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
1220 S ST. FRANCIS DR., SANTA FE, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION

1220 SOUTH ST. FRANCIS DR.
Santa Fe, New Mexico 87505

Form C-102
Revised October 12, 2005
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number	Pool Code	Pool Name
30-025-39135	65350 ✓	Young; Bone Spring North

Property Code	Property Name	Well Number
~~258462~~ 305050	PEARSALL 6 FEDERAL	9

OGRID No	Operator Name	Elevation
258462	NADEL AND GUSSMAN HEYCO, LLC	3826'

Surface Location

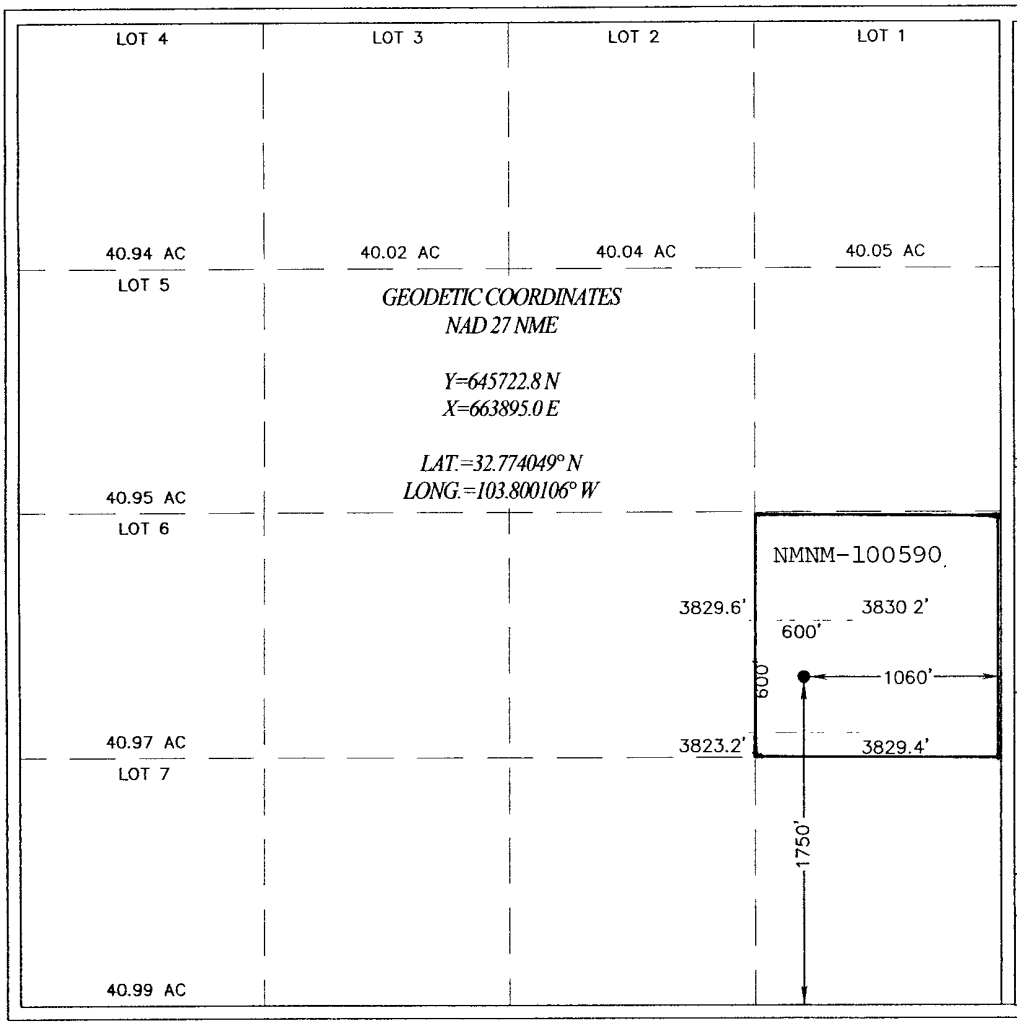
UL or lot No	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
I	6	18-S	32-E		1750	SOUTH	1060	EAST	LEA

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

Dedicated Acres	Joint or Infill	Consolidation Code	Order No
40 ✓			

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



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 6-5-08 Date

Keith Cannon
Printed Name

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.

APRIL 22, 2008
Date Surveyed DSS

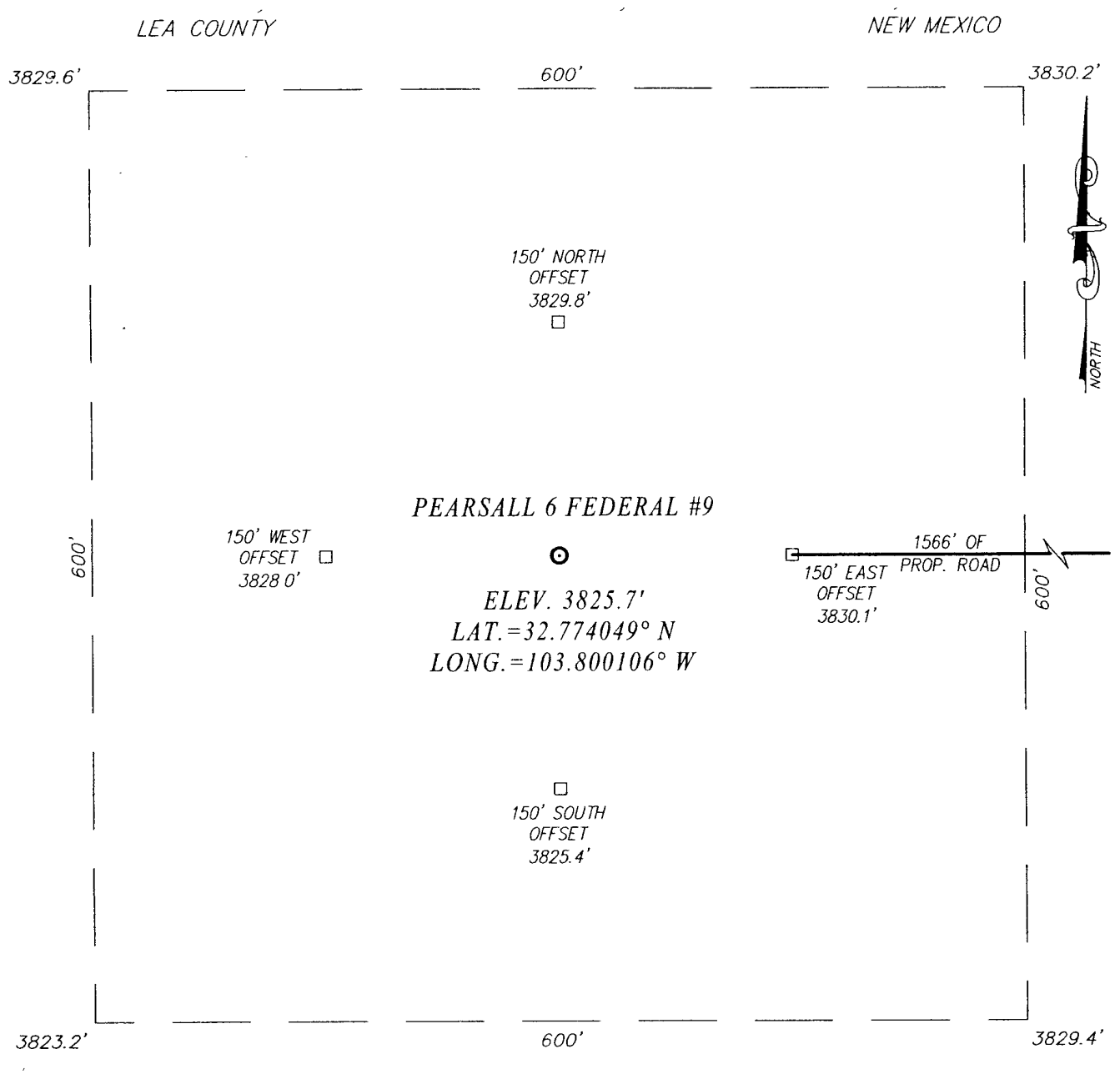
Signature & Seal of Professional Surveyor

RONALD J. EIDSON NEW MEXICO 3239 REGISTERED PROFESSIONAL SURVEYOR

Ronald J. Eidson 4/29/08

08.11.0644

Certificate No	Gary G Eidson	12641
	Ronald J. Eidson	3239



DIRECTIONS TO LOCATION

FROM THE INTERSECTION OF STATE HIGHWAY 529 AND COUNTY ROAD #H126 (MALJAMAR ROAD), GO SOUTH ON MALJAMAR ROAD APPROX. 1.2 MILES. TURN RIGHT AT CALICHE PIT AND GO NORTHWEST APPROX. 1.3 MILES. TURN LEFT AND GO SOUTH APPROX. 0.2 MILES. TURN RIGHT AND GO WEST APPROX. 0.2 MILES. TURN LEFT AT PROPOSED ROAD SURVEY AND GO SOUTHWEST APPROX. 0.3 MILES TO THIS LOCATION.

100 0 100 200 Feet

Scale: 1"=100'

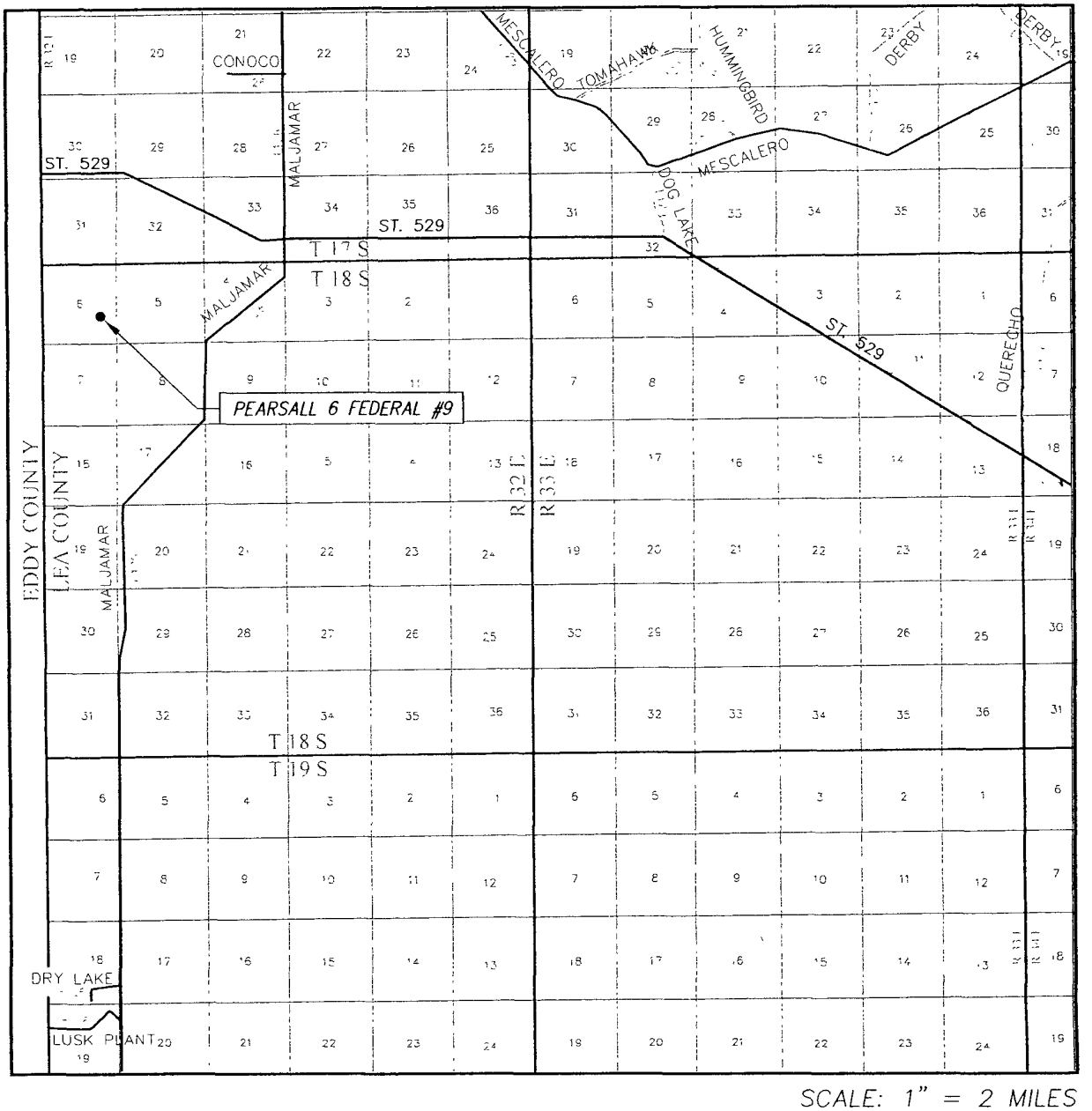
PROVIDING SURVEYING SERVICES
SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N DAL PASO
HOBBS, N.M. 88240
(505) 393-3117

NADEL AND GUSSMAN HEYCO, LLC

PEARSALL 6 FEDERAL #9 WELL
LOCATED 1750 FEET FROM THE SOUTH LINE
AND 1060 FEET FROM THE EAST LINE OF SECTION 6,
TOWNSHIP 18 SOUTH, RANGE 32 EAST, N.M.P.M.,
LEA COUNTY, NEW MEXICO.

Survey Date: 4/22/08	Sheet 1 of 1 Sheets	
W.O. Number: 08.11.0644	Dr By: DSS	Rev 1:
Date: 4/25/08	08110644	Scale: 1"=100'

VICINITY MAP



SCALE: 1" = 2 MILES

SEC. 6 TWP. 18-S RGE. 32-E

SURVEY N.M.P.M.

COUNTY LEA STATE NEW MEXICO

DESCRIPTION 1750' FSL & 1060' FEL

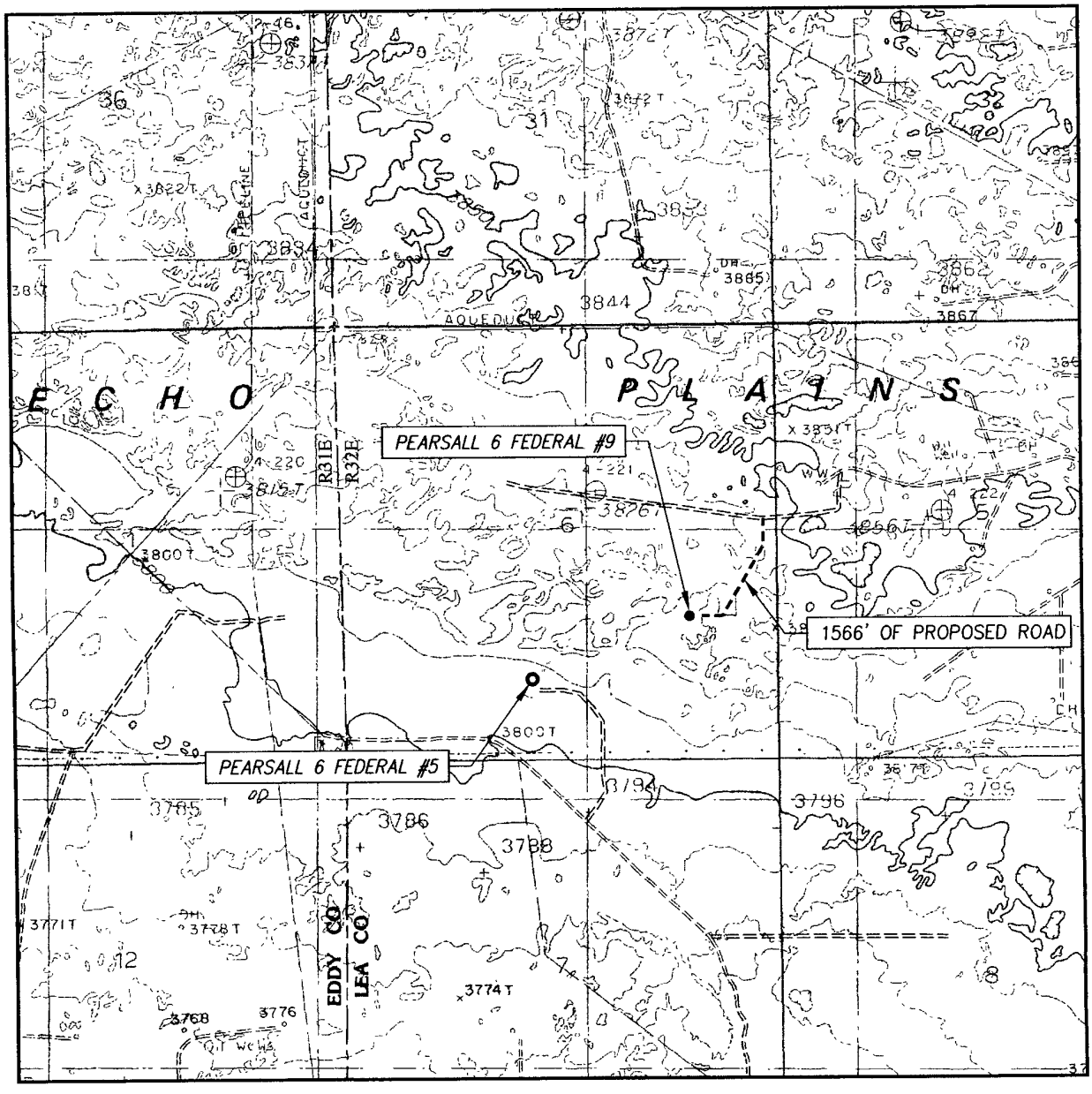
ELEVATION 3826'

OPERATOR NADEL AND GUSSMAN HEYCO, LLC

LEASE PEARSALL 6 FEDERAL

PROVIDING SURVEYING SERVICES
SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N DAL PASO
HOBBS, N M. 88240
(505) 393-3117

LOCATION VERIFICATION MAP



SCALE: 1" = 2000'

CONTOUR INTERVAL:
MALJAMAR, N.M. – 10'

SEC. 6 TWP. 18-S RGE. 32-E

SURVEY N.M.P.M.

COUNTY LEA STATE NEW MEXICO

DESCRIPTION 1750' FSL & 1060' FEL

ELEVATION 3826'

OPERATOR NADEL AND GUSSMAN HEYCO, LLC

LEASE PEARSALL 6 FEDERAL

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

PROVIDING SURVEYING SERVICES
SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N DAL PASO
HOBBS, N.M 88240
(505) 393-3117

New Mexico Office of the State Engineer
Point of Diversion Summary

Back

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are biggest to smallest)

POD Number	Tws	Rng	Sec	q	q	q	Zone	X	Y
CP 00672	18S	32E	07	4	4				

Driller Licence: 882 LARRY'S DRILLING & PUMP CO.
Driller Name:
Source: Shallow
Drill Start Date: 01/22/1985
Drill Finish Date: 01/29/1985
Log File Date: 02/08/1985
PCW Received Date:
Pump Type:
Pipe Discharge Size:
Casing Size:
Estimated Yield:
Depth Well: 540
Depth Water: 460

Application
Nadel and Gussman Heyco, LLC
Pearsall 6 Federal #9
Sec 6, T18S, R32E
1750' FSL & 1060' FEL
Lea County, New Mexico

In conjunction with Form 3160-3, Application For Permit To Drill Or Deepen subject well, Nadel and Gussman Heyco, LLC submits the following ten items of pertinent information in accordance with Onshore Oil & Gas Order No. 10.

1. Geologic Name of Surface Formation:
   PERMIAN

2. Estimated Tops of Significant Geologic Markers:

Formation	Depth	Water
Rustler	1015'	
Salado	1150'	
BX (BASE OF SALT)	2330'	
Yates	2525'	
Seven Rivers	2900'	Oil
Bowers	3375'	Oil
Queen	3640'	Oil
Penrose	3875'	Oil
Grayburg	4170'	Oil
Loco Hills	4280'	Oil
Metex	4380'	Oil
Premier	4515'	Oil
San Andres	4695'	Oil
Delaware-Cherry Canyon	4915'	Oil
Brushy Canyon	5300'	Oil
L. San Andres Equiv.	5900'	Oil
Bone Spring Ls	6200"	Oil
A-Zone Carb	7430'	Oil
BSPG 1st Sand	7730'	Oil
B-Zone	8020'	Oil
BSPG 2nd Sand	8400'	Oil
C-zone	8620'	Oil
C- Zone Carb	8960'	Oil
BSPG 3rd Sand	9075'	
PTD	9200'	

No other formations are expected to yield oil, gas, or fresh water in measurable volumes. The surface fresh water sands will be protected by setting 13 3/8" casing at 450' and circulating Cement back to surface. Potash/ fresh water sands will be protected by setting 9 5/8" casing at 3000' and circulating cement back to surface. ~~Morrow~~ Bone Spring intervals will be isolation by setting 5 ½" Casing to total depth and circulating cement up into the 9 5/8" casing.

3. Proposed Casing Program:

Hole size	Depth	OD Csg	Weight	Collar	Grade	New/Used
17 ½"	0' – 1040'	13 3/8"	48#	ST&C	H-40	NEW
12 ¼"	0' – 3100'	9 5/8"	36#	ST&C	J-55	NEW
8 ¾"	0' – 4600'	5 ½"	17#	LT&C	L-80	NEW
8 ¾"	4600' – 7600'	5 ½"	17#	LT&C	J-55	NEW
8 ¾"	7600' – 9200'	5 ½"	17#	LT&C	L-80	NEW

Safety Factors: Burst 1.0 Collapse 1.125 Tension 1.8

4. **Cement Program: (Note yields; and DV tool depths if multiple stages)**

a. 13 3/8" Surface — Cement to surface with:
Lead - 550 sx 35:65 Poz C, 3% CaCl, 0.125 pps Celloflake and 6% Bentonite, 12.7 ppg, 1.94 cu.ft./sk yield, TOC @ surface.
Tail – 200 sx C, 2% CaCl and 0.125 pps Celloflake, 14.8 ppg, 1.34 cu.ft./sk yield, TOC @ 732'.

b. 9 5/8" Intermediate — Cement to surface with:
Lead - 420 sx 50:50 Poz C, 5% Salt, 0.125 pps Celloflake, 10% Bentonite and 0.2% AntiFoamer, 11.9 ppg, 2.46 cu.ft./sk yield, TOC @ surface.
Tail – 200 sx C and 1% CaCl, 14.8 ppg, 1.33 cu.ft./sk yield, TOC @ 2430'.

c. 5 1/2" Production — First Stage:
Lead - 425 sx 35:65 Poz H, 5% Salt, 6% Bentonite, 0.2% Uniflac, 0.2% TIC Dispersant and 0.3% Retarder, 12.7 ppg, 1.99 cu.ft./sk yield, TOC @ 2900'.
Tail – 900 sx TXI Lightweight, 1.33% Salt, 0.2% AntiFoamer, 0.3%, Uniflac, 0.2% TIC Dispersant and 0.55% Retarder, 13.0 ppg, 1.41 cu.ft./sk yield, TOC @ 5500'.

The above volumes, additives and depths may be revised based on open hole logs, conditions encountered while drilling and on cement field blend tests. The top of cement for the production string is designed to reach approximately 200' above the 9 5/8" casing shoe.

5. Pressure Control Equipment:

The blowout preventor equipment (BOPE) shown in Exhibit #1 will consist of a (3m system) Double ram type (3000psi WP) preventor and a bag type (hydril) preventor (3000psi WP) and rotating head. Both unit will be hydraulically operated and the ram type preventor will be equipped with blind rams on top 4 ½" drill pipe rams on bottom. The drilling head will be installed on the 13 3/8" surface casing and ntilized continuously unit depth is reached. All BOP's and associated equipment will be tested to 1200psi with the rig pump before drilling Out the 13 3/8" casing shoe (70% of 54.4# J-55 casing). Prior to drilling out the 9 5/8" shoe, the The BOP's and Hydrill will be tested as per BLM Drilling Operations Order #2. Pipe rams will be Operated and checked each 24hr period and each time drill pipe is out of the hole. These functional Test will be documented on the daily driller log. A 2" kill line and 3" choke line will be incorporated in the drilling spool below the ram-type BOP. Other accessory BOP equipment will include a Kelly Cock, floor safety valve, choke line and choke manifold having a 3000psi wp rating.

See COA

6. Drilling Fluid Program:

Depth	Mud Wt.	Visc	Fluid Loss	Type System
0' – 1040'	8.4 - 8.8	80 - 55	NC	Fresh Water
1040' – 3100'	9.8 - 10.0	28 - 30	NC	Brine Water
3100' – 7500'	8.8 - 9.4	28 - 32	NC	Cut Brine Water
7500' – 9200'	8.8 - 10.0	34 - 36	6-10	Cut Brine Water

The necessary mud products for weight addition and fluid loss control will be on Location at all times. Mud Program Sudject to change due to hole conditions.

7. Auxiliary Equipment:
   a. A Kelly Cock will be in the drill string at all times.
   b. A full opening drill pipe stabbing valve having the appropriate Connections will be on the rig floor at all times.
   c. Hydrogen Sulfide detection equipment will be in operation after drilling Out the 9 5/8" casing shoe unit the 5 ½" casing is cemented. Breathing Equipment will be on location upon drilling the 9 5/8" shoe unit total Depth is reached.

8. Testing, Logging, & Coring Program:

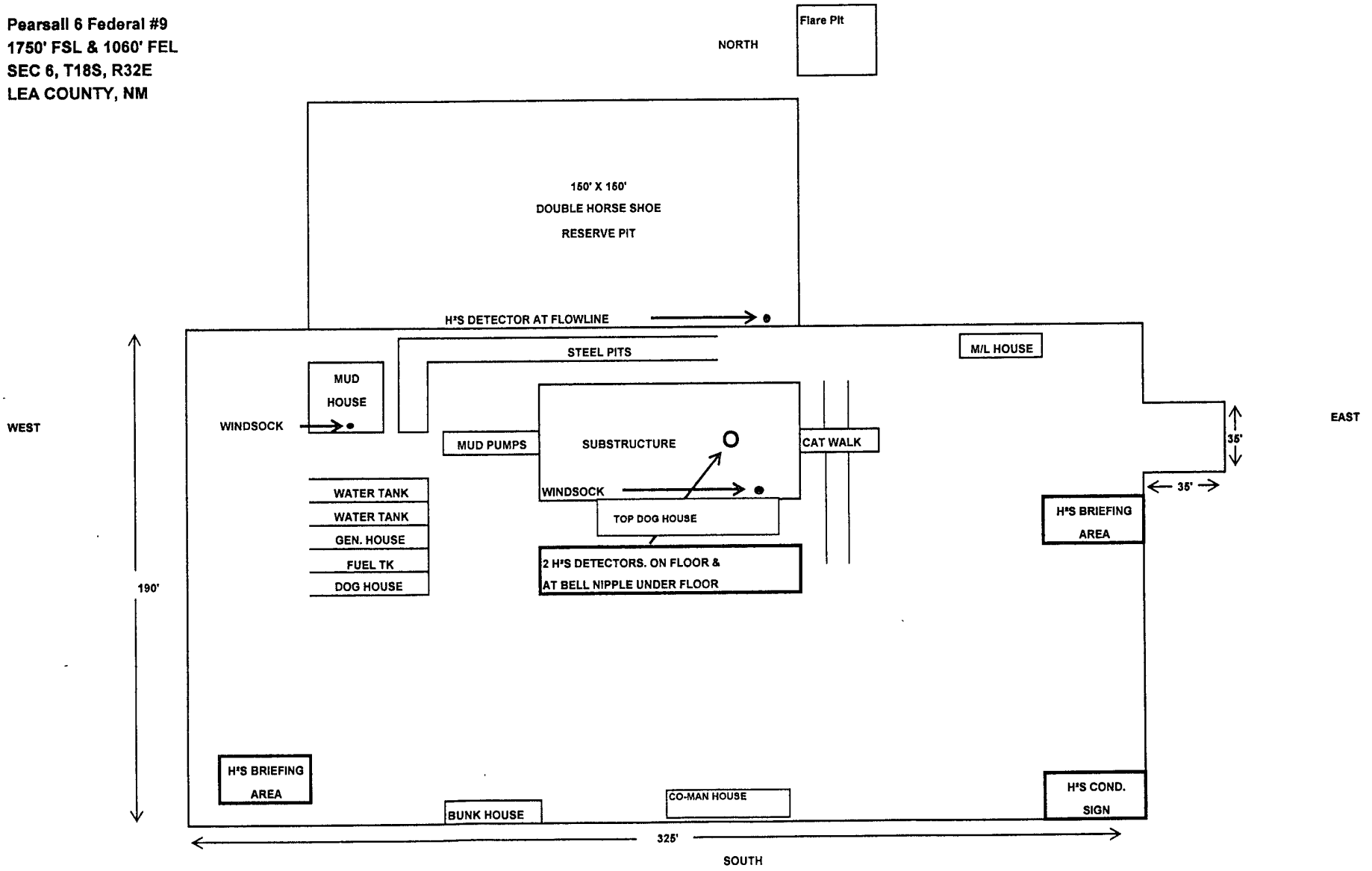
   a. Mud logging unit from the base intermediate casing to depth
      10' samples will be caught by loggers
   b. Possible rotary sidewall cores
   c. Drill stem test will be based on geological sample shows
      Wolfcamp and Strawn.
   e. Platform express (GR / LDT – CNL – PE / DLL – MCFL / NGT)

9. Abnormal Conditions, Pressures, Temperature, or Potential Hazards:
   No abnormal conditions are expected. There is no known presence of H2S in this area.
   If H2S is encountered the operator will comply with the provisions of Onshore Oil and Gas
   Order No 6. Lost circulation might occur in the Capitan Reef. All personnel will be familiar
   with all aspects of safe operation of equipment being used to drill this well.
   Estimated BHP 4700 psi and estimated BHT 180. No H2S is anticipated to be encountered.

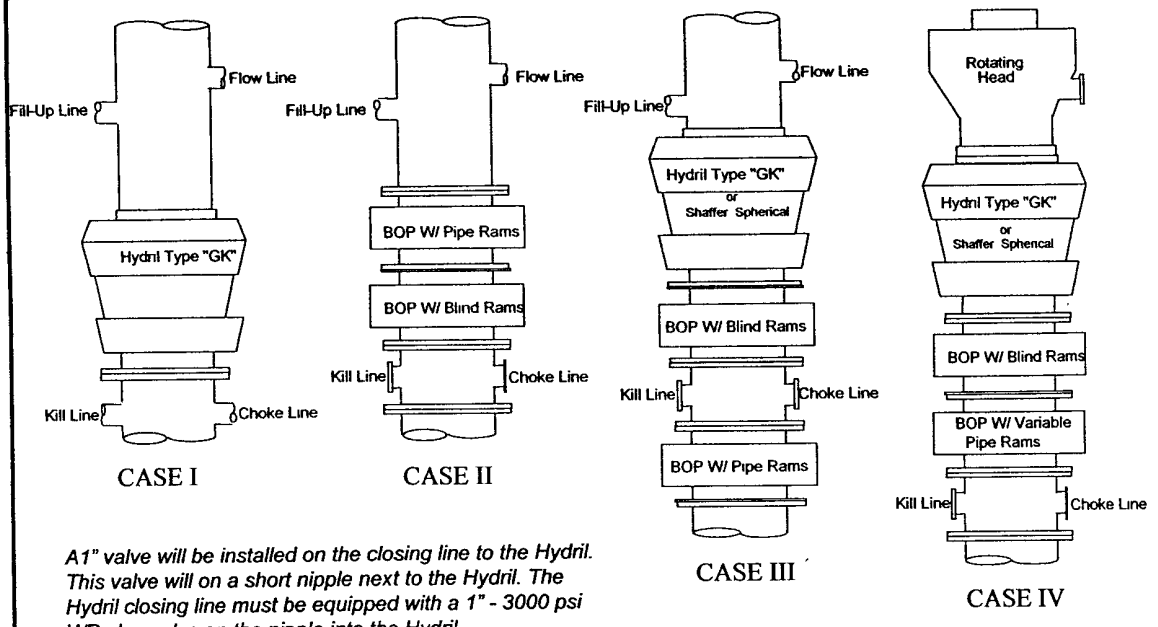
9. Anticipated Starting Date & Duration of Operation:
   The anticipated starting date is set for as soon as possible after examination and approval of all drilling requirements.
   Duration of this project will be approximately 50 days from start of
   Construction of drilling pad until finish of completion operations

EXHIBIT "D" LOCATION DIAGRAM

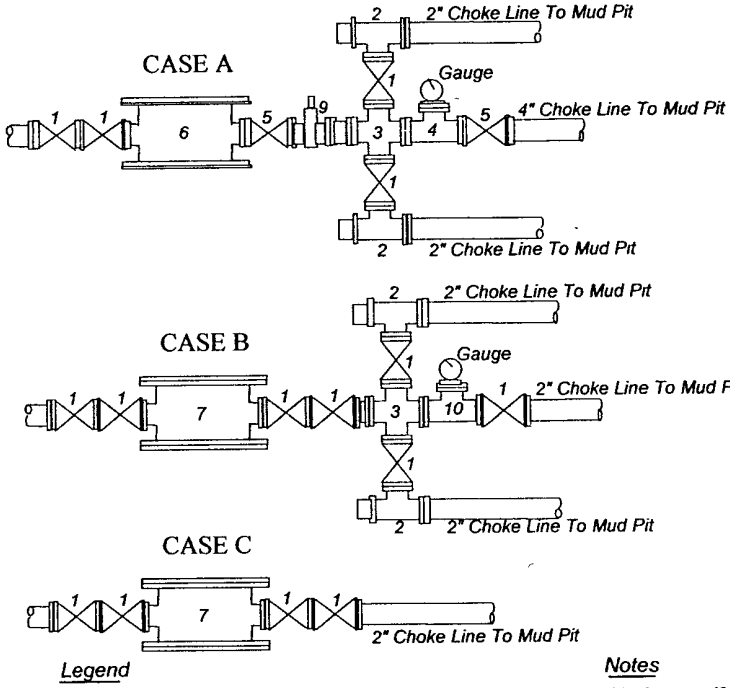
Pearsall 6 Federal #9
1750' FSL & 1060' FEL
SEC 6, T18S, R32E
LEA COUNTY, NM



Nadel and Gussman Heyco, LLC
MINIMUM BLOWOUT PREVENTER REQUIREMENTS



A1" valve will be installed on the closing line to the Hydril. This valve will on a short nipple next to the Hydril. The Hydril closing line must be equipped with a 1" - 3000 psi WP plug valve on the nipple into the Hydril.



BOP SIZE	BOP CASE	WORKING PRESSURE	CHOKE CASE
13-5/8"	III	3000 psi	B

**Rotating head required*

Bradenhead :
Mfr: _____
Size: _____ Type: _____

Legend

1. *2" flanged all steel valve must be either Cameron "F", Halliburton Low Torque or Shaffer Flo-Seal.*
2. *2" flanged adjustable chokes, min 1" full opening & equiped with hard trim.*
3. *4" x 2" flanged steel cross*
4. *4" flanged steel tee.*
5. *4" flanged all steel valve (Type as in no. 1).*
6. *Drilling Spool with 2" x 4" flanged outlet.*
7. *Drilling Spool with 2" x 2" flanged outlet.*
8. *2" x 2" flanged steel cross.*
9. *4" pressure operated gate valve.*
10. *2" flanged steel tee.*

Notes

Choke manifold may be located in any convenient position. Use all steel fittings throughout. Make 90° turns with bull plugged tees only. No field welding will be permitted on any of the components of the choke manifold and related equipment upstream of the chokes. The choke spool and all lines and fittings must be at least equivalent to the test pressure of the preventers required. Independent closing control unit with clearly marked controls to be located on derrick floor near driller's position.

(10-31-96) WTXBOPS.PPT

NADEL AND GUSSMAN HEYCO, LLC

P.O. BOX 1936
ROSWELL, NEW MEXICO 88202
(505)623-6601

Peasall 6 Federal #9
1750' FSL & 1060' FEL
Sec 6, T18S, R32E
Lea Co. N.M.

Hydrogen Sulfide (H_2S)
Contingency Plan

CONTACTING AUTHORITIES

Nadel and Gussman HEYCO personnel must liason with local and state agencies to ensure a proper response to a major release. Additionally, the OCD must be notified of the release as soon as possible but no later than 4 hours. Agencies will ask for information such as; type and volume of release, wind direction, location of release, etc. Be prepared with all information available. The following call list of essential and potential responders has been prepared for use during a release. This response plan must be in coordination with the State of New Mexico's "Hazardous Materials Emergency Response Plan" (HMER).

LOCATION	ENTITY	PHONE NUMBER:
Artesia	Sheriff's Office	(575) 746-9888
Artesia	State Police	(575) 748-9718
Carlsbad	Bureau of land Management	(575) 887-6544
	Ambulance	911
Loco Hills	Fire Department	(505) 677-2349
Artesia	Fire Department	(505) 746-2701
Carlsbad	Local Emergency Planning Committee	(505) 887-3798
Roswell	Nadel and Gussman HEYCO, LLC	Off. (505) 623-6601
Midland Tx	Terry West, Drilling Engineer.	Cell (432) 682-1472
Artesia	Keith Cannon, Drlg Superintendent	Cell (575) 626-1936
Artesia	Clay Stevens, Safety Man	Cell (575) 626-1965
OTHER CONTACTS		
Artesia	Schlumberger Technology	(575) 748-1392
Artesia	South Environmental	(575) 420-1942
Hobbs	Horizon Mud	(575) 393-8641
Lovington	Assurance Fire Safety	(575) 396-7004
Odessa, TX	Wild Well Control, Inc.	(432) 550-6202
Odessa, TX	Cudd Pressure Control, Inc.	(432) 563-3356
Lubbock, TX	Flight for Life	(806) 743-9911
Albuquerque, NM	Med Flight Air Ambulance	(505) 842-4433

HYDROGEN SULFIDE CONTINGENCY PLAN

SCOPE

THIS CONTINGENCY PLAN ESTABLISHES GUIDELINES FOR THE PUBLIC, ALL COMPANY EMPLOYEES WHO'S WORK ACTIVITIES MAY INVOLVE EXPOSURE TO HYDROGEN SULFIDE (H2S) GAS.

OBJECTIVE

1. PREVENT ANY AND ALL ACCIDENTS, AND PREVENT THE UNCONTROLLED RELEASE OF HYDROGEN SULFIDE INTO THE ATMOSPHERE.
2. PROVIDE PROPER EVACUATION PROCEDURES TO COPE WITH EMERGENCIES.
3. PROVIDE IMMEDIATE AND ADEQUATE MEDICAL ATTENTION SHOULD AN INJURY OCCUR.

H2S CONTINGENCY PLAN

DISCUSSION

GEOLOGICAL PROGNOSIS

IMPLEMENTATION:	THIS PLAN WITH ALL DETAILS IS TO BE FULLY IMPLEMENTED AFTER DRILLING TO INTERMEDIATE CASING POINT.
EMERGENCY RESPONSE PROCEDURE:	THIS SECTION OUTLINES THE CONDITIONS AND DENOTES STEPS TO BE TAKEN IN THE EVENT OF AN EMERGENCY.
EMERGENCY EQUIPMENT PROCEDURE:	THIS SECTION OUTLINES THE SAFETY AND EMERGENCY EQUIPMENT THAT WILL BE REQUIRED FOR THE DRILLING OF THIS WELL.
TRAINING PROVISIONS:	THIS SECTION OUTLINES THE TRAINING PROVISIONS THAT MUST BE ADHERED TO PRIOR TO DRILLING TO INTERMEDIATE CASING POINT.
DRILLING EMERGENCY CALL LISTS:	INCLUDED ARE THE TELEPHONE NUMBERS OF ALL PERSONS TO BE CONTACTED SHOULD AN EMERGENCY EXIST.
BRIEFING:	THIS SECTION DEALS WITH THE BRIEFING OF ALL PEOPLE INVOLVED IN THE DRILLING OPERATION.
PUBLIC SAFETY:	PUBLIC SAFETY PERSONNEL WILL BE MADE AWARE OF THE DRILLING OF THIS WELL.
CHECK LISTS:	STATUS CHECK LISTS AND PROCEDURAL CHECK LISTS HAVE BEEN INCLUDED TO INSURE ADHERENCE TO THE PLAN.
GENERAL INFORMATION:	A GENERAL INFORMATION SECTION HAS BEEN INCLUDED TO SUPPLY SUPPORT INFORMATION.

EMERGENCY PROCEDURES

A. IN THE EVENT OF ANY EVIDENCE OF H2S LEVEL ABOVE 10 PPM, TAKE THE FOLLOWING STEPS:

1. SECURE BREATHING EQUIPMENT.
2. ORDER NON-ESSENTIAL PERSONNEL OUT OF DANGER ZONE.
3. TAKE STEPS TO DETERMINE IF THE H2S LEVEL CAN BE CORRECTED OR SUPPRESSED AND, IF SO, PROCEED IN NORMAL OPERATION.

B. IF UNCONTROLLABLE CONDITIONS OCCUR:

1. TAKE STEPS TO PROTECT AND/OR REMOVE ANY PUBLIC IN THE DOWN-WIND AREA FROM THE RIG – PARTIAL EVACUATION AND ISOLATION. NOTIFY NECESSARY PUBLIC SAFETY PERSONNEL AND THE BUREAU OF LAND MANAGEMENT OF THE SITUATION.
2. REMOVE ALL PERSONNEL TO SAFE BREATHING AREA.
3. NOTIFY PUBLIC SAFETY PERSONNEL TO SAFE BREATHING AREA.
4. PROCEED WITH BEST PLAN (AT THE TIME) TO REGAIN CONTROL OF THE WELL. MAINTAIN TIGHT SECURITY AND SAFETY PROCEDURES.

C. RESPONSIBILITY:

1. DESIGNATED PERSONNEL.
   a. SHALL BE RESPONSIBLE FOR THE TOTAL IMPLEMENTATION OF THIS PLAN.
   b. SHALL BE IN COMPLETE COMMAND DURING ANY EMERGENCY.
   c. SHALL DESIGNATE A BACK-UP.

EMERGENCY PROCEDURES

*(Procedures are the same for both Drilling and Tripping)

ALL PERSONNEL:
1. ON ALARM, DON ESCAPE UNIT AND REPORT IN UP WIND BRIEFING AREA.
2. CHECK STATUS OF PERSONNEL (BUDDY SYSTEM).
3. SECURE BREATHING EQUIPMENT.
4. AWAIT ORDERS FROM SUPERVISOR.

DRILLING FOREMAN:
1. REPORT TO UP WIND BRIEFING AREA.
2. DON BREATHING EQUIPMENT AND RETURN TO POINT OF RELEASE WITH TOOL PUSHER OR DRILLER (BUDDY SYSTEM).
3. DETERMINE H2S CONCENTRATIONS.
4. ASSESS SITUATION AND TAKE CONTROL MEASURES.

TOOL PUSHER:
1. REPORT TO UP WIND BRIEFING AREA.
2. DON BREATHING EQUIPMENT AND RETURN TO POINT OF RELEASE WITH DRILLING FOREMAN OR DRILLER (BUDDY SYSTEM).
3. DETERMINE H2S CONCENTRATION.
4. ASSESS SITUATION AND TAKE CONTROL MEASURES.

DRILLER:

1. DON ESCAPE UNIT.
2. CHECK MONITOR FOR POINT OF RELEASE.
3. REPORT TO BRIEFING AREA.
4. CHECK STATUS OF PERSONNEL (IN AN ATTEMPT TO RESCUE, USE THE BUDDY SYSTEM).
5. ASSIGNS LEAST ESSENTIAL PERSON TO NOTIFY DRILLING FOREMAN AND TOOL PUSHER BY QUICKEST MEANS IN CASE OF THEIR ABSENCE.
6. ASSUMES THE RESPONSIBILITIES OF THE DRILLING FORMAN AND TOOL PUSHER UNTIL THEY ARRIVE SHOULD THEY BE ABSENT.

EMERGENCY PROCEDURES

DERRICK MAN
FLOOR MAN #1
FLOOR MAN #2

1. WILL REMAIN IN BRIEFING AREA UNTIL INSTRUCTED BY SUPERVISOR.

MUD ENGINEER:

1. REPORT TO BRIEFING AREA.
2. WHEN INSTRUCTED, BEGIN CHECK OF MUD FOR PH AND H2S LEVEL. (GARETT GAS TRAIN.)

SAFETY PERSONNEL:

1. MASK UP AND CHECK STATUS OF ALL PERSONNEL AND SECURE OPERATIONS AS INSTRUCTED BY DRILLING FOREMAN AND REPORT TO BRIEFING AREA.

TAKING A KICK

WHEN TAKING A KICK DURING AN H2S EMERGENCY, ALL PERSONNEL WILL FOLLOW STANDARD BOP PROCEDURES AFTER REPORTING TO BRIEFING AREA AND MASKING UP.

OPEN-HOLE LOGGING

ALL UNNECESSARY PERSONNEL OFF FLOOR. DRILLING FOREMAN AND SAFETY PERSONNEL SHOULD MONITOR CONDITION, ADVISE STATUS AND DETERMINE NEED FOR USE OF AID EQUIPMENT.

RUNNING CASING OR PLUGGING

FOLLOWING HE AME "TRIPPING" PROCEDURE AS ABOVE. DRILLING FOREMAN AND SAFETY PERSONNEL SHOULD DETERMINE IF ALL PERSONNEL HAVE ACCESS TO PROTECTIVE EQUIPMENT.

IGNITION PROCEDURES

THE DECISION TO IGNITE THE WELL IS THE RESPONSIBILITY OF COMPANY FOREMAN. IN THE EVENT HE IS INCAPACITATED, IT BECOMES THE RESPONSIBILITY OF THE CONTRACT RIG TOOL PUSHER. THE DECISION SHOULD BE MADE ONLY AS A LAST RESORT AND IN A SITUATION WHERE IT IS CLEAR THAT:

1. HUMAN LIFE AND PROPERTY ARE ENDANGERED.
2. THERE IS NO HOPE CONTROLLING THE BLOWOUT UNDER THE PREVAILING CONDITIONS AT THE WELL.

NOTIFY THE DISTRICT OFFICE IF TIME PERMITS, BUT DO NOT DELAY IF HUMAN LIFE IS IN DANGER.

INITIATE FIRST PHASE OF EVACUATION PLAN.

IGNITION PROCEDURES

INSTRUCTIONS FOR IGNITING THE WELL

1. TWO PEOPLE ARE REQUIRED FOR THE ACTUAL IGNITING OPERATION. THEY MUST WEAR SELF-CONTAINED BREATHING UNITS AND HAVE SAFETY ROPE ATTACHED. ONE MAN (TOOL PUSHER OR SAFETY ENGINEER) WILL CHECK THE ATMOSPHERE FOR EXPLOSIVE GASES WITH THE EXPLOSIMETER. THE OTHER MAN (DRILLING FOREMAN) IS RESPONSIBLE FOR IGNITING THE WELL.
2. PRIMARY METHOD TO IGNITE: 25 MM FLARE GUN WITH RANGE OF APPROXIMATELY 500 FEET.
3. IGNITE UP WIND AND DO NOT APPROACH ANY CLOSER THAN IS WARRANTED.
4. SELECT THE IGNITION SITE BEST FOR PROTECTION, AND WHICH OFFERS AN EASY ESCAPE ROUTE.
5. BEFORE FIRING, CHECK FOR PRESENCE OF COMBUSTIBLE GAS.
6. AFTER LIGHTING, CONTINUE EMERGENCY ACTION AND PROCEDURE AS BEFORE.
7. ALL UNASSIGNED PERSONNEL WILL LIMIT THEIR ACTIONS TO THOSE DIRECTED BY THE DRILLING FOREMAN.

REMEMBER: AFTER WELL IS IGNITED, BURNING HYDROGEN SULFIDE WILL CONVERT TO SULFUR DIOXIDE, WHICH IS ALSO HIGHLY TOXIC. DO NOT ASSUME THE AREA IS SAFE AFTER THE WELL IS IGNITED.

TRAINING REQUIREMENTS

WHEN WORKING IN AN AREA WHERE HYDROGEN SULFIDE GAS (H2S) MIGHT BE ENCOUNTERED, DEFINITE TRAINING REQUIREMENTS MUST BE CARRIED OUT. ALL COMPANIES WILL INSURE THAT ALL PERSONNEL AT THE WELL SITE WILL HAVE HAD ADEQUATE TRAINING IN THE FOLLOWING:

1. HAZARDS AND CHARACTERISTICS OF H2S.
2. PHYSICAL EFFECTS OF HYDROGEN SULFIDE ON THE HUMAN BODY.
3. TOXICITY OF HYDROGEN SULFIDE AND SULFUR DIOXIDE.
4. H2S DETECTION.
5. EMERGENCY RESCUE.
6. RESUSCITATORS.
7. FIRST AID AND ARTIFICIAL RESPIRATION.
8. EFFECTS OF H2S ON METALS.
9. LOCATION SAFETY.

SERVICE COMPANY AND VISITING PERSONNEL

A. EACH SERVICE COMPANY THAT WILL BE ON THIS WELL WILL BE NOTIFIED IF THE ZONE CONTAINS H2S.

B. EACH SERVICE COMPANY MUST PROVIDE FOR THE TRAINING AND EQUIPMENT OF THEIR EMPLOYEES BEFORE THEY ARRIVE AT THE WELL SITE.

C. EACH SERVICE COMPANY WILL BE EXPECTED TO ATTEND A WELL SITE BRIEFING.

EMERGENCY EQUIPMENT REQUIREMENTS

1. SIGNS

A. ONE SIGN LOCATED AT LOCATION ENTRANCE WITH THE FOLLOWING LANGUAGE:

(LEASE)
CAUTION – POTENTIAL POISON GAS
HYDROGEN SULFIDE
NO ADMITTANCE WITHOUT AUTHORIZATION

2. WIND SOCK – WIND STREAMERS

A. ONE 36" (IN LENGTH) WIND SOCK LOCATED AT PROTECTION CENTER, AT HEIGHT VISIBLE FROM RIG FLOOR.
B. ONE 36" (IN LENGTH) WIND SOCK LOCATED AT HEIGHT VISIBLE FROM PIT AREAS.

3. HYDROGEN - SULFIDE DETECTOR AND ALARMS

A. H2S MONITORS WITH ALARMS WILL BE LOCATED ON THE RIG FLOOR, AT THE BELL NIPPLE, AND AT THE FLOW LINE. THESE MONITORS WILL BE SET TO ALARM AT 10 PPM WITH RED LIGHT, AND TO ALARM AT 15 PPM WITH RED LIGHT AND AUDIBLE ALARM.
B. HAND OPERATED DETECTORS WITH TUBES.
C. H2S MONITOR TESTER.

4. CONDITION FLAGS

A. ONE EACH OF GREEN, YELLOW, AND RED CONDITION FLAGS TO BE DISPLAYED TO DENOTE CONDITIONS.

GREEN – NORMAL CONDITIONS
YELLOW – POTENTIAL DANGER
RED – DANGER, H2S PRESENT

B. CONDITION FLAG SHALL BE POSTED AT LOCATION SIGN ENTRANCE.

5. AUXILIARY RESCUE EQUIPMENT

A. STRETCHER
B. 100' LENGTH OF 5/8" NYLON ROPE.

6. MUD INSPECTION DEVICES

GARRETT GAS TRAIN OR HACH TESTER FOR INSPECTION OF SULFIDE CONCENTRATION IN MUD SYSTEM.

7. FIRE EXTINGUISHER

ADEQUATE FIRE EXTINGUISHERS SHALL BE LOCATED AT STRATEGIC LOCATIONS.

8. BLOW OUT PREVENTION EQUIPMENT

THE WELL SHALL HAVE HYDRAULIC BOP EQUIPMENT FOR THE ANTICIPATED BHP OF 1500 PSI. EQUIPMENT IS TO BE TESTED ON INSTALLATION.

9. COMBUSTIBLE GAS DETECTOR

THERE SHALL BE ONE COMBUSTIBLE GAS DETECTOR ON LOCATION AT ALL TIMES.

10. BOP TESTING

BOP AND CHOKE LINE AND KILL LINE WILL BE TESTED.

11. AUDIO SYSTEM

RADIO COMMUNICATION WILL BE AVAILABLE AT THE RIG.
A. RIG FLOOR OR TRAILER
B. VEHICLE

12. SPECIAL CONTROL EQUIPMENT

A. HYDRAULIC BOP EQUIPMENT WITH REMOTE CONTROL ON GROUND.
B. ROTATING HEAD

EMERGENCY EQUIPMENT REQUIREMENTS

13. EVACUATION PLAN

EVACUATION ROUTES SHOULD BE ESTABLISHED PRIOR TO SPUDDING EACH WELL AND DISCUSSED WITH ALL RIG PERSONNEL.

14. DESIGNATED AREA

A. PARKING AND VISITOR AREA: ALL VEHICLES ARE TO BE PARKED AT A PREDETERMINED SAFE DISTANCE FROM THE WELLHEAD. THIS WILL BE THE DESIGNATED SMOKING AREA.

B. TWO BRIEFING AREAS ON EITHER SIDE OF THE LOCATION AT THE MAXIMUM ALLOWABLE DISTANCE FROM THE WELL BORE SO THEY OFFSET PREVAILING WINDS PERPENDICULARLY, OR AT A 45-DEGREE ANGLE IF WIND DIRECTION TENDS TO SHIFT IN THE AREA.

C. PROTECTION CENTERS OR IF A MOVABLE TRAILER IS USED, IT SHOULD BE DEPT UPWIND OF EXISTING WINDS. WHEN WIND IS FROM THE PREVAILING DIRECTIONS, BOTH PROTECTION CENTERS SHOULD BE ACCESSIBLE.

STATUS CHECK LIST

NOTE: ALL ITEMS ON THIS LIST MUST BE COMPLETED BEFORE DRILLING TO POSSIBLE FORMATIONS CONTAINING H2S.

1. SIGN AT LOCATION ENTRANCE.
2. TWO (2) WIND SOCKS LOCATED AS REQUIRED.
3. TWO (2) 30-MINUTE PRESSURE DEMAND AIR PACKS ON LOCATION FOR ALL RIG PERSONNEL AND MUD LOGGERS.
4. AIR PACK INSPECTED FOR READY USE.
5. SAFE BREATHING AREAS SET UP.
6. CONDITION FLAG ON LOCATION AND READY FOR USE.
7. H2S DETECTION SYSTEM HOOKED UP.
8. H2S ALARM SYSTEM HOOKED UP AND READY.
9. ALL RIG CREW AND SUPERVISORS TRAINED AS REQUIRED.
10. ALL OUTSIDE SERVICE CONTRACTORS ADVISED OF POTENTIAL H2S HAZARD ON WELL.
11. NO SMOKING SIGN POSTED.
12. HAND OPERATED H2S DETECTOR WITH TUBES ON LOCATION.

CHECKED BY:_____DATE:_____

PROCEDURAL CHECK LIST

PERFORM EACH TOUR:

1. CHECK FIRE EXTINGUISHERS TO SEE THAT THEY HAVE THE PROPER CHARGE.
2. CHECK BREATHING EQUIPMENT TO ENSURE THAT IT HAS NOT BEEN TAMPERED WITH.
3. MAKE SURE ALL THE H2S DETECTION SYSTEM IS OPERATIVE.

PERFORM EACH WEEK:

1. CHECK EACH PIECE OF BREATHING EQUIPMENT TO MAKE SURE THAT DEMAND REGULATOR IS WORKING. THIS REQUIRES THAT THE BOTTLE BE OPENED AND THE MASK ASSEMBLY BE PUT ON TIGHT ENOUGH SO THAT WHEN YOU INHALE, YOU RECEIVE AIR.
2. BLOW OUT PREVENTER SKILLS.
3. CHECK SUPPLY PRESSURE ON BOP ACCUMULATOR STAND BY SOURCE.

4. CHECK ALL SKA-PAC UNITS FOR OPERATION: DEMAND REGULATOR, ESCAPE BOTTLE AIR VOLUMES, SUPPLY BOTTLE OF AIR VOLUME.

5. CHECK BREATHING EQUIPMENT MASK ASSEMBLY TO SEE THAT STRAPS ARE LOOSENED AND TURNED BACK, READY TO PUT ON.

6. CHECK PRESSURE ON BREATHING EQUIPMENT AIR BOTTLES TO MAKE SURE THEY ARE CHARGED TO FULL VOLUME.

7. CONFIRM PRESSURE ON ALL SUPPLY AIR BOTTLES.

8. PERFORM BREATHING EQUIPMENT DRILLS WITH ON-SITE PERSONNEL.

9. CHECK THE FOLLOWING SUPPLIES FOR AVAILABILITY.

A. EMERGENCY TELEPHONE LIST.
B. HAND OPERATED H2S DETECTORS AND TUBES.

GENERAL EVACUATION PLAN

THE DIRECT LINES OF ACTION PREPARED BY INDIAN FIRE & SAFETY, INC. TO PROTECT THE PUBLIC FROM HAZARDOUS GAS SITUATIONS ARE AS FOLLOWS:

1. WHEN THE COMPANY APPROVED SUPERVISOR (DRILLING FOREMAN, CONSULTANT, RIG PUSHER, OR DRILLER) DETERMINES THE H2S GAS CANNOT BE LIMITED TO THE WELL LOCATION AND THE PUBLIC WILL BE INVOLVED, HE WILL ACTIVATE THE EVACUATION PLAN. ESCAPE ROUTES ARE NOTED ON AREA MAP.

2. "COMPANY MAN" OR DESIGNEE WILL NOTIFY LOCAL GOVERNMENT AGENCY THAT A HAZARDOUS CONDITION EXISTS AND EVACUATION NEEDS TO BE IMPLEMENTED.

3. COMPANY SAFETY PERSONNEL THAT HAVE BEEN TRAINED IN THE USE OF H2S DETECTION EQUIPMENT AND SELF-CONTAINED BREATHING EQUIPMENT WILL MONITOR H2S CONCENTRATIONS, WIND DIRECTIONS, AND AREA OF EXPOSURE. THEY WILL DELINEATE THE OUTER PERIMETER OF THE HAZARDOUS GAS AREA. EXTENSION TO THE EVACUATION AREA WILL BE DETERMINED FROM INFORMATION GATHERED.

4. LAW ENFORCEMENT PERSONNEL (STATE POLICE, POLICE DEPT., FIRE DEPT., AND SHERIFF'S DEPT.) WILL BE CALLED TO AID IN SETTING UP AND MAINTAINING ROAD BLOCKS. ALSO, THEY WILL AID IN EVACUATION OF THE PUBLIC IF NECESSARY.

IMPORTANT: LAW ENFORCEMENT PERSONNEL WILL NOT BE ASKED TO COME INTO A CONTAMINATED AREA. THEIR ASSISTANCE WILL BE LIMITED TO UNCONTAMINATED AREAS. CONSTANT RADIO CONTACT WILL BE MAINTAINED WITH THEM.

5. AFTER THE DISCHARGE OF GAS HAS BEEN CONTROLLED, COMPANY SAFETY PERSONNEL WILL DETERMINE WHEN THE AREA IS SAFE FOR RE-ENTRY.

EMERGENCY ACTIONS

WELL BLOWOUT – IF EMERGENCY

1. EVACUATE ALL PERSONNEL IF POSSIBLE.

2. IF SOUR GAS – EVACUATE RIG PERSONNEL.

3. IF SOUR GAS – EVACUATE PUBLIC WITHIN 1 HOUR RADIUS OF EXPOSURE.

4. DON SCBA AND RESCUE.

5. CALL 911 FOR EMERGENCY HELP (FIRE DEPT AND AMBULANCE) AND NOTIFY SR. DRILLING FOREMAN AND DISTRICT FOREMAN.

6. GIVE FIRST AID.

PERSON DOWN LOCATION/FACILITY

1. IF IMMEDIATELY POSSIBLE, CONTACT 911. GIVE LOCATION AND WAIT FOR CONFIRMATION.

2. DON SCBA AND RESCUE.

TOXIC EFFECTS OF HYDROGEN SULFIDE

HYDROGEN SULFIDE IS EXTREMELY TOXIC. THE ACCEPTABLE CEILING CONCENTRATION FOR EIGHT-HOUR EXPOSURE IS 10 PPM, WHICH IS .001% BY VOLUME. HYDROGEN SULFIDE IS HEAVIER THAN AIR (SPECIFIC GRAVITY – 1.192) AND COLORLESS. IT FORMS AN EXPLOSIVE MIXTURE WITH AIR BETWEEN 4.3 AND 46.0 PERCENT BY VOLUME. HYDROGEN SULFIDE IS ALMOST AS TOXIC AS HYDROGEN CYANIDE AND IS BETWEEN FIVE AND SIX TIMES MORE TOXIC THAN CARBON MONOXIDE. TOXICITY DATA FOR HYDROGEN SULFIDE AND VARIOUS OTHER GASES ARE COMPARED IN TABLE I. PHYSICAL EFFECTS AT VARIOUS HYDROGEN SULFIDE EXPOSURE LEVELS ARE SHOWN IN TABLE II.

TABLE I
TOXICITY OF VARIOUS GASES

COMMON NAME	CHEMICAL FORMULA	SPECIFIC GRAVITY (SC=1)	THRESHOLD LIMIT (1)	HAZARDOUS LIMIT (2)	LETHAL CONCENTRATION (3)
HYDROGEN CYANIDE	HCN	0.94	10 PPM	150 PPM/HR	300 PPM
HYDROGEN SULFIDE	H2S	1.18	10 PPM	250 PPM/HR	600 PPM
SULFUR DIOXIDE	SO2	2.21	5 PPM	-	1000 PPM
CHLORINE	CL2	2.45	1 PPM	4 PPM/HR	1000 PPM
CARBON MONOXIDE	CO	0.97	50 PPM	400 PPM/HR	1000 PPM
CARBON DIOXIDE	CO2	1.52	5000 PPM	5%	10%
METHANE	CH4	0.55	90,000 PPM	COMBUSTIBLE ABOVE 5% IN AIR	

1) THRESHOLD LIMIT – CONCENTRATION AT WHICH IT IS BELIEVED THAT ALL WORKERS MAY BE REPEATEDLY EXPOSED DAY AFTER DAY WITHOUT ADVERSE EFFECTS.

2) HAZARDOUS LIMIT – CONCENTRATION THAT WILL CAUSE DEATH WITH SHORT-TERM EXPOSURE.

3) LETHAL CONCENTRATION – CONCENTRATION THAT WILL CAUSE DEATH WITH SHORT-TERM EXPOSURE.

TOXIC EFFECTS OF HYDROGEN SULFIDE

TABLE II
PHYSICAL EFFECTS OF HYDROGEN SULFIDE

CONCENTRATION			PHYSICAL EFFECTS
PERCENT (%)	PPM	GRAINS 100 STD. FT3*	
0.001	10	00.65	Obvious and unpleasant odor.
0.002	20	01.30	Safe for 8 hours of exposure.
0.010	100	06.48	Kill smell in 3 – 15 minutes. May sting eyes and throat.
0.020	200	12.96	Kills smell shortly; Stings eyes and throat.
0.050	500	32.96	Dizziness; Breathing ceases in a few minutes; Needs prompt artificial respiration.
0.070	700	45.36	Unconscious quickly; Death will result if not rescued promptly.
0.100	1000	64.30	Unconscious at once; Followed by death within minutes.

*AT 15.00 PSIA AND 60'F.

USE OF SELF-CONTAINED BREATHING EQUIPMENT

1. WRITTEN PROCEDURES SHALL BE PREPARED COVERING SAFE USE OF SCBA'S IN DANGEROUS ATMOSPHERE, WHICH MIGHT BE ENCOUNTERED IN NORMAL OPERATIONS OR IN EMERGENCIES. PERSONNEL SHALL BE FAMILIAR WITH THESE PROCEDURES AND THE AVAILABLE SCBA.

2. SCBA'S SHALL BE INSPECTED FREQUENTLY AT RANDOM TO INSURE HAT THEY ARE PROPERLY USED, CLEANED, AND MAINTAINED.

3. ANYONE WHO MAY USE THE SCBA'S SHALL BE TRAINED IN HOW TO INSURE PROPER FACE-PIECE TO FACE SEAL. THEY SHALL WEAR SCBA'S IN NORMAL AIR AND THEN WEAR THEM IN A TEST ATMOSPHERE. (NOTE: SUCH ITEMS AS FACIAL HAIR {BEARD OR SIDEBURNS} AND EYEGLASSES WILL NOT ALLOW PROPER SEAL.) ANYONE THAT MAY BE REASONABLY EXPECTED TO WEAR SCBA'S SHOULD HAVE THESE ITEMS REMOVED BEFORE ENTERING A TOXIC ATMOSPHERE. A SPECIAL MASK MUST BE OBTAINED FOR ANYONE WHO MUST WEAR EYEGLASSES OR CONTACT LENSES.

4. MAINTENANCE AND CARE OF SCBA'S:

A. A PROGRAM FOR MAINTENANCE AND CARE OF SCBA'S SHALL INCLUDE THE FOLLOWING:

1. INSPECTION FOR DEFECTS, INCLUDING LEAK CHECKS.
2. CLEANING AND DISINFECTING.
3. REPAIR.
4. STORAGE.

B. INSPECTION; SELF-CONTAINED BREATHING APPARATUS FOR EMERGENCY USE SHALL BE INSPECTED MONTHLY FOR THE FOLLOWING PERMANENT RECORDS KEPT OF THESE INSPECTIONS.

1. FULLY CHARGED CYLINDERS.
2. REGULATOR AND WARNING DEVICE OPERATION.
3. CONDITION OF FACE PIECE AND CONNECTIONS.
4. ELASTOMER OR RUBBER PARTS SHALL BE STRETCHED OR MASSAGED TO KEEP THEM PLIABLE AND PREVENT DETERIORATION.

C. ROUTINELYUSED SCBA'S SHALL BE COLLECTED, CLEANED AND DISINFECTED AS FREQUENTLY AS NECESSARY TO INSURE PROPER PROTECTION IS PROVIDED.

USE OF SELF-CONTAINED BREATHING EQUIPMENT

5. PERSONS ASSIGNED TASKS THAT REQUIRES USE OF SELF- CONTAINED BREATHING EQUIPMENT SHALL BE CERTIFIED PHYSICALLY FIT FOR BREATHING EQUIPMENT USAGE BY THE LOCAL COMPANY PHYSICIAN AT LEAST ANNUALLY.

6. SCBA'S SHOULD BE WORN WHEN:

A. ANY EMPLOYEE WORKS NEAR THE TOP OR ON TOP OF ANY TANK UNLESS TEST REVEALS LESS THAN 10 PPM OF H2S.

B. WHEN BREAKING OUT ANY LINE WHERE H2S CAN REASONABLY BE EXPECTED.

C. WHEN SAMPLING AIR IN AREAS TO DETERMINE IF TOXIC CONCENTRATIONS OF H2S EXISTS.

D. WHEN WORKING IN AREAS WHERE OVER 10 PPM H2S HAS BEEN DETECTED.

E. AT ANY TIME THERE IS A DOUBT AS TO THE H2S LEVEL IN THE AREA TO BE ENTERED.

RESCUE
FIRST AID FOR H2S POISONING

DO NOT PANIC!

REMAIN CALM – THINK!

1. HOLD YOUR BREATH. (DO NOT INHALE FIRST; STOP BREATHING.)

2. PUT ON BREATHING APPARATUS.

3. REMOVE VICTIM(S) TO FRESH AIR AS QUICKLY AS POSSIBLE. (GO UP-WIND FROM SOURCE OR AT RIGHT ANGLE TO THE WIND. NOT DOWN WIND.)

4. BRIEFLY APPLY CHEST PRESSURE – ARM LIFT METHOD OF ARTIFICIAL RESPIRATION TO CLEAN THE VICTIM'S LUNGS AND TO AVOID INHALING ANY TOXIC GAS DIRECTLY FROM THE VICTIM'S LUNGS.

5. PROVIDE FOR PROMPT TRANSPORTATION TO THE HOSPITAL, AND CONTINUE GIVING ARTIFICIAL RESPIRATION IF NEEDED.

6. HOSPITAL(S) OR MEDICAL FACILITIES NEED TO BE INFORMED, BEFORE-HAND, OF THE POSSIBILITY OF H2S GAS POISONING – NO MATTER HOW REMOTE THE POSSIBILITY IS.

7. NOTIFY EMERGENCY ROOM PERSONNEL THAT THE VICTIM(S) HAS BEEN EXPOSED TO H2S GAS.

BESIDES BASIC FIRST AID, EVERYONE ON LOCATION SHOULD HAVE A GOOD WORKING KNOWLEDGE OF ARTIFICIAL RESPIRATION, AS WELL AS FIRST AID FOR EYES AND SKIN CONTACT WITH LIQUID H2S. EVERYONE NEEDS TO MASTER THESE NECESSARY SKILLS.

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Nadel & Gussman Heyco LLC
LEASE NO.:	NM111242
WELL NAME & NO.:	9-Pearsall 6 Federal
SURFACE HOLE FOOTAGE:	1750' FSL & 1060' FEL
BOTTOM HOLE FOOTAGE	' F L & ' F L
LOCATION:	Section 6, T. 18 S., R 32 E., NMPM
COUNTY:	Lea County, New Mexico

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.

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)

Mitigation Measures: The mitigation measures include the Pecos District Conditions of Approval, the standard stipulations for the Lesser Prairie Chicken, the standard stipulation for permanent resource roads.

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, geophysical exploration other than 3-D operations, 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. 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 ft. from the source of the noise.

Pearsall 6 Federal # 9: Closed Loop System V-Door East

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 (505) 234-5972 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 stockpile the topsoil of the well pad. The topsoil shall not be used to backfill the reserve pit and will be used for interim and final reclamation.

C. Closed Loop System

Pearsall 6 Federal # 9: Closed Loop System V-Door East

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

If the operator elects to surface the access road and/or well pad, mineral materials extracted during construction of the reserve pit may be used for surfacing the well pad and access road and other facilities on the lease.

Payment shall be made to the BLM prior to removal of any additional federal mineral materials from any site other than the reserve pit. Call the
Carlsbad Field Office at (505) 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. 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 thirty (30) 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.

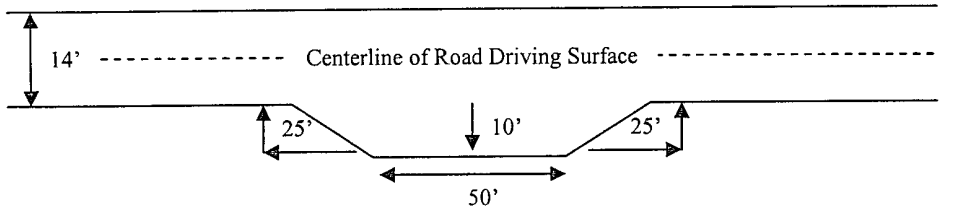
The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing 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 be constructed on all blind curves. Turnouts shall conform to the following diagram:

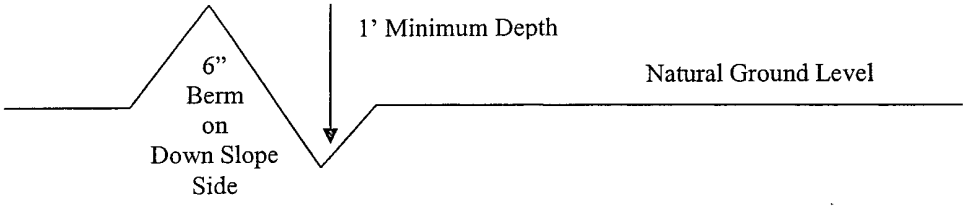
Standard Turnout – Plan View



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:

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

Culvert Installations
Appropriately sized culvert(s) shall be installed at the deep waterway channel flow crossing.

Cattleguards
An appropriately sized cattleguard(s) sufficient to carry out the project shall be installed and maintained at fence crossing(s).

Any existing cattleguard(s) on the access road 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 cattleguard(s) that are in place and are utilized during lease operations.

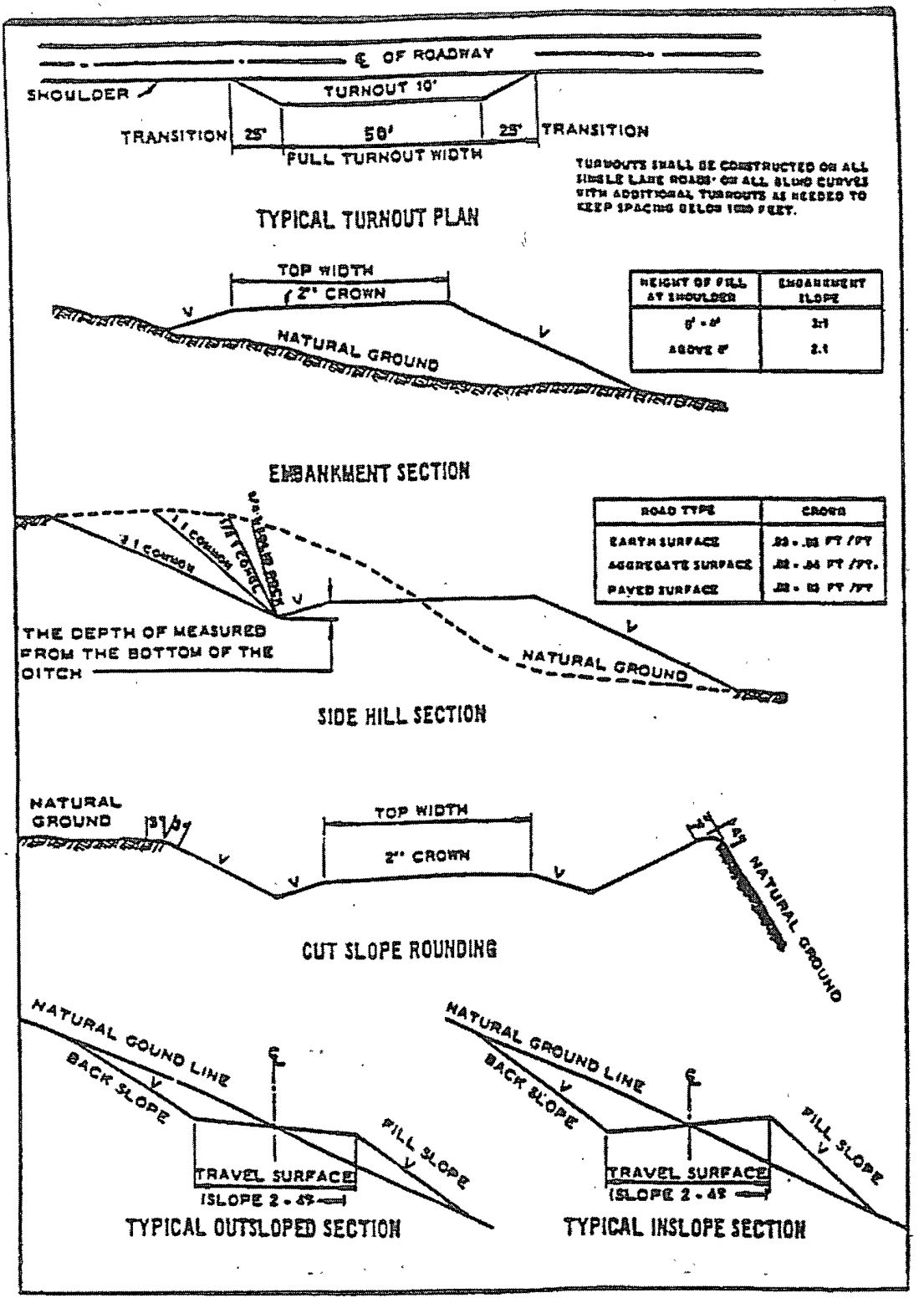
A gate shall be constructed and fastened securely to H-braces.

Fence Requirement
Where entry is required 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 fence(s).

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

Figure 1 – Cross Sections and Plans For Typical Road Sections



VII. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

The BLM is to be notified a minimum of 4 hours in advance for a representative to witness:

a. Spudding well
b. Setting and/or Cementing of all casing strings
c. BOPE tests

☒ **Eddy County**
Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220, (575) 361-2822

1. A Hydrogen Sulfide (H2S) Drilling Plan should be activated 500 feet prior to drilling into the **Queen** formation. **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.

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 are located, this does not include the dog house or stairway area.

B. CASING

Changes to the approved APD casing and cement program require submitting a sundry and receiving approval prior to work. Failure to obtain approval prior to work will result in an Incident of Non-Compliance being issued.

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

Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string.

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

Possible lost circulation in the Grayburg and San Andres formations.
Possible water flows in the Salado group and the Premier member of the Grayburg formation.

1. The **13-3/8** inch surface casing shall be set **at approximately 1040 feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt)** and cemented to the surface.

    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 a surface log readout will be used or a cement bond log shall be run to verify the top of the cement.

    b. Wait on cement (WOC) time for a primary cement job will be a minimum 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement).

    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.

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

    ☒ Cement to surface. If cement does not circulate see B.1.a-d above.
    This casing is to be set in the Seven Rivers formation at approximately 3100' as proposed, but should not be set in the Bowers Sand.

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

    ☒ Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification.

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 RP 53 Sec. 17.

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

    a. The tests shall be done by an independent service company.

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

    c. 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.

    d. 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.

    e. A variance to test the surface casing and BOP/BOPE **(entire system)** to the reduced pressure of **1000** psi with the rig pumps is approved.

D. DRILL STEM TEST

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

WWI 071508

VIII. 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.

Containment Structures
The containment structure shall be constructed to hold the capacity of the entire contents of the largest tank, plus 24 hour production, unless more stringent protective requirements are deemed necessary by the Authorized Officer.

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, Munsell Soil Color Chart # 5Y 4/2

B. PIPELINES

C. ELECTRIC LINES

IX. INTERIM RECLAMATION & RESERVE PIT CLOSURE

A. INTERIM RECLAMATION

If the well is a producer, interim reclamation shall be conducted on the well site in accordance with the orders of the Authorized Officer. The operator shall submit a Sundry Notices and Reports on Wells (Notice of Intent), Form 3160-5, prior to conducting 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.

The operators should work with BLM surface management specialists to devise the best strategies to reduce the size of the location. Any reductions 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 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.

Seed Mixture for LPC Sand/Shinnery Sites

The 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 will be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will 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). The 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. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will 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
**Four-winged Saltbush	5lbs/A

* This can be used around well pads and other areas where caliche cannot be removed.

*Pounds of pure live seed:

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

(Insert Seed Mixture Here)

X. FINAL ABANDONMENT & REHABILITATION REQUIREMENTS

Upon abandonment of the well and/or when the access road is no longer in service the Authorized Officer shall issue instructions and/or orders for surface reclamation and restoration of all disturbed areas.

On private surface/federal mineral estate land the reclamation procedures on the road and well pad shall be accomplished in accordance with the private surface land owner agreement.