 1000 psi on backside.

Cost: $7,568
Accum Cost: $424,126

09/10/08 Isolate holes @ 2109' and 3190'. RIH. Latch onto BP. Work on getting BP released. POOH w/tbg, packer and BP. SDFN.

Cost: $7,352
Accum Cost: $431,478

09/11/08 Pick up Model G Ret BP, ret-head and Type II Ret-matic packer. RIH. Set BP @ 3168'. Pull up 2 jts. Set packer. Test BP to 1000 psi, held. Pull up to 2138'. Set packer. Test casing from 2138-3168' to 1000
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HARDING COUNTY, SOUTH DAKOTA
AFE #W08-25 Squeeze Kd/Convert to Injection

psi, held. RIH. Latch onto BP. Release BP. POOH w/tbg and tools. RIH with tbg and lay down 158 jts of tbg. SDFN.

Cost: $19,154
Accum Cost: $ 450,632

09/12/08 Finish laying down tbg. Laid down drill collars. Move in coated tbg. Pick up Model R double grip coated packer and 18 jts coated tbg. SDFW.

Cost: $6,728
Accum Cost: $ 457,360

09/15/08 Finish picking up coated tbg. Remove BOP. Pump 160 bbls packer fluid. Set packer with 25,000 psi compression @ 8752'. Pressure casing to 1000 psi. Bleed back to 800 psi on 15 minute test. RD and move.

Tubing Detail – New 2 7/8" 6.5# J-55 Coated
KB
260 jts TK 99 Coat 8440' 8454'
9 jts TK 505 Coat 292' 8746'
Model R Packer 6' 8752'

Cost: $111,684
Accum Cost: $568,988
Joyce Miller 1-P  
East Harding Springs Red River Unit  
SWMW Section 33-T23N-R6E  
Harding County, South Dakota  

Casing/Tubing Safety & Monitoring Procedure  
Sundry Notice dated 10/1/08

1. The casing and tubing pressure will be monitored at the Joyce Miller 1-P with real time pressure transmitters manufactured by Noshok, Inc., Model # 621-3000-1-1-8-6. The rated pressure is 3000 psi.

2. Transmitters will be located at the wellhead; one on a casing valve and one on the flow line.

3. Pressure information to be relayed to a controller at the EHSRRU water injection plant with Omnex wireless transmitters, Model #RAD-ISM-900-SET-DC-UD.

4. Injection shut down will be set to occur at 500 psi pressure detection on the casing/tubing annulus.

5. Continuous monitoring will be relayed to the Bowman office.
Formation Tops

Perforation Details:

1. Set ESP 9000 (orig. depth 1750)
2. Perf @ 9000 (FK: 4929)
3. Set packer @ 4978
4. Tried to set inj. rate = 2000 bbls
5. Pumped 15 sls balanced plug (132 ft) on top of CIPB
6. Set Ret @ 4924, Pumped 50 sls (35 in perfs), Pressured to 1500 psi.
7. Set Ret @ 1977 (hole c 2009), Pumped 100 sls into hole. Pressure up to 800 psi, Staged 4 times in 15 ft.
8. Set 300 sls balanced plug @ 828 ft and 900 psi into hole @ 100 psi return @ surface (200 sls) S1 w 800 psi.

# Pressured up cements after numerous stages, still leaks.

4 1/2" OPEN HOLE 12 Perfs/Depth/SPF

5 1/2" / 17# Prod Csg Size/Weight

Cement Amount/Calculations:

7 7/8" / 9200 Open Hole Size/Depth

9195 TD