

OCD-ARTESIA

HIGH CAVE KARST

FORM APPROVED
OMB No. 1004-0136
Expires January 31, 2004

JUL 24 2007
OCD-ARTESIA

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of Work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		7. If Unit or CA Agreement, Name and No. NMNM01094	
1b. Type of Well: <input type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input checked="" type="checkbox"/> Other <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		8. Lease Name and Well No. Russell USA# 73 303506	
2. Name of Operator Apollo Energy, L.P. 248192		9. API Well No. 30-015-36106	
3a. Address 6363 Woodway, Suite 1100, Houston TX 77057		10. Field and Pool, or Exploratory Russell Yates 52820	
3b. Phone No. (include area code) (337)-502-5227		11. Sec., T., R., M., or Blk. and Survey or Area Sec. 13-20S-28E	
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface 2580' From the West Line and 1550' From the South Line K At proposed prod. zone Same CAPITAN CONTROLLED WATER BASIN		12. County or Parish Eddy County	
14. Distance in miles and direction from nearest town or post office* 8 miles North/Northeast of Carlsbad, New Mexico		13. State NM	
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 1550'		16. No. of Acres in lease 1200 Acres	
17. Spacing Unit dedicated to this well 320 Acres		18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 260'	
19. Proposed Depth 1200'		20. BLM/BIA Bond No. on file NMB000458	
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3250'		22. Approximate date work will start* July 1st, 2007	
23. Estimated duration 7 - 14 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:

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

25. Signature: [Signature] Name (Printed/Typed): Scott St. John Date: 6/19/07

Title: Agent for Apollo Energy, L.P.

Approved by (Signature): /s/ James Stovall Name (Printed/Typed): /s/ James Stovall Date: JUL 20 2007

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 U.S.C. Section 1001 and Title 43 U.S.C. 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 reverse)

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

SUBJECT TO LIKE
APPROVAL BY STATE

APPROVAL SUBJECT TO
GENERAL REQUIREMENTS
AND SPECIAL STIPULATIONS
ATTACHED

WEX - 12887

DISTRICT I
1625 N. French Dr., Hobbs, NM 88240

State of New Mexico

Form C-102

Energy, Minerals, and Natural Resources Department

Revised October 12, 20

DISTRICT II

1301 W. Grand Avenue, Artesia, NM 88210 OIL CONSERVATION DIVISION

Submit to Appropriate District Office

State Lease - 4 co

Fee Lease - 3 co

DISTRICT III

1000 Rio Brazos Rd., Aztec, NM 87410

1220 South St. Francis Dr.

Santa Fe, New Mexico 87505

DISTRICT IV

1220 S. St. Francis Dr., Santa Fe, NM 87505

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number	² Pool Code	³ Pool Name
⁴ Property Code	⁵ Property Name RUSSELL USA	⁶ Well Number 73
⁷ OGRID No.	⁸ Operator Name APOLLO ENERGY, L.P.	⁹ Elevation 3250'

¹⁰ Surface Location

UL or lot no. K	Section 13	Township 20 SOUTH	Range 28 EAST, N.M.P.M.	Lot Idn	Feet from the North/South line 1550'	Feet from the East/West line SOUTH	Feet from the East/West line 2580'	County EDDY
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¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the North/South line	Feet from the East/West line	County
¹² Dedicated Acres 320	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.				

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

¹⁶

Exhibit A - Well Location and Acreage Dedication Plat

NAD 27 NME ZONE
X = 562429
Y = 571344
LAT.: N 32.5705687
LONG.: W 104.1306807

2580'

1550'

¹⁷ OPERATOR CERTIFICATION

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

SCOTT ST. JOHN WILL SIGN
Signature: *Thomas G. W. GHI* Date: 7/16/07
Printed Name: Thomas G. W. GHI

¹⁸ SURVEYOR CERTIFICATION

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

MAY 7 2007
Date of Survey
Signature and Seal of Professional Surveyor
V. L. BEZNER
Certificate Number: V. L. BEZNER R.P.S. #7920
JOB #123699-74 SW / E.U.O.

PLAT SHOWING PROPOSED WELL LOCATION IN
SECTION 13, T-20-S, R-28-E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

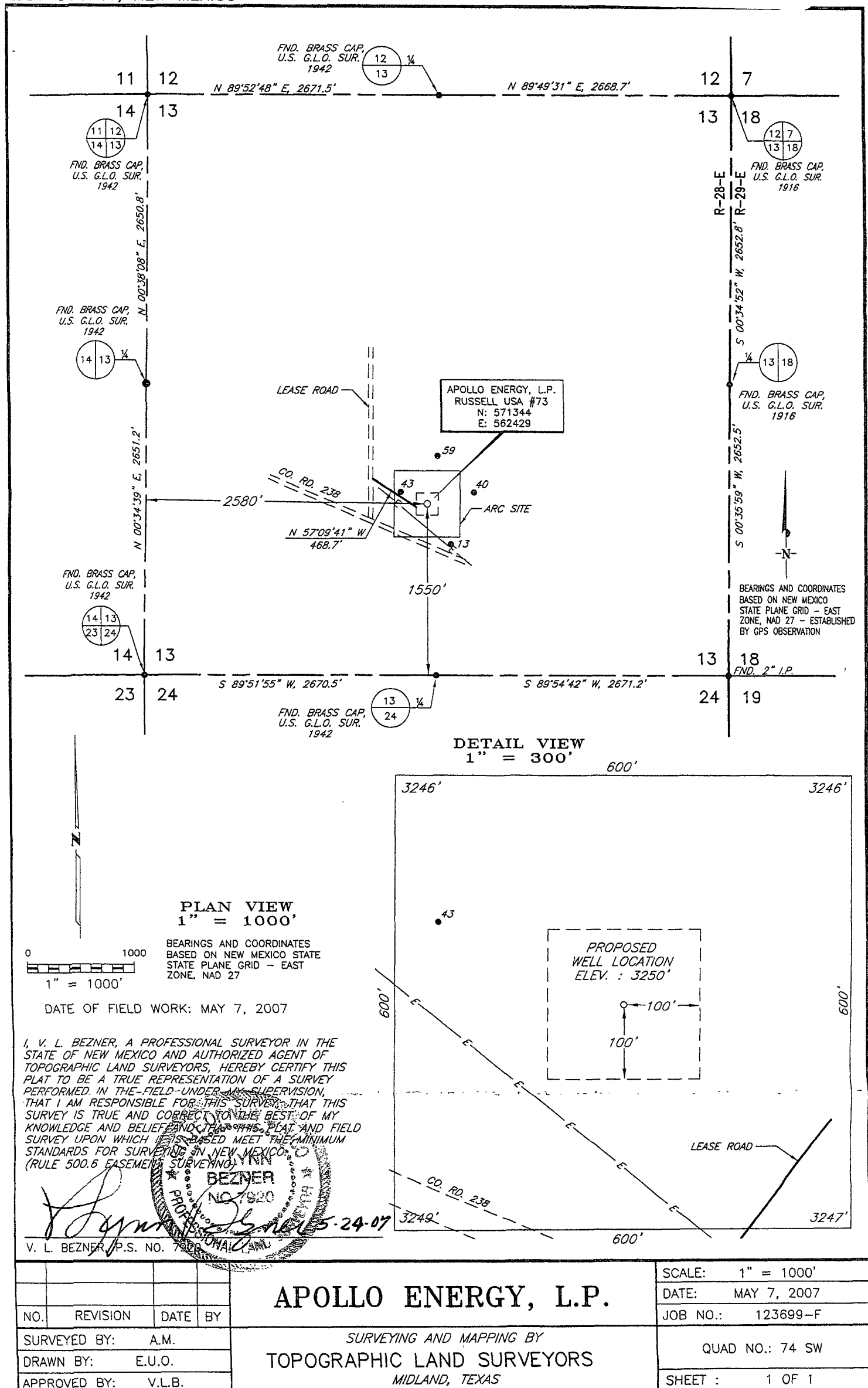
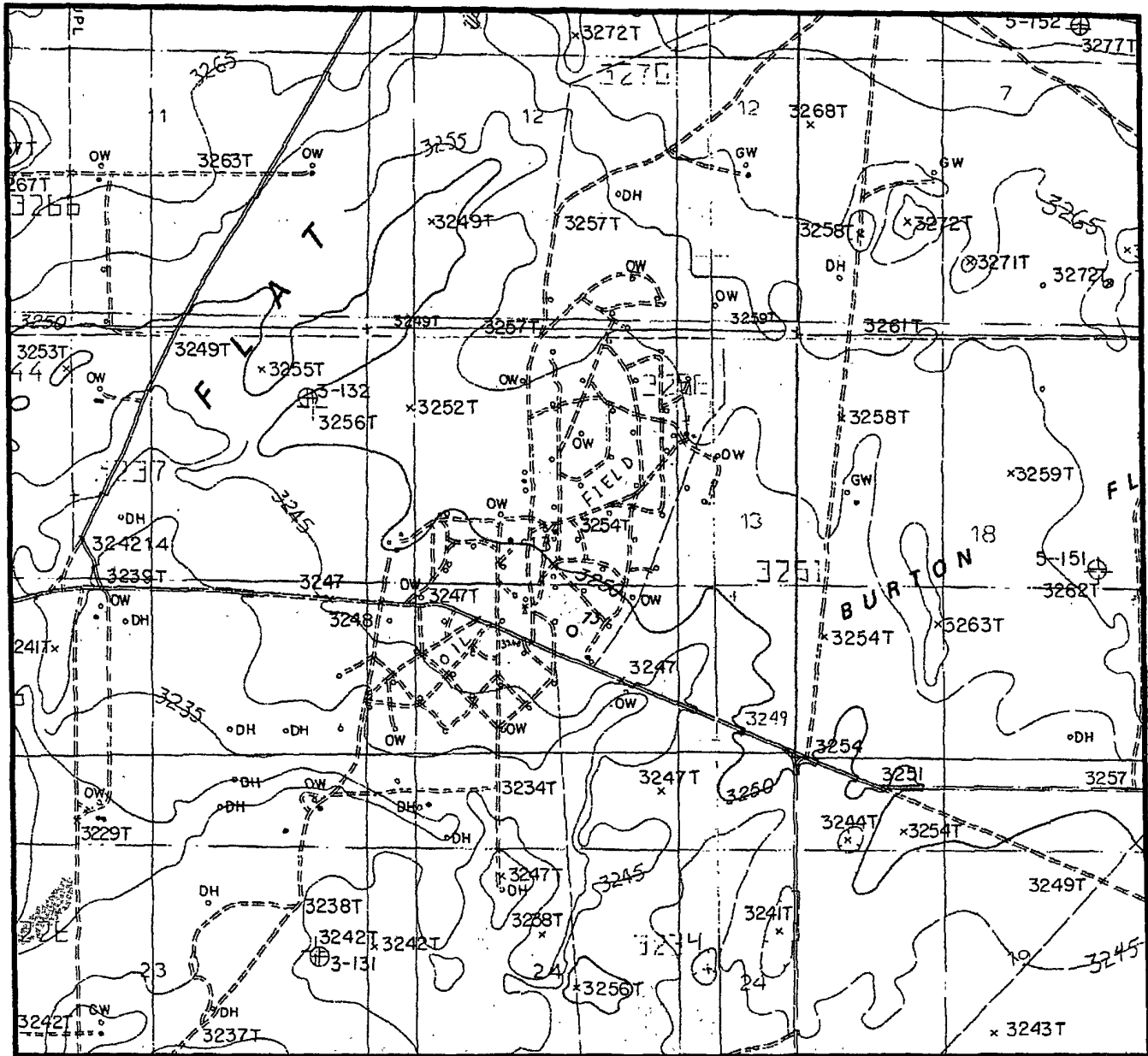


Exhibit C
LOCATION & ELEVATION VERIFICATION MAP



SCALE : 1" = 2000'

CONTOUR INTERVAL 10'

SECTION 13 TWP 20-S RGE 28-E

SURVEY NEW MEXICO PRINCIPAL MERIDIAN

COUNTY EDDY STATE NM

DESCRIPTION 1550' FSL & 2580' FWL

ELEVATION 3250'

OPERATOR **APOLLO ENERGY, L.P.**

LEASE RUSSELL USA #73

U.S.G.S. TOPOGRAPHIC MAP

ANGEL DRAW, NEW MEXICO

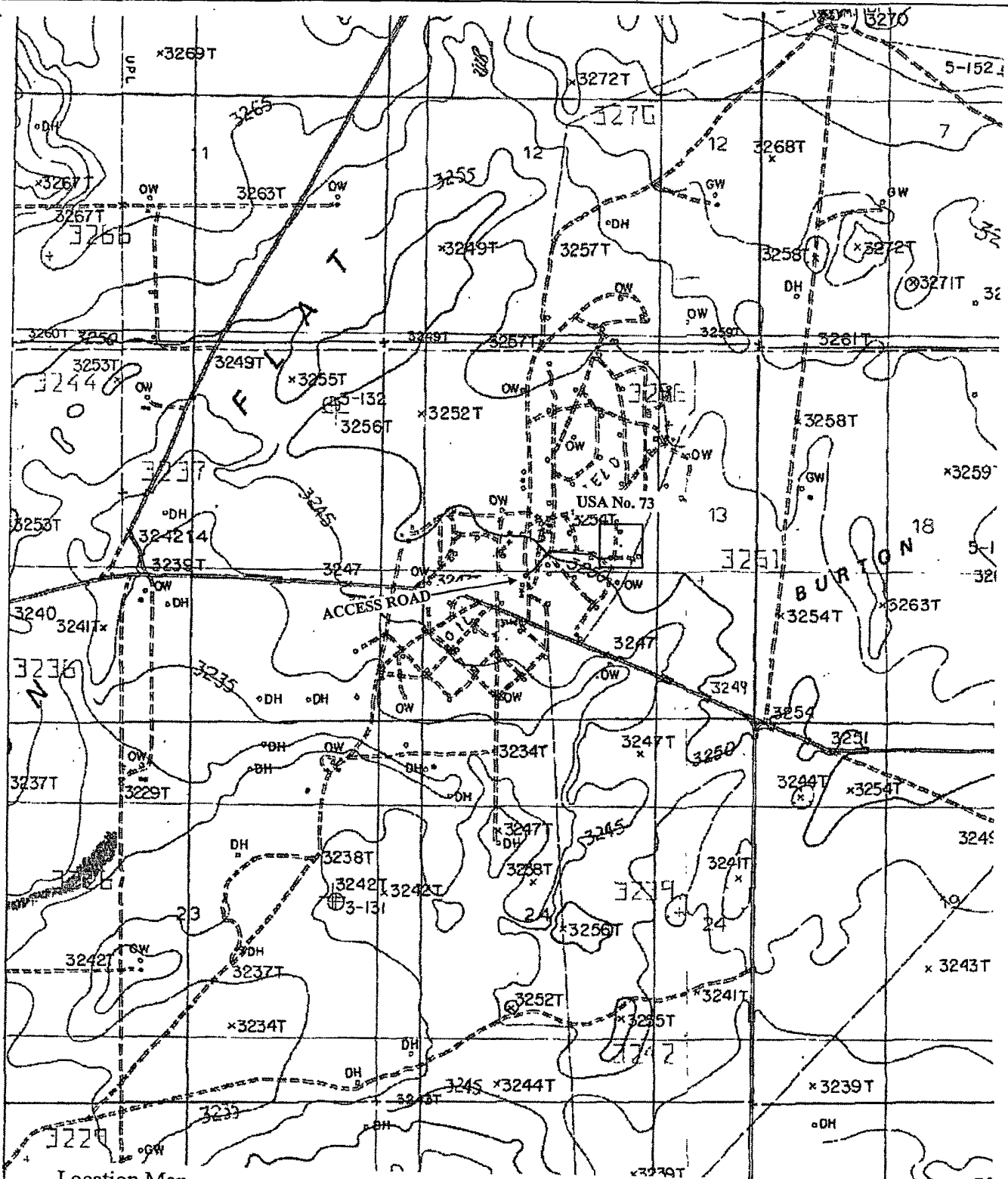
SCALED LAT. LAT.: N 32.5705687

LONG. LONG.: W 104.1306807

TOPOGRAPHIC LAND SURVEYORS

Surveying & Mapping for the Oil & Gas Industry

2903 N. BIG SPRING
MIDLAND, TX. 79705
(800) 767-1653



Location Map

Russell USA well No. 73, pad and access road for Apollo Energy, L.P. in Section 13, T 20S, R 28E, NMPM, Eddy County, NM

Map Reference: USGS 7.5' Series; ANGEL DRAW, NM (Prov. Ed. 1985) 32104-E2

BAS 05-07-18

SCALE 1:24000

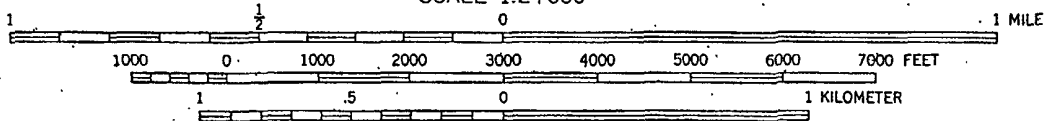
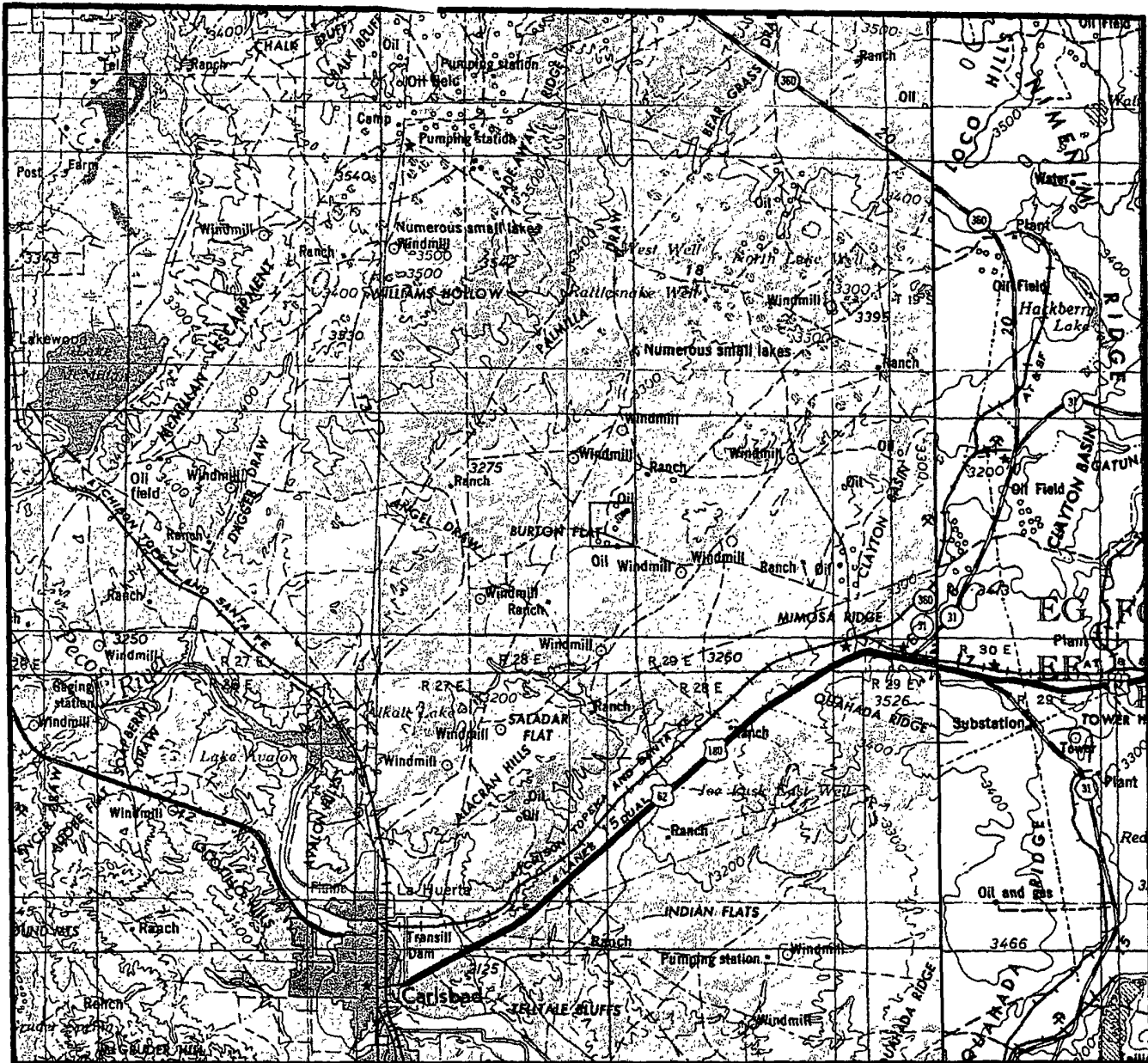


Exhibit G VICINITY MAP



SECTION 13 TWP 20-S RGE 28-E
 SURVEY NEW MEXICO PRINCIPAL MERIDIAN
 COUNTY EDDY STATE NM
 DESCRIPTION 1550' FSL & 2580' FWL
 OPERATOR APOLLO ENERGY, L.P.
 LEASE RUSSELL USA #73



DISTANCE & DIRECTION FROM THE JUNCTION OF HWY. 62/180
 IN CARLSBAD, GO NORTH 8.0 MILES ON MANGUM RD., THENCE
 WEST 0.5 MILES ON CO. RD. 238, THENCE NORTH 0.1 MILES
 ON LEASE ROAD TO A POINT $\pm 300'$ EAST OF THE LOCATION.

TOPOGRAPHIC LAND SURVEYORS

Surveying & Mapping for the Oil & Gas Industry

This location has been very carefully staked on the ground according to the best official survey records, maps, and other data available to us.

Review this plot and notify us immediately of any possible discrepancy.

1307 N. HOBART
 PAMPA, TX. 79065
 (800) 658-6382

6709 N. CLASSEN BLVD.
 OKLAHOMA CITY, OK. 73116
 (800) 654-3219

2903 N. BIG SPRING
 MIDLAND, TX. 79705
 (800) 767-1653

R 20 E

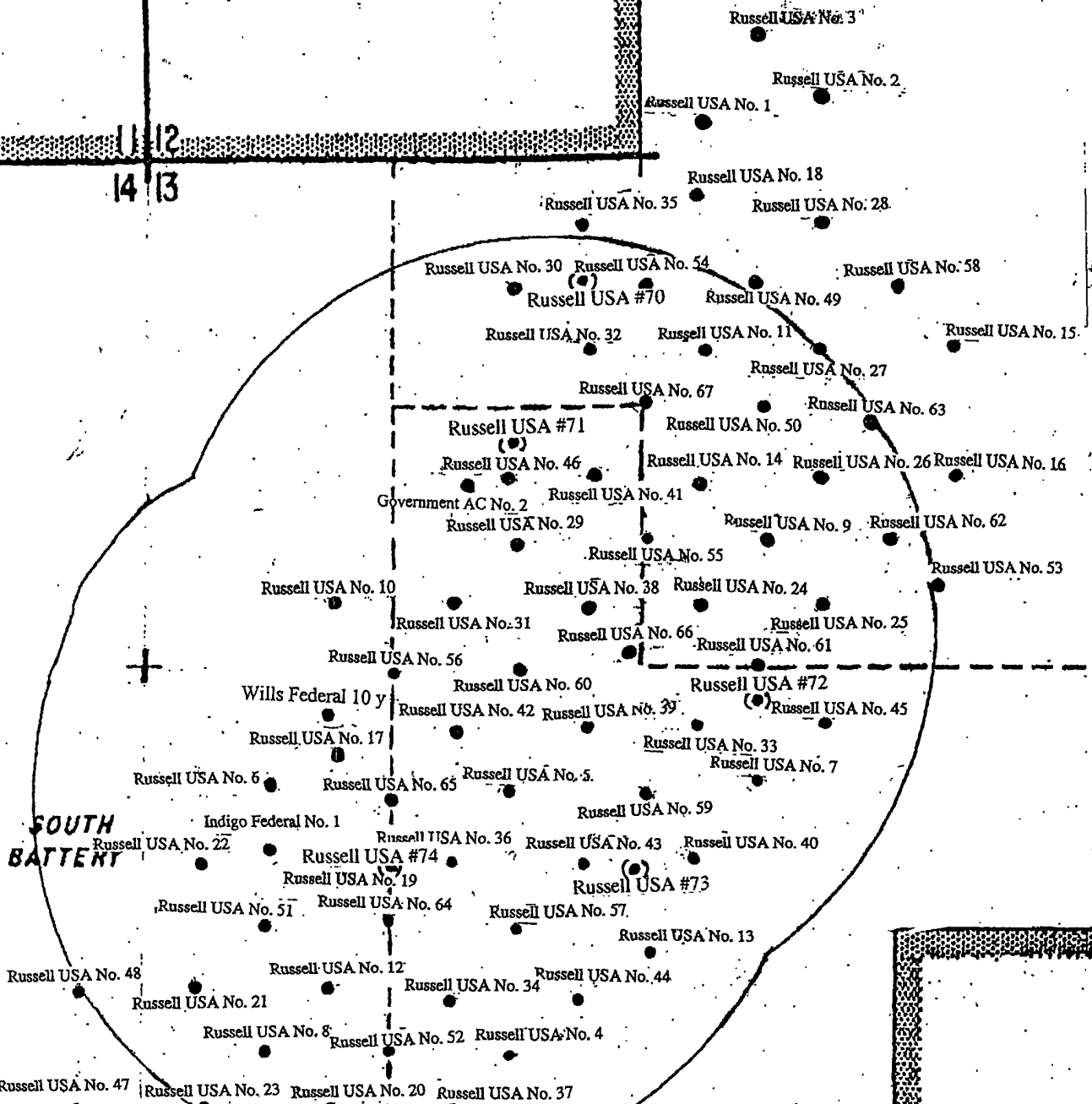


Exhibit I
Apollo Energy, L.P.
Russell Field
Area of Review Map

RUSSELL POOL

Apollo Energy, L.P.
Russell USA #73
Section 13-20S-28E, Eddy County, NM

Drilling Program

APOLLO ENERGY, L.P.

Russell USA #73

2580' FWL & 1550' FSL

Section 13-20S-28E Eddy County, New Mexico

Please address inquiries, questions, scheduling of meetings and deficiency statements, if any, to Scott St. John and/or Monica Smith at the address shown below:

**Reagan Smith Energy Solutions, Inc.
2525 NW Expressway, Suite 312
Oklahoma City, OK 73112
405-286-9326
sstjohn@rsenergysolutions.com**

Drilling Program
Apollo Energy, L.P.
Russell USA #73

2580' FWL & 1550' FSL
Section 13-20S-28E Eddy County, New Mexico

2.1 Location:

2580' FWL & 1550' FSL

2.2 Elevation Above Sea Level:

GR 3250'

2.3 Geologic Name of Surface Formation:

Permian Age

2.4 Drilling Tools and Associated Equipment:

Conventional rotary drilling rig using fluid will be used as a circulating medium for solids removal.

2.5 Proposed Drilling Depth:

1200'

2.6 Estimated Tops of Geological Markers:

Yates	725'
Seven Rivers	910'
Total Depth	1,200'

2.7 Estimated Depths of Anticipated Fresh Water, Oil, and Gas

Surface	Water	44' – 360'
Yates	Oil/Gas	750' – 800'
Seven Rivers	Oil/Gas	920' – 950'

Base to Treatable Water for well #73 is: 360'

Groundwater to be protected by 8-5/8" surface casing with cement circulated to the surface. Potentially productive horizons to be protected by 4-1/2" production casing with cement tied back to a minimum of the surface casing but with anticipation to circulate to surface.

see
COA
6

2.8 Casing Program

<u>Hole Size</u>	<u>Interval</u>	<u>Casing OD</u>	<u>Weight</u>	<u>Thread</u>	<u>Collar</u>	<u>Grade</u>
11"	0 - 385'	8-5/8"	24	STC	STC	J-55
6-3/4"	0 - 1200'	4-1/2"	9.5	STC	STC	J-55

2.9 Cementing & Setting Depth

Surface 8-5/8" - Cement 8-5/8", 24#, J-55 casing with 125 sx of Class "C" cement with 2% CaCl + 1/4 # /sx Flocele. Run Floatshoe and 5 centralizers. Casing specs: collapse resistance is 1370 psi; yield pressure is 2950 psi; Joint strength is 244,000 psi; body yield strength is 381,000.

Production 4-1/2" - Set 1,200' of 4-1/2" J-55 9.5# STC casing. Cement will consist of 150 sks of Class "C" cement with 2% gel, 5 # sx of salt and .75% CFR-2. Use guide shoe and float collar, and 10-12 centralizers where necessary. Use top and bottom rubber plugs, displace cement with clean, fresh water treated with 2% KCL. Casing specs: collapse resistance is 3310 psi; yield pressure is 4380 psi; Joint strength is 101,000 psi; body yield strength is 152,000.

2.10 Pressure Control Equipment

see COA →
An 8" 1000 psi working pressure B.O.P. will be installed. A choke manifold and accumulator with floor and remote operating stations and auxiliary power system. A Kelly cock will be installed and maintained in operable condition and a drill string safety valve in the open position will be available on the rig floor. BOP unit will be hydraulically operated. BOP will be nipples up on the 8-5/8" casing and will be operated at least once a day while drilling. No abnormal pressure or temperature is expected while drilling.

2.11 Proposed Mud Circulating System

Depth	Mud Wt	Viscosity	Fluid Loss	Type Mud
0 – 385'	8	33 - 35	NC	Spud with Bentonite/Soda Ash/Caustic slurry using a Fresh Water Gel. Set Surface Casing.
385' – 1200'	9.5 – 9.8	50 – 60, 45 SEC at TD	NC	Fresh water. Drill out using Brine Salt Gel to insure that salt and anhydrite sections do not wash

Open per Scott St. John 6/20/07 CR

The Mud System will be a closed system. All drill cuttings and liquid mud will be hauled to an approved site for disposal. Sufficient mud materials will be kept on location at all times in order to combat lost circulation, or unexpected kicks. The viscosity and water loss may have to be adjusted in order to meet these needs.

2.12 Evaluation Program:

1. **Samples:** None
2. **Electric Logging:** Dual Induction Tool with Gamma Ray; Density Neutron Porosity Log
3. **Coring:** Yates Formation
4. **Drill Stem Tests:** No DST's

2.13 Potential Hazards:

No abnormal pressures or temperatures or H₂S has are expected. Adequate flare lines will be installed off the mud / gas separator where gas may be flared safely. All personnel will be familiar with all aspects of safe operation of equipment being used. Estimated BHP 300 PSI, estimated BHT 80.

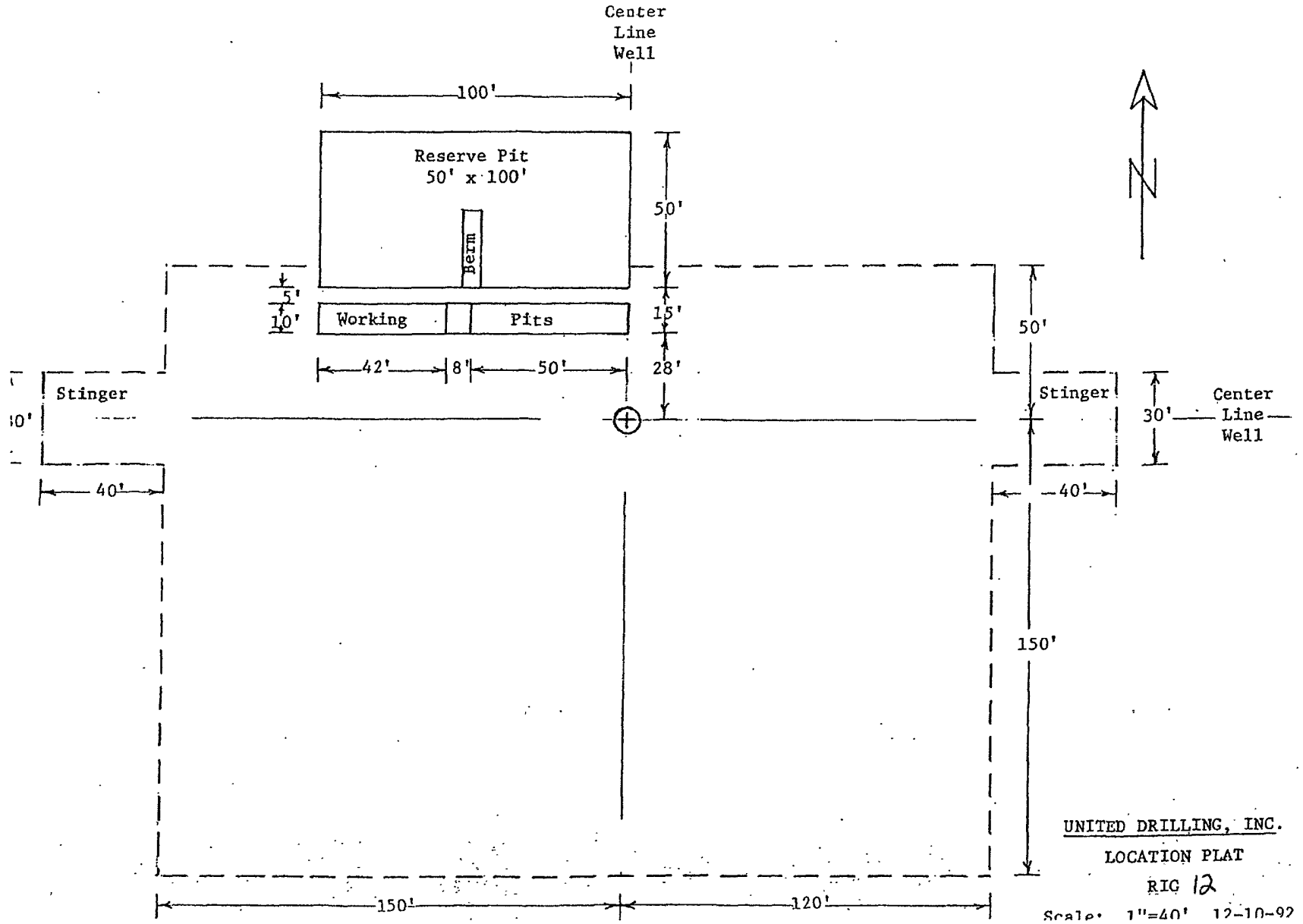
2.14 Anticipated Starting Date and Duration of Operations:

Lease road upgrades and location construction will begin after BLM approval of APD. Anticipated spud date is July 1st, 2007. Total duration of work is estimated to be 7 – 14 days.

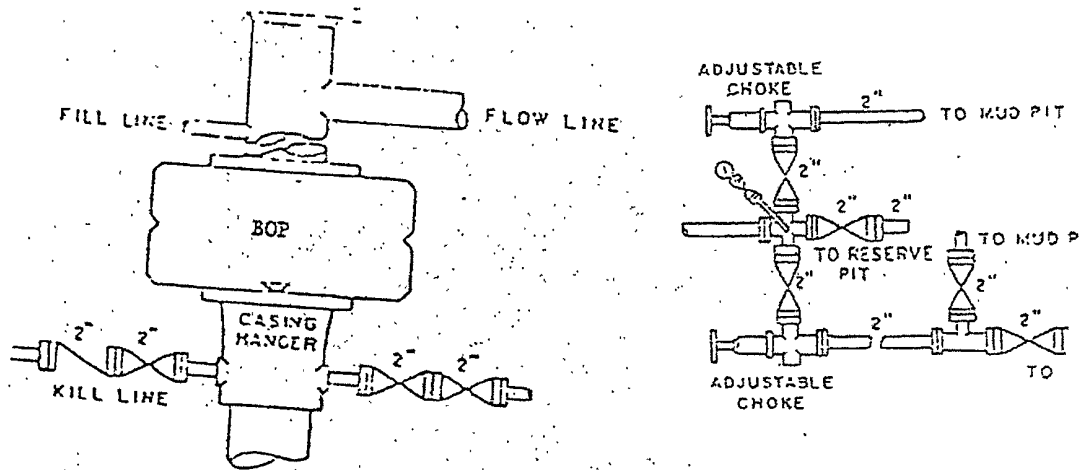
2.15 Downhole Conditions:

Zones of Possible Lost Circulation:	Surface Interval
Zones of Abnormal Pressure:	None
Maximum Bottom Hole Temperature:	80 Degrees Fahrenheit
Maximum Bottom Hole Pressure:	300 psi

Exhibit D
Rig Layout Plat



*Exhibit E – Well Control Equipment /
Blowout Preventor Stack and Choke
Manifold*



ANNULAR BOP STACK

PRESSURE 1000#

Hydrogen Sulfide Drilling Operations Plan

**APOLLO ENERGY, L.P.
Russell USA #73
2580' FWL & 1550' FSL
Section 13-20S-28E Eddy County, New Mexico**

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**Reagan Smith Energy Solutions, Inc.
2525 NW Expressway, Suite 312
Oklahoma City, OK 73112
405-286-9326
sstjohn@rsenergysolutions.com**

Hydrogen Sulfide Drilling Operations Plan
Apollo Energy, L.P.
Russell USA #73
2580' FWL & 1550' FSL
Section 13-20S-28E Eddy County, New Mexico

3.1 Training

All company and contract personnel admitted on location must be trained by a qualified H₂S safety instructor to the following:

- A. Characteristics of H₂S
- B. Physical effects and hazards
- C. Proper use of safety equipment and life support systems
- D. Principle and operation of H₂S detectors, warning system and briefing
- E. Evacuation procedure, routes, and first aid
- F. Proper use of 30 minutes pressure demand air pack

3.2 H₂S Detection and Alarm Systems

- A. H₂S detectors and audio alarm system to be located at bell nipple, end of blooie line (mud pit) and on derrick floor or doghouse

3.3 Windsock and/or wind streamers

- A. windsock at mudpit area should be high enough to be visible
- B. Windsock at briefing area should be high enough to be visible
- C. There should be a windsock at entrance to location

3.4 Condition Flags and Signs

- A. Warning sign on access road to location
- B. Flags to be displayed on sign at entrance to location. Green flag, normal safe condition. Yellow flag indicates potential pressure and danger. Red flag, danger – H₂S present in dangerous concentration. Only emergency personnel admitted to location.

3.5 Well Control Equipment

- A. See Exhibit "E"

3.6 Communications

- A. While working under masks chalkboards will be used for communication
- B. Hand signals will be used where chalk board is inappropriate
- C. Two way radio will be used to communicate off location in case of emergency help is required. In most cases cellular telephones will be available at most drilling foreman's trailer or living quarters.

3.7 Drillstem Testing

- A. Exhausts will be watered
- B. Flare line will be equipped with an electric ignitor or a propane pilot light in the event that gas reaches the surface
- C. If location is near any dwelling a closed DST will be performed

3.8 Supervision

- A. Drilling contractor supervisor will be required to be familiar with the effects H₂S has on tubular goods and other mechanical equipment

3.9 Mud System

- A. If H₂S is encountered, mud system will be altered if necessary to maintain control of formation. A mud gas separator will be brought into service along with H₂S scavengers if necessary.

Apollo Energy, L.P.
Russell USA #73
Section 13-20S-28E, Eddy County, NM

Surface Use Plan
APOLLO ENERGY, L.P.
Russell USA #73
2580' FWL & 1550' FSL
Section 13-20S-28E Eddy County, New Mexico

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2525 NW Expressway, Suite 312
Oklahoma City, OK 73112
405-286-9326
sstjohn@rsenergysolutions.com

SURFACE USE PLAN
Apollo Energy, L.P.
Russell USA #73
2580' FWL & 1550' FSL
Section 13-20S-28E
Eddy County, New Mexico

4.1 Existing Roads:

Area Maps, Exhibit "G" is a reproduction of Eddy Co. General Highway map. Exhibit "C" is a reproduction of a USGS Topographic Map showing existing roads and proposed roads. All existing roads will be maintained in a condition equal to or better than current conditions. Any new roads will be constructed to BLM specifications.

- A. Exhibit "A" shows the proposed well site as staked
- B. Detailed Directions to Location – From junction of Greene Street (US 62 US 180), go North on Magnum Road, thence West 0.5 miles on co. rd. 238, thence North 0.1 miles on lease road to a point approximately 300' East of Russell USA#73 well site.

4.2 Planned Access Roads

The final .10 miles will be new lease road and will be upgraded.

4.3 Location of Existing Wells in a One-Mile Radius Exhibit "H"

- | | |
|----------------------|---|
| A. Water wells - | None Known |
| B. Disposal wells - | 4– Russell USA #60 & #65 |
| C. Drilling wells - | None Known |
| D. Producing wells - | 7 - Russell USA #6, #14, #18, #25, #38, #56 and #69 |
| E. Abandoned wells - | None Known |

4.4 Additional Maps and Plats

See Exhibit "D" for the Rig Layout and Exhibit "E" for well control equipment.

4.5 Location and Typed of Water Supply

Water will be purchased locally from a commercial source and trucked to holding tank in field.

4.6 Source of Construction Material

If possible, construction will be obtained from the excavation of drill site, if additional material is needed it will be purchased from a local source and transported over the access route as shown on Exhibit "B".

4.7 Methods of Handling Waste Material

- A. Drill cuttings will be disposed of in a cuttings pit.
- B. All trash, junk and other waste material will be contained in trash cages or bins to prevent scattering. When the job is completed all contents will be removed and disposed of in an approved sanitary land fill.
- C. Salts remaining after completion of well will be picked up by supplier including broken sacks.
- D. Sewage from living quarters will drain into holding tanks and be cleaned out periodically. A Porta-John will be provided for the rig crews. This equipment will be properly maintained during the drilling operations and removed upon completion of the well.
- E. Excess fluids will be hauled off by transports and be disposed of at a state approved disposal facility. Later pit area will be leveled and contoured to conform with the original and surrounding area. Water and any oil or condensate produced will be stored in test tanks until sold and hauled from the site.

4.8 Ancillary Facilities

- A. No camps or airstrips to be constructed.

4.9 Well Site Layout

- A. Exhibit "D" shows location and rig layout
- B. This exhibit indicates proposed location of reserve and trash pits and living facilities
- C. Mud pits in the active circulating system will be ~~steel~~ pits with a cuttings pit. The cuttings pit liner will be 6 mils thick PVC or polyethylene. Pit liner will extend a minimum 2' over the cuttings pit, where it will be anchored down.
- D. Upon completion of the well, all excess fluids will be suctioned off from the cuttings pit and hauled off for proper disposal.

*open per Scott St. John
6/20/07
ck*

- E. The reserve pit will be fenced on three sides with four strands of barbed wire during drilling and completion phases. The fourth side will be fenced after all drilling operations have ceased. If the well is a producer, the reserve pit fence will be torn down. The reserve pit and those areas of the location not essential to production facilities will be reclaimed and seeded per BLM requirements.

4.10 Plans for Restoration of Surface

Rehabilitation of the location and reserve pit will start in a timely manner after all drilling operations cease. The type of reclamation will depend on whether the well is a producer or a dry hole.

The reserve pit will be allowed to dry properly, and fluid removed and disposed of in accordance with Article 7.B as previously noted. The pit area will then be leveled and contoured to conform to the original and surrounding area. Drainage systems, if any, will be reshaped to the original configuration with provisions made to alleviate erosion. These may need to be modified in certain circumstances to prevent inundation of the location's pad and surface facilities. After the area has been shaped and contoured, topsoil from the spoil pile will be placed over the disturbed area to the extent possible. Revegetation procedures will comply with BLM standards.

4.11 Other Information

- A. Topography consists of a relatively flat surface with loose tan sands. Vegetation is mainly yucca, mesquite and shin oak.
- B. The well site is on surface owned by The United States Department of the Interior, Bureau of Land Management. The land is used mainly for farming, cattle ranching, recreational use, and oil and gas production.
- C. An Archeological survey will be conducted on the location and proposed roads, and this report will be filed with the Bureau of Land Management in the Carlsbad BLM office.
- D. There are no known dwellings within 1 mile of this location.

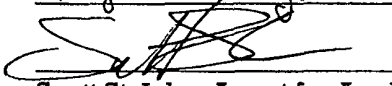
4.12 Operators Representative

Before and During Drilling
Gregory H. Hall
P.O. box 30444
Edmond, OK 73003
Office Phone: 405-630-7620

After Construction
Tommy Wright
4823 Ihles Road
Lakes Charles, LA 70605
337-502-5227
337-502-5230

4.13 Certification

CERTIFICATION: I hereby certify that I, or persons under my direct supervision, have inspected the proposed drill site and access route; that I am familiar with the conditions which currently exist; that the statements made in this plan are to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed by Encore Operating and/or its contractors/subcontractors and is in conformity with this plan and the terms and conditions under which it is approved. This statement is subject to the provision of U.S.C. 1001 for the filing of a false statement.

Date: 6/19/07
Name: Scott St. John
Title: Project Mgr.


Scott St. John, Agent for Apollo Energy, L.P.

Please address inquiries, questions, scheduling of meetings and deficiency statements, if any to Scott St. John and/or Monica Smith at the address shown below:

Reagan Smith Energy Solutions, Inc.
2525 NW Expressway, Suite 312
Oklahoma City, Oklahoma 73112
(405) 286-9326

Apollo Energy, L.P.
Russell USA #73
Section 13-20S-28E, Eddy County, NM

Exhibits

SPECIAL DRILLING STIPULATIONS

THE FOLLOWING DATA IS REQUIRED ON THE WELL SIGN

Operator's Name: Apollo Energy, L.P. Well Name & #: Russell USA # 73
Location 1550 F S L & 2580 F W L; Sec. 13, T. 20 S., R. 28 E.
Lease #: LC-050797 County: Eddy State: New Mexico

The Special stipulations check marked below are applicable to the above described well and approval of this application to drill is conditioned upon compliance with such stipulations in addition to the General Requirements. The permittee should be familiar with the General Requirements, a copy of which is available from a Bureau of Land Management office. EACH PERMITTEE HAS THE RIGHT OF ADMINISTRATIVE APPEAL TO THESE STIPULATIONS PURSUANT TO TITLE 43 CFR 3165.3 AND 3165.4.

This permit is valid for a period of one year from the date of approval or until lease expiration or termination whichever is shorter.

I. SPECIAL ENVIRONMENT REQUIREMENTS

- () Lesser Prairie Chicken (stips attached) () Flood plain (stips attached)
() San Simon Swale (stips attached) (x) Other **See attached Cave/Karst Conditions of Approval**

II. ON LEASE - SURFACE REQUIREMENTS PRIOR TO DRILLING

(x) The BLM will monitor construction of this drill site. Notify the (x) Carlsbad Field Office at (505) 234-5972 () Hobbs Office (505) 393-3612, at least 3 working days prior to commencing construction.

(x) Roads and the drill pad for this well must be surfaced with 6 inches of compacted caliche upon completion of well and it is determined to be a producer.

() All topsoil and vegetation encountered during the construction of the drill site area will be stockpiled and made available for resurfacing of the disturbed area after completion of the drilling operation. Topsoil on the subject location is approximately _____ inches in depth. Approximately _____ cubic yards of topsoil material will be stockpiled for reclamation.

() Other.

III. WELL COMPLETION REQUIREMENTS

() A Communitization Agreement covering the acreage dedicated to the well must be filed for approval with the BLM. The effective date of the agreement must be prior to any sales.

(x) Surface Restoration: If the well is a producer, the reserve pit(s) will be backfilled when dry, and cut-and-fill slopes will be reduced to a slope of 3:1 or less. All areas of the pad not necessary for production must be re-contoured to resemble the original contours of the surrounding terrain, and topsoil must be re-distributed and re-seeded with a drill equipped with a depth indicator (set at depth of ½ inch) with the following seed mixture, in pounds of Pure Live Seed (PLS), per acre. If broadcasting, the seeding rate must be doubled.

() A. Seed Mixture 1 (Loamy Sites)

Side Oats Grama (*Bouteloua curtipendula*) 5.0
Sand Dropseed (*Sporobolus cryptandrus*) 1.0
Plains lovegrass (*Eragrostis intermedia*) 0.5

(x) B. Seed Mixture 2 (Sandy Sites)

Sand Dropseed (*Sporobolus crptandrus*) 1.0
Sand Lovegrass (*Eragostis trichodes*) 1.0
Plains Bristlegrass (*Setaria magrostachya*) 2.0

() C. Seed Mixture 3 (Shallow Sites)

Side oats Grama (*Bouteloua curtipendula*) 5.0
Green Spangletop (*Leptochloa dubia*) 2.0
Plains Bristlegrass (*Setaria magrostachya*) 1.0

() D. Seed Mixture 4 (Gypsum Sites)

Alkali Sacaton (*Sporobolus airoides*) 1.0
Four-Wing Saltbush (*Atriplex canescens*) 5.0

() OTHER SEE ATTACHED SEED MIXTURE

Seeding should be done either late in the fall (September 15 - November 15, before freeze up, or early as possible the following spring to take advantage of available ground moisture.

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 Number 5Y 4/2.

() Other

RESERVE PIT CONSTRUCTION STANDARDS

The reserve pit shall be constructed entirely in cut material and lined with 6-mil plastic.

Mineral material extracted from within the boundary of the APD during construction of the well pad and reserve pits and be used for the construction of this well pad and its immediate access road only, as long as that portion of the access road it is use on remains on-lease. Removal of any additional material from this location for construction or improvement of other well pads and other access or lease roads must first be purchased from BLM.

Reclamation: Reclamation of this type of deep pit will consist of pushing the pit walls into the pit when sufficiently dry to support track equipment. The pit liner is NOT TO BE RUPTURED to facilitate drying; a ten month period after completion of the well is allowed for drying of the pit contents.

The pit area must be contoured to the natural terrain with all contaminated drilling mud buried with at least 3 feet of clean soil. The reclaimed area will then be seeded as specified in this permit.

CULTURAL

Whether or not an archaeological survey has been completed and notwithstanding that operations are being conducted as approved, the lessee/operator/grantee shall notify the BLM immediately if previously unidentified cultural resources are observed during surface disturbing operations. From the time of the observation, the lessee/operator/grantee shall avoid operations that will result in disturbance to these cultural resources until directed to process by BLM.

TRASH PIT STIPS

All trash, junk, and other waste material shall be contained in trash cages or bins to prevent scattering and will be removed and deposited in an approved sanitary landfill. Burial on site is not permitted.

Conditions of Approval Cave and Karst

EA#: NM-520-07-0968

Lease #: LC-050797

Apollo Energy, L.P.

Russell USA Fed. #70, #71, #72, #73, #74

Cave/Karst Surface Mitigation

The following stipulations will be applied to minimize impacts during construction, drilling and production.

Berming:

Any tank batteries will be constructed and bermed large enough to contain any spills that may occur.

Bermed areas will be lined with rip-stop padding to prevent tears or punctures in liners and lined with a permanent 20 mil plastic liner.

Cave/Karst Subsurface Mitigation

The following stipulations will be applied to protect cave/karst and ground water concerns:

Rotary Drilling with Fresh Water:

Rotary drilling techniques in cave or karst areas will include the use of fresh water as a circulating medium in zones where caves or karst features are expected. Use depth to the deepest expected fresh water as listed in the geologist report.

Casing:

All casing will meet or exceed National Association of Corrosion Engineers specifications pertaining to the geology of the location and be run to American Petroleum Institute and BLM standards.

Lost Circulation:

ALL lost circulation zones from the surface to the base of the cave occurrence zone will be logged and reported.

Regardless of the type of drilling machinery used, if a void (bit drops) of four feet or more and circulation losses greater than 75 percent occur simultaneously while drilling in any cave-bearing zone, drilling operations will immediately stop and the BLM will be notified by the operator. The BLM will assess the consequences of the situation and work with operator on corrective actions to resolve the problem.

Abandonment Cementing:

Upon well abandonment the well bore will be cemented completely from 100 feet below the bottom of the cave bearing zone to the surface.

Record Keeping:

The Operator will track customary drilling activities, including the rate of penetration, pump pressure, weight on bit, bit drops, percent of mud returns, and presence of absence of cuttings returning to the surface. As part of customary record keeping, each detectable void or sudden increase in the rate of penetration not attributable to a change in the formation type should be documented and evaluated as it is encountered.

CONDITIONS OF APPROVAL - DRILLING

Operator's Name: Apollo Energy, L.P.
Well Name & No. 73-Russell USA
Location: 1550' FSL, 2580' FWL, Sec. 13, T-20-S, R-28-E, Eddy County, NM
Lease: NMLC 050797

.....

I. DRILLING OPERATIONS REQUIREMENTS:

- A.** The Bureau of Land Management (BLM) is to be notified a minimum of 2 hours in advance for a representative to witness:
1. Spudding well
 2. Setting and/or Cementing of all casing strings
 3. BOPE tests
- Eddy County call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220, (505) 361-2822.
- B.** Although Hydrogen Sulfide has not been reported in the area, it is always a possible hazard.
- C.** 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.

II. CASING:

- A.** The 8-5/8 inch surface casing shall be set above the salt at approximately 385 feet and cemented to the surface.
1. 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.
 2. Wait on cement (WOC) time for a primary cement job will be a minimum of 18 hours, 24 hours in the potash area or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)
 3. 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.
 4. **If cement falls back, remedial action will be done prior to drilling out that string.**

Possible lost circulation in the Yates and Seven Rivers.

High potential for cave/karst features.

- B.** The minimum required fill of cement behind the 4-1/2 inch production casing is cement to surface. If cement does not come to surface, see A.1 thru 4. **Cement to surface due to high cave/karst.**
- C.** 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.

III. PRESSURE CONTROL:

- A. 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.
- B. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **2000 (2M) PSI**. This can be a 2M annular.
- C. The appropriate BLM office shall be notified a minimum of 2 hours in advance for a representative to witness the tests.
 - 1. The tests shall be done by an independent service company.
 - 2. The results of the test shall be reported to the appropriate BLM office.
 - 3. 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.
 - 4. 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.

Engineer on call phone (after hours): Carlsbad - 505-706-2779

WWI 071707

BLM Lease #: LC-050797
Company Reference: Apollo Energy
Well # & Name: Russell USA # 73

STANDARD STIPULATIONS FOR PERMANENT RESOURCE ROADS
CARLSBAD FIELD OFFICE

A copy of the APD and attachments, including stipulations, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.

The holder/grantee/permittee shall hereafter be identified as the holder in these stipulations. The Authorized Officer is the person who approves the Application for Permit to Drill (APD) and/or Right-of-Way (ROW).

GENERAL REQUIREMENTS

A. The 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.

B. The holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976, as amended (15 U.S.C. 2601, *et. seq.*) with regard to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized by this grant. (See 40 CFR, Part 702-799 and especially, 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.

C. The 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 the right-of-way holder's activity on the right-of-way). This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

D. If, during any phase of the construction, operation, maintenance, or termination of the road, any oil or other pollutant should be discharged, impacting Federal lands, the control and total removal, disposal, and cleaning up of such oil or other pollutant, wherever found, shall be the responsibility of the holder, regardless of fault. Upon failure of the holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all

damages to Federal lands resulting there from the Authorized Officer may take such measures as deemed necessary to control and cleanup the discharge and restore the area, including, where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the holder. Such action by the Authorized Officer shall not relieve the holder of any liability or responsibility.

E. The holder shall minimize disturbance to existing fences and other improvements on public domain surface. 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 make a documented good-faith effort to 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.

F. The Holder shall ensure that the entire right-of-way, including the driving surface, ditching and drainage control structures, road verges and any construction sites or zones, will be kept free of the following plant species: Malta starthistle, African rue, Scotch thistle and salt cedar. The Holder agrees to comply with the following stipulations:

1. ROAD WIDTH AND GRADE

The road will have a driving surface of 14 feet (all roads shall have a minimum driving surface of 12 feet, unless local conditions dictate a different width). The maximum grade is 10 percent unless the box below is checked. Maximum width of surface disturbance from construction will be 30 feet.

☐ Those segments of road where grade is in excess of 10% for more than 300 feet shall be designed by a professional engineer.

2. CROWNING AND DITCHING

Crowning with materials on site and ditching on one side of the road on the uphill side will be required. The road cross-section will conform to the cross section diagrams in Figure 1. If conditions dictate, ditching may be required for both sides of the road; if local conditions permit, a flat-bladed road may be considered (if these conditions exist, check the appropriate box below). The crown shall have a grade of approximately 2% (i.e., 1" crown on a 12' wide road).

☒ Ditching will be required on both sides of the roadway as shown on the attached map or as staked in the field.

☐ Flat-blading is authorized on segment(s) delineated on the attached map.

3. DRAINAGE

Drainage control shall be ensured over the entire road through the use of borrow ditches, out-sloping, in-sloping, natural rolling topography, lead-off (turnout) ditches, culverts, and/or drainage dips.

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

SPACING INTERVAL FOR TURNOUT DITCHES

Percent slope	Spacing interval
0% - 4%	400' - 150'
4% - 6%	250' - 125'
6% - 8%	200' - 100'
8% - 10%	150' - 75'

A typical lead-off ditch has a minimum depth of 1 foot below and a berm 6 inches above natural ground level. The berm will be on the down-slope side of the lead-off ditch. The ditch end will tie into vegetation whenever possible.

For this road the spacing interval for lead-off ditches shall be at

☒ 400 foot intervals.

☐ _____ foot intervals.

☐ locations staked in the field as per spacing intervals above.

☐ locations delineated on the attached map.

B. Culvert pipes shall be used for cross drains where drainage dips or low water crossings are not feasible. The minimum culvert diameter must be 18 inches. Any culvert pipe installed shall be of sufficient diameter to pass the anticipated flow of water. Culvert location and required diameter are shown on the attached map (Further details can be obtained from the Roswell District Office or the appropriate Resource Area Office).

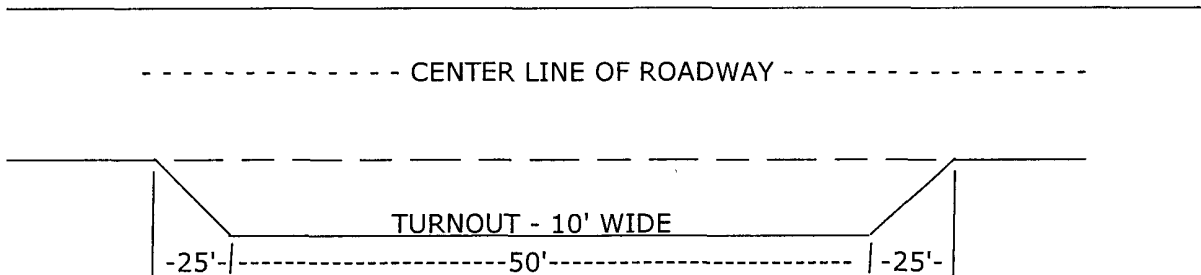
C. On road slopes exceeding 2%, drainage dips shall drain water into an adjacent lead-off ditch. Drainage dip location and spacing shall be determined by the formula:

$$\text{spacing interval} = \frac{400'}{\text{road slope in \%}} + 100'$$

Example: 4% slope: spacing interval = $\frac{400}{4} + 100 = 200$ feet

4. TURNOUTS

Unless otherwise approved by the Authorized Officer, vehicle turnouts will be required. Turnouts will be located at 2000-foot intervals, or the turnouts will be intervisible, whichever is less. Turnouts will conform to the following diagram:



STANDARD TURNOUT - PLAN VIEW

5. SURFACING

Surfacing of the road or those portions identified on the attached map may, at the direction of the Authorized Officer, be required, if necessary, to maintain traffic within the right-of-way with caliche, gravel, or other surfacing material which shall be approved by the Authorized Officer. When surfacing is required, surfacing materials will be compacted to a minimum thickness of six inches with caliche material. The width of surfacing shall be no less than the driving surface. Prior to using any mineral materials from an existing or proposed Federal source, authorization must be obtained from the Authorized Officer.

A sales contract for the removal of mineral materials (caliche, sand, gravel, fill dirt, etc.) from an authorized pit, site, or on location must be obtained from the BLM prior to using any such mineral material from public lands. Contact the BLM solid minerals staff for the various options to purchase mineral material.

6. CATTLEGUARDS

Where used, all cattleguard grids and foundation designs and construction shall meet the American Association of State Highway and Transportation Officials (AASHTO) Load Rating H-20, although AASHTO U-80 rated grids shall be required where heavy loads (exceeding H-20 loading), are anticipated (See BLM standard drawings for cattleguards). Cattleguard grid length shall not be less than 8 feet and width of not less than 14 feet. A wire gate (16-foot minimum width) will be provided on one side of the cattleguard unless requested otherwise by the surface user.

7. MAINTENANCE

The holder shall maintain the road in a safe, usable condition. A maintenance program shall include, but not be limited to blading, ditching, culvert installation, culvert cleaning, drainage installation, cattleguard maintenance, and surfacing.

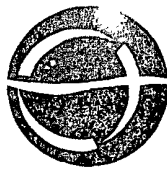
8. PUBLIC ACCESS

Public access along this road will not be restricted by the holder without specific written approval being granted by the Authorized Officer. Gates or cattleguards on public lands will not be locked or closed to public use unless closure is specifically determined to be necessary and is authorized in writing by the Authorized Officer.

9. CULTURAL RESOURCES

Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on the holder's behalf, on public or Federal land shall be immediately reported to the authorized officer. The 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 actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to the proper mitigation measures will be made by the authorized officer after consulting with the holder.

10. SPECIAL STIPULATIONS:



REAGAN SMITH
ENERGY SOLUTIONS, INC.
Perfecting the Efficient Development of Natural Resources

October 22, 2007

OCT 25 2007

OCD-ARTESIA

New Mexico Oil Conservation Division
1301 West Grand Ave.
Artesia, NM 88210
Attention: Bryan Arrant

RE: Apollo Energy, LP.
H₂S Contingency Plan for Russell USA 70, 71, 72, 73, & 74
Russell USA Field
T20S-R28E, Eddy County, NM

Dear Mr. Arrant:

Upon review of applicable data, Apollo Energy, LP has come to the conclusion that according to the New Mexico Oil Conservation Division Rule 118, a contingency plan is not required.

A gas component analysis was performed by Wildcat Measurement Service on June 15, 2007. The test was performed on a nine (9) well system tied into a single separator and then passing onto a heater treater. The flow rate of the gas of the combined nine (9) wells is so low it is immeasurable with testing equipment. However it is estimated to be about 1,000 cubic feet/day. This is based on the best estimate of the produced gaseous mixture from field observations. This data combined with an H₂S mole percentage of 8.25 translated into an exposure radius of 44'.

Since the field is not in a public area, this study focused on the radius of exposure with regards to any public road. The Russell USA field lies between Magnum Road, however, no well location is closer than 330' feet of Magnum Road.

I have included a copy of the gas component analysis along with the supporting calculations.

Yours very truly,

Scott St. John
For Apollo Energy, LP.

Enclosure

Cc: SSJ, TW, GH

1219 Classen Drive • Oklahoma City, OK 73103
(405) 286-9326 • Toll Free: (866) 551-7913 • Fax: (405) 600-3400
www.rsenergysolutions.com

Radius of Exposure Calculation

Equation	$X=[(.4546)(\text{Hydrogen Sulfide Concentration})(Q)]^{(.6258)}$
Hydrogen Sulfide Concentration	8.25
Q (Cubic Feet / Day / 9 wells)	1,000
Q(Cubic Feet / Day / 1 well)	111
Formula with Constants	$X=[(.4546)(8.25)(111)]^{(.6258)}$
Radius of Exposure (x)	44'

Wildcat Measurement Service
P.O. Box 1836
Artesia, New Mexico 88211-1836
TollFree #888-421-9453
Office #505-746-3481
"Quality and Service is our First Concern"

PDS 06/25/00

Run No. 270615-01
Date Run 06/15/2007
Date Sampled 06/14/2007

Analysis for: APOLLO ENERGY
Well Name: ROSSELL USA BATTERY
Field: BURTON FLATS

GPANGL.L62

Sta. Number:
Purpose: SPOT
Sampling Temp: 77 DEG F
Volume/day:
Pressure on Cylinder: 4.2 PSIG

Producer: APOLLO ENERGY
County: EDDY State: NM
Sampled By: CHAD CAMPBELL
Atmos Temp: 82 DEG F
Formation:
Line Pressure: 17.4 PSIA

GAS COMPONENT ANALYSIS

Pressure Base: 14.6500

	Mol %	GPM
Carbon Dioxide CO2	2.4915	
Nitrogen N2	2.4360	
Hydrogen Sulfide H2S	8.2500	
Methane C1	33.8331	
Ethane C2	31.2748	8.3141
Propane C3	15.4050	4.2185
Iso-Butane IC4	1.4796	0.4813
Nor-Butane NC4	2.9891	0.9372
Iso-Pentane IC5	0.6319	0.2300
Nor-Pentane NC5	0.4462	0.1607
Hexanes Plus C6+	0.7628	0.3310

Real BTU Dry: 1570.33
Real BTU Wet: 1543.02
Real Calc. Specific Gravity: 1.0538
Field Specific Gravity: 0.0000

Standard Pressure: 14.6960
BTU Dry: 1563.29
BTU Wet: 1536.09

Z Factor: 0.9924
N Value: 1.2349
Avg Mol Weight: 30.3019
Avg CuFt/Gal: 49.2207
26 Lb Product: 1.0854
Methane+ GPM: 20.3763
Ethane+ GPM: 14.6728
Propane+ GPM: 6.3588
Butane+ GPM: 2.1402
Pentane+ GPM: 0.7217

TOTAL 100.0000 14.6728

REMARKS:

H2S IN GAS STREAM: 8.2500% = 82,500 PPM

Approved by: DON NORMAN

Fri Jun 15 13:23:04 2007