30-025-45149

CONCHO

COG Operating L L C
Project: Lea County, NM (NAD27 NME)
Site: Sec. 33, T 20 S. , R 34 E
Well: Little Bear Federal Com 2H
Wellbore: Wellbore #1
Plan: Plan #2 (Little Bear Federal Com 2H/Wellbore #1)
Latshaw 44

INTEGRITY Directional Services

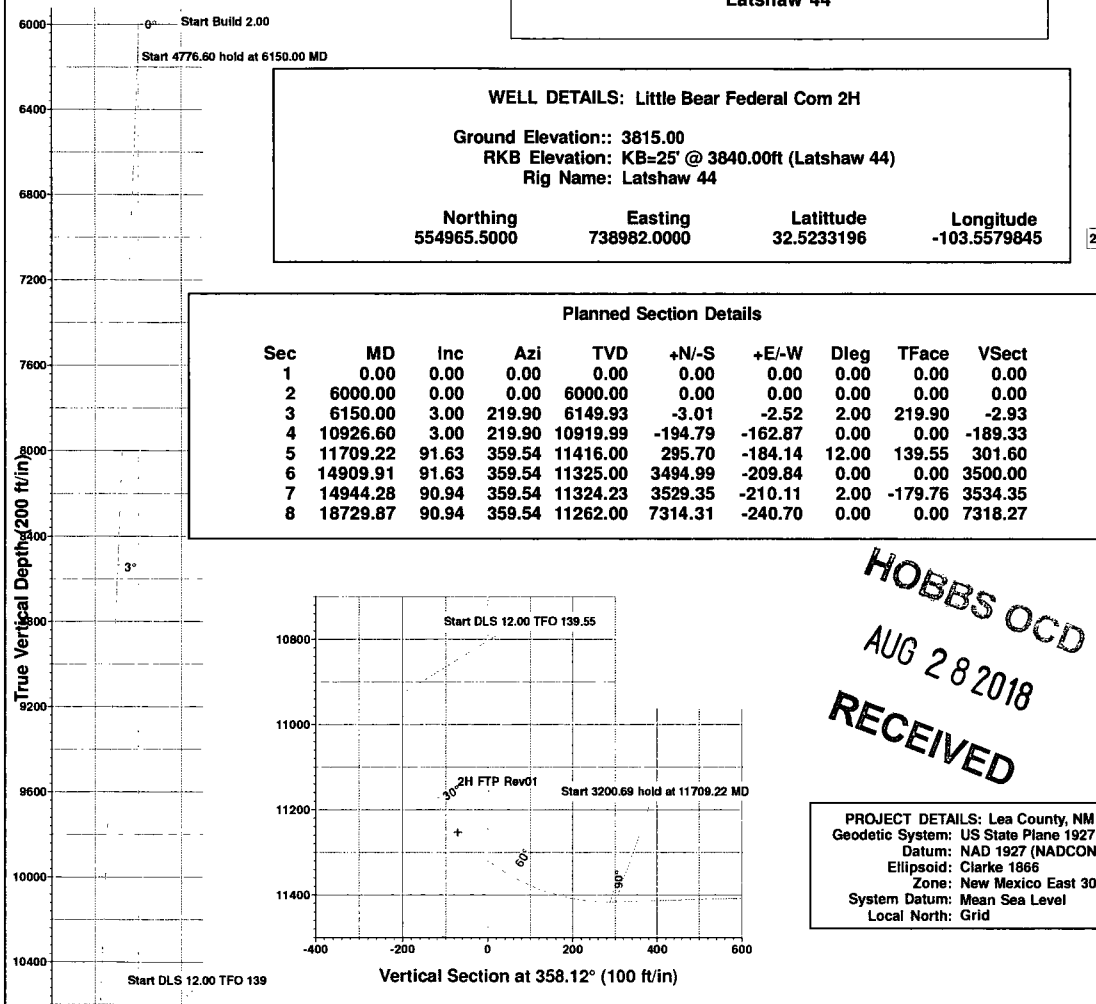
WELL DETAILS: Little Bear Federal Com 2H

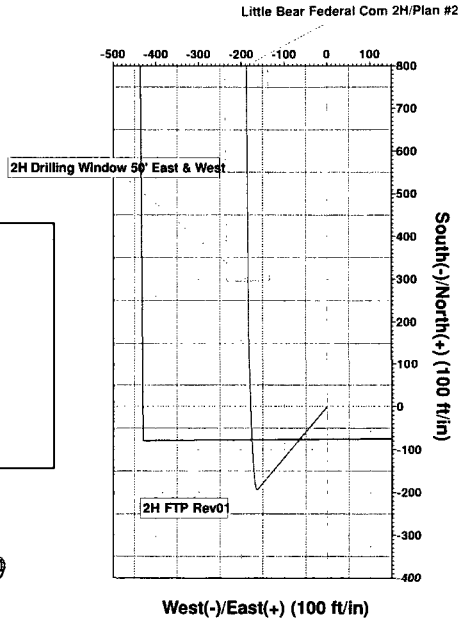
Ground Elevation:: 3815.00
RKB Elevation: KB=25' @ 3840.00ft (Latshaw 44)
Rig Name: Latshaw 44

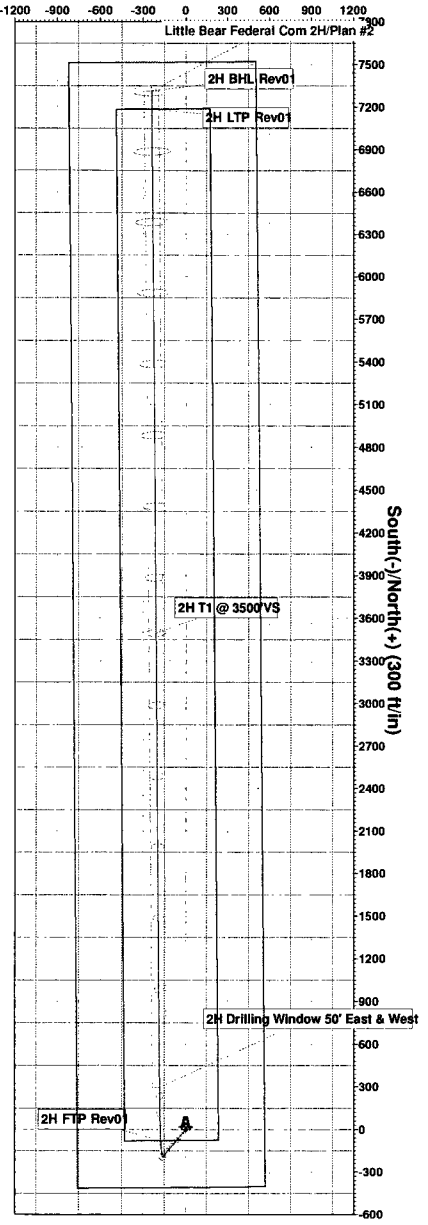
Northing	Easting	Latittude	Longitude
554965.5000	738982.0000	32.5233196	-103.5579845

Planned Section Details

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	6000.00	0.00	0.00	6000.00	0.00	0.00	0.00	0.00	0.00
3	6150.00	3.00	219.90	6149.93	-3.01	-2.52	2.00	219.90	-2.93
4	10926.60	3.00	219.90	10919.99	-194.79	-162.87	0.00	0.00	-189.33
5	11709.22	91.63	359.54	11416.00	295.70	-184.14	12.00	139.55	301.60
6	14909.91	91.63	359.54	11325.00	3494.99	-209.84	0.00	0.00	3500.00
7	14944.28	90.94	359.54	11324.23	3529.35	-210.11	2.00	-179.76	3534.35
8	18729.87	90.94	359.54	11262.00	7314.31	-240.70	0.00	0.00	7318.27

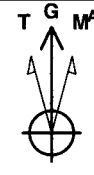






HOBBS OCD
AUG 28 2018
RECEIVED

PROJECT DETAILS: Lea County, NM (NAD27 NME)
Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico East 3001
System Datum: Mean Sea Level
Local North: Grid



Azimuths to Grid North
True North: -0.42°
Magnetic North: 6.38°

Magnetic Field
Strength: 48318.0snT
Dip Angle: 60.47°
Date: 6/26/2017
Model: HDGM

CONCHO

COG Operating L L C

Lea County, NM (NAD27 NME)
Sec. 33, T 20 S. , R 34 E
Little Bear Federal Com 2H

Wellbore #1

Plan: Plan #2

Standard Survey Report

27 June, 2017

INTEGRITY
Directional Services

Company:	COG Operating L L C	**Local Co-ordinate Reference:**	Well Little Bear Federal Com 2H
Project:	Lea County, NM (NAD27 NME)	**TVD Reference:**	KB=25' @ 3840.00ft (Latshaw 44)
Site:	Sec. 33, T 20 S. , R 34 E	**MD Reference:**	KB=25' @ 3840.00ft (Latshaw 44)
Well:	Little Bear Federal Com 2H	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #2	**Database:**	EDM 5000.1 Multi User Db

Project Lea County, NM (NAD27 NME)

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 Sec. 33, T 20 S. , R 34 E

Site Position:		**Northing:**	554,965.5000 usft	**Latitude:**	32.5233196
From:	Map	**Easting:**	738,982.0000 usft	**Longitude:**	-103.5579845
Position Uncertainty:	0.00 ft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.42 °

Well Little Bear Federal Com 2H

Well Position	**+N/-S**	0.00 ft	**Northing:**	554,965.5000 usft	**Latitude:**	32.5233196
	+E/-W	0.00 ft	**Easting:**	738,982.0000 usft	**Longitude:**	-103.5579845
Position Uncertainty		0.00 ft	**Wellhead Elevation:**	0.00 ft	**Ground Level:**	3,815.00 ft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	6/26/2017	6.80	60.47	48,318

Design Plan #2

Audit Notes:

Version:		**Phase:**	PLAN	**Tie On Depth:**	0.00

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	11,262.00	0.00	0.00	358.12

Survey Tool Program **Date** 6/27/2017

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	18,729.13	Plan #2 (Wellbore #1)	MWD	MWD - Standard

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

Company:	COG Operating L L C	**Local Co-ordinate Reference:**	Well Little Bear Federal Com 2H
Project:	Lea County, NM (NAD27 NME)	**TVD Reference:**	KB=25' @ 3840.00ft (Latshaw 44)
Site:	Sec. 33, T 20 S. , R 34 E	**MD Reference:**	KB=25' @ 3840.00ft (Latshaw 44)
Well:	Little Bear Federal Com 2H	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #2	**Database:**	EDM 5000.1 Multi User Db

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)
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
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,900.00	0.00	0.00	0.00	0.00	0.00	0.00
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,200.00	0.00	0.00	0.00	0.00	0.00	0.00
5,300.00	0.00	0.00	5,300.00	0.00	0.00	0.00	0.00	0.00	0.00

Company:	COG Operating L L C	**Local Co-ordinate Reference:**	Well Little Bear Federal Com 2H
Project:	Lea County, NM (NAD27 NME)	**TVD Reference:**	KB=25' @ 3840.00ft (Latshaw 44)
Site:	Sec. 33, T 20 S. , R 34 E	**MD Reference:**	KB=25' @ 3840.00ft (Latshaw 44)
Well:	Little Bear Federal Com 2H	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #2	**Database:**	EDM 5000.1 Multi User Db

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)
5,400.00	0.00	0.00	5,400.00	0.00	0.00	0.00	0.00	0.00	0.00
5,500.00	0.00	0.00	5,500.00	0.00	0.00	0.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,600.00	0.00	0.00	0.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,700.00	0.00	0.00	0.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,800.00	0.00	0.00	0.00	0.00	0.00	0.00
5,900.00	0.00	0.00	5,900.00	0.00	0.00	0.00	0.00	0.00	0.00
6,000.00	0.00	0.00	6,000.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
6,100.00	2.00	219.90	6,099.98	-1.34	-1.12	-1.30	2.00	2.00	0.00
6,150.00	3.00	219.90	6,149.93	-3.01	-2.52	-2.93	2.00	2.00	0.00
Start 4776.60 hold at 6150.00 MD									
6,200.00	3.00	219.90	6,199.86	-5.02	-4.20	-4.88	0.00	0.00	0.00
6,300.00	3.00	219.90	6,299.73	-9.03	-7.55	-8.78	0.00	0.00	0.00
6,400.00	3.00	219.90	6,399.59	-13.05	-10.91	-12.68	0.00	0.00	0.00
6,500.00	3.00	219.90	6,499.45	-17.06	-14.27	-16.59	0.00	0.00	0.00
6,600.00	3.00	219.90	6,599.31	-21.08	-17.63	-20.49	0.00	0.00	0.00
6,700.00	3.00	219.90	6,699.18	-25.09	-20.98	-24.39	0.00	0.00	0.00
6,800.00	3.00	219.90	6,799.04	-29.11	-24.34	-28.29	0.00	0.00	0.00
6,900.00	3.00	219.90	6,898.90	-33.12	-27.70	-32.20	0.00	0.00	0.00
7,000.00	3.00	219.90	6,998.77	-37.14	-31.05	-36.10	0.00	0.00	0.00
7,100.00	3.00	219.90	7,098.63	-41.15	-34.41	-40.00	0.00	0.00	0.00
7,200.00	3.00	219.90	7,198.49	-45.17	-37.77	-43.90	0.00	0.00	0.00
7,300.00	3.00	219.90	7,298.36	-49.18	-41.12	-47.81	0.00	0.00	0.00
7,400.00	3.00	219.90	7,398.22	-53.20	-44.48	-51.71	0.00	0.00	0.00
7,500.00	3.00	219.90	7,498.08	-57.21	-47.84	-55.61	0.00	0.00	0.00
7,600.00	3.00	219.90	7,597.94	-61.23	-51.20	-59.51	0.00	0.00	0.00
7,700.00	3.00	219.90	7,697.81	-65.24	-54.55	-63.42	0.00	0.00	0.00
7,800.00	3.00	219.90	7,797.67	-69.26	-57.91	-67.32	0.00	0.00	0.00
7,900.00	3.00	219.90	7,897.53	-73.28	-61.27	-71.22	0.00	0.00	0.00
8,000.00	3.00	219.90	7,997.40	-77.29	-64.62	-75.12	0.00	0.00	0.00
8,100.00	3.00	219.90	8,097.26	-81.31	-67.98	-79.03	0.00	0.00	0.00
8,200.00	3.00	219.90	8,197.12	-85.32	-71.34	-82.93	0.00	0.00	0.00
8,300.00	3.00	219.90	8,296.99	-89.34	-74.70	-86.83	0.00	0.00	0.00
8,400.00	3.00	219.90	8,396.85	-93.35	-78.05	-90.73	0.00	0.00	0.00
8,500.00	3.00	219.90	8,496.71	-97.37	-81.41	-94.63	0.00	0.00	0.00
8,600.00	3.00	219.90	8,596.57	-101.38	-84.77	-98.54	0.00	0.00	0.00
8,700.00	3.00	219.90	8,696.44	-105.40	-88.12	-102.44	0.00	0.00	0.00
8,800.00	3.00	219.90	8,796.30	-109.41	-91.48	-106.34	0.00	0.00	0.00
8,900.00	3.00	219.90	8,896.16	-113.43	-94.84	-110.24	0.00	0.00	0.00
9,000.00	3.00	219.90	8,996.03	-117.44	-98.20	-114.15	0.00	0.00	0.00
9,100.00	3.00	219.90	9,095.89	-121.46	-101.55	-118.05	0.00	0.00	0.00
9,200.00	3.00	219.90	9,195.75	-125.47	-104.91	-121.95	0.00	0.00	0.00
9,300.00	3.00	219.90	9,295.61	-129.49	-108.27	-125.85	0.00	0.00	0.00

Company:	COG Operating L L C	**Local Co-ordinate Reference:**	Well Little Bear Federal Com 2H
Project:	Lea County, NM (NAD27 NME)	**TVD Reference:**	KB=25' @ 3840.00ft (Latshaw 44)
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Well:	Little Bear Federal Com 2H	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #2	**Database:**	EDM 5000.1 Multi User Db

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)
9,400.00	3.00	219.90	9,395.48	-133.50	-111.62	-129.76	0.00	0.00	0.00
9,500.00	3.00	219.90	9,495.34	-137.52	-114.98	-133.66	0.00	0.00	0.00
9,600.00	3.00	219.90	9,595.20	-141.53	-118.34	-137.56	0.00	0.00	0.00
9,700.00	3.00	219.90	9,695.07	-145.55	-121.70	-141.46	0.00	0.00	0.00
9,800.00	3.00	219.90	9,794.93	-149.56	-125.05	-145.37	0.00	0.00	0.00
9,900.00	3.00	219.90	9,894.79	-153.58	-128.41	-149.27	0.00	0.00	0.00
10,000.00	3.00	219.90	9,994.66	-157.59	-131.77	-153.17	0.00	0.00	0.00
10,100.00	3.00	219.90	10,094.52	-161.61	-135.12	-157.07	0.00	0.00	0.00
10,200.00	3.00	219.90	10,194.38	-165.62	-138.48	-160.98	0.00	0.00	0.00
10,300.00	3.00	219.90	10,294.24	-169.64	-141.84	-164.88	0.00	0.00	0.00
10,400.00	3.00	219.90	10,394.11	-173.65	-145.19	-168.78	0.00	0.00	0.00
10,500.00	3.00	219.90	10,493.97	-177.67	-148.55	-172.68	0.00	0.00	0.00
10,600.00	3.00	219.90	10,593.83	-181.68	-151.91	-176.59	0.00	0.00	0.00
10,700.00	3.00	219.90	10,693.70	-185.70	-155.27	-180.49	0.00	0.00	0.00
10,800.00	3.00	219.90	10,793.56	-189.71	-158.62	-184.39	0.00	0.00	0.00
10,900.00	3.00	219.90	10,893.42	-193.73	-161.98	-188.29	0.00	0.00	0.00
10,926.60	3.00	219.90	10,919.99	-194.79	-162.87	-189.33	0.00	0.00	0.00
Start DLS 12.00 TFO 139.55									
11,000.00	6.81	342.95	10,993.22	-192.10	-165.39	-186.56	12.00	5.19	167.65
11,100.00	18.62	353.70	11,090.61	-170.49	-168.89	-164.84	12.00	11.82	10.75
11,200.00	30.58	356.19	11,181.37	-129.09	-172.35	-123.35	12.00	11.96	2.49
11,300.00	42.56	357.36	11,261.54	-69.71	-175.60	-63.89	12.00	11.98	1.18
11,400.00	54.55	358.10	11,327.61	5.05	-178.52	10.92	12.00	11.99	0.73
11,500.00	66.54	358.64	11,376.70	91.93	-180.97	97.84	12.00	11.99	0.54
11,600.00	78.53	359.09	11,406.65	187.13	-182.85	193.04	12.00	11.99	0.45
11,700.00	90.52	359.50	11,416.18	286.48	-184.06	292.38	12.00	11.99	0.41
11,709.22	91.63	359.54	11,416.00	295.70	-184.14	301.60	12.00	11.99	0.41
Start 3200.69 hold at 11709.22 MD									
11,800.00	91.63	359.54	11,413.42	386.44	-184.87	392.31	0.00	0.00	0.00
11,900.00	91.63	359.54	11,410.58	486.40	-185.67	492.24	0.00	0.00	0.00
12,000.00	91.63	359.54	11,407.73	586.36	-186.48	592.17	0.00	0.00	0.00
12,100.00	91.63	359.54	11,404.89	686.31	-187.28	692.10	0.00	0.00	0.00
12,200.00	91.63	359.54	11,402.05	786.27	-188.08	792.03	0.00	0.00	0.00
12,300.00	91.63	359.54	11,399.20	886.22	-188.88	891.96	0.00	0.00	0.00
12,400.00	91.63	359.54	11,396.36	986.18	-189.69	991.89	0.00	0.00	0.00
12,500.00	91.63	359.54	11,393.52	1,086.14	-190.49	1,091.81	0.00	0.00	0.00
12,600.00	91.63	359.54	11,390.68	1,186.09	-191.29	1,191.74	0.00	0.00	0.00
12,700.00	91.63	359.54	11,387.83	1,286.05	-192.09	1,291.67	0.00	0.00	0.00
12,800.00	91.63	359.54	11,384.99	1,386.01	-192.90	1,391.60	0.00	0.00	0.00
12,900.00	91.63	359.54	11,382.15	1,485.96	-193.70	1,491.53	0.00	0.00	0.00
13,000.00	91.63	359.54	11,379.30	1,585.92	-194.50	1,591.46	0.00	0.00	0.00
13,100.00	91.63	359.54	11,376.46	1,685.88	-195.31	1,691.39	0.00	0.00	0.00
13,200.00	91.63	359.54	11,373.62	1,785.83	-196.11	1,791.32	0.00	0.00	0.00
13,300.00	91.63	359.54	11,370.77	1,885.79	-196.91	1,891.24	0.00	0.00	0.00

Company:	COG Operating L L C	**Local Co-ordinate Reference:**	Well Little Bear Federal Com 2H
Project:	Lea County, NM (NAD27 NME)	**TVD Reference:**	KB=25' @ 3840.00ft (Latshaw 44)
Site:	Sec. 33, T 20 S. , R 34 E	**MD Reference:**	KB=25' @ 3840.00ft (Latshaw 44)
Well:	Little Bear Federal Com 2H	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #2	**Database:**	EDM 5000.1 Multi User Db

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)
13,400.00	91.63	359.54	11,367.93	1,985.74	-197.71	1,991.17	0.00	0.00	0.00
13,500.00	91.63	359.54	11,365.09	2,085.70	-198.52	2,091.10	0.00	0.00	0.00
13,600.00	91.63	359.54	11,362.24	2,185.66	-199.32	2,191.03	0.00	0.00	0.00
13,700.00	91.63	359.54	11,359.40	2,285.61	-200.12	2,290.96	0.00	0.00	0.00
13,800.00	91.63	359.54	11,356.56	2,385.57	-200.93	2,390.89	0.00	0.00	0.00
13,900.00	91.63	359.54	11,353.71	2,485.53	-201.73	2,490.82	0.00	0.00	0.00
14,000.00	91.63	359.54	11,350.87	2,585.48	-202.53	2,590.75	0.00	0.00	0.00
14,100.00	91.63	359.54	11,348.03	2,685.44	-203.33	2,690.67	0.00	0.00	0.00
14,200.00	91.63	359.54	11,345.18	2,785.40	-204.14	2,790.60	0.00	0.00	0.00
14,300.00	91.63	359.54	11,342.34	2,885.35	-204.94	2,890.53	0.00	0.00	0.00
14,400.00	91.63	359.54	11,339.50	2,985.31	-205.74	2,990.46	0.00	0.00	0.00
14,500.00	91.63	359.54	11,336.65	3,085.26	-206.55	3,090.39	0.00	0.00	0.00
14,600.00	91.63	359.54	11,333.81	3,185.22	-207.35	3,190.32	0.00	0.00	0.00
14,700.00	91.63	359.54	11,330.97	3,285.18	-208.15	3,290.25	0.00	0.00	0.00
14,800.00	91.63	359.54	11,328.13	3,385.13	-208.95	3,390.17	0.00	0.00	0.00
14,900.00	91.63	359.54	11,325.28	3,485.09	-209.76	3,490.10	0.00	0.00	0.00
14,909.91	91.63	359.54	11,325.00	3,494.99	-209.84	3,500.00	0.00	0.00	0.00
Start DLS 2.00 TFO -179.76									
14,944.28	90.94	359.54	11,324.23	3,529.35	-210.11	3,534.35	2.00	-2.00	-0.01
Start 3785.60 hold at 14944.28 MD									
15,000.00	90.94	359.54	11,323.31	3,585.07	-210.56	3,590.05	0.00	0.00	0.00
15,100.00	90.94	359.54	11,321.67	3,685.05	-211.37	3,690.01	0.00	0.00	0.00
15,200.00	90.94	359.54	11,320.03	3,785.03	-212.18	3,789.96	0.00	0.00	0.00
15,300.00	90.94	359.54	11,318.38	3,885.02	-212.99	3,889.92	0.00	0.00	0.00
15,400.00	90.94	359.54	11,316.74	3,985.00	-213.80	3,989.87	0.00	0.00	0.00
15,500.00	90.94	359.54	11,315.09	4,084.98	-214.60	4,089.83	0.00	0.00	0.00
15,600.00	90.94	359.54	11,313.45	4,184.97	-215.41	4,189.79	0.00	0.00	0.00
15,700.00	90.94	359.54	11,311.81	4,284.95	-216.22	4,289.74	0.00	0.00	0.00
15,800.00	90.94	359.54	11,310.16	4,384.93	-217.03	4,389.70	0.00	0.00	0.00
15,900.00	90.94	359.54	11,308.52	4,484.92	-217.84	4,489.65	0.00	0.00	0.00
16,000.00	90.94	359.54	11,306.87	4,584.90	-218.64	4,589.61	0.00	0.00	0.00
16,100.00	90.94	359.54	11,305.23	4,684.88	-219.45	4,689.56	0.00	0.00	0.00
16,200.00	90.94	359.54	11,303.59	4,784.86	-220.26	4,789.52	0.00	0.00	0.00
16,300.00	90.94	359.54	11,301.94	4,884.85	-221.07	4,889.48	0.00	0.00	0.00
16,400.00	90.94	359.54	11,300.30	4,984.83	-221.88	4,989.43	0.00	0.00	0.00
16,500.00	90.94	359.54	11,298.66	5,084.81	-222.68	5,089.39	0.00	0.00	0.00
16,600.00	90.94	359.54	11,297.01	5,184.80	-223.49	5,189.34	0.00	0.00	0.00
16,700.00	90.94	359.54	11,295.37	5,284.78	-224.30	5,289.30	0.00	0.00	0.00
16,800.00	90.94	359.54	11,293.72	5,384.76	-225.11	5,389.25	0.00	0.00	0.00
16,900.00	90.94	359.54	11,292.08	5,484.75	-225.92	5,489.21	0.00	0.00	0.00
17,000.00	90.94	359.54	11,290.44	5,584.73	-226.72	5,589.17	0.00	0.00	0.00
17,100.00	90.94	359.54	11,288.79	5,684.71	-227.53	5,689.12	0.00	0.00	0.00
17,200.00	90.94	359.54	11,287.15	5,784.70	-228.34	5,789.08	0.00	0.00	0.00
17,300.00	90.94	359.54	11,285.51	5,884.68	-229.15	5,889.03	0.00	0.00	0.00

Company:	COG Operating L L C	**Local Co-ordinate Reference:**	Well Little Bear Federal Com 2H
Project:	Lea County, NM (NAD27 NME)	**TVD Reference:**	KB=25' @ 3840.00ft (Latshaw 44)
Site:	Sec. 33, T 20 S. , R 34 E	**MD Reference:**	KB=25' @ 3840.00ft (Latshaw 44)
Well:	Little Bear Federal Com 2H	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #2	**Database:**	EDM 5000.1 Multi User Db

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)
17,400.00	90.94	359.54	11,283.86	5,984.66	-229.96	5,988.99	0.00	0.00	0.00
17,500.00	90.94	359.54	11,282.22	6,084.65	-230.76	6,088.94	0.00	0.00	0.00
17,600.00	90.94	359.54	11,280.57	6,184.63	-231.57	6,188.90	0.00	0.00	0.00
17,700.00	90.94	359.54	11,278.93	6,284.61	-232.38	6,288.86	0.00	0.00	0.00
17,800.00	90.94	359.54	11,277.29	6,384.60	-233.19	6,388.81	0.00	0.00	0.00
17,900.00	90.94	359.54	11,275.64	6,484.58	-234.00	6,488.77	0.00	0.00	0.00
18,000.00	90.94	359.54	11,274.00	6,584.56	-234.80	6,588.72	0.00	0.00	0.00
18,100.00	90.94	359.54	11,272.35	6,684.55	-235.61	6,688.68	0.00	0.00	0.00
18,200.00	90.94	359.54	11,270.71	6,784.53	-236.42	6,788.63	0.00	0.00	0.00
18,300.00	90.94	359.54	11,269.07	6,884.51	-237.23	6,888.59	0.00	0.00	0.00
18,400.00	90.94	359.54	11,267.42	6,984.50	-238.04	6,988.55	0.00	0.00	0.00
18,500.00	90.94	359.54	11,265.78	7,084.48	-238.84	7,088.50	0.00	0.00	0.00
18,600.00	90.94	359.54	11,264.14	7,184.46	-239.65	7,188.46	0.00	0.00	0.00
18,700.00	90.94	359.54	11,262.49	7,284.45	-240.46	7,288.41	0.00	0.00	0.00
18,729.87	90.94	359.54	11,262.00	7,314.31	-240.70	7,318.27	0.00	0.00	0.00
TD at 18729.87									

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
2H Drilling Window 5C	0.00	359.53	0.00	295.70	-184.14	555,261.1994	738,797.8603	32.5241360	-103.5585749
- plan misses target center by 348.35ft at 0.00ft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Rectangle (sides W100.00 H7,016.70 D0.00)									
2H FTP Rev01	0.00	0.00	11,253.18	-77.19	-179.29	554,888.3113	738,802.7054	32.5231110	-103.5585680
- plan misses target center by 4.04ft at 11288.94ft MD (11253.30 TVD, -77.09 N, -175.26 E)									
- Point									
2H BHL Rev01	0.00	0.00	11,262.00	7,314.31	-240.70	562,279.8000	738,741.3000	32.5434285	-103.5585928
- plan hits target center									
- Point									
2H LTP Rev01	0.00	0.00	11,264.14	7,184.25	-239.50	562,149.7343	738,742.5003	32.5430710	-103.5585920
- plan misses target center by 0.15ft at 18599.79ft MD (11264.14 TVD, 7184.25 N, -239.65 E)									
- Point									
2H T1 @ 3500'VS	0.00	0.00	11,325.00	3,494.99	-209.84	558,460.4854	738,772.1642	32.5329301	-103.5585828
- plan hits target center									
- Point									

Company:	COG Operating L L C	**Local Co-ordinate Reference:**	Well Little Bear Federal Com 2H
Project:	Lea County, NM (NAD27 NME)	**TVD Reference:**	KB=25' @ 3840.00ft (Latshaw 44)
Site:	Sec. 33, T 20 S. , R 34 E	**MD Reference:**	KB=25' @ 3840.00ft (Latshaw 44)
Well:	Little Bear Federal Com 2H	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #2	**Database:**	EDM 5000.1 Multi User Db

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
6000	6000	0	0	Start Build 2.00
6150	6150	-3	-3	Start 4776.60 hold at 6150.00 MD
10,927	10,920	-195	-163	Start DLS 12.00 TFO 139.55
11,709	11,416	296	-184	Start 3200.69 hold at 11709.22 MD
14,910	11,325	3495	-210	Start DLS 2.00 TFO -179.76
14,944	11,324	3529	-210	Start 3785.60 hold at 14944.28 MD
18,730	11,262	7314	-241	TD at 18729.87

Checked By: _____ Approved By: _____ Date: _____

COG OPERATING LLC
HYDROGEN SULFIDE DRILLING OPERATIONS PLAN

1. HYDROGEN SULFIDE TRAINING

All personnel, whether regularly assigned, contracted, or employed on an unscheduled basis, will receive training from a qualified instructor in the following areas prior to commencing drilling operations on this well:

a. The hazards and characteristics of hydrogen sulfide (H_2S).
b. The proper use and maintenance of personal protective equipment and life support systems.
c. The proper use of H_2S detectors, alarms, warning systems, briefing areas, evacuation procedures, and prevailing winds.
d. The proper techniques for first aid and rescue procedures.

In addition, supervisory personnel will be trained in the following areas:

a. The effects of H2S on metal components. If high tensile tubulars are to be used, personnel will be trained in their special maintenance requirements.
b. Corrective action and shut-in procedures when drilling or reworking a well and blowout prevention and well control procedures.
c. The contents and requirements of the H_2S Drilling Operations Plan and the Public Protection Plan.

There will be an initial training session just prior to encountering a known or probable H2S zone (within 3 days or 500 feet) and weekly H2S and well control drills for all personnel in each crew. The initial training session shall include a review of the site specific H2S Drilling Operations Plan and the Public Protection Plan. This plan shall be available at the well site. All personnel will be required to carry documentation that they have received the proper training.

2. H_2S SAFETY EQUIPMENT AND SYSTEMS

Note: All H_2S safety equipment and systems will be installed, tested, and operational when drilling reaches a depth of 500 feet above, or three days prior to penetrating the first zone containing or reasonably expected to contain H2S. If H2S greater than 100 ppm is encountered in the gas stream we will shut in and install H2S equipment.

a. Well Control Equipment:
   Flare line.
   Choke manifold with remotely operated choke.
   Blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit.
   Auxiliary equipment to include: annular preventer, mud-gas separator, rotating head.

b. Protective equipment for essential personnel:
Mark II Surviveair 30-minute units located in the dog house and at briefing areas.

c. H2S detection and monitoring equipment:
2 - portable H2S monitor positioned on location for best coverage and response. These units have warning lights and audible sirens when H2S levels of 20 ppm are reached.

d. Visual warning systems:
Caution/Danger signs shall be posted on roads providing direct access to location. Signs will be painted a high visibility yellow with black lettering of sufficient size to be readable at a reasonable distance from the immediate location. Bilingual signs will be used, when appropriate. See example attached.

e. Mud Program:
The mud program has been designed to minimize the volume of H2S circulated to the surface.

f. Metallurgy:
All drill strings, casings, tubing, wellhead, blowout preventers, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H2S service.

g. Communication:
Company vehicles equipped with cellular telephone.

COG OPERATING LLC has conducted a review to determine if an H2S contingency plan is required for the above referenced well. We were able to conclude that any potential hazardous volume would be minimal. H2S concentrations of wells in this area from surface to TD are low enough; therefore, we do not believe that an H2S contingency plan is necessary.

W A R N I N G

YOU ARE ENTERING AN H_2S AREA
AUTHORIZED PERSONNEL ONLY

1. ***BEARDS OR CONTACT LENSES NOT ALLOWED***
2. ***HARD HATS REQUIRED***
3. ***SMOKING IN DESIGNATED AREAS ONLY***
4. ***BE WIND CONSCIOUS AT ALL TIMES***
5. ***CK WITH COG OPERATING LLC FOREMAN AT MAIN OFFICE***

COG OPERATING LLC

1-575-748-6940

EMERGENCY CALL LIST

	OFFICE	MOBILE
COG OPERATING LLC OFFICE	575-748-6940	
SETH WILD	432-683-7443	432-528-3633
WALTER ROYE	575-748-6940	432-934-1886

EMERGENCY RESPONSE NUMBERS

	OFFICE
STATE POLICE	575-748-9718
EDDY COUNTY SHERIFF	575-746-2701
EMERGENCY MEDICAL SERVICES (AMBULANCE)	911 or 575-746-2701
EDDY COUNTY EMERGENCY MANAGEMENT (HARRY BURGESS)	575-887-9511
STATE EMERGENCY RESPONSE CENTER (SERC)	575-476-9620
CARLSBAD POLICE DEPARTMENT	575-885-2111
CARLSBAD FIRE DEPARTMENT	575-885-3125
NEW MEXICO OIL CONSERVATION DIVISION	575-748-1283
INDIAN FIRE & SAFETY	800-530-8693
HALLIBURTON SERVICES	800-844-8451

CONCHO

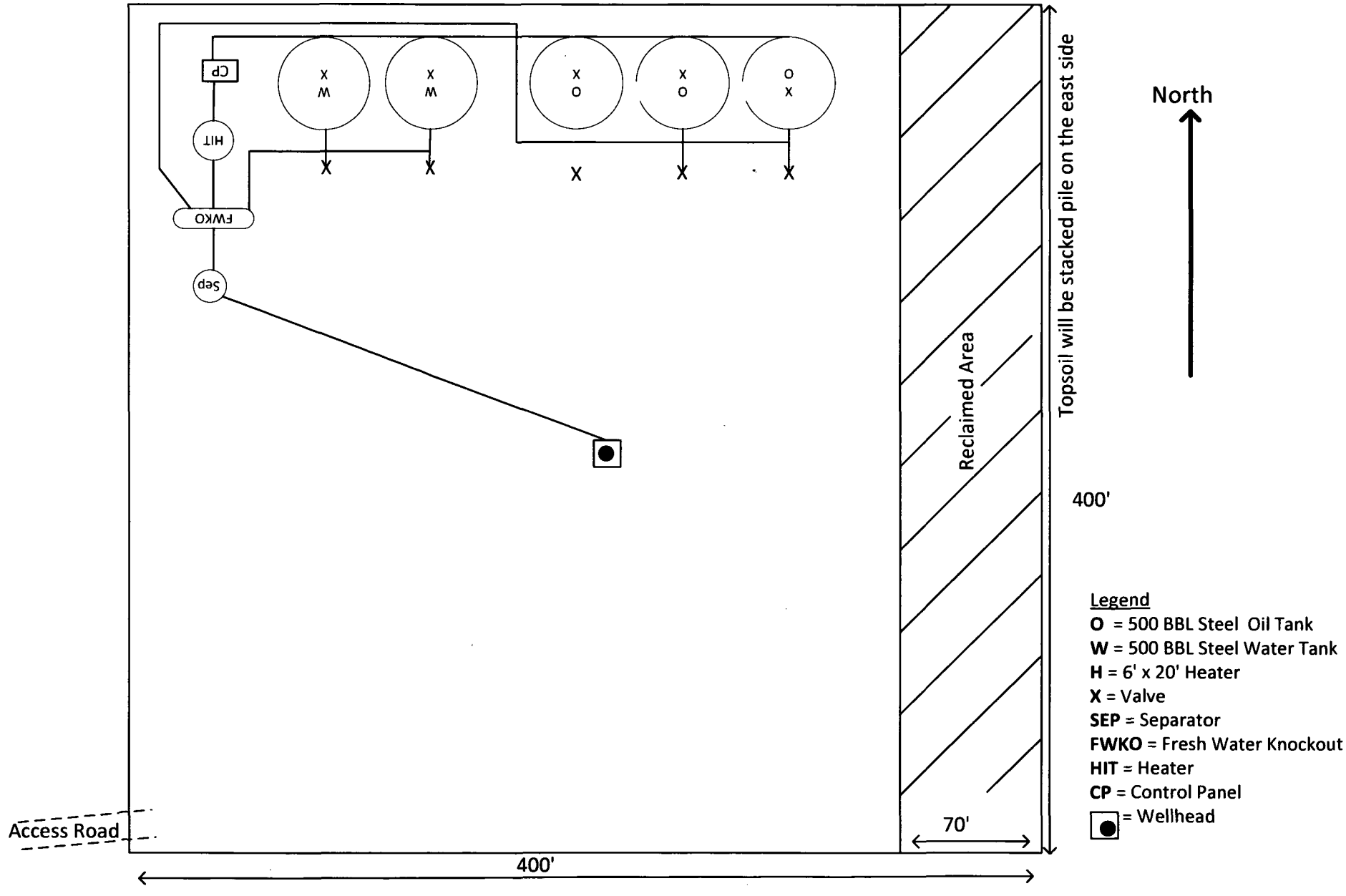
COG Operating LLC.
2208 W Main St.
Artesia, NM 88210

Well Site Layout

Production Facility Layout

Little Bear Federal Com #2H
Section 33 - 20S - 34E

Exhibit 3



Legend
O = 500 BBL Steel Oil Tank
W = 500 BBL Steel Water Tank
H = 6' x 20' Heater
X = Valve
SEP = Separator
FWKO = Fresh Water Knockout
HIT = Heater
CP = Control Panel
= Wellhead

OPERATOR CERTIFICATION

I hereby certify that I, or persons under my direct supervision, have inspected the drill site and access road proposed herein; that I am familiar with the conditions that presently 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 COG Operating LLC, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements. Executed this 17th day of July, 2017.

Signed: Mayte Reyes

Printed Name: Mayte Reyes
Position: Regulatory Analyst
Address: 2208 W. Main Street, Artesia, NM 88210
Telephone: (575) 748-6945
E-mail: mreyes1@concho.com
Field Representative (if not above signatory): Rand French
Telephone: (575) 748-6940. E-mail: rfrench@concho.com

PECOS DISTRICT
DRILLING OPERATIONS
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	COG Operating, LLC
LEASE NO.:	NMNM-0000082
WELL NAME & NO.:	Little Bear Federal Com 2H
SURFACE HOLE FOOTAGE:	0406' FSL & 0565' FEL
BOTTOM HOLE FOOTAGE	2440' FSL & 0745' FEL Sec. 28, T. 20 S., R 34 E.
LOCATION:	Section 33, T. 20 S., R 34 E., NMPM
COUNTY:	County, New Mexico

Operator to submit NMOCD gas capture plan via sundry notice.

Communitization Agreement

- The operator will submit a Communitization Agreement to the Carlsbad Field Office, 620 E Greene St. Carlsbad, New Mexico 88220, at least 90 days before the anticipated date of first production from a well subject to a spacing order issued by the New Mexico Oil Conservation Division. The Communitization Agreement will include the signatures of all working interest owners in all Federal and Indian leases subject to the Communitization Agreement (i.e., operating rights owners and lessees of record), or certification that the operator has obtained the written signatures of all such owners and will make those signatures available to the BLM immediately upon request.
- If the operator does not comply with this condition of approval, the BLM may take enforcement actions that include, but are not limited to, those specified in 43 CFR 3163.1.
- In addition, the well sign shall include the surface and bottom hole lease numbers. When the Communitization Agreement number is known, it shall also be on the sign.

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)

☐ **Lea County**

Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240, (575) 3933612

A. **Hydrogen Sulfide**

1. A Hydrogen Sulfide (H2S) Drilling Plan shall be activated 500 feet prior to drilling into the Yates formation. **As a result, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values 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.**

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 Potash Areas:
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 for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log.

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.

R-111-P Potash
Capitan Reef
Possibility of water flows in the Artesia Group, Salado, and Capitan Reef.
Possibility of lost circulation in the Rustler, Red Beds, Artesia Group, Capitan Reef, and Delaware.

1. The 13-3/8 inch surface casing shall be set at approximately **1800** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) 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.

Intermediate casing shall be kept fluid filled while running into hole to meet BLM minimum collapse requirements.

Special Capitan Reef requirements:

If lost circulation (50% or greater) occurs below the Base of the Salt, the operator shall do the following:

- **Switch to fresh water mud to protect the Capitan Reef and use fresh water mud until setting the intermediate casing. The appropriate BLM office is to be notified for a PET to witness the switch to fresh water.**

- **Daily drilling reports from the Base of the Salt to the setting of the intermediate casing are to be submitted to the BLM CFO engineering staff via e-mail by 0800 hours each morning. Any lost circulation encountered is to be recorded on these drilling reports. The daily drilling report should show mud volume per shift/tour. Failure to submit these reports will result in an Incidence of Non-Compliance being issued for failure to comply with the Conditions of Approval. If not already planned, the operator shall run a caliper survey for the intermediate well bore and submit to the appropriate BLM office.**

2. The minimum required fill of cement behind the **9-5/8** inch intermediate casing is:

Operator has proposed DV tool at depth of 3800', 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. If an ECP is used, it is to be set a minimum of 50' below the shoe to provide cement across the shoe. If it cannot be set below the shoe, a CBL shall be run to verify cement coverage.

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. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to potash and Capitan Reef.**

Formation below the 9-5/8" shoe to be tested according to Onshore Order 2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe (not the mud weight required to prevent dissolving the salt formation) and the mud weight for the bottom of the hole. Report results to BLM office.

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

3. The minimum required fill of cement behind the 5-1/2 inch production casing is:

   ☐ Cement to surface. If cement does not circulate, contact the appropriate BLM office. **Excess calculates to negative 5% - Additional cement will be required.**

4. 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. Variance approved to use flex line from BOP to choke manifold. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. **Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.** If the BLM inspector questions the straightness of the hose, a BLM engineer will be contacted and will review in the field or via picture supplied by inspector to determine if changes are required (operator shall expect delays if this occurs).

3. **In the case where the only BOP installed is an annular preventer, it shall be tested to a minimum of 2000 psi (which may require upgrading to 3M or 5M annular).**

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

5. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the 9-5/8 intermediate casing shoe shall be psi. **5M system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.**

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

    a. In potash areas, 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. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time.

    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.

JAM 053118

PECOS DISTRICT
SURFACE USE
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	COG OPERATING, LLC
LEASE NO.:	NMNM082
WELL NAME & NO.:	LITTLE BEAR FEDERAL COM #2H
SURFACE HOLE FOOTAGE:	406'/S & 565'/E
BOTTOM HOLE FOOTAGE	2,440'/S & 745/E
LOCATION:	T-20S, R-34E, S-33. NMPM
COUNTY:	LEA, NM

TABLE OF CONTENTS

Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

Approval Date: 07/13/2018

I. GENERAL PROVISIONS

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

II. PERMIT EXPIRATION

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

Any cultural and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

IV. NOXIOUS WEEDS

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

V. SPECIAL REQUIREMENT(S)

Timing Limitation Stipulation / Condition of Approval for lesser prairie-chicken: Oil and gas activities including 3-D geophysical exploration, and drilling will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Additionally, no new drilling will be allowed within up to 200 meters of leks known at the time of permitting. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 feet from the source of the noise.

Below Ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well. For more installation details, contact the Carlsbad Field Office at 575-234-5972.

Timing Limitation Exceptions:
The Carlsbad Field Office will publish an annual map of where the LPC timing and noise stipulations and conditions of approval (Limitations) will apply for the identified year (between March 1 and June 15) based on the latest survey information. The LPC Timing Area map will identify areas which are Habitat Areas (HA), Isolated Population Area (IPA), and Primary Population Area (PPA). The LPC Timing Area map will also have an area in red crosshatch. The red crosshatch area is the only area where an operator is required to submit a request for exception to the LPC Limitations. If an operator is operating outside the red crosshatch area, the LPC Limitations do not apply for that year and an exception to LPC Limitations is not required.

Tank Battery:
Tank battery locations will be lined and bermed. A 20 mil permanent liner will be installed with a 4 oz. felt backing to prevent tears or punctures. Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank or 24 hour production, whichever is greater. Automatic shut off, check valves, or similar systems will be installed for tanks to minimize the effects of catastrophic line failures used in production or drilling.

Potash

Lessees must comply with the 2012Secretarial Potash Order. The Order is designed to manage the efficient development of oil, gas, and potash resources. Section 6 of the

Order provides general provisions which must be followed to minimize conflict between the industries and ensure the safety of operations.

To minimize impacts to potash resources, the proposed well is confined within the boundaries of the established Little Bear Drill Island (See Potash Memo and Map in attached file for Drill Island description).

Range

The proponent shall not damage the allotment fence. If fence is damaged during construction all operations must cease till the BLM has been contacted along with the BLM grazing permitee.

VI. CONSTRUCTION

A. NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5909 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved APD and Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer.

B. TOPSOIL

The operator shall strip the top portion of the soil (root zone) from the entire well pad area and stockpile the topsoil along the edge of the well pad as depicted in the APD. The root zone is typically six (6) inches in depth. All the stockpiled topsoil will be redistributed over the interim reclamation areas. Topsoil shall not be used for berming the pad or facilities. For final reclamation, the topsoil shall be spread over the entire pad area for seeding preparation.

Other subsoil (below six inches) stockpiles must be completely segregated from the topsoil stockpile. Large rocks or subsoil clods (not evident in the surrounding terrain) must be buried within the approved area for interim and final reclamation.

C. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

The operator shall properly dispose of drilling contents at an authorized disposal site.

D. FEDERAL MINERAL MATERIALS PIT

Payment shall be made to the BLM prior to removal of any federal mineral materials. Call the Carlsbad Field Office at (575) 234-5972.

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation. The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

F. EXCLOSURE FENCING (CELLARS & PITS)

Exclosure Fencing
The operator will install and maintain exclosure fencing for all open well cellars to prevent access to public, livestock, and large forms of wildlife before and after drilling operations until the pit is free of fluids and the operator initiates backfilling. (For examples of exclosure fencing design, refer to BLM's Oil and Gas Gold Book, Exclosure Fence Illustrations, Figure 1, Page 18.)

G. ON LEASE ACCESS ROADS

Road Width
The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed twenty-five (25) feet.

Surfacing
Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

Crowning
Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

Ditching
Ditching shall be required on both sides of the road.

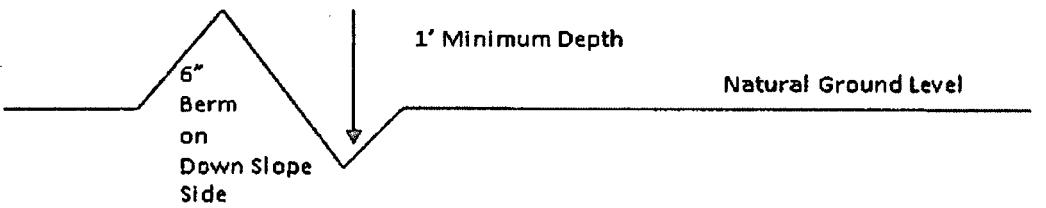
Turnouts
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

Drainage

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outsloping and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.

Cross Section of a Typical Lead-off Ditch



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

Formula for Spacing Interval of Lead-off Ditches

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

400 foot road with 4% road slope: $\frac{400'}{4\%} + 100' = 200'$ lead-off ditch interval

Cattle guards

An appropriately sized cattle guard sufficient to carry out the project shall be installed and maintained at fence/road crossings. Any existing cattle guards on the access road route shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattle guards that are in place and are utilized during lease operations.

Fence Requirement

Where entry is granted across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

Public Access

Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer.

Construction Steps

1. Salvage topsoil
2. Construct road
3. Redistribute topsoil
4. Revegetate slopes

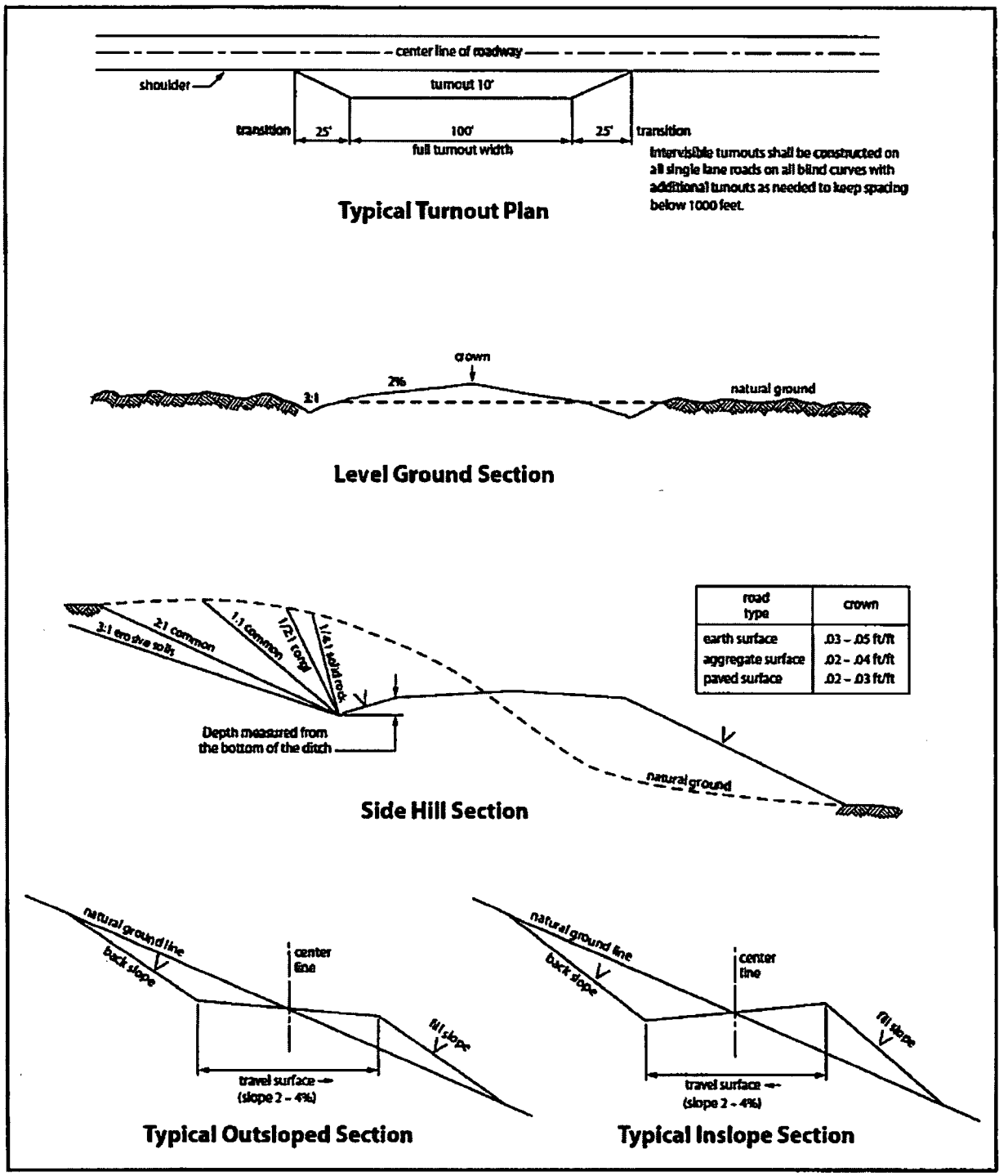


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

VII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

Placement of Production Facilities
Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

Exclosure Netting (Open-top Tanks)
Immediately following active drilling or completion operations, the operator will take actions necessary to prevent wildlife and livestock access, including avian wildlife, to all open-topped tanks that contain or have the potential to contain salinity sufficient to cause harm to wildlife or livestock, hydrocarbons, or Resource Conservation and Recovery Act of 1976-exempt hazardous substances. At a minimum, the operator will net, screen, or cover open-topped tanks to exclude wildlife and livestock and prevent mortality. If the operator uses netting, the operator will cover and secure the open portion of the tank to prevent wildlife entry. The operator will net, screen, or cover the tanks until the operator removes the tanks from the location or the tanks no longer contain substances that could be harmful to wildlife or livestock. Use a maximum netting mesh size of 1 ½ inches. The netting must not be in contact with fluids and must not have holes or gaps.

Chemical and Fuel Secondary Containment and Exclosure Screening
The operator will prevent all hazardous, poisonous, flammable, and toxic substances from coming into contact with soil and water. At a minimum, the operator will install and maintain an impervious secondary containment system for any tank or barrel containing hazardous, poisonous, flammable, or toxic substances sufficient to contain the contents of the tank or barrel and any drips, leaks, and anticipated precipitation. The operator will dispose of fluids within the containment system that do not meet applicable state or U. S. Environmental Protection Agency livestock water standards in accordance with state law; the operator must not drain the fluids to the soil or ground. The operator will design, construct, and maintain all secondary containment systems to prevent wildlife and livestock exposure to harmful substances. At a minimum, the operator will install effective wildlife and livestock exclosure systems such as fencing, netting, expanded metal mesh, lids, and grate covers. Use a maximum netting mesh size of 1 ½ inches.

Open-Vent Exhaust Stack Exclosures
The operator will construct, modify, equip, and maintain all open-vent exhaust stacks on production equipment to prevent birds and bats from entering, and to discourage perching, roosting, and nesting. (*Recommended exclosure structures on open-vent exhaust stacks are in the shape of a cone.*) Production equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, in-line units, and compressor mufflers.

Containment Structures

Proposed production facilities such as storage tanks and other vessels will have a secondary containment structure that is constructed to hold the capacity of 1.5 times the largest tank, plus freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

Painting Requirement
All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color, **Shale Green** from the BLM Standard Environmental Color Chart (CC-001: June 2008).

B. PIPELINES
STANDARD STIPULATIONS FOR SURFACE INSTALLED PIPELINES

A copy of the Grant and attachments, including stipulations, survey plat(s) and/or map(s), shall be on location during construction. BLM personnel may request to review a copy of your permit during construction to ensure compliance with all stipulations.

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. Holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.

2. Holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, Holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC § 2601 *et seq.* (1982) with regard to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant (*see* 40 CFR, Part 702-799 and in particular, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193). Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the Authorized Officer concurrent with the filing of the reports to the involved Federal agency or State government.

3. Holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. § 9601, *et seq.* or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, *et seq.*) on the Right-of-Way (unless the release or threatened release is wholly unrelated to activity of the Right-of-Way Holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way Holder on the Right-of-Way. This provision applies without regard to whether a release is caused by Holder, its agent, or unrelated third parties.

4. Holder shall be liable for damage or injury to the United States to the extent provided by 43 CFR Sec. 2883.1-4. Holder shall be held to a standard of strict liability for damage or injury to the United States resulting from pipe rupture, fire, or spills caused or substantially aggravated by any of the following within the right-of-way or permit area:

a. Activities of Holder including, but not limited to: construction, operation, maintenance, and termination of the facility;

b. Activities of other parties including, but not limited to:
   (1) Land clearing
   (2) Earth-disturbing and earth-moving work
   (3) Blasting
   (4) Vandalism and sabotage;

c. Acts of God.

The maximum limitation for such strict liability damages shall not exceed one million dollars ($1,000,000) for any one event, and any liability in excess of such amount shall be determined by the ordinary rules of negligence of the jurisdiction in which the damage or injury occurred.

This section shall not impose strict liability for damage or injury resulting primarily from an act of war or from the negligent acts or omissions of the United States.

5. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil, salt water, or other pollutant should be discharged from the pipeline system, impacting Federal lands, the control and total removal, disposal, and cleaning up of such oil, salt water, or other pollutant, wherever found, shall be the responsibility of Holder, regardless of fault. Upon failure of Holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages resulting therefrom, on the Federal lands, the Authorized Officer may take such measures as he/she deems necessary to control and clean up the discharge and restore the area, including, where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of Holder. Such action by the Authorized Officer shall not relieve Holder of any responsibility as provided herein.

6. All construction and maintenance activity shall be confined to the authorized right-of-way width of **20** feet. If the pipeline route follows an existing road or buried pipeline right-of-way, the surface pipeline shall be installed no farther than 10 feet from the edge of the road or buried pipeline right-of-way. If existing surface pipelines prevent this distance, the proposed surface pipeline shall be installed immediately adjacent to the outer surface pipeline. All construction and maintenance activity shall be confined to existing roads or right-of-ways.

7. No blading or clearing of any vegetation shall be allowed unless approved in writing by the Authorized Officer.

8. Holder shall install the pipeline on the surface in such a manner that will minimize suspension of the pipeline across low areas in the terrain. In hummocky of duney areas, the pipeline shall be "snaked" around hummocks and dunes rather than suspended across these features.

9. The pipeline shall be buried with a minimum of 24 inches under all roads, "two-tracks," and trails. Burial of the pipe will continue for 20 feet on each side of each crossing. The condition of the road, upon completion of construction, shall be returned to at least its former state with no bumps or dips remaining in the road surface.

10. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.

12. Excluding the pipe, all above-ground structures not subject to safety requirement shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be a color which simulates "Standard Environmental Colors" – **Shale Green**, Munsell Soil Color No. 5Y 4/2; designated by the Rocky Mountain Five State Interagency Committee.

13. The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder's name, BLM serial number, and the product being transported. Signs will be maintained in a legible condition for the life of the pipeline.

14. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway.

15. Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the authorized officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the authorized officer. An evaluation of the discovery will be made by the authorized officer to determine appropriate cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made

by the authorized officer after consulting with the holder.

16. The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, powerline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

17. Surface pipelines shall be less than or equal to 4 inches and a working pressure below 125 psi.

18. Special Stipulations:

a. **Lesser Prairie-Chicken:** Oil and gas activities will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities and pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Normal vehicle use on existing roads will not be restricted.

VIII. INTERIM RECLAMATION

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche that is free of contaminants may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below.

Upon completion of interim reclamation, the operator shall submit a Sundry Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).

IX. FINAL ABANDONMENT & RECLAMATION

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

Below Ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well.

Seed Mixture for LPC Sand/Shinnery Sites

Holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed shall be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed shall be either certified or registered seed. The seed container shall be tagged in accordance with State law(s) and available for inspection by the Authorized Officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). Holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. Seeding shall be repeated until a satisfactory stand is established as determined by the Authorized Officer. Evaluation of growth may not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

Species	lb/acre
Plains Bristlegrass	5lbs/A
Sand Bluestem	5lbs/A
Little Bluestem	3lbs/A
Big Bluestem	6lbs/A
Plains Coreopsis	2lbs/A
Sand Dropseed	1lbs/A

*Pounds of pure live seed:

Pounds of seed x percent purity x percent germination = pounds pure live seed