

This form is not to be  
used for reporting  
packer leakage tests  
in Southeast New Mexico

NEW MEXICO OIL CONSERVATION DIVISION

Page 1

Revised June 10, 2003

NORTHWEST NEW MEXICO PACKER LEAKAGE TEST

Operator Blackhills Gas Resources Lease Name Jic. 29-02-09 Well No. 143

Location Of Well: Unit Letter 0 Sec 09 Twp 29N Rge 2W API # 30-0 39-30080

	Name of Reservoir or Pool	Type of Prod. (Oil or Gas)	Method of Prod. (Flow or Art. Lift)	Prod. Medium (Tbg. Or Csg.)
Upper Completion	<u>San Jose (Tertiary)</u>	<u>Gas</u>	<u>Flow</u>	<u>Tbg</u>
Lower Completion	<u>Pictured Cliffs (PC)</u>	<u>Gas</u>	<u>Flow</u>	<u>Tbg</u>

Pre-Flow Shut-In Pressure Data

Upper Completion	Hour, Date, Shut-In <u>Feb. 8. 2011 9:15 AM</u>	Length of Time Shut-In <u>3 days</u>	SI Press. Psig <u>50</u>	Stabilized? (Yes or No) <u>(Yes)</u>
Lower Completion	Hour, Date, Shut-In <u>Feb 8 - 2011 9:15 AM</u>	Length of Time Shut-In <u>3 days</u>	SI Press. Psig <u>508</u>	Stabilized? (Yes or No) <u>(Yes)</u>

Flow Test No. 1

Commenced at (hour, date)*				Zone producing (Upper or Lower):	
Time (Hour, Date)	Lapsed Time Since*	Pressure		Prod. Zone Temp.	Remarks
Upper Compl.		Upper Compl.	Lower Compl.		
<u>10:00 AM</u> <u>2-11-2011</u>		<u>50</u>	<u>508</u>		<u>3/8 choke</u> <u>250 mcfD</u>
<u>2-12-2011</u>		<u>50</u>	<u>490</u>		<u>3/8 choke</u> <u>190 mcfD</u>
<u>2-13-2011</u>		<u>50</u>	<u>477</u>		<u>3/8 choke</u> <u>200 mcfD</u>
<u>2-14-2011</u>		<u>50</u>	<u>320</u>		<u>1/2 choke</u> <u>980 mcfD</u>
<u>2-15-2011</u>		<u>50</u>	<u>273</u>		<u>1/2 choke</u> <u>920 mcfD</u>
<u>2-16-2011</u>		<u>50</u>	<u>228</u>		<u>1/2 choke</u> <u>700 mcfD / day</u>

Production rate during test

Oil: 0 BOPD based on        Bbls. In        Hrs.        Grav.        GOR       

Gas: 500 MCFPD; Test thru (Orifice or Meter): Meter

Mid-Test Shut-In Pressure Data

Upper Completion	Hour, Date, Shut-In	Length of Time Shut-In	SI Press. Psig	Stabilized? (Yes or No)
Lower Completion	Hour, Date, Shut-In	Length of Time Shut-In	SI Press. Psig	Stabilized? (Yes or No)

(Continue on reverse side)

RCVD MAR 11 '11  
OIL CONS. DIV.  
DIST. 3

## NORTHWEST NEW MEXICO PACKER LEAKAGE TEST

Page 3Flow Test No. 2-1 Continued

Commenced at (hour, date)**		Zone producing (Upper or Lower):			
Time (Hour, Date)	Lapsed Time Since**	Pressure		Prod. Zone Temp.	Remarks
Upper Compl.	Lower Compl.				
10:00 2-17-11		50	200		1/2 choke 655 MCF
2-18-11		50	190		1/2 choke 600 MCF
2-19-11		50	180		1/2 choke 560 MCF
2-20-11		50	180		1/2 choke 550 MCF
2-21-11		50	185		1/2 choke 550 MCF
2-22-11		50	170		1/2 choke 525 MCF

Production rate during test

Oil: 0 BOPD based on \_\_\_\_\_ Bbls. In \_\_\_\_\_ Hrs. \_\_\_\_\_ Grav. \_\_\_\_\_ GOR \_\_\_\_\_Gas: 500 MCFPD; Test thru (Orifice or Meter): meter

Remarks:

I hereby certify that the information herein contained is true and complete to the best of my knowledge.

Approved \_\_\_\_\_ 20 \_\_\_\_\_  
New Mexico Oil Conservation DivisionOperator Black Hills Gas ResourcesBy Doug ZentzTitle Production SuperintendentE-mail Address Doug.Zentz@BlackhillsCorp.comDate 2-23-11

## Northwest New Mexico Packer Leakage Test Instructions

1. A packer leakage test shall be commenced on each multiply completed well within seven days after actual completion of the well, and annually thereafter as prescribed by the order authorizing the multiple completion. Such tests shall also be commenced on all multiple completions within seven days following recompletion and/or chemical or fracture treatment, and whenever remedial work has been done on a well during which the packer or the tubing have been disturbed. Tests shall also be taken at any time that communication is suspected or when requested by the Division.

2. At least 72 hours prior to the commencement of any packer leakage test, the operator shall notify the Division in writing of the exact time the test is to be commenced. Offset operators shall also be so notified.

3. The packer leakage test shall commence when both zones of the dual completion are shut-in for pressure stabilization. Both zones shall remain shut-in until the well-head pressure in each has stabilized, provided however, that they need not remain shut-in more than seven days.

4. For Flow Test No. 1, one zone of the dual completion shall be produced at the normal rate of production while the other zone remains shut-in. Such test shall be continued for seven days in case of a gas well and 24 hours in the case of an oil well. Note: if, on an initial packer leakage test, a gas well is being flowed to the atmosphere due to the lack of a pipeline connection the flow period shall be three hours.

5. Following completion of Flow Test No. 1, the well shall again be shut-in, in accordance with Paragraph 3 above.

6. Flow Test No. 2 shall be conducted even though no leak was indicated during Flow Test No. 1. Procedure for Flow Test No. 2 is to be the same as for Flow Test No. 1 except that the previously produced zone shall remain shut-in while the zone which was previously shut-in is produced.

7. Pressures for gas-zone tests must be measured on each zone with a deadweight pressure gauge at time intervals as follows: 3 hour tests: immediately prior to the beginning of each flow-period, at fifteen-minute intervals during the first hour thereof, and at hourly intervals thereafter, including one pressure measurement immediately prior to the beginning of each flow period, at least one time during each flow period (at approximately the midway point) and immediately prior to the conclusion of each flow period. Other pressures may be taken as desired, or may be requested on wells which have previously shown questionable test data.

24-hour oil zone tests: all pressures, throughout the entire test, shall be continuously measured and recorded with recording pressure gauges the accuracy of which must be checked at least twice, once at the beginning and once at the end of each test, with a deadweight pressure gauge. If a well is a gas-oil or an oil-gas dual completion, the recording gauge shall be required on the oil zone only, with deadweight pressures as required above being taken on the gas zone.

8. The results of the above-described tests shall be filed in triplicate within 15 days after completion of the test. Tests shall be filed with the Aztec District Office of the New Mexico Oil Conservation Division on Northwest New Mexico Packer Leakage Test Form Revised 11-16-98, with all deadweight pressures indicated thereon as well as the flowing temperatures (gas zones only) and gravity and GOR (oil zones only).

## NORTHWEST NEW MEXICO PACKER LEAKAGE TEST

Page 2

Flow Test No. 2 1 Continued

Commenced at (hour, date)**		Zone producing (Upper or Lower):			
Time (Hour, Date)	Lapsed Time Since**	Pressure		Prod. Zone Temp.	Remarks
		Upper Compl.	Lower Compl.		
2-23-11		50	150		1/2 choke 460 MCFD
2-24-11		50	200		1/2 440 MCFD
2-25-11		50	190		1/2 473 MCFD
2-26-11		50	185		1/2 440 MCFD
2-27-11		50	180		1/2 440 MCFD
2-28-11		50	200		5/8 choke 465 MCFD

Production rate during test

Oil: 0 BOPD based on \_\_\_\_\_ Bbls. In \_\_\_\_\_ Hrs. \_\_\_\_\_ Grav. \_\_\_\_\_ GOR \_\_\_\_\_Gas: 500 MCFPD; Test thru (Orifice or Meter): meter

Remarks:

I hereby certify that the information herein contained is true and complete to the best of my knowledge.

Approved \_\_\_\_\_ 20 \_\_\_\_\_  
New Mexico Oil Conservation DivisionOperator Blackhills Gas ResourcesBy Don Zentz JS

By \_\_\_\_\_

Title Production Superintendent

Title \_\_\_\_\_

E-mail Address \_\_\_\_\_

Date 3-1-11

## Northwest New Mexico Packer Leakage Test Instructions

1. A packer leakage test shall be commenced on each multiply completed well within seven days after actual completion of the well, and annually thereafter as prescribed by the order authorizing the multiple completion. Such tests shall also be commenced on all multiple completions within seven days following recompletion and/or chemical or fracture treatment, and whenever remedial work has been done on a well during which the packer or the tubing have been disturbed. Tests shall also be taken at any time that communication is suspected or when requested by the Division.

2. At least 72 hours prior to the commencement of any packer leakage test, the operator shall notify the Division in writing of the exact time the test is to be commenced. Offset operators shall also be so notified.

3. The packer leakage test shall commence when both zones of the dual completion are shut-in for pressure stabilization. Both zones shall remain shut-in until the well-head pressure in each has stabilized, provided however, that they need not remain shut-in more than seven days.

4. For Flow Test No. 1, one zone of the dual completion shall be produced at the normal rate of production while the other zone remains shut-in. Such test shall be continued for seven days in case of a gas well and 24 hours in the case of an oil well. Note: if, on an initial packer leakage test, a gas well is being flowed to the atmosphere due to the lack of a pipeline connection the flow period shall be three hours.

5. Following completion of Flow Test No. 1, the well shall again be shut-in, in accordance with Paragraph 3 above.

6. Flow Test No. 2 shall be conducted even though no leak was indicated during Flow Test No. 1. Procedure for Flow Test No. 2 is to be the same as for Flow Test No. 1 except that the previously produced zone shall remain shut-in while the zone which was previously shut-in is produced.

7. Pressures for gas-zone tests must be measured on each zone with a deadweight pressure gauge at time intervals as follows: 3 hour tests: immediately prior to the beginning of each flow-period, at fifteen-minute intervals during the first hour thereof, and at hourly intervals thereafter, including one pressure measurement immediately prior to the beginning of each flow period, at least one time during each flow period (at approximately the midway point) and immediately prior to the conclusion of each flow period. Other pressures may be taken as desired, or may be requested on wells which have previously shown questionable test data.

24-hour oil zone tests: all pressures, throughout the entire test, shall be continuously measured and recorded with recording pressure gauges the accuracy of which must be checked at least twice, once at the beginning and once at the end of each test, with a deadweight pressure gauge. If a well is a gas-oil or an oil-gas dual completion, the recording gauge shall be required on the oil zone only, with deadweight pressures as required above being taken on the gas zone.

8. The results of the above-described tests shall be filed in triplicate within 15 days after completion of the test. Tests shall be filed with the Aztec District Office of the New Mexico Oil Conservation Division on Northwest New Mexico Packer Leakage Test Form Revised 11-16-98, with all deadweight pressures indicated thereon as well as the flowing temperatures (gas zones only) and gravity and GOR (oil zones only).

## NORTHWEST NEW MEXICO PACKER LEAKAGE TEST

Page 2

Flow Test No. 2 *Continued*

Commenced at (hour, date)**		Zone producing (Upper or Lower):			
Time (Hour, Date)	Lapsed Time Since**	Pressure		Prod. Zone Temp.	Remarks
		Upper Compl.	Lower Compl.		
3-1-11		50	50		5/8 choke 450 mcf
3-2-11		50			5/8 choke 475 mcf
3-3-11		50			5/8 choke 525 mcf
3-4-11		50			5/8 choke 520 mcf
3-5-11		50			5/8 choke 510 mcf
3-6-11		50			5/8 choke 500 mcf

Production rate during test

Oil: 0 BOPD based on \_\_\_\_\_ Bbls. In \_\_\_\_\_ Hrs. \_\_\_\_\_ Grav. \_\_\_\_\_ GOR \_\_\_\_\_Gas: 500 MCFPD; Test thru (Orifice or Meter): Meter

Remarks:

I hereby certify that the information herein contained is true and complete to the best of my knowledge.

Approved \_\_\_\_\_ 20 \_\_\_\_\_

New Mexico Oil Conservation Division

Operator Black Hill Gas RefinersBy Ray Zate Ray GTitle Production Superintendent

By \_\_\_\_\_

E-mail Address \_\_\_\_\_

Title \_\_\_\_\_

Date 3-7-11

## Northwest New Mexico Packer Leakage Test Instructions

1. A packer leakage test shall be commenced on each multiply completed well within seven days after actual completion of the well, and annually thereafter as prescribed by the order authorizing the multiple completion. Such tests shall also be commenced on all multiple completions within seven days following recompletion and/or chemical or fracture treatment, and whenever remedial work has been done on a well during which the packer or the tubing have been disturbed. Tests shall also be taken at any time that communication is suspected or when requested by the Division.

2. At least 72 hours prior to the commencement of any packer leakage test, the operator shall notify the Division in writing of the exact time the test is to be commenced. Offset operators shall also be so notified.

3. The packer leakage test shall commence when both zones of the dual completion are shut-in for pressure stabilization. Both zones shall remain shut-in until the well-head pressure in each has stabilized, provided however, that they need not remain shut-in more than seven days.

4. For Flow Test No. 1, one zone of the dual completion shall be produced at the normal rate of production while the other zone remains shut-in. Such test shall be continued for seven days in case of a gas well and 24 hours in the case of an oil well. Note: if, on an initial packer leakage test, a gas well is being flowed to the atmosphere due to the lack of a pipeline connection the flow period shall be three hours.

5. Following completion of Flow Test No. 1, the well shall again be shut-in, in accordance with Paragraph 3 above.

6. Flow Test No. 2 shall be conducted even though no leak was indicated during Flow Test No. 1. Procedure for Flow Test No. 2 is to be the same as for Flow Test No. 1 except that the previously produced zone shall remain shut-in while the zone which was previously shut-in is produced.

7. Pressures for gas-zone tests must be measured on each zone with a deadweight pressure gauge at time intervals as follows: 3 hour tests: immediately prior to the beginning of each flow-period, at fifteen-minute intervals during the first hour thereof, and at hourly intervals thereafter, including one pressure measurement immediately prior to the beginning of each flow period, at least one time during each flow period (at approximately the midway point) and immediately prior to the conclusion of each flow period. Other pressures may be taken as desired, or may be requested on wells which have previously shown questionable test data.

24-hour oil zone tests: all pressures, throughout the entire test, shall be continuously measured and recorded with recording pressure gauges the accuracy of which must be checked at least twice, once at the beginning and once at the end of each test, with a deadweight pressure gauge. If a well is a gas-oil or an oil-gas dual completion, the recording gauge shall be required on the oil zone only, with deadweight pressures as required above being taken on the gas zone.

8. The results of the above-described tests shall be filed in triplicate within 15 days after completion of the test. Tests shall be filed with the Aztec District Office of the New Mexico Oil Conservation Division on Northwest New Mexico Packer Leakage Test Form Revised 11-16-98, with all deadweight pressures indicated thereon as well as the flowing temperatures (gas zones only) and gravity and GOR (oil zones only).

## NORTHWEST NEW MEXICO PACKER LEAKAGE TEST

Page 5

Flow Test No. 2 *Continued*

Commenced at (hour, date)**		Zone producing (Upper or Lower):			
Time (Hour, Date)	Lapsed Time Since**	Pressure		Prod. Zone Temp.	Remarks
Upper Compl.	Lower Compl.				
3-7-11		50	50		sg choke 480 mld
9:00 AM 3-8-11		55	32		shut in lower side
3-9-11		12.5	325		Put lower on line

Production rate during test

Oil: 500 BOPD based on 500 Bbbls. In 5 Hrs. Grav. 500 GOR 500Gas: 500 MCFPD; Test thru (Orifice or Meter): meter

Remarks:

I hereby certify that the information herein contained is true and complete to the best of my knowledge.

Approved Monica Kuhlberg 3-9-11 2011  
New Mexico Oil Conservation DivisionBy Monica Kuhlberg  
Title Deputy Oil & Gas Inspector,  
District #3Operator Black Hills Gas Resources  
By Ray Zentz Ray  
Title Production Superintendent  
E-mail Address \_\_\_\_\_  
Date 3-10-11

## Northwest New Mexico Packer Leakage Test Instructions

1. A packer leakage test shall be commenced on each multiply completed well within seven days after actual completion of the well, and annually thereafter as prescribed by the order authorizing the multiple completion. Such tests shall also be commenced on all multiple completions within seven days following recompletion and/or chemical or fracture treatment, and whenever remedial work has been done on a well during which the packer or the tubing have been disturbed. Tests shall also be taken at any time that communication is suspected or when requested by the Division.

2. At least 72 hours prior to the commencement of any packer leakage test, the operator shall notify the Division in writing of the exact time the test is to be commenced. Offset operators shall also be so notified.

3. The packer leakage test shall commence when both zones of the dual completion are shut-in for pressure stabilization. Both zones shall remain shut-in until the well-head pressure in each has stabilized, provided however, that they need not remain shut-in more than seven days.

4. For Flow Test No. 1, one zone of the dual completion shall be produced at the normal rate of production while the other zone remains shut-in. Such test shall be continued for seven days in case of a gas well and 24 hours in the case of an oil well. Note: if, on an initial packer leakage test, a gas well is being flowed to the atmosphere due to the lack of a pipeline connection the flow period shall be three hours.

5. Following completion of Flow Test No. 1, the well shall again be shut-in, in accordance with Paragraph 3 above.

6. Flow Test No. 2 shall be conducted even though no leak was indicated during Flow Test No. 1. Procedure for Flow Test No. 2 is to be the same as for Flow Test No. 1 except that the previously produced zone shall remain shut-in while the zone which was previously shut-in is produced.

7. Pressures for gas-zone tests must be measured on each zone with a deadweight pressure gauge at time intervals as follows: 3 hour tests: immediately prior to the beginning of each flow-period, at fifteen-minute intervals during the first hour thereof, and at hourly intervals thereafter, including one pressure measurement immediately prior to the beginning of each flow period, at least one time during each flow period (at approximately the midway point) and immediately prior to the conclusion of each flow period. Other pressures may be taken as desired, or may be requested on wells which have previously shown questionable test data.

24-hour oil zone tests: all pressures, throughout the entire test, shall be continuously measured and recorded with recording pressure gauges the accuracy of which must be checked at least twice, once at the beginning and once at the end of each test, with a deadweight pressure gauge. If a well is a gas-oil or an oil-gas dual completion, the recording gauge shall be required on the oil zone only, with deadweight pressures as required above being taken on the gas zone.

8. The results of the above-described tests shall be filed in triplicate within 15 days after completion of the test. Tests shall be filed with the Aztec District Office of the New Mexico Oil Conservation Division on Northwest New Mexico Packer Leakage Test Form Revised 11-16-98, with all deadweight pressures indicated thereon as well as the flowing temperatures (gas zones only) and gravity and GOR (oil zones only).