Form 3160-5
(August 2007)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

NMOCD
Artesia

NM OIL CONSERVATION
ARTESIA DISTRICT
JUL 17 2017
RECEIVED

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

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE - Other instructions on page 2.

1. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other	Lease Serial No. ~~NMNM-2295A~~ NM-101107
	6. If Indian, Allottee or Tribe Name
	7. If Unit of CA/Agreement, Name and/or No.
	8. Well Name and No. Montreal Federal Com #1H 318386
2. Name of Operator: Mack Energy Corporation	9. API Well No. 30-005-64242
3a. Address: P.O. Box 960 Artesia, NM 88210-0960	3b. Phone No. *(include area code)*: (575) 748-1288
	10. Field and Pool or Exploratory Area: Round Tank; San Andres
4. Location of Well *(Footage, Sec., T,R,M, or Survey Description)*: 530 FSL 990 FEL, Sec. 17 T15S R29E BHL 270 FSL 965 FEL Sec. 20 T15S R29E	11. Country or Parish, State: Chaves, NM

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
	☐ Alter Casing	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Subsequent Report	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other Name Change
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	Drill Horizontal
☐ Final Abandonment Notice	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.)

Mack Energy Corporation is proposing to change the name of the Whistler Federal 4 location to the Montreal Federal Com 1H. This location is located in the SESE Sec. 17 T15S R29E.

The Montreal Federal Com 1H will be drilled as a horizontal San Andres well. The total depth of this well is 8340', TVD is 3240'. SHL 530 FSL 990 FEL Sec. 17 T15S R29E & BHL 270 FSL 965 FEL Sec. 20 T15S R29E.
Casing program: Surface Drill 14 3/4" hole to 200' run 9 5/8" J-55 36# ST&C New casing and cement w/300sx RFC & Class C+12% PF53, 2% PF1, 5pps PF42, .125pps PF29. Density14.8-Yield 1.34-H2O mix 6.323. C/B/T safety factors 20.23237/6.981911/7.04.
Production Drill 8 1/2" hole to 8527' run split string 5 1/2" HCP-110 17# Buttress New from 8527-2600', horizontal section set with Packer Plus System, DV tool @ +or- 2600'. C/B/T safety factors 4.929052/3.711224/3.595275. 7" HCP-110 29# LT&C New casing from 2600-0'. C/B/T 6.423834/3.791258/3.74. Cement w/375sx Class C. Density 13.2-Yield 1.84-H2O mix 9.914. Tail cement w/ 1155sx PVL+1.3(BWOW) PF44+5%PF174+.5%PF606+.1%PF153+.4ppsPF44, Density 13-Yield 1.48-H2O mix 7.577.

SC 7-18-17
Accepted for record - NMOCD

14. I hereby certify that the foregoing is true and correct. Name *(Printed Typed)*: Deana Weaver — Title: Production Clerk

Signature: Deana Weaver — Date: June 23, 2017

RECEIVED
2017 JUN 26 P 2:28
BUREAU OF LAND MGMT
ROSWELL FIELD OFFICE

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by [redacted] — Title: PETROLEUM ENGINEER — Date: JUL 12 2017

Conditions of approval, if any, are attached. Approval of this notice 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. — Office

r my person knowingly and willfully to make to any department or agency of the United States any false. sdiction.

Installing 3M BOP-Testing To 3000 Psi

Cement Behind Production Casing Must Circulate To Surface

SEE ATTACHED FOR CONDITIONS OF APPROVAL

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

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

Form C-102
Revised August 1, 2011
Submit one copy to appropriate District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name
30-005-64242	52770	Round Tank; San Andres

[4] Property Code	[5] Property Name	[6] Well Number
318386	MONTREAL FEDERAL COM	1H

[7] OGRID No.	[8] Operator Name	[9] Elevation
13837	MACK ENERGY CORPORATION	3794.5

[10] Surface Location

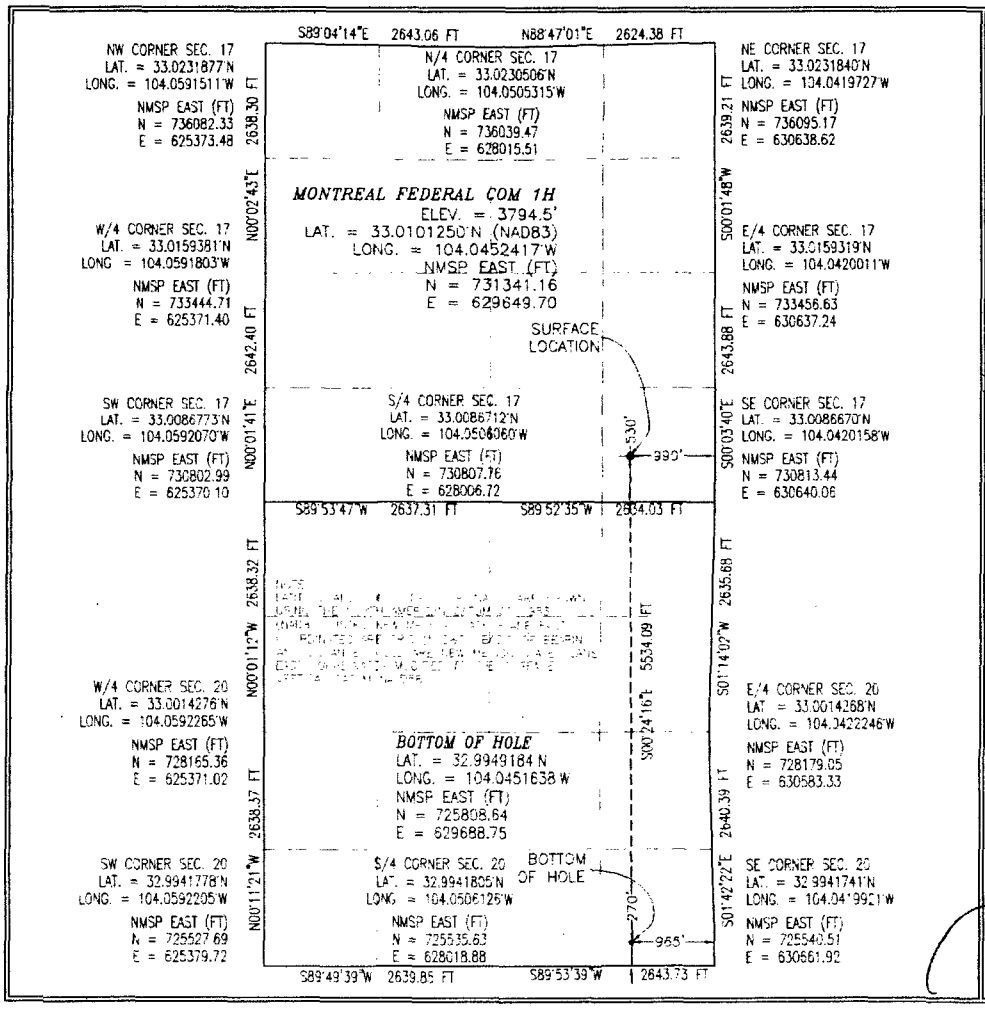
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	17	15 S	29 E		530	SOUTH	990	EAST	CHAVES

[11] Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	20	15 S	29 E		270	SOUTH	965	EAST	CHAVES

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
40			

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



[17] OPERATOR CERTIFICATION

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

Deana Weaver 6.23.17
Signature Date

Deana Weaver
Printed Name

dweaver@mec.com
E-mail Address

[18] SURVEYOR CERTIFICATION

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

MAY 15, 2017
Date of Survey

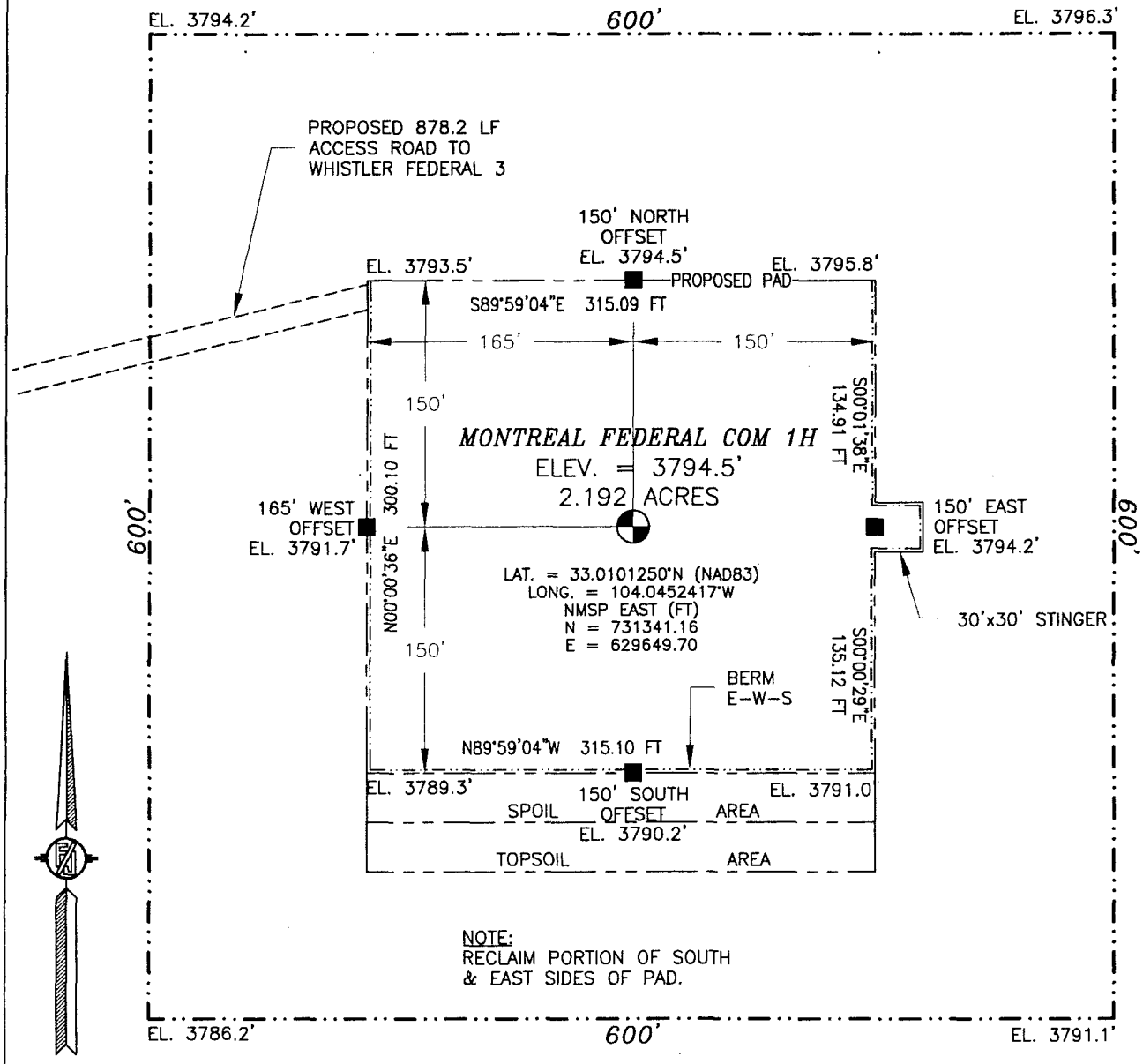
Signature and Seal of Professional Surveyor

Certificate Number FILIBERTO L. JARAMILLO, PLS 12797

SURVEY NO. 2869B

SECTION 17, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO
SITE MAP

NOTE: LATITUDE AND LONGITUDE COORDINATES ARE SHOWN USING THE NORTH AMERICAN DATUM OF 1983 (NAD83). LISTED NEW MEXICO STATE PLANE EAST COORDINATES ARE GRID (NAD83). BASIS OF BEARING AND DISTANCES USED ARE NEW MEXICO STATE PLANE EAST COORDINATES MODIFIED TO THE SURFACE



010 50 100 200

SCALE 1" = 100'

DIRECTIONS TO LOCATION

FROM THE INTERSECTION OF STATE HIGHWAY 249 AND CR 30 (JEMINA) GO NORTHWEST ON STATE HIGHWAY 249 FOR APPROX. 2.1 MILES. GO SOUTH ON 20' CALICHE LEASE ROAD FOR APPROX. 3.21 MILES TO WHISTLER FEDERAL 9. FROM THE NORTHEAST CORNER GO EAST 855.0' TO THE NORTHWEST CORNER OF WHISTLER FEDERAL 10 . FROM THE SOUTHWEST CORNER GO SOUTHWEST 686.9' TO THE NORTHEAST CORNER OF WHISTLER FEDERAL 5. FROM THE SOUTHEAST CORNER GO SOUTH THEN SOUTHEAST 558.2' TO THE NORTHWEST CORNER OF WHISTLER FEDERAL 6. FROM THE SOUTHEAST CORNER GO EAST 771.4' THEN SOUTHEAST 962.2' TO THE NORTHWEST CORNER OF WHISTLER FEDERAL 3. THEN FROM THE NORTHEAST CORNER GO NORTHEAST 878.2' TO THE NORTHWEST CORNER FOR THIS LOCATION.

MACK ENERGY CORPORATION

MONTREAL FEDERAL COM 1H

LOCATED 530 FT. FROM THE SOUTH LINE AND 990 FT. FROM THE EAST LINE OF SECTION 17, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M. CHAVES COUNTY, STATE OF NEW MEXICO

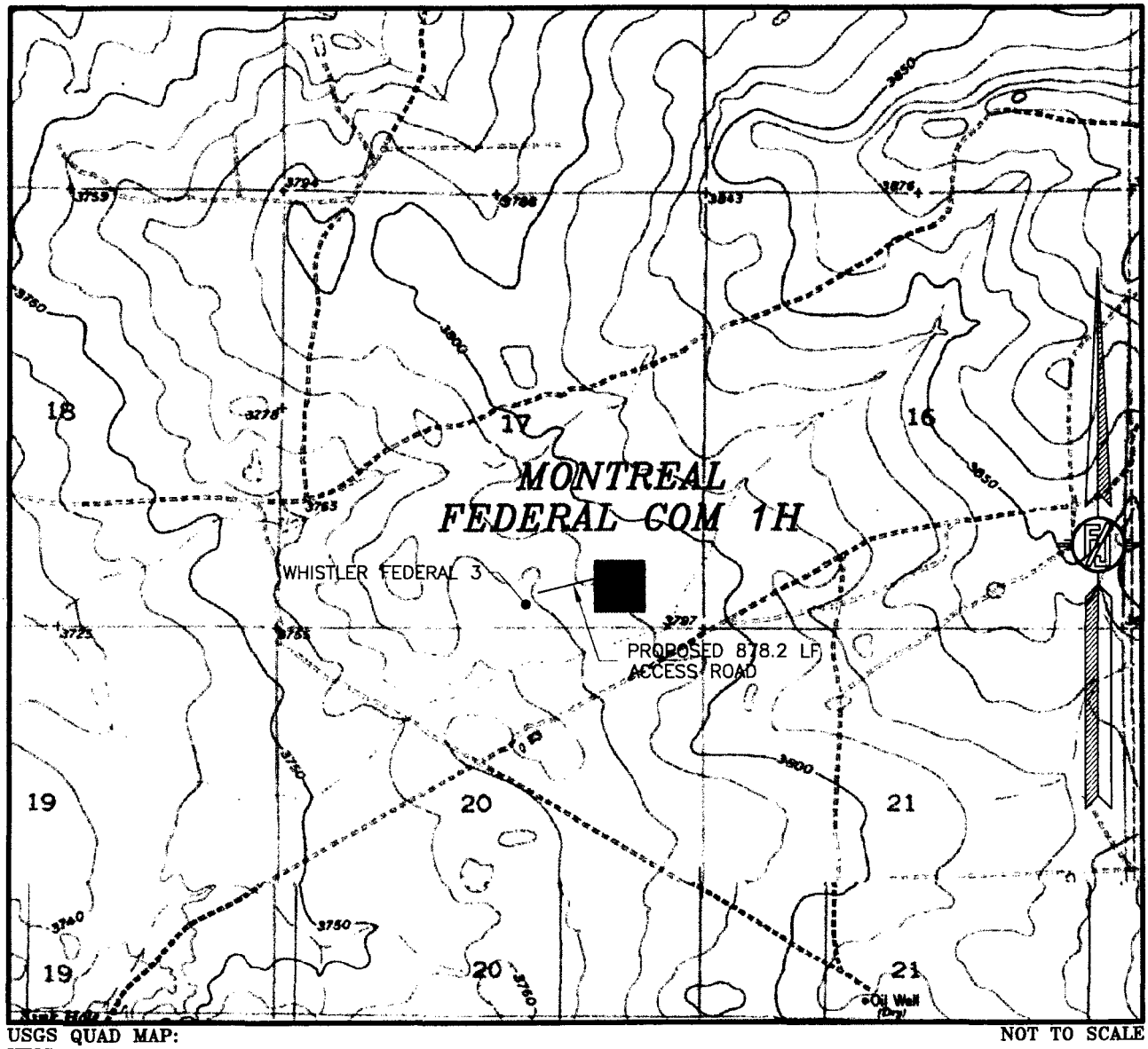
MAY 15, 2017

SURVEY NO. 2869B

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 *CARLSBAD, NEW MEXICO*

SECTION 17, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO

LOCATION VERIFICATION MAP



USGS QUAD MAP:
KING CAMP

NOT TO SCALE

MACK ENERGY CORPORATION
MONTREAL FEDERAL COM 1H
LOCATED 530 FT. FROM THE SOUTH LINE
AND 990 FT. FROM THE EAST LINE OF
SECTION 17, TOWNSHIP 15 SOUTH,
RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO

MAY 15, 2017

SURVEY NO. 2869B

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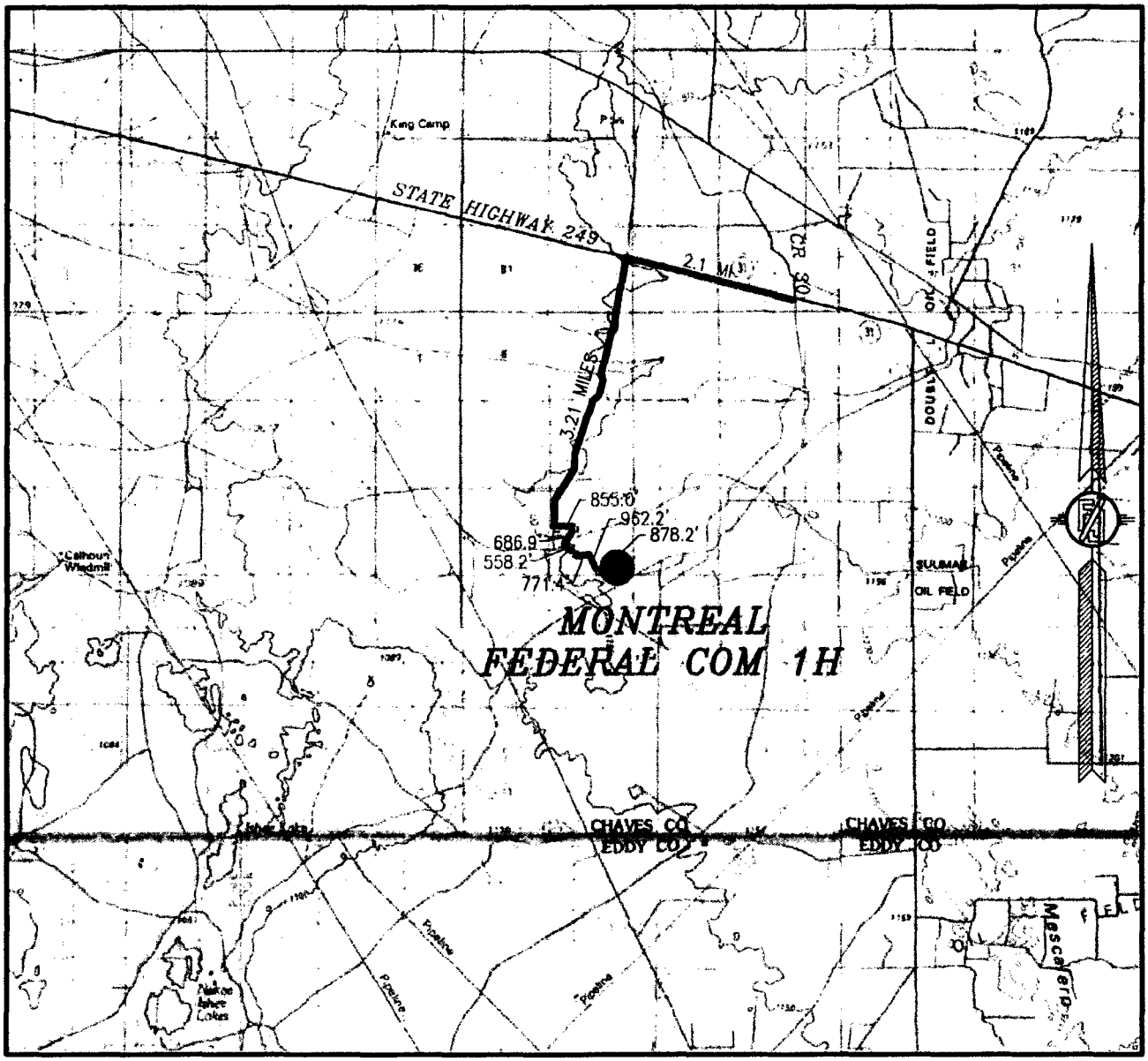
SECTION 17, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO

VICINITY MAP



DISTANCES IN MILES

NOT TO SCALE

DIRECTIONS TO LOCATION
FROM THE INTERSECTION OF STATE HIGHWAY 249 AND CR 30 (JEMINA) GO NORTHWEST ON STATE HIGHWAY 249 FOR APPROX. 2.1 MILES. GO SOUTH ON 20' CALICHE LEASE ROAD FOR APPROX. 3.21 MILES TO WHISTLER FEDERAL 9. FROM THE NORTHEAST CORNER GO EAST 855.0' TO THE NORTHWEST CORNER OF WHISTLER FEDERAL 10 . FROM THE SOUTHWEST CORNER GO SOUTHWEST 686.9' TO THE NORTHEAST CORNER OF WHISTLER FEDERAL 5. FROM THE SOUTHEAST CORNER GO SOUTH THEN SOUTHEAST 558.2' TO THE NORTHWEST CORNER OF WHISTLER FEDERAL 6. FROM THE SOUTHEAST CORNER GO EAST 771.4' THEN SOUTHEAST 962.2' TO THE NORTHWEST CORNER OF WHISTLER FEDERAL 3. THEN FROM THE NORTHEAST CORNER GO NORTHEAST 878.2' TO THE NORTHWEST CORNER FOR THIS LOCATION.

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MONTREAL FEDERAL COM 1H
LOCATED 530 FT. FROM THE SOUTH LINE AND 990 FT. FROM THE EAST LINE OF SECTION 17, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO

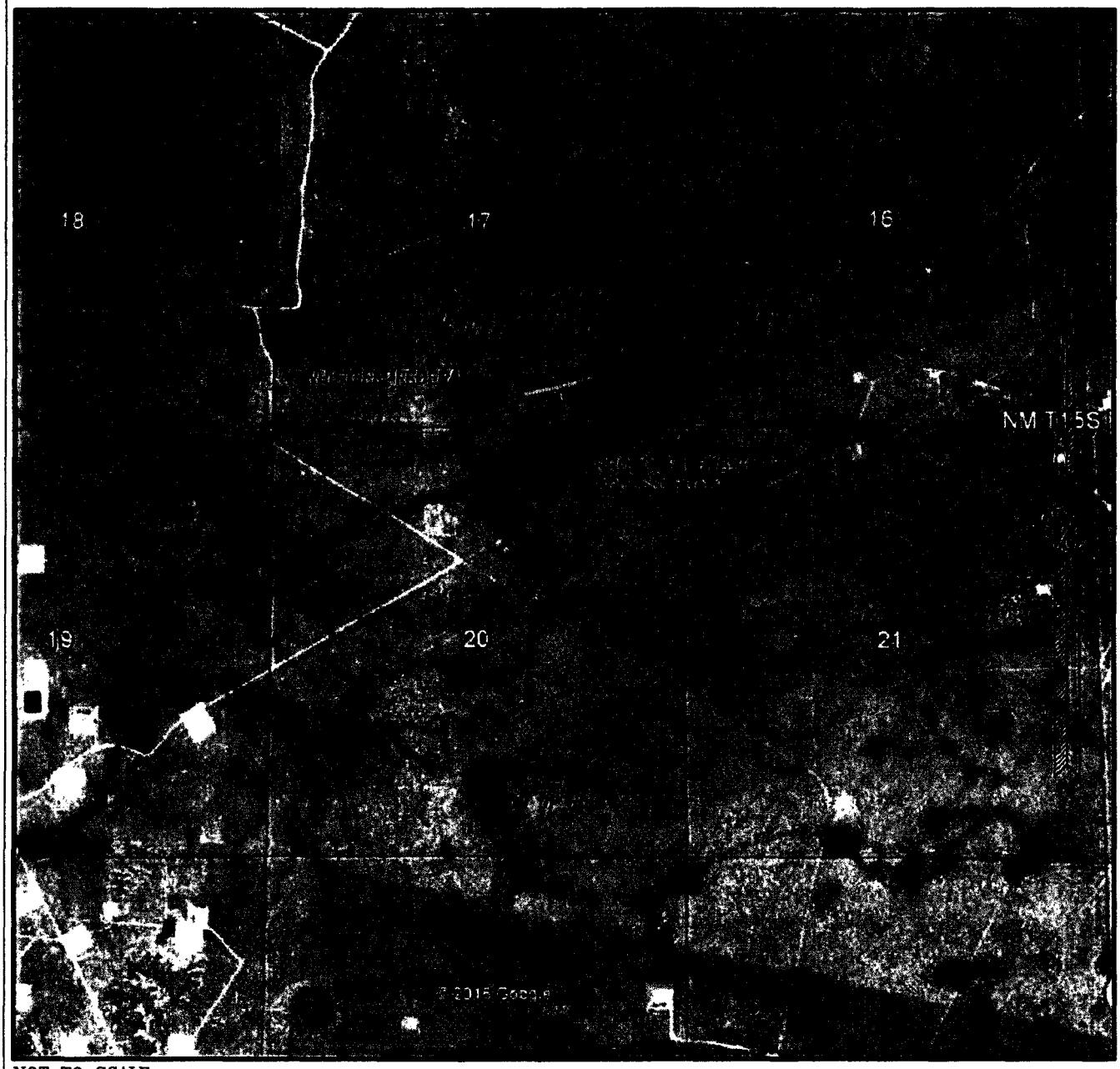
MAY 15, 2017

SURVEY NO. 2869B

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

SECTION 17, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO

AERIAL PHOTO



NOT TO SCALE
AERIAL PHOTO:
GOOGLE EARTH
APRIL 2013

MACK ENERGY CORPORATION
MONTREAL FEDERAL COM 1H
LOCATED 530 FT. FROM THE SOUTH LINE
AND 990 FT. FROM THE EAST LINE OF
SECTION 17, TOWNSHIP 15 SOUTH,
RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO

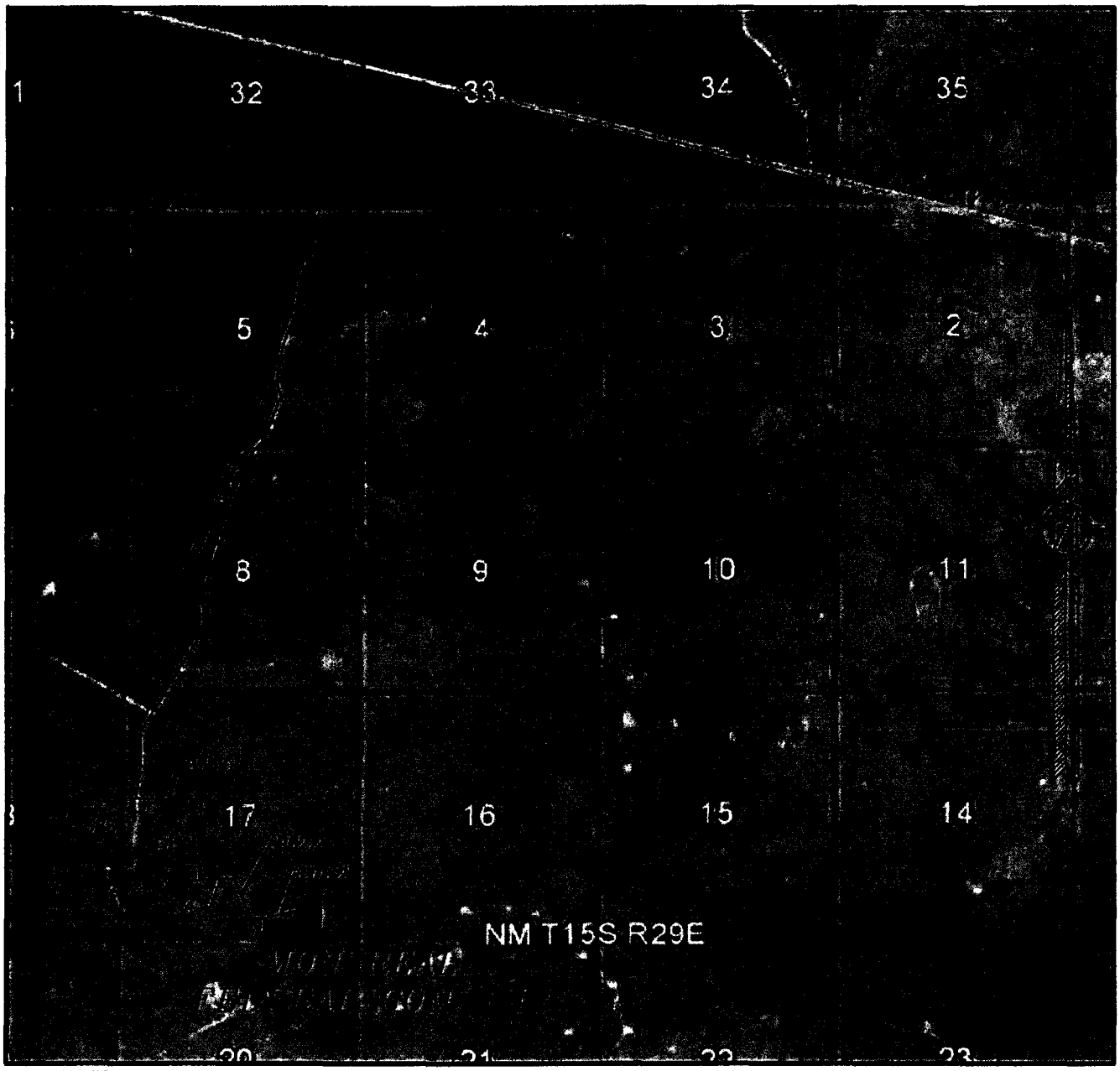
MAY 15, 2017

SURVEY NO. 2869B

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 *CARLSBAD, NEW MEXICO*

SECTION 17, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO

ACCESS AERIAL ROUTE MAP



NOT TO SCALE
AERIAL PHOTO:
GOOGLE EARTH
FEBRUARY 2014

MACK ENERGY CORPORATION
MONTREAL FEDERAL COM 1H
LOCATED 530 FT. FROM THE SOUTH LINE
AND 990 FT. FROM THE EAST LINE OF
SECTION 17, TOWNSHIP 15 SOUTH,
RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO

MAY 15, 2017

SURVEY NO. 2869B

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 *CARLSBAD, NEW MEXICO*

Mack Energy

Chaves County
Sec17-T15S-R29E
Montreal Fed Com #1H

Wellbore #1

Plan: Plan #1

Standard Planning Report

21 June, 2017

INTEGRITY
Directional Services

Database:	EDM 5000.1 Multi User Db	**Local Co-ordinate Reference:**	Well Montreal Fed Com #1H
Company:	Mack Energy	**TVD Reference:**	KB=17.5 @ 3812.00ft
Project:	Chaves County	**MD Reference:**	KB=17.5 @ 3812.00ft
Site:	Sec17-T15S-R29E	**North Reference:**	Grid
Well:	Montreal Fed Com #1H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1		

Project	Chaves County		
Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Sec17-T15S-R29E				
Site Position:		**Northing:**	731,341.1600 usft	**Latitude:**	33.0101250
From:	Map	**Easting:**	629,649.7000 usft	**Longitude:**	-104.0452417
Position Uncertainty:	0.00 ft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.16 °

Well	Montreal Fed Com #1H					
Well Position	**+N/-S**	0.00 ft	**Northing:**	731,341.1600 usft	**Latitude:**	33.0101250
	+E/-W	0.00 ft	**Easting:**	629,649.7000 usft	**Longitude:**	-104.0452417
Position Uncertainty		0.00 ft	**Wellhead Elevation:**	0.00 ft	**Ground Level:**	3,794.50 ft

Wellbore	Wellbore #1			
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	HDGM	6/21/2017	7.47	60.73	48,376

Design	Plan #1				
Audit Notes:					
Version:		**Phase:**	PLAN	**Tie On Depth:**	0.00
Vertical Section:	**Depth From (TVD) (ft)**	**+N/-S (ft)**	**+E/-W (ft)**	**Direction (°)**	
	3,240.00	0.00	0.00	179.60	

Plan Sections

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,667.04	0.00	0.00	2,667.04	0.00	0.00	0.00	0.00	0.00	0.00	
3,567.04	90.00	179.60	3,240.00	-572.94	4.04	10.00	10.00	19.96	179.60	
8,526.75	90.00	179.60	3,240.00	-5,532.53	39.05	0.00	0.00	0.00	0.00	PBHL Montreal Fed C

Database:	EDM 5000.1 Multi User Db	**Local Co-ordinate Reference:**	Well Montreal Fed Com #1H
Company:	Mack Energy	**TVD Reference:**	KB=17.5 @ 3812.00ft
Project:	Chaves County	**MD Reference:**	KB=17.5 @ 3812.00ft
Site:	Sec17-T15S-R29E	**North Reference:**	Grid
Well:	Montreal Fed Com #1H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,667.04	0.00	0.00	2,667.04	0.00	0.00	0.00	0.00	0.00	0.00
KOP BLD 10°/100'									
2,700.00	3.30	179.60	2,699.98	-0.95	0.01	0.95	10.00	10.00	0.00
2,750.00	8.30	179.60	2,749.71	-6.00	0.04	6.00	10.00	10.00	0.00
2,800.00	13.30	179.60	2,798.81	-15.36	0.11	15.36	10.00	10.00	0.00
2,850.00	18.30	179.60	2,846.91	-28.96	0.20	28.96	10.00	10.00	0.00
2,900.00	23.30	179.60	2,893.63	-46.71	0.33	46.71	10.00	10.00	0.00
2,950.00	28.30	179.60	2,938.64	-68.46	0.48	68.46	10.00	10.00	0.00
3,000.00	33.30	179.60	2,981.57	-94.05	0.66	94.05	10.00	10.00	0.00
3,050.00	38.30	179.60	3,022.12	-123.29	0.87	123.29	10.00	10.00	0.00
3,100.00	43.30	179.60	3,059.96	-155.94	1.10	155.95	10.00	10.00	0.00
3,150.00	48.30	179.60	3,094.81	-191.77	1.35	191.78	10.00	10.00	0.00
3,200.00	53.30	179.60	3,126.40	-230.51	1.63	230.51	10.00	10.00	0.00
3,250.00	58.30	179.60	3,154.50	-271.84	1.92	271.85	10.00	10.00	0.00
3,300.00	63.30	179.60	3,178.89	-315.47	2.23	315.48	10.00	10.00	0.00
3,350.00	68.30	179.60	3,199.38	-361.06	2.55	361.07	10.00	10.00	0.00
3,400.00	73.30	179.60	3,215.82	-408.26	2.88	408.27	10.00	10.00	0.00
3,450.00	78.30	179.60	3,228.09	-456.72	3.22	456.73	10.00	10.00	0.00
3,500.00	83.30	179.60	3,236.08	-506.06	3.57	506.07	10.00	10.00	0.00
3,524.00	85.70	179.60	3,238.38	-529.94	3.74	529.96	10.00	10.00	0.00
Crossed Sec Line 3524' MD/3238.38 TVD									
3,550.00	88.30	179.60	3,239.75	-555.91	3.92	555.92	10.00	10.00	0.00
3,567.04	90.00	179.60	3,240.00	-572.94	4.04	572.96	10.00	10.00	0.00
EOB HLD 90° Inc.									
3,600.00	90.00	179.60	3,240.00	-605.90	4.28	605.92	0.00	0.00	0.00
3,700.00	90.00	179.60	3,240.00	-705.90	4.98	705.92	0.00	0.00	0.00

Database:	EDM 5000.1 Multi User Db	**Local Co-ordinate Reference:**	Well Montreal Fed Com #1H
Company:	Mack Energy	**TVD Reference:**	KB=17.5 @ 3812.00ft
Project:	Chaves County	**MD Reference:**	KB=17.5 @ 3812.00ft
Site:	Sec17-T15S-R29E	**North Reference:**	Grid
Well:	Montreal Fed Com #1H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
3,800.00	90.00	179.60	3,240.00	-805.90	5.69	805.92	0.00	0.00	0.00
3,900.00	90.00	179.60	3,240.00	-905.89	6.39	905.92	0.00	0.00	0.00
4,000.00	90.00	179.60	3,240.00	-1,005.89	7.10	1,005.92	0.00	0.00	0.00
4,100.00	90.00	179.60	3,240.00	-1,105.89	7.81	1,105.92	0.00	0.00	0.00
4,200.00	90.00	179.60	3,240.00	-1,205.89	8.51	1,205.92	0.00	0.00	0.00
4,300.00	90.00	179.60	3,240.00	-1,305.88	9.22	1,305.92	0.00	0.00	0.00
4,400.00	90.00	179.60	3,240.00	-1,405.88	9.92	1,405.92	0.00	0.00	0.00
4,500.00	90.00	179.60	3,240.00	-1,505.88	10.63	1,505.92	0.00	0.00	0.00
4,600.00	90.00	179.60	3,240.00	-1,605.88	11.33	1,605.92	0.00	0.00	0.00
4,700.00	90.00	179.60	3,240.00	-1,705.87	12.04	1,705.92	0.00	0.00	0.00
4,800.00	90.00	179.60	3,240.00	-1,805.87	12.75	1,805.92	0.00	0.00	0.00
4,900.00	90.00	179.60	3,240.00	-1,905.87	13.45	1,905.92	0.00	0.00	0.00
5,000.00	90.00	179.60	3,240.00	-2,005.87	14.16	2,005.92	0.00	0.00	0.00
5,100.00	90.00	179.60	3,240.00	-2,105.86	14.86	2,105.92	0.00	0.00	0.00
5,200.00	90.00	179.60	3,240.00	-2,205.86	15.57	2,205.92	0.00	0.00	0.00
5,300.00	90.00	179.60	3,240.00	-2,305.86	16.28	2,305.92	0.00	0.00	0.00
5,400.00	90.00	179.60	3,240.00	-2,405.86	16.98	2,405.92	0.00	0.00	0.00
5,500.00	90.00	179.60	3,240.00	-2,505.85	17.69	2,505.92	0.00	0.00	0.00
5,600.00	90.00	179.60	3,240.00	-2,605.85	18.39	2,605.92	0.00	0.00	0.00
5,700.00	90.00	179.60	3,240.00	-2,705.85	19.10	2,705.92	0.00	0.00	0.00
5,800.00	90.00	179.60	3,240.00	-2,805.85	19.80	2,805.92	0.00	0.00	0.00
5,900.00	90.00	179.60	3,240.00	-2,905.84	20.51	2,905.92	0.00	0.00	0.00
6,000.00	90.00	179.60	3,240.00	-3,005.84	21.22	3,005.92	0.00	0.00	0.00
6,100.00	90.00	179.60	3,240.00	-3,105.84	21.92	3,105.92	0.00	0.00	0.00
6,200.00	90.00	179.60	3,240.00	-3,205.84	22.63	3,205.92	0.00	0.00	0.00
6,300.00	90.00	179.60	3,240.00	-3,305.83	23.33	3,305.92	0.00	0.00	0.00
6,400.00	90.00	179.60	3,240.00	-3,405.83	24.04	3,405.92	0.00	0.00	0.00
6,500.00	90.00	179.60	3,240.00	-3,505.83	24.75	3,505.92	0.00	0.00	0.00
6,600.00	90.00	179.60	3,240.00	-3,605.83	25.45	3,605.92	0.00	0.00	0.00
6,700.00	90.00	179.60	3,240.00	-3,705.82	26.16	3,705.92	0.00	0.00	0.00
6,800.00	90.00	179.60	3,240.00	-3,805.82	26.86	3,805.92	0.00	0.00	0.00
6,900.00	90.00	179.60	3,240.00	-3,905.82	27.57	3,905.92	0.00	0.00	0.00
7,000.00	90.00	179.60	3,240.00	-4,005.82	28.27	4,005.92	0.00	0.00	0.00
7,100.00	90.00	179.60	3,240.00	-4,105.81	28.98	4,105.92	0.00	0.00	0.00
7,200.00	90.00	179.60	3,240.00	-4,205.81	29.69	4,205.92	0.00	0.00	0.00
7,300.00	90.00	179.60	3,240.00	-4,305.81	30.39	4,305.92	0.00	0.00	0.00
7,400.00	90.00	179.60	3,240.00	-4,405.81	31.10	4,405.92	0.00	0.00	0.00
7,500.00	90.00	179.60	3,240.00	-4,505.81	31.80	4,505.92	0.00	0.00	0.00
7,600.00	90.00	179.60	3,240.00	-4,605.80	32.51	4,605.92	0.00	0.00	0.00
7,700.00	90.00	179.60	3,240.00	-4,705.80	33.21	4,705.92	0.00	0.00	0.00
7,800.00	90.00	179.60	3,240.00	-4,805.80	33.92	4,805.92	0.00	0.00	0.00
7,900.00	90.00	179.60	3,240.00	-4,905.80	34.63	4,905.92	0.00	0.00	0.00
8,000.00	90.00	179.60	3,240.00	-5,005.79	35.33	5,005.92	0.00	0.00	0.00
8,100.00	90.00	179.60	3,240.00	-5,105.79	36.04	5,105.92	0.00	0.00	0.00
8,200.00	90.00	179.60	3,240.00	-5,205.79	36.74	5,205.92	0.00	0.00	0.00
8,300.00	90.00	179.60	3,240.00	-5,305.79	37.45	5,305.92	0.00	0.00	0.00
8,400.00	90.00	179.60	3,240.00	-5,405.78	38.16	5,405.92	0.00	0.00	0.00
8,500.00	90.00	179.60	3,240.00	-5,505.78	38.86	5,505.92	0.00	0.00	0.00
8,526.75	90.00	179.60	3,240.00	-5,532.53	39.05	5,532.67	0.00	0.00	0.00

TD at 8526.75 - PBHL Montreal Fed Com #1H

Database:	EDM 5000.1 Multi User Db	**Local Co-ordinate Reference:**	Well Montreal Fed Com #1H
Company:	Mack Energy	**TVD Reference:**	KB=17.5 @ 3812.00ft
Project:	Chaves County	**MD Reference:**	KB=17.5 @ 3812.00ft
Site:	Sec17-T15S-R29E	**North Reference:**	Grid
Well:	Montreal Fed Com #1H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1		

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PBHL Montreal Fed Con - plan hits target center - Point	0.00	0.00	3,240.00	-5,532.53	39.05	725,808.6400	629,688.7500	32.9949184	-104.0451637

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
2,667.04	2,667.04	0.00	0.00	KOP BLD 10°/100'
3,524.00	3,238.38	-529.94	3.74	Crossed Sec Line 3524' MD/3238.38 TVD
3,567.04	3,240.00	-572.94	4.04	EOB HLD 90° Inc.
8,526.75	3,240.00	-5,532.53	39.05	TD at 8526.75

Mack Energy
Project: Chaves County
Site: Sec17-T15S-R29E
Well: Montreal Fed Com #1H
Wellbore: Wellbore #1
Plan: Plan #1 (Montreal Fed Com #1H/Wellbore #1)

INTEGRITY Directional Services

WELL DETAILS: Montreal Fed Com #1H

Ground Elevation:: 3794.50
RKB Elevation: KB=17.5 @ 3812.00ft
Rig Name:

Northing	Easting	Latitude	Longitude
731341.1600	629649.7000	33.010125	104.0452417

PROJECT DETAILS: Chaves County

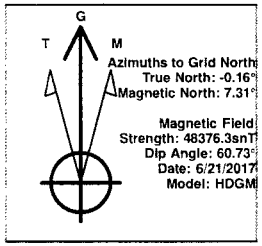
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone
System Datum: Mean Sea Level
Local North: Grid

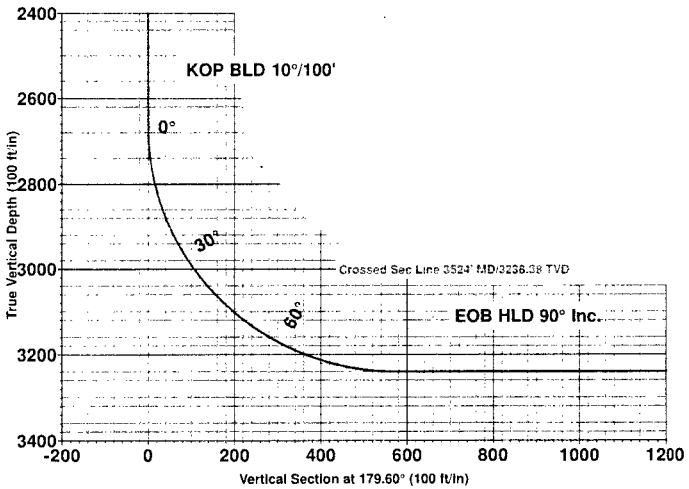
DESIGN TARGET DETAILS

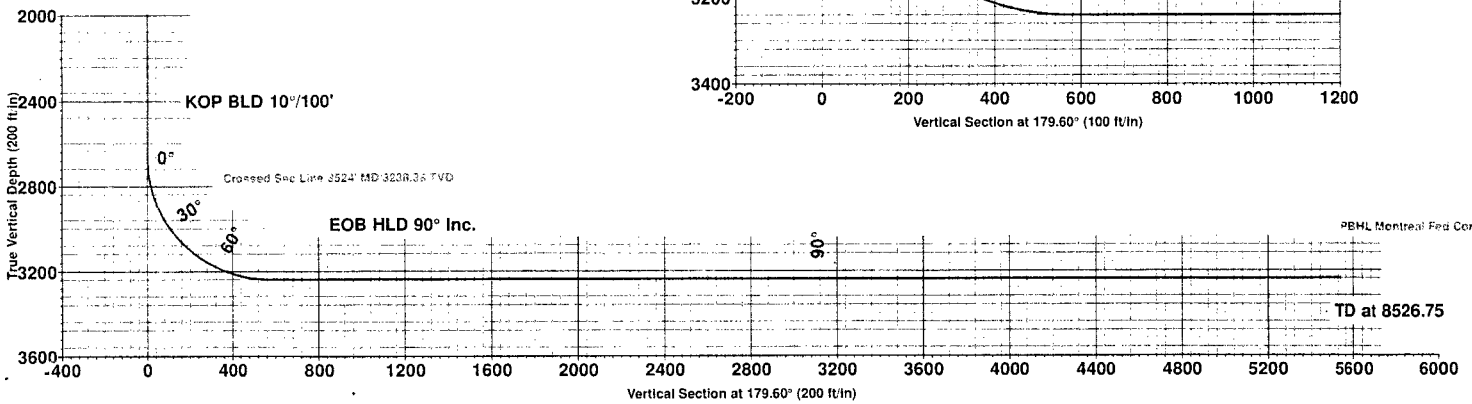
Name	TVD	+N/-S	+E/-W
PBHL Montreal Fed Com #1H plan hits target center	3240.00	-5532.53	39.05

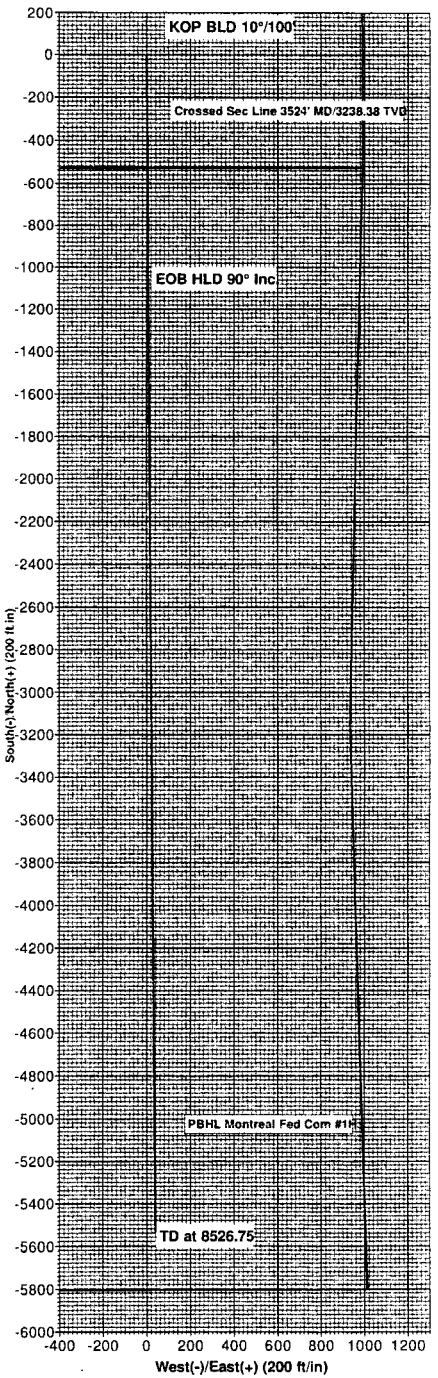
Section Details

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dlng	TFace	VSect
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2667.04	0.00	0.00	2667.04	0.00	0.00	0.00	0.00	0.00
3567.04	90.00	179.60	3240.00	572.94	4.04	10.00	179.60	572.96
8526.75	90.00	179.60	3240.00	-5532.53	39.05	0.00	0.00	5532.67









PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**Mack Energy Coporation**
LEASE NO.:	**NM-121949 (SHL) NM-101107 (BHL)**
WELL NAME & NO.:	**Montreal Federal Com 1H**
SURFACE HOLE FOOTAGE:	**0530' FSL & 990' FEL Sec. 17, T. 15 S., R 29 E.**
BOTTOM HOLE FOOTAGE	**0270' FSL & 965' FEL Sec. 20, T. 15 S., R 29 E.**
LOCATION:	**T. 15 S., R 29 E., NMPM**
COUNTY:	**Chaves County, New Mexico**

The original COAs still stand with the following drilling modifications:

I. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:

a. Spudding well (minimum of 24 hours)
b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
c. BOPE tests (minimum of 4 hours)

☒ **Chaves and Roosevelt Counties**
Call the Roswell Field Office, 2909 West Second St., Roswell NM 88201.
During office hours call (575) 627-0272.
After office hours call (575) 627-0205.

1. **Although Hydrogen Sulfide has not been reported in the area, it is always a potential hazard. If Hydrogen Sulfide is encountered, report measured amounts and formations to the BLM.**

2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval. **If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a "Major" violation.**

3. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works is located, this does not include the dog house or stairway area.

4. **The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.**
5. **A Communitization Agreement covering the acreage dedicated to this well must be filed for approval with the BLM Roswell Field Office. The effective date of the agreement shall be prior to any sales.**

B. CASING

Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.

Centralizers required on surface casing per Onshore Order 2.III.B.1.f.

Wait on cement (WOC) for Water Basin:
After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements.

Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.

No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

1. The **9-5/8** inch surface casing shall be set at approximately **205'-225'** feet and cemented to the surface. **If salt is encountered, set casing at least 25 feet above the salt.**

    a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run

to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.

b. Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.

c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.

d. If cement falls back, remedial cementing will be done prior to drilling out that string.

Centralizers required on horizontal leg, must be type for horizontal service and a minimum of one every other joint.

2. The minimum required fill of cement behind the **7 X 5-1/2 inch production casing string** is:

Operator has proposed DV tool at depth of 2600', but will adjust cement proportionately if moved. DV tool shall be set a minimum of 50' below previous shoe and a minimum of 200' above current shoe. Operator shall submit sundry if DV tool depth cannot be set in this range.

a. First stage to DV tool:

☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office before proceeding with second stage cement job. Operator should have plans as to how they will achieve circulation on the next stage.

b. Second stage above DV tool:

☒ Cement to surface. If cement does not circulate, contact the appropriate BLM office.

3. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

C. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API 53.

2. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **3000 (3M)** psi.

3. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.

    a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

    b. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**.

    c. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.

    d. The results of the test shall be reported to the appropriate BLM office.

    e. All tests are required to be recorded on a calibrated test chart. **A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.**

    f. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.

D. DRILL STEM TEST

If drill stem tests are performed, Onshore Order 2.III.D shall be followed.

E. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

DRG 04-12-2017