

JAN 13 2009
OCD-ARTESIA OCD-ARTESIA

Form 3160-3
(August 2007)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

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

5. Lease Serial No. **LC-0289788**
6. If Indian, Allottee or Tribe Name

1a. Type of work: ☒ DRILL ☐ REENTER

**UNORTHODOX
LOCATION**

1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone

7. If Unit or CA Agreement, Name and No.
NMNM70993X

8. Lease Name and Well No.
NBQU #63

2. Name of Operator
Arena Resources Inc

9. API Well No.
30.015.36899

3a. Address
2130 W. Bender Hobbs, NM 88240

3b. Phone No. (include area code)
575-738-1739

10. Field and Pool, or Exploratory
Benson Queen Grayburg North

4. Location of Well (Report location clearly and in accordance with any State requirements.)
At surface 2077 FNL 1379 FWL Capitan Controlled Water Basin
At proposed prod. zone 2077 FNL 1379 FWL

11. Sec., T. R. M. or Blk. and Survey or Area
Sec. 34, T18S, R30E

14. Distance in miles and direction from nearest town or post office*
7.85 to Loco Hills

12. County or Parish
Eddy

13. State
NM

15. Distance from proposed*
location to nearest
property or lease line, ft
(Also to nearest drig. unit line, if any)
3203'

16. No. of acres in lease
1800

17. Spacing Unit dedicated to this well
40

18. Distance from proposed location*
to nearest well, drilling, completed,
applied for, on this lease, ft
1207'

19. Proposed Depth
3600'
3500'

20. BLM/BIA Bond No. on file
NMB000130

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
3448' GL

22. Approximate date work will start*
09/15/2008

23. Estimated duration
10 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. I, must 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 must 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 BLM.

25. Signature *Colleen Robinson*
Title
Compliance Analyst

Name (Printed/Typed)
Colleen Robinson

Date
08/12/2008

Approved by (Signature) *151 Ron DUNTON*
Title
ACTING STATE DIRECTOR

Name (Printed/Typed)
151 Ron DUNTON
Office

Date
JAN 08 2009

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.

(Continued on page 2)

*(Instructions on page 2)

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

ENTERED
12/24/08
01-14-09

APPROVAL SUBJECT TO
GENERAL REQUIREMENTS
AND SPECIAL STIPULATIONS
ATTACHED

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 30-015-36899	Pool Code 5300	Pool Name Benson, Queen-Grayburg North
Property Code 33129	Property Name NBQU	Well Number 63
OGRID No. 220420	Operator Name ARENA RESOURCES, INC.	Elevation 3448'

Surface Location

UL or lot No. F	Section 34	Township 18-S	Range 30-E	Lot Idn	Feet from the 2077	North/South line NORTH	Feet from the 1379	East/West line WEST	County EDDY
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Bottom Hole Location If Different From Surface

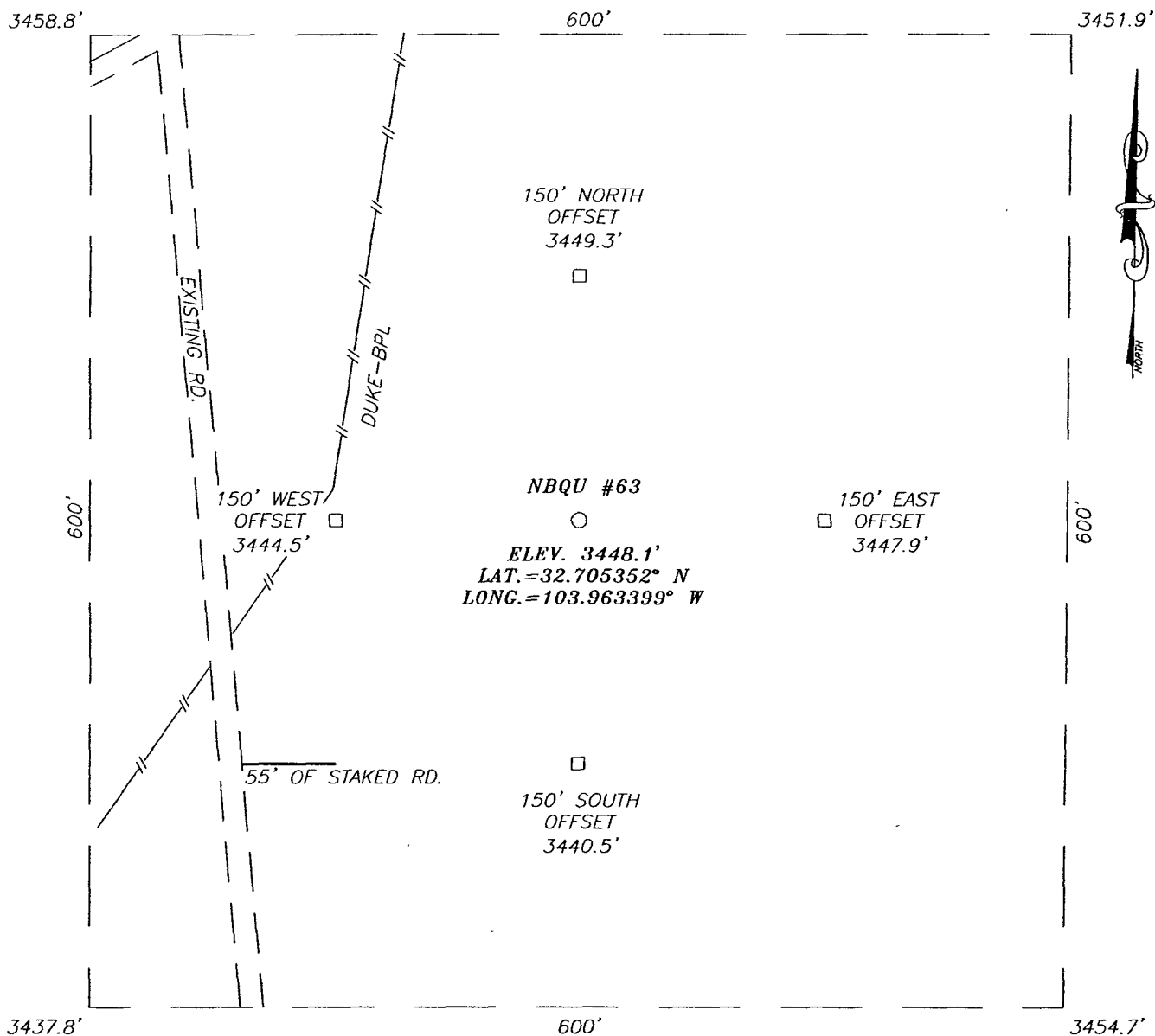
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
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Dedicated Acres 40	Joint or Infill	Consolidation Code	Order No.
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NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

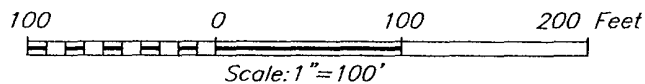
	OPERATOR CERTIFICATION I hereby certify that the information herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this 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. <i>Colleen Robinson</i> 8-12-08 Signature Date <i>Colleen Robinson</i> 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. <i>Ronald J. Eidson</i> AUGUST 8, 2007 Date Surveyed Seal of Professional Surveyor <i>Ronald J. Eidson</i> 8/23/07 Certificate No. GARY EIDSON 12641 RONALD J. EIDSON 3239

SECTION 34, TOWNSHIP 18 SOUTH, RANGE 30 EAST, N.M.P.M.,
 EDDY COUNTY, NEW MEXICO



DIRECTIONS TO LOCATION

FROM THE INTERSECTION OF ST. HWY. #360 (BLUESTEM RD.) AND CO. RD. #251 (DUVAL SHAFT), GO NORTH-NORTHEAST ON DUVAL SHAFT RD. APPROX. 2.2 MILES TO GIBBS RD. GO EAST ON GIBBS RD. APPROX. 0.5 MILES. TURN RIGHT AND GO SOUTH APPROX. 0.45 MILES TO A LEASE RD. SOUTH. FOLLOW LEASE RD. SOUTH APPROX. 0.1 MILE. THE LOCATION IS 220 FEET EAST.



ARENA RESOURCES, INC.

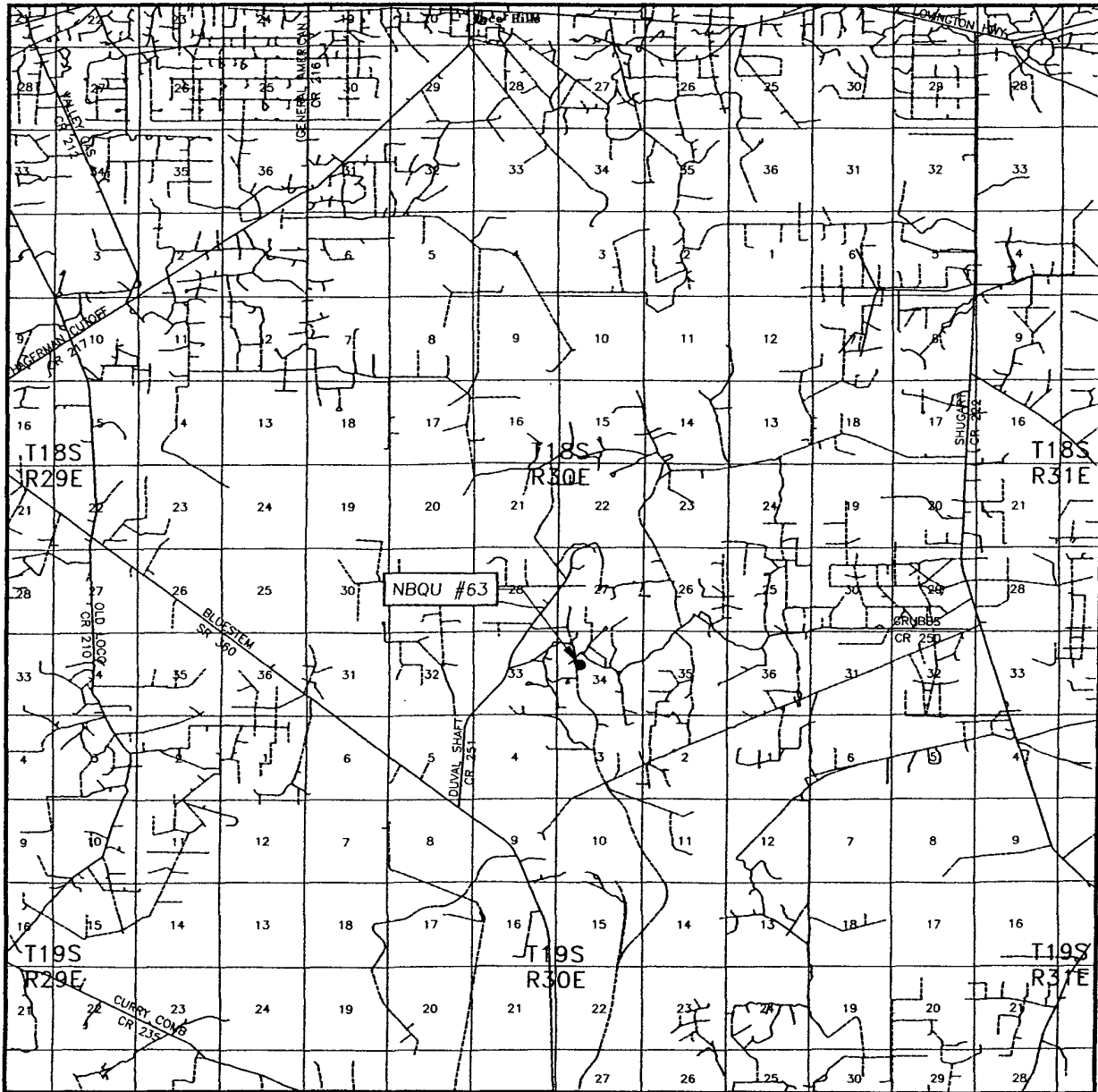
NBQU #63 WELL
 LOCATED 2077 FEET FROM THE NORTH LINE
 AND 1379 FEET FROM THE WEST LINE OF SECTION 34,
 TOWNSHIP 18 SOUTH, RANGE 30 EAST, N.M.P.M.,
 EDDY COUNTY, NEW MEXICO.

Survey Date: 8/8/07	Sheet 1 of 1 Sheets
W.O. Number: 07.11.0457	Dr By: AR
Date: 08/22/07	Disk: 07110457
	Scale: 1"=100'



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

VICINITY MAP



SCALE: 1" = 2 MILES

SEC. 34 TWP. 18-S RGE. 30-E

SURVEY N.M.P.M.

COUNTY EDDY STATE NEW MEXICO

DESCRIPTION 2077' FNL & 1379' FWL

ELEVATION 3448'

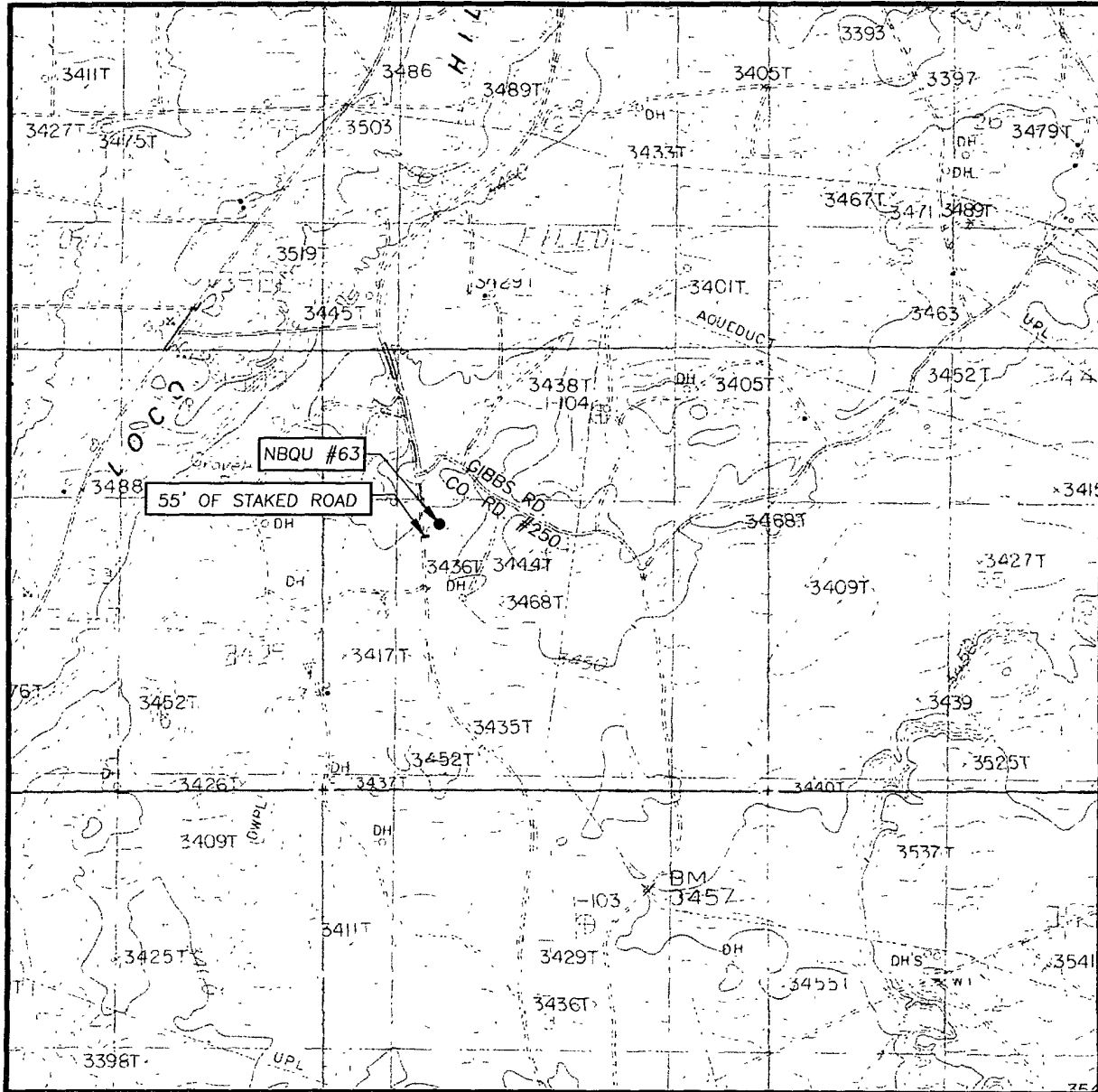
OPERATOR ARENA RESOURCES, INC.

LEASE NBQU



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:
HACKBERRY LAKE, N.M. - 10'

SEC. 34 TWP. 18-S RGE. 30-E

SURVEY N.M.P.M.

COUNTY EDDY STATE NEW MEXICO

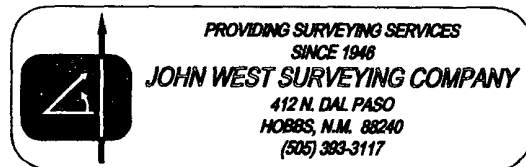
DESCRIPTION 2077' FNL & 1379' FWL

ELEVATION 3448'

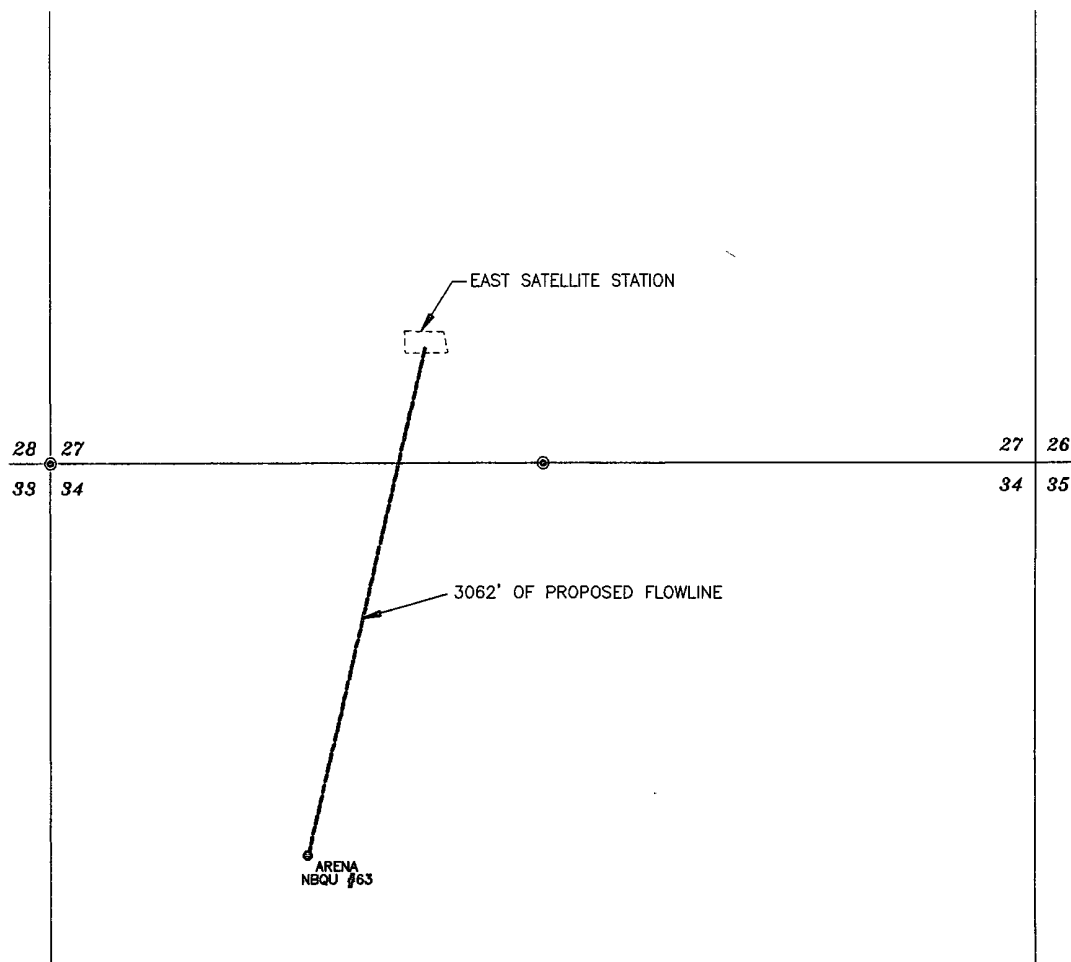
OPERATOR ARENA RESOURCES, INC.

LEASE NBQU

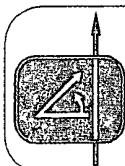
U.S.G.S. TOPOGRAPHIC MAP
HACKBERRY LAKE, N.M.



SECTION 28, TOWNSHIP 18 SOUTH, RANGE 30 EAST, N.M.P.M.,
EDDY COUNTY NEW MEXICO



1000 0 1000 2000 FEET
Scale: 1"=1000'



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

ARENA RESOURCES

PLAT SHOWING EXISTING WELL LOCATION
& PROPOSED FLOWLINE SITUATED IN
SEC'S 27 & 34, TOWNSHIP 18 SOUTH, RANGE 30 EAST,
N.M.P.M., EDDY COUNTY, NEW MEXICO.

Survey Date: 6/7/08	Sheet 1 of 1 Sheets
W.O. Number: 08.13.1375	Drawn By: L.A.
Date: 8/22/08	REL: 08.11.0213 08131375

DRILLING PROGRAM NBQU #63

1. Geologic Name of Surface Formation

- a. Permian

2. Estimated Tops of Geological Markers

- a. Top of Anhydrite 330'
 b. Top of Yates 1672' Possibly yield hydrocarbons @ 1650'
 c. Top of Queen 2786' Possibly yield hydrocarbons @ 2800'
 d. Top of Penrose 3003' Possibly yield hydrocarbons @ 3200'
 e. Top of Grayburg 3225'
 f. Total Depth 3500'

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 8 5/8" casing at 400' and circulating cement back to surface. Potash / fresh water sands will be protected by setting 5 1/2" casing at 3500' and circulating cement to surface.

3. Casing Program:

<u>Hole Size</u>	<u>Depth</u>	<u>ODCsg</u>	<u>Weight</u>	<u>Collar</u>	<u>Grade</u>	<u>New/Used</u>
12 1/4	400'	8 5/8	23#	ST&C	J-55	New * see attached spec sheet
7 7/8	3500'	5 1/2	15.5#	LT&C	J-55	New

Safety factors: Burst 1.1 Collapse 1.125 Tension 1.8

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

- a. 8 5/8" Surface Circulate cement to surface with 240 sks Class C cement + 2% CaCl₂ (wt. 14.8#/gal., Yield 1.34 Cuft/sk)
- b. 5 1/2" Production Circulate cement to surface with lead cement from 3300' to surface with 350 sks 50:50 POZ class C + 2% Bentonite + 0.5% F.L. + 0.25 lb/sk LCM + 0.4% anti foam (wt. 11.9 lbs/gal, Yield 2.06 cuft/sk)
 Tail cement: 50 sks class "C" + 2% CaCl₂ (wt 14.8 lbs/sk, yield 1.34 cuft/sk) from 3500' to 3300'

sol
CEA →

The above cement volumes could be revised pending the caliper measurement from the open hole logs. The top of cement is designed to reach surface.

5. Pressure Control Equipment:

The blowout preventer equipment (BOP) shown in Exhibit #A will consist of a (3M system) double ram type (3000 psi WP) preventer and a bag-type (Hydril) preventer (3000 psi WP) and rotating head. Both units will be hydraulically operated and the ram type preventer will be equipped with blind rams on top and 3 1/2" drill pipe rams on bottom. The drilling head will be installed on the 8 5/8" surface casing and utilized continuously until total depth is reached. All BOP's and associated equipment will be tested to 1200 psi with the rig pump before drilling out the 8 5/8" casing shoe (70% of 23#, J-55 casing). Prior to drilling out the 8 5/8" casing shoe, the BOP's and Hydril will be tested as per BLM Drilling Operations Order #2.

See
COA

Pipe rams will be operated and checked each 24-hour period and each time the drill pipe is out of the hole. These functional tests will be documented on the daily drillers 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 lines and choke manifold having a 5000 psi WP rating.

6. Proposed Wellbore Circulation System – Air and Foam

This well will be drilled with air and foam. The necessary foam/air products will be on location at all times.

0-400' - drilled with air

400-3500' - 2% KCL wtr w/2 gal. surfactant per every 24 bbls.

- The following equipment will be in place and operational during drilling:
- Properly lubricated & maintained rotating head
- Spark arresters on engines or water cooled exhaust
- Blooie line discharge will be 40 feet from the wellhead due to the allowed size of the location (80 X 125) yet securely anchored
- Straight run on blooie line
- Appropriate deduster equipment
- All cuttings and circulating medium shall be directed into a reserve or blooie pit
- Float valve above bit
- Automatic igniter or continuous pilot light on the blooieline, "vent n/a because will be drilling with heavy foam.
- Compressors located in the opposite direction from the blooie line yet will be less than 100 ft from the wellbore due to location size.
- Mud circulating equipment, water, and mud materials sufficient to maintain the capacity of the hole and circulating tanks.

In the event of needing to switch from air/foam to a mud drilling, the mud program on Exhibit B will be followed, and a closed loop system will be in place.

- 7. Auxiliary Well Control and Monitoring 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 8 5/8" casing shoe until the 5 1/2" casing is cemented. Breathing equipment will be on location upon drilling the 8 5/8" shoe until total depth is reached.

- 8. Logging, Coring, and Testing Program:**
 - a. Drill stem tests will be based on geological sample shows.
 - b. The open hole electrical logging program will be:
 - i. Total Depth to base of salt: Spectral Logs with Gamma Ray and Caliper.
 - ii. No coring program is planned
 - iii. Additional testing will be initiated subsequent to setting the 5 1/2" production casing. Specific intervals will be targeted based on log evaluation, geological sample shows and drill stem tests.

- 9. Potential Hazards:**
 - a. No abnormal pressures or temperatures are expected. If H₂S is encountered the operator will comply with the provisions of Onshore Oil and Gas Order NO.6. A copy of the H₂S Contingency Plan will be on location at all times. No lost circulation is expected to occur. All personnel will be familiar with all aspects of safe operation of equipment being used to drill this well. Estimated BHP 1500 psi and Estimated BHT 100°. No H₂S is anticipated to be encountered.

- 10. Anticipated Starting Date and Duration of Operations:**
 - a. Road and location construction will begin after the BLM has approved the APD. Anticipated spud date will be as soon after BLM approval and as soon as a rig will be available. Move in operations and drilling is expected to take 10 days. If production casing is run then an additional 90 days will be needed to complete well and construct surface facilities and/or lay flow lines in order to place well on production.

8⁵/₈ O.D.

Dimensions and Performance Data

40,000 P.S.I. MINIMUM YIELD
60,000 P.S.I. MINIMUM TENSILE

NOMINAL WEIGHT T&C	MINIMUM COLLAPSE P.S.I.	MAXIMUM SETTING DEPTH FEET	MINIMUM JOINT STRENGTH 1000 LBS	EQUIVALENT LENGTH FEET	HYDROSTATIC TEST P.S.I.	MINIMUM INTERNAL YIELD P.S.I.
20 WALL .219	850	1000	155	7700	1500	1730
→ 23 .250	1015	1800	200	8600	1800	2190
26	1316	2930	226	8650	2000	2700

NOMINAL WEIGHT T&C	INSIDE DIAMETER	DRIFT DIAMETER	CROSS-SECTION PIPE BODY SQ IN.	CROSS-SECTION CRITICAL AREA SQ IN.	D/I RATIO	I/D RATIO
20	8.187	8.062	5.783	3.868	39.38	.0254
→ 23	8.125	8.000	6.577	4.663	34.60	.0289
26	8.071	7.945	7.264	5.349	31.13	.0321

12/14 35# .250 WALL API 5L X42 Hydrostatic Test PSI 1440
API 5L X52 " " " 1740

do not run 23" below 1500'

COBRA DRILLING FLUIDS, LLC

Arena Resources Inc

Queen Prospect

Eddy County, New Mexico

Mud Program Summary

<u>Depth</u>	<u>Hole Size</u>	<u>Casing Size</u>	<u>Mud Wt</u>	<u>Viscosity</u>	<u>Fluid Loss</u>
0 – 400'	12-1/4"	8-5/8"	8.6-9.2	33-35	NC
400 – 2600'	7-7/8"	--	10.0-10.1	28-29	NC
2600 – 3500'	7-7/8"	5-1/2"	10.0-10.2	34-38	10-15cc

Potential Problems

Surface Interval 0-550'

- Poorly consolidated formation, may require higher than normal viscosity.
- Light seepage through water sands

Open Hole Interval 550'-2600'

- Evaporate salt causing washouts
- Moderate seepage
- Hole cleaning through Capitan sand interval. (1800'-2300'+)

Production Interval 2600'-3700'+

- Moderate loses
- Deviation

ANTICIPATED FORMATION TOPS

Anhydrite	330'	Seven Rivers	2060'
B/Salt	1500'	Queen	2800'
Yates	1700'	Grayburg	3100'

SURFACE INTERVAL

Interval: 0-550'
Hole Size: 12-1/4"
Casing Size: 8-5/8"
Total Days: 1
Mud Type: Fresh Water Gel Native

Properties:

Weight: 8.8 – 9.4 ppg
Viscosity: 32 – 34 sec/1000cc
Filtrate: N/C
pH: N/C

Interval Discussion:

Spud with a conventional Fresh Water Gel/Lime "spud mud". Circulate working pits, jetting to reserve as needed. Use native solids to maintain a 33-35 sec/1000cc viscosity. Use fresh water additions at flowline for volume and to maintain viscosity and mud weight in desired range. Add Paper 2-3 sacks every 100' to improve wall cake and clean hole through Red Bed and Sand intervals.

At total depth sweep hole with 5 gals. Vismaster. Circulate sweep out flowline prior to tripping out of hole to run surface casing.

Materials Consumption & Cost:

30 sx	Fresh Water Gel
20 sx	Paper
5 sx	Lime
1 Bkt	Vismaster

INTERMEDIATE INTERVAL

Interval:	550' -2600'
Hole Size:	7-7/8"
Casing Size:	--
Total Days:	2
Mud Type:	Brine
Properties:	
Weight:	10.0 – 10.1
Viscosity:	28-29 sec/1000cc
Filtrate:	N/C
pH:	9.2-10

Interval Discussion:

Drill below surface casing with Brine, circulating a controlled portion of the reserve pit for gravitational solids removal. Use Brine to avoid excessive wash out and hole enlargement through salt interval. Mix Paper for seepage control. Use Caustic Soda for pH 9.5-10. Paper for seepage/sweeps 1-2 sacks per 100' or as needed to help clean hole. Possible sand stringers through this interval could require additional hole sweeps with Vismaster/Paper.

Materials Consumption & Cost:

1 cn	Vismaster
15 sx	Caustic
30 sx	Paper

PRODUCTION INTERVAL

Interval: 2600' – 3700'

Hole Size: 7-7/8"

Casing Size: 5-1/2"

Total Days: 2

Mud Type: Salt gel/Starch

Properties:

Weight: 10.0 – 10.2

Viscosity: 34-38 sec/1000cc

Filtrate: 10-15cc

pH: 9.5-10.0

Interval Discussion:

At 2600' or as per Company orders split flowline and circulate working pits. Adjust pH with Caustic Soda. Mix Yellow Starch to lower water loss 15-20cc. Add Defoamer as needed.

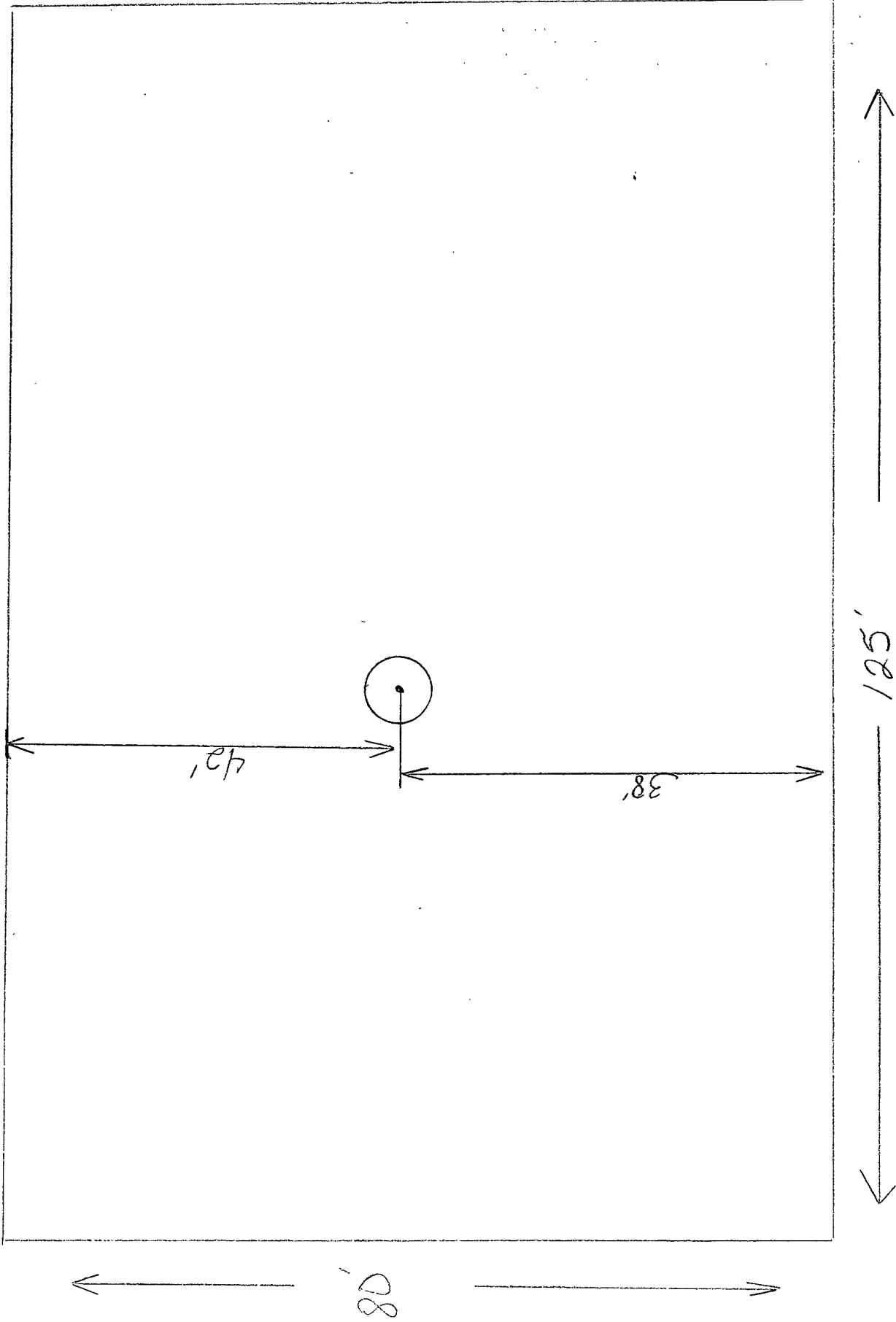
Continue sweeping hole with Paper as needed. Suggest to raise viscosity 34-36 sec/1000cc with Salt Water Gel around 200-300' from total depth. Sweep hole at TD prior to logging and casing operations with Vismaster.

Materials Consumption & Cost:

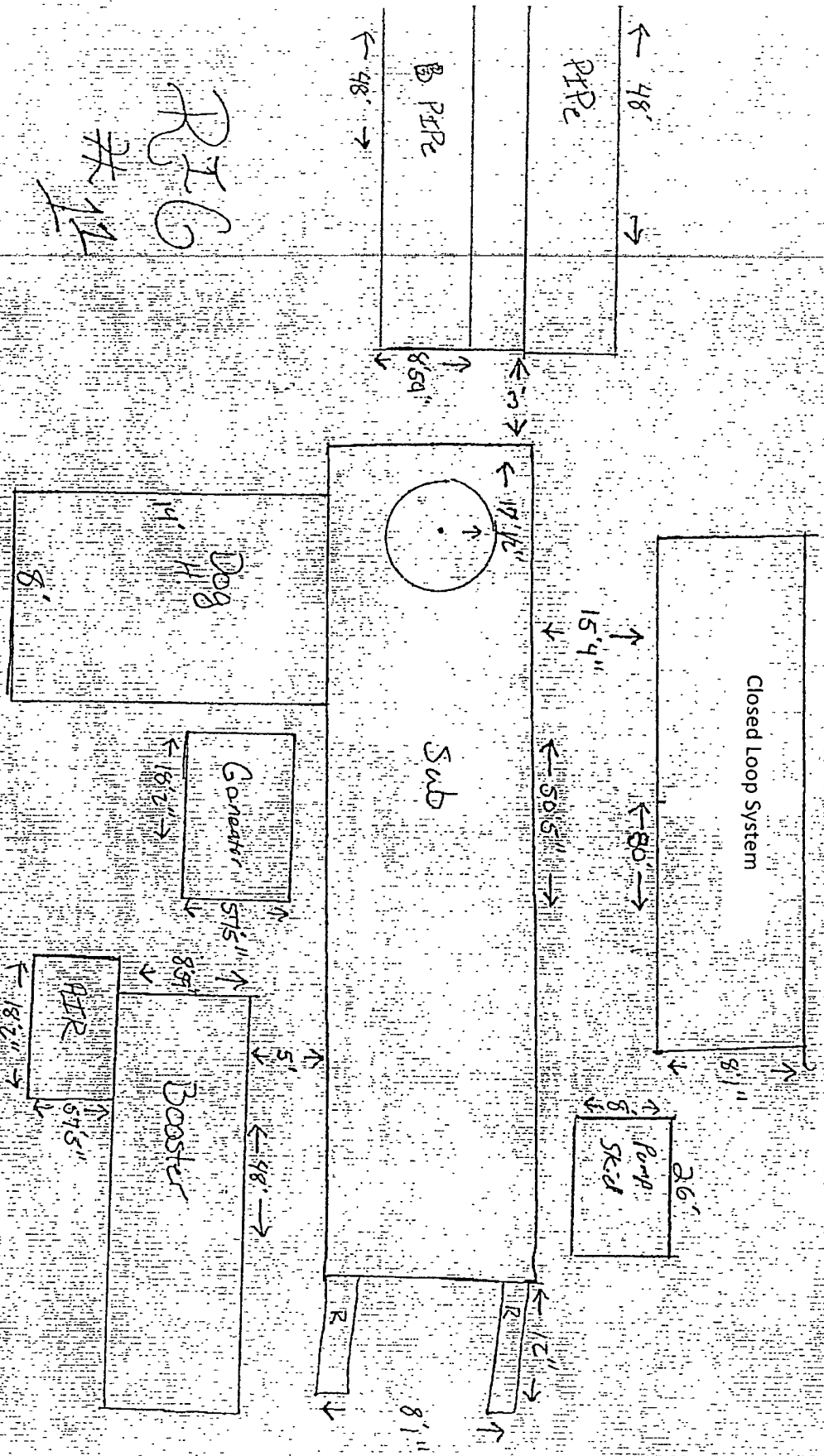
50	sx	Starch
10	sx	Caustic Soda
1	cn	Vismaster
100	sx	Salt Water Gel
2	cn	Defoamer

LOCATION PLAT

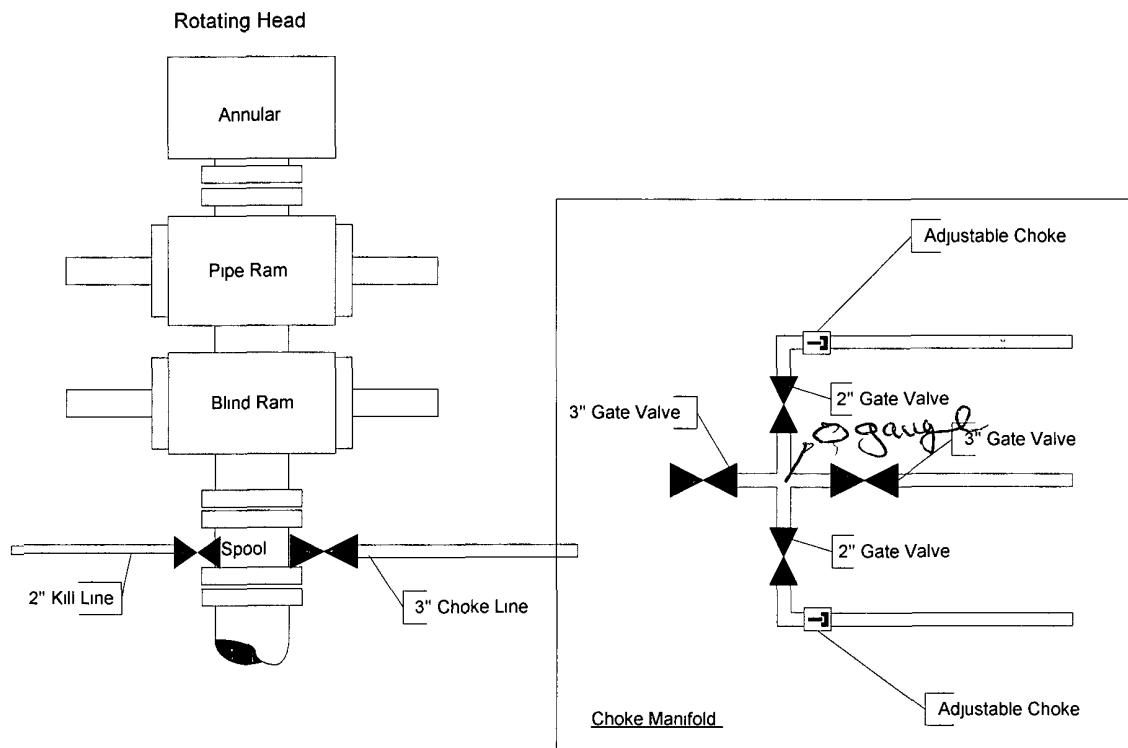
NBQU #63



Pro 20170



3000psi -
BOPE



**H2S CONTINGENCY PLAN
ARENA RESOURCES, INC.
NORTH BENSON QUEEN UNIT**

PURPOSE

This plan is intended to protect the health and safety of the public, contractors and Arena Resources, Inc. (Arena) personnel should an unanticipated release of a potentially hazardous volume of Hydrogen Sulfide (H2S) occur.

Further to:

- Comply with the Bureau of Land Management's (BLM) Onshore Oil and Gas Operations Onshore Oil and gas Order No. 6, Hydrogen Sulfide Operations (43 CFR Part 3160).
- Comply with the State of New Mexico Oil Conservation Division's (NMOCD) Rule 19 NMC 15.C 118.
- Assure proper notification of the appropriate parties and agencies

SCOPE

The provisions of this document are intended to address Hydrogen Sulfide (H2S) releases and H2S emergencies at Arena Resources, Inc. production batteries, wells and all surrounding operated field locations in the North Benson Queen Unit. Facilities for which calculations indicate a potential hazardous volume of H2S could occur have additional site specific response information and radius of exposure drawn on the attached USGS topographic map. The production field is located approximately 7.2 miles South of Loco Hills , NM (Lea County).

DEFINITIONS

All Clear – Notification of effected personnel, by the response leader, that an incident has ended and the area is safe to re-enter.

A Potentially Hazardous Volume – a volume of Hydrogen Sulfide (H2S) gas of such concentrate that:

- The 100-ppm radius of exposure (ROE) includes any public area.
- The 500-ppm radius of exposure (ROE) includes any public road.
- The 100-ppm radius of exposure (ROE) exceeds 3,000 feet.

Facility – Equipment involved in producing, processing, or transporting natural gas and/or crude oil, including the property to the edge of the pad or fence.

Hydrogen Sulfide Gas (H₂S) – an extremely flammable, colorless, poisonous gas that may occur naturally as a component of production streams, such as crude oil, produced water and natural gas. At low concentrations it has a rotten egg odor, but at higher concentrations deadens the sense of smell. Its specific gravity is heavier than air giving it a tendency to collect in low-lying areas on still days. The permissible exposure limit is 10 ppm and the short term exposure limit is 15 ppm. It is considered to be immediately dangerous to life and health at 300 ppm. H₂S is readily dispersed in air and is water soluble.

ICS (Incident Command System) – A team based concept for emergency response in which roles and responsibilities are predetermined.

Incident Commander (IC) – Senior Arena Resources, Inc. employee in charge of an emergency response.

Incipient Stage Fire – A fire in the beginning or very early stages of development, which can be effectively extinguished by one or more persons with portable fire fighting equipment.

Muster Site – A pre-defined staging or meeting area.

RMS Level I – An emergency that can be reasonably addressed by the Hobbs Area Office in which the incident occurs and that can be resolved in approximately two days or less.

ROE (Radius of Exposure) – The radius constructed with the point of escape (of gas) as its starting point and its length calculated using the Pasquill-Gifford derived equation or computer modeling where the H₂S concentration is greater than 10%.

PPM – Parts per Million

Public Area – Any building or structure that is not associated with the well, facility or operation for which the ROE is being calculated and that is used as a dwelling, office, place of business, church, school, hospital or government building, or any portion of a park, city, town, village, or designated school bus stop or other similar area where members of the public may reasonably be expected to be present.

Public Road – Any federal, state, municipal or county road or highway.

Serious Incident – An event which results or has the potential to result in severe personal injury and/or significant equipment damage.

Sulfur Dioxide (SO₂) – A heavy colorless toxic gas that is formed when hydrogen sulfide is burned. It has a pungent odor and is a respiratory irritant. The permissible exposure limit is 2 ppm, the short term exposure limit is 5 ppm. It is considered to be immediately dangerous to life and health at 100 ppm. SO₂ is readily dispersed in air and is water soluble.

Total Personnel Evacuation – An evacuation of all persons (contract employees, or visitors) from the emergency area to a muster area.

THE PLAN

Training:

All personnel (company, contractors and sub-contractors) working in the field for Arena Resources, Inc. are required to complete hydrogen sulfide training before beginning work and annually thereafter.

Training on the contents of this plan shall be provided to all Arena Resources, Inc. and appropriate contract personnel working for Arena Resources, Inc.:

- whenever the employees' responsibilities or designated actions under the plan change,
- whenever the contents of the plan are changed/revised,
- whenever a new employee begins employment, and
- Periodically as needed for all employees.

Arena Resources, Inc. supervision is responsible for this training.

Orientation:

All persons visiting or working at the North Benson Queen Unit shall receive an orientation covering the following minimum items:

- What types of emergencies are possible,
- How to report an incident/emergency,
- Who will be in charge during an emergency,
- How to safely evacuate the area, and
- Where to assemble so that all persons can be accounted for.

The Arena representative responsible for the contractors or visitors shall conduct the orientations and shall document attendees and dates.

H2S Monitors:

All personnel working at the North Benson Queen Unit are required to wear a personal H2S monitor at all times when working in the area. Monitors should have a vibrating alarm if used in high noise areas.

Activation:

Phase I – activated when:

1. Sustained H₂S concentration reaches 10 parts per million (ppm) in any work area and the source is not readily identified and/or controllable.
2. Continuous H₂S levels are detected at 10 ppm (or greater) at any public road, near an occupied residence or bus stop, and the source is not readily identified and/or immediately controlled.

Phase II – activated when:

1. A potentially hazardous volume of H₂S is detected.
2. When sustained H₂S concentrations exceed 50 ppm at any facility boundary.

Phase I:

Upon discover onsite personnel should:

- Make others on-site aware of the presence of H₂S and leave the area upwind or crosswind to a safe location. (Pre-determine if a pre-job tailgate meeting was conducted).
- Prevent unauthorized persons from entering the area. Request assistance if needed.
- If a residence or other public area is in the vicinity, monitor for H₂S to ensure exposure is less than 10 ppm. Notify supervisor if higher exposures are noted or if any other questions arise about steps necessary to protect these sensitive areas.
- If considering re-entering the area to assess the H₂S source, ensure you have been properly trained to respond. Use an H₂S monitor with digital display (preferably a multi-gas monitor) and have a supplied air respirator (SAR) and back up person with (SAR) readily available. Consider notification of supervisor if appropriate.
- Proceed with caution. If H₂S concentration reaches 10 ppm in your breathing zone, back out and use SAR to re-enter. **If H₂S concentration reaches 50 ppm at the facility boundary, immediately notify supervision.**

- If source can be safely controlled, monitor area to ensure H2S levels are below 10 ppm. End response here and sound all clear to allow others to re-enter the area. Report length of release and volume to supervisor.
- If the source of H2S cannot be identified and/or controlled, or if you cannot do so without exposing yourself to danger, leave the area to a safe distance.
- ~~Notify supervision.~~
- Continue to monitor for H2S and maintain site security until instructed by supervision to do otherwise.

Supervision:

- Gather necessary information to determine the course of action and level of response.
- Mobilize any additional manpower or equipment necessary.
- Ensure Phase II measures are implemented if appropriate.
- Continue to monitor situation until incident is over.
- Make notifications if required.
- Complete reports if required.
- Investigate as indicated.

Phase II

Upon discovery on-site personnel should:

- Make others on-site aware of the presence of H₂S and leave the area upwind or crosswind to a safe location. (Pre-determined if a pre-job tailgate meeting was conducted.
- ~~Prevent authorized persons from entering the area.~~
- **Notify Supervisor**

Supervision:

- Mobilize the resources necessary to maintain site security and provide for the protection of personnel and the public
- Issue warnings to all Arena personnel by radio and/or phone to make them aware of the incident and its location. Have non-essential personnel leave the area. If deemed necessary, order total personnel evacuation of the area.
- Notify non-company personnel known to work or reside in the area. If necessary to ensure their safety, dispatch Arena personnel with the appropriate monitor, supplied air respirators and means of communication to these locations.
- Have Arena personnel set up road blocks to prevent unauthorized entry into impacted areas until relieved by law enforcement or other authorized personnel.
- Make appropriate notifications to NPC, Federal, State and local authorities.
- When the release has been contained and monitoring indicates the area is safe to re-enter, terminate operations and signal the all clear.
- Complete records if required.
- Investigate as indicated.

All other personnel not involved in the immediate response:

- If a total evacuation is ordered, report to the incident command center or nearest muster site to which you have safe access.
- Ensure all contract personnel working for you (or in your area) are accounted for and have them report to a safe muster site.
- Senior employee at each muster site should make a roster of all personnel reporting to that muster site and be prepared to make it available to the incident commander (IC).
- Maintain communication with the IC and be prepared to offer assistance as it is requested.

Ignition of H₂S:

While no uncontrollable release of H₂S is anticipated, should ignition of gas be necessary for the protection of personnel or the public, the determination would be made by the Arena Supervisor on location. The method of ignition will maintain the safety of the person performing this task as the primary concern. The most likely method would be the use of a flare gun from a safe distance.

If this becomes necessary, monitoring will include Sulfur Dioxide (SO₂) in addition to H₂S.

Coordination with State Emergency Plans:

Under certain conditions as provided for in the New Mexico Hazardous Materials Emergency Response Plan (HMER), the New Mexico State Police responding to the emergency may elect to assume the position of Field Incident Commander (FIC) or they may establish a Unified Command of which the Arena Field Incident Commander may be a key member. Under the Unified Command scenario, the Arena FIC shall cooperate with the other involved emergency responders, such as the New Mexico State Police, local fire department, City Police, Sheriff's Office, NMOCD or other appropriate public emergency response agencies to manage the effective and safe response to the emergency situation.

**ARENA RESOURCES, INC.
EMERGENCY CONTACTS**

Contact	Office	Mobile	Bag	Home
Danny Palmer	(575) 738-1739	(575) 602-8595	(575) 631-4113	(575) 392-0063
Tony Tucker	(575) 738-1739	(575) 208-6792	(575) 208-6758	(575) 706-7216
Bob Akin	(575) 738-1739	(575) 390-8007	(575) 390-8007	(575) 394-0937

**EMERGENCY SERVICES
OUTSIDE SUPPORT PHONE NUMBERS**

Hospital Name	Address	City	Phone Number
Lea Regional Hospital	5419 Lovington Highway	Hobbs, NM	(575) 492-5000
Carlsbad Medical Center	2430 W. Pierce St.	Carlsbad, NM	(575) 887-4100
Artesia General Hospital	702 N. 13th	Artesia, NM	(575) 748-3333
Nor-Lea General Hospital	1600 N. Main Street	Lovington, NM	(575) 396-6611
Yoakum County Hospital	412 Mustang Dr.	Denver City, TX	(806) 592-5484
Brownfield Regional Medical Center	705 E. Felt	Brownfield, TX	(806) 637-3551
Covenant Health Systems	4000 24 th Street	Lubbock, TX	(806) 725-6000
Covenant Medical Center	2615 19 th Street	Lubbock, TX	(806) 725-1011
University Medical Center	602 Indiana	Lubbock, TX	(806) 743-3111

AMBULANCE	Phone Number
Hobbs, NM	911 or (575) 397-9308
Lovington, NM	911 or (575) 396-2811
Eunice, NM	911
Artesia, NM	911 or (575) 746-5050

AIR AMBULANCE	Phone Number
AEROCARE Methodist Hospital, Lubbock, TX	1-800-627-2376

POLICE

CITY	PHONE NUMBER
Artesia, New Mexico	911 or (575) 746-5000
Hobbs, New Mexico	911 or (575) 397-9265
Eunice, New Mexico	911 or (575) 394-2112
Lovington, New Mexico	911 or (575) 396-2811

SHERIFF

CITY/COUNTY	PHONE NUMBER
Eddy County Sheriff – Artesia	(575) 746-9888
Eddy County Sheriff – Carlsbad	(575) 887-7551

STATE HIGHWAY PATROL

CITY	PHONE NUMBER
Artesia, New Mexico	(575) 748-9718

FIRE DEPARTMENT

CITY	PHONE NUMBER
Artesia, New Mexico	911 or (575) 746-5050
Loco Hills, New Mexico	911 or (575) 677-2349
Carlsbad, New Mexico	911 or (806) 592-3516

AIRPORTS

CITY	PHONE NUMBER
Artesia Municipal Airport	(575) 748-3206
Lea County Airport – Carlsbad Hwy	(575) 393-4943
Lea County Lovington Airport	(575) 396-9911
Lubbock International Airport	(806) 762-6411
Midland International Airport	(432) 563-2033

GOVERNMENT AGENCIES

AGENCY	PHONE NUMBER
NMOCD – Artesia	(575) 370-7106
NMOCD – Santa Fe	(575) 827-7131
NMED - Air Quality Bureau	(575) 827-1494
NMED – OSHA	(575) 827-2850
Bureau of Land Management - Carlsbad	(575) 234-5972

POISON CONTROL CENTER	(800) 432-6866
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- 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. **No variance granted on BOP/BOPE test when running only two casing strings. Third party test required.**

D. DRILLING MUD

Mud system will be air and foam. Due to location size, the minimum requirements for portions of the air drill equipment cannot be met. A variance is approved for the distance requirements for the blooie line and the compressor package providing that the 3M choke manifold is equipped with a remote choke to enable controlled bleeding of a gas volume. If the bleeding extends past a two hour period, the drilling medium is to be changed to a 10 ppg mud. No variance will be granted from using a 3M BOP/BOPE.

NOTE – any spray onto vegetation outside of the existing pad is to be reported immediately.

Operator has also proposed a water based mud system if needed.

E. DRILL STEM TEST

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

WWI 100408

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

STANDARD STIPULATIONS FOR SURFACE INSTALLED PIPELINES

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.

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

1. 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.
2. 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 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR, Part 702-799 and 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.
3. 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 activity of the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

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

- a. Activities of the holder including, but not limited to construction, operation, maintenance, and termination of the facility.
- b. Activities of other parties including, but not limited to:
 - (1) Land clearing.
 - (2) Earth-disturbing and earth-moving work.
 - (3) Blasting.
 - (4) Vandalism and sabotage.
- c. Acts of God.

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

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

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

6. All construction and maintenance activity will be confined to the authorized right-of-way width of 25 feet.
7. No blading or clearing of any vegetation will be allowed unless approved in writing by the Authorized Officer.
8. The holder shall install the pipeline on the surface in such a manner that will minimize suspension of the pipeline across low areas in the terrain. In hummocky or dune areas, the pipeline will be "snaked" around hummocks and dunes rather than suspended across these features.
9. The pipeline shall be buried with a minimum of 24 inches under all roads, "two-tracks," and trails. Burial of the pipe will continue for 20 feet on each side of each crossing. The condition of the road, upon completion of construction, shall be returned to at least its former state with no bumps or dips remaining in the road surface.
10. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.
11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.
12. Excluding the pipe, all above-ground structures not subject to safety requirement shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be a color which simulates "Standard Environmental Colors" – **Shale Green**, Munsell Soil Color No. 5Y 4/2; designated by the Rocky Mountain Five State Interagency Committee.
13. The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder's name, BLM serial number, and the product being transported. Signs will be maintained in a legible condition for the life of the pipeline.
14. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway.

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

(March 1989)

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 2, for Sandy 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:

<u>Species</u>	<u>lb/acre</u>
Sand dropseed (<i>Sporobolus cryptandrus</i>)	1.0
Sand love grass (<i>Eragrostis trichodes</i>)	1.0
Plains bristlegrass (<i>Setaria macrostachya</i>)	2.0

*Pounds of pure live seed:

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

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.