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NOV 29 2012

Bureau of Land Management
Farmington Field Office

Form 3160-3
(August 2007)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
APPLICATION FOR PERMIT TO DRILL OR REENTER

FORM APPROVED
OMB NO. 1004-0137
Expires: July 31, 2010

1a. Type of Work: ☒ DRILL ☐ REENTER
1b. Type of Well: ☐ Oil Well ☒ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone
2. Name of Operator

Black Hills Gas Resources

3a. Address
P.O. Box 249/3200 N 1st St
Bloomfield, NM 87401

3b. Phone No. (include area code)
(505) 634-5104

5. Lease Serial No.
Jic 464
6. If Indian, Allottee or Tribe Name
Jicarilla Apache Tribe
7. If Unit or CA Agreement, Name and No.

8. Lease Name and Well No.
Jicarilla 464-30 #724B

9. API Well No.
30-039-31157

10. Field and Pool, or Exploratory
Basin Mancos

4. Location of well (Report location clearly and in accordance with any State requirements. *)
At surface 1,498' FNL & 885' FEL SE/NE (UL: H)
At proposed prod. zone 2,023' FSL & 681' FEL NE/SE (UL: I)

11. Sec., T., R., M., or Blk. And Survey or Area
SHL: Section 30, T30N R3W
BHL: Section 29, T30N R3W

14. Distance in miles and direction from the nearest town or post office*
20 Miles Southwest of Dulce, New Mexico

12. County or Parish
Rio Arriba
13. State
New Mexico

15. Distance from proposed*
location to nearest
property or lease line, ft. Approx. 1,754'
(Also to nearest drlg. unit line, if any)

16. No. of acres in lease
Approx. 2,409.64 ac

17. Spacing Unit dedicated to this well
337.35ac E/2 of Section 30
372.28ac S/2 of Section 29

18. Distance from proposed location*
to nearest well, drilling, completed,
applied for, on this lease, ft. 50'

19. Proposed Depth
TVD 7,701'
MD 13,858'

20. BLM/ BIA Bond No. on file
BLM- 6645840 / BIA 6645839

21. Elevations (Show whether DF, RT, GR, etc.)
7,227'

22. Approximate date work will start*
April 1, 2014

23. Estimated duration
45-60 Days drlg & compl.

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1 shall be attached to this form:

- Well plat certified by a registered surveyor
- A Drilling Plan.
- A Surface Use Plan (if the location is on National Forest System Lands, the SUPO shall be filed with the appropriate Forest Service Office).

- Bond to cover the operations unless covered by existing bond on file (see item 20 above).
- Operator certification.
- Such other site specific information and/ or plans as may be required by the authorized officer.

25. Signature
Daniel Manus
Title
Regulatory Technician

Name (Printed/ Typed)
Daniel Manus

Date
November 29, 2012

Approved By (Signature)
AFM
Title
AFM

Name (Printed/ Typed)
Office
FFO

Date
2/28/13

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

* (Instructions on page 2)

MAY 16 2013 ca

NMOCD A

This action is subject to technical and procedural review pursuant to 43 CFR 3165.4 and appeal pursuant to 43 CFR 3165.4

DRILLING OPERATIONS AUTHORIZED ARE SUBJECT TO COMPLIANCE WITH ATTACHED "GENERAL REQUIREMENTS".

A COMPLETE C-144 MUST BE SUBMITTED TO AND APPROVED BY THE NMOCD FOR: A PIT, CLOSED LOOP SYSTEM, BELOW GRADE TANK, OR PROPOSED ALTERNATIVE METHOD, PURSUANT TO NMOCD PART 19.15.17, PRIOR TO THE USE OR CONSTRUCTION OF THE ABOVE APPLICATIONS.

BLM'S APPROVAL OR ACCEPTANCE OF THIS ACTION DOES NOT RELIEVE THE LESSEE AND OPERATOR FROM OBTAINING ANY OTHER AUTHORIZATION REQUIRED FOR OPERATIONS ON FEDERAL AND INDIAN LANDS

and "As Drilled" plat

for Directional Survey and "As Drilled" plat

NOTIFY AZTEC OCD-24-HRS
PRIOR TO CASING & CEMENT

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

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

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NOV 16 2012

Farmington Field Office
Bureau of Land Management
AMENDED REPORT

Form C-10

Revised August 1, 201

Submit one copy to
appropriate

District Office

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-039-31157	² Pool Code 97232	³ Pool Name BASIN MANCOS
⁴ Property Code 20469 22864	⁵ Property Name JICARILLA 464-30	⁶ Well Number 724B
⁷ OGRID No. 013925	⁸ Operator Name BLACK HILLS GAS RESOURCES	⁹ Elevation 7227'

¹⁰ Surface Location

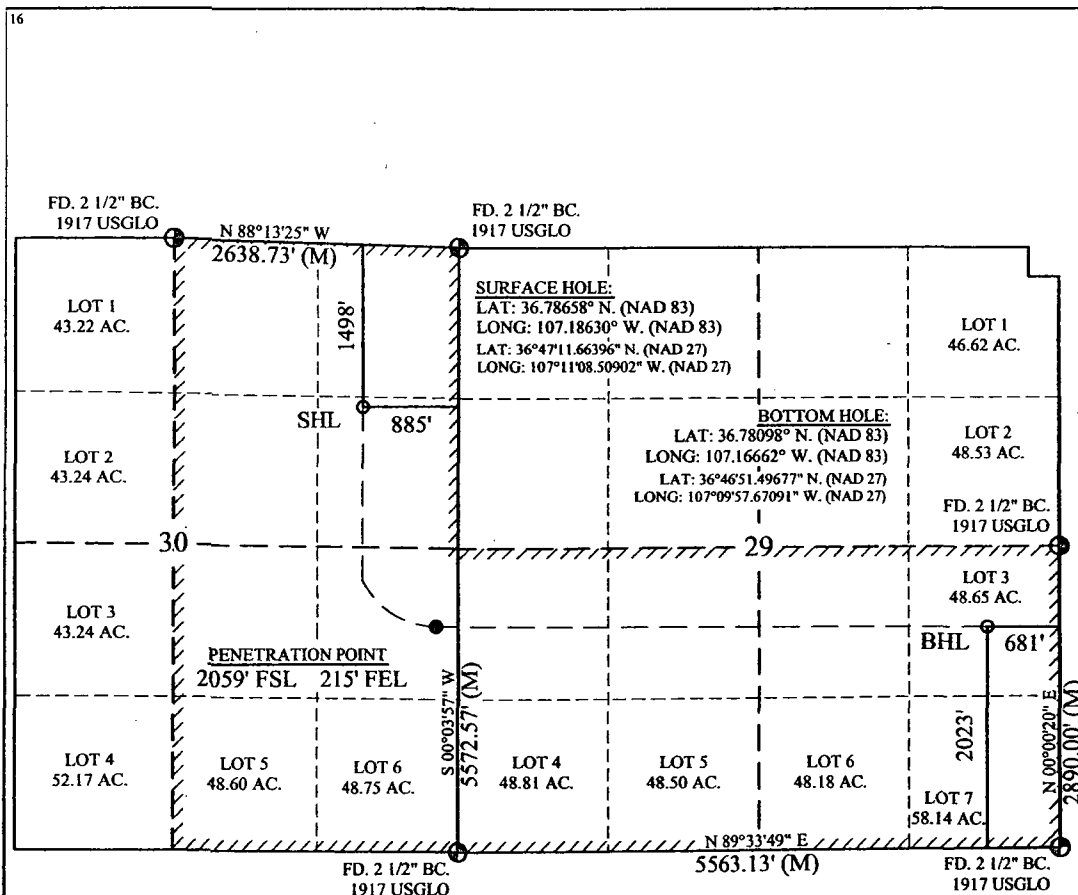
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
H	30	30-N	3-W		1498	NORTH	885	EAST	RIO ARRIBA

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
I	29	30-N	3-W		2023	SOUTH	681	EAST	RIO ARRIBA

¹² Dedicated Acres 3735.340 ACRES, E/2 SEC. 30 372.1859 ACRES, S/2 SEC. 29	¹³ Joint or Infill 709.63 total acres	¹⁴ Consolidation Code	¹⁵ Order No. R-13449
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No allowable will be assigned to this completion until all interest have been consolidated or a non-standard unit has been approved by the division.



NOTE:
DEDICATED ACREAGE CALCULATED
USING GOVERNMENT GLO PLAT.

APPROXIMATE BOTTOM HOLE
BHL FOOTAGES ARE APPROXIMATE
AND PROVIDED BY BHGR
CLIENT

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.

Signature

Date

Printed Name

E-mail Address

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.

SEPTEMBER 28 2011

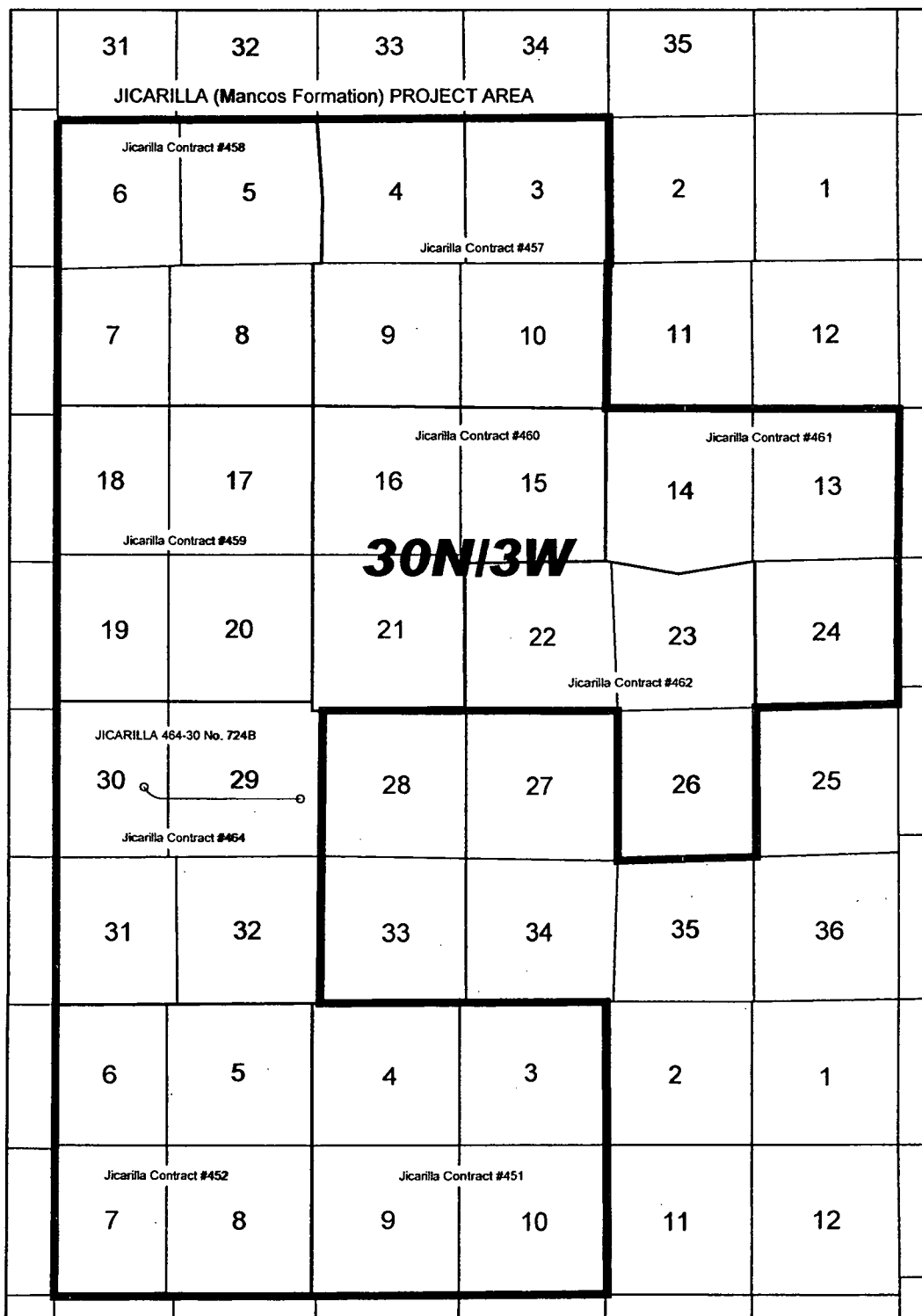
Date of Survey

Signature and Seal of

Registered Professional Land Surveyor

Certificate Number

**BLACK HILLS GAS RESOURCES
JICARILLA (MANCOS FORMATION) PROJECT AREA
JICARILLA 464-30 No. 724B
EXHIBIT "A"
EAST BLANCO FIELD - SAN JUAN BASIN
RIO ARRIBA COUNTY, NEW MEXICO**



JICARILLA (Mancos Formation) PROJECT AREA



ORDER # R-13449

REVISION'S		REV. BY	DATE
 Daggett Enterprises, Inc. Surveying and Oil Field Services P. O. Box 510 Farmington, NM 87499 Phone (505) 326-1772 Fax (505) 326-6019 REGISTERED LAND SURVEYOR NEW MEXICO No. 8894			
PAGE 1 OF 1		CADFILE: MN602 PRJ AREA	
DRAWN BY: CV	DATE: 8/2/12	DATE: 8/2/12	DATE: 8/2/12



Job ID : 11xxx

Elevation (To MSL) : 7226 ft

Company : Black Hills Gas Resources RKB : 20 ft

Lease/Well : Jicarilla 464-30 #724B North Reference : True North

Location : Rio Arriba County, NM

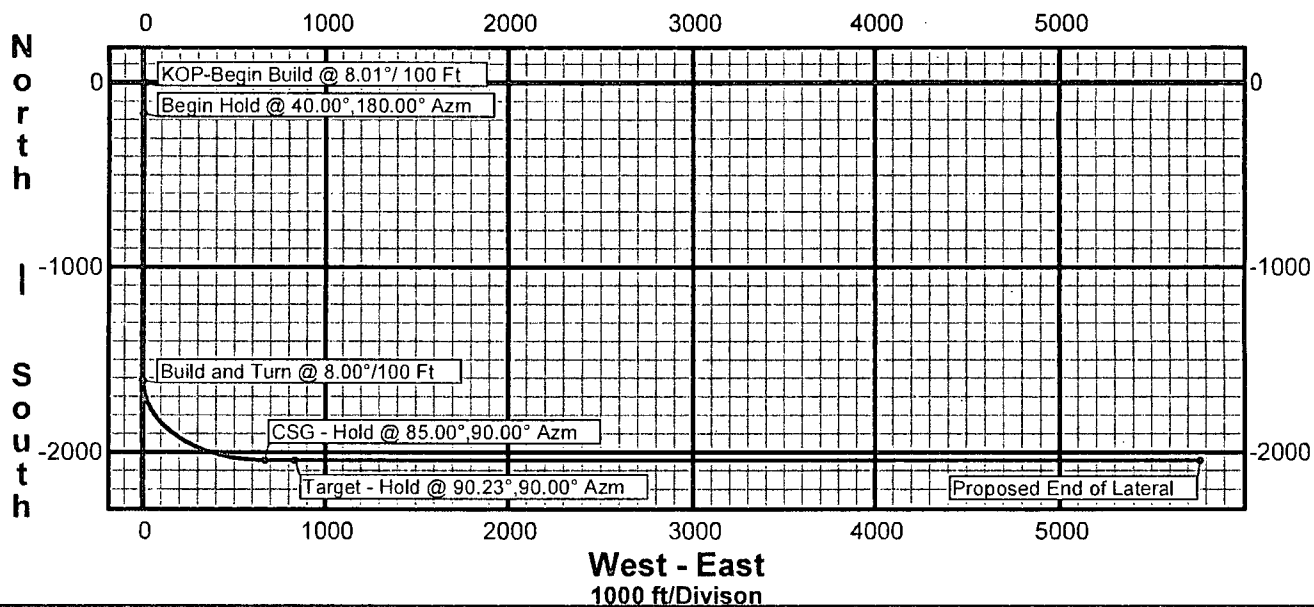
Latitude : 36°47'11.1840" N

Rig Name :

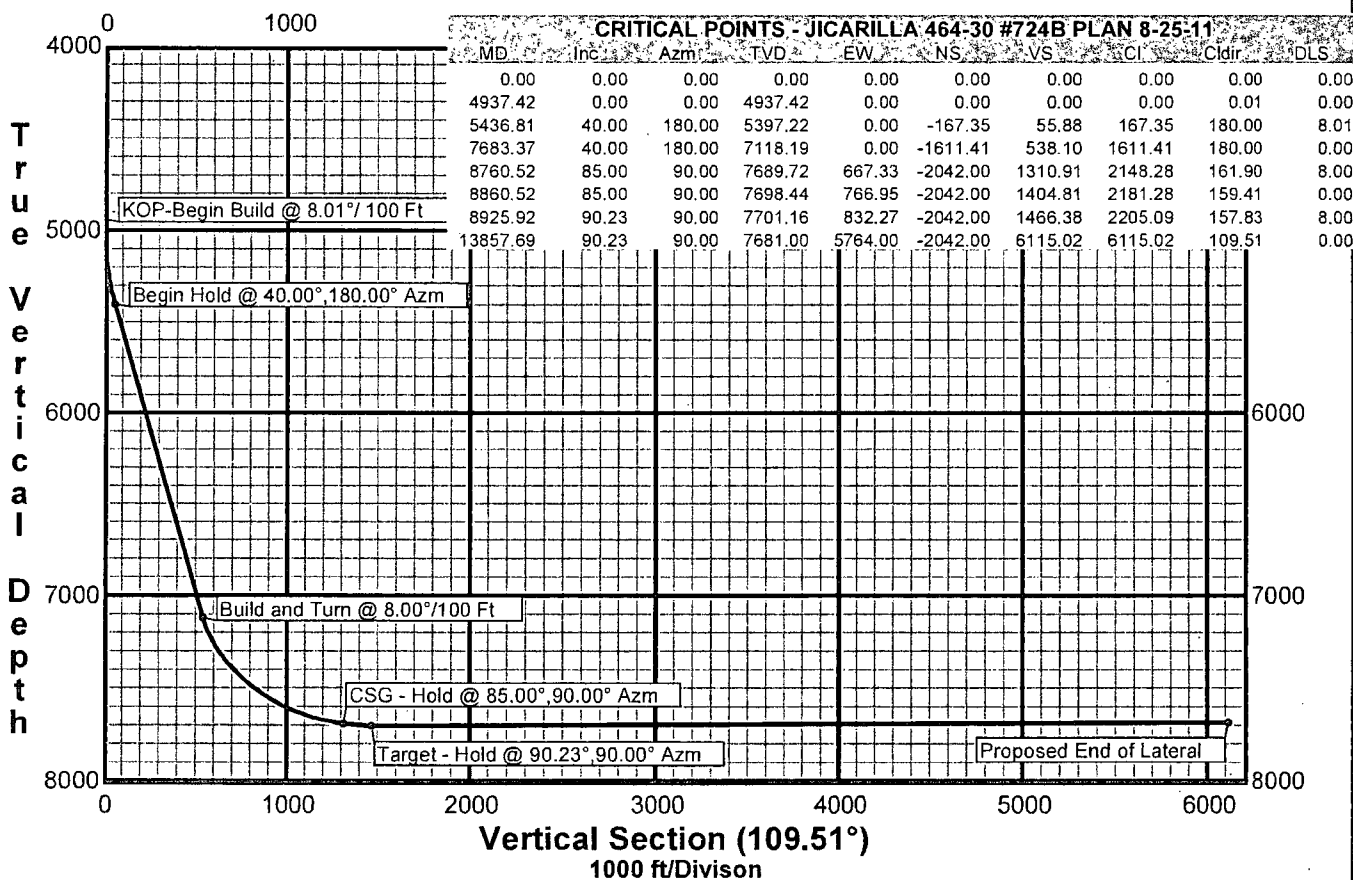
Longitude : -107°11'11.0400" W



Horizontal Plot



Vertical Section Plot





Job Number: 11xxx
Company: Black Hills Gas Resources
Lease/Well: Jicarilla 464-30 #724B
Location: Rio Arriba County, NM
Rig Name:
State/County: NM/ Rio Arriba
Country: USA
API Number:

Elevation (To MSL): 7226.00 ft
RKB: 20.00 ft
Projection System: US State Plane 1983
Projection Group: New Mexico Central Zone
Projection Datum: GRS80
Magnetic Declination: 9.64
Grid Convergence: -0.56078 W
Date: Thursday, August 25, 2011

NOVA Directional, Inc.
Directional Survey Report

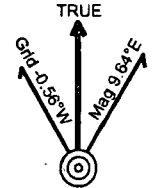
Calculated by HawkEye Software
 Minimum Curvature Method
 Vertical Section Plane 109.51°

Northing: 2106890.49 **Easting:** 1366218.53

Latitude: 36°47'11.1840" N **Longitude:** -107°11'11.0400" W

Well Location: 1550 FNL, 920 FEL, Section 30, T30N, R3W, Meridian 23, Rio Arriba County, NM

Direction Reference: True North



Measured Depth (Ft)	INC Deg	AZM Deg	TVD (Ft)	NS (Ft)	EW (Ft)	VS (Ft)	Closure (Ft)	Closure Dir Deg	DLS °/100Ft
Surface									
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
1000.00	0.00	0.00	1000.00	0.00	0.00	0.00	0.00	0.00	0.00
1500.00	0.00	0.00	1500.00	0.00	0.00	0.00	0.00	0.04	0.00
2000.00	0.00	0.00	2000.00	0.00	0.00	0.00	0.00	0.03	0.00
2500.00	0.00	0.00	2500.00	0.00	0.00	0.00	0.00	0.03	0.00
3000.00	0.00	0.00	3000.00	0.00	0.00	0.00	0.00	0.02	0.00
3500.00	0.00	0.00	3500.00	0.00	0.00	0.00	0.00	0.02	0.00
4000.00	0.00	0.00	4000.00	0.00	0.00	0.00	0.00	0.02	0.00
4500.00	0.00	0.00	4500.00	0.00	0.00	0.00	0.00	0.01	0.00
KOP-Begin Build @ 8.01°/ 100 Ft									
4937.42	0.00	0.00	4937.42	0.00	0.00	0.00	0.00	0.01	0.00
4967.42	2.40	180.00	4967.41	-0.63	0.00	0.21	0.63	180.00	8.01
4997.42	4.81	180.00	4997.35	-2.51	0.00	0.84	2.51	180.00	8.01
5027.42	7.21	180.00	5027.18	-5.65	0.00	1.89	5.65	180.00	8.01
5057.42	9.61	180.00	5056.86	-10.04	0.00	3.35	10.04	180.00	8.01
5087.42	12.01	180.00	5086.33	-15.66	0.00	5.23	15.66	180.00	8.01
5117.42	14.42	180.00	5115.53	-22.52	0.00	7.52	22.52	180.00	8.01
5147.42	16.82	180.00	5144.41	-30.60	0.00	10.22	30.60	180.00	8.01
5177.42	19.22	180.00	5172.94	-39.88	0.00	13.32	39.88	180.00	8.01
5207.42	21.63	180.00	5201.05	-50.35	0.00	16.81	50.35	180.00	8.01
5237.42	24.03	180.00	5228.70	-61.99	0.00	20.70	61.99	180.00	8.01
5267.42	26.43	180.00	5255.84	-74.78	0.00	24.97	74.78	180.00	8.01
5297.42	28.84	180.00	5282.41	-88.69	0.00	29.62	88.69	180.00	8.01
5327.42	31.24	180.00	5308.39	-103.71	0.00	34.63	103.71	180.00	8.01
5357.42	33.64	180.00	5333.70	-119.80	0.00	40.00	119.80	180.00	8.01
5387.42	36.04	180.00	5358.32	-136.94	0.00	45.73	136.94	180.00	8.01
5417.42	38.45	180.00	5382.20	-155.09	0.00	51.79	155.09	180.00	8.01
Begin Hold @ 40.00°,180.00° Azm									
5436.81	40.00	180.00	5397.22	-167.35	0.00	55.88	167.35	180.00	8.01
5936.81	40.00	180.00	5780.24	-488.74	0.00	163.21	488.74	180.00	0.00
6436.81	40.00	180.00	6163.26	-810.14	0.00	270.53	810.14	180.00	0.00
6936.81	40.00	180.00	6546.29	-1131.53	0.00	377.85	1131.53	180.00	0.00
7436.81	40.00	180.00	6929.31	-1452.93	0.00	485.18	1452.93	180.00	0.00
Build and Turn @ 8.00°/100 Ft									
7683.37	40.00	180.00	7118.19	-1611.41	0.00	538.10	1611.41	180.00	0.00
7713.37	39.93	176.26	7141.18	-1630.66	0.63	545.12	1630.66	179.98	8.00
7743.37	39.97	172.53	7164.18	-1649.83	2.51	553.29	1649.83	179.91	8.00
7773.37	40.14	168.81	7187.15	-1668.87	5.64	562.61	1668.88	179.81	8.00

Measured Depth (Ft)	INC Deg	AZM Deg	TVD (Ft)	NS (Ft)	EW (Ft)	VS (Ft)	Closure (Ft)	Closure Dir Deg	DLS %/100Ft
7803.37	40.42	165.12	7210.04	-1687.75	10.01	573.03	1687.78	179.66	8.00
7833.37	40.82	161.48	7232.82	-1706.45	15.63	584.57	1706.52	179.48	8.00
7863.37	41.33	157.91	7255.44	-1724.93	22.47	597.19	1725.08	179.25	8.00
7893.37	41.95	154.42	7277.86	-1743.15	30.52	610.86	1743.42	179.00	8.00
7923.37	42.67	151.02	7300.05	-1761.10	39.77	625.58	1761.55	178.71	8.00
7953.37	43.49	147.72	7321.97	-1778.72	50.21	641.30	1779.43	178.38	8.00
7983.37	44.40	144.52	7343.57	-1796.00	61.82	658.01	1797.06	178.03	8.00
8013.37	45.40	141.43	7364.82	-1812.89	74.58	675.68	1814.42	177.64	8.00
8043.37	46.47	138.44	7385.69	-1829.38	88.45	694.26	1831.52	177.23	8.00
8073.37	47.63	135.57	7406.13	-1845.44	103.42	713.74	1848.34	176.79	8.00
8103.37	48.85	132.80	7426.12	-1861.03	119.47	734.07	1864.86	176.33	8.00
8133.37	50.14	130.13	7445.60	-1876.13	136.56	755.22	1881.09	175.84	8.00
8163.37	51.48	127.57	7464.56	-1890.70	154.67	777.16	1897.02	175.32	8.00
8193.37	52.88	125.10	7482.96	-1904.74	173.76	799.84	1912.65	174.79	8.00
8223.37	54.33	122.72	7500.76	-1918.20	193.81	823.23	1927.97	174.23	8.00
8253.37	55.82	120.43	7517.93	-1931.07	214.76	847.28	1942.98	173.65	8.00
8283.37	57.36	118.22	7534.46	-1943.34	236.59	871.96	1957.69	173.06	8.00
8313.37	58.93	116.08	7550.29	-1954.96	259.27	897.21	1972.08	172.45	8.00
8343.37	60.53	114.02	7565.41	-1965.92	282.74	922.99	1986.15	171.82	8.00
8373.37	62.17	112.02	7579.79	-1976.21	306.97	949.27	1999.91	171.17	8.00
8403.37	63.84	110.08	7593.41	-1985.81	331.92	975.99	2013.36	170.51	8.00
8433.37	65.53	108.19	7606.25	-1994.69	357.53	1003.10	2026.48	169.84	8.00
8463.37	67.24	106.36	7618.26	-2002.85	383.78	1030.57	2039.29	169.15	8.00
8493.37	68.97	104.57	7629.46	-2010.27	410.60	1058.33	2051.77	168.46	8.00
8523.37	70.72	102.82	7639.79	-2016.94	437.97	1086.35	2063.94	167.75	8.00
8553.37	72.49	101.11	7649.25	-2022.83	465.81	1114.56	2075.77	167.03	8.00
8583.37	74.27	99.43	7657.83	-2027.96	494.10	1142.94	2087.28	166.31	8.00
8613.37	76.07	97.78	7665.51	-2032.30	522.77	1171.41	2098.46	165.57	8.00
8643.37	77.87	96.16	7672.27	-2035.84	551.78	1199.94	2109.29	164.84	8.00
8673.37	79.69	94.56	7678.11	-2038.59	581.07	1228.47	2119.78	164.09	8.00
8703.37	81.51	92.98	7683.01	-2040.53	610.61	1256.96	2129.93	163.34	8.00
8733.37	83.34	91.41	7686.96	-2041.67	640.32	1285.34	2139.73	162.59	8.00
CSG - Hold @ 85.00°, 90.00° Azm									
8760.52	85.00	90.00	7689.72	-2042.00	667.33	1310.91	2148.28	161.90	8.00
Begin Build @ 8.00' / 100 Ft									
8860.52	85.00	90.00	7698.44	-2042.00	766.95	1404.81	2181.28	159.41	0.00
8890.52	87.40	90.00	7700.43	-2042.00	796.88	1433.03	2191.98	158.68	8.00
8920.52	89.80	90.00	7701.16	-2042.00	826.87	1461.29	2203.06	157.96	8.00
Target - Hold @ 90.23°, 90.00° Azm									
8925.92	90.23	90.00	7701.16	-2042.00	832.27	1466.38	2205.09	157.83	8.00
9425.92	90.23	90.00	7699.12	-2042.00	1332.27	1937.68	2438.17	146.88	0.00
9925.92	90.23	90.00	7697.07	-2042.00	1832.26	2408.97	2743.53	138.10	0.00
10425.92	90.23	90.00	7695.03	-2042.00	2332.26	2880.27	3099.87	131.20	0.00
10925.92	90.23	90.00	7692.99	-2042.00	2832.25	3351.56	3491.62	125.79	0.00
11425.92	90.23	90.00	7690.94	-2042.00	3332.25	3822.86	3908.15	121.50	0.00
11925.92	90.23	90.00	7688.90	-2042.00	3832.24	4294.15	4342.33	118.05	0.00
12425.92	90.23	90.00	7686.85	-2042.00	4332.24	4765.45	4789.37	115.24	0.00
12925.92	90.23	90.00	7684.81	-2042.00	4832.24	5236.74	5245.98	112.91	0.00
13425.92	90.23	90.00	7682.77	-2042.00	5332.23	5708.04	5709.86	110.95	0.00
Proposed End of Lateral									
13857.69	90.23	90.00	7681.00	-2042.00	5764.00	6115.02	6115.02	109.51	0.00
TARGET DATA									
Name	Shape	Latitude	Longitude	Subsea TVD (Ft)	NS (Ft)	EW (Ft)	Side A (Ft)	Side B (Ft)	Diameter (Ft)
jic724B BHL	CYLINDER	36°46'50.9870" N	-107°10'0.1866" W	435.00	-2042.00	5764.00	100.00	100.00	100.00



Black Hills Gas Resources

Jicarilla 464-30 #724B

Surface Location: 1,498' FNL 885' FEL (SE/NE)

Sec.30 T30N R3W

Bottom Hole Location: 2,023' FSL 681' FEL (NE/SE)

Sec. 29 T30N R3W

Rio Arriba County, New Mexico

Lease: ~~Contract~~ 464

DRILLING PROGRAM

This Application for Permit to Drill (APD) was initiated under the NOS process as stated in Onshore Order No. 1 and supporting Bureau of Land Management (BLM) documents. This NOS process includes an onsite meeting which was held on October 26, 2011 as determined by Bureau of Indian Affairs (BIA) and Jicarilla Oil & Gas Administration (JOGA) and at which time the specific concerns of Black Hills Gas Resources (BHGR), BIA, and JOGA were discussed.

SURFACE FORMATION – San Jose

GROUND ELEVATION – 7,227'

ESTIMATED FORMATION TOPS - (Water, oil, gas and/or other mineral-bearing formations)

San Jose	Surface	Sandstone, shales & siltstones
Nacimiento	2,031'	Sandstone, shales & siltstones
Ojo Alamo	3,304'	Sandstone, shales & siltstones
Fruitland Coal	3,769'	Sandstone, shales, siltstones & coal
Pictured Cliffs	3,819'	Sandstone, shales & siltstones
Lewis	3,916'	Sandstone, shales & siltstones
Mesaverde	5,948'	Sandstone, shales & siltstones
Mancos	7,103'	Sandstone, shales & siltstones
Lower Niobrara	8,552'	Sandstone, shales & silstones

TOTAL DEPTH **7,701' TVD**
 13,858' MD

Estimated depths of anticipated fresh water, oil, or gas:

Nacimiento	2,031'	Gas, water, sand
Ojo Alamo	3,304'	Gas, water, sand
Fruitland Coal	3,769'	Gas, water, sand
Pictured Cliffs	3,819'	Gas, water, sand
Lewis	3,916'	Gas, water, sand
Mesaverde	5,948'	Gas, water, sand
Mancos	7,103'	Gas, water, sand

HORIZONTAL DRILLING PROGRAMKick-Off Point is estimated to be $\pm 4,937'$ TVD**CASING PROGRAM**

Depth	Hole Diameter	Casing Diameter	Casing Weight and Grade	Cement
0' - 600'MD	17 1/2"	13 3/8"	54.5# J-55	Surface 20bbl H ₂ O flush followed by ± 618 sk/s Premium cmt (126bbbls) w/ 0.125 lbm/sk/s Poly-E-Fake & 1% CaCl. Displace w/ ± 70 bbbls H ₂ O Yield 1.16 ft ³ /sk/s : wt 15.80 lbm/gal
0' - 4,937'MD	12 1/4"	9 5/8"	40# L-80 HC	Intermediate Lead: 20bbl H ₂ O flush, 20bbl SUPER FLUSH 101, 20bbl H ₂ O Spacer, followed w/ 1404sk/s of Light Premium w/ 5 lbm/sk/s Gilsonite, 0.125 lbm/sk/s Poly-E- Fake. Yield 1.82ft ³ /sk/s : wt. 12.50 lbm/gal. Tail: 180sk/s Premium w/ 0.125 lbm/sk/s Poly-E-Flake, 0.2% Halad®-9. Slurry yield 1.15ft ³ /sk/s : wt 15.80 lbm/gal, Displace w/ 375 bbls H ₂ O.
3370' - 8,761'MD	8 3/4"	7"	23# L-80 HC	Liner 40bbl Tuned SPACER (12 lbm/gal) w/ 0.1gal/bbl Musol, 0.1gal/bbl SEM-7, 175.4 lbm/bbl Barite 690sk/s HALCEM Premium w/ 0.4% Halad®-334, 2.5 lbm/sk/s Kol-seal, 0.3% D-Air 3000, 0.05% HR-5, Yield 1.31ft ³ /sk/s : wt 13.5 lbm/gal. Displace cmt w/ OBM (9 lbm/gal) 217bbl
0' - 13,858' MD	6 1/4"	4 1/2"	11.6# P-110	Long String Cement 40bbl Turned Spacer III, .05gal/bbl Musol A, 0.5 gal/bbl SEM-7, 291 lbm/bbl Barite, 375bbl WBM (13.5 lbm/gal) (displace out OBM), 10bbl Tuned Spacer III (14lbm/gal), 0.5gal/bbl SEM-7, 0.5gal/bbl Musol A, 291 lbm/bbl Darite Unfoamed Lead: 75sk/s Type V cmt, 0.2% Halad®-766, 0.3% Halad®-344. Slurry yield 1.18ft ³ /sk/s : wt 15.6 lbm/gal Foamed Lead: 655sk/s Type V cmt, 0.2% Halad®-766, 0.3% Halad®-344, 2% Chem-foamer 760. Yield 1.18ft ³ /sk/s : wt 15.6 lbm/gal Foamed Tail: 447sk/s 50/50 Poz cmt, 0.2% Versaset, 0.15% Halad®-766, 25 Chem-foamed 760. Yield 1.43ft ³ /sk/s : wt 13 lbm/gal Unfoamed Tail: 58sk/s 50/50 Poz cmt, 0.2 % Versaset, 0.15% Halad®-766. Yield 1.43ft ³ : wt 13 lbm/gal, Displace cmt w/ 293bbl H ₂ O

* Actual cement volume to be determined by caliper log.

All fresh water and prospectively valuable minerals encountered during drilling will be recorded by depth and protected.

PRESSURE CONTROL

BOPs and choke manifold will be installed and pressure tested before drilling out under surface casing (subsequent pressure test will be performed whenever pressure seals are broken), and then will be checked daily as to mechanical operating condition. BOP's will be pressure tested at least once every 30 days. Ram type preventers and associated equipment to be isolated from casing by test plug and tested to 5,000psi for 10 minutes. Annular type preventer will be pressure tested to 50% of the rated working pressure. All casing strings will be pressure tested to 0.22 psi/ft. or 1,500 psi, whichever is greater, not to exceed 70% of internal yield.

BOP to be both double gate rams and an annular preventer as per Onshore Order No. 2 for a 5M system.

Statement on Accumulator System and Location of Hydraulic Controls

The drilling rig has not yet been selected for this well. Selection will take place after approval of this application. Manual and/or hydraulic controls will be in compliance with Onshore Order No. 2 for 5M systems.

A remote accumulator will be used. Pressures, capacities, location of remote hydraulic and manual controls will be identified at the time of the BLM supervised BOP test.

MUD PROGRAM

	Interval to	Type	M.W.	Vis	W.L.	Sld's
Surface	0' -600'	Fresh Water / Spud Mud	±8.4 - 9.0 ppg	28 - 32 sec	n/c	1 - 5%
Intermidate	600' MD – 4,937' MD	Low solids non-dispersed	±9.0 - 10.2 ppg	40 - 50 sec	≥ 6 - 8 cc	≥ 6%
Liner	3,370' MD – 8,760' MD	Low solids non-dispersed Raise as deviation rises	±10.5 - 11.9 ppg	40 - 50 sec	≥ 4 - 6 cc	≥ 6%
BIC to TD of Lateral	8,760' MD – 13,858' MD	Invert OBM Recommend 12.5 ppg	±12.3 - 13.6 ppg	28 - 32 sec	n/c	1 - 2%

Sufficient mud materials to maintain mud properties, control lost circulation and to contain “kick” will be available at well site.

AUXILIARY EQUIPMENT

- A) A Kelly cock will be kept in the drill string at all times
- B) Inside BOP or stab-in valve (available on rig floor)
- C) Mud monitoring will be visually observed

LOGGING, CORING, TESTING PROGRAM

- A) Logging: Mud log 2-Man Unit 4500' to 13,858'
Lateral MWD/GR 8760' to 13,858'
Measurement while drilling-GR
- B) Coring: None
- C) Testing: DST – None anticipated. Drill stem tests may be run on shows of interest
Manned mudlogging unit from 4000' to 18060'
Samples 100 ft samples from 700' to 4200'
30 ft samples from 4200' to 7100'
10 ft samples from 7100' to 8760'
10 ft samples from 8760' to 13,858'

ABNORMAL CONDITIONS

- A) Pressures: No abnormal conditions are anticipated
Bottom hole pressure gradient – 0.62 psi/ft
- B) Temperatures: No abnormal conditions are anticipated
- C) H₂S: See attached H₂S plan in event H₂S is encountered.
- D) Estimated bottomhole pressure: 4,698 psi

ANTICIPATED START DATE

April 1, 2014

COMPLETION

The location pad will be of sufficient size to accommodate all completion activities and equipment. BHGR plans to complete the well as follows: Perforate and perform multi-stage slickwater frac in lateral section using plug & perf method for each stage. Perforation intervals and frac volumes will be determined once well logs are run. A sundry notice will be submitted with a revised completion program if warranted.



Black Hills Gas Resources

Jicarilla 464-30 #724B
1,498' FNL 885' FEL (SE/NE) Unit H
Sec.30 T30N R3W
Rio Arriba County, New Mexico
Lease: ~~Contract~~ 464
JTC

SURFACE USE PLAN

INTRODUCTION:

The new proposed natural gas well, Jicarilla 464-30 #724B, will be co-located 15 feet and will utilize the existing well pad the existing Jicarilla 464-30 #724 well pad.

1) EXISTING ROADS:

- A) The existing access roads are shown on the attached maps/plat. The established roads will be utilized during drilling and production operations.
- B) Existing roads will be maintained in conditions equal to or better than those existing prior to the commencement of operations. Maintenance of the roads used to access the drill site location will continue until abandonment and reclamation of the well.
- C) ***Directions to location: From Bloomfield, New Mexico, travel approximately 50.4 miles east on Highway 64 to J-10 Road. Turn left (North) on J-10 Road and travel for approximately 3 miles. Turn left to the existing well-pad. (See 'Access to Jicarilla 464-30 #724B' Map)***

2) PROPOSED ACCESS ROADS

- A) There will be no new or proposed access road. The existing access road to the Jicarilla 464-30 #724 well pad will be utilized. Maintenance for the existing access road is explained above.
- B) In an effort to minimize disturbance, equipment and vehicles will be confined to travel these corridors.
- C) Dust will be controlled on the roads and locations during construction and drilling by approved periodic dust mitigation measures.

3) LOCATION OF EXISTING WELLS

Within a 1-mile radius (See attached 'Jicarilla 459-19 #724C One Mile Map')

Abandoned	See Table 1
Disposal injection	See Table 1
Shut-In	See Table 1
Producing	See Table 1

4) LOCATION OF EXISTING AND/OR PROPOSED PRODUCTION FACILITIES

- A) Existing production facilities for the Jicarilla 464-30 #724 well include meter, above ground 95bbl pit tank, and separator; all will be removed before the drilling commences.
- B) The existing pipeline right-of-way to be utilized which include, approximately 200', alongside the existing access road and will tie into Black Hills high pressure gathering line. The pipelines will consist of; one 12" steel pipe for gas, two 8" poly-urethane pipe; one for disposal of produce water and the other for transporting water to location for drilling and completing the well.
- C) Proposed production facilities shall be located and arranged to facilitate safety and maximize interim reclamation opportunities, e.g. located at the access road end of the pad. As practical, access to production facilities will be provided by a teardrop-shaped road through the production area, so that the driving area may be clearly defined and limited and so that the teardrop center may be revegetated.
- D) Surface equipment will be painted a flat, non-reflective color as determined by the BLM.
- E) Should drilling result in established commercial production the following will be shown:
 - 1. Proposed location and attendant lines, by flagging, if off well pad.
 - 2. Dimensions of facilities.

5000 psi System

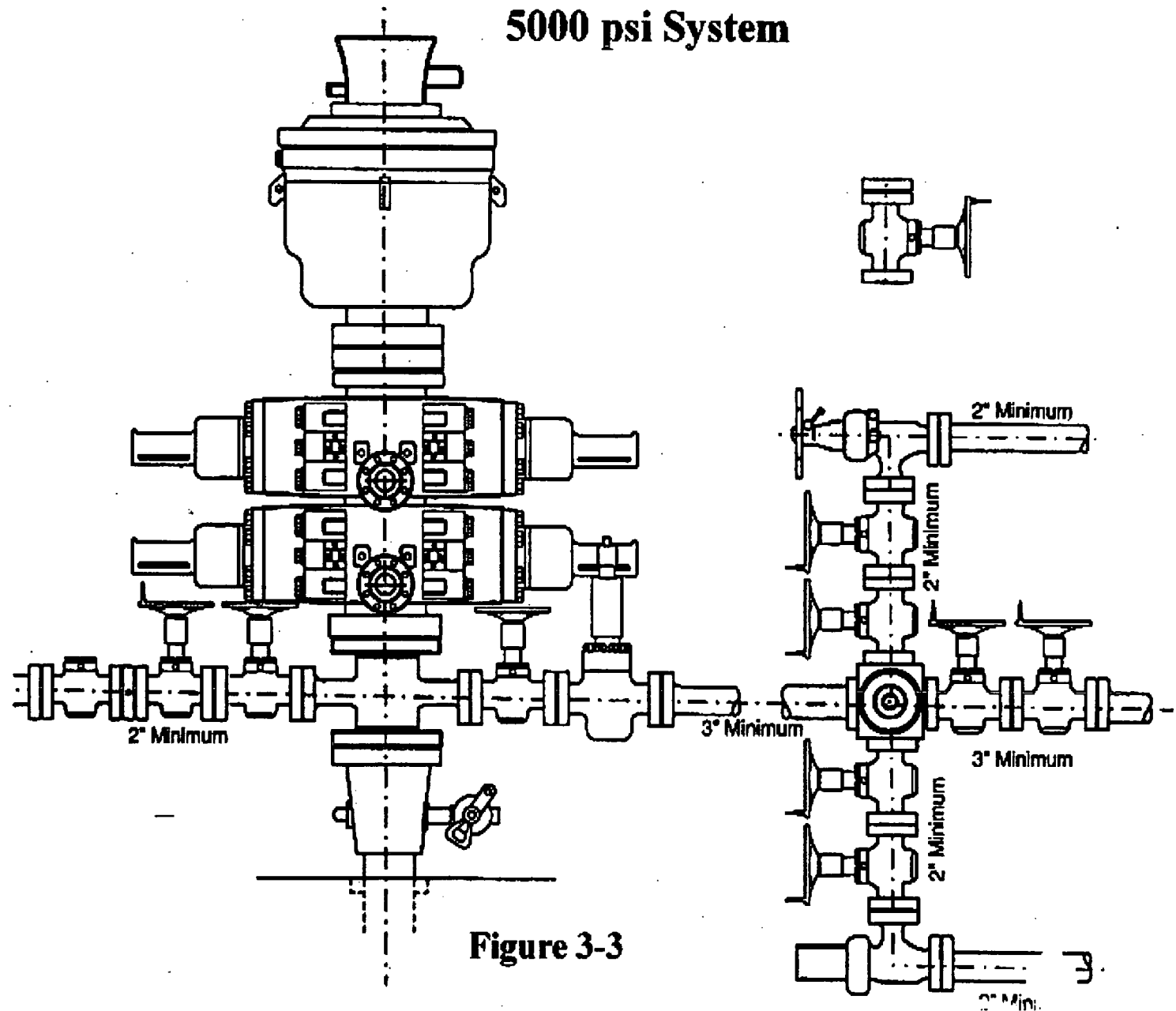


Figure 3-3