Split Estate 14-388

Form 3160-3
(March 2012)

OCD Hobbs

FORM APPROVED
OMB No. 1004-0137
Expires October 31, 2014

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

HOBBS OCD

APPLICATION FOR PERMIT TO DRILL OR REENTER

AUG 08 2014

RECEIVED

1a. Type of work: [X] DRILL [ ] REENTER	5. Lease Serial No. NMLC 069515
1b. Type of Well: [X] Oil Well [ ] Gas Well [ ] Other [X] Single Zone [ ] Multiple Zone	6. If Indian, Allotee or Tribe Name
2. Name of Operator ConocoPhillips Company (217817)	7. If Unit or CA Agreement, Name and No.
3a. Address P.O. BOX 51810 Midland, Texas 79710	8. Lease Name and Well No. (313575) War Hammer 25 Federal COM W1 3H
3b. Phone No. *(include area code)* (281)206-5282	9. API Well No. 30-025- 42027
4. Location of Well *(Report location clearly and in accordance with any State requirements.*)* At surface 316 FNL & 125 FEL (NWNW) 25-26S-32E At proposed prod. zone 330 FSL & 380 FEL 36-26S-32E	10. Field and Pool, or Exploratory (98081) WC-025 G-09 S263225A; WOLFCAMP
	11. Sec., T. R. M. or Blk. and Survey or Area Section 25-26S-32E
14. Distance in miles and direction from nearest town or post office* 35.7 miles west of Jal, 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) 330'	16. No. of acres in lease 600 / 17. Spacing Unit dedicated to this well 224.99
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 33'	19. Proposed Depth 18865' MD/12355' TVD / 20. BLM/BIA Bond No. on file ES0085
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3138' GL	22. Approximate date work will start* 01/01/2015 / 23. Estimated duration 30 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No.1, must 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 must 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 BLM.

25. Signature Kristina Mickens	Name *(Printed/Typed)* KRISTINA MICKENS	Date 03/03/2014
Title REGULATORY SPECIALIST		
Approved by *(Signature)* Steve Caffey	Name *(Printed/Typed)*	Date AUG - 6 2014
Title FIELD MANAGER	Office CARLSBAD FIELD 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.

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.

(Continued on page 2)

Carlsbad Controlled Water Basin

KZ 08/08/14

E-PERMITTING - - New Well KZ
Comp_____ P&A_____ TA_____
CSNG_____ Loc CHG_____
ReComp_____ Add New Pool_____
Cancl Well_____ Create Pool_____

Approval Subject to General Requirements & Special Stipulations Attached

SEE ATTACHED FOR CONDITIONS OF APPROVAL

AUG 08 2014

Operator Certification

CONOCOPHILLIPS COMPANY

CERTIFICATION:

I hereby certify that I, or persons under my direct supervision, have inspected the proposed drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have full knowledge of State and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application with bond coverage provided by Nationwide Bond ES0085. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.

Kristina Mickens Date: 03/03/2014

Kristina Mickens
Regulatory Specialist

Drilling Program
ConocoPhillips Company
War Hammer 25 Federal COM W3 1H
250' FNL 125' FEL (SHL)
330' FSL 380' FEL (BHL)
Sec 25-T26S-R32E
Lea County, New Mexico

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1. Estimated tops of geological formations:
Geologic Formation at surface: Quaternary

	Formation	TVD (ft)
	Base Fresh Water	300
	Rustler	600
	Top Salt	1050
	Base Salt	4689
*	Cherry Canyon	5671
*	Brushy Canyon	7368
*	Bone Spring Carb	8865
*	Avalon	9071
*	1st Bone Spring	9758
*	2nd Bone Spring	10141
*	3rd Bone Spring	10654
*	Wolfcamp	11835

2. Estimated depth/thickness of freshwater and/or hydrocarbons:

Water: Fresh water is anticipated above the Rustler at 300' and will be protected by surface casing at 950' and cemented to surface.

Hydrocarbons: Oil and gas are anticipated in the formations annotated above (*). These zones will be isolated as necessary.

3. Pressure Control Equipment:
*Please see attached BOPE and Choke Manifold Schematic for more detail.
A 13-5/8" BOP system will be installed and tested prior to drilling out of the surface casing shoe. The BOP system will be utilized to drill the intermediate and production hole sections, and will be tested per BLM Onshore Oil & Gas Order No. 2 per each hole section specified in the final column of the table in section four.

Pressure tests will be conducted at the initial installation of the BOPE and again if needed 30 days from the initial test as per BLM Onshore Oil and Gas Order No. 2. BOPE controls will be installed prior to drilling under the surface casing and will be used until the completion of drilling operations. Prior to drilling the intermediate 1 and intermediate 2 holes the BOPE will be tested per 5m working system requirements. Prior to drilling the production interval the BOPE will be tested per 10M system requirements.

ConocoPhillips Company requests a variance to use a flexible line between the BOP and the choke. The testing and manufacturing specifications for this equipment is attached. The line will be kept as straight as possible with minimum turns.

4. Proposed Casing Program
*All tubulars used for this design will be new.

SOR COA

Hole Size (in)	Casing (in)	Wt/Ft	Grade	Connection	Depth (ft)	Depth (ftTVD)	Depth (ftMD)	BOPE System
17 1/2	13 3/8	54.5	J-55	BTC	0-~~950~~ 770	~~950~~	~~950~~	N/A
12 1/4	9 5/8	40	L-80	BTC	0-4825	4825	4825	5M
8 3/4	7 5/8	33.7	P-110	Wedge 523	0-12150	~~12139~~ 12115	12150	5M
6 5/8	4 1/2	15.1	P-110	BTC	0-19670	12974	19670	10M

Minimum casing design factors: Collapse:1.125, Burst 1.0, Tensile Strength 1.6 dry / 1.8 buoyant

Hole Size (in)	Casing (in)	Burst	Collapse	Tension
17 1/2	13 3/8	6.07	2.51	20.39
12 1/4	9 5/8	2.18	1.17	5.84
8 3/4	7 5/8	1.85	1.34	3.11
6 5/8	4 1/2	1.60	1.70	3.21

Prepared By: Jason A. Levinson

Drilling Program

ConocoPhillips Company

War Hammer 25 Federal COM W3 1H

250' FNL 125' FEL (SHL)

330' FSL 380' FEL (BHL)

Sec 25-T26S-R32E

Lea County, New Mexico

5. Proposed Cementing Program

		Volume (sx)	Type	Weight (ppg)	Yield (ft3/sx)	Water (Gal/sx)	Excess	Cement Top
Surface	*Lead*	530	Class C	13.5	1.73	9.14	100%	Surface
	Tail	310	Class C	14.8	1.35	6.39	100%	650ft
Additives (BWOB): 4% Extender, 2% CaCl2, 0.125 lb/sx LCM, 0.2% Anti-Foam								
Intermediate 1	*Lead*	1430	Class C	12.9	1.97	10.88	100%	Surface
	Tail	380	Class C	14.8	1.35	6.19	100%	500ft
Additives (BWOB): 4% Extender, 2% CaCl2, 0.125 lb/sx LCM, 0.2% Anti-Foam								
Intermediate 2	*Lead*	430	Tuned Light	9.5	3.45	14.38	100%	4325ft
	Tail	140	Class C	13.2	1.61	8.20	100%	11650ft
Additives (BWOB): 0.4% Dispersant, 1 lb/sx Salt, 0.1% Retarder, 0.5% Fluid Loss, 3 lb/sx LCM								
Production	*Lead*							
	Tail	550	Class H	15.0	2.61	6.00	30%	11650ft
Additives (BWOB): 0.4% Retarder, 0.2% Anti-foam, 0.7 Anti-gelling, 0.4% Fluid Loss, 2% Expanding Agent, 5.0% Silica								

6. Proposed Fluids Program

Depth (ft)			Type	Mud Weight (ppg)	Viscosity	Fluid Loss
0	to	~~950~~ 770	Spud Mud	8.4 - 9.3	32-36	NC
~~950~~ 770	to	4825	Brine	9.3 - 10.5	28-30	≤5
4825	to	12150	Cut Brine	8.6 - 9.1	30-40	≤5
12150	to	19695	Oil Based Mud	12.0 - 14.0	30-40	≤5

Sufficient fluid volume, weight material, and additives will be available onsite at all times. Visual and electronic mud monitoring equipment will be in place to indicate gain or loss.

7. Formation Evaluation Program

Samples: Dry samples taken 30' from intermediate casing point to TD. GC Tracers KOP to TD.

Logging: GR/Neutron from base salt to surface. GR from 200' above KOP to TD. Shuttle log in the lateral.

8. Anticipated Wellbore Conditions

	Value	Comments
Bottom Hole Pressure (psi)	7265	Assumes 0.78psi/ft - 0.22psi/ft Partial Evacuation
Bottom Hole Temperature (°F)	202	Assumes 0.01deg/100ft
Abnormal Pressure / Potential Hazards	Losses below Delaware will be mitigated with lost circulation material. Potential overpressure below the top of Wolfcamp will be mitigated with mud weight. If H2S is encountered the operator will comply with the provisions of Onshore Oil and Gas Order No. 6. All personnel will be familiar with all aspects of safe operation being used to drill this well.	

9. Directional Plan:

Kick off Point (ft)	Landing TVD (ft)	Landing MD (ft)	Total Measured Depth (ft)
12412	12974	13312	19695

*ConocoPhillips proposes to drill a vertical wellbore to kick off point and then drill horizontally to TD. Please see the attached directional plan for more detail.

10. Anticipated Start / Duration

ConocoPhillips Company intends to drill and complete this well approximately 90 days from spud.

Prepared By: Jason A. Levinson

March 05 2014

TenarisHydril

Size: 7.625 in.
Wall: 0.430 in.
Weight: 33.70 lbs/ft
Grade: P110
Min. Wall Thickness: 87.5 %

Connection: Wedge 523™
Casing/Tubing: CAS

PIPE BODY DATA					
GEOMETRY					
Nominal OD	**7.625** in.	Nominal Weight	**33.70** lbs/ft	Standard Drift Diameter	**6.640** in.
Nominal ID	**6.765** in.	Wall Thickness	**0.430** in.	Special Drift Diameter	**N/A**
Plain End Weight	**33.07** lbs/ft				
PERFORMANCE					
Body Yield Strength	**1069** x 1000 lbs	Internal Yield	**10860** psi	SMYS	**110000** psi
Collapse	**7870** psi				

WEDGE 523™ CONNECTION DATA					
GEOMETRY					
Connection OD	**7.775** in.	Connection ID	**6.675** in.	Make-Up Loss	**4.060** in.
Critical Section Area	**7.057** sq. in.	Threads per in.	**3.06**		
PERFORMANCE					
Tension Efficiency	**72.6** %	Joint Yield Strength	**776** x 1000 lbs	Internal Pressure Capacity	**10860** psi
Compression Strength	**881** x 1000 lbs	Compression Efficiency	**82.4** %	Bending	**48** °/100 ft
External Pressure Capacity	**7870** psi				
MAKE-UP TORQUES					
Minimum	**9900** ft-lbs	Target	**11900** ft-lbs	Maximum (*)	**17300** ft-lbs
OPERATIONAL LIMIT TORQUES					
Operating Torque	**42000** ft-lbs	Yield Torque	**63000** ft-lbs		
BLANKING DIMENSIONS					
Blanking Dimensions					

* If you need to use torque values that are higher than the maximum indicated, please contact a local Tenaris technical sales representative.

7-5/8" Collapse Load Case Justification

Per conversation with Chris Walls on February 28th, for our intermediate casing program for the subject well, we feel that 7-5/8" 29.7# P-110 BTC would not be at risk of collapse when set as intermediate casing at approximately 12669'. Our reasons are as follows:

1. The 7-5/8" intermediate casing for this well would not be subject to the production collapse load case of being pumped off to zero pressure on the inside by beam pump or ESP production pumping the fluid level down. The 7-5/8" casing would be isolated from the beam pumping production collapse load case by the production casing that would be run subsequent to this string.

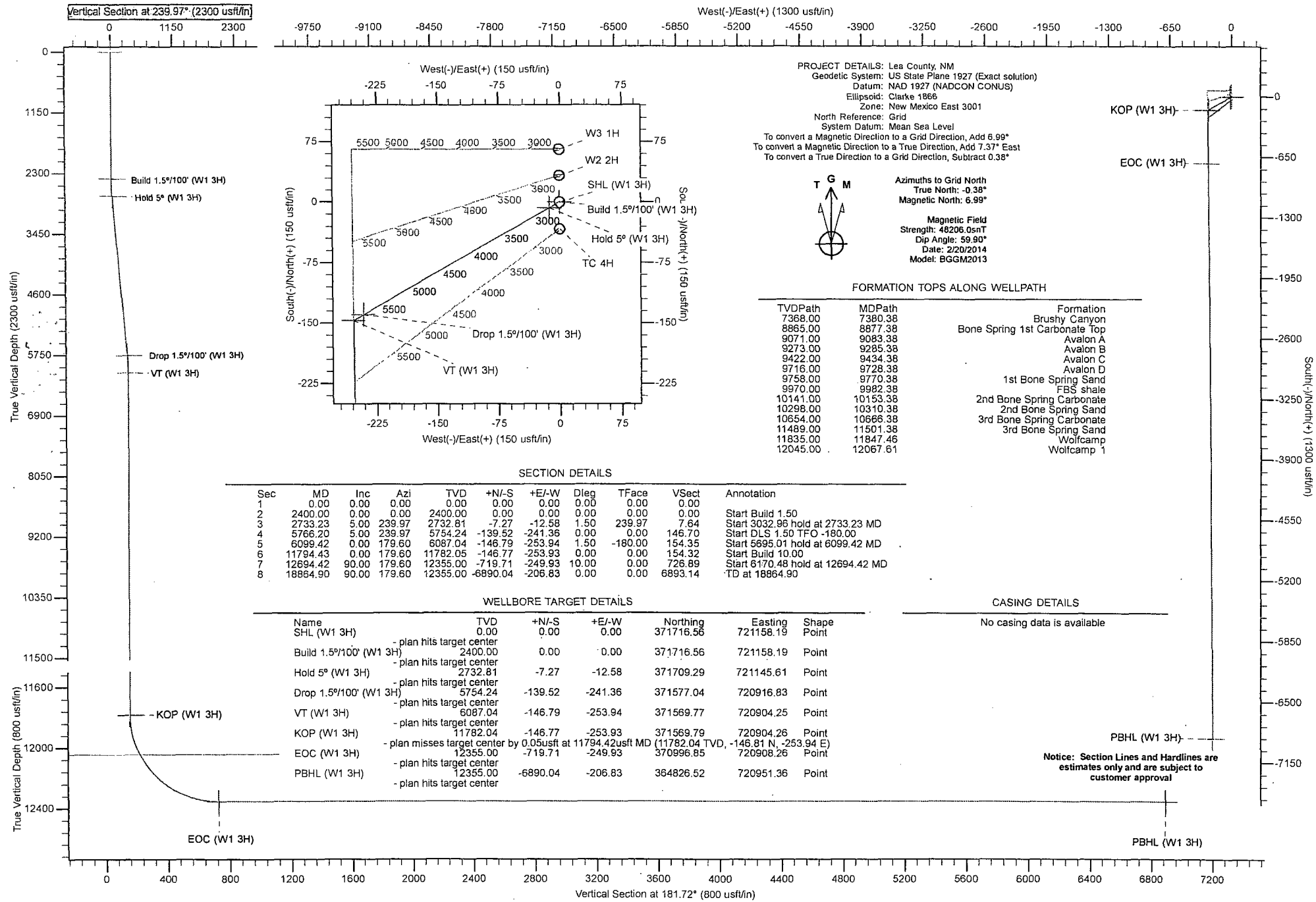
2. If loss of circulation occurs during the drilling phase while drilling below the 7-5/8" intermediate casing, we would expect the fluid level would fall no further than 5000' below the surface of ground before reaching hydrostatic balance with the pressure of the loss zone. Our anticipated maximum mud weight for drilling below the 7-5/8" intermediate casing is 14.0 ppg, and our experience has been that we have not had severe losses with this mud weight in our previous wells in this area.

3. The 7-5/8" casing will be filled with mud while running it by filling it at least once every 30 joints (1260').

ConocoPhillips

ConocoPhillips
Lea County, NM
War Hammer 25 Fed Com
W1 3H
Original Hole
Plan: Design #1 (W1 3H/Original Hole)
Well @ 3164.00usft (H&P 499 RKB: 25' + GL: 3139')

gyrodata
Precision Wellbore Placement



PROJECT DETAILS: Lea County, NM
Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico East 3001
North Reference: Grid
System Datum: Mean Sea Level
To convert a Magnetic Direction to a Grid Direction, Add 6.99°
To convert a Magnetic Direction to a True Direction, Add 7.37° East
To convert a True Direction to a Grid Direction, Subtract 0.38°

Azimuths to Grid North
True North: -0.38°
Magnetic North: 6.99°

Magnetic Field
Strength: 48206.0snT
Dip Angle: 59.90°
Date: 2/20/2014
Model: BGGM2013

FORMATION TOPS ALONG WELLPATH

TVDPath	MDPath	Formation
7368.00	7380.38	Brushy Canyon
8865.00	8877.38	Bone Spring 1st Carbonate Top
9071.00	9083.38	Avalon A
9273.00	9285.38	Avalon B
9422.00	9434.38	Avalon C
9716.00	9728.38	Avalon D
9758.00	9770.38	1st Bone Spring Sand
9970.00	9982.38	FBS shale
10141.00	10153.38	2nd Bone Spring Carbonate
10298.00	10310.38	2nd Bone Spring Sand
10654.00	10666.38	3rd Bone Spring Carbonate
11489.00	11501.38	3rd Bone Spring Sand
11835.00	11847.46	Wolfcamp
12045.00	12067.61	Wolfcamp 1

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	2400.00	0.00	0.00	2400.00	0.00	0.00	0.00	0.00	0.00	Start Build 1.50
3	2733.23	5.00	239.97	2732.81	-7.27	-12.58	1.50	239.97	7.64	Start 3032.96 hold at 2733.23 MD
4	5766.20	5.00	239.97	5754.24	-139.52	-241.36	0.00	0.00	146.70	Start DLS 1.50 TFO -180.00
5	6099.42	0.00	179.60	6087.04	-146.79	-253.94	1.50	-180.00	154.35	Start 5695.01 hold at 6099.42 MD
6	11794.43	0.00	179.60	11782.05	-146.77	-253.93	0.00	0.00	154.32	Start Build 10.00
7	12694.42	90.00	179.60	12355.00	-719.71	-249.93	10.00	0.00	726.89	Start 6170.48 hold at 12694.42 MD
8	18864.90	90.00	179.60	12355.00	-6890.04	-206.83	0.00	0.00	6893.14	TD at 18864.90

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
SHL (W1 3H)	0.00	0.00	0.00	371716.56	721158.19	Point
- plan hits target center						
Build 1.5°/100' (W1 3H)	2400.00	0.00	0.00	371716.56	721158.19	Point
- plan hits target center						
Hold 5° (W1 3H)	2732.81	-7.27	-12.58	371709.29	721145.61	Point
- plan hits target center						
Drop 1.5°/100' (W1 3H)	5754.24	-139.52	-241.36	371577.04	720916.83	Point
- plan hits target center						
VT (W1 3H)	6087.04	-146.79	-253.94	371569.77	720904.25	Point
- plan hits target center						
KOP (W1 3H)	11782.04	-146.77	-253.93	371569.79	720904.26	Point
- plan misses target center by 0.05usft at 11794.42usft MD (11782.04 TVD, -146.81 N, -253.94 E)						
EOC (W1 3H)	12355.00	-719.71	-249.93	370996.85	720908.26	Point
- plan hits target center						
PBHL (W1 3H)	12355.00	-6890.04	-206.83	364826.52	720951.36	Point
- plan hits target center						

CASING DETAILS

No casing data is available

Notice: Section Lines and Hardlines are estimates only and are subject to customer approval

Created By: James A Date: 0:34, February 25 2014

ConocoPhillips

Planning Report

gyrodata
Precision Wellbore Placement

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well W1 3H
Company:	ConocoPhillips	**TVD Reference:**	Well @ 3164.00usft (H&P 499 RKB: 25' + GL: 3139')
Project:	Lea County, NM	**MD Reference:**	Well @ 3164.00usft (H&P 499 RKB: 25' + GL: 3139')
Site:	War Hammer 25 Fed Com	**North Reference:**	Grid
Well:	W1 3H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	Design #1		

Project	Lea County, NM		
Map System:	US State Plane 1927 (Exact solution)	**System Datum:**	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	War Hammer 25 Fed Com				
Site Position:		**Northing:**	371,782.24 usft	**Latitude:**	32° 1' 12.490 N
From:	Map	**Easting:**	721,157.76 usft	**Longitude:**	103° 37' 11.140 W
Position Uncertainty:	0.00 usft	**Slot Radius:**	13.20 in	**Grid Convergence:**	0.38 °

Well	W1 3H				
Well Position	**+N/-S**	-65.68 usft	**Northing:**	371,716.56 usft	**Latitude:**	32° 1' 11.840 N
	+E/-W	0.43 usft	**Easting:**	721,158.19 usft	**Longitude:**	103° 37' 11.140 W
Position Uncertainty		0.00 usft	**Wellhead Elevation:**	0.00 usft	**Ground Level:**	3,139.00 usft

Wellbore	Original Hole				
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	User Defined	2/20/2014	7.37	59.90	48,206

Design	Design #1				
Audit Notes:					
Version:		**Phase:**	PLAN	**Tie On Depth:**	0.00
Vertical Section:	**Depth From (TVD) (usft)**	**+N/-S (usft)**	**+E/-W (usft)**	**Direction (°)**	
	0.00	0.00	0.00	181.72	

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,733.23	5.00	239.97	2,732.81	-7.27	-12.58	1.50	1.50	0.00	239.97	
5,766.20	5.00	239.97	5,754.24	-139.52	-241.36	0.00	0.00	0.00	0.00	
6,099.42	0.00	179.60	6,087.04	-146.79	-253.94	1.50	-1.50	-18.12	-180.00	VT (W1 3H)
11,794.43	0.00	179.60	11,782.05	-146.77	-253.93	0.00	0.00	0.00	0.00	
12,694.42	90.00	179.60	12,355.00	-719.71	-249.93	10.00	10.00	0.00	0.00	EOC (W1 3H)
18,864.90	90.00	179.60	12,355.00	-6,890.04	-206.83	0.00	0.00	0.00	0.00	PBHL (W1 3H)

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well W1 3H
Company:	ConocoPhillips	**TVD Reference:**	Well @ 3164.00usft (H&P 499 RKB: 25' + GL: 3139')
Project:	Lea County, NM	**MD Reference:**	Well @ 3164.00usft (H&P 499 RKB: 25' + GL: 3139')
Site:	War Hammer 25 Fed Com	**North Reference:**	Grid
Well:	W1 3H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SHL (W1 3H)									
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	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
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 1.50 - Build 1.5°/100' (W1 3H)									
2,500.00	1.50	239.97	2,499.99	-0.66	-1.13	0.69	1.50	1.50	0.00
2,600.00	3.00	239.97	2,599.91	-2.62	-4.53	2.75	1.50	1.50	0.00
2,700.00	4.50	239.97	2,699.69	-5.89	-10.19	6.20	1.50	1.50	0.00
2,733.23	5.00	239.97	2,732.81	-7.27	-12.58	7.64	1.50	1.50	0.00
Start 3032.96 hold at 2733.23 MD - Hold 5° (W1 3H)									
2,800.00	5.00	239.97	2,799.32	-10.18	-17.61	10.71	0.00	0.00	0.00
2,900.00	5.00	239.97	2,898.94	-14.54	-25.16	15.29	0.00	0.00	0.00
3,000.00	5.00	239.97	2,998.56	-18.90	-32.70	19.87	0.00	0.00	0.00
3,100.00	5.00	239.97	3,098.18	-23.26	-40.24	24.46	0.00	0.00	0.00
3,200.00	5.00	239.97	3,197.80	-27.62	-47.79	29.04	0.00	0.00	0.00
3,300.00	5.00	239.97	3,297.42	-31.98	-55.33	33.63	0.00	0.00	0.00
3,400.00	5.00	239.97	3,397.04	-36.34	-62.87	38.21	0.00	0.00	0.00
3,500.00	5.00	239.97	3,496.66	-40.70	-70.42	42.80	0.00	0.00	0.00
3,600.00	5.00	239.97	3,596.28	-45.06	-77.96	47.38	0.00	0.00	0.00
3,700.00	5.00	239.97	3,695.90	-49.42	-85.50	51.97	0.00	0.00	0.00
3,800.00	5.00	239.97	3,795.52	-53.79	-93.05	56.55	0.00	0.00	0.00
3,900.00	5.00	239.97	3,895.14	-58.15	-100.59	61.14	0.00	0.00	0.00
4,000.00	5.00	239.97	3,994.76	-62.51	-108.13	65.72	0.00	0.00	0.00
4,100.00	5.00	239.97	4,094.38	-66.87	-115.68	70.31	0.00	0.00	0.00
4,200.00	5.00	239.97	4,194.00	-71.23	-123.22	74.89	0.00	0.00	0.00
4,300.00	5.00	239.97	4,293.62	-75.59	-130.76	79.48	0.00	0.00	0.00
4,400.00	5.00	239.97	4,393.24	-79.95	-138.31	84.06	0.00	0.00	0.00
4,500.00	5.00	239.97	4,492.86	-84.31	-145.85	88.65	0.00	0.00	0.00
4,600.00	5.00	239.97	4,592.48	-88.67	-153.39	93.23	0.00	0.00	0.00
4,700.00	5.00	239.97	4,692.10	-93.03	-160.94	97.82	0.00	0.00	0.00

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well W1 3H
Company:	ConocoPhillips	**TVD Reference:**	Well @ 3164.00usft (H&P 499 RKB: 25' + GL: 3139')
Project:	Lea County, NM	**MD Reference:**	Well @ 3164.00usft (H&P 499 RKB: 25' + GL: 3139')
Site:	War Hammer 25 Fed Com	**North Reference:**	Grid
Well:	W1 3H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,800.00	5.00	239.97	4,791.72	-97.39	-168.48	102.40	0.00	0.00	0.00
4,900.00	5.00	239.97	4,891.34	-101.75	-176.02	106.99	0.00	0.00	0.00
5,000.00	5.00	239.97	4,990.96	-106.11	-183.57	111.57	0.00	0.00	0.00
5,100.00	5.00	239.97	5,090.58	-110.47	-191.11	116.16	0.00	0.00	0.00
5,200.00	5.00	239.97	5,190.20	-114.83	-198.65	120.74	0.00	0.00	0.00
5,300.00	5.00	239.97	5,289.82	-119.19	-206.20	125.33	0.00	0.00	0.00
5,400.00	5.00	239.97	5,389.44	-123.55	-213.74	129.91	0.00	0.00	0.00
5,500.00	5.00	239.97	5,489.06	-127.91	-221.28	134.50	0.00	0.00	0.00
5,600.00	5.00	239.97	5,588.68	-132.27	-228.83	139.08	0.00	0.00	0.00
5,700.00	5.00	239.97	5,688.29	-136.63	-236.37	143.67	0.00	0.00	0.00
5,766.20	5.00	239.97	5,754.24	-139.52	-241.36	146.70	0.00	0.00	0.00
Start DLS 1.50 TFO -180.00 - Drop 1.5°/100' (W1 3H)									
5,800.00	4.49	239.97	5,787.93	-140.92	-243.78	148.17	1.50	-1.50	0.00
5,900.00	2.99	239.97	5,887.71	-144.18	-249.43	151.61	1.50	-1.50	0.00
6,000.00	1.49	239.96	5,987.63	-146.14	-252.82	153.66	1.50	-1.50	0.00
6,099.42	0.00	179.60	6,087.04	-146.79	-253.94	154.35	1.50	-1.50	-60.72
Start 5695.01 hold at 6099.42 MD - VT (W1 3H)									
6,200.00	0.00	179.60	6,187.62	-146.79	-253.94	154.35	0.00	0.00	0.00
6,300.00	0.00	179.60	6,287.62	-146.79	-253.94	154.35	0.00	0.00	0.00
6,400.00	0.00	179.60	6,387.62	-146.79	-253.94	154.35	0.00	0.00	0.00
6,500.00	0.00	179.60	6,487.62	-146.79	-253.94	154.35	0.00	0.00	0.00
6,600.00	0.00	179.60	6,587.62	-146.79	-253.94	154.35	0.00	0.00	0.00
6,700.00	0.00	179.60	6,687.62	-146.79	-253.94	154.35	0.00	0.00	0.00
6,800.00	0.00	179.60	6,787.62	-146.79	-253.94	154.35	0.00	0.00	0.00
6,900.00	0.00	179.60	6,887.62	-146.79	-253.94	154.35	0.00	0.00	0.00
7,000.00	0.00	179.60	6,987.62	-146.79	-253.94	154.35	0.00	0.00	0.00
7,100.00	0.00	179.60	7,087.62	-146.79	-253.94	154.35	0.00	0.00	0.00
7,200.00	0.00	179.60	7,187.62	-146.79	-253.94	154.35	0.00	0.00	0.00
7,300.00	0.00	179.60	7,287.62	-146.80	-253.94	154.35	0.00	0.00	0.00
7,380.38	0.00	179.60	7,368.00	-146.80	-253.94	154.35	0.00	0.00	0.00
Brushy Canyon									
7,400.00	0.00	179.60	7,387.62	-146.80	-253.94	154.35	0.00	0.00	0.00
7,500.00	0.00	179.60	7,487.62	-146.80	-253.94	154.35	0.00	0.00	0.00
7,600.00	0.00	179.60	7,587.62	-146.80	-253.94	154.35	0.00	0.00	0.00
7,700.00	0.00	179.60	7,687.62	-146.80	-253.94	154.35	0.00	0.00	0.00
7,800.00	0.00	179.60	7,787.62	-146.80	-253.94	154.35	0.00	0.00	0.00
7,900.00	0.00	179.60	7,887.62	-146.80	-253.94	154.35	0.00	0.00	0.00
8,000.00	0.00	179.60	7,987.62	-146.80	-253.94	154.35	0.00	0.00	0.00
8,100.00	0.00	179.60	8,087.62	-146.80	-253.94	154.35	0.00	0.00	0.00
8,200.00	0.00	179.60	8,187.62	-146.80	-253.94	154.35	0.00	0.00	0.00
8,300.00	0.00	179.60	8,287.62	-146.80	-253.94	154.36	0.00	0.00	0.00
8,400.00	0.00	179.60	8,387.62	-146.80	-253.94	154.36	0.00	0.00	0.00
8,500.00	0.00	179.60	8,487.62	-146.80	-253.94	154.36	0.00	0.00	0.00
8,600.00	0.00	179.60	8,587.62	-146.80	-253.94	154.36	0.00	0.00	0.00
8,700.00	0.00	179.60	8,687.62	-146.80	-253.94	154.36	0.00	0.00	0.00
8,800.00	0.00	179.60	8,787.62	-146.80	-253.94	154.36	0.00	0.00	0.00
8,877.38	0.00	179.60	8,865.00	-146.80	-253.94	154.36	0.00	0.00	0.00
Bone Spring 1st Carbonate Top									
8,900.00	0.00	179.60	8,887.62	-146.80	-253.94	154.36	0.00	0.00	0.00
9,000.00	0.00	179.60	8,987.62	-146.80	-253.94	154.36	0.00	0.00	0.00
9,083.38	0.00	179.60	9,071.00	-146.80	-253.94	154.36	0.00	0.00	0.00

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well W1 3H
Company:	ConocoPhillips	**TVD Reference:**	Well @ 3164.00usft (H&P 499 RKB: 25' + GL: 3139')
Project:	Lea County, NM	**MD Reference:**	Well @ 3164.00usft (H&P 499 RKB: 25' + GL: 3139')
Site:	War Hammer 25 Fed Com	**North Reference:**	Grid
Well:	W1 3H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
Avalon A									
9,100.00	0.00	179.60	9,087.62	-146.80	-253.94	154.36	0.00	0.00	0.00
9,200.00	0.00	179.60	9,187.62	-146.80	-253.94	154.36	0.00	0.00	0.00
9,285.38	0.00	179.60	9,273.00	-146.80	-253.94	154.36	0.00	0.00	0.00
Avalon B									
9,300.00	0.00	179.60	9,287.62	-146.80	-253.94	154.36	0.00	0.00	0.00
9,400.00	0.00	179.60	9,387.62	-146.80	-253.94	154.36	0.00	0.00	0.00
9,434.38	0.00	179.60	9,422.00	-146.80	-253.94	154.36	0.00	0.00	0.00
Avalon C									
9,500.00	0.00	179.60	9,487.62	-146.80	-253.94	154.36	0.00	0.00	0.00
9,600.00	0.00	179.60	9,587.62	-146.80	-253.94	154.36	0.00	0.00	0.00
9,700.00	0.00	179.60	9,687.62	-146.81	-253.94	154.36	0.00	0.00	0.00
9,728.38	0.00	179.60	9,716.00	-146.81	-253.94	154.36	0.00	0.00	0.00
Avalon D									
9,770.38	0.00	179.60	9,758.00	-146.81	-253.94	154.36	0.00	0.00	0.00
1st Bone Spring Sand									
9,800.00	0.00	179.60	9,787.62	-146.81	-253.94	154.36	0.00	0.00	0.00
9,900.00	0.00	179.60	9,887.62	-146.81	-253.94	154.36	0.00	0.00	0.00
9,982.38	0.00	179.60	9,970.00	-146.81	-253.94	154.36	0.00	0.00	0.00
FBS shale									
10,000.00	0.00	179.60	9,987.62	-146.81	-253.94	154.36	0.00	0.00	0.00
10,100.00	0.00	179.60	10,087.62	-146.81	-253.94	154.36	0.00	0.00	0.00
10,153.38	0.00	179.60	10,141.00	-146.81	-253.94	154.36	0.00	0.00	0.00
2nd Bone Spring Carbonate									
10,200.00	0.00	179.60	10,187.62	-146.81	-253.94	154.36	0.00	0.00	0.00
10,300.00	0.00	179.60	10,287.62	-146.81	-253.94	154.36	0.00	0.00	0.00
10,310.38	0.00	179.60	10,298.00	-146.81	-253.94	154.36	0.00	0.00	0.00
2nd Bone Spring Sand									
10,400.00	0.00	179.60	10,387.62	-146.81	-253.94	154.36	0.00	0.00	0.00
10,500.00	0.00	179.60	10,487.62	-146.81	-253.94	154.36	0.00	0.00	0.00
10,600.00	0.00	179.60	10,587.62	-146.81	-253.94	154.36	0.00	0.00	0.00
10,666.38	0.00	179.60	10,654.00	-146.81	-253.94	154.37	0.00	0.00	0.00
3rd Bone Spring Carbonate									
10,700.00	0.00	179.60	10,687.62	-146.81	-253.94	154.37	0.00	0.00	0.00
10,800.00	0.00	179.60	10,787.62	-146.81	-253.94	154.37	0.00	0.00	0.00
10,900.00	0.00	179.60	10,887.62	-146.81	-253.94	154.37	0.00	0.00	0.00
11,000.00	0.00	179.60	10,987.62	-146.81	-253.94	154.37	0.00	0.00	0.00
11,100.00	0.00	179.60	11,087.62	-146.81	-253.94	154.37	0.00	0.00	0.00
11,200.00	0.00	179.60	11,187.62	-146.81	-253.94	154.37	0.00	0.00	0.00
11,300.00	0.00	179.60	11,287.62	-146.81	-253.94	154.37	0.00	0.00	0.00
11,400.00	0.00	179.60	11,387.62	-146.81	-253.94	154.37	0.00	0.00	0.00
11,500.00	0.00	179.60	11,487.62	-146.81	-253.94	154.37	0.00	0.00	0.00
11,501.38	0.00	179.60	11,489.00	-146.81	-253.94	154.37	0.00	0.00	0.00
3rd Bone Spring Sand									
11,600.00	0.00	179.60	11,587.62	-146.81	-253.94	154.37	0.00	0.00	0.00
11,700.00	0.00	179.60	11,687.62	-146.81	-253.94	154.37	0.00	0.00	0.00
11,794.42	0.00	179.60	11,782.04	-146.81	-253.94	154.37	0.00	0.00	0.00
Start Build 10.00 - KOP (W1 3H)									
11,800.00	0.56	179.60	11,787.62	-146.79	-253.93	154.35	10.00	10.00	0.00
11,847.46	5.30	179.60	11,835.00	-149.22	-253.91	156.77	10.00	10.00	0.00
Wolfcamp									

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well W1 3H
Company:	ConocoPhillips	**TVD Reference:**	Well @ 3164.00usft (H&P 499 RKB: 25' + GL: 3139')
Project:	Lea County, NM	**MD Reference:**	Well @ 3164.00usft (H&P 499 RKB: 25' + GL: 3139')
Site:	War Hammer 25 Fed Com	**North Reference:**	Grid
Well:	W1 3H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
11,850.00	5.56	179.60	11,837.53	-149.46	-253.91	157.01	10.00	10.00	0.00
11,900.00	10.56	179.60	11,887.02	-156.47	-253.86	164.02	10.00	10.00	0.00
11,950.00	15.56	179.60	11,935.72	-167.76	-253.79	175.30	10.00	10.00	0.00
12,000.00	20.56	179.60	11,983.24	-183.25	-253.68	190.78	10.00	10.00	0.00
12,050.00	25.56	179.60	12,029.23	-202.83	-253.54	210.35	10.00	10.00	0.00
12,067.61	27.32	179.60	12,045.00	-210.67	-253.49	218.18	10.00	10.00	0.00
Wolfcamp 1									
12,100.00	30.56	179.60	12,073.34	-226.34	-253.38	233.84	10.00	10.00	0.00
12,150.00	35.56	179.60	12,115.23	-253.60	-253.19	261.09	10.00	10.00	0.00
12,200.00	40.56	179.60	12,154.59	-284.42	-252.97	291.88	10.00	10.00	0.00
12,250.00	45.56	179.60	12,191.11	-318.54	-252.73	325.98	10.00	10.00	0.00
12,300.00	50.56	179.60	12,224.52	-355.72	-252.47	363.14	10.00	10.00	0.00
12,350.00	55.56	179.60	12,254.56	-395.67	-252.19	403.06	10.00	10.00	0.00
12,400.00	60.56	179.60	12,281.00	-438.08	-251.90	445.45	10.00	10.00	0.00
12,450.00	65.56	179.60	12,303.65	-482.64	-251.59	489.97	10.00	10.00	0.00
12,500.00	70.56	179.60	12,322.33	-529.00	-251.26	536.31	10.00	10.00	0.00
12,550.00	75.56	179.60	12,336.89	-576.82	-250.93	584.09	10.00	10.00	0.00
12,600.00	80.56	179.60	12,347.24	-625.72	-250.59	632.96	10.00	10.00	0.00
12,650.00	85.56	179.60	12,353.28	-675.33	-250.24	682.54	10.00	10.00	0.00
12,694.42	90.00	179.60	12,355.00	-719.71	-249.93	726.89	10.00	10.00	0.00
Start 6170.48 hold at 12694.42 MD - EOC (W1 3H)									
12,700.00	90.00	179.60	12,355.00	-725.29	-249.89	732.46	0.00	0.00	0.00
12,800.00	90.00	179.60	12,355.00	-825.29	-249.19	832.39	0.00	0.00	0.00
12,900.00	90.00	179.60	12,355.00	-925.28	-248.49	932.33	0.00	0.00	0.00
13,000.00	90.00	179.60	12,355.00	-1,025.28	-247.80	1,032.26	0.00	0.00	0.00
13,100.00	90.00	179.60	12,355.00	-1,125.28	-247.10	1,132.19	0.00	0.00	0.00
13,200.00	90.00	179.60	12,355.00	-1,225.28	-246.40	1,232.12	0.00	0.00	0.00
13,300.00	90.00	179.60	12,355.00	-1,325.27	-245.70	1,332.05	0.00	0.00	0.00
13,400.00	90.00	179.60	12,355.00	-1,425.27	-245.00	1,431.98	0.00	0.00	0.00
13,500.00	90.00	179.60	12,355.00	-1,525.27	-244.30	1,531.91	0.00	0.00	0.00
13,600.00	90.00	179.60	12,355.00	-1,625.27	-243.60	1,631.85	0.00	0.00	0.00
13,700.00	90.00	179.60	12,355.00	-1,725.26	-242.91	1,731.78	0.00	0.00	0.00
13,800.00	90.00	179.60	12,355.00	-1,825.26	-242.21	1,831.71	0.00	0.00	0.00
13,900.00	90.00	179.60	12,355.00	-1,925.26	-241.51	1,931.64	0.00	0.00	0.00
14,000.00	90.00	179.60	12,355.00	-2,025.26	-240.81	2,031.57	0.00	0.00	0.00
14,100.00	90.00	179.60	12,355.00	-2,125.25	-240.11	2,131.50	0.00	0.00	0.00
14,200.00	90.00	179.60	12,355.00	-2,225.25	-239.41	2,231.44	0.00	0.00	0.00
14,300.00	90.00	179.60	12,355.00	-2,325.25	-238.72	2,331.37	0.00	0.00	0.00
14,400.00	90.00	179.60	12,355.00	-2,425.25	-238.02	2,431.30	0.00	0.00	0.00
14,500.00	90.00	179.60	12,355.00	-2,525.24	-237.32	2,531.23	0.00	0.00	0.00
14,600.00	90.00	179.60	12,355.00	-2,625.24	-236.62	2,631.16	0.00	0.00	0.00
14,700.00	90.00	179.60	12,355.00	-2,725.24	-235.92	2,731.09	0.00	0.00	0.00
14,800.00	90.00	179.60	12,355.00	-2,825.24	-235.22	2,831.02	0.00	0.00	0.00
14,900.00	90.00	179.60	12,355.00	-2,925.24	-234.52	2,930.96	0.00	0.00	0.00
15,000.00	90.00	179.60	12,355.00	-3,025.23	-233.83	3,030.89	0.00	0.00	0.00
15,100.00	90.00	179.60	12,355.00	-3,125.23	-233.13	3,130.82	0.00	0.00	0.00
15,200.00	90.00	179.60	12,355.00	-3,225.23	-232.43	3,230.75	0.00	0.00	0.00
15,300.00	90.00	179.60	12,355.00	-3,325.23	-231.73	3,330.68	0.00	0.00	0.00
15,400.00	90.00	179.60	12,355.00	-3,425.22	-231.03	3,430.61	0.00	0.00	0.00
15,500.00	90.00	179.60	12,355.00	-3,525.22	-230.33	3,530.55	0.00	0.00	0.00
15,600.00	90.00	179.60	12,355.00	-3,625.22	-229.63	3,630.48	0.00	0.00	0.00
15,700.00	90.00	179.60	12,355.00	-3,725.22	-228.94	3,730.41	0.00	0.00	0.00

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well W1 3H
Company:	ConocoPhillips	**TVD Reference:**	Well @ 3164.00usft (H&P 499 RKB: 25' + GL: 3139')
Project:	Lea County, NM	**MD Reference:**	Well @ 3164.00usft (H&P 499 RKB: 25' + GL: 3139')
Site:	War Hammer 25 Fed Com	**North Reference:**	Grid
Well:	W1 3H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
15,800.00	90.00	179.60	12,355.00	-3,825.21	-228.24	3,830.34	0.00	0.00	0.00
15,900.00	90.00	179.60	12,355.00	-3,925.21	-227.54	3,930.27	0.00	0.00	0.00
16,000.00	90.00	179.60	12,355.00	-4,025.21	-226.84	4,030.20	0.00	0.00	0.00
16,100.00	90.00	179.60	12,355.00	-4,125.21	-226.14	4,130.14	0.00	0.00	0.00
16,200.00	90.00	179.60	12,355.00	-4,225.20	-225.44	4,230.07	0.00	0.00	0.00
16,300.00	90.00	179.60	12,355.00	-4,325.20	-224.75	4,330.00	0.00	0.00	0.00
16,400.00	90.00	179.60	12,355.00	-4,425.20	-224.05	4,429.93	0.00	0.00	0.00
16,500.00	90.00	179.60	12,355.00	-4,525.20	-223.35	4,529.86	0.00	0.00	0.00
16,600.00	90.00	179.60	12,355.00	-4,625.19	-222.65	4,629.79	0.00	0.00	0.00
16,700.00	90.00	179.60	12,355.00	-4,725.19	-221.95	4,729.72	0.00	0.00	0.00
16,800.00	90.00	179.60	12,355.00	-4,825.19	-221.25	4,829.66	0.00	0.00	0.00
16,900.00	90.00	179.60	12,355.00	-4,925.19	-220.55	4,929.59	0.00	0.00	0.00
17,000.00	90.00	179.60	12,355.00	-5,025.18	-219.86	5,029.52	0.00	0.00	0.00
17,100.00	90.00	179.60	12,355.00	-5,125.18	-219.16	5,129.45	0.00	0.00	0.00
17,200.00	90.00	179.60	12,355.00	-5,225.18	-218.46	5,229.38	0.00	0.00	0.00
17,300.00	90.00	179.60	12,355.00	-5,325.18	-217.76	5,329.31	0.00	0.00	0.00
17,400.00	90.00	179.60	12,355.00	-5,425.17	-217.06	5,429.25	0.00	0.00	0.00
17,500.00	90.00	179.60	12,355.00	-5,525.17	-216.36	5,529.18	0.00	0.00	0.00
17,600.00	90.00	179.60	12,355.00	-5,625.17	-215.67	5,629.11	0.00	0.00	0.00
17,700.00	90.00	179.60	12,355.00	-5,725.17	-214.97	5,729.04	0.00	0.00	0.00
17,800.00	90.00	179.60	12,355.00	-5,825.16	-214.27	5,828.97	0.00	0.00	0.00
17,900.00	90.00	179.60	12,355.00	-5,925.16	-213.57	5,928.90	0.00	0.00	0.00
18,000.00	90.00	179.60	12,355.00	-6,025.16	-212.87	6,028.83	0.00	0.00	0.00
18,100.00	90.00	179.60	12,355.00	-6,125.16	-212.17	6,128.77	0.00	0.00	0.00
18,200.00	90.00	179.60	12,355.00	-6,225.15	-211.47	6,228.70	0.00	0.00	0.00
18,300.00	90.00	179.60	12,355.00	-6,325.15	-210.78	6,328.63	0.00	0.00	0.00
18,400.00	90.00	179.60	12,355.00	-6,425.15	-210.08	6,428.56	0.00	0.00	0.00
18,500.00	90.00	179.60	12,355.00	-6,525.15	-209.38	6,528.49	0.00	0.00	0.00
18,600.00	90.00	179.60	12,355.00	-6,625.15	-208.68	6,628.42	0.00	0.00	0.00
18,700.00	90.00	179.60	12,355.00	-6,725.14	-207.98	6,728.36	0.00	0.00	0.00
18,800.00	90.00	179.60	12,355.00	-6,825.14	-207.28	6,828.29	0.00	0.00	0.00
18,864.90	90.00	179.60	12,355.00	-6,890.04	-206.83	6,893.14	0.00	0.00	0.00
TD at 18864.90 - PBHL (W1 3H)									

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well W1 3H
Company:	ConocoPhillips	**TVD Reference:**	Well @ 3164.00usft (H&P 499 RKB: 25' + GL: 3139')
Project:	Lea County, NM	**MD Reference:**	Well @ 3164.00usft (H&P 499 RKB: 25' + GL: 3139')
Site:	War Hammer 25 Fed Com	**North Reference:**	Grid
Well:	W1 3H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	Design #1		

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
SHL (W1 3H) - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	371,716.56	721,158.19	32° 1' 11.840 N	103° 37' 11.140 W
Build 1.5°/100' (W1 3H) - plan hits target center - Point	0.00	0.00	2,400.00	0.00	0.00	371,716.56	721,158.19	32° 1' 11.840 N	103° 37' 11.140 W
Hold 5° (W1 3H) - plan hits target center - Point	0.00	0.00	2,732.81	-7.27	-12.58	371,709.29	721,145.61	32° 1' 11.769 N	103° 37' 11.287 W
Drop 1.5°/100' (W1 3H) - plan hits target center - Point	0.00	0.00	5,754.24	-139.52	-241.36	371,577.04	720,916.82	32° 1' 10.475 N	103° 37' 13.954 W
VT (W1 3H) - plan hits target center - Point	0.00	0.00	6,087.04	-146.79	-253.94	371,569.77	720,904.25	32° 1' 10.404 N	103° 37' 14.101 W
KOP (W1 3H) - plan misses target center by 0.05usft at 11794.42usft MD (11782.04 TVD, -146.81 N, -253.94 E) - Point	0.00	0.00	11,782.04	-146.77	-253.93	371,569.79	720,904.25	32° 1' 10.404 N	103° 37' 14.101 W
PBHL (W1 3H) - plan hits target center - Point	0.00	0.00	12,355.00	-6,890.04	-206.83	364,826.52	720,951.36	32° 0' 3.670 N	103° 37' 14.070 W
EOC (W1 3H) - plan hits target center - Point	0.00	0.00	12,355.00	-719.71	-249.93	370,996.85	720,908.26	32° 1' 4.734 N	103° 37' 14.098 W

Formations

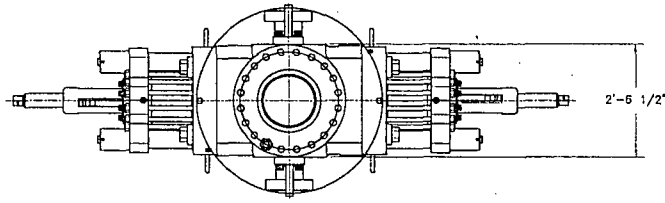
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
7,380.38	7,368.00	Brushy Canyon		0.00	0.00
8,877.38	8,865.00	Bone Spring 1st Carbonate Top		0.00	0.00
9,083.38	9,071.00	Avalon A		0.00	0.00
9,285.38	9,273.00	Avalon B		0.00	0.00
9,434.38	9,422.00	Avalon C		0.00	0.00
9,728.38	9,716.00	Avalon D		0.00	0.00
9,770.38	9,758.00	1st Bone Spring Sand		0.00	0.00
9,982.38	9,970.00	FBS shale		0.00	0.00
10,153.38	10,141.00	2nd Bone Spring Carbonate		0.00	0.00
10,310.38	10,298.00	2nd Bone Spring Sand		0.00	0.00
10,666.38	10,654.00	3rd Bone Spring Carbonate		0.00	0.00
11,501.38	11,489.00	3rd Bone Spring Sand		0.00	0.00
11,847.46	11,835.00	Wolfcamp		0.00	0.00
12,067.61	12,045.00	Wolfcamp 1		0.00	0.00

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well W1 3H
Company:	ConocoPhillips	**TVD Reference:**	Well @ 3164.00usft (H&P 499 RKB: 25' + GL: 3139')
Project:	Lea County, NM	**MD Reference:**	Well @ 3164.00usft (H&P 499 RKB: 25' + GL: 3139')
Site:	War Hammer 25 Fed Com	**North Reference:**	Grid
Well:	W1 3H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	Design #1		

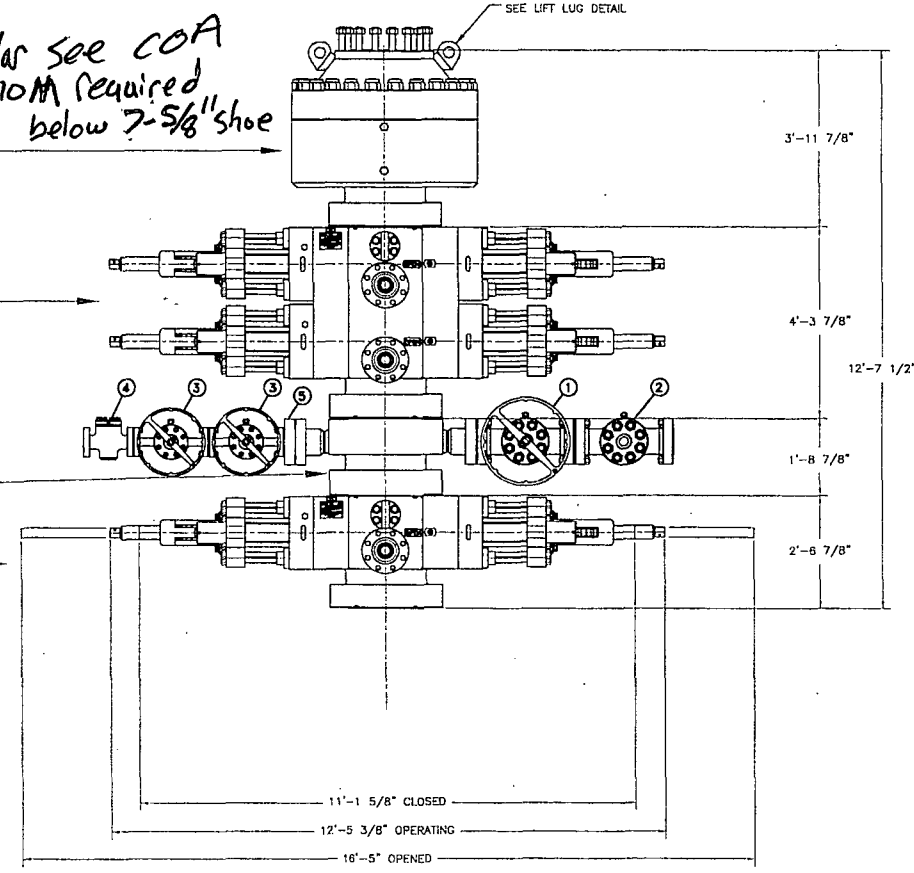
Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	+E/-W (usft)	Comment
2,400.00	2,400.00	0.00	0.00	Start Build 1.50
2,733.23	2,732.81	-7.27	-12.58	Start 3032.96 hold at 2733.23 MD
5,766.20	5,754.24	-139.52	-241.36	Start DLS 1.50 TFO -180.00
6,099.42	6,087.04	-146.79	-253.94	Start 5695.01 hold at 6099.42 MD
11,794.43	11,782.05	-146.81	-253.94	Start Build 10.00
12,694.42	12,355.00	-719.71	-249.93	Start 6170.48 hold at 12694.42 MD
18,864.90	12,355.00	-6,890.04	-206.83	TD at 18864.90

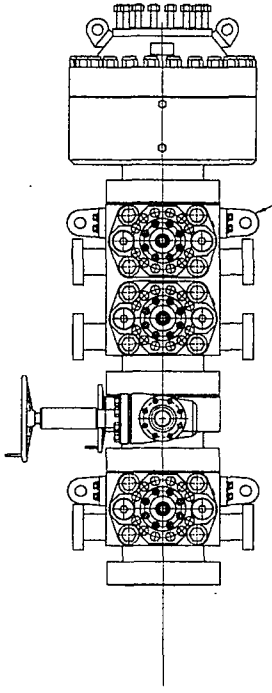
LEGEND
① 4 1/16"-10M FLANGED END GATE VALVE
② 4 1/16"-10M FLANGED END GATE VALVE WITH DOUBLE ACTING HYDRAULIC ACTUATOR
③ 2 1/16"-10M FLANGED END GATE VALVE
④ 2 1/16"-10M FLANGED END CHECK VALVE
⑤ DOUBLE STUDDED ADAPTER



10M annular see COA
10M required below 7-5/8" shoe



13 5/8-10M STACK



PRELIMINARY
April-14-2011
DRAFTSMAN
ENGINEER

API 6A MONOGRAMMED CAMERON CHOKE AND KILL WING VALVE ASSEMBLIES ARE NOT SHOWN FOR CLARITY

WEIGHTS DO NOT INCLUDE HOSES, ADAPTER SPOOLS OR QUICK CONNECT FITTINGS

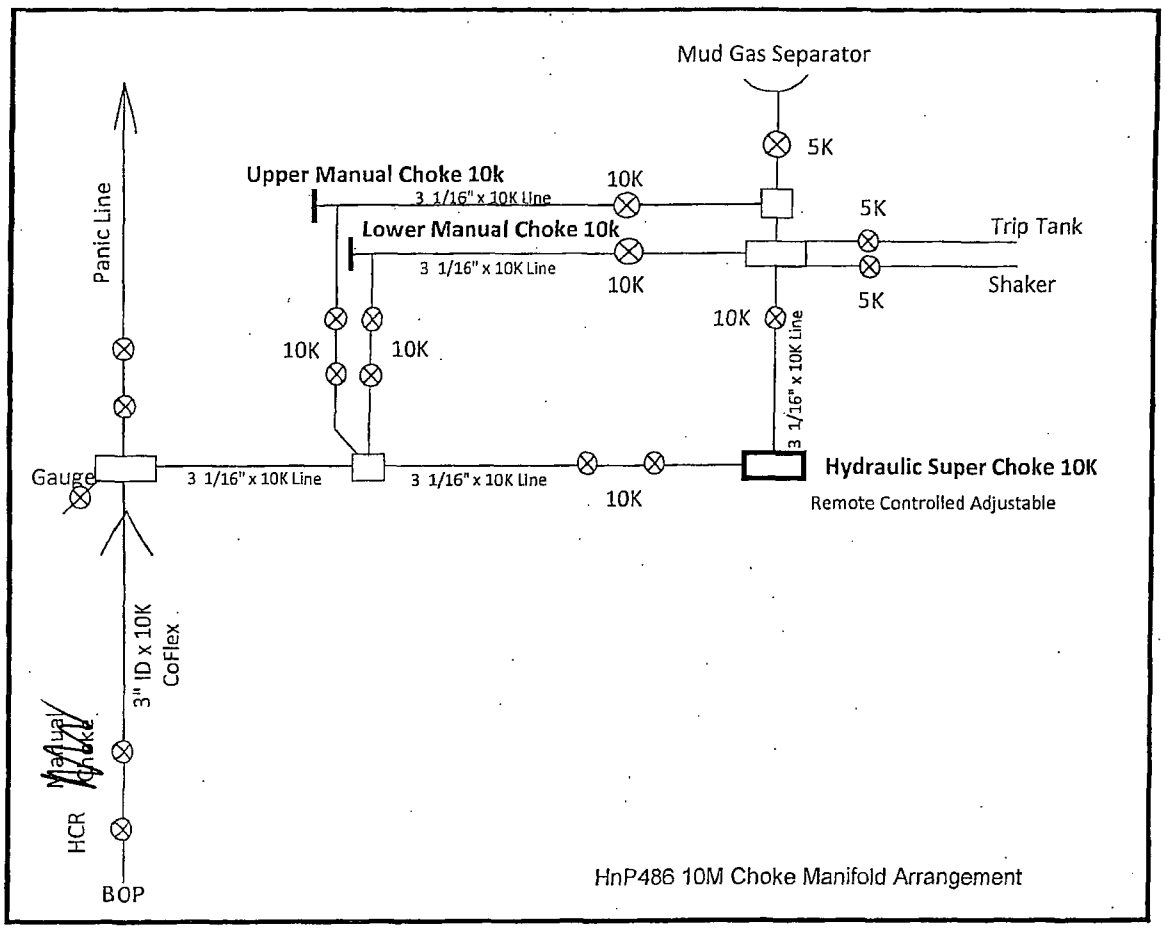
REV	DATE	DESCRIPTION	BY
E	12/18/07	ADDED SHEET 03	JAV
D	4-10-07	ORIENTATION REVISED, DOUBLE STUDDED ADAPTER VALVES 1, 2, & 3, AND HCR CHECK VALVE ADDED	JBG
C	4-04-07	8" ADDED TO SPACER ADAPTER SPOOL	JBG
B	02-07-07	ADDED ADAPTER SPOOL	MWL
A	08-13-02	CORRECTED BOP STACK	MWL

ENGINEERING APPROVAL | DATE

HELMERICH & PAYNE INTERNATIONAL DRILLING CO.

TITLE: 13 5/8"-10M BOP 3 RAM STACK FLEXRIG3

CUSTOMER: H&P
PROJECT: FLEXRIG3
DRAWN: MTS | DATE: 6-5-02 | DWG. NO.: 210-P1-07 | REV: E
SCALE: 3/4"=1' | SHEET: 1 OF 1


Mud Gas Separator
5K
Upper Manual Choke 10k
10K
3 1/16" x 10K Line
5K
Trip Tank
Lower Manual Choke 10k
3 1/16" x 10K Line
10K
5K
Shaker
Panic Line
10K
10K
10K
3 1/16" x 10K Line
Gauge
3 1/16" x 10K Line
3 1/16" x 10K Line
10K
Hydraulic Super Choke 10K
Remote Controlled Adjustable
3" ID x 10K CoFlex
Manual Choke
HCR
BOP
HnP486 10M Choke Manifold Arrangement

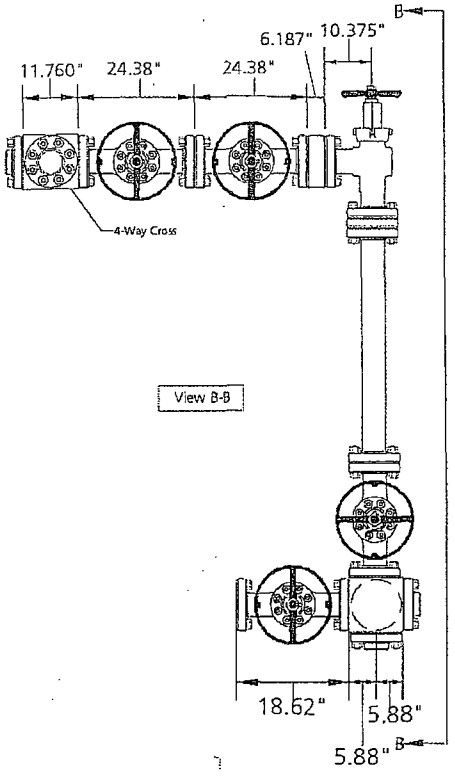
Helmerich & Payne

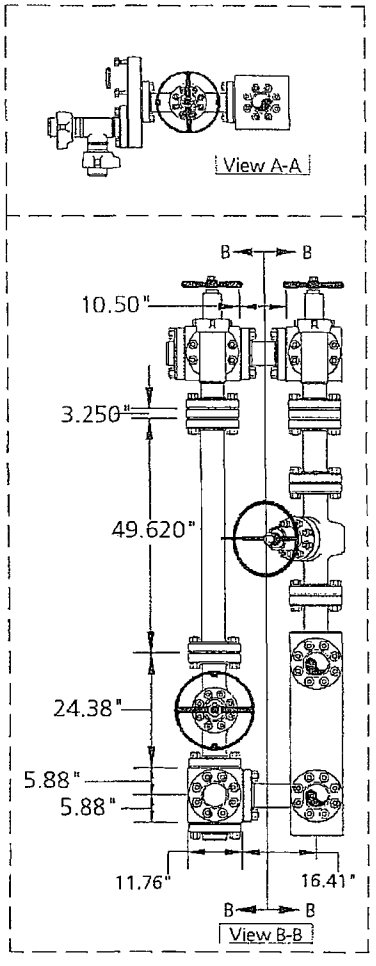
Rig Flex 3 Manifold with 3rd Choke Run

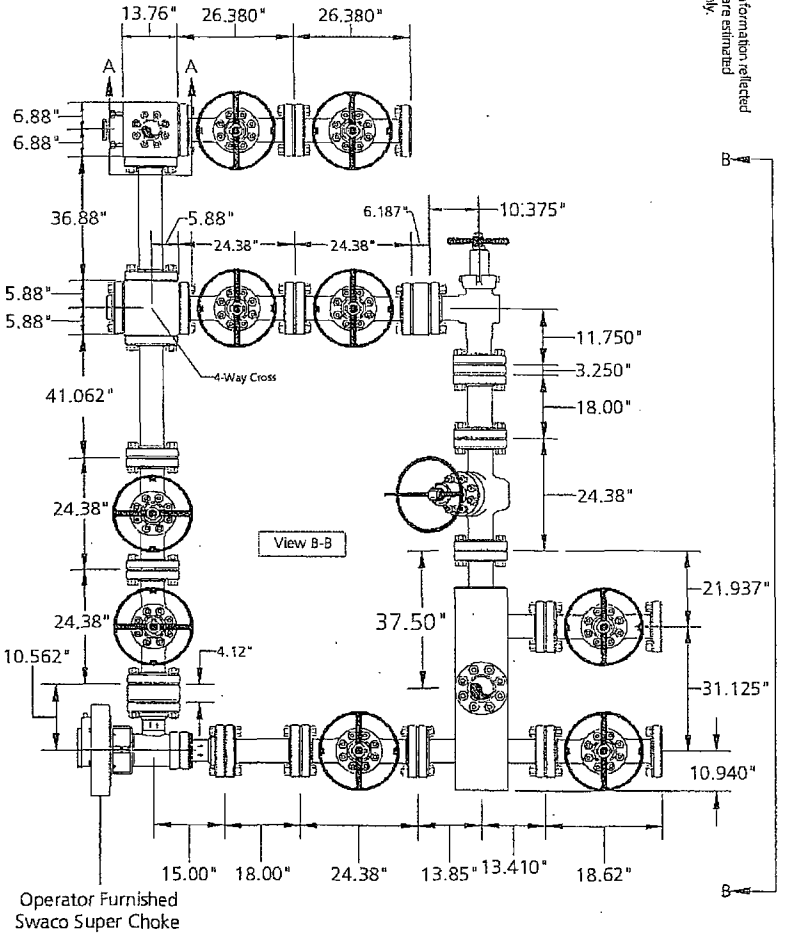
Name:	Jeanette
Date:	9-9-08
Working Pressure:	
#	J-3737-3

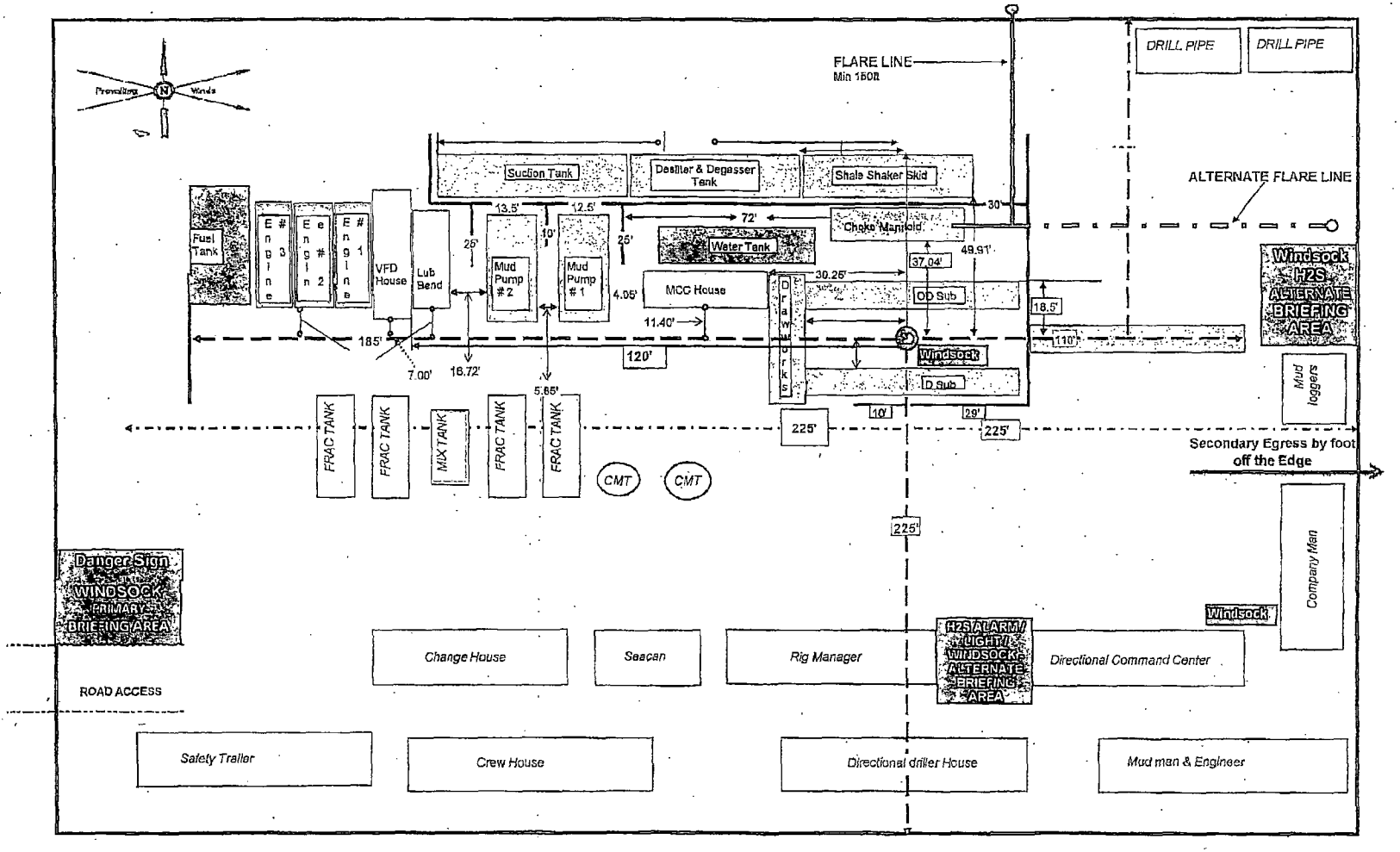
CAMERON

Note: Dimensional information reflected on this drawing are estimated measurements only.








Prevailing Winds
FLARE LINE
Min 150ft
DRILL PIPE
DRILL PIPE
ALTERNATE FLARE LINE
Suction Tank
Desilter & Degasser Tank
Shale Shaker Skid
Choke Manifold
Water Tank
Fuel Tank
Engine #3
Engine #2
Engine #1
VFD House
Lub Bend
Mud Pump #2
Mud Pump #1
MCC House
Drawworks
OD Sub
D Sub
Windsock
Windsock H2S ALTERNATE BRIEFING AREA
Mud Logger
FRAC TANK
FRAC TANK
MIX TANK
FRAC TANK
FRAC TANK
CMT
CMT
Secondary Egress by foot off the Edge
Danger Sign
WINDSOCK PRIMARY BRIEFING AREA
ROAD ACCESS
Change House
Seacan
Rig Manager
H2S ALARM/ LIGHT/ WINDSOCK ALTERNATE BRIEFING AREA
Directional Command Center
Company Man
Windsock
Safety Trailer
Crew House
Directional driller House
Mud man & Engineer
225'
120'
185'
110'
13.5'
12.5'
72'
30'
37.04'
49.91'
30.25'
18.5'
11.40'
4.05'
7.00'
16.72'
5.65'
10'
29'

Attachment # 2

QC-DB- 45/2012
Page: 7/50

Fluid Technology
Quality Document

QUALITY CONTROL INSPECTION AND TEST CERTIFICATE				CERT. N°: 184
PURCHASER: ContiTech Beattie Co.				P.O. N°: 005438
CONTITECH ORDER N°: 516273		HOSE TYPE: 3" ID		Choke and Kill Hose
HOSE SERIAL N°: 61477		NOMINAL / ACTUAL LENGTH:		10,67 m / 10,71 m
W.P. 68,9 MPa 10000 psi		T.P. 103,4 MPa 15000 psi		Duration: 60 min.

Pressure test with water at ambient temperature

See attachment. (1 page)

⇑ 10 mm = 10 Min.
→ 10 mm = 20 MPa

COUPLINGS Type	Serial N°	Quality	Heat N°
3" coupling with	10178 10173	AISI 4130	20231
4 1/16" 10K API Flange end		AISI 4130	33051

NOT DESIGNED FOR WELL TESTING **API Spec 16 C**

Temperature rate:"B"

All metal parts are flawless

WE CERTIFY THAT THE ABOVE HOSE HAS BEEN MANUFACTURED IN ACCORDANCE WITH THE TERMS OF THE ORDER INSPECTED AND PRESSURE TESTED AS ABOVE WITH SATISFACTORY RESULT.

STATEMENT OF CONFORMITY: We hereby certify that the above items/equipment supplied by us are in conformity with the terms, conditions and specifications of the above Purchaser Order and that those items/equipment were fabricated inspected and tested in accordance with the referenced standards, codes and specifications and meet the relevant acceptance criteria and design requirements.

COUNTRY OF ORIGIN HUNGARY/EU

Date:	Inspector	Quality Control
30. January 2012.		ContiTech Rubber Industrial Kft. Quality Control Dept.

ContiTech Rubber Industrial Kft.
Budapest út 10., Szeged H-6728
PO Box 152 Szeged H-6701
Hungary

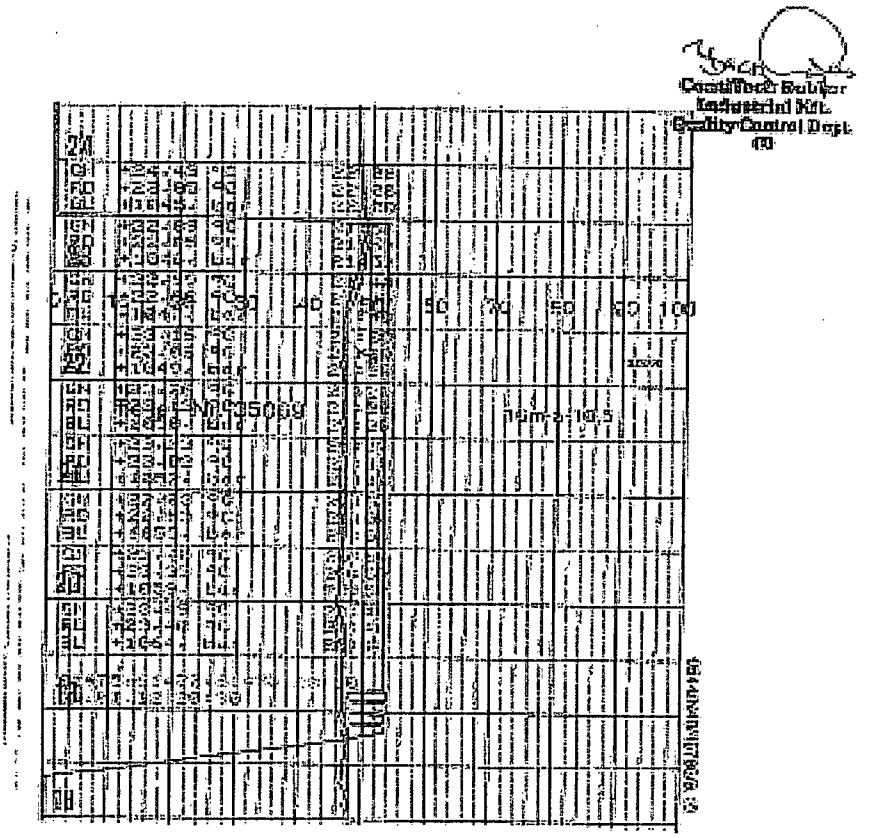
Phone: +36 62 566 737
Fax: +36 62 566 736
e-mail: info@hid.contitech.hu
Internet: www.contitech-hid.com

The Court of Csongrad County as Registry Court
Registry Court No.: 13-09-002562
EU VAT No. HU 10201709

Bank data
Commerzbank Zrt.
Budapest
11220105-20030003-00200001

ATTACHMENT OF QUALITY CONTROL INSPECTION AND TEST CERTIFICATE *No: 182, 184, 185*

Page: 1 / 1



Attachment # 1

CONTITECH RUBBER Industrial Kft.	No: QC-DB- 45 / 2012
	Page: 9 / 50

Hose Data Sheet

CRI Order No.	516273
Customer	ContiTech Beattie Co.
Customer Order No	PO5438 STOCK
Item No.	3
Hose Type	Flexible Hose
Standard	**API SPEC 16 C**
Inside dia in inches	3
Length	35 ft
Type of coupling one end	FLANGE 4 1/16" API SPEC 6A TYPE 6BX FOR 10000 PSIBX155 RING GROOVE
Type of coupling other end	FLANGE 4 1/16" API SPEC 6A TYPE 6BX FOR 10000 PSI BX155 RING GROOVE
H2S service NACE MR0175	Yes
Working Pressure	10 000 psi
Design Pressure	10 000 psi
Test Pressure	15 000 psi
Safety Factor	2,25
Marking	USUAL PHOENIX
Cover	NOT FIRE RESISTANT
Outside protection	St.steel outer wrap
Internal stripwound tube	No
Lining	OIL RESISTANT
Safety clamp	No
Lifting collar	No
Element C	No
Safety chain	No
Safety wire rope	No
Max.design temperature [°C]	100
Min.design temperature [°C]	-20
MBR operating [m]	1,60
MBR storage [m]	1,40
Type of packing	WOODEN CRATE ISPM-15

Request for Variance

ConocoPhillips Company
Lease Number: NMLC 069515
Well: War Hammer 25 Federal COM W1 3H
Location: Sec. 25, T26S, R32E
Rig: If drilled with H&P 486
Date: 3/3/2014

Request:

ConocoPhillips Company respectfully requests a variance to install a flexible choke line instead of a straight choke line prescribed in the Onshore Order No. 2, III.A.2.b Minimum standards and enforcement provisions for choke manifold equipment. This request is made under the provision of Onshore Order No. 2, IV Variances from Minimum Standard. The rig to be used to drill this well is equipped with a flexible choke line if the requested variance is approved and determined that the proposed alternative meets the objectives of the applicable minimum standards.

Justifications:

The applicability of the flexible choke line will reduce the number of target tees required to make up from the choke valve to the choke manifold. This configuration will facilitate ease of rig up and BOPE Testing.

Attachments:

- Attachment # 1 Specification from Manufacturer
- Attachment # 2 Mill & Test Certification from Manufacturer

Contact Information:

Program prepared by:
Jason A. Levinson
Drilling Engineer, ConocoPhillips Company
Phone (281) 206-5335
Cell (281) 682-2783
Date: 05 February 2014

Continental CONTITECH

Fluid Technology

Quality Document

453.369-001.

QUALITY CONTROL INSPECTION AND TEST CERTIFICATE				CERT. N°:	1098	
PURCHASER:	ContiTech Beattie Co.			P.O. N°:	004452	
CONTITECH ORDER N°:	462598	HOSE TYPE:	3" ID	Choke and Kill Hose		
HOSE SERIAL N°:	56839	NOMINAL / ACTUAL LENGTH:		10,67 m / 10,69 m		
W.P. 68,9 MPa	10000 psi	T.P. 103,4 MPa	15000 psi	Duration:	60	min.

Pressure test with water at ambient temperature

See attachment. (1 page)

↑ 10 mm = 10 Min.

→ 10 mm = 25 MPa

COUPLINGS Type	Serial N°		Quality	Heat N°	
3" coupling with	8436	1682	AISI 4130	16837	
4 1/16" Flange end			AISI 4130	31296	31501

API Spec 16 C
Temperature rate:"B"

All metal parts are flawless

WE CERTIFY THAT THE ABOVE HOSE HAS BEEN MANUFACTURED IN ACCORDANCE WITH THE TERMS OF THE ORDER INSPECTED AND PRESSURE TESTED AS ABOVE WITH SATISFACTORY RESULT.

STATEMENT OF CONFORMITY: We hereby certify that the above items/equipment supplied by us are in conformity with the terms, conditions and specifications of the above Purchaser Order and that these items/equipment were fabricated inspected and tested in accordance with the referenced standards, codes and specifications and meet the relevant acceptance criteria and design requirements.

COUNTRY OF ORIGIN HUNGARY/EU

Date:	Inspector	Quality Control
02. November 2010.		ContiTech Rubber Industrial Kft. Quality Control Dept.

Certified Public Interpreter Kft. Phone: +36 62 550 707 Tax Court of Commercial Registration

Attachment # 1

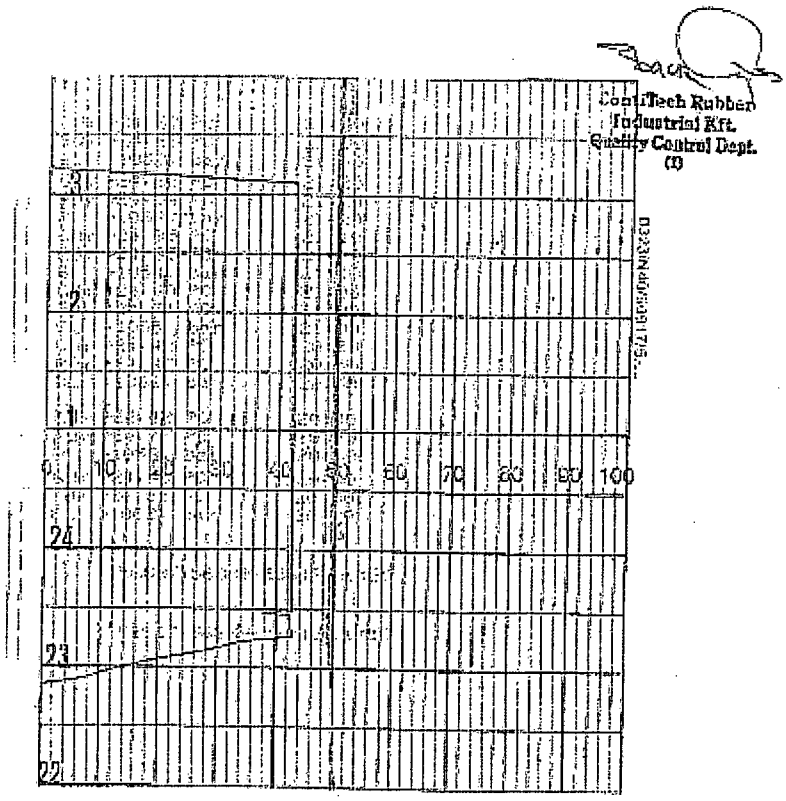
CONTITECH RUBBER Industrial Kft.	No: QC-DB- 45 / 2012
	Page: 9 / 50

Continental CONTITECH

Hose Data Sheet

CRI Order No.	516273
Customer	ContiTech Beattie Co.
Customer Order No	PO5438 STOCK
Item No.	3
Hose Type	Flexible Hose
Standard	**API SPEC 16 C**
Inside dia in inches	3
Length	35 ft
Type of coupling one end	FLANGE 4 1/16" API SPEC 6A TYPE 6BX FOR 10000 PSIBX155 RING GROOVE
Type of coupling other end	FLANGE 4 1/16" API SPEC 6A TYPE 6BX FOR 10000 PSI BX155 RING GROOVE
H2S service NACE MR0175	Yes
Working Pressure	10 000 psi
Design Pressure	10 000 psi
Test Pressure	15 000 psi
Safety Factor	2,25
Marking	USUAL PHOENIX
Cover	NOT FIRE RESISTANT
Outside protection	St.steel outer wrap
Internal stripwound tube	No
Lining	OIL RESISTANT
Safety clamp	No
Lifting collar	No
Element C	No
Safety chain	No
Safety wire rope	No
Max.design temperature [°C]	100
Min.design temperature [°C]	-20
MBR operating [m]	1,60
MBR storage [m]	1,40
Type of packing	WOODEN CRATE ISPM-15

STATEMENT OF QUALITY CONTROL/INSPECTION AND TEST CERTIFICATE NO: 1098, 1164
1166
Page: 1/1



Request for Variance

ConocoPhillips Company
Lease Number: NMLC 069515
Well: War Hammer 25 Federal COM W1 3H
Location: Sec. 25, T26S, R32E
Rig: If drilled with H&P 453
Date: 3/3/2014

Request:

ConocoPhillips Company respectfully requests a variance to install a flexible choke line instead of a straight choke line prescribed in the Onshore Order No. 2, III.A.2.b Minimum standards and enforcement provisions for choke manifold equipment. This request is made under the provision of Onshore Order No. 2, IV Variances from Minimum Standard. The rig to be used to drill this well is equipped with a flexible choke line if the requested variance is approved and determined that the proposed alternative meets the objectives of the applicable minimum standards.

Justifications:

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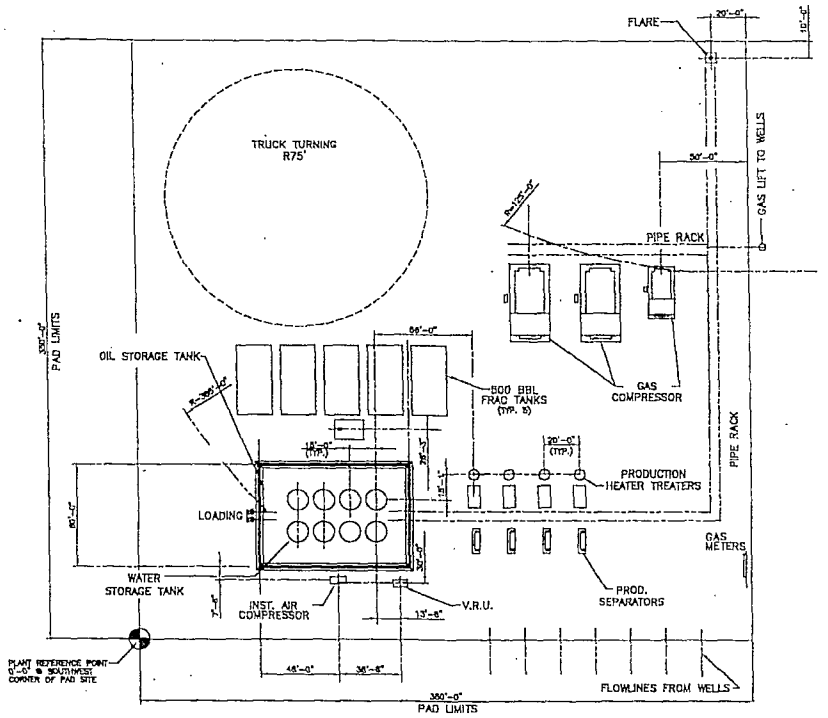
Attachments:

- Attachment # 1 Specification from Manufacturer
- Attachment # 2 Mill & Test Certification from Manufacturer

Contact Information:

Program prepared by:
Jason A. Levinson
Drilling Engineer, ConocoPhillips Company
Phone (281) 206-5335
Cell (281) 682-2783
Date: 05 February 2014



PLOT PLAN
SCALE: 1/32"=1'-0"

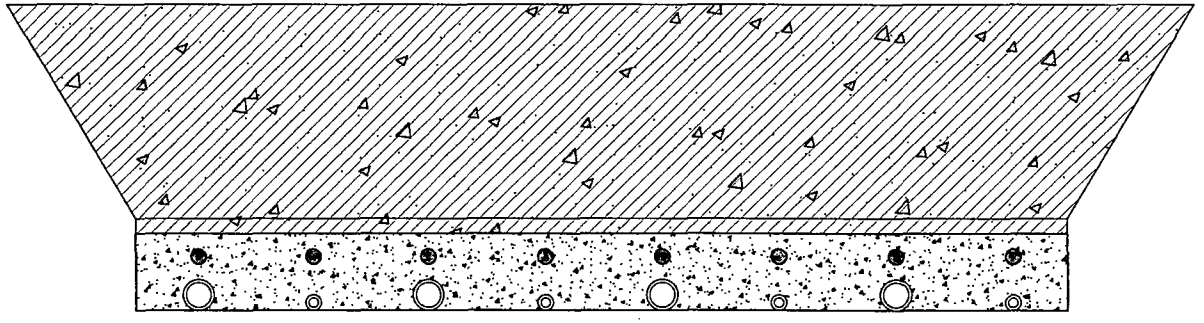
NOTICE	DRG No.	REFERENCE DRAWINGS	No.	DATE	REVISIONS	BY	CKD	HAZOP DATE	APP	DATE	APP	DATE	NOTES	ENGINEERING RECORD	DATE
THIS DRAWING IS THE PROPERTY OF CONOCOPHILLIPS CORPORATION AND IS LENT TO THE BORROWER FOR ITS CONFIDENTIAL USE ONLY, AND IS SUBJECT TO RETURN UPON REQUEST AND SHALL NOT BE REPRODUCED, COPIED, LENT OR OTHERWISE DISPOSED OF DIRECTLY OR INDIRECTLY, NOR USED FOR ANY PURPOSE OTHER THAN THAT FOR WHICH IT IS SPECIFICALLY FURNISHED.														DRAWN	
														CHKD	
														APP'D	
														APP'D	
														M.C. No.:	
														SCALED AS NOTED	

ConocoPhillips DENVER, TEXAS

PERMIAN UNCONVENTIONAL
4 WELL PRODUCTION FACILITY
PLOT PLAN

DRWG No. 0X0X-20-01 | SHEET No. 20-01 | REV A

BACKFILL AROUND PIPE

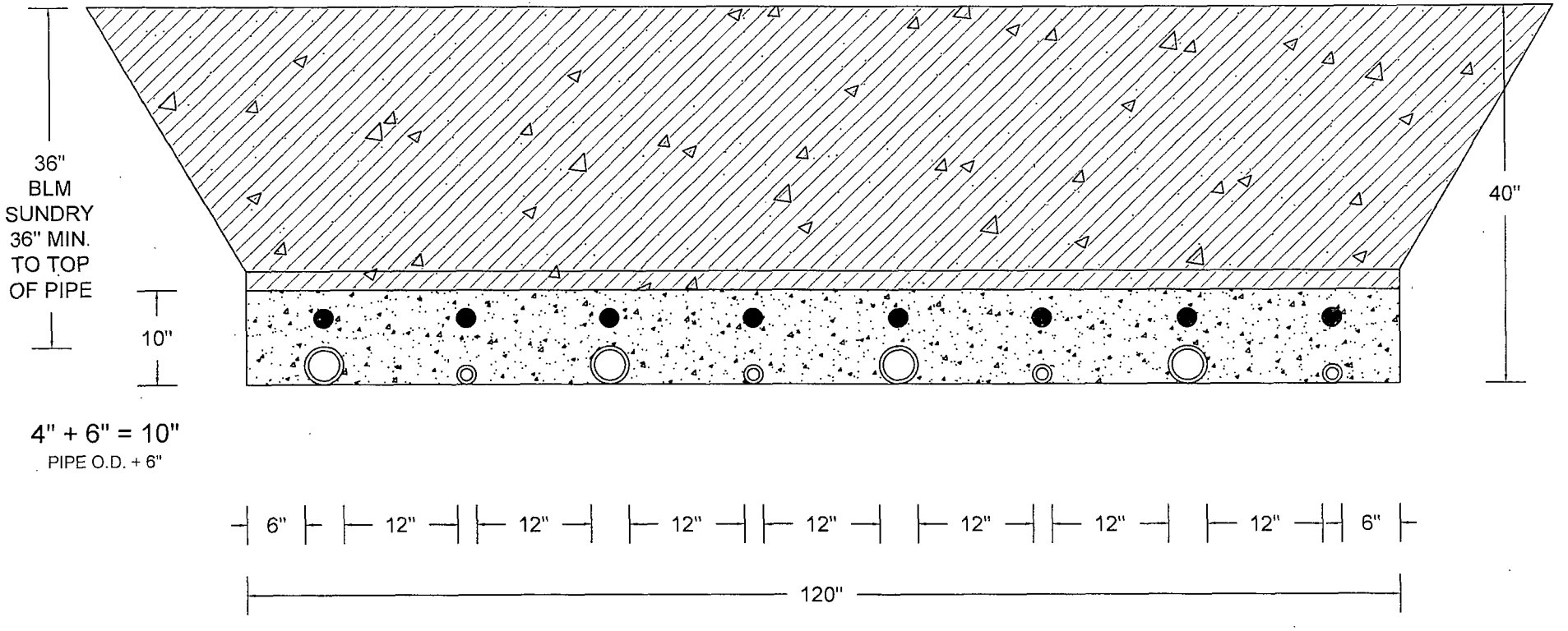


BACKFILL DIRT TO BE AS FREE OF ROCKS AND LARGE PARTICLES AS POSSIBLE

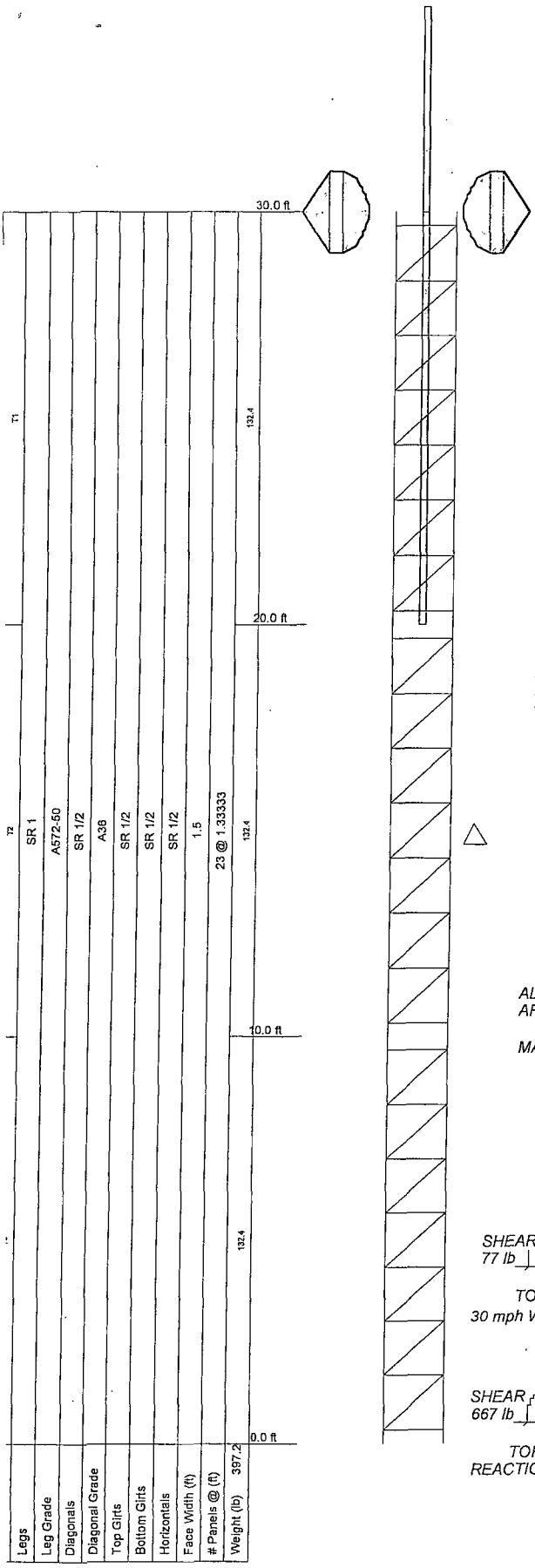
TRACER WIRE INSTALLED 2" ABOVE NON-METALLIC

SOFT FILL DIRT OR SAND WITH NO ROCKS OR SOLID PARTICLES GREATER THAN 1" IN CIRCUMFERENCE

BACKFILL AROUND PIPE



(4 QTY) 4" PIPE + (4 QTY) 2" PIPE
4" AND 2" PIPE ALTERNATING FOR TOTAL OF 8 PIPES
6" CLEARANCE AT BOTH ENDS
12" CLEARANCE BETWEEN EACH PIPE



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
5000# Fall Load	50	12ft x 2.5" dia. Whip Antenna	30
Andrew 2' w/Radome	30	12ft x 2.5" dia. Whip Antenna	25
Andrew 2' w/Radome	30		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

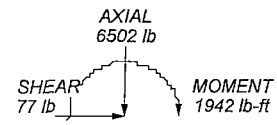
1. Tower designed for Exposure C to the TIA-222-G Standard.
2. Tower designed for a 90 mph basic wind in accordance with the TIA-222-G Standard.
3. Tower is also designed for a 30 mph basic wind with 0.25 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 60 mph wind.
5. Tower Structure Class II.
6. Topographic Category 1 with Crest Height of 0.00 ft
7. TOWER RATING: 41.1%

This engineering document is intended to be used as a sales tool. The engineering judgments herein are general in nature and are not intended to be site specific. Per section 107 of the International Building Code site specific drawings are required. Therefore, if or when this equipment is to be installed, a site specific analysis including site specific conditions (antenna equipment loading, elevations, wind speed, topographic factors, exposure coefficients, structure class, and soil strengths, ect) should be considered. DaVinci can provide site specific documents to meet the requirements of the building code and to ensure that the mounts, tower & foundation has sufficient structural capacity to support the proposed loading.

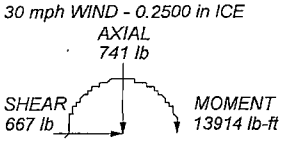
ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 10768 lb
SHEAR: 182 lb

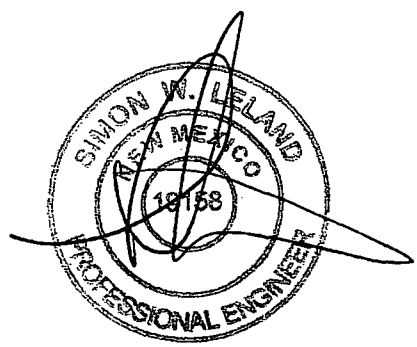
UPLIFT: -10132 lb
SHEAR: 271 lb



TORQUE 15 lb-ft
30 mph WIND - 0.2500 in ICE



TORQUE 149 lb-ft
REACTIONS - 90 mph WIND



1/21/2014

DaVinci Engineering, Inc.
PO Box 1966
Santa Maria, CA 93456
Phone: (805) 922-5221
FAX: (805) 880-0402

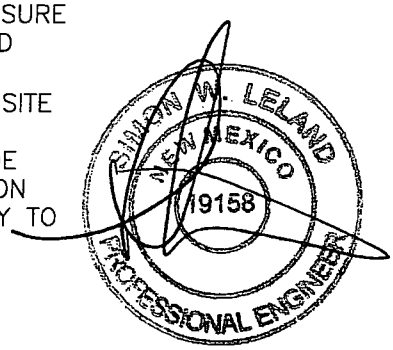
Job: *9914267-011*			
Project: *30-ft Light Duty Tower*			
Client: Lea County, New Mexico	Drawn by: Simon Leland	App'd:	
Code: TIA-222-G	Date: 01/21/14	Scale: NTS	
Path: R:\Engineering Documents\TNX TOWER Files\Daley Tower 2672014\14267-011.eri		Dwg No. E-1	

DALEY TOWER SERVICE, INC.

DaVinci Engineering, Inc.

PO BOX 1966 SANTA MARIA, CALIFORNIA 93456
PHONE: (805) 922-5221 FAX: (805) 880-0402
Project # 9914267-011

THIS ENGINEERING DOCUMENT IS INTENDED TO BE USED AS A SALES TOOL. THE ENGINEERING JUDGMENTS HEREIN ARE GENERAL IN NATURE AND ARE NOT INTENDED TO BE SITE SPECIFIC. PER SECTION 107 OF THE INTERNATIONAL BUILDING CODE SITE SPECIFIC DRAWINGS ARE REQUIRED. THEREFORE, IF OR WHEN THIS EQUIPMENT IS TO BE INSTALLED, A SITE SPECIFIC ANALYSIS INCLUDING SITE SPECIFIC CONDITIONS (ANTENNA EQUIPMENT LOADING, ELEVATIONS, WIND SPEED, TOPOGRAPHIC FACTORS, EXPOSURE COEFFICIENTS, STRUCTURE CLASS, AND SOIL STRENGTHS, ECT) SHOULD BE CONSIDERED. DAVINCI CAN PROVIDE SITE SPECIFIC DOCUMENTS TO MEET THE REQUIREMENTS OF THE BUILDING CODE AND TO ENSURE THAT THE FOUNDATION HAS SUFFICIENT STRUCTURAL CAPACITY TO SUPPORT THE PROPOSED LOADING.



1/21/2014

CAISSON FOUNDATION

SCALE: NTS

TYPICAL FOUNDATION NOTES:

1. FOUNDATION DESIGN IS BASED ON THE FOLLOWING ASSUMED SOIL VALUES:
UNIT WEIGHT OF SOIL: 100 PCF
ALLOWABLE BEARING CAPACITY: 2000 PSF
ALLOWABLE LATERAL LOAD: 200 PSF/FT DEPTH
GROUND WATER BELOW THE DEPTH OF THE CAISSON

2. ALL FOUNDATION CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI WITHIN 28 DAYS OF PLACEMENT. PROPORTIONING OF THE CONCRETE MIX SHALL BE DESIGNED BY AN APPROVED LABORATORY. ALL CONCRETE CONSTRUCTION SHALL BE IN ACCORDANCE WITH ACI 318, "THE BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", LATEST EDITION. CEMENT SHALL BE TYPE II, LOW ALKALI, CONFORMING TO ASTM C-150. ALL AGGREGATE USED IN THE CONCRETE SHALL CONFORM TO ASTM C-33. USE ONLY AGGREGATES KNOWN NOT TO CAUSE EXCESSIVE SHRINKAGE.

3. ESTIMATED CONCRETE VOLUME = 2 CUBIC YARDS.

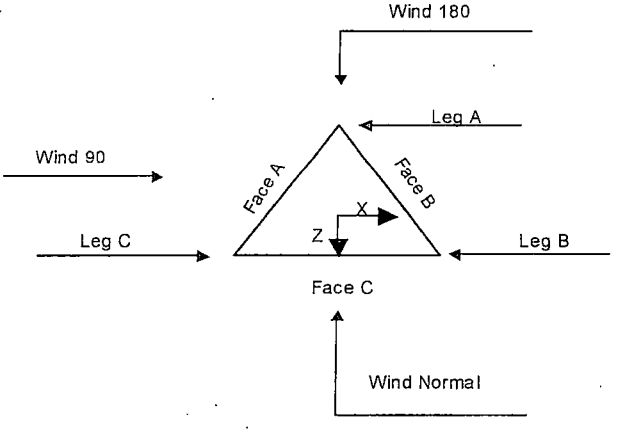
4. THE FOUNDATION HAS BEEN DESIGNED TO RESIST THE FOLLOWING FACTORED LOADS:
OVERTURNING MOMENT: 26,000 FT*LBS; SHEAR: 750 LBS; AXIAL: 1200 LBS.

tnxTower	Job	Page
	9914267-011	1 of 11
DaVinci Engineering, Inc. PO Box 1966 Santa Maria, CA 93456 Phone: (805) 922-5221 FAX: (805) 880-0402	Project 30-ft Light Duty Tower	Date 16:20:09 01/21/14
	Client Lea County, New Mexico	Designed by Simon Leland

Tower Input Data

The main tower is a 3x free standing tower with an overall height of 30.00 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 1.50 ft at the top and 1.50 ft at the base.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

- Basic wind speed of 90 mph.
- Structure Class II.
- Exposure Category C.
- Topographic Category 1.
- Crest Height 0.00 ft.
- Nominal ice thickness of 0.2500 in.
- Ice thickness is considered to increase with height.
- Ice density of 56 pcf.
- A wind speed of 30 mph is used in combination with ice.
- Deflections calculated using a wind speed of 60 mph.
- A non-linear (P-delta) analysis was used.
- Pressures are calculated at each section.
- Stress ratio used in tower member design is 1.
- Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T1-T3	30.00-0.00			1.50	3	10.00

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T1-T3	30.00-0.00	1.33	Z Brace	No	Yes	4.0000	4.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1-T3 30.00-0.00	Solid Round	1	A572-50 (50 ksi)	Solid Round	1/2	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1-T3 30.00-0.00	Solid Round	1/2	A36 (36 ksi)	Solid Round	1/2	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1-T3 30.00-0.00	None	Solid Round		A36 (36 ksi)	Solid Round	1/2	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in
T1-T3 30.00-0.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg Bolt Size in	Leg No.	Diagonal Bolt Size in	Diagonal No.	Top Girt Bolt Size in	Top Girt No.	Bottom Girt Bolt Size in	Bottom Girt No.	Mid Girt Bolt Size in	Mid Girt No.	Long Horizontal Bolt Size in	Long Horizontal No.	Short Horizontal Bolt Size in	Short Horizontal No.
T1-T3 30.00-0.00	Flange	0.7500 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
LDF5-50A (7/8 FOAM)	C	No	Ar (CaAa)	25.00 - 3.00	-3.0000	0.25	4	2	1.0900	1.0900		0.33
LDF5-50A (7/8 FOAM)	C	No	Ar (CaAa)	30.00 - 25.00	-1.5000	0.25	3	2	1.0900	1.0900		0.33

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
T1	30.00-20.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	3.815	0.000	11.55
T2	20.00-10.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	4.360	0.000	13.20
T3	10.00-0.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	3.052	0.000	9.24

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	1	LDF5-50A (7/8 FOAM)	20.00 - 25.00	0.6000	0.6000
T1	2	LDF5-50A (7/8 FOAM)	25.00 - 30.00	0.6000	0.6000
T2	1	LDF5-50A (7/8 FOAM)	10.00 - 20.00	0.6000	0.6000
T3	1	LDF5-50A (7/8 FOAM)	3.00 - 10.00	0.6000	0.6000

User Defined Loads

Description	Elevation ft	Offset From Centroid ft	Azimuth Angle °		Weight lb	F_x lb	F_z lb	Wind Force lb	C_AA_C ft^2
5000# Fall Load	50.00	0.00	0.0000	No Ice	0.00	0.00	0.00	**0.00**	0.00
				Ice	5000.00	0.00	0.00	**0.00**	0.00
				Service	5000.00	0.00	0.00	**0.00**	0.00

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	Placement		C_AA_A Front	C_AA_A Side	Weight
			ft	°	ft		ft^2	ft^2	lb
12ft x 2.5" dia. Whip Antenna	A	From Leg	0.50	0.0000	30.00	No Ice	3.34	3.34	23.30
						1/2" Ice	4.70	4.70	51.07
12ft x 2.5" dia. Whip Antenna	A	From Leg	0.50	0.0000	25.00	No Ice	3.34	3.34	23.30
						1/2" Ice	4.70	4.70	51.07

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	3 dB Beam Width	Elevation	Outside Diameter		Aperture Area	Weight
				ft	°	°	ft	ft		ft^2	lb
Andrew 2' w/Radome	B	Paraboloid w/Radome	From Leg	0.50 0.50 0.00	0.0000		30.00	2.00	No Ice 1/2" Ice	3.14 3.41	70.00 282.00
Andrew 2' w/Radome	C	Paraboloid w/Radome	From Leg	0.50 0.50 0.00	0.0000		30.00	2.00	No Ice 1/2" Ice	3.14 3.41	70.00 282.00

Discrete Appurtenance Pressures - No Ice $G_H = 0.850$

Description	Aiming Azimuth °	Weight lb	$Offset_x$ ft	$Offset_z$ ft	z ft	K_z	q_z psf	C_AA_C Front ft^2	C_AA_C Side ft^2
12ft x 2.5" dia. Whip Antenna	0.0000	23.30	0.00	-1.37	30.00	0.982	17	3.34	3.34
12ft x 2.5" dia. Whip Antenna	0.0000	23.30	0.00	-1.37	25.00	0.945	17	3.34	3.34
	Sum Weight:	46.60							

Dish Pressures - No Ice

Elevation ft	Dish Description	Aiming Azimuth °	Weight lb	$Offset_x$ ft	$Offset_z$ ft	K_z	A_A ft^2	q_z psf
30.00	Andrew 2' w/Radome	120.0000	70.00	1.18	0.68	0.982	3.14	17
30.00	Andrew 2' w/Radome	240.0000	70.00	-1.18	0.68	0.982	3.14	17
		Sum Weight:	140.00					

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 30 deg - No Ice
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 60 deg - No Ice
7	0.9 Dead+1.6 Wind 60 deg - No Ice
8	1.2 Dead+1.6 Wind 90 deg - No Ice
9	0.9 Dead+1.6 Wind 90 deg - No Ice
10	1.2 Dead+1.6 Wind 120 deg - No Ice
11	0.9 Dead+1.6 Wind 120 deg - No Ice
12	1.2 Dead+1.6 Wind 150 deg - No Ice
13	0.9 Dead+1.6 Wind 150 deg - No Ice
14	1.2 Dead+1.6 Wind 180 deg - No Ice
15	0.9 Dead+1.6 Wind 180 deg - No Ice
16	1.2 Dead+1.6 Wind 210 deg - No Ice
17	0.9 Dead+1.6 Wind 210 deg - No Ice
18	1.2 Dead+1.6 Wind 240 deg - No Ice
19	0.9 Dead+1.6 Wind 240 deg - No Ice
20	1.2 Dead+1.6 Wind 270 deg - No Ice
21	0.9 Dead+1.6 Wind 270 deg - No Ice
22	1.2 Dead+1.6 Wind 300 deg - No Ice
23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Leg C	Max. Vert	18	10768.40	134.62	-123.19
	Max. H_x	21	9452.26	167.49	-40.24
	Max. H_z	4	-8573.09	-108.95	258.59
	Min. Vert	7	-10074.48	-201.14	183.85
	Min. H_x	8	-8935.86	-236.86	53.90
	Min. H_z	15	4968.00	-4.87	-188.64
Leg B	Max. Vert	10	10691.46	-137.04	-123.88
	Max. H_x	20	-9012.30	232.85	53.58
	Max. H_z	24	-8650.09	131.09	232.95
	Min. Vert	23	-10131.87	213.76	167.35
	Min. H_x	9	9394.53	-158.06	-54.45
	Min. H_z	15	4910.40	-13.42	-177.22
Leg A	Max. Vert	2	10589.11	-24.14	179.66
	Max. H_x	20	214.21	266.61	-13.22
	Max. H_z	3	10524.42	-24.07	179.72
	Min. Vert	15	-9322.42	18.29	-250.31
	Min. H_x	9	162.46	-271.99	0.70
	Min. H_z	14	-9281.26	18.37	-250.45

Tower Mast Reaction Summary

Load Combination	Vertical lb	$Shear_x$ lb	$Shear_z$ lb	Overturning Moment, M_x lb-ft	Overturning Moment, M_z lb-ft	Torque lb-ft
Dead Only	617.75	0.00	0.00	40.35	47.75	0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	741.31	-0.00	-654.46	-13434.66	57.94	-51.18
0.9 Dead+1.6 Wind 0 deg - No Ice	555.98	-0.00	-654.46	-13430.87	43.43	-51.12
1.2 Dead+1.6 Wind 30 deg - No Ice	741.31	319.89	-569.91	-11722.96	-6462.03	-111.30
0.9 Dead+1.6 Wind 30 deg - No Ice	555.98	319.89	-569.91	-11721.15	-6468.86	-111.27
1.2 Dead+1.6 Wind 60 deg - No Ice	741.31	563.20	-327.87	-6713.09	-11510.69	-148.62
0.9 Dead+1.6 Wind 60 deg - No Ice	555.98	563.20	-327.87	-6717.22	-11511.53	-148.65
1.2 Dead+1.6 Wind 90 deg - No Ice	741.31	666.84	-0.20	41.85	-13798.61	-145.80
0.9 Dead+1.6 Wind 90 deg - No Ice	555.98	666.84	-0.20	29.71	-13796.66	-145.88
1.2 Dead+1.6 Wind 120 deg - No Ice	741.31	574.08	321.89	6628.70	-11839.46	-100.43
0.9 Dead+1.6 Wind 120 deg - No Ice	555.98	574.08	321.89	6608.73	-11839.82	-100.54
1.2 Dead+1.6 Wind 150 deg - No Ice	741.31	326.44	542.38	10989.72	-6660.33	-38.60
0.9 Dead+1.6 Wind 150 deg - No Ice	555.98	326.44	542.38	10964.59	-6666.84	-38.71
1.2 Dead+1.6 Wind 180 deg - No Ice	741.31	-0.00	616.18	12377.70	57.65	32.41
0.9 Dead+1.6 Wind 180 deg - No Ice	555.98	-0.00	616.18	12350.93	43.19	32.33
1.2 Dead+1.6 Wind 210 deg - No Ice	741.31	-326.44	542.38	10989.98	6775.54	102.31

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	lb	lb	lb	lb-ft	lb-ft	lb-ft
0.9 Dead+1.6 Wind 210 deg - No Ice	555.98	-326.44	542.38	10964.75	6753.16	102.28
1.2 Dead+1.6 Wind 240 deg - No Ice	741.31	-574.08	321.88	6629.26	11954.54	140.92
0.9 Dead+1.6 Wind 240 deg - No Ice	555.98	-574.08	321.88	6609.10	11926.00	140.95
1.2 Dead+1.6 Wind 270 deg - No Ice	741.31	-666.84	-0.20	42.73	13913.76	127.89
0.9 Dead+1.6 Wind 270 deg - No Ice	555.98	-666.84	-0.20	30.38	13882.86	127.97
1.2 Dead+1.6 Wind 300 deg - No Ice	741.31	-563.20	-327.87	-6712.22	11626.17	76.63
0.9 Dead+1.6 Wind 300 deg - No Ice	555.98	-563.20	-327.87	-6716.50	11598.01	76.74
1.2 Dead+1.6 Wind 330 deg - No Ice	741.31	-319.89	-569.91	-11722.47	6577.82	10.01
0.9 Dead+1.6 Wind 330 deg - No Ice	555.98	-319.89	-569.91	-11720.74	6555.63	10.12
1.2 Dead+1.0 Ice	6502.00	-0.00	-0.00	316.34	213.84	-0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice	6502.00	0.00	-75.93	-1268.42	213.61	-4.62
1.2 Dead+1.0 Wind 30 deg+1.0 Ice	6502.00	37.41	-65.99	-1063.42	-560.89	-11.03
1.2 Dead+1.0 Wind 60 deg+1.0 Ice	6502.00	65.49	-38.01	-476.38	-1150.03	-15.04
1.2 Dead+1.0 Wind 90 deg+1.0 Ice	6502.00	76.86	-0.01	316.36	-1400.66	-14.94
1.2 Dead+1.0 Wind 120 deg+1.0 Ice	6502.00	66.31	37.56	1095.87	-1175.80	-10.62
1.2 Dead+1.0 Wind 150 deg+1.0 Ice	6502.00	37.90	63.92	1629.29	-575.63	-4.23
1.2 Dead+1.0 Wind 180 deg+1.0 Ice	6502.00	-0.00	73.04	1807.15	215.09	3.20
1.2 Dead+1.0 Wind 210 deg+1.0 Ice	6502.00	-37.90	63.92	1628.69	1005.12	10.34
1.2 Dead+1.0 Wind 240 deg+1.0 Ice	6502.00	-66.31	37.56	1095.21	1604.30	14.46
1.2 Dead+1.0 Wind 270 deg+1.0 Ice	6502.00	-76.86	-0.02	315.13	1828.72	13.59
1.2 Dead+1.0 Wind 300 deg+1.0 Ice	6502.00	-65.49	-38.01	-478.22	1577.03	8.81
1.2 Dead+1.0 Wind 330 deg+1.0 Ice	6502.00	-37.41	-65.99	-1064.49	987.33	2.07
Dead+Wind 0 deg - Service	617.75	-0.00	-181.79	-3701.87	48.02	-14.21
Dead+Wind 30 deg - Service	617.75	88.86	-158.31	-3226.73	-1761.71	-30.91
Dead+Wind 60 deg - Service	617.75	156.44	-91.08	-1836.13	-3162.99	-41.29
Dead+Wind 90 deg - Service	617.75	185.23	-0.06	38.79	-3797.96	-40.52
Dead+Wind 120 deg - Service	617.75	159.47	89.41	1867.00	-3254.15	-27.93
Dead+Wind 150 deg - Service	617.75	90.68	150.66	3077.41	-1816.64	-10.74
Dead+Wind 180 deg - Service	617.75	-0.00	171.16	3462.64	47.97	8.98
Dead+Wind 210 deg - Service	617.75	-90.68	150.66	3077.47	1912.56	28.42
Dead+Wind 240 deg - Service	617.75	-159.47	89.41	1867.15	3350.07	39.16
Dead+Wind 270 deg - Service	617.75	-185.23	-0.06	38.98	3893.92	35.55
Dead+Wind 300 deg - Service	617.75	-156.44	-91.08	-1835.96	3259.00	21.31
Dead+Wind 330 deg - Service	617.75	-88.86	-158.31	-3226.63	1857.74	2.80

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	% Error
1	0.00	-617.75	0.00	0.00	617.75	0.00	0.000%
2	-0.00	-741.31	-654.46	0.00	741.31	654.46	0.000%
3	-0.00	-555.98	-654.46	0.00	555.98	654.46	0.000%
4	319.89	-741.31	-569.91	-319.89	741.31	569.91	0.000%
5	319.89	-555.98	-569.91	-319.89	555.98	569.91	0.000%
6	563.20	-741.31	-327.87	-563.20	741.31	327.87	0.000%
7	563.20	-555.98	-327.87	-563.20	555.98	327.87	0.000%
8	666.84	-741.31	-0.20	-666.84	741.31	0.20	0.000%
9	666.84	-555.98	-0.20	-666.84	555.98	0.20	0.000%
10	574.08	-741.31	321.89	-574.08	741.31	-321.89	0.000%
11	574.08	-555.98	321.89	-574.08	555.98	-321.89	0.000%
12	326.44	-741.31	542.38	-326.44	741.31	-542.38	0.000%
13	326.44	-555.98	542.38	-326.44	555.98	-542.38	0.000%
14	0.00	-741.31	616.18	0.00	741.31	-616.18	0.000%
15	0.00	-555.98	616.18	0.00	555.98	-616.18	0.000%
16	-326.44	-741.31	542.38	326.44	741.31	-542.38	0.000%
17	-326.44	-555.98	542.38	326.44	555.98	-542.38	0.000%
18	-574.08	-741.31	321.89	574.08	741.31	-321.88	0.000%
19	-574.08	-555.98	321.89	574.08	555.98	-321.88	0.000%
20	-666.84	-741.31	-0.20	666.84	741.31	0.20	0.000%
21	-666.84	-555.98	-0.20	666.84	555.98	0.20	0.000%
22	-563.20	-741.31	-327.87	563.20	741.31	327.87	0.000%
23	-563.20	-555.98	-327.87	563.20	555.98	327.87	0.000%
24	-319.89	-741.31	-569.91	319.89	741.31	569.91	0.000%
25	-319.89	-555.98	-569.91	319.89	555.98	569.91	0.000%
26	0.00	-6502.00	0.00	0.00	6502.00	0.00	0.000%
27	-0.00	-6502.00	-75.93	-0.00	6502.00	75.93	0.000%
28	37.41	-6502.00	-65.99	-37.41	6502.00	65.99	0.000%
29	65.49	-6502.00	-38.01	-65.49	6502.00	38.01	0.000%
30	76.86	-6502.00	-0.01	-76.86	6502.00	0.01	0.000%
31	66.31	-6502.00	37.56	-66.31	6502.00	-37.56	0.000%
32	37.90	-6502.00	63.92	-37.90	6502.00	-63.92	0.000%
33	0.00	-6502.00	73.04	0.00	6502.00	-73.04	0.000%
34	-37.90	-6502.00	63.92	37.90	6502.00	-63.92	0.000%
35	-66.31	-6502.00	37.56	66.31	6502.00	-37.56	0.000%
36	-76.86	-6502.00	-0.01	76.86	6502.00	0.02	0.000%
37	-65.49	-6502.00	-38.01	65.49	6502.00	38.01	0.000%
38	-37.41	-6502.00	-65.99	37.41	6502.00	65.99	0.000%
39	0.00	-617.75	-181.79	0.00	617.75	181.79	0.000%
40	88.86	-617.75	-158.31	-88.86	617.75	158.31	0.000%
41	156.44	-617.75	-91.08	-156.44	617.75	91.08	0.000%
42	185.23	-617.75	-0.06	-185.23	617.75	0.06	0.000%
43	159.47	-617.75	89.41	-159.47	617.75	-89.41	0.000%
44	90.68	-617.75	150.66	-90.68	617.75	-150.66	0.000%
45	-0.00	-617.75	171.16	0.00	617.75	-171.16	0.000%
46	-90.68	-617.75	150.66	90.68	617.75	-150.66	0.000%
47	-159.47	-617.75	89.41	159.47	617.75	-89.41	0.000%
48	-185.23	-617.75	-0.06	185.23	617.75	0.06	0.000%
49	-156.44	-617.75	-91.08	156.44	617.75	91.08	0.000%
50	-88.86	-617.75	-158.31	88.86	617.75	158.31	0.000%

Maximum Tower Deflections - Service Wind

Section No.	Elevation	Horz. Deflection	Gov. Load Comb.	Tilt	Twist
	ft	in		°	°
T1	30 - 20	0.523	48	0.1098	0.1310
T2	20 - 10	0.290	48	0.1011	0.0986
T3	10 - 0	0.095	48	0.0675	0.0506

Maximum Tower Deflections - Design Wind

Section No.	Elevation	Horz. Deflection	Gov. Load Comb.	Tilt	Twist
	ft	in		°	°
T1	30 - 20	1.862	20	0.3891	0.4243
T2	20 - 10	1.036	20	0.3595	0.3177
T3	10 - 0	0.340	20	0.2407	0.1610

Leg Design Data (Compression)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	lb	lb	
T1	30 - 20	1	10.00	1.33	64.0 K=1.00	0.7854	-2472.09	26196.10	0.094 [1] ✔
T2	20 - 10	1	10.00	1.33	64.0 K=1.00	0.7854	-6088.07	26196.10	0.232 [1] ✔
T3	10 - 0	1	10.00	1.33	64.0 K=1.00	0.7854	-10767.40	26196.10	0.411 [1] ✔

[1] P_u / ϕP_n controls

Diagonal Design Data (Compression)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	lb	lb	
T1	30 - 20	1/2	2.01	2.01	134.9 K=0.70	0.1963	-595.88	2438.74	0.244 [1] ✔
T2	20 - 10	1/2	2.01	2.01	134.9 K=0.70	0.1963	-761.58	2438.74	0.312 [1] ✔
T3	10 - 0	1/2	2.01	2.01	134.9 K=0.70	0.1963	-920.27	2438.74	0.377 [1] ✔

[1] P_u / ϕP_n controls

Horizontal Design Data (Compression)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	lb	lb	
T1	30 - 20	1/2	1.50	1.50	100.8 K=0.70	0.1963	-378.33	3726.24	0.102 [1] ✔
T2	20 - 10	1/2	1.50	1.50	100.8 K=0.70	0.1963	-474.17	3726.24	0.127 [1] ✔
T3	10 - 0	1/2	1.50	1.50	100.8 K=0.70	0.1963	-568.53	3726.24	0.153 [1] ✔

[1] P_u / ϕP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	lb	lb	
T1	30 - 20	1/2	1.50	1.50	100.8 K=0.70	0.1963	-120.42	3726.24	0.032 [1] ✔
T2	20 - 10	1/2	1.50	1.50	100.8 K=0.70	0.1963	-279.78	3726.24	0.075 [1] ✔
T3	10 - 0	1/2	1.50	1.50	100.8 K=0.70	0.1963	-358.07	3726.24	0.096 [1] ✔

[1] P_u / ϕP_n controls

Bottom Girt Design Data (Compression)

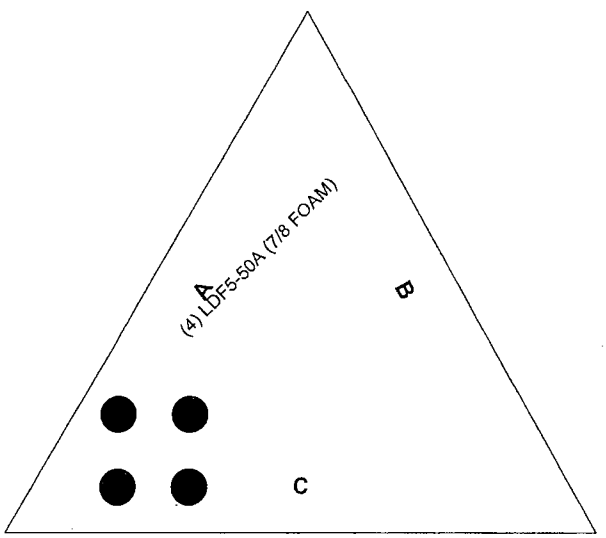
Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	lb	lb	
T1	30 - 20	1/2	1.50	1.50	100.8 K=0.70	0.1963	-239.23	3726.24	0.064 [1] ✔
T2	20 - 10	1/2	1.50	1.50	100.8 K=0.70	0.1963	-294.32	3726.24	0.079 [1] ✔
T3	10 - 0	1/2	1.50	1.50	100.8 K=0.70	0.1963	-342.11	3726.24	0.092 [1] ✔

[1] P_u / ϕP_n controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
T1	30 - 20	Leg	1	1	-2472.09	26196.10	9.4	Pass
		Diagonal	1/2	12	-595.88	2438.74	24.4	Pass
		Horizontal	1/2	15	-378.33	3726.24	10.2	Pass
		Top Girt	1/2	6	-120.42	3726.24	3.2	Pass
		Bottom Girt	1/2	8	-239.23	3726.24	6.4	Pass
T2	20 - 10	Leg	1	49	-6088.07	26196.10	23.2	Pass
		Diagonal	1/2	60	-761.58	2438.74	31.2	Pass
		Horizontal	1/2	63	-474.17	3726.24	12.7	Pass
		Top Girt	1/2	54	-279.78	3726.24	7.5	Pass
		Bottom Girt	1/2	56	-294.32	3726.24	7.9	Pass
T3	10 - 0	Leg	1	97	-10767.40	26196.10	41.1	Pass
		Diagonal	1/2	108	-920.27	2438.74	37.7	Pass
		Horizontal	1/2	111	-568.53	3726.24	15.3	Pass
		Top Girt	1/2	102	-358.07	3726.24	9.6	Pass
		Bottom Girt	1/2	104	-342.11	3726.24	9.2	Pass
							Summary	
						Leg (T3)	41.1	Pass
						Diagonal (T3)	37.7	Pass
						Horizontal (T3)	15.3	Pass
						Top Girt (T3)	9.6	Pass
						Bottom Girt (T3)	9.2	Pass
						Bolt Checks	18.8	Pass
						RATING =	**41.1**	**Pass**

Feed Line Plan



DaVinci Engineering, Inc.
PO Box 1966
Santa Maria, CA 93456
Phone: (805) 922-5221
FAX: (805) 880-0402

Job: ***9914267-011***			
Project: ***30-ft Light Duty Tower***			
Client: Lea County, New Mexico	Drawn by: Simon Leland	App'd:	
Code: TIA-222-G	Date: 01/21/14	Scale: NTS	
Path: R:\Engineering Documents\TNX TOWER Files\Daley Tower 267\2014\14267-011.eri		Dwg No. E-7	

Closed Loop System Design, Operating and Maintenance, and Closure Plan

ConocoPhillips Company
Well: War Hammer 25 Federal COM W1 3H
Location: Sec. 25, T26S, R32E
Date: 3/3/2014

ConocoPhillips proposes the following plan for design, operating and maintenance, and closure of our proposed closed loop system for the above named well:

1. We propose to use a closed loop system with steel pits, haul-off bins, and frac tanks for containing all cuttings, solids, mud, water, brine, and liquids. We will not dig a pit, nor will we use a drying pad, nor will we build an earth pit above ground level, nor will we dispose of or bury any waste on location.

   All drilling waste and all drilling fluids (fresh water, brine, mud, cuttings, drill solids, cement returns, and any other liquid or solid that may be involved) will be contained on location in the rig's steel pits or in haul-off bins or in frac tanks as needed. The intent is as follows:

   - We propose to use the rigs' steel pits for containing and maintaining the drilling fluids.
   - We propose to remove cuttings and drilled solids from the mud by using solids control equipment and to contain such cuttings and drilled solids on location in haul-off bins.
   - We propose that any excess water that may need to be stored on location will be stored in tanks.

The closed loop system components will be inspected daily by each tour and any needed repairs will be made immediately. Any leak in the system will be repaired immediately, and any spilled liquids and/or solids will be cleaned immediately, and the area where any such spill occurred will be remediated immediately.

2. Cuttings and solids will be removed from location in haul-off bins by an authorized contractor and disposed of at an authorized facility. For this well, we propose the following disposal facility:

   R-360 Inc.
   4507 West Carlsbad Hwy, Hobbs, NM 88240,
   P.O. Box 388; Hobbs, New Mexico 88241
   Toll Free Phone: 877.505.4274, Local Phone Number: 432.638.4076

   The physical address for the plant where the disposal facility is located is Highway 62/180 at mile marker 66 (33 miles East of Hobbs, NM and 32 miles West of Carlsbad, NM).

   The Permit Number for R-360 is NM-01-0006.

   A photograph showing the type of haul-off bins that will be used is attached.

3. Mud will be transported by vacuum truck and disposed of at R-360 Inc. at the facility described above.

4. Fresh Water and Brine will be hauled off by vacuum truck and disposed of at an authorized salt water disposal well. We propose the following for disposal of fresh water and brine as needed:

   - Nabors Well Services Company, 3221 NW County Rd; Hobbs, NM 88240, PO 5208 Hobbs, NM, 88241, Permit SWD 092. (Well Location: **Section 3, T19S R37E**)

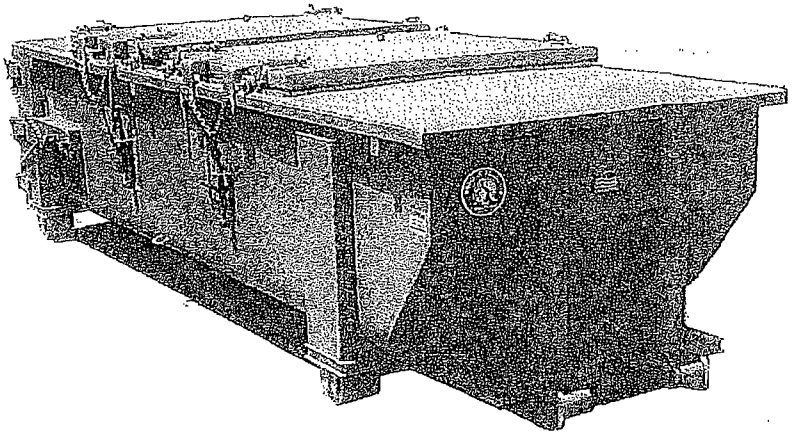
   - Basic Energy Services, P.O. Box 1869; Eunice, NM 88231 Phone Number: 575.394.2545, Facility located at Hwy 18, Mile Marker 19; Eunice, NM.

Jason Levinson
Drilling Engineer
Office: 281-206-5334
Cell: 281-682-2783

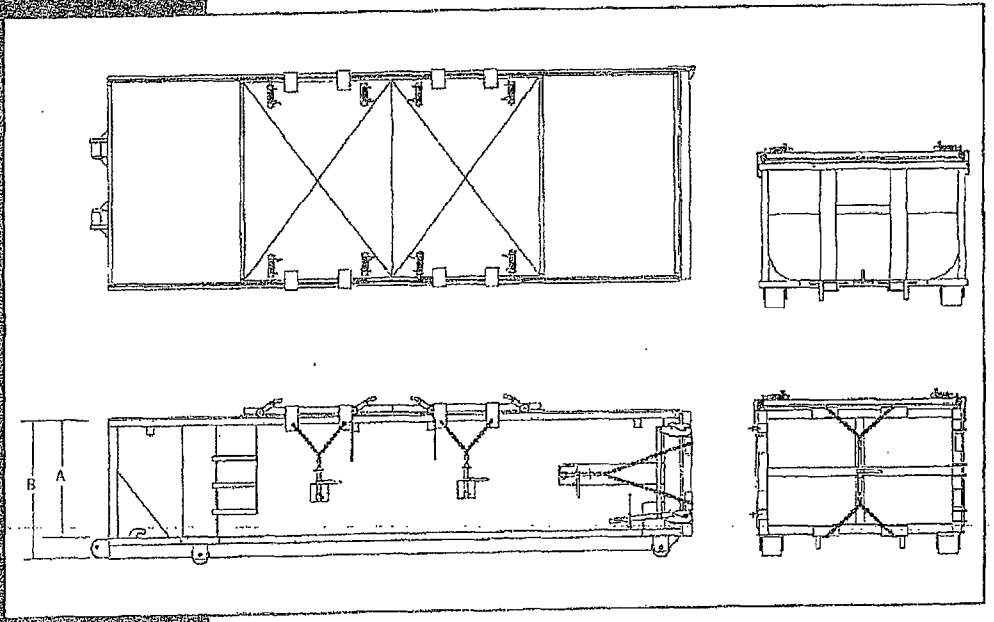
SPECIFICATIONS

FLOOR: 3/16" PL one piece
CROSS MEMBER: 3 x 4.1 channel 16" on center
WALLS: 3/16" PL solid welded with tubing top, inside liner hooks
DOOR: 3/16" PL with tubing frame
FRONT: 3/16" PL slant formed
PICK UP: Standard cable with 2" x 6" x 1/4" rails, gusset at each crossmember
WHEELS: 10 DIA x 9 long with rease fittings
DOOR LATCH: 3 independent ratchet binders with chains, vertical second latch
GASKETS: Extruded rubber seal with metal retainers
WELDS: All welds continuous except sub structure crossmembers
FINISH: Coated inside and out with direct to metal, rust inhibiting acrylic enamel color coat
HYDROTESTING: Full capacity static test
DIMENSIONS: 22'-11" long (21'-8" inside), 99" wide (88" inside), see drawing for height
OPTIONS: Steel grit blast and special paint, Ampliroll, Heil and Dino pickup
ROOF: 3/16" PL roof panels with tubing and channel support frame
LIDS: (2) 68" x 90" metal rolling lids spring loaded, self raising
ROLLERS: 4" V-groove rollers with delrin bearings and grease fittings
OPENING: (2) 60" x 82" openings with 8" divider centered on container
LATCH: (2) independent ratchet binders with chains per lid
GASKETS: Extruded rubber seal with metal retainers

Heavy Duty Split Metal Rolling Lid



CONT.	A	B
20 YD	41	53
25 YD	53	65
30 YD	65	77



ConocoPhillips

H_2S Contingency Plan

H_2S Contingency Plan Holders:

Attached is an H_2S Contingency Plan for COPC Permian Drilling working in the West Texas and Southeastern New Mexico areas operated by ConocoPhillips Company.

If you have any questions regarding this plan, please call Tom Samarripa at ConocoPhillips Company, 432.368.1263.

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