ATS-12-982

HOBBS OCD

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SECRETARY'S POTASH

Form 3160-3
(April 2004)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OCD Hobbs

FORM APPROVED
OMB No 1004-0137
Expires March 31, 2007

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work ☑ DRILL ☐ REENTER	5 Lease Serial No. LCNM 070315 (Surface and BHL)
	6 If Indian, Allotee or Tribe Name
	7 If Unit or CA Agreement, Name and No
1b. Type of Well. ☑ Oil Well ☐ Gas Well ☐ Other ☑ Single Zone ☐ Multiple Zone	8 Lease Name and Well No Pterodactyl 21 Fed 1H <39502>
2. Name of Operator BOPCO, L. P. <260737>	9 API Well No 30-025-40823
3a Address P. O. Box 2760 Midland, TX 79702	3b Phone No. (include area code) 432-683-2277
	10 Field and Pool, or Exploratory Lea, Bone Spring <37580>
4. Location of Well (Report location clearly and in accordance with any State requirements *) At surface NENE,UL A, 190' FNL & 145' FEL, Lat:N32.565214, Long:W103.556642 At proposed prod zone NWNW, UL D, 660' FNL & 330' FWL, Sec 21, T20S-R34E	11. Sec., T R. M or Blk. and Survey or Area Sec 21, T20S-R34E
14 Distance in miles and direction from nearest town or post office* NON-STANDARD LOCATION 26 miles SW (Hobbs NM)	12 County or Parish Lea / 13 State NM

15 Distance from proposed* location to nearest property or lease line, ft (Also to nearest drig unit line, if any) 145'	16 No of acres in lease 640	17 Spacing Unit dedicated to this well 160
18 Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 450'	19 Proposed Depth 15,594' MD\10,986' TVD	20 BLM/BIA Bond No. on file COB 000050
21 Elevations (Show whether DF, KDB, RT, GL, etc) 3,644' GL	22 Approximate date work will start* 01/01/2013	23 Estimated duration 50 Days

24. Attachments

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

1. Well plat certified by a registered surveyor
2. A Drilling Plan.
3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO shall be filed with the appropriate Forest Service Office)
4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification
6. Such other site specific information and/or plans as may be required by the authorized officer.

25 Signature Jeremy Braden	Name (Printed/Typed) Jeremy Braden	Date 7/16/12
Title Engineering Assistant		
Approved by (Signature) /s/ Jesse J. Juen	Name (Printed/Typed)	Date OCT 4 2012
Title STATE DIRECTOR	Office NM STATE OFFICE	

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. 10-17-2012

APPROVAL FOR TWO YEARS

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)

Capitan Controlled Water Basin

Approval Subject to General Requirements & Special Stipulations Attached

Conditions of Approval for Non-Standard Location Intents ot drill ONLY- **CANNOT produce** until the Non Standard Location has been approved by OCD Santa Fe Office

SEE ATTACHED FOR CONDITIONS OF APPROVAL

OCT 18 2012

See COA 1

Surface casing is to be set into the Rustler below all fresh water sands at an approximate depth of ~~1,595~~' and cement circulated to surface.

A Capitan Reef string will be set at an approximate depth of 3,865' and cement circulated to surface.

7" casing will be set at approximately 11,066' MD, 10,843' TVD (thru curve) and cemented in two stages with DV Tool set at approximately 7,500'. Cement will be circulated 500' above the top of the Capitan Reef.

Drilling procedure, BOP diagram, and anticipated tops are attached.

This well is located inside the the R111 Potash area and Secretary's Potash area.

The surface location is nonstandard.

The bottom hole location is nonstandard.

Surface Lease Numbers – LCNM 070315

Bottom Hole Lease Numbers – LCNM 070315

BOPCO, L.P., at P. O. Box 2760, Midland, TX, 79702 is a subsidiary of BOPCO, L.P., 201 Main Street, Ft. Worth, TX, 76102. Bond No. COB000050 (Nationwide).

EIGHT POINT DRILLING PROGRAM
BOPCO, L.P.

NAME OF WELL: Pterodactyl 21 Federal 1H
LEGAL DESCRIPTION - SURFACE: 190' FNL, 145' FEL, Section 21, T20S, R34E, Eddy County, NM.
BHL: 660' FNL, 330' FWL, Section 21, T20S, R34E, Eddy County, New Mexico.

POINT 1: ESTIMATED FORMATION TOPS (See No. 2 Below)

POINT 2: WATER, OIL, GAS AND/OR MINERAL BEARING FORMATIONS

Anticipated Formation Tops: KB 3,666' (estimated)
GL 3,644'

FORMATION (PILOT HOLE)	TOP EST FROM KB (TVD)	MD	SUB-SEA TOP	BEARING
Fresh Water	125'	125'	+ 3,541'	Fresh Water
Rustler	1,513'	1,513'	+ 2,153'	Barren
Salt	1,605'	1,605'	+ 2,061'	Barren
Base of Salt	3,523'	3,523'	+ 143'	Barren
Yates	3,576'	3,576'	+ 90'	Oil/Gas
Reef	3,915'	3,915'	- 249'	Fresh Water
Del Mtn Grp	5,553'	5,553'	- 1,887'	Oil/Gas
Bone Spring	8,319'	8,319'	- 4,653'	Oil/Gas
1st Bone Spring	9,447'	9,447'	- 5,781'	Oil/Gas
2nd Bone Spring	9,975'	9,978'	- 6,309'	Oil/Gas
3rd Bone Spring	10,661'	10,661'	- 6,995'	Oil/Gas
Wolfcamp	10,961'	10,961'	- 7,295'	Oil/Gas
TD Pilot Hole	11,111'	11,111'	- 7,445'	Oil/Gas

FORMATION (LATERAL HOLE)	TOP EST FROM KB (TVD)	MD	SUB-SEA TOP	BEARING
Est. KOP	10,269'	10,269'	- 6,603'	Oil/Gas
3rd Bone Spring	10,661'	10,724'	- 6,995'	Oil/Gas
EOC	10,931'	11,403'	- 7,265'	Oil/Gas
Lateral Target #1	10,931'	11,945'	- 7,265'	Oil/Gas
TD Horizontal Hole	10,986'	15,594'	- 7,320'	Oil/Gas

See COA

POINT 3: CASING PROGRAM

TYPE	INTERVALS	HOLE SIZE	PURPOSE	CONDITION
30"	0' – 60'	36"	Conductor	Contractor Design
20", 133 ppf, K-55 BT&C	0' – 1,595'	26"	Surface	New
13-3/8", 68 ppf, HCN-80, BT&C	0' – 3,865'	17-1/2"	Intermediate 1	New
9-5/8", 40 ppf, N-80, 8rd, LT&C	0' – 5,573'	12-1/4"	Intermediate 2	New
7", 26 ppf, N-80, Buttress or 8rd LTC*	0' – 8,000'	8-3/4"	Production	New
7", 26 ppf, P-110 or HCL-80, HCN-80, LT&C	8,000' – 11,066'	8-3/4"	Production	New
4-1/2", 11.6 ppf, HCP-110 8rd, LT&C	11,016' – 15,594'	6-1/8"	Completion System	New

*** Depending on availability**

CASING DESIGN SAFETY FACTORS:

TYPE	TENSION	COLLAPSE	BURST
20", 133 ppf, K-55, BT&C	11.64	1.91	1.53
13-3/8", 68 ppf, HCN-80 BT&C	7.01	1.34	2.68
9-5/8", 40#, N-80, 8rd, LT&C*	3.83	1.18	1.85
7", 26 ppf, N-80, Buttress*	3.37	1.23	1.62
7", 26 ppf, N-80, 8rd, LT&C***	2.89	1.18	1.62
7", 26 ppf, P-110, LT&C***	2.85	1.22	1.64
7", 26 ppf, HCL-80, LT&C***	2.22	1.53	1.20
7", 26 ppf, HCN-80, LT&C***	2.34	1.53	1.20

Completion System:

TYPE	TENSION	COLLAPSE	BURST
4-1/2", 11.6#, HCP-110 8rd, LT&C	2.54	1.31	1.74
4-1/2", 11.6#, HCP-110, BTC	3.34	1.43	1.74

*** Depending on availability.**

*****7", 26#, N-80, 8rd, LT&C casing will not be run deeper than 8,000'. The 7", 26#, P-110, LT&C or 7", 26#, HCL-80/N80 will be run from 8,000' to interval TVD.**

DESIGN CRITERIA AND CASING LOADING ASSUMPTIONS:

SURFACE CASING - (20")

Tension — A 1.6 design factor utilizing the effects of buoyancy (9.2 ppg).

Collapse — A 1.125 design factor with full internal evacuation and a collapse force equal to the mud gradient in which the casing will be run (0.48 psi/ft). The effects of axial load on collapse will be considered.

Burst — A 1.3 design factor with a surface pressure equal to the fracture gradient at setting depth less a gas gradient to the surface. Internal burst force at the shoe will be fracture pressure a that depth. Backup pressure will be formation pore pressure. In all cases a conservative fracture pressure will be used such that it represents the upper limit of potential fracture resistance up to a 1.0 psi/ft gradient. The effects of tension on burst will not be utilized.

PROTECTIVE CASING - (13-3/8")

Tension — A 1.6 design factor utilizing the effects of buoyancy (10.2 ppg).

Collapse — A 1.125 design factor with full internal evacuation and a collapse force equal to the mud gradient in which the casing will be run (0.52 psi/ft). The effects of axial load on collapse will be considered.

In the case of development drilling, collapse design should be analyzed using internal evacuation equal to 1/3 the proposed total depth of the well. This criterion will be used when there is absolutely no potential of the protective string being used as a production casing string.

Burst — A 1.0 surface design factor and a 1.3 downhole design factor with a surface pressure equivalent to the fracture gradient at setting depth less a gas gradient to the surface. Internal burst force at the shoe will be fracture pressure at that depth. Back pressure will be formation pore pressure. In all cases a conservative fracture pressure will be used such that it represents the upper limit of potential fracture resistance up to a 1.0 psi/ft gradient

PROTECTIVE CASING - (9-5/8")

Tension — A 1.6 design factor utilizing the effects of buoyancy (9.0 ppg).

Collapse — A 1.125 design factor with full internal evacuation and a collapse force equal to the mud gradient in which the casing will be run (0.52 psi/ft). The effects of axial load on collapse will be considered.

In the case of development drilling, collapse design should be analyzed using internal evacuation equal to 1/3 the proposed total depth of the well. This criterion will be used when there is absolutely no potential of the protective string being used as a production casing string.

Burst — A 1.0 surface design factor and a 1.3 downhole design factor with a surface pressure equivalent to the fracture gradient at setting depth less a gas gradient to the surface. Internal burst force at the shoe will be fracture pressure at that depth. Back pressure will be formation pore pressure. In all cases a conservative fracture pressure will be used such that it represents the upper limit of potential fracture resistance up to a 1.0 psi/ft gradient.

Production CASING - (7")

Tension — A 1.6 design factor utilizing the effects of buoyancy (9.0 ppg).

Collapse — A 1.0 design factor with full internal evacuation and a collapse force equal to the mud gradient in which the casing will be run (0.48 psi/ft). The effects of axial load on collapse will be considered.

Burst — A 1.125 design factor with anticipated maximum tubing pressure (5000 psig) on top of the maximum anticipated packer fluid gradient. (0.433 psi/ft) Backup on production strings will be formation pore pressure. (0.433 psi/ft) The effects of tension on burst will not be utilized.

Completion System - (4-1/2")

Tension — A 1.6 design factor utilizing the effects of buoyancy (9.0 ppg).

Collapse — A 1.0 design factor with full internal evacuation and a collapse force equal to the mud gradient in which the casing will be run (0.48 psi/ft). The effects of axial load on collapse will be considered.

Burst — A 1.125 design factor with anticipated maximum tubing pressure (5000 psig) on top of the maximum anticipated packer fluid gradient. (0.433 psi/ft) Backup on production strings will be formation pore pressure. (0.433 psi/ft) The effects of tension on burst will not be utilized.

POINT 4: PRESSURE CONTROL EQUIPMENT (SEE ATTACHED DIAGRAM 1 & 2) * See COA

The BOPE when rigged up on the 20" surface casing head (17-1/2" hole) will consist of 20" hydril and diverter system per Diagram B (2,000 psi WP). The hydril when installed on surface casing will be tested to 1,000 psi. There will be a 6", 5000 psi gate valve installed on the drilling spool for fill up. The choke manifold system will be rigged up to the hydraulic gate valve on the drilling spool.

The BOPE when rigged up on the 13-3/8" surface casing head (12-1/4" open hole) will consist of 13-5/8" X 5,000 psi dual ram BOP's with mud cross, choke manifold, chokes, and hydril per Diagram 1 (5,000 psi WP). The pipe and blind rams, choke, kill lines, kelly cocks, inside BOP, etc. when installed on the surface casing head will be hydro-tested to 250-300 psig and 2000 psig by independent tester. The hydril when installed on surface casing head will be tested to 1000 psi.

The BOPE when rigged up on the 9-5/8" intermediate casing spool (8-3/4" open hole) will consist of 13-5/8" x 5,000 psi annular, 13-5/8" x 5,000 psi pipe & blind rams with mud cross, choke manifold and chokes as in Diagram 1. The pipe and blind rams, choke, kill lines, kelly cocks inside BOP, etc. will be tested to 3000 psig by independent tester. In addition to the high pressure test, a low pressure (250-300 psig) test will be required. Hydril will be tested to 1500 psig.

The BOPE when rigged up on the 7" intermediate casing spool (6-1/8" open hole) will consist of 13-5/8" x 5,000 psi annular, 13-5/8" x 5,000 psi pipe & blind rams with mud cross choke manifold and chokes as in Diagram 1. The pipe and blind rams, choke, kelly lines, kelly cocks inside BOP, etc. will be tested to 3000 psig by independent tester. In addition to the high pressure test, a low pressure (250-300 psig) test will be required. Hydril will be tested to 1500 psig.

PRESSURE CONTROL EQUIPMENT (SEE ATTACHED DIAGRAM 1 & 2) Cont...

These tests will be performed:

a) Upon installation
b) After any component changes
c) Thirty days after a previous test
d) As required by well conditions

A function test to ensure that the preventers are operating correctly will be performed on each trip.

See COA

* See COA

BOPCO, L.P. would like to utilize an armored, 3.5", 5000 psi WP flex hose for the choke line in the drilling of the well. This is rig equipment and will help quicken nipple up time thus saving money without a safety problem. The hose itself is rated to 5000 psi ,and has 5000 psi flanges on each end. This well is to be drilled to 15,594' MD (10,986' TVD) and max surface pressure should be +/-5141 psi minus 0.22 psi/ft. (2,725 psi) as prescribed in onshore order #2. Thus, 2000 psi BOPE (for 12-1/4" hole) and 3000 psi BOPE (for 8-3/4" and 6-1/8" hole) is all that is needed for this well. **The flex hose information is attached along with diagram 2. The company man will have all the proper paper work on location.**

Please refer to diagram 2 for choke manifold and closed loop system layout.

POINT 5: MUD PROGRAM

DEPTH	MUD TYPE	WEIGHT	FV	PV	YP	FL	Ph
0' - 1,595'	FW Spud Mud	8.5 – 9.2	38-70	NC	NC	NC	10.0
1,595' - 3,865'	Brine Water	9.8 – 10.2	28-30	NC	NC	NC	9.5 – 10.5
3,865' - 11,066'	FW/Gel	8.7 – 9.0	28-36	NC	NC	NC	9.5 – 10.0
11,066' – 15,594'	FW/Gel/Starch	8.7 – 9.0	28-36 10-12 18-20	<20	9.5 – 10.0		

NOTE: May increase vis for logging purposes only.

POINT 6: TECHNICAL STAGES OF OPERATION

A) TESTING
None anticipated.

B) LOGGING * – See COA
Run #1: Platform Express: PEX/DSI, ECS, NGT, FMI

Run #2: CMI/GR/Caliper (possible in the lateral)

Mud Logger: Rigged up at 10.

C) CONVENTIONAL CORING
Rotary Cores

D) CEMENT

Pilot Hole Plug Back Cement

INTERVAL	AMT SXS	FT OF FILL	TYPE	GAL/SX	PPG	FT^3/SX
9,769' – 10,469'	480	700	Class H-50/50 POZ + 0.2 FL-52	5.74	14.2	1.26
10,911' – 11,111'	200	200	Class H + 1.2 CD-32 + 0.1 R3	2.93	18.0	0.89

INTERVAL	AMT SXS	FT OF FILL	TYPE	GAL/SX	PPG	FT^3/SX
Surface:(FW String)						
Lead 0' – 1,095'	1,900	1,095'	Class C + 2% CaCl + 4% Bentonite + 0.25 lb/sk Cello Flake + 3 lb/sk LCM-1	8.69	13.50	1.75
Tail: 1,095' – 1,595'	1180	500'	Class C + 2% CaCl + 0.25 lb/sk Cello Flake	6.35	14.80	1.35
1st Int: (Salt String)						
Lead: 0' – 3,365'	2215	3,365'	EconoCem HLC+ 5% CaCl + 5#/sk Gilsonite	9.32	12.90	1.85
Tail: 3,365' – 3,865'	585	500'	HalCem C	6.34	14.80	1.35
2nd Int: (Reef String)						
Lead: 0' – 3,920'	810	3,920'	EconoCem HLC + 5% CaCl + 5 #/sk Gilsonite	9.32	12.90	1.85
DV tool and ECP @ +/- 3,920'						
Tail: 3,920' – 5,573'	820	1,653'	HalCemC	6.34	14.80	1.33
7" Production:						
Stage:1 Lead: 7,500' – 10,269'	240	2,769'	Tuned Light + 0.75% CFR-3 + 1.5 #sk CaCl	12.41	10.20	2.76
Tail: 10,269' – 11,066'	130	797'	VersaCem-PBSH2 + 0.4% Halad-9	8.76	13.0	1.65
DV Tool @ 7,500'						
Stage 2:						
Lead: 3,415' – 7,000'	340	3,585'	EconoCem HLC + 1% Econlite + 5%	10.71	12.60	2.04

CEMENT CONT... * See COA

BOPCO L.P plans to drill a pilot hole to a total depth of 11,111' (TVD). After drilling pilot hole, BOPCO will set two cement plugs in order to plug back the pilot hole to a depth of 9,769'. The cement plug intervals will be a bottom plug form a depth of 11,111' TVD up to a depth of 10,911' TVD. This plug will isolate the Wolfcamp zone. The top plug will be from a depth of 10,469' TVD to a depth of 9,769' TVD. The top plug will be used to kick off and drill the 6-1/8" lateral hole section.

The cement excess pumped will be 100% above gauge hole.

Please see page 7 of the 8pt drilling program for cement plug information.

Cement excesses will be as follow

Surface – 100% excess with cement circulated to surface.

1st and 2nd Intermediate – 50% excess above fluid caliper with cement circulated to surface.

Production – 50% above gauge hole or 35% above electric log caliper with cement circulated 500' up into the 9-5/8" 1st intermediate casing in **areas outside the SOPA**. Cement will be circulated to surface on areas **inside the SOPA**.

Cement volumes will be adjusted proportionately for depth changes of the multi stage tool.

F) DIRECTIONAL DRILLING

BOPCO, L.P. plans to kick off @ 10,269' and drill a 8-3/4" directional hole at an azimuth of 208.08 degrees, building angle at 12 deg/100' to 60 degrees at a TVD of 10,743' (MD 10,866'). This angle and azimuth will be maintained for 200' to a measured depth of 11,066' (10,843' TVD). At this depth 7", 26#, HCN-80, HCL-80, N-80 or P-110, LTC casing will be installed and cemented in two stages (DV Tool @ approximately 7,500') with cement circulated 500' above the Capitan Reef. A 6-1/8" open hole lateral will then be drilled out from 7" casing at an azimuth of 268.96 degrees, 90.000 degrees to a total measured depth of 15,594' (10,986' TVD) At this depth a 4-1/2" Completion System with packers installed for zone isolation will be run into the into the production lateral.

G) COMPLETIONS SYSTEM

A 4-1/2" completion system with open hole packers will be run in the production lateral to a depth of 15,594'. The top of the Completion System will be set at approximately 11,016'. Cement will not be required for this system.

H) H_2S SAFTEY EQUIPMENT

As stated in the BLM Onshore Order 6, for wells located in a known H2S area, H2S equipment will be rigged up after setting surface casing. For the wells located inside known H2S areas the flare pit will be located 150' from the location. For wells located outside known H2S areas the flare pit will be located 100' away from the location. (See page 6 of Survey plat package and diagram 2) There is not any H2S anticipated in the area, although in the event that H2S is encountered, the H2S contingency plan attached will be implemented. (Please refer to diagram 2 for choke manifold and closed loop system layout.) See H2S location layout diagram for location of all H2S equipment on location.

I) CLOSED LOOP AND CHOKE MANIFLOLD

Please see diagram 2.

POINT 7: ANTICIPATED RESERVOIR CONDITIONS

Normal pressures are anticipated throughout Delaware section. A BHP of 5199 psi less 0.22 psi/ft. (max) or MWE of 9.0 ppg is expected. Lost circulation may exist in the Delaware Section from 3,915'-11,111' TVD.

POINT 8: OTHER PERTINENT INFORMATION

A) Auxiliary Equipment

Upper and lower kelly cocks. Full opening stab in valve on the rig floor.

B) Anticipated Starting Date

Upon approval

50 days drilling operations

14 days completion operations

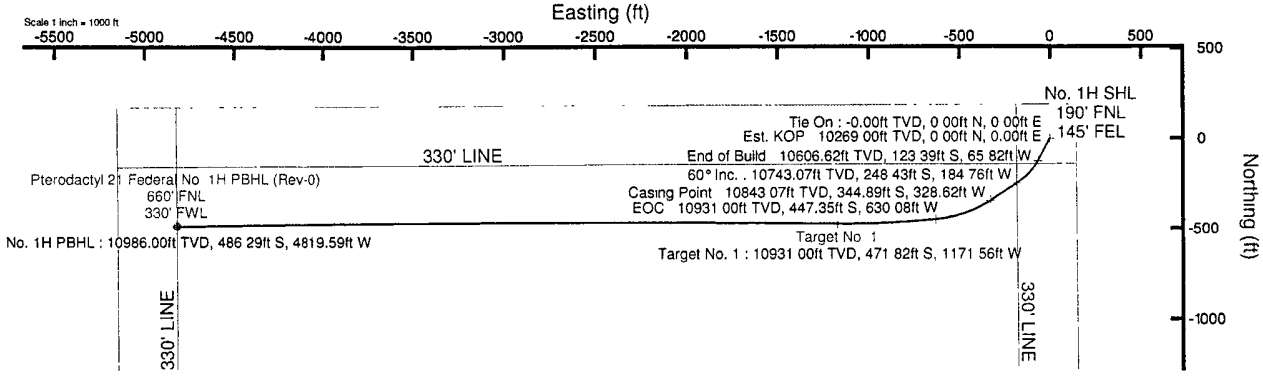
JDB

BOPCO, L.P.

Location: Eddy County, NM
Field: (Pterodactyl) Sec 21, T20S, R34E
Facility: Pterodactyl 21 Federal No. 1H

Slot: No. 1H SHL
Well: No. 1H
Wellbore: No. 1H PWB

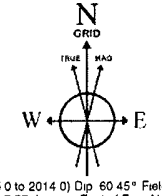
BAKER HUGHES



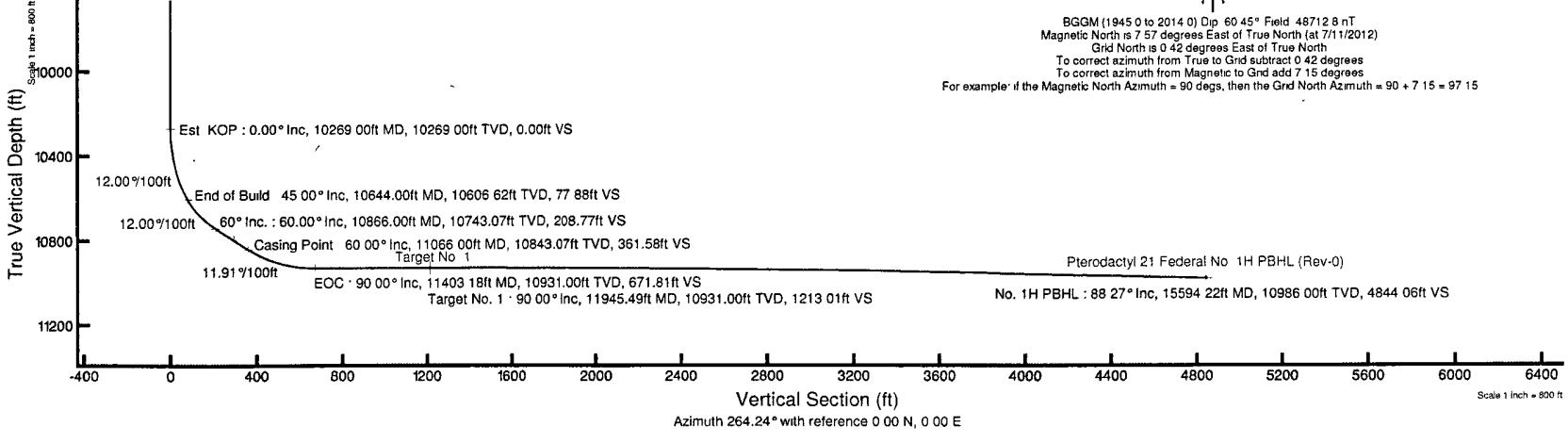
Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	0.00	0.000	208 079	0 00	0 00	0 00	0 00	0 00
Est KOP	10269 00	0 000	208 079	10269 00	0 00	0 00	0 00	0 00
End of Build	10644 00	45 000	208 079	10606 62	-123 39	-65 82	12 00	77 88
60° Inc	10866 00	60 000	236 159	10743 07	-248 43	-184 76	12 00	208 77
Casing Point	11066 00	60 000	236 159	10843 07	-344 89	-328 62	0 00	361 58
EOC	11403 18	90 000	264 238	10931 00	-447.35	-630.08	11 91	671 81
Target No 1	11945 49	90 000	270 587	10931 00	-471 82	-1171 56	1 17	1213 01
No 1H PBHL	15594 22	88 273	268 959	10986 00	-486 29	-4819 59	0 07	4844 06

Plot reference wellpath is Rev-A 0	
True vertical depths are referenced to Rig on No 1H SHL (RT)	Grid System NAD27 / TM New Mexico SP Eastern Zone (3001) US feet
Measured depths are referenced to Rig on No 1H SHL (RT)	North Reference Grid north
Rig on No 1H SHL (RT) to Mean Sea Level 3644 feet	Scale True distance
Mean Sea Level to Mud line (At Slot No 1H SHL) -3644 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by harrkol on 7/11/2012



BGGM (1945 0 to 2014 0) Dip 60 45° Field 48712 8 nT
Magnetic North is 7 57 degrees East of True North (at 7/11/2012)
Grid North is 0 42 degrees East of True North
To correct azimuth from True to Grid subtract 0 42 degrees
To correct azimuth from Magnetic to Grid add 7 15 degrees
For example if the Magnetic North Azimuth = 90 degs, then the Grid North Azimuth = 90 + 7 15 = 97 15



Azimuth 264.24° with reference 0 00 N, 0 00 E

Rev-A.0

Planned Wellpath Report

Rev-A.0

BAKER HUGHES

REFERENCE WELLPATH IDENTIFICATION			
Operator	**BOPCO, L.P.**	Slot	**No. 1H SHL**
Area	**Eddy County, NM**	Well	**No. 1H**
Field	**(Pterodactyl) Sec 21, T20S, R34E**	Wellbore	**No. 1H PWB**
Facility	**Pterodactyl 21 Federal No. 1H**		

REPORT SETUP INFORMATION			
Projection System	**NAD27 / TM New Mexico SP, Eastern Zone (3001), US feet**	Software System	**WellArchitect® 3.0.0**
North Reference	**Grid**	User	**Harrkol**
Scale	**0.999975**	Report Generated	**7/11/2012 at 6:07:00 PM**
Convergence at slot	**0.42° East**	Database/Source file	**WA Midland/No._1H_PWB.xml**

WELLPATH LOCATION	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	**East[ft]**	**Easting[US ft]**	**Northing[US ft]**	**Latitude**	**Longitude**
Slot Location	**0.00**	**0.00**	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W
Facility Reference Pt			**739284.43**	**570209.81**	32°33'54.771"N	103°33'23.914"W
Field Reference Pt			**739284.43**	**570209.81**	32°33'54.771"N	103°33'23.914"W

WELLPATH DATUM			
Calculation method	**Minimum curvature**	Rig on No. 1H SHL (RT) to Facility Vertical Datum	**0.00ft**
Horizontal Reference Pt	**Slot**	Rig on No. 1H SHL (RT) to Mean Sea Level	**3644.00ft**
Vertical Reference Pt	**Rig on No. 1H SHL (RT)**	Rig on No. 1H SHL (RT) to Mud Line at Slot (No. 1H SHL)	**0.00ft**
MD Reference Pt	**Rig on No. 1H SHL (RT)**	Section Origin	**N 0.00, E 0.00 ft**
Field Vertical Reference	**Mean Sea Level**	Section Azimuth	**264.24°**

Planned Wellpath Report

Rev-A.0

BAKER HUGHES

REFERENCE WELLPATH IDENTIFICATION			
Operator	BOPCO, L.P.	Slot	No. 1H SHL
Area	Eddy County, NM	Well	No. 1H
Field	(Pterodactyl) Sec 21, T20S, R34E	Wellbore	No. 1H PWB
Facility	Pterodactyl 21 Federal No. 1H		

WELLPATH DATA (174 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
0.00	0.000	208.079	0.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	Tie On
100.00†	0.000	208.079	100.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
200.00†	0.000	208.079	200.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
300.00†	0.000	208.079	300.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
400.00†	0.000	208.079	400.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
500.00†	0.000	208.079	500.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
600.00†	0.000	208.079	600.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
700.00†	0.000	208.079	700.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
800.00†	0.000	208.079	800.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
900.00†	0.000	208.079	900.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
1000.00†	0.000	208.079	1000.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
1100.00†	0.000	208.079	1100.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
1200.00†	0.000	208.079	1200.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
1300.00†	0.000	208.079	1300.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
1400.00†	0.000	208.079	1400.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
1500.00†	0.000	208.079	1500.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
1513.00†	0.000	208.079	1513.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	Rustler
1600.00†	0.000	208.079	1600.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
1605.00†	0.000	208.079	1605.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	Salt
1700.00†	0.000	208.079	1700.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
1800.00†	0.000	208.079	1800.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
1900.00†	0.000	208.079	1900.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
2000.00†	0.000	208.079	2000.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
2100.00†	0.000	208.079	2100.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
2200.00†	0.000	208.079	2200.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
2300.00†	0.000	208.079	2300.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
2400.00†	0.000	208.079	2400.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
2500.00†	0.000	208.079	2500.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
2600.00†	0.000	208.079	2600.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
2700.00†	0.000	208.079	2700.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
2800.00†	0.000	208.079	2800.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
2900.00†	0.000	208.079	2900.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
3000.00†	0.000	208.079	3000.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
3100.00†	0.000	208.079	3100.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
3200.00†	0.000	208.079	3200.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
3300.00†	0.000	208.079	3300.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
3400.00†	0.000	208.079	3400.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
3500.00†	0.000	208.079	3500.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
3523.00†	0.000	208.079	3523.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	Base Salt
3576.00†	0.000	208.079	3576.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	Yates
3600.00†	0.000	208.079	3600.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
3700.00†	0.000	208.079	3700.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
3800.00†	0.000	208.079	3800.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
3900.00†	0.000	208.079	3900.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
3915.00†	0.000	208.079	3915.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	Reef

Planned Wellpath Report

Rev-A.0

BAKER HUGHES

REFERENCE WELLPATH IDENTIFICATION			
Operator	BOPCO, L.P.	Slot	No. 1H SHL
Area	Eddy County, NM	Well	No. 1H
Field	(Pterodactyl) Sec 21, T20S, R34E	Wellbore	No. 1H PWB
Facility	Pterodactyl 21 Federal No. 1H		

WELLPATH DATA (174 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
4000.00†	0.000	208.079	4000.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
4100.00†	0.000	208.079	4100.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
4200.00†	0.000	208.079	4200.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
4300.00†	0.000	208.079	4300.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
4400.00†	0.000	208.079	4400.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
4500.00†	0.000	208.079	4500.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
4600.00†	0.000	208.079	4600.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
4700.00†	0.000	208.079	4700.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
4800.00†	0.000	208.079	4800.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
4900.00†	0.000	208.079	4900.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
5000.00†	0.000	208.079	5000.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
5100.00†	0.000	208.079	5100.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
5200.00†	0.000	208.079	5200.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
5300.00†	0.000	208.079	5300.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
5400.00†	0.000	208.079	5400.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
5500.00†	0.000	208.079	5500.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
5553.00†	0.000	208.079	5553.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	Del Mtn Grp
5600.00†	0.000	208.079	5600.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
5700.00†	0.000	208.079	5700.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
5800.00†	0.000	208.079	5800.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
5900.00†	0.000	208.079	5900.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
6000.00†	0.000	208.079	6000.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
6100.00†	0.000	208.079	6100.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
6200.00†	0.000	208.079	6200.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
6300.00†	0.000	208.079	6300.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
6400.00†	0.000	208.079	6400.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
6500.00†	0.000	208.079	6500.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
6600.00†	0.000	208.079	6600.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
6700.00†	0.000	208.079	6700.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
6800.00†	0.000	208.079	6800.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
6900.00†	0.000	208.079	6900.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
7000.00†	0.000	208.079	7000.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
7100.00†	0.000	208.079	7100.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
7200.00†	0.000	208.079	7200.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
7300.00†	0.000	208.079	7300.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
7400.00†	0.000	208.079	7400.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
7500.00†	0.000	208.079	7500.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
7600.00†	0.000	208.079	7600.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
7700.00†	0.000	208.079	7700.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
7800.00†	0.000	208.079	7800.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
7900.00†	0.000	208.079	7900.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
8000.00†	0.000	208.079	8000.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
8100.00†	0.000	208.079	8100.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
8200.00†	0.000	208.079	8200.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
8300.00†	0.000	208.079	8300.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	

Planned Wellpath Report

Rev-A.0

BAKER HUGHES

REFERENCE WELLPATH IDENTIFICATION			
Operator	BOPCO, L.P.	Slot	No. 1H SHL
Area	Eddy County, NM	Well	No. 1H
Field	(Pterodactyl) Sec 21, T20S, R34E	Wellbore	No. 1H PWB
Facility	Pterodactyl 21 Federal No. 1H		

WELLPATH DATA (174 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
8319.00†	0.000	208.079	8319.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	Bone Spring
8400.00†	0.000	208.079	8400.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
8500.00†	0.000	208.079	8500.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
8600.00†	0.000	208.079	8600.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
8700.00†	0.000	208.079	8700.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
8800.00†	0.000	208.079	8800.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
8900.00†	0.000	208.079	8900.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
9000.00†	0.000	208.079	9000.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
9100.00†	0.000	208.079	9100.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
9200.00†	0.000	208.079	9200.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
9300.00†	0.000	208.079	9300.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
9400.00†	0.000	208.079	9400.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
9447.00†	0.000	208.079	9447.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	1st Bone Spring
9500.00†	0.000	208.079	9500.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
9600.00†	0.000	208.079	9600.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
9700.00†	0.000	208.079	9700.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
9800.00†	0.000	208.079	9800.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
9900.00†	0.000	208.079	9900.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
9975.00†	0.000	208.079	9975.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	2nd Bone Spring
10000.00†	0.000	208.079	10000.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
10100.00†	0.000	208.079	10100.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
10200.00†	0.000	208.079	10200.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	
10269.00	0.000	208.079	10269.00	0.00	0.00	0.00	739284.43	570209.81	32°33'54.771"N	103°33'23.914"W	0.00	Est. KOP
10300.00†	3.720	208.079	10299.98	0.56	-0.89	-0.47	739283.96	570208.92	32°33'54.762"N	103°33'23.919"W	12.00	
10400.00†	15.720	208.079	10398.36	9.95	-15.76	-8.41	739276.03	570194.05	32°33'54.615"N	103°33'24.013"W	12.00	
10500.00†	27.720	208.079	10491.09	30.52	-48.35	-25.79	739258.64	570161.46	32°33'54.294"N	103°33'24.219"W	12.00	
10600.00†	39.720	208.079	10574.12	61.37	-97.24	-51.87	739232.56	570112.58	32°33'53.812"N	103°33'24.528"W	12.00	
10644.00	45.000	208.079	10606.62	77.88	-123.39	-65.82	739218.61	570086.43	32°33'53.554"N	103°33'24.693"W	12.00	End of Build
10700.00†	48.103	216.296	10645.16	102.89	-157.69	-87.51	739196.93	570052.12	32°33'53.217"N	103°33'24.950"W	12.00	
10724.07†	49.607	219.572	10661.00	115.42	-171.98	-98.65	739185.78	570037.83	32°33'53.076"N	103°33'25.081"W	12.00	3rd Bone Spring
10800.00†	54.887	228.976	10707.54	161.44	-214.74	-140.59	739143.85	569995.07	32°33'52.656"N	103°33'25.575"W	12.00	
10866.00	60.000	236.159	10743.07	208.77	-248.43	-184.76	739099.68	569961.39	32°33'52.326"N	103°33'26.094"W	12.00	60° Inc.
10900.00†	60.000	236.159	10760.07	234.75	-264.83	-209.22	739075.22	569944.99	32°33'52.165"N	103°33'26.381"W	0.00	
11000.00†	60.000	236.159	10810.07	311.16	-313.06	-281.15	739003.29	569896.76	32°33'51.693"N	103°33'27.225"W	0.00	
11066.00	60.000	236.159	10843.07	361.58	-344.89	-328.62	738955.82	569864.93	32°33'51.382"N	103°33'27.783"W	0.00	Casing Point
11100.00†	62.812	239.481	10859.35	388.32	-360.77	-353.89	738930.55	569849.05	32°33'51.226"N	103°33'28.079"W	11.91	
11200.00†	71.469	248.379	10898.22	474.62	-400.97	-436.57	738847.87	569808.85	32°33'50.835"N	103°33'29.049"W	11.91	
11300.00†	80.501	256.398	10922.45	569.42	-430.14	-528.91	738755.53	569779.68	32°33'50.553"N	103°33'30.130"W	11.91	
11400.00†	89.707	263.999	10930.99	668.63	-447.03	-626.92	738657.53	569762.80	32°33'50.393"N	103°33'31.277"W	11.91	
11403.18	90.000	264.238	10931.00	671.81	-447.35	-630.08	738654.37	569762.47	32°33'50.390"N	103°33'31.314"W	11.91	EOC
11500.00†	90.000	265.371	10931.00	768.62	-456.12	-726.50	738557.95	569753.70	32°33'50.310"N	103°33'32.441"W	1.17	
11600.00†	90.000	266.542	10931.00	868.58	-463.17	-826.25	738458.20	569746.65	32°33'50.247"N	103°33'33.607"W	1.17	
11700.00†	90.000	267.713	10931.00	968.45	-468.18	-926.13	738358.33	569741.64	32°33'50.205"N	103°33'34.774"W	1.17	
11800.00†	90.000	268.883	10931.00	1068.20	-471.15	-1026.08	738258.38	569738.67	32°33'50.183"N	103°33'35.943"W	1.17	
11900.00†	90.000	270.054	10931.00	1167.78	-472.08	-1126.07	738158.39	569737.75	32°33'50.181"N	103°33'37.111"W	1.17	

Planned Wellpath Report

Rev-A.0

BAKER HUGHES

REFERENCE WELLPATH IDENTIFICATION			
Operator	BOPCO, L.P.	Slot	No. 1H SHL
Area	Eddy County, NM	Well	No. 1H
Field	(Pterodactyl) Sec 21, T20S, R34E	Wellbore	No. 1H PWB
Facility	Pterodactyl 21 Federal No. 1H		

WELLPATH DATA (174 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
11945.49	90.000	270.587	10931.00[1]	1213.01	-471.82	-1171.56	738112.90	569738.00	32°33'50.186"N	103°33'37.642"W	1.17	Target No 1
12000.00†	89.974	270.562	10931.01	1267.19	-471.28	-1226.07	738058.39	569738.55	32°33'50.196"N	103°33'38.279"W	0.07	
12100.00†	89.927	270.518	10931.10	1366.58	-470.33	-1326.07	737958.40	569739.49	32°33'50.212"N	103°33'39.447"W	0.07	
12200.00†	89.879	270.473	10931.27	1465.99	-469.47	-1426.06	737858.41	569740.35	32°33'50.228"N	103°33'40.616"W	0.07	
12300.00†	89.832	270.428	10931.52	1565.40	-468.68	-1526.06	737758.41	569741.14	32°33'50.243"N	103°33'41.784"W	0.07	
12400.00†	89.785	270.384	10931.85	1664.82	-467.97	-1626.06	737658.42	569741.85	32°33'50.257"N	103°33'42.952"W	0.07	
12500.00†	89.737	270.339	10932.27	1764.25	-467.34	-1726.05	737558.42	569742.48	32°33'50.271"N	103°33'44.121"W	0.07	
12600.00†	89.690	270.295	10932.77	1863.69	-466.79	-1826.05	737458.43	569743.03	32°33'50.283"N	103°33'45.289"W	0.07	
12700.00†	89.643	270.250	10933.35	1963.13	-466.32	-1926.05	737358.44	569743.51	32°33'50.295"N	103°33'46.457"W	0.07	
12800.00†	89.595	270.205	10934.02	2062.58	-465.92	-2026.04	737258.44	569743.91	32°33'50.306"N	103°33'47.625"W	0.07	
12900.00†	89.548	270.161	10934.76	2162.04	-465.60	-2126.04	737158.45	569744.23	32°33'50.316"N	103°33'48.794"W	0.07	
13000.00†	89.501	270.116	10935.59	2261.51	-465.36	-2226.04	737058.45	569744.47	32°33'50.326"N	103°33'49.962"W	0.07	
13100.00†	89.453	270.072	10936.51	2360.98	-465.19	-2326.03	736958.46	569744.63	32°33'50.335"N	103°33'51.130"W	0.07	
13200.00†	89.406	270.027	10937.50	2460.46	-465.11	-2426.03	736858.47	569744.72	32°33'50.343"N	103°33'52.299"W	0.07	
13300.00†	89.359	269.982	10938.58	2559.95	-465.10	-2526.02	736758.48	569744.73	32°33'50.350"N	103°33'53.467"W	0.07	
13400.00†	89.311	269.938	10939.74	2659.45	-465.17	-2626.02	736658.49	569744.66	32°33'50.356"N	103°33'54.635"W	0.07	
13500.00†	89.264	269.893	10940.98	2758.95	-465.31	-2726.01	736558.50	569744.51	32°33'50.362"N	103°33'55.804"W	0.07	
13600.00†	89.217	269.849	10942.31	2858.46	-465.54	-2826.00	736458.51	569744.28	32°33'50.367"N	103°33'56.972"W	0.07	
13700.00†	89.169	269.804	10943.72	2957.97	-465.84	-2925.99	736358.52	569743.98	32°33'50.371"N	103°33'58.140"W	0.07	
13800.00†	89.122	269.759	10945.21	3057.49	-466.22	-3025.98	736258.54	569743.60	32°33'50.375"N	103°33'59.309"W	0.07	
13900.00†	89.075	269.715	10946.78	3157.02	-466.68	-3125.96	736158.55	569743.14	32°33'50.377"N	103°34'00.477"W	0.07	
14000.00†	89.027	269.670	10948.44	3256.56	-467.22	-3225.95	736058.57	569742.60	32°33'50.379"N	103°34'01.645"W	0.07	
14100.00†	88.980	269.626	10950.18	3356.09	-467.83	-3325.93	735958.59	569741.99	32°33'50.380"N	103°34'02.813"W	0.07	
14200.00†	88.933	269.581	10952.00	3455.64	-468.53	-3425.91	735858.61	569741.30	32°33'50.380"N	103°34'03.982"W	0.07	
14300.00†	88.885	269.536	10953.90	3555.19	-469.30	-3525.89	735758.64	569740.53	32°33'50.380"N	103°34'05.150"W	0.07	
14400.00†	88.838	269.492	10955.89	3654.75	-470.14	-3625.87	735658.66	569739.68	32°33'50.378"N	103°34'06.318"W	0.07	
14500.00†	88.791	269.447	10957.96	3754.31	-471.07	-3725.84	735558.69	569738.75	32°33'50.376"N	103°34'07.486"W	0.07	
14600.00†	88.743	269.402	10960.11	3853.88	-472.07	-3825.81	735458.72	569737.75	32°33'50.374"N	103°34'08.654"W	0.07	
14640.16†	88.724	269.385	10961.00	3893.87	-472.50	-3865.97	735418.57	569737.32	32°33'50.372"N	103°34'09.123"W	0.07	Wolfcamp
14700.00†	88.696	269.358	10962.35	3953.45	-473.16	-3925.78	735358.76	569736.67	32°33'50.370"N	103°34'09.822"W	0.07	
14800.00†	88.649	269.313	10964.66	4053.03	-474.32	-4025.75	735258.79	569735.51	32°33'50.366"N	103°34'10.990"W	0.07	
14900.00†	88.601	269.269	10967.06	4152.61	-475.55	-4125.71	735158.83	569734.27	32°33'50.360"N	103°34'12.158"W	0.07	
15000.00†	88.554	269.224	10969.55	4252.20	-476.87	-4225.67	735058.87	569732.96	32°33'50.355"N	103°34'13.326"W	0.07	
15100.00†	88.507	269.179	10972.11	4351.79	-478.26	-4325.63	734958.92	569731.56	32°33'50.348"N	103°34'14.494"W	0.07	
15200.00†	88.459	269.135	10974.76	4451.39	-479.73	-4425.58	734858.97	569730.09	32°33'50.340"N	103°34'15.662"W	0.07	
15300.00†	88.412	269.090	10977.49	4550.99	-481.28	-4525.54	734759.02	569728.54	32°33'50.332"N	103°34'16.830"W	0.07	
15400.00†	88.365	269.045	10980.30	4650.59	-482.91	-4625.48	734659.07	569726.92	32°33'50.323"N	103°34'17.998"W	0.07	
15500.00†	88.317	269.001	10983.20	4750.20	-484.61	-4725.43	734559.13	569725.21	32°33'50.313"N	103°34'19.166"W	0.07	
15594.22	88.273	268.959	10986.00[2]	4844.06	-486.29	-4819.59	734464.98	569723.54	32°33'50.303"N	103°34'20.266"W	0.07	No. 1H PBHL

Planned Wellpath Report

Rev-A.0

BAKER HUGHES

REFERENCE WELLPATH IDENTIFICATION			
Operator	**BOPCO, L.P.**	Slot	**No. 1H SHL**
Area	**Eddy County, NM**	Well	**No. 1H**
Field	**(Pterodactyl) Sec 21, T20S, R34E**	Wellbore	**No. 1H PWB**
Facility	**Pterodactyl 21 Federal No. 1H**		

TARGETS

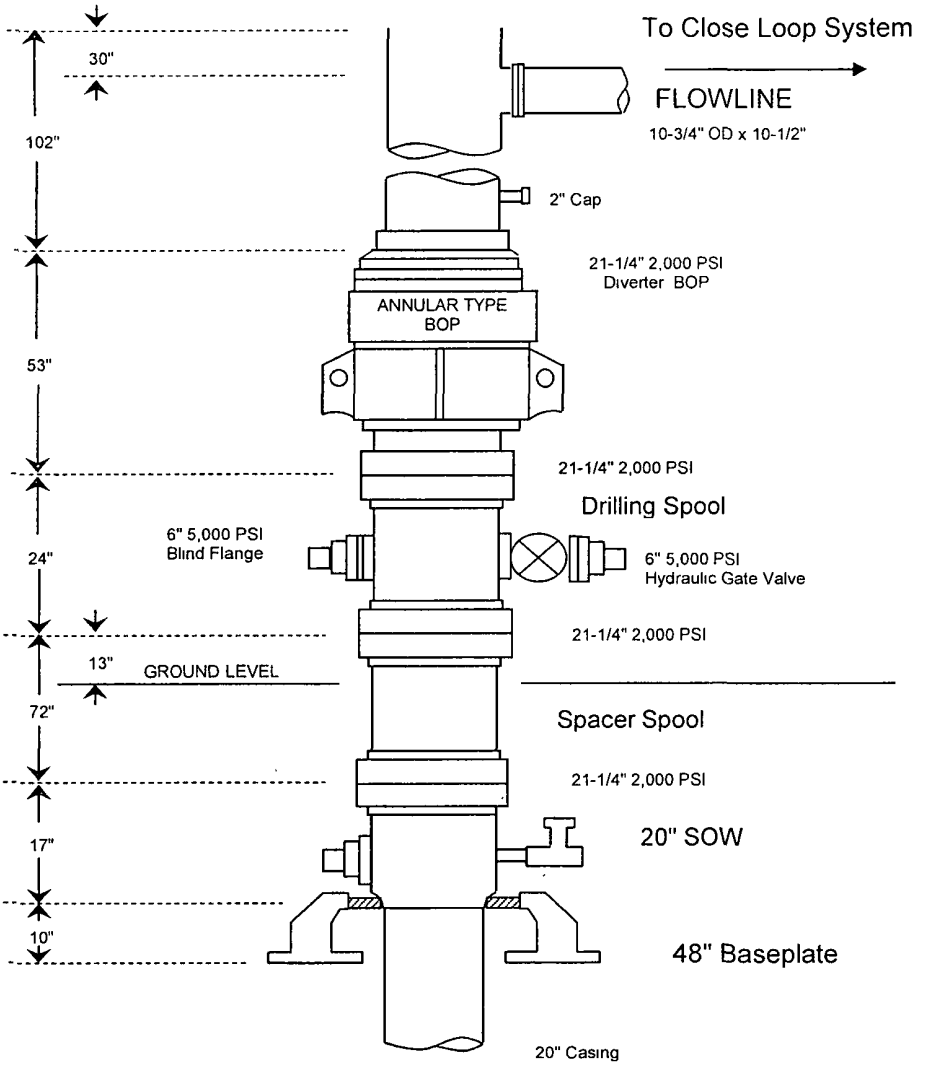
Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
1) Target No. 1	11945.49	10931.00	-471.82	-1171.56	**738112.90**	**569738.00**	32°33'50.186"N	103°33'37.642"W	point
2) Pterodactyl 21 Federal No. 1H PBHL (Rev-0)	15594.22	10986.00	-486.29	-4819.59	**734464.98**	**569723.54**	32°33'50.303"N	103°34'20.266"W	point

SURVEY PROGRAM - **Ref Wellbore: No. 1H PWB** **Ref Wellpath: Rev-A.0**

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
0.00	15594.22	NaviTrak (Standard)		No. 1H PWB

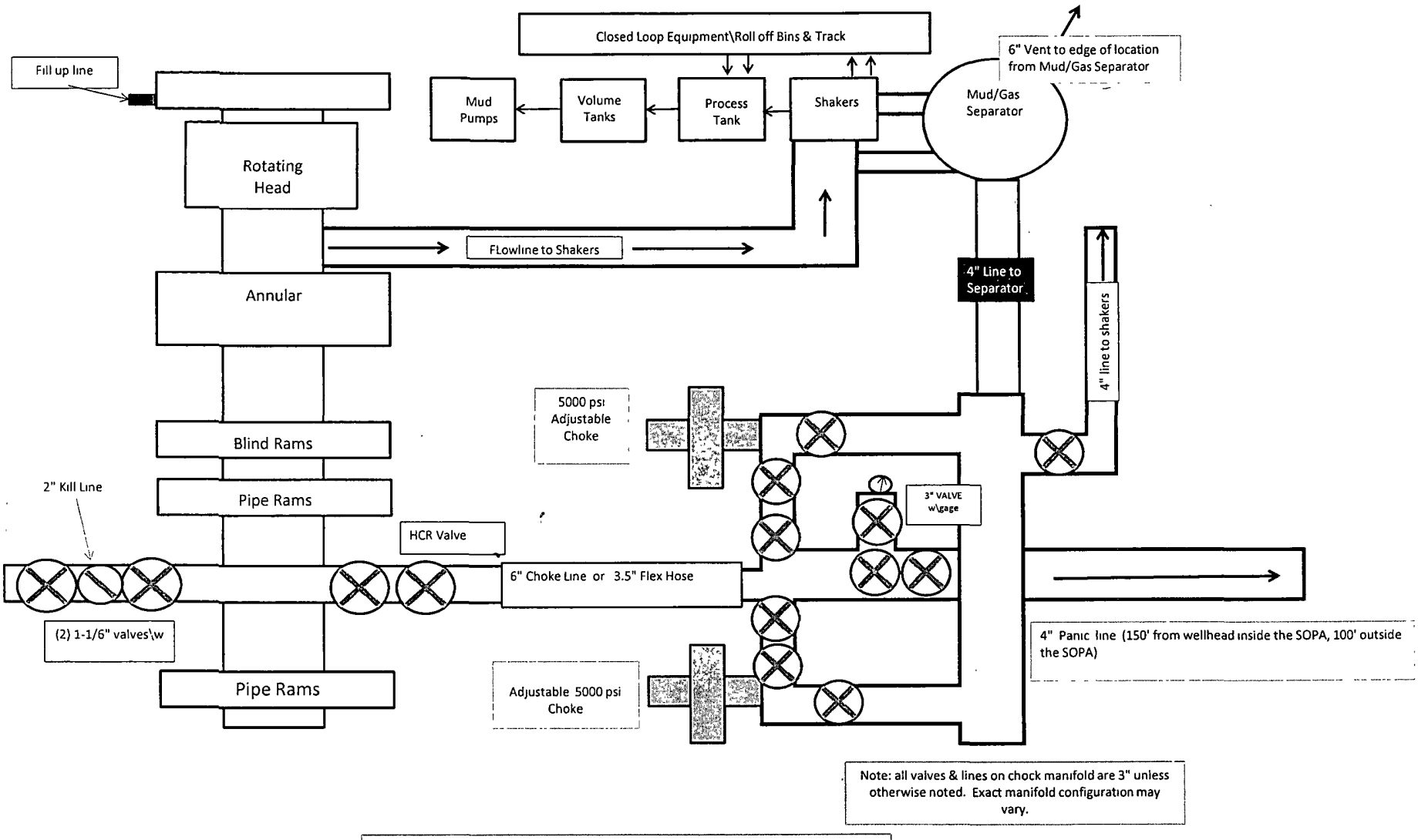
BOPCO, L. P

20" 2,000 PSI Diverter



Note: Actual lengths of casing heads may vary. Always measure items prior to installing in order to ensure proper spacing.

DIAGRAM B

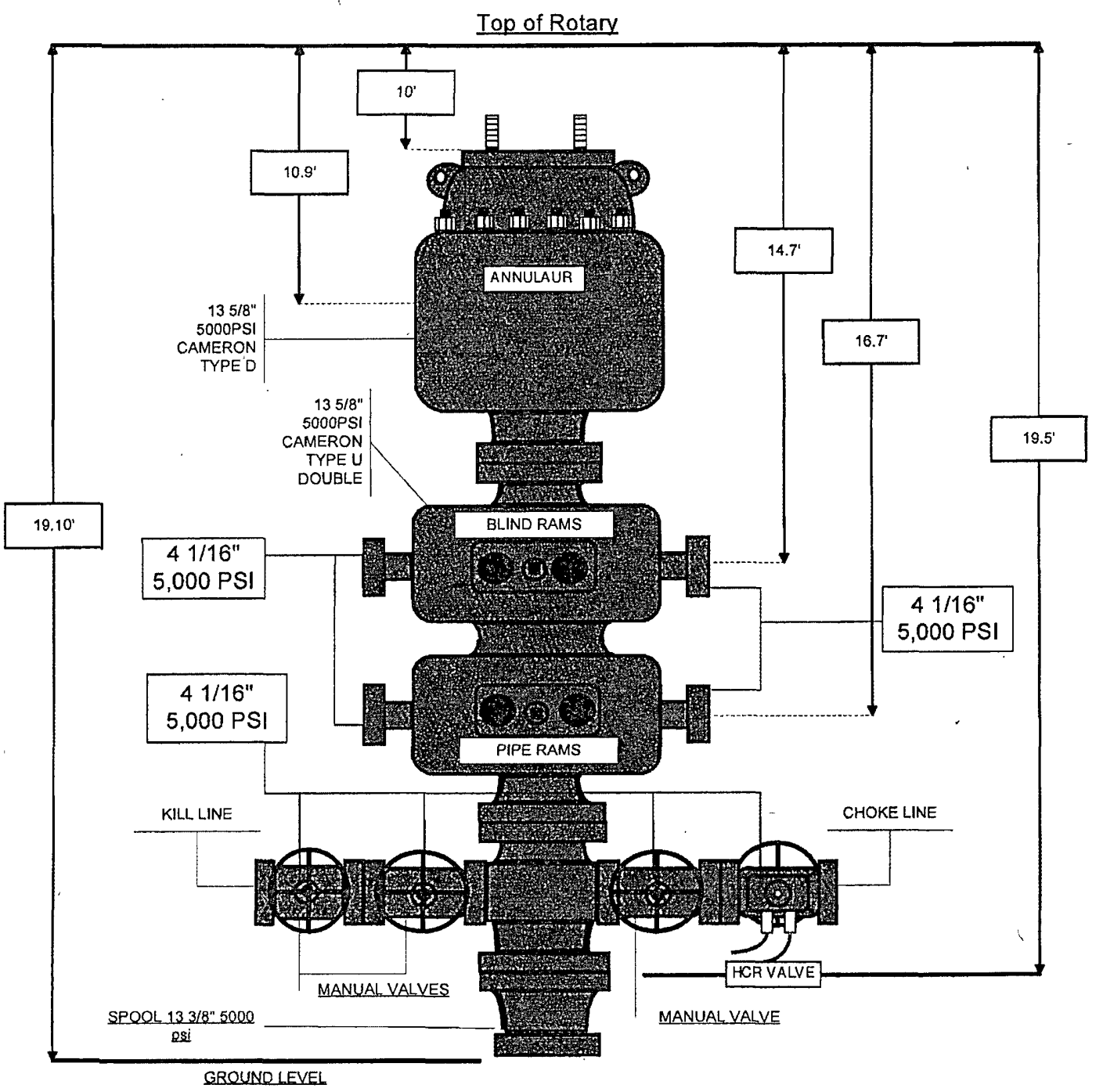


13-5/8" X 5-M BOPE (2 Rams and Rotating Head) & Closed Loop System Equipment Schematic
Diagram 2

Diagram 1

LATSHAW DRILLING

RIG 18



Midwest Hose & Specialty, Inc.

Internal Hydrostatic Test Graph

February 12, 2012

Customer: Latshaw

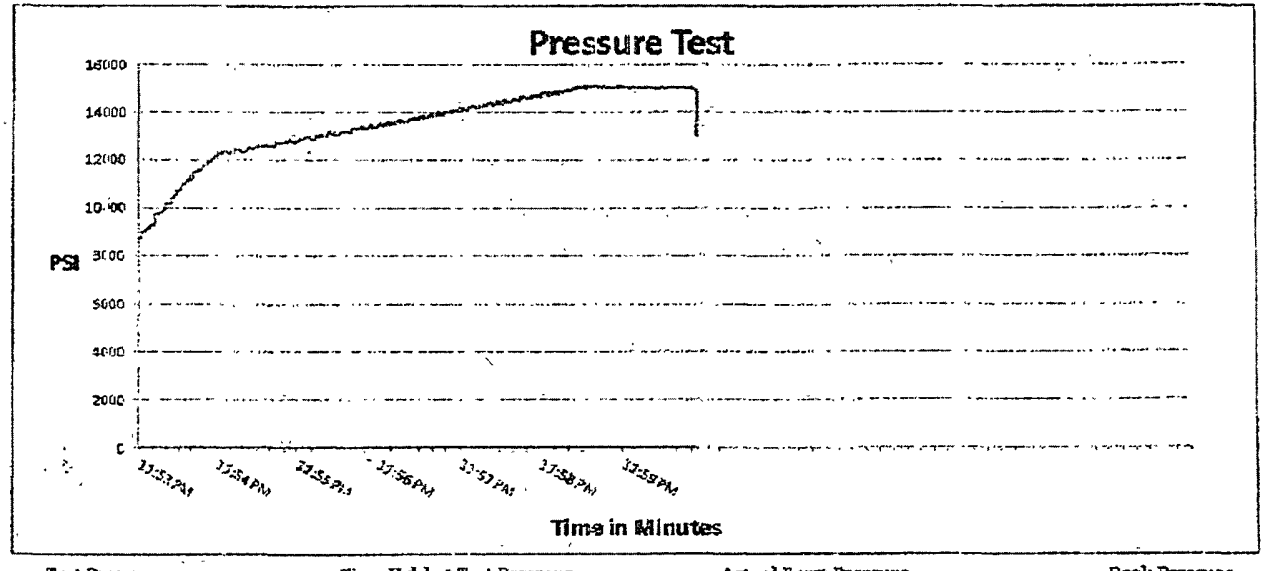
Pick Ticket #: 137641-1

Hose Specifications

Hose Type	Length
E	40'
I.D.	**O.D.**
2 5"	5 22/32
Working Pressure	**Burst Pressure**
7500 PSI	Standard Safety Multiplier Applied

Verification

Type of Fitting	Coupling Method
4 1/16 10K	Swage
Die Size	**Final O.D.**
5.75"	5 19/25
Hose Serial #	**Hose Assembly Serial #**
7554	137641 1



Test Pressure	Time Held at Test Pressure	Actual Burst Pressure	Peak Pressure
15000 PSI	1 2/4 Minutes		15131 PS

Comments: Hose assembly pressure tested with water at ambient temperature.

Tested By: *Donnie Malemore*

Approved By: *Preston Morgan*

Midwest Hose
& Specialty, Inc.

INTERNAL HYDROSTATIC TEST REPORT

Customer:	Customer P.O. Number:
LATSHAW	RIG 18

HOSE SPECIFICATIONS

Type:	Hose Length:
Rotary / Vibrator Hose C/K /API 7K	40 FEET

I.D.	O.D.
3.5 INCHES	5.31 INCHES

WORKING PRESSURE	TEST PRESSURE	BURST PRESSURE
7,500 PSI	15,000 PSI	N/A PSI

COUPLINGS

Part Number	Stem Lot Number	Ferrule Lot Number
E3.5X64WB	LOT 10-12	LOT 10-12
E3.5X64WB	LOT 10-12	LOT 10-12

Type of Coupling:	Die Size:
Swage-It	5.75 INCHES

PROCEDURE

Hose assembly pressure tested with water at ambient temperature.

TIME HELD AT TEST PRESSURE	ACTUAL BURST PRESSURE:
1 1/2 MIN.	N/A PSI

Hose Assembly Serial Number:	Hose Serial Number:
1337641-1	7554

Comments:

Date:	Tested:	Approved:
2/14/2012	Dave McLennan	Preston Morgan

Midwest Hose & Specialty, Inc.

Internal Hydrostatic Test Graph

February 14, 2012

Customer: Latshaw

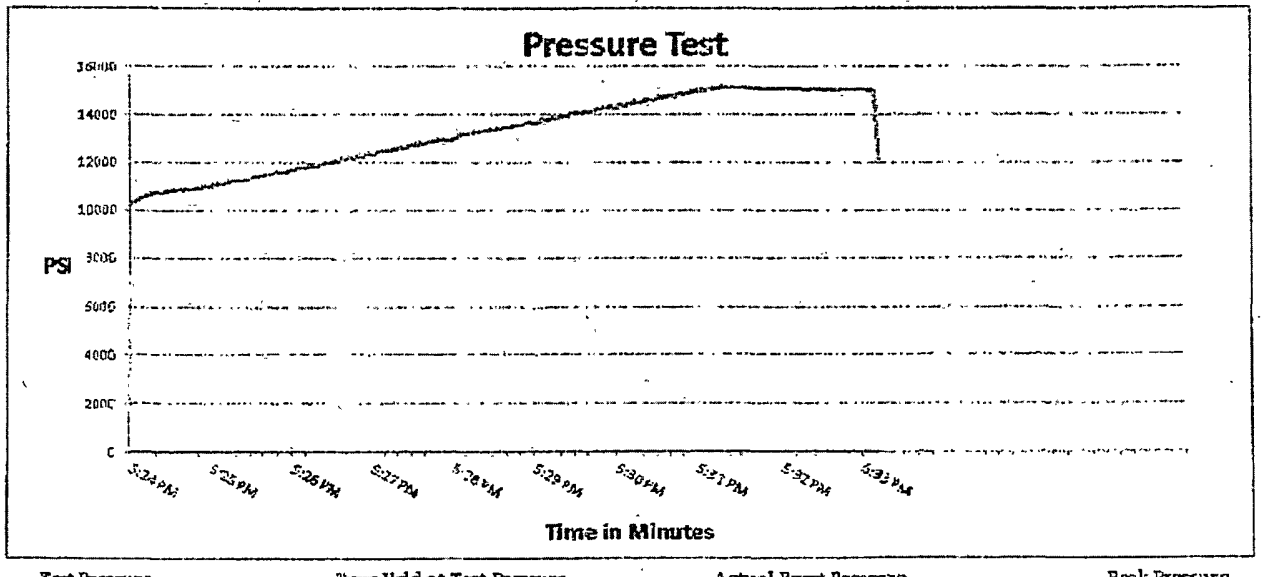
Pick Ticket #: 137641-2

Hose Specifications

Hose Type	Length
E	40'
I.D.	O.D.
3.5"	5 3/10
Working Pressure	Burst Pressure
7500 PSI	Standard Safety Multiplier Applies

Verification

Type of Fitting	Coupling Method
4"WB	Swage
Die Size	Final O.D.
5.75	5.30"
Hose Serial #	Hose Assembly Serial #
5.76	137641-2



Test Pressure	Time Held at Test Pressure	Actual Burst Pressure	Peak Pressure
15000 PSI	2 1/4 Minutes		15219 PS

Comments: Hose assembly pressure tested with water at ambient temperature.

Tested By: Donnie Mclamore

Approved By: Preston Morgan

Midwest Hose
& Specialty, Inc.

INTERNAL HYDROSTATIC TEST REPORT

Customer:	Customer P.O. Number:
LATSHAW	RIG 18

HOSE SPECIFICATIONS

Type: Rotary / Vibrator Hose C/K /API 7K		Hose Length: 40 FEET
I.D. 3.5 INCHES		O.D. 5.30 INCHES

WORKING PRESSURE	TEST PRESSURE	BURST PRESSURE
7,500 PSI	15,000 PSI	N/A PSI

COUPLINGS

Part Number	Stem Lot Number	Ferrule Lot Number
E3.5X64WB	LOT 10-12	LOT 10-12
E3.5X64WB	LOT 10-12	LOT 10-12

Type of Coupling:	Die Size:
Swage-It	5.75 INCHES

PROCEDURE

Hose assembly pressure tested with water at ambient temperature.

TIME HELD AT TEST PRESSURE	ACTUAL BURST PRESSURE:
2 1/4 MIN.	N/A PSI

Hose Assembly Serial Number:	Hose Serial Number:
1337641-2	7554

Comments:

Date:	Tested:	Approved:
2/14/2012	Dennis McLennan	Preston Morgan

Midwest Hose & Specialty, Inc.

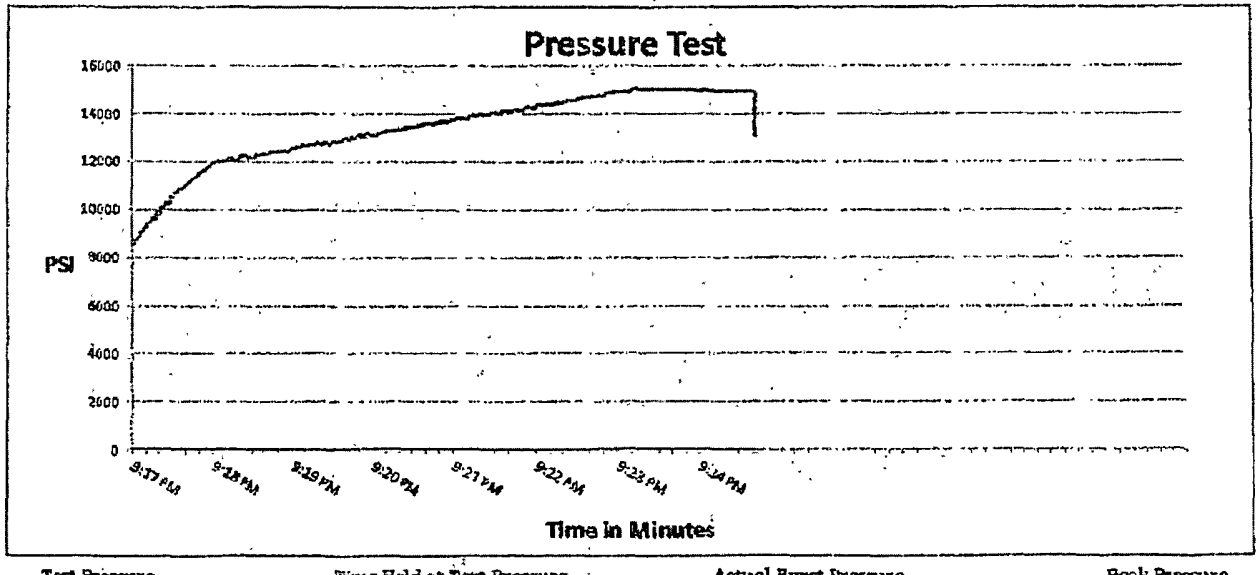
Internal Hydrostatic Test Graph

February 13, 2012

Customer: Latshaw

Pick Ticket #: 137827

Hose Specifications		Verification	
Hose Type	**Length**	**Type of Fitting**	**Coupling Method**
E	42'	5"1002	Swage
I.D.	**O.D.**	**Die Size**	**Final O.D.**
2.5"	5.16"	5.75"	5 43/64"
Working Pressure	**Burst Pressure**	**Hose Serial #**	**Hose Assembly Serial #**
7500 PSI	Standard Safety Multiplier Applies	7636	137827 1



Test Pressure	Time Held at Test Pressure	Actual Burst Pressure	Peak Pressure
15000 PSI	1 2/4 Minutes		15146 PSI

Comments: Hose assembly pressure tested with water at ambient temperature.

Tested By: *Donnie Mclemore*

Approved By: *Preston Morgan*

Midwest Hose & Specialty, Inc.

INTERNAL HYDROSTATIC TEST REPORT

Customer: LATSHAW		Customer P.O. Number: RIG 18
HOSE SPECIFICATIONS		
Type: Rotary / Vibrator Hose GRADE D /API 7K		Hose Length: 42 FEET
I.D. 3.5 *INCHES*		O.D. 4 48/64 *INCHES*
WORKING PRESSURE 7,500 *PSI*	TEST PRESSURE 15,000 *PSI*	BURST PRESSURE N/A *PSI*
COUPLINGS		
Part Number	Stem Lot Number	Ferrule Lot Number
E3.5X80M1002	LOT 1012	LOT 1012
E3.5X80F1002	LOT 1012	LOT 1012
Type of Coupling: Swage-It		Die Size: 5.75 INCHES
PROCEDURE		
Hose assembly pressure tested with water at ambient temperature.		
TIME HELD AT TEST PRESSURE 1 1/2 *MIN.*		ACTUAL BURST PRESSURE: N/A *PSI*
Hose Assembly Serial Number: 137827-1		Hose Serial Number: 7636
Comments:		
Date: 2/14/2012	Tested: [signature]	Approved: [signature]

Midwest Hose & Specialty, Inc.

Internal Hydrostatic Test Graph

February 13, 2012

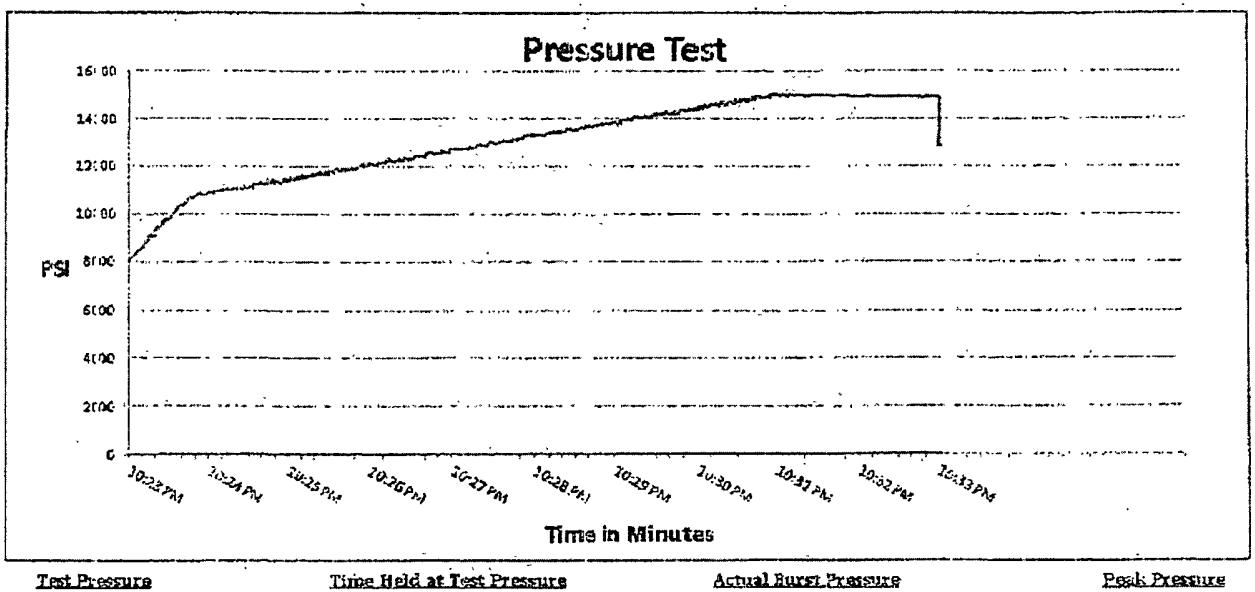
Customer: Latshaw

Pick Ticket #: 137827

Hose Specifications

Hose Type	Length	Type of Fitting	Coupling Method
C	42	5"1002	Swage
I.D.	O.D.	Die Size	Final O.D.
1.5"	5 29/64	5.75"	5 3/4
Working Pressure	Burst Pressure	Hose Serial #	Hose Assembly Serial #
7500 PSI	Standard Safety Multiplier Applied	7636	1378272

Verification



Test Pressure	Time Held at Test Pressure	Actual Burst Pressure	Peak Pressure
15000 PSI	1 1/4 Minutes		15131 PSI

Comments: Hose assembly pressure tested with water at ambient temperature

Tested By: Donnie Mclemore

x _____

Approved By: Preston Morgan

x _____

Midwest Hose
& Specialty, Inc.

INTERNAL HYDROSTATIC TEST REPORT

Customer:	Customer P.O. Number:
LATSHAW	RIG 18

HOSE SPECIFICATIONS

Type: Rotary / Vibrator Hose GRADE D /API 7K		Hose Length: 42 FEET
I.D. 3.5 INCHES		O.D. 5 29/64 INCHES

WORKING PRESSURE	TEST PRESSURE	BURST PRESSURE
7,500 PSI	15,000 PSI	N/A PSI

COUPLINGS

Part Number	Stem Lot Number	Ferrule Lot Number
E3.5X80M1002	LOT 1012	LOT 1012
E3.5X80F1002	LOT 1012	LOT 1012

Type of Coupling:	Die Size:
Swage-It	5.75 INCHES

PROCEDURE

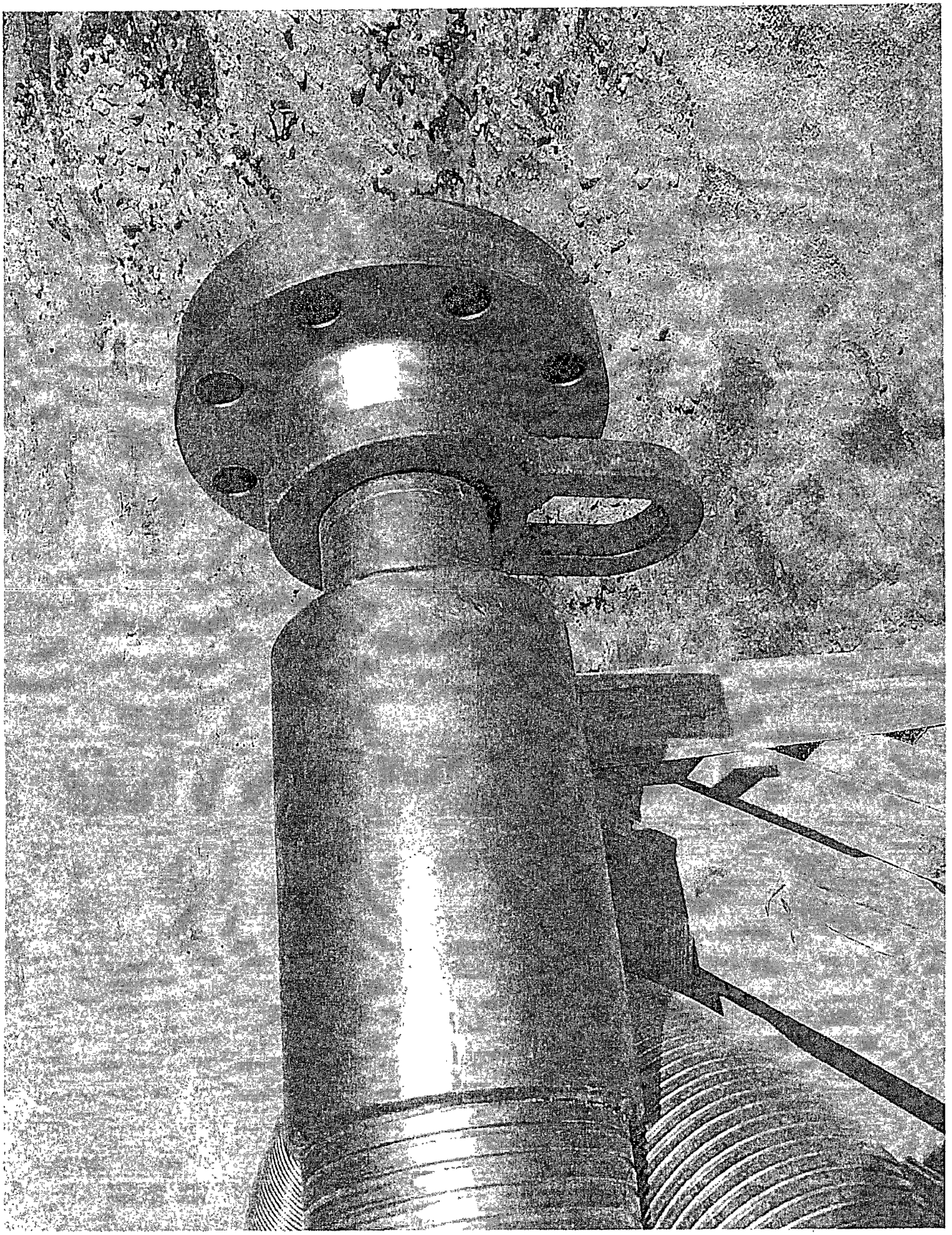
Hose assembly pressure tested with water at ambient temperature.

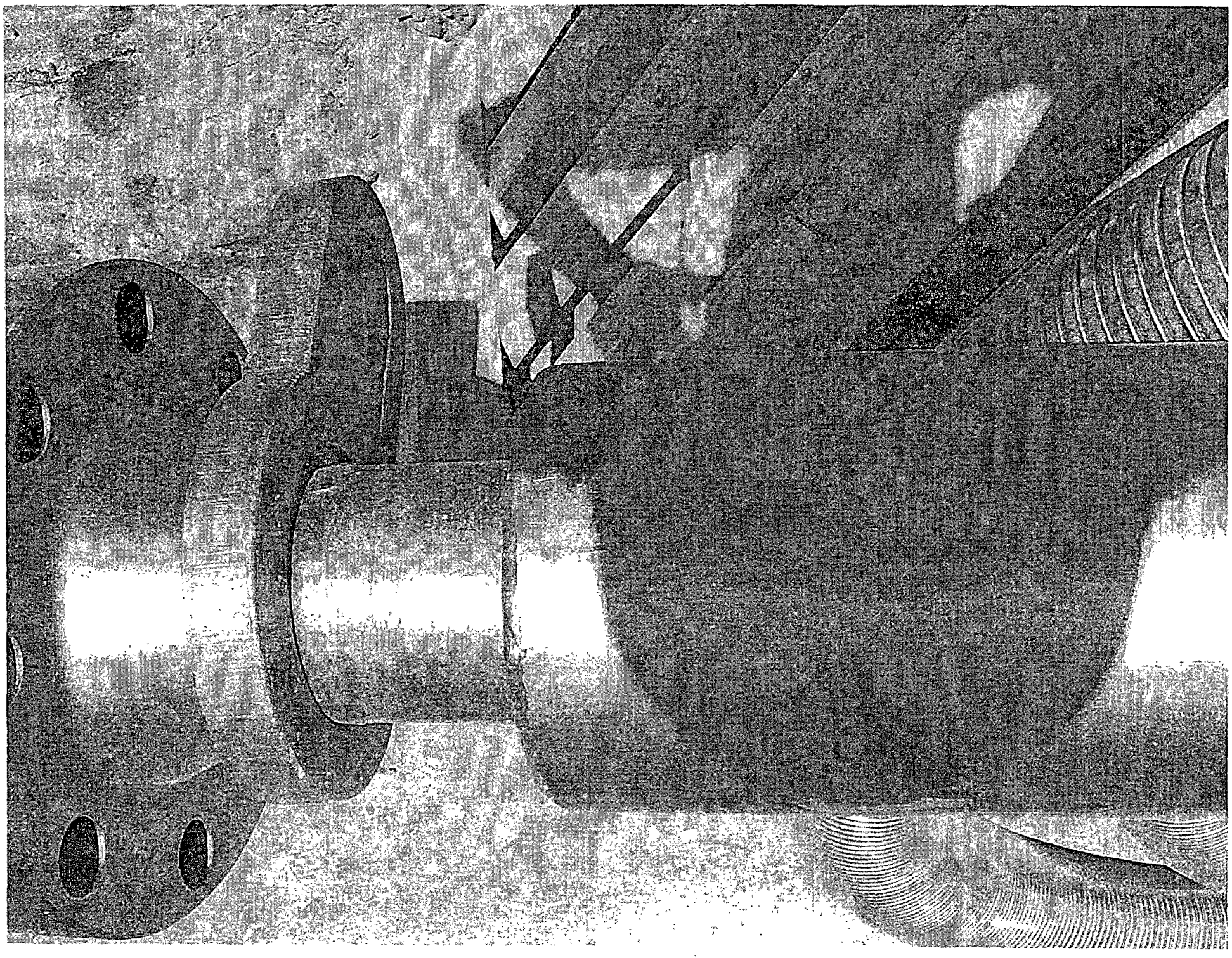
TIME HELD AT TEST PRESSURE	ACTUAL BURST PRESSURE:
1 1/4 MIN.	N/A PSI

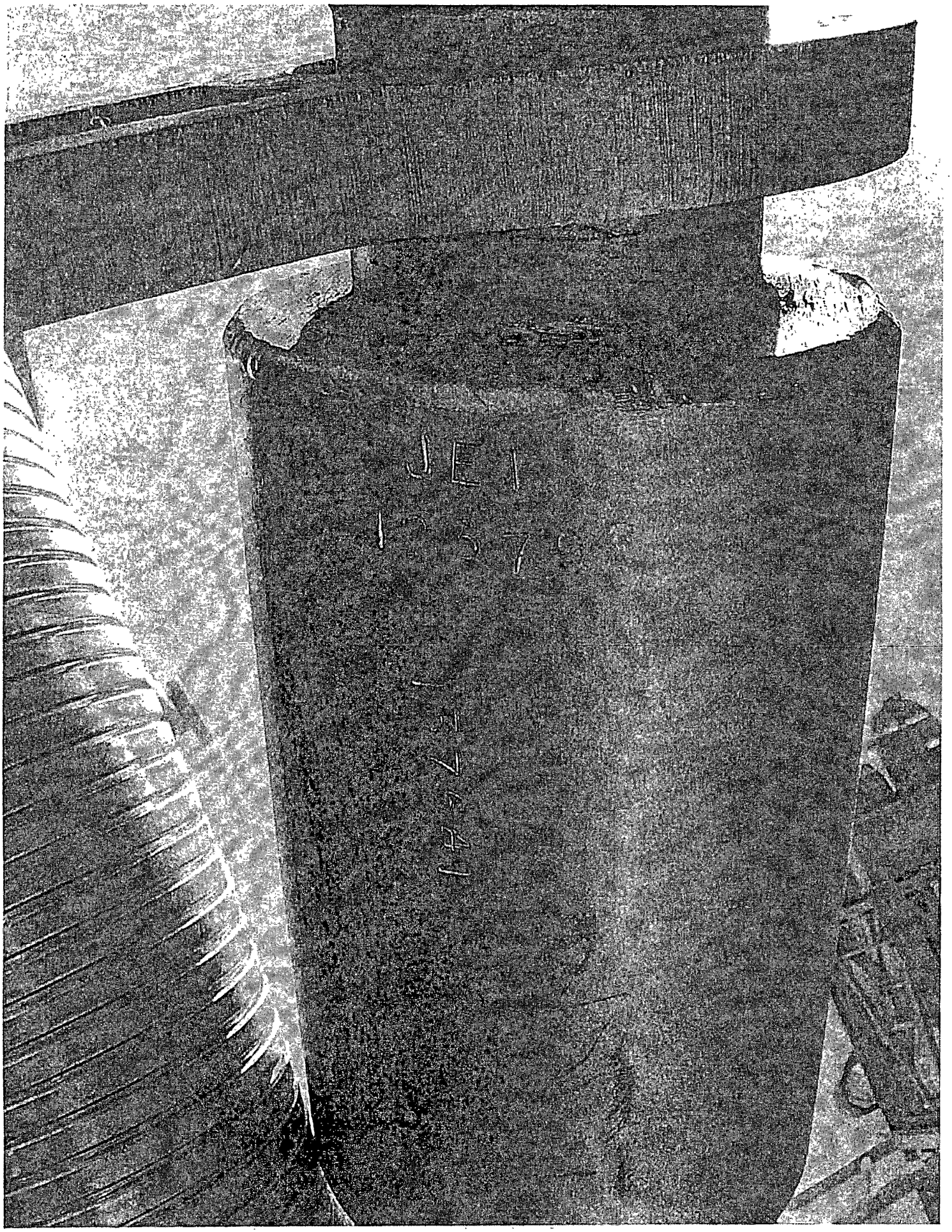
Hose Assembly Serial Number:	Hose Serial Number:
137827-2	7636

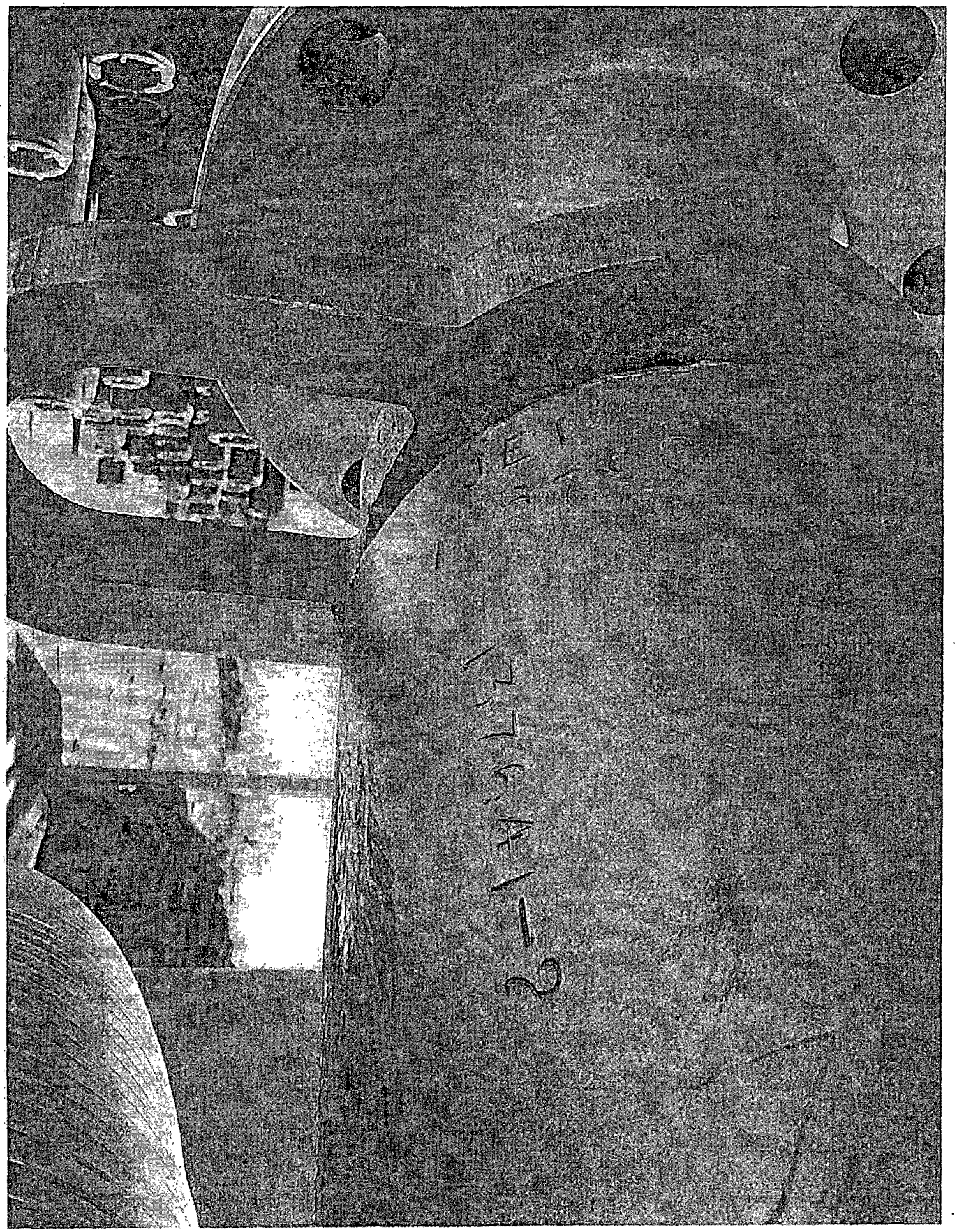
Comments:

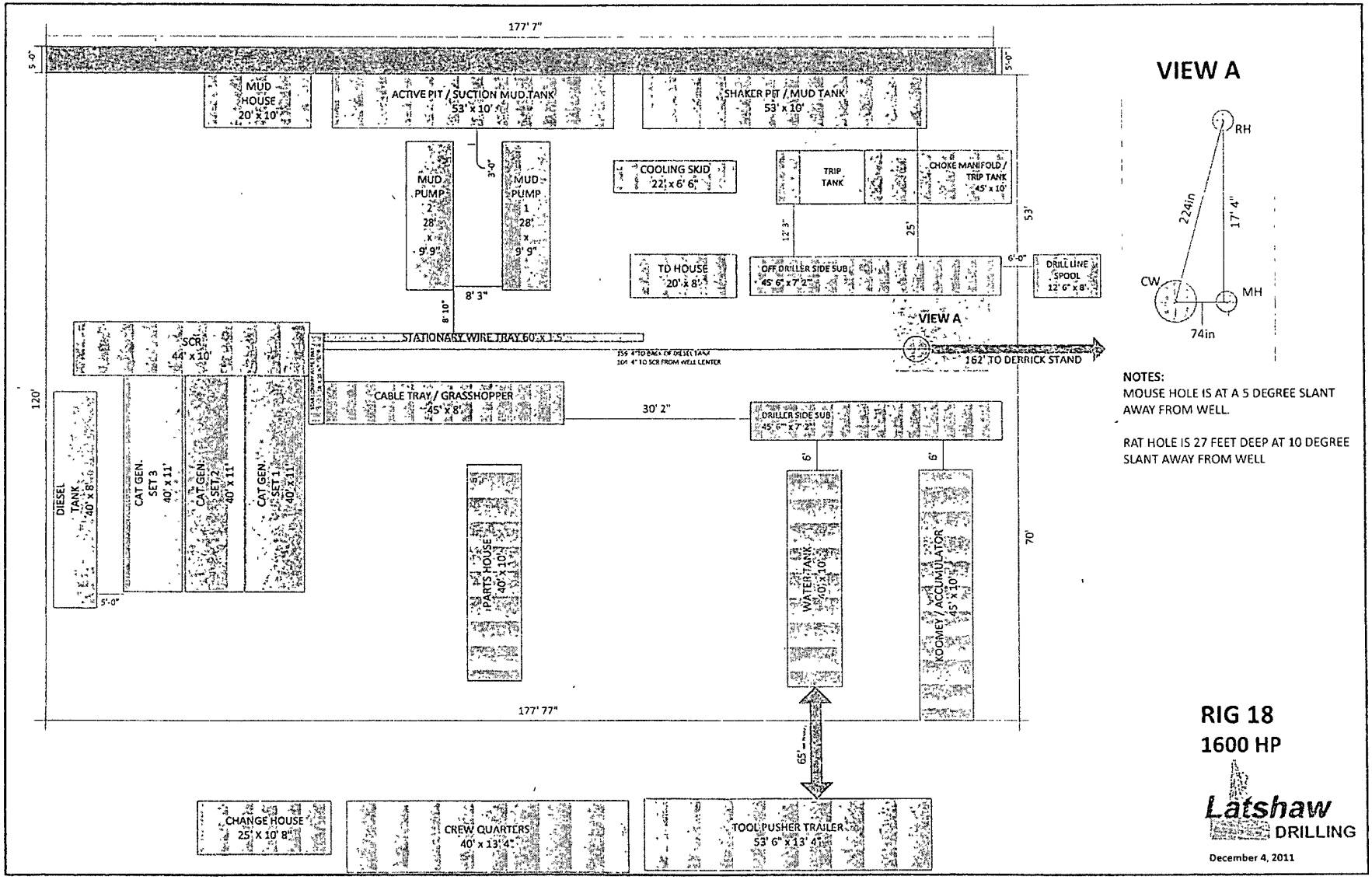
Date:	Tested:	Approved:
2/14/2012		











VIEW A

NOTES:

MOUSE HOLE IS AT A 5 DEGREE SLANT AWAY FROM WELL.

RAT HOLE IS 27 FEET DEEP AT 10 DEGREE SLANT AWAY FROM WELL

RIG 18
1600 HP

Latshaw DRILLING

December 4, 2011

TABLE OF CONTENTS