

DISTRICT I
1625 N. French Dr., Hobbs, N.M. 88240

DISTRICT II
1301 W. Grand Ave., Artesia, N.M. 88210

DISTRICT III
1000 Rio Brazos Rd., Aztec, N.M. 87410

DISTRICT IV
1220 South St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-102
Revised July, 16, 2010
Submit one copy to appropriate
District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-039-29314		² Pool Code 97232	³ Pool Name BASIN MANCOS
⁴ Property Code 22858	⁵ Property Name JICARILLA 458-5		⁶ Well Number 22
⁷ GRID No. 013925	⁸ Operator Name BLACK HILLS GAS RESOURCES		⁹ Elevation 7271' GL

¹⁰ Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
LOT 6	5	30-N	3-W		2230	NORTH	2175	WEST	RIO ARriba

¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
LOT 6	5	30-N	3-W		2239	NORTH	1571	WEST	RIO ARriba

¹² Dedicated Acres 160 - NW/4	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
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NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

16 CALC. CORNER FD. 2 1/2" BC. 1917 U.S.G.L.O. 1.56' SOUTH OF CORNER POSITION N 89°52'13" W 2544.23' (C) LOT 4 36.33 LOT 5 38.37 1571' 2578.07' (M) 2239' 2175' SHL QTR. CORNER FD. 2 1/2" BC. 1917 U.S.G.L.O. LOT 12 38.62 LOT 13 38.89 AS-DRILLED BHL FOOTAGES BHL FOOTAGES ARE AS-DRILLED AND PROVIDED BY <u>B.H.G.R.</u> CUENT		17 CALC. CORNER FD. 2 1/2" BC. 1917 U.S.G.L.O. S 89°44'48" W 2581.16' (C) LOT 2 36.23 LOT 7 39.15 LOT 10 39.35 LOT 15 39.10 SEC. CORNER FD. 2 1/2" BC. 1917 U.S.G.L.O. LOT 1 36.22 LOT 8 39.15 LOT 9 39.33 LOT 16 39.08 <u>SURFACE:</u> LAT: 36.84194° N. (NAD 83) LONG: 107.17444° W. (NAD 83) LAT: 36°50'30.74" N. (NAD 27) LONG: 107°10'25.68" W. (NAD 27) <u>BOTTOM HOLE:</u> LAT: 36.84188° N. (NAD 83) LONG: 107.17440° W. (NAD 83) LAT: 36°50'30.74306" N. (NAD 27) LONG: 107°10'25.67767" W. (NAD 27)		18 OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division. <u>Daniel Manus</u> 1/3/11 Signature Date Daniel Manus Printed Name daniel.manus@blackhillcorp.com E-mail Address SURVEYOR CERTIFICATION I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief. DECEMBER 14, 2010 Date of Survey <u>[Signature]</u> Signature and Seal of Professional Surveyor 12-17-10 Certificate Number
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PHOENIX
TECHNOLOGY SERVICES

19 Nov 2010

State of New Mexico
Oil Conservation Division
1000 Rio Brazos Road
Aztec, NM 87410

Re: Black Hills Gas Resources, Inc.
Jicarilla 458-5 #22
Rio Arriba Co., NM
Job #1010625
API No. 30-039-29314

RCVD DEC 1 '10
OIL CONS. DIV.

DIST. 3

To Whom It May Concern:

Enclosed please find the Directional Survey data for the above referenced well to be filed with your group.

Name & Title of Surveyor	Drainhole Number	Surveyed Depths		Dates Performed		Type of Survey
		From	To	Start	End	
Ron Alexis	#22	3515	6414	11/01/10	11/07/10	MWD

Thank you for the opportunity to be of service. Please contact me if you have any questions or require additional information.

Sincerely,



Jose L. Hernandez
Well Planner



**PHOENIX
TECHNOLOGY SERVICES**

DIRECTIONAL SURVEY CERTIFICATION

RE: Black Hills Gas Resources, Inc.(Operator)

Jicarilla 458-5 #22 (Well Name & No.)

Section 5 Twp. 30 N Range 03 W

Well File No. 30-039-29314

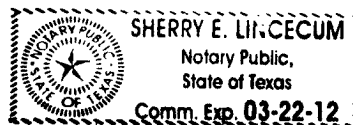
I, Jose L Hernandez, having personal knowledge of all the facts, hereby certify that the attached directional surveys for the well run from measured depth of 3515 feet to a measured depth of 6414 feet, respectively, are true and correct as determined from all available records.

[Signature] Well Planner Phoenix Technology Services, Inc
Signature Title Company

State of Texas
County of Harris

On this 19 day of Nov, 2010, before me personally appeared Jose L. Hernandez to me known as the person described in and who executed the foregoing instrument and acknowledged that he executed the same as his free act and deed.

[Signature] 3/22/2012
Notary Public My Commission Expires



Phoenix Technology Services SURVEY DATA CERTIFICATION



PHOENIX JOB NUMBER 1010625

OPERATOR Black Hills E & P

WELL NAME Jicarilla 458-5 # 22

COUNTY & STATE

Rio Arriba, NM

API WELL NUMBER 30-03929314

PROPOSED DIRECTION 270

TIE-IN DATA						
MEASURED	VERTICAL			N-S	E-W	DATA
DEPTH	DEPTH	INCLIN	AZIMUTH	COORD	COORD	SOURCE
3400'	3400'	0	0	0	0	Assume Vertical

FIRST	FIRST		
SURVEY	SURVEY		
DATE	DEPTH	INCLIN	AZIMUTH
11/1/10	3,515 ft	9.4	267.7

SURVEY INSTRUMENT
TYPE
Phoenix MWD

LAST	LAST		
SURVEY	SURVEY		
DATE	DEPTH	INCLIN	AZIMUTH
7-Nov-10	6414'	2.2	279

TO THE BEST OF MY KNOWLEDGE I
CERTIFY THIS SURVEY DATA TO BE
TRUE AND CORRECT.

PROJECTED	PROJECTED		
TD SURVEY	TD SURVEY		
DATE	DEPTH	INCLIN	AZIMUTH
7-Nov-10	6461'	2	279

Ron Alexis

PRINT YOUR NAME ABOVE

SIGN YOUR NAME ABOVE

MAGNETIC DECLINATION OR TOTAL GRID

TOTAL CORRECTION USED	9.72
DECLINATION OR GRID	10.18

10/10/7/2010

TODAY'S DATE

MWD SUPERVISOR 1 Ron Alexis

DIRECTIONAL DRILLER 1

Rhett Hebert

MWD SUPERVISOR 2 Bill Oehlert

DIRECTIONAL DRILLER 2

Rocky Browning

1805 Brittmore Road

Houston, Texas 77043

(713)3370609 (Voice), (713)337-0599 (Fax)

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1625 N. French Dr., Hobbs, NM 88240
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State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-102
Revised October 12, 2005
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-039-29314	² Pool Code 71599	³ Pool Name Basin Dakota
⁴ Property Code 22858	⁵ Property Name Jicarilla 458-5	
⁷ OGRD No. 013925	⁶ Operator Name Black Hills Gas Resources, Inc.	⁸ Well Number 22 ⁹ Elevation 7271' GL

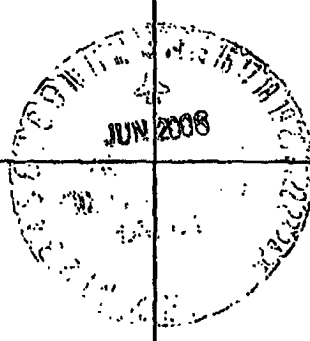
¹⁰ **Surface Location**

UL or lot no. F	Section 5	Township 30-N	Range 3-W	Lot Idn	Feet from the 2230'	North/South line North	Feet from the 2175'	East/West line West	County Rio Arriba
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¹¹ **Bottom Hole Location If Different From Surface**

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
¹² Dedicated Acres 320 - N/2		¹³ Joint or Infill		¹⁴ Consolidation Code		¹⁵ Order No.			

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division

2175'		2230'	5
			

¹⁷ **OPERATOR CERTIFICATION**

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

• Mike Pippin 5-19-06
Signature Date

Mike Pippin
Printed Name

¹⁸ **SURVEYOR CERTIFICATION**

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

Date of Survey
Signature and Seal of Professional Surveyor:

Certificate Number

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE		Dogleg Severity Deg/100
				FT	FT	FT	Distance FT	Direction Deg	
5565.00	13.10	266.50	5503.98	12.86	-493.29	493.29	493.46	271.49	2.20
5598.00	12.70	265.40	5536.14	12.34	-500.64	500.64	500.79	271.41	1.42
5629.00	11.70	263.50	5566.44	11.72	-507.16	507.16	507.29	271.32	3.48
5660.00	11.40	262.90	5596.82	10.98	-513.32	513.32	513.44	271.23	1.04
5691.00	11.10	261.80	5627.22	10.18	-519.32	519.32	519.41	271.12	1.19
5724.00	10.70	262.20	5659.62	9.31	-525.49	525.49	525.58	271.01	1.23
5755.00	10.20	260.60	5690.11	8.47	-531.05	531.05	531.12	270.91	1.86
5787.00	10.10	259.20	5721.61	7.48	-536.61	536.61	536.66	270.80	.83
5818.00	9.50	256.70	5752.16	6.38	-541.76	541.76	541.80	270.67	2.37
5849.00	9.20	256.00	5782.75	5.19	-546.66	546.66	546.68	270.54	1.03
5880.00	8.50	255.70	5813.38	4.03	-551.28	551.28	551.30	270.42	2.26
5912.00	8.20	255.20	5845.04	2.86	-555.78	555.78	555.79	270.30	.96
5943.00	7.70	253.90	5875.74	1.72	-559.91	559.91	559.92	270.18	1.71
5974.00	7.50	253.70	5906.47	.58	-563.85	563.85	563.85	270.06	.65
6005.00	7.50	251.90	5937.20	-.62	-567.72	567.72	567.72	269.94	.76
6038.00	7.20	250.00	5969.93	-2.00	-571.71	571.71	571.71	269.80	1.17
6070.00	6.30	252.50	6001.71	-3.21	-575.27	575.27	575.27	269.68	2.96
6101.00	6.00	251.10	6032.53	-4.25	-578.42	578.42	578.44	269.58	1.08
6133.00	5.80	250.00	6064.36	-5.34	-581.52	581.52	581.55	269.47	.72
6164.00	5.70	249.50	6095.20	-6.42	-584.44	584.44	584.47	269.37	.36
6195.00	5.30	248.40	6126.06	-7.48	-587.21	587.21	587.26	269.27	1.33
6226.00	4.80	250.10	6156.94	-8.45	-589.76	589.76	589.82	269.18	1.68
6256.00	4.50	250.50	6186.84	-9.27	-592.05	592.05	592.12	269.10	1.01
6288.00	4.30	258.60	6218.75	-9.93	-594.41	594.41	594.49	269.04	2.04
6319.00	4.10	268.80	6249.67	-10.18	-596.66	596.66	596.74	269.02	2.49
6350.00	3.80	277.70	6280.59	-10.06	-598.78	598.78	598.87	269.04	2.20
6382.00	3.40	280.00	6312.53	-9.76	-600.77	600.77	600.85	269.07	1.33
Last Phoenix MWD Surveys									
6414.00	2.20	279.00	6344.49	-9.50	-602.31	602.31	602.38	269.10	3.75
Projection to TD									
6461.00	2.00	279.00	6391.46	-9.23	-604.01	604.01	604.08	269.12	.43

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
4133.00	13.00	267.90	4121.04	20.47	-123.15	123.15	124.84	279.44	5.26
4165.00	13.20	265.40	4152.21	20.05	-130.39	130.39	131.92	278.74	1.88
4196.00	13.30	264.30	4182.38	19.41	-137.47	137.47	138.83	278.04	.87
4228.00	12.90	264.10	4213.55	18.68	-144.68	144.68	145.88	277.36	1.26
4292.00	12.70	263.80	4275.96	17.19	-158.78	158.78	159.71	276.18	.33
4322.00	13.10	267.70	4305.20	16.69	-165.46	165.46	166.30	275.76	3.19
4352.00	14.00	270.50	4334.37	16.59	-172.48	172.48	173.28	275.49	3.71
4383.00	14.80	273.30	4364.40	16.85	-180.19	180.19	180.97	275.34	3.42
4414.00	15.90	273.50	4394.29	17.34	-188.38	188.38	189.17	275.26	3.55
4447.00	15.80	272.80	4426.03	17.83	-197.38	197.38	198.18	275.16	.65
4478.00	16.50	270.50	4455.81	18.08	-205.99	205.99	206.79	275.01	3.06
4508.00	16.20	269.20	4484.60	18.05	-214.44	214.44	215.20	274.81	1.58
4539.00	16.30	269.10	4514.36	17.93	-223.11	223.11	223.83	274.59	.33
4570.00	15.80	268.00	4544.15	17.71	-231.68	231.68	232.36	274.37	1.89
4601.00	14.50	264.50	4574.07	17.19	-239.76	239.76	240.38	274.10	5.13
4633.00	14.90	264.50	4605.03	16.41	-247.84	247.84	248.39	273.79	1.25
4664.00	15.70	264.80	4634.93	15.65	-255.99	255.99	256.47	273.50	2.59
4694.00	16.90	268.30	4663.72	15.15	-264.39	264.39	264.82	273.28	5.17
4724.00	16.40	267.80	4692.46	14.86	-272.98	272.98	273.38	273.12	1.73
4755.00	16.40	268.60	4722.20	14.59	-281.73	281.73	282.11	272.96	.73
4786.00	16.00	268.40	4751.97	14.36	-290.37	290.37	290.73	272.83	1.30
4817.00	14.80	269.50	4781.86	14.21	-298.60	298.60	298.94	272.72	3.98
4849.00	15.20	271.90	4812.77	14.31	-306.88	306.88	307.22	272.67	2.31
4880.00	15.10	271.20	4842.69	14.53	-314.98	314.98	315.32	272.64	.67
4911.00	15.00	272.40	4872.63	14.78	-323.03	323.03	323.37	272.62	1.06
4943.00	14.50	271.60	4903.57	15.07	-331.17	331.17	331.51	272.60	1.69
4975.00	14.70	271.50	4934.54	15.28	-339.23	339.23	339.58	272.58	.63
5005.00	15.60	271.80	4963.50	15.51	-347.07	347.07	347.42	272.56	3.01
5036.00	16.00	273.20	4993.33	15.88	-355.50	355.50	355.86	272.56	1.78
5067.00	16.30	273.90	5023.10	16.41	-364.11	364.11	364.48	272.58	1.15
5099.00	15.80	272.20	5053.85	16.89	-372.94	372.94	373.32	272.59	2.14
5129.00	15.20	271.00	5082.76	17.11	-380.96	380.96	381.34	272.57	2.27
5161.00	16.00	268.80	5113.58	17.09	-389.56	389.56	389.93	272.51	3.11
5192.00	15.70	266.50	5143.41	16.75	-398.02	398.02	398.37	272.41	2.25
5223.00	14.90	265.10	5173.31	16.15	-406.17	406.17	406.50	272.28	2.84
5254.00	15.20	265.40	5203.24	15.49	-414.20	414.20	414.49	272.14	1.00
5285.00	15.00	265.40	5233.17	14.84	-422.25	422.25	422.51	272.01	.65
5316.00	15.30	265.20	5263.10	14.17	-430.32	430.32	430.55	271.89	.98
5348.00	15.50	269.60	5293.95	13.79	-438.80	438.80	439.02	271.80	3.70
5379.00	15.40	268.30	5323.83	13.64	-447.06	447.06	447.27	271.75	1.16
5410.00	15.20	269.50	5353.73	13.48	-455.24	455.24	455.44	271.70	1.21
5442.00	14.60	270.60	5384.65	13.49	-463.47	463.47	463.66	271.67	2.07
5473.00	14.50	269.30	5414.66	13.48	-471.25	471.25	471.45	271.64	1.10
5504.00	14.10	269.30	5444.70	13.39	-478.91	478.91	479.10	271.60	1.29
5534.00	13.70	267.90	5473.82	13.21	-486.11	486.11	486.29	271.56	1.74



PHOENIX TECHNOLOGY SERVICES

Job Number: 1010625
Company: Black Hills E&P
Lease/Well: 458-5 #22
Location: Rio Arriba County, NM
Rig Name: Aztec 124
RKB: ☐
G.L. or M.S.L.: SL - 2230 FNL & 2175' FWL

State/Country: NM
Declination: 9.71730
Grid: ☐
File name: C:\101062-2\45522.SVY
Date/Time: 08-Nov-10 / 08:11
Curve Name: 458-5 #22 Surveys

458-5 #22 Surveys

WINSERVE SURVEY CALCULATIONS
Minimum Curvature Method
Vertical Section Plane 270.00
Vertical Section Referenced to Wellhead
Rectangular Coordinates Referenced to Wellhead

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE Distance FT	Direction Deg	Dogleg Severity Deg/100
Tie In point									
3400.00	.00	.00	3400.00	.00	.00	.00	.00	.00	.00
First Phoenix MWD Surveys									
3515.00	9.40	267.70	3514.48	-.38	-9.40	9.40	9.41	267.70	8.17
3544.00	10.40	269.40	3543.05	-.50	-14.39	14.39	14.40	268.01	3.59
3576.00	10.70	269.30	3574.51	-.57	-20.25	20.25	20.26	268.40	.94
3607.00	10.90	268.20	3604.96	-.69	-26.05	26.05	26.06	268.47	.93
3638.00	10.80	266.60	3635.41	-.96	-31.88	31.88	31.90	268.28	1.02
3669.00	10.80	266.90	3665.86	-1.29	-37.68	37.68	37.70	268.04	.18
3700.00	9.50	273.70	3696.37	-1.28	-43.14	43.14	43.16	268.30	5.70
3732.00	9.40	274.40	3727.94	-.91	-48.38	48.38	48.39	268.92	.48
3761.00	9.00	284.10	3756.57	-.17	-52.94	52.94	52.94	269.81	5.52
3791.00	8.90	288.70	3786.20	1.14	-57.41	57.41	57.42	271.14	2.41
3822.00	10.50	294.20	3816.76	3.07	-62.26	62.26	62.34	272.82	5.96
3854.00	10.20	294.60	3848.24	5.44	-67.50	67.50	67.72	274.61	.96
3884.00	11.20	299.00	3877.72	7.96	-72.46	72.46	72.90	276.27	4.30
3914.00	11.60	298.40	3907.13	10.81	-77.66	77.66	78.41	277.92	1.39
3944.00	11.90	291.30	3936.50	13.37	-83.20	83.20	84.26	279.13	4.92
3976.00	12.50	286.50	3967.78	15.55	-89.59	89.59	90.93	279.85	3.68
4008.00	12.50	283.50	3999.02	17.34	-96.28	96.28	97.83	280.21	2.03
4039.00	12.40	279.70	4029.29	18.68	-102.82	102.82	104.51	280.30	2.66
4070.00	12.40	276.50	4059.57	19.62	-109.41	109.41	111.16	280.17	2.22
4103.00	12.60	274.80	4091.79	20.32	-116.52	116.52	118.28	279.89	1.27