

ATS-12-559

OCD-ARTESIA

Form 3160-3
(April 2004)

Split Estate

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

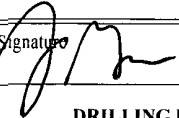
APPLICATION FOR PERMIT TO DRILL OR REENTER

1a Type of work ☒ DRILL ☐ REENTER		5 Lease Serial No. NMNM-110825
1b Type of Well ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone		6 If Indian, Allottee or Tribe Name
2 Name of Operator NADEL AND GUSSMAN HEYCO, L.L.C.		7 If Unit or CA Agreement, Name and No
3a Address P.O. BOX 1936 ROSWELL, NM 88202		8 Lease Name and Well No WABASH 20 FED COM #1H
3b Phone No. (include area code) 575-623-6601		9 API Well No. 30-015-38568
4 Location of Well (Report location clearly and in accordance with any State requirements.)* At surface 660' FNL, 330' FEL, UL A. At proposed prod. zone prod. zone: 660 FNL, 830 FEL, UL A; @ BHL 660' FNL, 330 FWL UL D		10 Field and Pool, or Exploratory ATOKA: GLORIETA-YESO
14 Distance in miles and direction from nearest town or post office* 7 MILES SOUTH OF ARTESIA NM		11 Sec, T R M or Blk and Survey or Area SECTION 20, T-18-S, R-26-E
15 Distance from proposed* location to nearest property or lease line, ft (Also to nearest drg unit line, if any) 330'	16 No. of acres in lease 120	17 Spacing Unit dedicated to this well 160 total: 40 BLM
18 Distance from proposed* location to nearest well, drilling, completed, applied for, on this lease, ft 1650'	19 Proposed Depth 6900 MD 2850 TVD 6875 2574 PVC dev plan	20 BLM/BIA Bond No on file NM# 000520
21 Elevations (Show whether DF, KDB, RT, GL, etc.) 3398' GL	22 Approximate date work will start* 12/14/2011	23 Estimated duration 30 DAYS

24. Attachments

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

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

25 Signature 	Name (Printed/Typed) JASON GOSS	Date 03/27/2012
Title DRILLING ENGINEER		

Approved by (Signature) /s/ Don Peterson	Name (Printed/Typed) /s/ Don Peterson	Date APR 10 2012
Title FIELD MANAGER		Office CARLSBAD FIELD OFFICE

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Conditions of approval, if any, are attached

APPROVAL FOR TWO YEARS

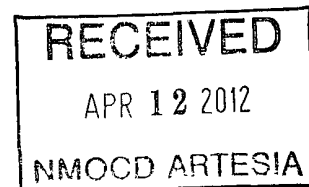
Title 18 USC Section 1001 and Title 43 USC Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction

*(Instructions on page 2)

Well drilled prior to approval
No conditions of Approval

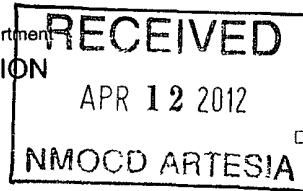
Accepted for record
NMOCD

TES
4/16/2012



DISTRICT I
1625 N. FRENCH DR., HOBBS, NM 88240
DISTRICT II
1301 W. GRAND AVENUE, ARTESIA, NM 88210
DISTRICT III
1000 RIO BRAZOS RD., AZTEC, NM 87410
DISTRICT IV
11885 S. ST. FRANCIS DR., SANTA FE, NM 87505

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



Form C-102
Revised July 16, 2010
Submit to Appropriate
District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-015-38568	Pool Code 3250	Pool Name ATOKA; GLORIETA - YESO
Property Code 38541	Property Name WABASH 20 COM	Well Number 1H
OGRID No. 258462	Operator Name NADEL AND GUSSMAN HEYCO, LLC	Elevation 3398'

Surface Location

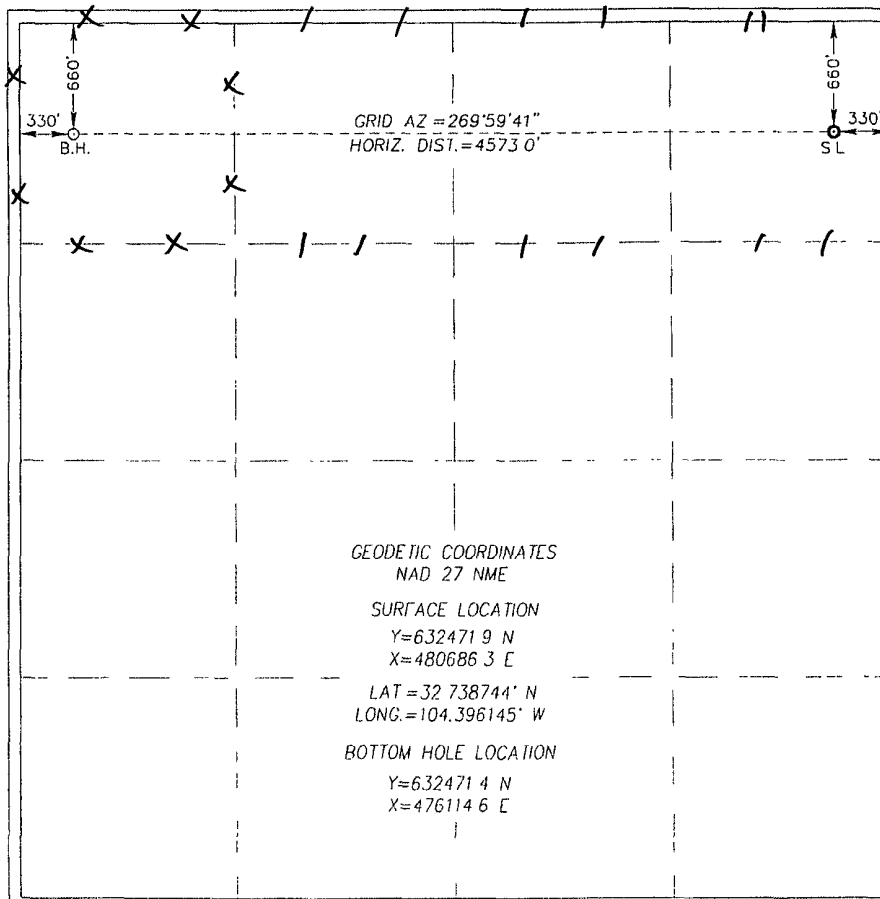
UL or lot No	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	20	18-S	26-E		660	NORTH	330	EAST	EDDY

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
D	20	18-S	26-E		660	NORTH	330	WEST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
160 total 40 BLM			

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



OPERATOR CERTIFICATION

I hereby certify that the information 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 mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division

Signature: *J. Goss* Date: 3/27/12
Printed Name: JASON GOSS

E-mail Address: jgoss@NAGUSS.COM

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.

FEBRUARY 16, 2011

Date of Survey: 2/16/11
Signature: *Ronald J. Eidson* Surveyor

Professional Seal: RONALD J. EIDSON, NEW MEXICO, 3239
Certificate Number: 12641
Signature: *Ronald J. Eidson* Date: 6/08/2011

DSS Rev: 6/8/11 JWSC W.O.: 11.13.1289

NEW MEXICO



100 0 100 200 Feet

Scale: 1"=100'

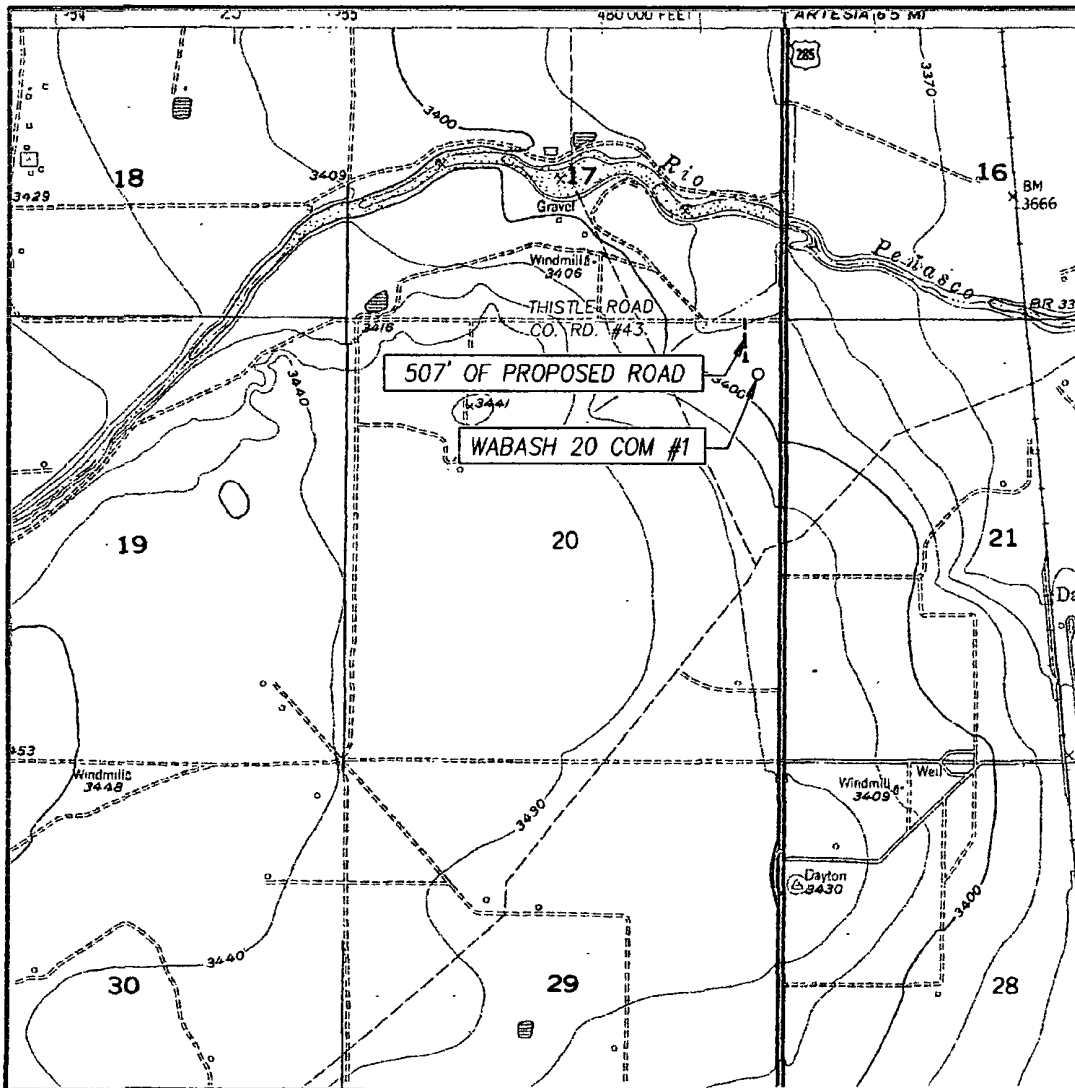


Survey Date: 2/16/11	Sheet 1 of 1 Sheets
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W.O. Number: 11.11.0149	Dr. By: DSS	Rev 1:
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Date: 2/21/11	Rel. W.O.:	11110149	Scale: 1"=100'
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LOCATION VERIFICATION MAP



SCALE: 1" = 2000'

CONTOUR INTERVAL:
DAYTON, N.M. - 10'

SEC. 20 TWP. 18-S RGE. 26-E

SURVEY N.M.P.M

COUNTY EDDY STATE NEW MEXICO

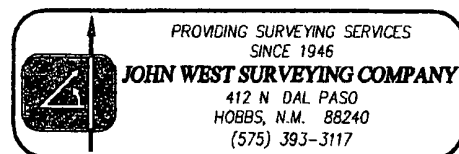
DESCRIPTION 660' FNL & 330' FEL

ELEVATION 3398'

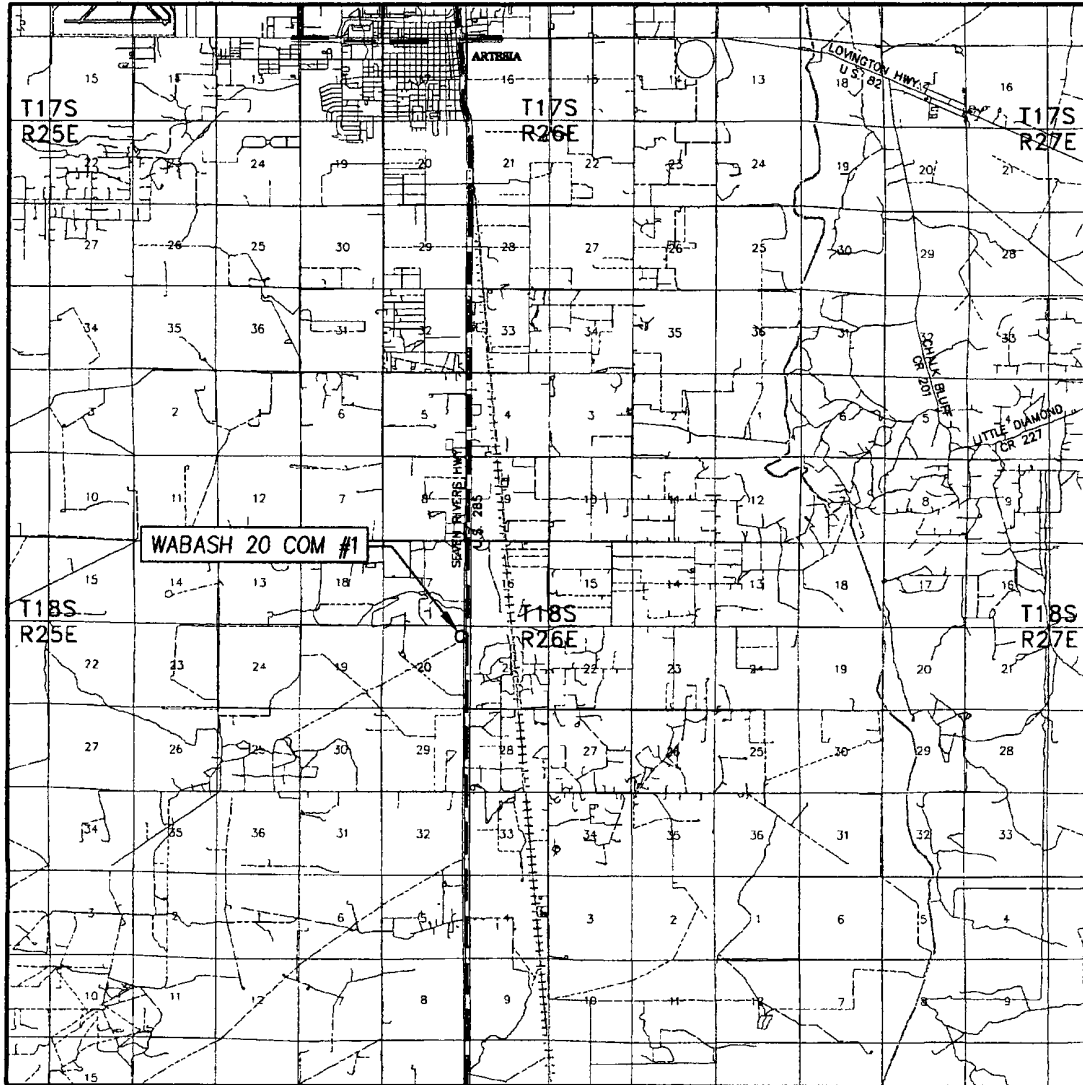
OPERATOR NADEL AND GUSSMAN HEYCO, LLC

LEASE WABASH 20 COM

U.S.G.S. TOPOGRAPHIC MAP
DAYTON, N.M.

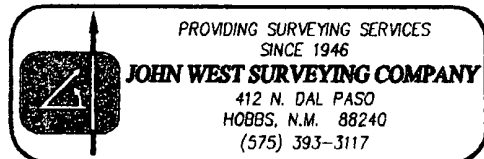


VICINITY MAP



SCALE: 1" = 2 MILES

SEC. 20 TWP. 18-S RGE. 26-E
 SURVEY N.M.P.M.
 COUNTY EDDY STATE NEW MEXICO
 DESCRIPTION 660' FNL & 330' FEL
 ELEVATION 3398'
 OPERATOR NADEL AND GUSSMAN HEYCO, LLC
 LEASE WABASH 20 COM



**DRILLING AND OPERATIONS PLAN
NADEL AND GUSSMAN HEYCO, L.L.C.
WABASH 20 FED COM #1H**

Surface: 660' FNL & 330' FEL
UL A Sec 20, T-18-S, R-26-E
BHL: 660' FNL & 330' FWL
UL D Sec 20, T-18-S, R-26-E
Eddy County, New Mexico.

ELEVATION: GL 3,398'

GEOLOGICAL NAME OF SURFACE FORMATION: QAL-ALLUVIUM ON ERODED ARTESIA GROUP AT SURFACE

Type of Well: Horizontal Oil well

PROPOSED DRILLING DEPTH: 6,875 MD, 2,492 TVD, Kick off curve at ~2,000', see directional plan: Exhibit #2,

TOPS OF IMPORTANT GEOLOGICAL MARKERS: TVD

Btm Qal & Top Queen	565'
Grayburg	630'
San Andres	915'
Glorieta Ss.	2,245'
Yeso	2,310'
Yeso Target	2,560'

Estimated Depth of Anticipated Water, Oil or Gas:

Qal, Queen	100'-900'	Water
San Andres	1,540'	Oil & Gas
Glorieta	2,275'	Oil & Gas
Yeso	2,560'	Oil & Gas

No other formations are expected to yield oil, gas or fresh water in measurable volumes. The surface fresh water will be protected by setting 9 5/8" casing at 1000' at the top of the San Andres and circulating cement back to surface, 1" cement will likely be needed, all other intervals will be isolated by 7" production casing and 4.5" Liner.

CASING PROGRAM:

HOLE SIZE	CASING SIZE	WT./GRADE	THREAD/COLLAR	SETTING DEPTH	TOP CEMENT
	16"	94# H-40	8rd STC	120'	Surface
12.25"	9 5/8" (new)	36# J-55	8rd STC	1000'	Surface
8.75"	7" (new)	26# L-80	8rd BTC & LTC*	2,800'	Surface
6.125"	4 1/2" (new)	13.5# L-80	8rd LTC**	2,650'- 6900' <i>6875 per dir plan</i>	N/A**

* 7" casing: 1000ft BTC/8rd in curve ¹⁸⁰⁰(1,850' - 2,800') and LTC 8rd in vertical 0' - 1,800ft.

** Packer Plus completion 20 stages. No cement, packers and frac port open hole completion with liner hanger.

MINIMUM SAFETY FACTORS: **BURST 1.125** **COLLAPSE 1.125** **TENSION 1.8**

ALL CASING WILL BE NEW API APPROVED

CEMENT PROGRAM-ALL CEMENT BLENDS WILL BE TESTED TO BLM MINIMUM REQUIREMENTS.

A. **9 5/8"** **SURFACE** CEMENT TO SURFACE

100% EXCESS OVER CALCULATED: MAY BE ADJUSTED BASED ON AMOUNT OF LOSS RETURNS

LEAD 200 SACKS CLASS "C" + 10% W-60 (THIXAD) 4% BENTONITE
+2% CACL +.25# CELLO-FLAKE+.25% DEFOAMER, 12.4 PPG,
2.01 YIELD

TAIL: 300 SACKS CLASS "C"+2%CACL+.25# CELLO-
FLAKE+.25% DEFOAMER, 14.8 PPG, 1.35 YIELD

B. **7"** **PRODUCTION** CEMENT TO SURFACE **40% EXCESS OVER CALCULATED**

LEAD 100 SACKS CLASS "C" 65/35 + 6% BENTONITE, .3% C-12
RETARDER, 5# SALT+.25% DEFOAMER, .25# CELLOFLAKE 12.8
PPG, 2.05 YIELD

TAIL 400 SACKS CLASS "C" + .25% DEFOAMER, .3% WATERLOSS,
14.8 PPG, 1.33 YIELD

SPECIFICATIONS FOR PRESSURE CONTROL EQUIPMENT: (EXHIBIT #5)

A 3,000# WP Double Ram BOP and 3,000 annular will be installed after running the 9-5/8" and 7" casing. Pressure test will be conducted prior to drilling out under all casing strings. BOP controls will be installed prior to drilling under surface casing and will remain in use until completion of drilling operations. BOP's will be inspected and operated as recommended in Onshore Order #2. A Kelly cock and a sub equipped with a full opening valve sized to fit the drill pipe and collars will be available on the rig floor in the open position when the Kelly is not in use. 7" and 9-5/8" BOP will be tested to 3000# and the annular to 1500# with a third party testing company before drilling below each shoe. If operations last more than 30 days from 1st test, will test again as per BLM Onshore Oil and Gas order #2.

MUD PROGRAM:

Drill 12 1/4" hole from 0' to 1,000' with **Fresh Water (8.4 to 8.7 ppg)**. Control lost circulation with paper and LCM pills. Viscosity 28-45, no fluid loss control. FW water gel sweeps.

Drill 8 3/4" production hole from 1,000' to 2,800' MD (2,550 TVD, 85 degrees of curve) with **fresh water (8.4 to 8.7 ppg)**. Control lost circulation with paper and LCM pills. From 2000' to 2,800' (8.3 to 8.7 ppg), control filtrate with starch and water loss additives. Clean hole with pre-hydrated freshwater gel sweeps, as necessary. System properties: viscosity 29-34, fluid loss <20 ml/30min.

Drill 6 1/8" production hole from 2,800' ^{6875' in dir plan} ~~6,900'~~ with **fresh water (8.4-8.7 ppg)**, control filtrate and increase viscosity with Xanthan gum and Poly Anionic Cellulose. Clean hole high with viscosity sweeps and lubricants as necessary. System Properties viscosity 32-34, fluid loss <20 ml/30min.

All necessary mud products for weight addition and fluid loss control will be on location at all times. Mud program subject to change due to hole conditions.

Auxiliary Equipment

- A. A Kelly cock will be in the drill string at all times. BOP and fittings must be in good condition with minimum of 3000 psi working pressure on 9-5/8" and 7" casing. Accumulator will be at least 40 gallon capacity with 2 independent sources of pressure on closing unit and meet all other API specifications.
- B. A full opening drill pipe stabbing valve having the appropriate connections will be on the rig floor at all times with 3000 psi working pressure.
- C. Hydrogen Sulfide detection equipment will be in operation after drilling out the 9 5/8" casing shoe until the 4 1/2" liner is run and set and rigging down operations have begun.

TESTING, LOGGING & CORING PROGRAM:

- a. Testing: No DST's will be conducted.
- b. Open hole logs are planned at KOP (2,000) TD of vertical hole to evaluate San Andres, however will not open hole log if losing circulation.
 1. Halliburton Triple Combo, gamma, CNL, Resistivity
- c. Mud logging will take place from 1,000' to TD 10ft samples
- d. Gyro survey will be run at KOP of 2,000'
- e. MWD (directional) and LWD (gamma) surveys will be taken from KOP (2,000') to TD

POTENTIAL HAZARDS:

No significant hazards are expected to TVD of 2,560ft, no abnormal pressures or temperatures are expected, **Expected pressure gradient will be that of .433 psi/ft (8.33 PPG FW) or less.** Lost circulation may occur, no H₂S is expected, but the operator will utilize a 3rd party H₂S monitoring package from 1000' to TD. If H₂S is encountered the operator will comply with the provisions of onshore oil and gas order no 6. All personnel will be familiar with all aspects of safe operation of equipment being used to drill this well.

ANTICIPATED STARTING DATE & DURATION:

Nadel & Gussman HEYCO, LLC anticipates drilling operations to begin ASAP after receiving approved APD. Expected time to complete is approximately 17 days. An additional 15 days will be needed for completion activities. Road and location construction will begin after the BLM has approved the APD.

Jason Goss, Drilling Engineer
Nadel & Gussman HEYCO, LLC

Date

Nadel & Gussman HEYCO, LLC

Eddy County, New Mexico

Sec 20, T18-S, R26E

Wabash 20 Com #1H

Wellbore #1

Survey: MWD

DDC Survey Report

04 January, 2012



DDC
Survey Report



Company:	Nadel & Gussman HEYCO, LLC	Local Co-ordinate Reference:	Well Wabash 20 Com #1H
Project:	Eddy County, New Mexico	TVD Reference:	WELL @ 3398 0usft (Patriot #1)
Site:	Sec 20, T18-S, R26E	MD Reference:	WELL @ 3398 0usft (Patriot #1)
Well:	Wabash 20 Com #1H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Project	Eddy County, New Mexico		
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 20, T18-S, R26E		
Site Position:		Northing:	632,471.90 usft
From:	Map	Easting:	480,686.30 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 44' 19.480 N
		Longitude:	104° 23' 46.124 W
		Grid Convergence:	-0.03 °

Well	Wabash 20 Com #1H		
Well Position	+N/-S	0.0 usft	Northing: 632,471.90 usft
	+E/-W	0.0 usft	Easting: 480,686.30 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft
		Latitude:	32° 44' 19.480 N
		Longitude:	104° 23' 46.124 W
		Ground Level:	3,398.0 usft

Wellbore	Wellbore #1		
Magnetics	Model Name	Sample Date	Declination (°)
	IGRF2010	12/16/2011	7.94
			Dip Angle (°)
			60.51
			Field Strength (nT)
			48,783

Design	Wellbore #1		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)
	0.0	0.0	0.0
			Direction (°)
			269.64

Survey Program	Date 1/4/2012		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name
1,976.0	6,875.0	MWD (Wellbore #1)	MWD default
			Description
			MWD - Standard

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
Tie In									
1,930.0	1.45	2.82	1,929.7	27.0	-5.7	5.6	0.00	0.00	0.00
1,976.0	1.60	7.50	1,975.7	28.2	-5.6	5.5	0.42	0.33	10.17
2,008.0	2.70	313.80	2,007.6	29.2	-6.1	5.9	6.80	3.44	-167.81
2,040.0	6.20	291.50	2,039.5	30.3	-8.3	8.1	12.00	10.94	-69.69
2,072.0	9.90	286.50	2,071.2	31.8	-12.5	12.3	11.76	11.56	-15.63
2,103.0	13.80	285.80	2,101.5	33.5	-18.6	18.4	12.59	12.58	-2.26
2,134.0	17.60	284.80	2,131.4	35.7	-26.7	26.5	12.29	12.26	-3.23
2,166.0	21.40	282.20	2,161.5	38.2	-37.1	36.9	12.18	11.88	-8.13
2,198.0	24.70	275.60	2,191.0	40.1	-49.5	49.2	13.08	10.31	-20.63
2,230.0	27.40	271.50	2,219.7	40.9	-63.5	63.2	10.14	8.44	-12.81

DDC Survey Report



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Well:	Wabash 20 Com #1H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000 1 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
2,261.0	29.60	268.00	2,247.0	40.9	-78.3	78.0	8.91	7.10	-11.29
2,293.0	31.30	264.90	2,274.6	39.8	-94.5	94.2	7.23	5.31	-9.69
2,325.0	33.50	264.80	2,301.6	38.3	-111.5	111.3	6.88	6.88	-0.31
2,357.0	35.70	265.70	2,327.9	36.8	-129.6	129.4	7.06	6.88	2.81
2,389.0	38.20	266.70	2,353.5	35.5	-148.8	148.6	8.03	7.81	3.13
2,420.0	40.70	267.80	2,377.4	34.6	-168.5	168.3	8.37	8.06	3.55
2,452.0	43.60	268.30	2,401.2	33.9	-190.0	189.7	9.12	9.06	1.56
2,484.0	46.80	268.20	2,423.7	33.2	-212.7	212.4	10.00	10.00	-0.31
2,516.0	50.10	268.40	2,444.9	32.5	-236.6	236.4	10.32	10.31	0.63
2,547.0	53.80	268.40	2,464.0	31.8	-261.0	260.8	11.94	11.94	0.00
2,579.0	56.70	268.80	2,482.3	31.1	-287.3	287.1	9.12	9.06	1.25
2,610.0	59.40	269.50	2,498.7	30.7	-313.6	313.4	8.92	8.71	2.26
2,642.0	63.00	270.10	2,514.1	30.7	-341.6	341.4	11.37	11.25	1.88
2,674.0	67.20	269.90	2,527.6	30.7	-370.6	370.4	13.14	13.13	-0.63
2,706.0	70.30	269.50	2,539.1	30.5	-400.4	400.2	9.76	9.69	-1.25
2,737.0	72.20	269.10	2,549.1	30.1	-429.8	429.6	6.25	6.13	-1.29
2,831.0	82.80	267.50	2,569.4	27.4	-521.4	521.2	11.40	11.28	-1.70
2,862.0	86.60	267.10	2,572.3	25.9	-552.2	552.0	12.33	12.26	-1.29
2,894.0	89.50	267.40	2,573.4	24.4	-584.2	584.0	9.11	9.06	0.94
2,925.0	89.90	267.40	2,573.5	23.0	-615.1	615.0	1.29	1.29	0.00
2,956.0	90.90	267.60	2,573.3	21.6	-646.1	646.0	3.29	3.23	0.65
2,988.0	91.50	268.00	2,572.7	20.4	-678.1	677.9	2.25	1.88	1.25
3,020.0	91.10	267.10	2,571.9	19.0	-710.0	709.9	3.08	-1.25	-2.81
3,051.0	90.60	266.10	2,571.5	17.2	-741.0	740.8	3.61	-1.61	-3.23
3,083.0	90.60	267.60	2,571.1	15.5	-772.9	772.8	4.69	0.00	4.69
3,114.0	90.20	268.50	2,570.9	14.4	-803.9	803.8	3.18	-1.29	2.90
3,146.0	90.10	268.80	2,570.8	13.6	-835.9	835.8	0.99	-0.31	0.94
3,178.0	92.60	269.70	2,570.1	13.2	-867.9	867.8	8.30	7.81	2.81
3,209.0	92.90	269.80	2,568.6	13.1	-898.8	898.7	1.02	0.97	0.32
3,241.0	92.80	269.50	2,567.0	12.9	-930.8	930.7	0.99	-0.31	-0.94
3,272.0	93.20	269.20	2,565.4	12.5	-961.8	961.7	1.61	1.29	-0.97
3,304.0	92.60	270.30	2,563.8	12.4	-993.7	993.6	3.91	-1.88	3.44
3,335.0	91.80	270.40	2,562.6	12.6	-1,024.7	1,024.6	2.60	-2.58	0.32
3,367.0	91.30	269.80	2,561.7	12.6	-1,056.7	1,056.6	2.44	-1.56	-1.88
3,398.0	91.10	269.40	2,561.1	12.4	-1,087.7	1,087.6	1.44	-0.65	-1.29
3,430.0	91.00	269.10	2,560.5	12.0	-1,119.7	1,119.6	0.99	-0.31	-0.94
3,462.0	91.00	269.00	2,559.9	11.5	-1,151.7	1,151.6	0.31	0.00	-0.31
3,493.0	91.30	269.60	2,559.3	11.1	-1,182.6	1,182.6	2.16	0.97	1.94
3,525.0	91.30	269.60	2,558.6	10.9	-1,214.6	1,214.5	0.00	0.00	0.00
3,556.0	91.30	269.60	2,557.9	10.7	-1,245.6	1,245.5	0.00	0.00	0.00
3,588.0	90.70	269.10	2,557.3	10.3	-1,277.6	1,277.5	2.44	-1.88	-1.56
3,619.0	90.20	268.50	2,557.1	9.7	-1,308.6	1,308.5	2.52	-1.61	-1.94
3,651.0	91.00	269.90	2,556.7	9.2	-1,340.6	1,340.5	5.04	2.50	4.38

DDC
Survey Report



Company:	Nadel & Gussman HEYCO, LLC	Local Co-ordinate Reference:	Well Wabash 20 Com #1H
Project:	Eddy County, New Mexico	TVD Reference:	WELL @ 3398.0usft (Patriot #1)
Site:	Sec 20, T18-S, R26E	MD Reference:	WELL @ 3398.0usft (Patriot #1)
Well:	Wabash 20 Com #1H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000 1 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
3,682.0	91.10	270.20	2,556.2	9.2	-1,371.6	1,371.5	1.02	0.32	0.97
3,713.0	91.70	270.40	2,555.4	9.4	-1,402.6	1,402.5	2.04	1.94	0.65
3,745.0	91.10	270.20	2,554.6	9.6	-1,434.6	1,434.5	1.98	-1.88	-0.63
3,776.0	91.00	270.00	2,554.0	9.6	-1,465.6	1,465.5	0.72	-0.32	-0.65
3,808.0	90.90	269.40	2,553.5	9.4	-1,497.6	1,497.5	1.90	-0.31	-1.88
3,840.0	92.70	270.20	2,552.5	9.3	-1,529.6	1,529.5	6.15	5.63	2.50
3,871.0	92.30	269.60	2,551.2	9.3	-1,560.5	1,560.4	2.32	-1.29	-1.94
3,903.0	92.40	269.50	2,549.8	9.0	-1,592.5	1,592.4	0.44	0.31	-0.31
3,934.0	93.60	270.60	2,548.2	9.1	-1,623.5	1,623.4	5.25	3.87	3.55
3,966.0	93.30	270.80	2,546.3	9.4	-1,655.4	1,655.3	1.13	-0.94	0.63
3,997.0	93.50	270.50	2,544.5	9.8	-1,686.3	1,686.2	1.16	0.65	-0.97
4,029.0	93.10	270.20	2,542.6	10.0	-1,718.3	1,718.2	1.56	-1.25	-0.94
4,061.0	92.20	270.20	2,541.1	10.1	-1,750.2	1,750.1	2.81	-2.81	0.00
4,093.0	91.30	270.00	2,540.2	10.2	-1,782.2	1,782.1	2.88	-2.81	-0.63
4,124.0	91.70	270.30	2,539.4	10.2	-1,813.2	1,813.1	1.61	1.29	0.97
4,156.0	92.70	271.00	2,538.1	10.6	-1,845.2	1,845.1	3.81	3.13	2.19
4,187.0	94.20	271.70	2,536.3	11.3	-1,876.1	1,876.0	5.34	4.84	2.26
4,219.0	93.90	271.90	2,534.0	12.3	-1,908.0	1,907.9	1.13	-0.94	0.63
4,250.0	93.50	271.70	2,532.0	13.3	-1,939.0	1,938.8	1.44	-1.29	-0.65
4,282.0	93.40	271.50	2,530.1	14.2	-1,970.9	1,970.8	0.70	-0.31	-0.63
4,313.0	93.50	271.40	2,528.2	15.0	-2,001.8	2,001.7	0.46	0.32	-0.32
4,345.0	92.00	271.30	2,526.7	15.7	-2,033.8	2,033.6	4.70	-4.69	-0.31
4,377.0	91.70	271.10	2,525.6	16.4	-2,065.7	2,065.6	1.13	-0.94	-0.63
4,408.0	91.20	270.50	2,524.9	16.8	-2,096.7	2,096.6	2.52	-1.61	-1.94
4,440.0	91.60	270.50	2,524.1	17.1	-2,128.7	2,128.6	1.25	1.25	0.00
4,471.0	92.50	271.10	2,523.0	17.6	-2,159.7	2,159.5	3.49	2.90	1.94
4,503.0	92.90	271.50	2,521.5	18.3	-2,191.7	2,191.5	1.77	1.25	1.25
4,534.0	92.80	271.30	2,519.9	19.0	-2,222.6	2,222.4	0.72	-0.32	-0.65
4,566.0	91.10	270.40	2,518.8	19.5	-2,254.6	2,254.4	6.01	-5.31	-2.81
4,597.0	90.70	270.10	2,518.3	19.6	-2,285.6	2,285.4	1.61	-1.29	-0.97
4,629.0	90.60	270.10	2,518.0	19.7	-2,317.6	2,317.4	0.31	-0.31	0.00
4,660.0	91.60	270.10	2,517.4	19.8	-2,348.6	2,348.4	3.23	3.23	0.00
4,692.0	91.90	270.10	2,516.4	19.8	-2,380.6	2,380.4	0.94	0.94	0.00
4,724.0	91.70	270.20	2,515.4	19.9	-2,412.5	2,412.4	0.70	-0.63	0.31
4,755.0	91.80	270.20	2,514.5	20.0	-2,443.5	2,443.4	0.32	0.32	0.00
4,787.0	91.80	270.20	2,513.4	20.1	-2,475.5	2,475.3	0.00	0.00	0.00
4,818.0	91.90	270.20	2,512.4	20.2	-2,506.5	2,506.3	0.32	0.32	0.00
4,850.0	91.60	270.60	2,511.5	20.4	-2,538.5	2,538.3	1.56	-0.94	1.25
4,882.0	91.10	270.60	2,510.7	20.8	-2,570.5	2,570.3	1.56	-1.56	0.00
4,913.0	90.90	270.60	2,510.2	21.1	-2,601.5	2,601.3	0.65	-0.65	0.00
4,945.0	90.80	270.40	2,509.7	21.4	-2,633.5	2,633.3	0.70	-0.31	-0.63
4,977.0	90.60	270.50	2,509.3	21.6	-2,665.5	2,665.3	0.70	-0.63	0.31
5,008.0	89.90	270.30	2,509.2	21.9	-2,696.5	2,696.3	2.35	-2.26	-0.65

DDC
Survey Report



Company:	Nadel & Gussman HEYCO, LLC	Local Co-ordinate Reference:	Well Wabash 20 Com #1H
Project:	Eddy County, New Mexico	TVD Reference:	WELL @ 3398.0usft (Patnot #1)
Site:	Sec 20, T18-S, R26E	MD Reference:	WELL @ 3398 0usft (Patnot #1)
Well:	Wabash 20 Com #1H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,039.0	89.80	270.30	2,509.3	22.0	-2,727.4	2,727.3	0.32	-0.32	0.00
5,070.0	90.30	269.90	2,509.2	22.1	-2,758.4	2,758.3	2.07	1.61	-1.29
5,102.0	90.60	269.70	2,509.0	22.0	-2,790.4	2,790.3	1.13	0.94	-0.63
5,133.0	89.90	269.50	2,508.8	21.7	-2,821.4	2,821.3	2.35	-2.26	-0.65
5,162.0	89.60	269.60	2,509.0	21.5	-2,850.4	2,850.3	1.09	-1.03	0.34
5,194.0	91.10	269.20	2,508.8	21.2	-2,882.4	2,882.3	4.85	4.69	-1.25
5,225.0	91.60	269.10	2,508.0	20.7	-2,913.4	2,913.2	1.64	1.61	-0.32
5,255.0	91.60	269.00	2,507.2	20.2	-2,943.4	2,943.2	0.33	0.00	-0.33
5,287.0	91.30	268.90	2,506.4	19.6	-2,975.4	2,975.2	0.99	-0.94	-0.31
5,318.0	91.10	268.80	2,505.7	19.0	-3,006.4	3,006.2	0.72	-0.65	-0.32
5,348.0	91.20	268.90	2,505.1	18.4	-3,036.4	3,036.2	0.47	0.33	0.33
5,380.0	91.30	268.90	2,504.4	17.8	-3,068.4	3,068.2	0.31	0.31	0.00
5,411.0	91.30	269.10	2,503.7	17.3	-3,099.3	3,099.2	0.64	0.00	0.65
5,441.0	91.30	268.90	2,503.1	16.7	-3,129.3	3,129.2	0.67	0.00	-0.67
5,473.0	91.00	269.10	2,502.4	16.2	-3,161.3	3,161.2	1.13	-0.94	0.63
5,504.0	91.20	269.10	2,501.8	15.7	-3,192.3	3,192.2	0.65	0.65	0.00
5,534.0	91.30	269.20	2,501.2	15.2	-3,222.3	3,222.1	0.47	0.33	0.33
5,566.0	91.20	269.50	2,500.5	14.9	-3,254.3	3,254.1	0.99	-0.31	0.94
5,596.0	91.20	269.20	2,499.8	14.5	-3,284.3	3,284.1	1.00	0.00	-1.00
5,627.0	90.90	269.40	2,499.3	14.2	-3,315.3	3,315.1	1.16	-0.97	0.65
5,658.0	90.60	269.40	2,498.9	13.8	-3,346.3	3,346.1	0.97	-0.97	0.00
5,689.0	90.50	269.40	2,498.6	13.5	-3,377.3	3,377.1	0.32	-0.32	0.00
5,721.0	91.30	269.00	2,498.1	13.1	-3,409.3	3,409.1	2.80	2.50	-1.25
5,752.0	91.40	269.00	2,497.3	12.5	-3,440.2	3,440.1	0.32	0.32	0.00
5,783.0	91.20	268.80	2,496.6	11.9	-3,471.2	3,471.1	0.91	-0.65	-0.65
5,814.0	91.10	268.80	2,496.0	11.3	-3,502.2	3,502.1	0.32	-0.32	0.00
5,846.0	91.00	268.80	2,495.4	10.6	-3,534.2	3,534.1	0.31	-0.31	0.00
5,876.0	91.20	268.50	2,494.8	9.9	-3,564.2	3,564.1	1.20	0.67	-1.00
5,907.0	90.60	268.40	2,494.4	9.1	-3,595.2	3,595.1	1.96	-1.94	-0.32
5,939.0	90.20	268.40	2,494.1	8.2	-3,627.2	3,627.0	1.25	-1.25	0.00
5,970.0	90.00	268.50	2,494.1	7.3	-3,658.2	3,658.0	0.72	-0.65	0.32
6,002.0	89.60	268.70	2,494.2	6.5	-3,690.1	3,690.0	1.40	-1.25	0.63
6,033.0	89.20	268.60	2,494.5	5.8	-3,721.1	3,721.0	1.33	-1.29	-0.32
6,065.0	89.40	268.90	2,494.9	5.1	-3,753.1	3,753.0	1.13	0.63	0.94
6,097.0	89.20	269.00	2,495.3	4.5	-3,785.1	3,785.0	0.70	-0.63	0.31
6,128.0	89.50	268.60	2,495.7	3.9	-3,816.1	3,816.0	1.61	0.97	-1.29
6,159.0	89.60	268.70	2,495.9	3.2	-3,847.1	3,847.0	0.46	0.32	0.32
6,191.0	91.10	269.20	2,495.7	2.6	-3,879.1	3,879.0	4.94	4.69	1.56
6,222.0	91.40	269.60	2,495.0	2.2	-3,910.1	3,910.0	1.61	0.97	1.29
6,254.0	91.30	269.50	2,494.3	2.0	-3,942.1	3,942.0	0.44	-0.31	-0.31
6,286.0	90.80	269.30	2,493.7	1.7	-3,974.1	3,974.0	1.68	-1.56	-0.63
6,317.0	90.90	269.30	2,493.2	1.3	-4,005.1	4,005.0	0.32	0.32	0.00
6,349.0	91.30	269.60	2,492.6	1.0	-4,037.1	4,037.0	1.56	1.25	0.94
6,380.0	91.40	269.60	2,491.9	0.8	-4,068.0	4,068.0	0.32	0.32	0.00

DDC
Survey Report



Company:	Nadel & Gussman HEYCO, LLC	Local Co-ordinate Reference:	Well Wabash 20 Com #1H
Project:	Eddy County, New Mexico	TVD Reference:	WELL @ 3398.0usft (Patriot #1)
Site:	Sec 20, T18-S, R26E	MD Reference:	WELL @ 3398.0usft (Patriot #1)
Well:	Wabash 20 Com #1H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000 1 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
6,412.0	91.00	269.50	2,491.2	0.5	-4,100.0	4,100.0	1.29	-1.25	-0.31
6,443.0	90.80	269.60	2,490.7	0.3	-4,131.0	4,130.9	0.72	-0.65	0.32
6,475.0	90.80	269.80	2,490.3	0.1	-4,163.0	4,162.9	0.62	0.00	0.63
6,507.0	90.70	269.50	2,489.9	-0.1	-4,195.0	4,194.9	0.99	-0.31	-0.94
6,538.0	90.30	269.50	2,489.6	-0.4	-4,226.0	4,225.9	1.29	-1.29	0.00
6,570.0	90.40	269.30	2,489.4	-0.7	-4,258.0	4,257.9	0.70	0.31	-0.63
6,602.0	89.80	269.40	2,489.3	-1.1	-4,290.0	4,289.9	1.90	-1.88	0.31
6,632.0	89.60	269.20	2,489.5	-1.4	-4,320.0	4,319.9	0.94	-0.67	-0.67
6,663.0	89.60	269.00	2,489.7	-1.9	-4,351.0	4,350.9	0.65	0.00	-0.65
6,695.0	89.60	269.10	2,489.9	-2.5	-4,383.0	4,382.9	0.31	0.00	0.31
6,726.0	89.70	268.90	2,490.1	-3.0	-4,414.0	4,413.9	0.72	0.32	-0.65
6,758.0	89.40	268.80	2,490.4	-3.6	-4,446.0	4,445.9	0.99	-0.94	-0.31
6,790.0	88.80	268.40	2,490.9	-4.4	-4,478.0	4,477.9	2.25	-1.88	-1.25
6,820.0	88.80	268.20	2,491.5	-5.3	-4,508.0	4,507.9	0.67	0.00	-0.67
TD @ 6875' MD / 2493' TVD									
6,875.0	88.80	268.20	2,492.7	-7.0	-4,562.9	4,562.9	0.00	0.00	0.00

Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,930.0	1,929.7	27.0	-5.7	Tie In
6,875.0	2,492.7	-7.0	-4,562.9	TD @ 6875' MD / 2493' TVD

Checked By: _____ Approved By: _____ Date: _____

Company Name: Nadel & Gussman HEYCO, LLC
 Wabash 20 Com #1H
 Eddy County, New Mexico
 Rig: Patriot #1
 Created By: Dina Chance
 Date: 1/4/2012

Nadel & Gussman Heyco, LLC



Wabash 20 Com #1H
 Eddy County, New Mexico
 Q110845 & WT-11736

ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Vsect	Departure	Annotation
6875.0	85.80	268.20	2492.7	-7.0	-4562.9	4562.9	4561.9	TD @ 6875' MD / 2493' TVD

DESIGN TARGET DETAILS

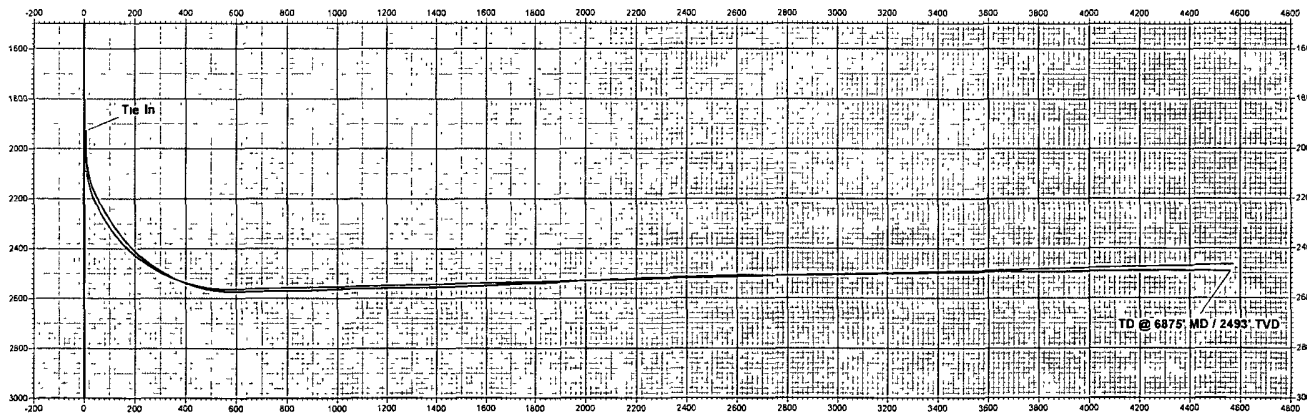
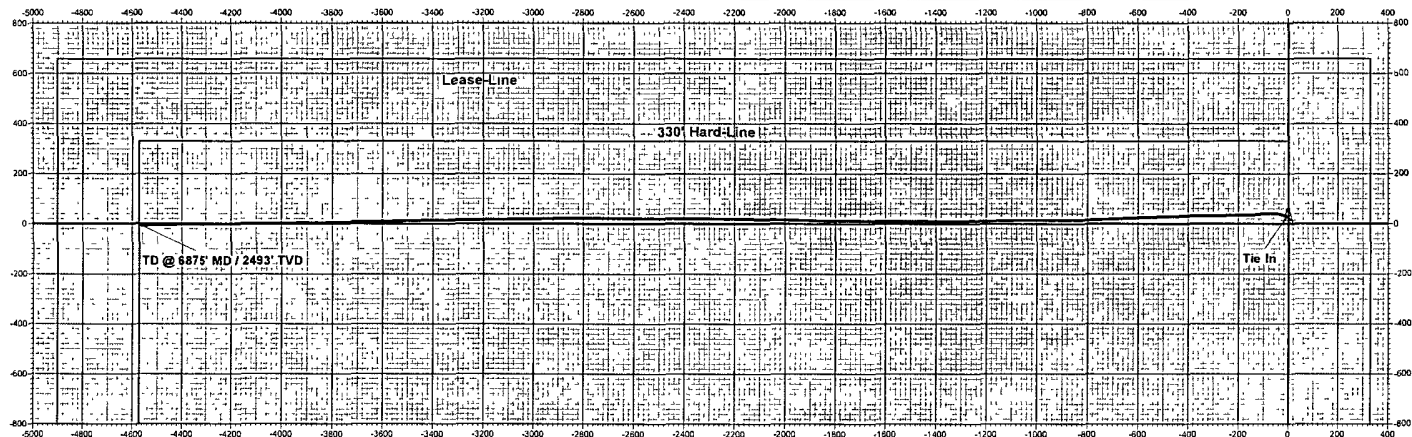
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Tie In	1929.7	27.0	-5.7	632498.91	480680.56	32° 44' 19.747 N	104° 23' 46.191 W
- plan misses target center by 27.6usft at 1929.7usft MD (1929.7 TVD, 0.0 N, 0.0 E)							
PBHL Wabash 20 Com #1H	2463.0	-0.5	-4571.7	632471.40	476114.60	32° 44' 19.445 N	104° 24' 39.649 W
- plan hits target center							

WELL DETAILS Wabash 20 Com #1H

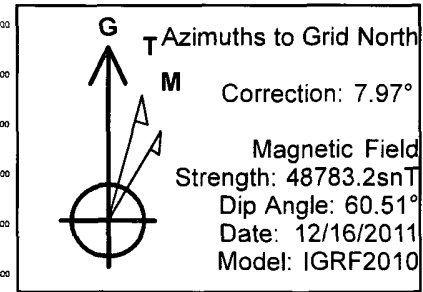
+N/-S	+E/-W	Ground Level	3398.0	Easting	Latitude	Longitude
0.0	0.0	632471.90	480686.30	32° 44' 19.480 N	104° 23' 46.124 W	

PROJECT DETAILS: Eddy County, New Mexico

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

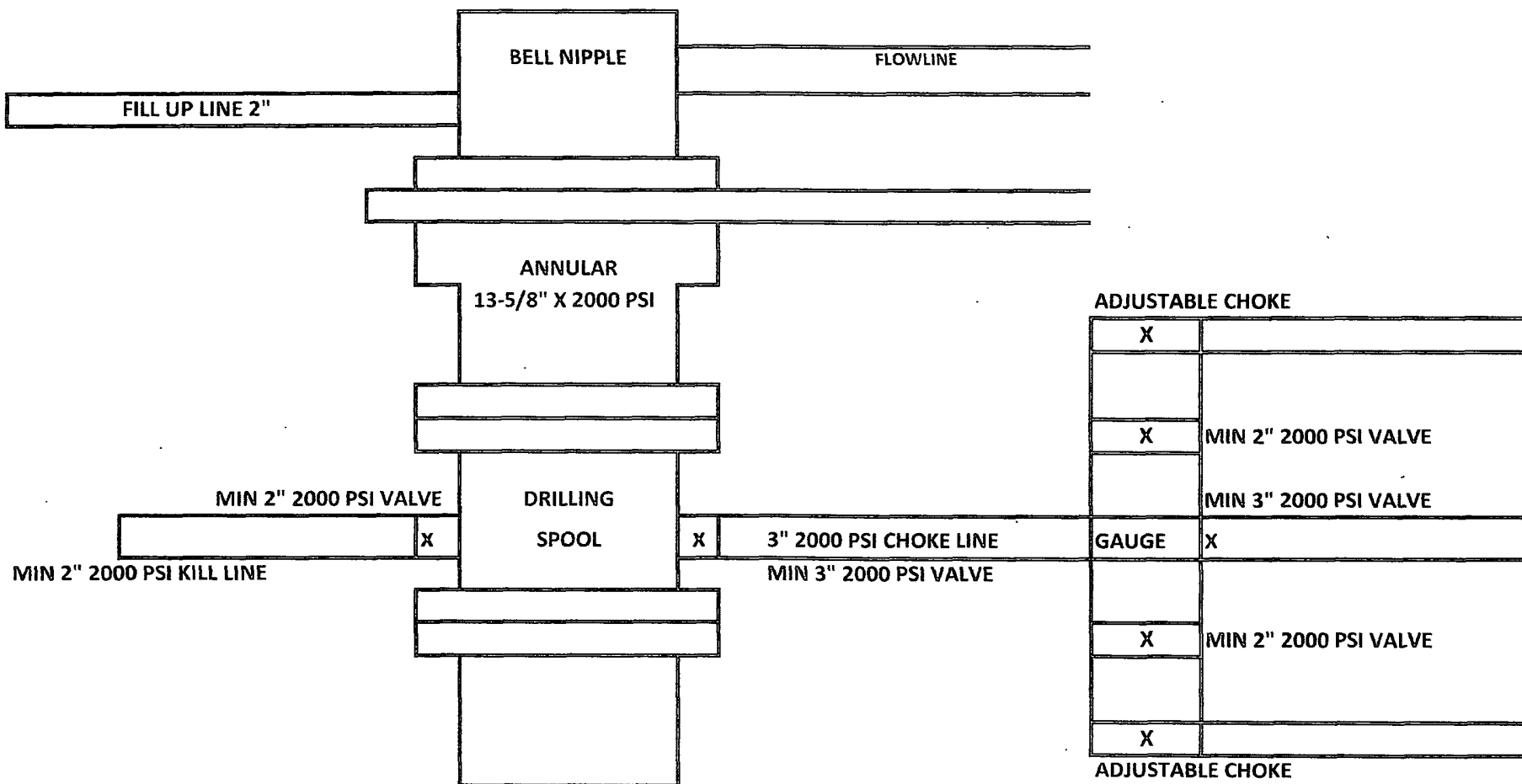


Vertical Section at 269.99° (200 usft/in)



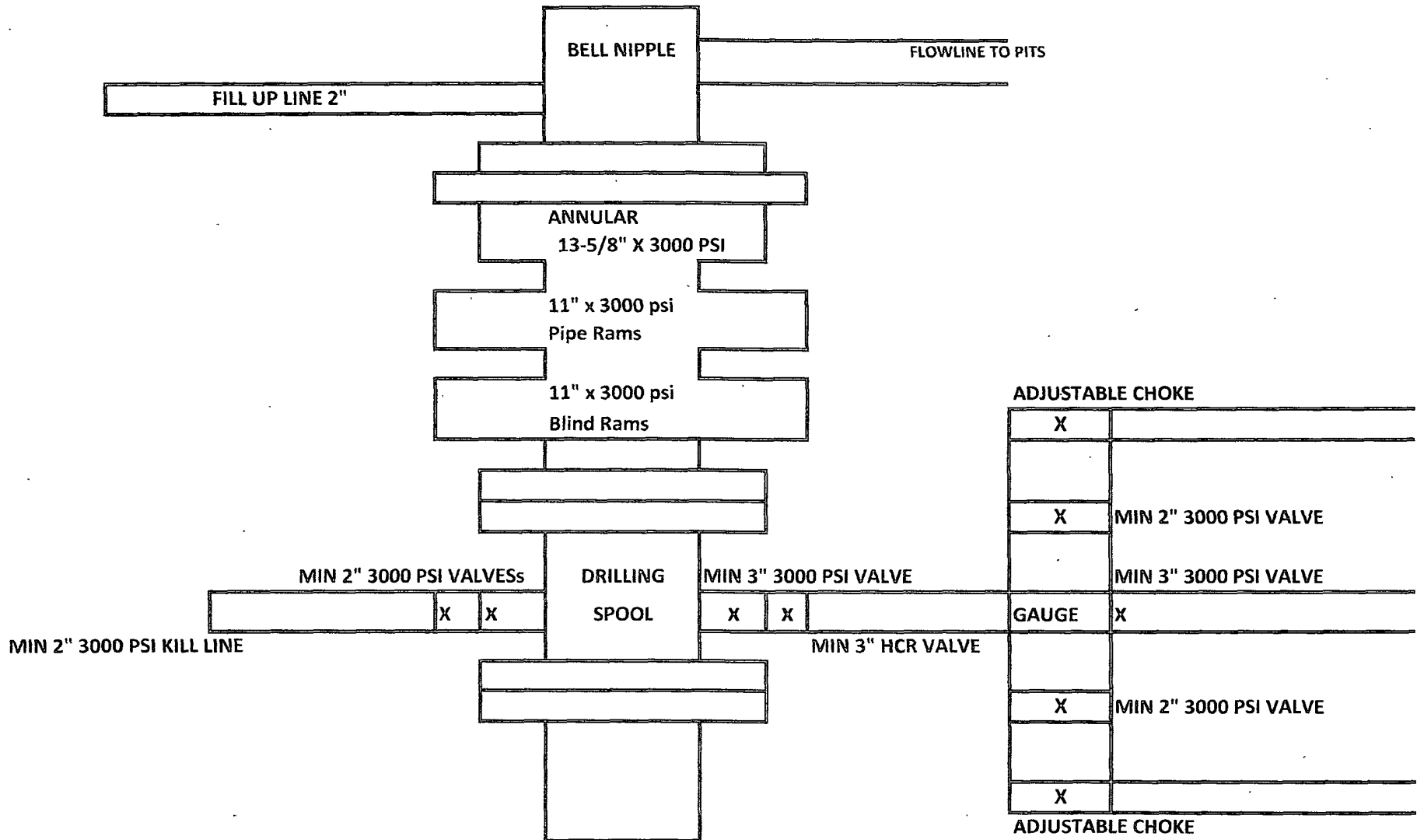
Well: Wabash 20 Fed Com #1H
 660 FSL, 330 FEL, Sec. 20, 18S, 26E
 Eddy County New Mexico

Nadel and Gussman HEYCO, L.L.C.
 BOP Scematic 12.25" hole

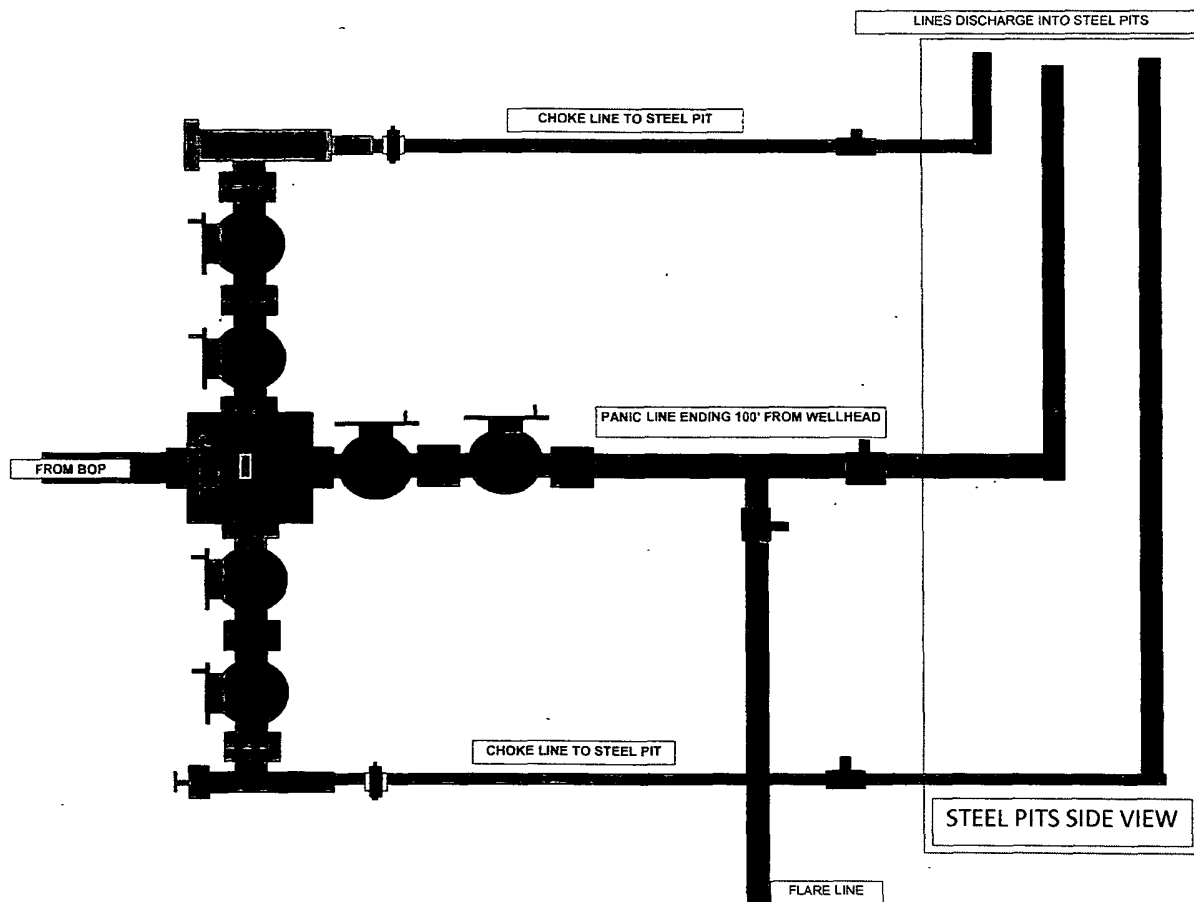


Well Wabash 20 Fed Com #1H
 660' FSL, 330 FEL, Sec. 20, 18S, 26E
 Eddy County New Mexico

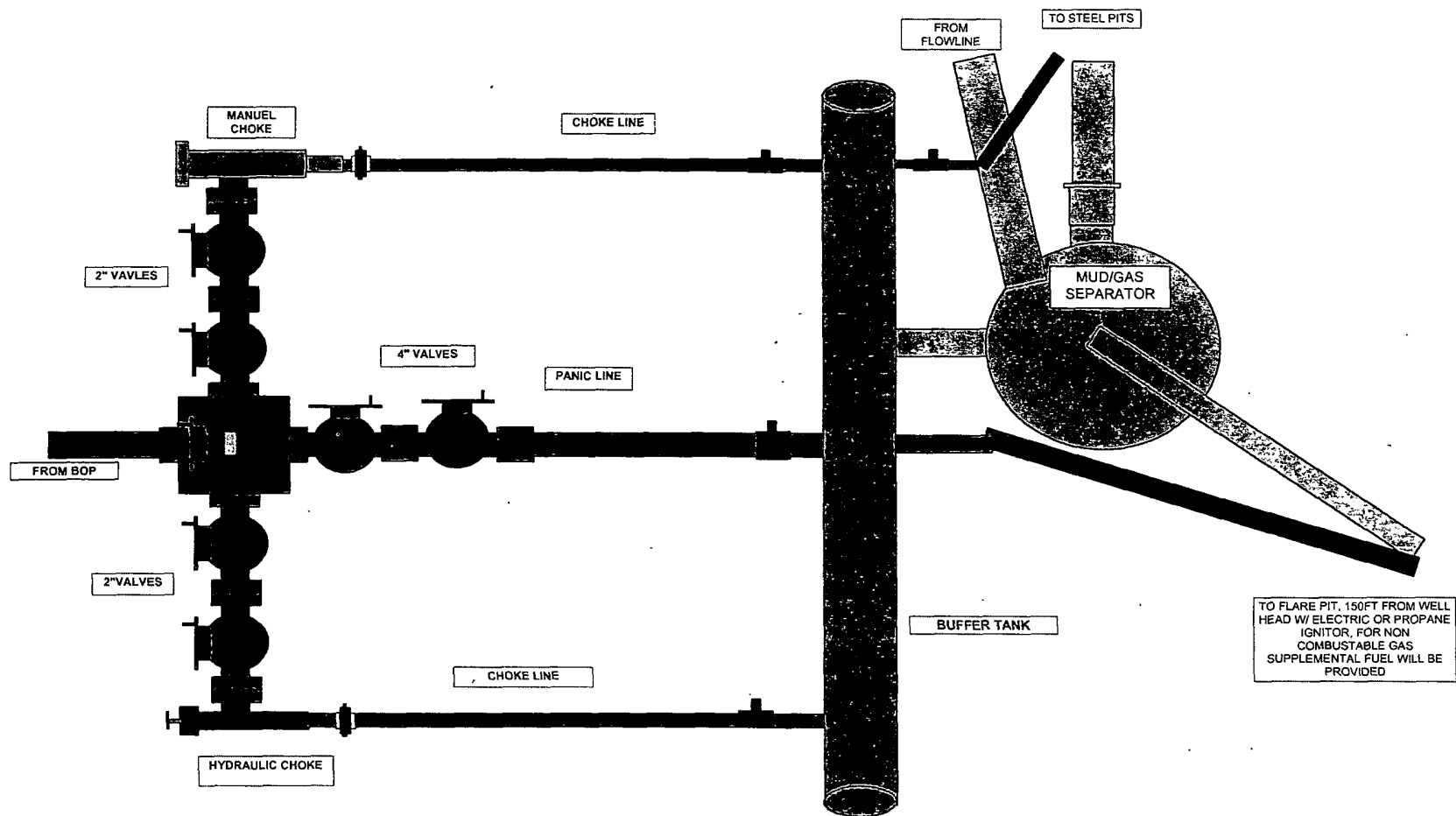
Nadel and Gussman HEYCO, L.L.C.
 BOP Scematic 8.75" & 6.125" hole



Wabash 20 Fed Com #1H
3000 psi BOP Manifold System



**Wabash 20 Fed Com #1H
3000 psi BOP Manifold System**

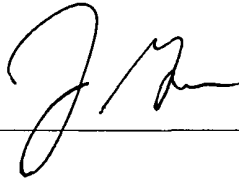


OPERATOR CERTIFICATION

I certify that I, or someone under my direct supervision, have inspected the drill site and access route 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 the company I represent, 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 the 27 day of March 2012.

Name: Jason Goss
Position: Drilling Engineer
Address: P.O. BOX 1936
Roswell NM 88202
Telephone: 575-623-6601
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Signed: _____

A handwritten signature in black ink, appearing to be 'JG', is written over a horizontal line.