Submit 1 Copy To Appropriate District Office
District I – (575) 393-6161
1625 N. French Dr., Hobbs, NM 88240
District II – (575) 748-1283
811 S. First St., Artesia, NM 88210
District III – (505) 334-6178
1000 Rio Brazos Rd., Aztec, NM 87410
District IV – (505) 476-3460
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources

NM OIL CONSERVATION
ARTESIA DISTRICT
JUN 12 2015
RECEIVED

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-103
Revised July 18, 2013

WELL API NO. 30-015-41407
5. Indicate Type of Lease STATE [X] FEE [ ]
6. State Oil & Gas Lease No. VB-2115

SUNDRY NOTICES AND REPORTS ON WELLS
(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)

7. Lease Name or Unit Agreement Name: Mad River 13 State
1. Type of Well: Oil Well [ ] Gas Well [X] Other
8. Well Number 1H
2. Name of Operator: Caza Operating, LLC
9. OGRID Number 249099
3. Address of Operator: 200 Loraine, Suite 1550, Midland, Texas 79701
10. Pool name or Wildcat: Black River, Wolfcamp East G
4. Well Location
Unit Letter N : 330 feet from the South line and 2310 feet from the West line
Section 13 Township 24S Range 27E NMPM County Eddy
11. Elevation (Show whether DR, RKB, RT, GR, etc.) 3129 GL

12. Check Appropriate Box to Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
PERFORM REMEDIAL WORK	[ ]	PLUG AND ABANDON	[ ]	REMEDIAL WORK	[ ]	ALTERING CASING	[ ]
TEMPORARILY ABANDON	[ ]	CHANGE PLANS	[X]	COMMENCE DRILLING OPNS.	[ ]	P AND A	[ ]
PULL OR ALTER CASING	[ ]	MULTIPLE COMPL	[ ]	CASING/CEMENT JOB	[ ]		
DOWNHOLE COMMINGLE	[ ]						
CLOSED-LOOP SYSTEM	[ ]						
OTHER:	[ ]			OTHER:	[ ]		

13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 19.15.7.14 NMAC. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

Caza Operating, LLC respectfully request permission to change the target of the lateral in the subject well's approved APD from the Bone Springs interval @ ± 9120' to the Wolfcamp interval ± 9875'. A pilot hole will be drilled below 7" casing to 11,100'. We will plug back to KOP. Attached is the new directional summary, cement program & Casing design.

Type	Hole size	Casing Size	Casing Weight	Setting Depth	Sacks Cement	TOC estimated
Production Intermediate	8.75"	7.0"	29#	9200'	1161	1900' calc
Production Liner	6.125"	4.5"	13.5#	top 9000' Bot 14,046'	281	9000'

Spud Date: Rig Release Date:

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

SIGNATURE A.B. Sam TITLE VP Operations DATE 6/9/2015

Type or print name A.B. Sam E-mail address: tsam@cazapetro.com PHONE: 432 682 7424

For State Use Only

APPROVED BY: [signature] TITLE Dist. Supervisor DATE 7/15/2015

Conditions of Approval (if any):

Mad River 13 State Com # 1H "Cement Program"

Section 13, T24S, R27E, Eddy County, New Mexico

1. **Surface hole depth = 500 ft. TOC @surface** w/ 50% W/O
   Surface hole = 17.5 inch
   Surface casing = 13.375" 48# H-40 STC
   Float Collar 1 jts up.
   Hardware needed = 8 spring centralizers
   1 Guide shoe "Tx Pattern"
   1 Insert float valve (1 jt Up)
   1 thread lock compound
   1 collar stop

   Engineering Data "Surface":
   500 ft 17.5 inch hole x 13.375" csg = .6946 cu ft X 500 X 1.5 excess = 521 cu ft
   40 ft 13.375" 48 # casing volume= .8817 X 40 ft = 36 cu ft
   Total Cement volume required = 557 cu ft.
   Lead slurry = 359 cu ft "C" w/ 4% Gel & 2% CaCl2 .25pps CelloFlake 13.5 ppg yield 1.75 cu ft/sk **= (205 sks)**
   Tail Slurry = 198 cu ft Class "C" w/ 2% CaCl2 14.8 ppg yield 1.32 cu ft / sk **= (150 sks)**

2. **Intermediate hole depth= 2400 ft. TOC @Surface** w/ 50% W/O
   Intermediate hole = 12.25 inch
   Intermediate Casing = 9.625" 36# J-55 LTC
   Float Collar 1 jts up.
   Hardware needed = 12 spring centralizers
   1 Guide Shoe
   1 float collar (1 jt up)
   1 thread lock compound

   Engineering Data "Intermediate":
   1900 ft 12.25 inch open hole x 9.625 csg = .3132 cu ft X 1900 X 1.5 excess = 893 cu ft
   500 ft 9.625 x 13.375" casing =.3765 cu ft/ft X 500 = 188 cu ft
   40 ft 9.625"36 # casing volume= .434 X 40 ft = 18 cu ft
   Total Cement volume required = 1099 cu ft.
   Lead = 835 cu ft 35:65 poz "C" w/ 5% salt & 6% gel 12.4 ppg yield 2.09 cu ft/sk **= (400sks)**
   Tail Slurry = 264 cu ft Class "C" w/ 1% CaCl2 14.8 ppg yield 1.32 cu ft / sk **= (200 sks)**

3. **Production Intermediate Hole depth= 9200 ft. TOC @ 1900 ft** w/ 35% W/O
   Production Hole = 8.75inch to 9200 ' MD
   Production Hole Casing = 7.0 inch 29 # P-110 LTC
   Hardware Needed = 25 spring Centralizers

PDC Drillable Float Collar (1 jt up)
PDC Drillable Float Shoe
TOC calculated to 1900 ft w/ 35% Washout.

Engineering Data "Production Intermediate":

Slurry coverage= (9200 ft to 1,900 ft)
6800 ft 8.75 inch open hole x 7.0" casing = 6800 X .1503 x 1.35% excess = **1380 cu ft.**
500 ft 9-5/8" x 7.0 " csg. = .1668 x 500' = **84 cu ft.**
40 ft 7.0" 29# Shoe joint = **9 cu ft**

Total Cement volume required = 1473 cu ft.
Lead Slurry = (7500-1900 ft).
Slurry = 50/50 Poz/"H"mixed @14.1 ppg w/yield 1.3 cu ft/sk 5 lb/sk gilsonite+1/8 lb/sk cello Flake+1/4% **= 1119 cu ft (861 sks)**

Tail Slurry Coverage = (9200-7500 ft).
9200-7500 ft 8.75 inch open hole x 7.0" = 1700 X .1503 x 1.35% excess = **345 cu ft.**
40 ft 7.0" 29 # casing shoe joint volume= .2085 X 40 ft = **9 cu ft**
Slurry = 15.6 ppg "H" 1.18 yield = (300 sks)

4. **Production liner depth= 14,046 ft.** "9875 ft" TVD. **TOC @ 9000 ft** w/ 35% W/O
Production Hole = 6.125 inch to 14,046 ft. Note:
Lateral TVD = 9875'
Lateral KOP = ± 9300'
EOC = ± 10,202'
Lateral length ± 3844'
Top of Liner ± 9000 ft'

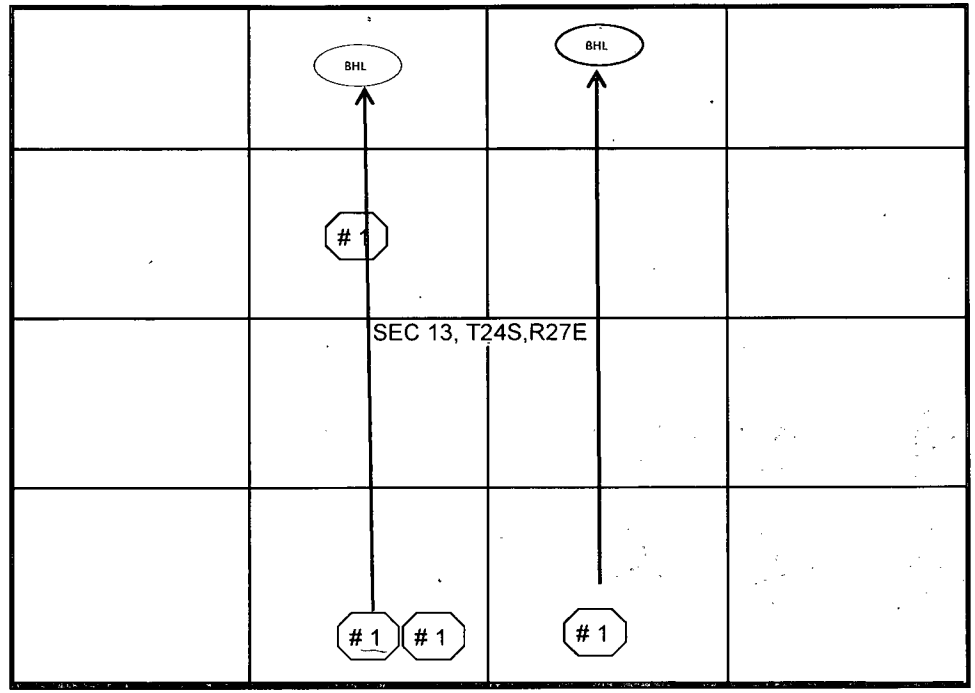
Production Liner Casing = 4-1/2 inch 13.5# HCP-110 CDC
Hardware Needed = 45 Rigid Centralizers for Lateral. (1 every other Jt)
Landing Collar (2 jts up)
Float Collar (1 jt up)
Float Shoe
TOC calculated to 9000 ft w/ 35% Washout open hole.

Engineering Data "Production Liner":
200 ft 7" 29# X 4-1/2" Csg= 200' X .0981 cu ft / ft = **20 cu ft.**
4846 ft 6.125 inch open hole x 4-1/2"13.5 # Liner = 4025' X .0942 x 1.35 excess= **616cuft**
88 ft 4.5" 13.5# casing shoe joint (2) volume= .0838 X 88 ft = **8 cu ft**
Total Cement volume required = 644 cu ft.
Slurry (14,046'-9000')= 644 cu ft "H" SoluCem mixed 15.0 ppg w/ yield of 2.53 cu ft/sk w/ fluid loss control + Defoamer "Acid soluble" = **281 sks**

5. **Plug Back cement for Pilot hole = (11,100' – 9200 ft).**
Hole size = 6.125" + 35% washout = .276 cu ft x 1900 ft = 525 Cu Ft
Cement plug = 16.4 ppg class "H" 1.0 yield (525 sks)

Mad River 13 St. # 1H_2nd Bones Springs Horizontal

330 FSL & 2310 FWL, Sec 13, T-24-S, R-27-E, Eddy County, New Mexico



Well Name	Surface Location	Depth and Strata	Current Prod Zone	Bottom Hole Location	
Mad River 13 State # 1H	330 FSL & 2310 FWL	TVD = 9875 Wlfcmp Horz	Not Drilled	660 FNL & 1980 FWL	± 9875 TVI
Bongo Fee #1H	330 FSL & 1980 FEL	TD = 7200 2nd BS Horz	Not Drilled	330 FNL & 1980 FEL	COG Perm
Brantley 13 State # 1	660 FSL & 2310 FWL	TD = 12,900'	P&A	Same	HNG ReEn
Beeman 13 # 1	1980 FNL & 1980 FWL	TD=2565'	P&A	Same	Cable tool-

Mad River 13 State # 1H
Caza Operating, LLC
Eddy County, New Mexico

LONG's METHOD OF SURVEY COMPUTATION

OBLIQUE CIRCULAR ARC INTERPOLATION

6000	MD OF INTERPOLATION DEPTH,(feet)
#N/A	TVD COORDINATE OF THE DEPTH (feet)
#N/A	N/S COORDINATE OF DEPTH (feet)
#N/A	E/W COORDINATE OF DEPTH (feet)

DISTANCE TABLE

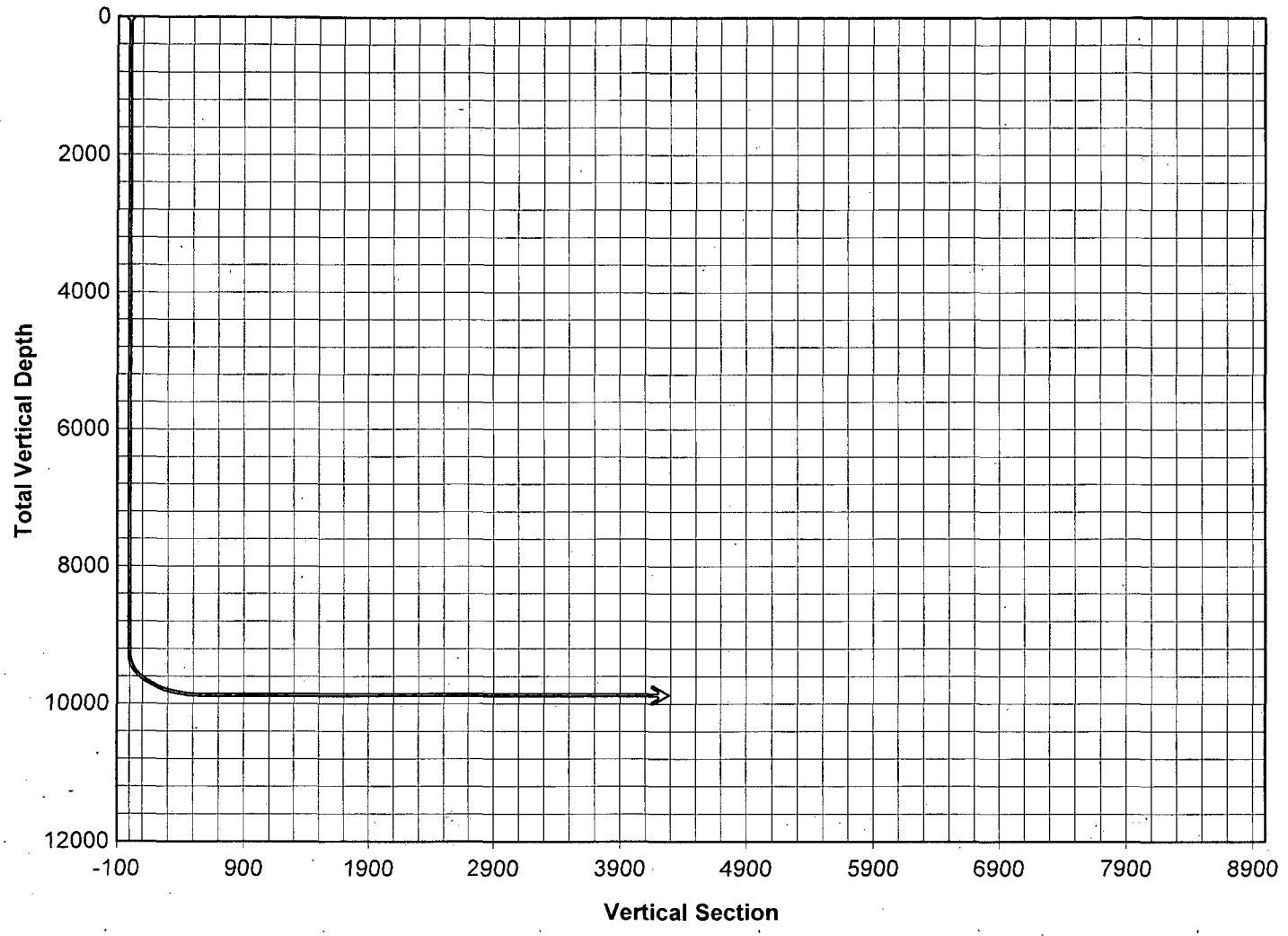
STATION A	STATION B
400.00	600.00
300.00	400.00
100.00	300.00
3 D DISTANCE BETWEEN STATION A AND STATION B: 300.00	ft
Calculator =	

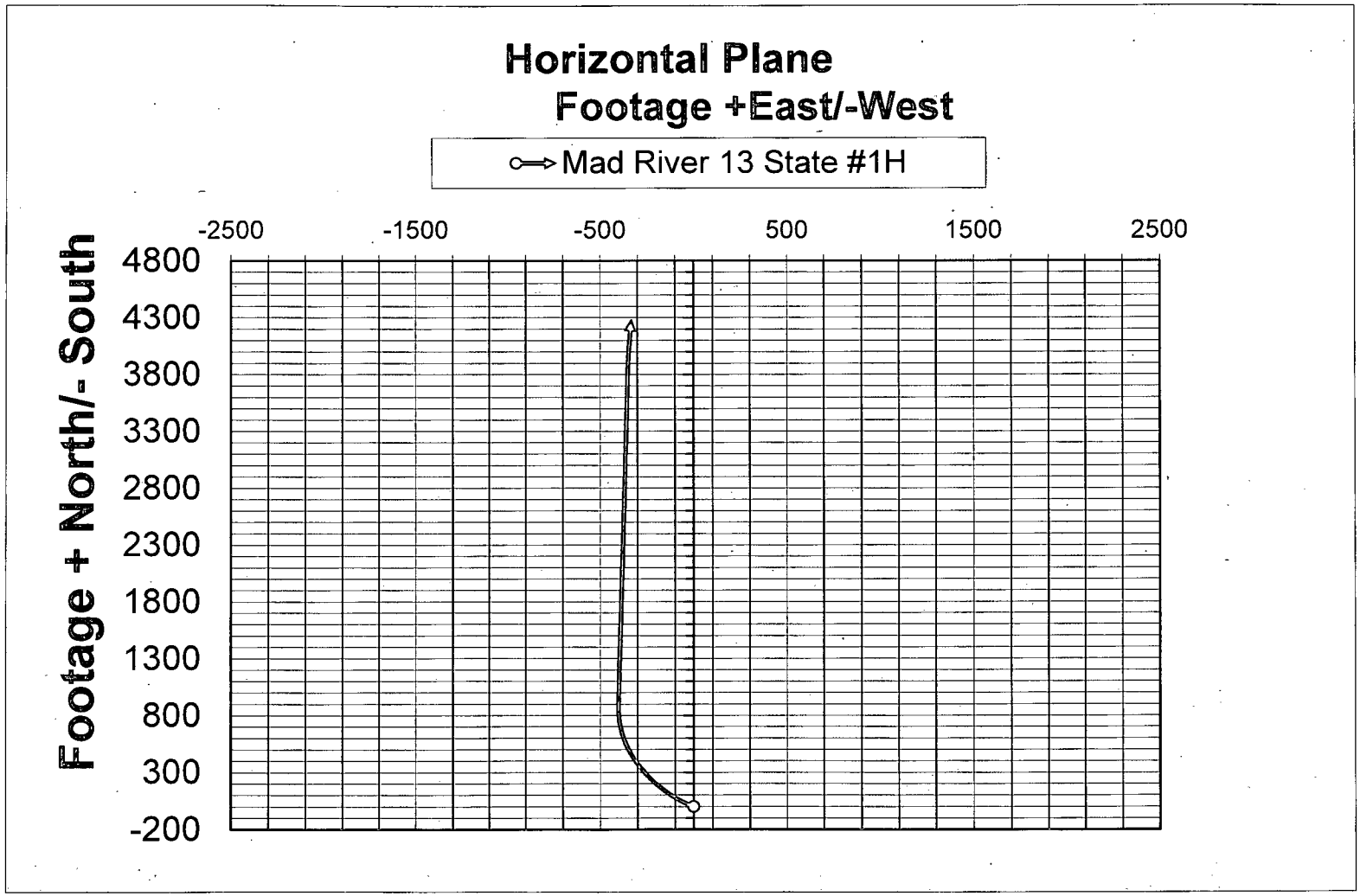
TABLE OF SURVEY STATIONS

STA #	ΔMD ft	INCL deg	AZIM deg	MD ft	TVD ft	N+/S- ft	E+/W- ft	DLS deg/100FT
1	TIE POINT =>	0	0	9302.00	9302.00	0.00	0.00	-
2	100	10	300	9402.00	9401.49	4.35	-7.54	10.00
3	100	20	305	9502.00	9497.97	18.54	-29.12	10.07
4	100	30	310	9602.00	9588.49	44.49	-62.37	10.21
5	100	40	315	9702.00	9670.32	83.39	-104.36	10.40
6	100	50	320	9802.00	9740.96	135.60	-151.84	10.60
7	100	60	325	9902.00	9798.27	200.61	-201.45	10.80
8	100	70	330	10002.00	9840.50	277.00	-249.92	10.97
9	100	80	335	10102.00	9866.37	362.59	-294.37	11.10
10	100	90	340	10202.00	9875.08	454.49	-332.40	11.17
11	100	90	345	10302.00	9875.08	549.83	-362.46	5.00
12	100	90	350	10402.00	9875.08	647.43	-384.09	5.00
13	100	90	355	10502.00	9875.08	746.54	-397.14	5.00
14	100	90	360	10602.00	9875.08	846.42	-401.50	5.00
15	100	90	1	10702.00	9875.08	946.41	-400.63	1.00
16	100	90	1	10802.00	9875.08	1046.40	-398.89	0.00
17	100	90	1	10902.00	9875.08	1146.38	-397.14	0.00
18	100	90	1	11002.00	9875.08	1246.37	-395.40	0.00
19	100	90	1	11102.00	9875.08	1346.35	-393.65	0.00
20	100	90	1	11202.00	9875.08	1446.34	-391.91	0.00
21	100	90	1	11302.00	9875.08	1546.32	-390.16	0.00
22	100	90	1	11402.00	9875.08	1646.30	-388.41	0.00
23	100	90	1	11502.00	9875.08	1746.29	-386.67	0.00
24	100	90	1	11602.00	9875.08	1846.27	-384.92	0.00
25	100	90	1	11702.00	9875.08	1946.26	-383.18	0.00
26	100	90	1	11802.00	9875.08	2046.24	-381.43	0.00
27	100	90	1	11902.00	9875.08	2146.23	-379.69	0.00
28	100	90	1	12002.00	9875.08	2246.21	-377.94	0.00
29	100	90	1	12102.00	9875.08	2346.20	-376.20	0.00
30	100	90	1	12202.00	9875.08	2446.18	-374.45	0.00
31	100	90	1	12302.00	9875.08	2546.17	-372.71	0.00
32	100	90	1	12402.00	9875.08	2646.15	-370.96	0.00
33	100	90	1	12502.00	9875.08	2746.14	-369.22	0.00
34	100	90	1	12602.00	9875.08	2846.12	-367.47	0.00
35	100	90	1	12702.00	9875.08	2946.11	-365.73	0.00
36	100	90	1	12802.00	9875.08	3046.09	-363.98	0.00
37	100	90	1	12902.00	9875.08	3146.08	-362.24	0.00

38	100	90	1	13002.00	9875.08	3246.06	-360.49	0.00
39	100	90	1	13102.00	9875.08	3346.05	-358.75	0.00
40	100	90	1	13202.00	9875.08	3446.03	-357.00	0.00
41	100	90	1	13302.00	9875.08	3546.02	-355.26	0.00
42	100	90	1	13402.00	9875.08	3646.00	-353.51	0.00
43	100	90	1	13502.00	9875.08	3745.98	-351.76	0.00
44	100	90	1	13602.00	9875.08	3845.97	-350.02	0.00
45	100	90	2	13702.00	9875.08	3945.93	-347.40	1.00
46	100	90	2.5	13802.00	9875.08	4045.86	-343.48	0.50
47	100	90	3	13902.00	9875.08	4145.74	-338.68	0.50
48	100	90	3	14002.00	9875.08	4245.60	-333.44	0.00
49	44	90	3	14046.00	9875.08	4289.54	-331.14	0.00

Mad River 13.State # 1H




Horizontal Plane
Footage +East/-West
Mad River 13 State #1H
Footage + North/- South
-2500
-1500
-500
500
1500
2500
4800
4300
3800
3300
2800
2300
1800
1300
800
300
-200

Well name: **Mad River 13 State #1**

Operator: **Caza Operating, LLC**

String type: **Surface Casing**

SL = SE/SW Sec 13, T24S, R27E, Eddy, NM.
BHL = NE/NW Sec 13, T24S, R27E, Eddy, NM.

Design parameters:

Collapse

Mud weight: 8.70 ppg

Design is based on evacuated pipe.

Burst

Max anticipated surface pressure: 303.64 psi

Internal gradient: 0.12 psi/ft

Calculated BHP 363.64 psi

Annular backup: 8.00 ppg

Minimum design factors:

Collapse: DF 1.125

Burst: DF 1.12

Tension:

8 Round STC:	1.80 (J)
8 Round LTC:	1.80 (J)
Buttress:	1.60 (J)
Premium:	1.50 (J)
Body yield:	1.60 (B)

Tension is based on buoyed weight.

Neutral pt: 436.33 ft

Environment:

H2S considered?	No	
Surf Temp	75.00	°F
BHT	78	°F
Temperature gradient:	0.60	°F/100ft
Minimum sect length:	450	ft
Minimum Drift:	12.250	in
Cement top:	Surface	

Non-directional string.

Re subsequent strings:

Next setting depth:	2,400	ft
Next mud weight:	10.000	ppg
Next setting BHP:	1,247	psi
Fracture mud wt:	14.000	ppg
Fracture depth:	500	ft
Injection pressure	364	psi

Run Seq	Segment Length (ft)	Size (in)	Nominal Weight (lbs/ft)	Grade	End Finish	True Vert Depth (ft)	Measured Depth (ft)	Drift Diameter (in)
1	500	13.375	48.00	H-40	ST&C	500	500	12.59

Run Seq	Collapse Load (psi)	Collapse Strength (psi)	Collapse Design Factor	Burst Load (psi)	Burst Strength (psi)	Burst Design Factor	Tension Load (kips)	Tension Strength (kips)	Tension Design Factor
1	226	740	3.275	304	1730	5.70	20.9	322	15.37 J

Prepared by: Tony Sam

Phone: (432) 682 7424
FAX: (432) 682 7425

Date: 8-Jun-15
Midland, Texas

Remarks:

Collapse is based on a vertical depth of 500 ft, a mud weight of 8.7 ppg The casing is considered to be evacuated for collapse purposes.

Collapse strength is based on the Westcott, Dunlop & Kemler method of biaxial correction for tension.

Burst strength is not adjusted for tension.

Engineering responsibility for use of this design will be that of the purchaser.

Well name: **Mad River 13 State #1H**

Operator: **Caza Operating, LLC**

String type: **Intermediate Casing**

SL = SE/SW Sec 13, T24S, R27E, Eddy, NM.

BHL = NE/NW Sec 13, T24S, R27E, Eddy, NM.

Design parameters:

Collapse

Mud weight: 10.00 ppg

Design is based on evacuated pipe.

Burst

Max anticipated surface pressure: 2,466.55 psi

Internal gradient: 0.12 psi/ft

Calculated BHP 2,754.55 psi

Annular backup: 8.00 ppg

Minimum design factors:

Collapse:

DF 1.200

Burst:

DF 1.12

Tension:

8 Round STC:	1.80 (J)
8 Round LTC:	1.80 (J)
Buttress:	1.60 (J)
Premium:	1.50 (J)
Body yield:	1.60 (B)

Tension is based on buoyed weight.

Neutral pt: 2,044.87 ft

Environment:

H2S considered?	No	
Surface temperature:	75.00	°F
Bottom Hole Temp	89	°F
Temperature gradient:	0.60	°F/100ft
Minimum sect length:	450	ft
Minimum Drift:	8.750	in
Cement top:	Surface	

Non-directional string.

Re subsequent strings:

Next setting depth:	7,200	ft
Next mud weight:	9.200	ppg
Next setting BHP:	3,441	psi
Fracture mud wt:	12.000	ppg
Fracture depth:	4,900	ft
Injection pressure	3,055	psi

Run Seq	Segment Length (ft)	Size (in)	Nominal Weight (lbs/ft)	Grade	End Finish	True Vert Depth (ft)	Measured Depth (ft)	Drift Diameter (in)
1	2400	9.625	36.00	J-55	LT&C	2400	2400	8.796

Run Seq	Collapse Load (psi)	Collapse Strength (psi)	Collapse Design Factor	Burst Load (psi)	Burst Strength (psi)	Burst Design Factor	Tension Load (kips)	Tension Strength (kips)	Tension Design Factor
1	1247	2020	1.620	2467	3520	1.43	73.6	453	6.15 J

Prepared by: Tony Sam

Phone: (432) 682 7424

FAX: (432) 682 7425

Date: 8-Jun-15

Midland, Texas

Remarks:

Collapse is based on a vertical depth of 2400 ft, a mud weight of 10 ppg The casing is considered to be evacuated for collapse purposes.

Collapse strength is based on the Westcott, Dunlop & Kemler method of biaxial correction for tension.

Burst strength is not adjusted for tension.

Engineering responsibility for use of this design will be that of the purchaser.

Well name: **Mad River 13 State #1**

Operator: **Caza Operating, LLC**
String type: **Production Intermediate**
Location: SL = SE/SW Sec 13, T24S, R27E, Eddy, NM.
BHL = NE/NW Sec 13, T24S, R27E, Eddy, NM.

Design parameters:

Collapse
Mud weight: 9.50 ppg
Design is based on evacuated pipe.

Burst
Max anticipated surface pressure **frac:** 8,884.99 psi
Internal gradient: 0.12 psi/ft
Calculated BHP 9,988.98 psi

No backup mud specified.

Minimum design factors:

Collapse: DF 1.125

Burst: DF 1.10

Tension:
8 Rd STC: 1.80 (J)
8 Rd LTC: 1.80 (J)
Buttress: 1.60 (J)
Premium: 1.50 (J)
Body yield: 1.50 (B)

Tension is based on buoyed weight.
Neutral pt: 7,877.07 ft

Environment:
H2S considered? No
Surface temperature: 75.00 °F
Bottom hole temp 144 °F
Temperature gradient: 0.75 °F/100ft
Minimum sect length: 1,500 ft
Minimum Drift: 6.056 in
Cement top: 1,900 ft

Non-directional string.

Re subsequent strings:
Next setting depth: 10,901 ft
Next mud weight: 18.000 ppg
Next setting BHP: 10,193 psi
Fracture mud wt: 30.000 ppg
Fracture depth: 10,901 ft
Injection pressure 16,989 psi

Run Seq	Segment Length (ft)	Size (in)	Nominal Weight (lbs/ft)	Grade	End Finish	True Vert Depth (ft)	Measured Depth (ft)	Drift Diameter (in)	Internal Capacity (ft³)
1	9200	7	29.00	P-110	LT&C	9200	9200	6.059	1918.9

Run Seq	Collapse Load (psi)	Collapse Strength (psi)	Collapse Design Factor	Burst Load (psi)	Burst Strength (psi)	Burst Design Factor	Tension Load (Kips)	Tension Strength (Kips)	Tension Design Factor
1	4540	8530	1.879	9989	11220	1.12	228	797	3.49 J

Prepared by: Tony Sam
Phone: (432) 682 7424
FAX: (432) 682 7425
Date: June 9,2015
Midland, Texas

Remarks:
Collapse is based on a vertical depth of 9200 ft, a mud weight of 9.5 ppg The casing is considered to be evacuated for collapse purposes.
Collapse strength is based on the Westcott, Dunlop & Kemler method of biaxial correction for tension.

Burst strength is not adjusted for tension.

Engineering responsibility for use of this design will be that of the purchaser.

Well name: **Mad River 13 State #1**

Operator: **Caza Operating, LLC**
String type: **Production Liner Frac**
Location: SL = SE/SW Sec 13, T24S, R27E, Eddy, NM.
BHL = NE/NW Sec 13, T24S, R27E, Eddy, NM.

Design parameters:			**Minimum design factors:**		**Environment:**		
Collapse			**Collapse:**		H2S considered?	No	
Mud weight:	18.00	ppg	DF	1.125	Surface temperature:	75.00	°F
Internal fluid density:	3.000	ppg			Bottom hole temp:	149	°F
					Temperature gradient:	0.75	°F/100ft
					Minimum sect length:	1,500	ft
			Burst:		Minimum Drift:	3.790	in
Surface pressure:	250	psi	DF	1.10	Cement top:	9,000	ft
Burst							
Max anticipated surface							
pressure **Frac:**	8,048.83	psi			Liner top:	9,000	ft
Internal gradient:	0.12	psi/ft	**Tension:**		**Directional well information:**		
Calculated BHP	9,233.84	psi	8 Rd STC:	1.80	(J) Kick-off point	9302	ft
			8 Rd LTC:	1.80	(J) Departure at shoe:	4303	ft
Annular backup:	4.00	ppg	Buttress:	1.60	(J) Maximum dogleg:	11.17	°/100ft
			Premium:	1.50	(J) Inclination at shoe:	90	°
			Body yield:	1.50	(B)		

Tension is based on buoyed weight.
Neutral pt: 9,668.08 ft

Run Seq	Segment Length (ft)	Size (in)	Nominal Weight (lbs/ft)	Grade	End Finish	True Vert Depth (ft)	Measured Depth (ft)	Drift Diameter (in)	Internal Capacity (ft^3)
1	5046	4.5	13.50	P-110	Buttress	9875	14046	3.795	422.9

Run Seq	Collapse Load (psi)	Collapse Strength (psi)	Collapse Design Factor	Burst Load (psi)	Burst Strength (psi)	Burst Design Factor	Tension Load (Kips)	Tension Strength (Kips)	Tension Design Factor
1	7945	10680	1.344	7259	12410	1.71	9	422	48.64 B

Prepared by: Tony Sam — Phone: (432) 682 7424 — FAX: (432) 682 7425 — Date: June 9,2015 — Midland, Texas

Remarks:
For this liner string, the top is rounded to the nearest 100 ft.Collapse is based on a vertical depth of 9875 ft, a mud weight of 18 ppg An internal gradient of .156 psi/ft was used for collapse from TD to 0 ft. Collapse strength is based on the Westcott, Dunlop & Kemler method of biaxial correction for tension.

Burst strength is not adjusted for tension.
Collapse strength is (biaxially) derated for doglegs in directional wells by multiplying the tensile stress by the cross section area to calculate a tesile load which is added to the axial load.

Engineering responsibility for use of this design will be that of the purchaser.