OCD-ARTESIA

Form 3160-3
(August 2007)

(RESUBMITTAL)

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Split Estate

DEC 26 2007
OCD-ARTESIA

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.
NM-LC-058582

6. If Indian, Allotee or Tribe Name

1a. Type of work: ☑ DRILL ☐ REENTER

7. If Unit or CA Agreement, Name and No.
BGSAU-NM68291Y

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

8. Lease Name and Well No.
BGSAU #11 003

2. Name of Operator Tandem Energy Corporation

9. API Well No.
30-015-36204

3a. Address P.O. Box 1559 Midland, TX 79707-1559

3b. Phone No. *(include area code)*
432-686-7136

10. Field and Pool, or Exploratory
Loco Hills QU-GB-SA

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface 1770'FNL,1090' FEL
UNORTHODOX LOCATION
At proposed prod. zone

11. Sec., T. R. M. or Blk. and Survey or Area
Section 6, Twnp. 18-S. Rng. 29-E

14. Distance in miles and direction from nearest town or post office*
6 miles SW Loco Hills, NM

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)
1550' from W. unit line

16. No. of acres in lease
2580

17. Spacing Unit dedicated to this well
20

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.
764' (#11-2)

19. Proposed Depth
3200'

20. BLM/BIA Bond No. on file
NMB000312

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
3610' GL

22. Approximate date work will start*
01/15/2008

23. Estimated duration
14 days

24. Attachments

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

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

25. Signature Toben Scott
Name *(Printed/Typed)* Toben Scott
Date 11/28/2007

Title
Vice President - Operations

Approved by *(Signature)* /s/ Don Peterson
Name *(Printed/Typed)* /s/ Don Peterson
Date DEC 21 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 cr... artment or agency of the United States any false, fictitious or fraudulent statements or representations as t...

(Continued on page 2)

Roswell Controlled Water Basin

If earthen pits are used in association with the drilling of this well, an OCD pit permit must be obtained prior to pit construction.

*(Instructions on page 2)

SEE ATTACHED FOR CONDITIONS OF APPROVAL

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 & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-015-36204	39520	Loco Hills; Qn-GB-SA

Property Code	Property Name	Well Number
302006	BALLARD GRAYBURG – SAN ANDRES UNIT	11-3

OGRID No.	Operator Name	Elevation
236183	TANDEM ENERGY CORPORATION	3610'

Surface Location

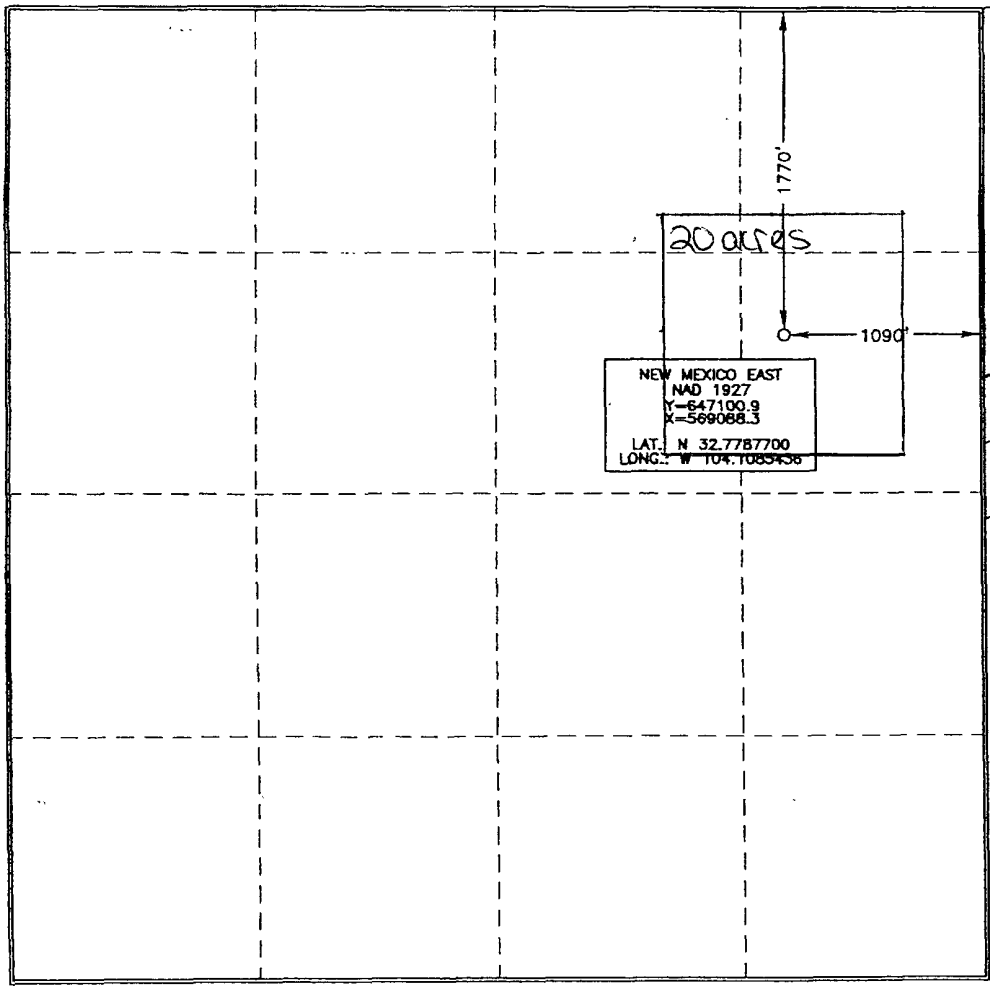
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
H	6	18 SOUTH	29 EAST, N.M.P.M.		1770	NORTH	1090	EAST	EDDY

Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.

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 contained 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 a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature Date 1/23/06

Printed Name: Loben Scott

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.

JANUARY 10, 2006
Date of Survey

Signature and Seal of Professional Surveyor:

NEW MEXICO 15079 REGISTERED PROFESSIONAL LAND SURVEYOR

Certificate Number 15079 1/21/2006

WO# 060106WL-j (CDC)

Drilling Plan

Attachment to Form 3160-3
Tandem Energy Corporation
Ballard Grayburg San Andres Unit (BGSAU)
Eddy County, New Mexico

Tract	Well #	Legals		Gr. Elev.
6	6-4	SW/SE 6-18S-29E	80' FSL, 2540' FEL	3599'
6	6-5	SE/SE 6-18S-29E	70' FSL1025' FEL	3588'
12	12-5	NE/NW 8-18S-29E	253' FNL 1068' FWL	3567'
11	11-3	SE/NE 6-18S-29E	1770' FNL 1090' FEL	3610'

1. **Geologic Name of Surface Formation**:
   Permian

2. **Estimated Tops of Important Geologic Formations**:

Formation	Top
Top of Salt	+/- 325'
Base of Salt	+/- 725'
Yates	+/- 900'
Seven Rivers	+/- 1250'
Queen	+/- 1875'
Grayburg	+/- 2275'
Loco Hills	+/- 2350'
Top of Unit	+/- 2400'
Metex	+/- 2450'
Premier	+/- 2575'
San Andres	+/- 2650'
TD	+/- 3300'

3. **Estimated Depths of Anticipated Fresh Water, Oil, or Gas**
   Water: None Anticipated
   Oil: 2475'-3100'
   Gas: None Anticipated
   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. The Grayburg and San Andres intervals will be isolated by setting 5-1/2" csg. to TD of +/- 3300' and circulating cement to surface.

4. **Casing Program:**

Hole Size	Interval	Casing Size	Weight	Grade	Type
12-1/4"	0'-325'	8-5/8"	24#	K-55	ST&C
7-7/8"	0'-TD	5-1/2"	15.50#	J-55	ST&C

see COA

Cementing Program:

8-5/8" Surface Casing: Cement to surface with 150 sx Lite (35% Poz, 65% Class "C", 6% gel) with 2% CaCl and ¼ lb/sx Cellophane flakes + 100 sx Class "C" with 2% CaCl and ¼ lb/sx Cellophane flakes.

5-1/2" Production Casing: Cement to surface with 650 sx Lite (35% Poz, 65% Class "C", 6% gel) with 5 lb/sx salt and ¼ lb/sx Cellophane flakes + 165 sx Class "C" ¼ lb/sx Cellophane flakes.

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. **Minimum Specifications for Pressure Control:**
The blowout prevention equipment (BOP) shown in exhibit #1 will consist of a 3K (3000 psi working pressure) annular preventer. This unit is air operated with a backup hand pump. The BOP will be installed on top of the 8-5/8" surface casing and utilized continuously until total depth is reached. As per BLM Drilling Operations Order #2, prior to drilling out the 8-5/8" casing shoe, the BOP will be function tested and pressured to 1000 psi by a licensed third party tester.

see COA

The annular preventer will be operated and checked each 24 hour period and each time that the drill pipe is pulled out of the hole. These function tests will be documented on the daily drillers log. Tandem Energy requests an exception to the minimum BOP equipment due to the shallow depth, low anticipated reservoir pressures, and extensive drilling knowledge of this lease.

6. **Types and Characteristics of Proposed Mud Systems:**
The surface holes on all subject wells will be drilled with fresh water. The same fresh water will be used to drill out of surface and allowed to gain chlorides through the salt section. Each new hole will start with a small volume of fresh water, and then cut brine from the previous well will be transferred over and re-used on all successive wells after the surface hole has been drilled.

Depth	Type	Weight	Viscosity	Water Loss
0'-400'	Fresh water	8.3-8.8	28-36	No control
400'-TD'	10# Brine	8.8-9.2	28-32	No control

see COA

7. **Logging, Testing and Coring Program:**
   A. No DST's are planned.

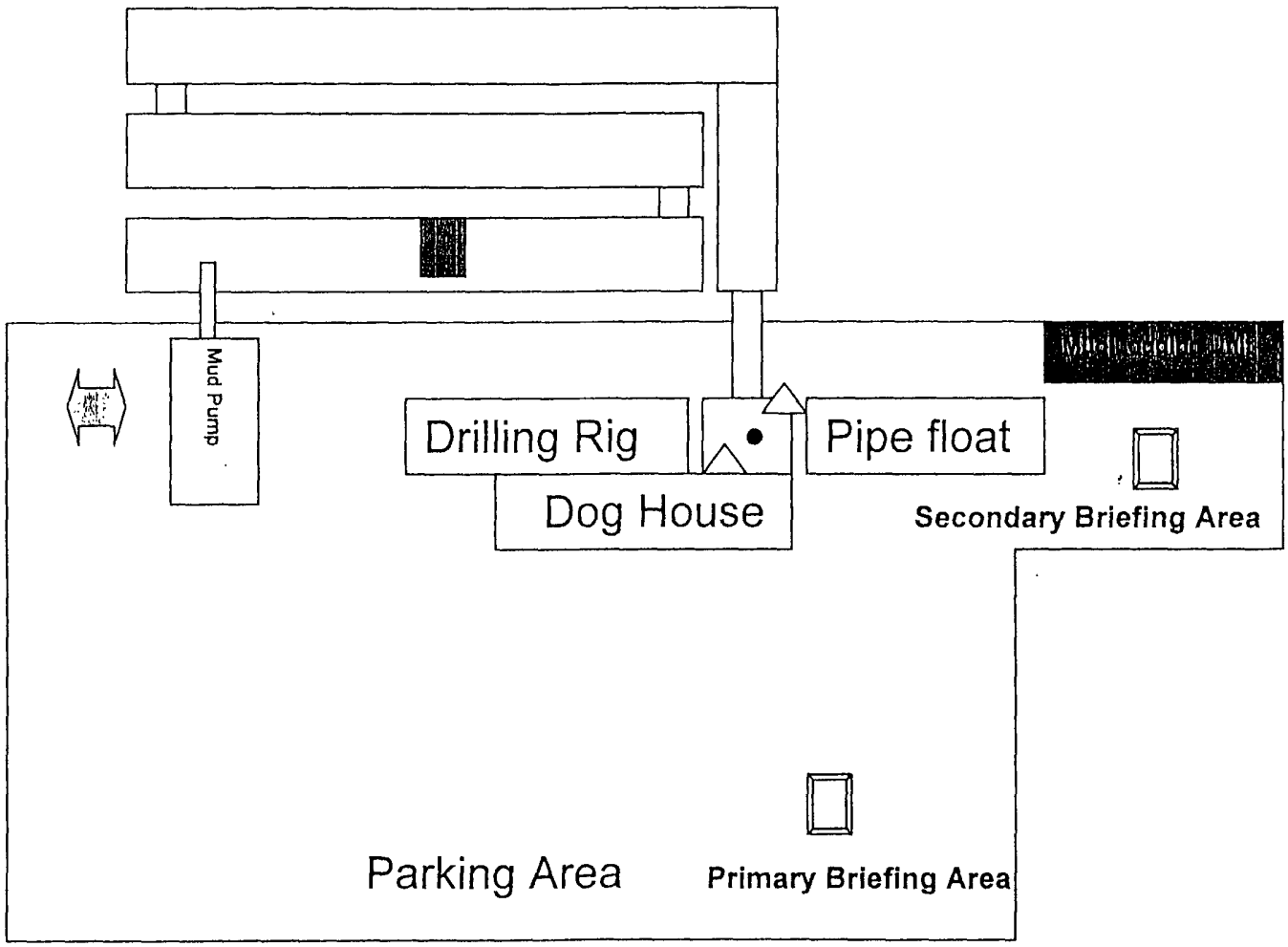
B. The open hole electrical logging program will be: GR/DLL/CAL/DSN
C. No coring program is planned.
D. No additional testing will be initiated subsequent to setting the 5-1/2" production casing.

8. **Abnormal Pressures, Temperatures, and Potential Hazards**
No abnormal pressures or temperatures are foreseen. The anticipated bottomhole temperature at total depth is 110 degrees and maximum bottom pressure is 1500 psi. No major loss circulation intervals have been encountered in adjacent wells. Small quantities of H2S are associated with the Queen, Grayburg and San Andres formations in this area. An H2S plan is attached.

9. **Anticipated Starting Date and Duration of Operations**
Barry Hunt of the Carlsbad, New Mexico BLM office has performed the onsite inspection of the proposed pad site of this location. A cultural resources examination has been submitted by Boone Archaeological Services to the BLM Carlsbad, New Mexico office.
Road and location preparation will not be undertaken until approval has been received from the BLM. If approved, this well will be drilled as part of a development project. The anticipated spud date for this project is approximately January 1st, 2008. The 4 well package is anticipated to take 60 days. If the wells are deemed productive, completion operations could require an additional 30 days.

Attachment to Exhibit #1
Attachment to Form 3160-3
Tandem Energy Corporation
Ballard Grayburg San Andres Unit (BGSAU)-2008 Drilling Project
Eddy County, New Mexico

1. The drilling nipple (bradenhead) will be a male-type head and screwed into the new API 8-5/8" csg. collar. It can be removed mechanically without the aid of a welder. The minimum internal diameter will equal BOP bore.
2. Blowout preventer and all associated fittings will be in operable condition to withstand 1000 psi surface shut-in pressure. This pressure assumes a 1500 psi max bottomhole pressure less a partially evacuated hole with a pressure gradient of 0.22 psi/ft. The BOP and surface csg. will be tested hydrostatically to 1000 psi prior to drilling out the surface shoe by a licensed third party tester.
3. All BOP equipment will be equal to or larger in bore than the internal diameter of the last casing string.
4. Rig air supply and backup hand pump to operate the annular BOP will be properly installed and tested on morning tour each day for safe operation.
5. All BOP equipment will meet API standards.
6. Tandem Energy's Mixon Drilling Rig #11 does not have a choke manifold. For reasons previously stated in Item #2, Tandem Energy believes that sufficient blow-out prevention for the drilling conditions in this field is achieved with the annular BOP.



△ H2S monitors with alarms at bell nipple, and mud pit.

Wind direction indicators

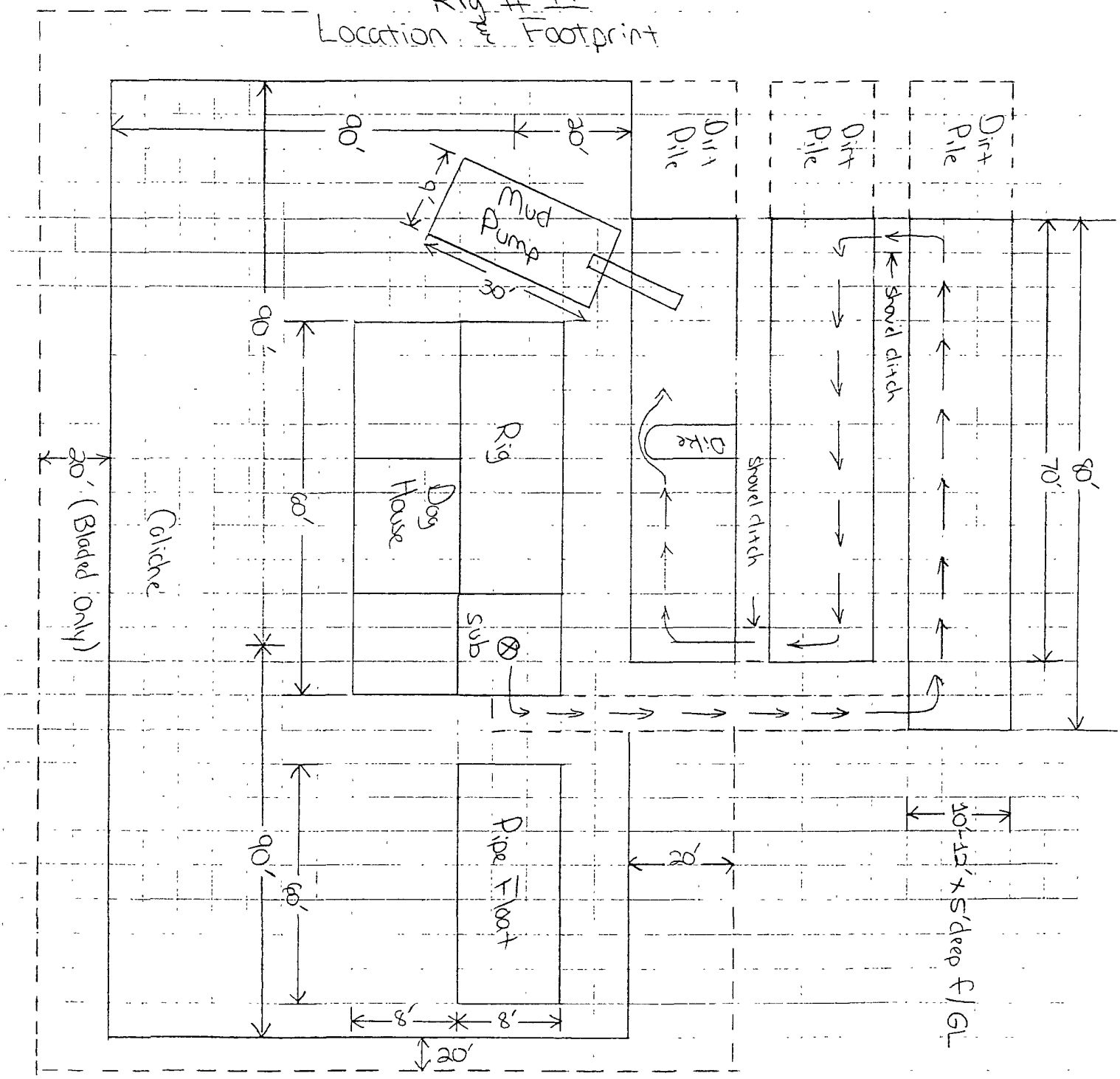
Safe briefing areas with caution signs and protective breathing equipment

See COA's

PATTERSON DRILLING COMPANY, LP

A LIMITED PARTNERSHIP

TANDEM ENERGY
Rig # 11
Location & Footprint



DALLAS, TEXAS
OFFICE (214) 368-5324

MIDLAND, TEXAS
OFFICE (915) 682-9401 • FAX (915) 682-1565

KILGORE, TEXAS
OFFICE (903) 983-1296 • FAX (903) 983-1634

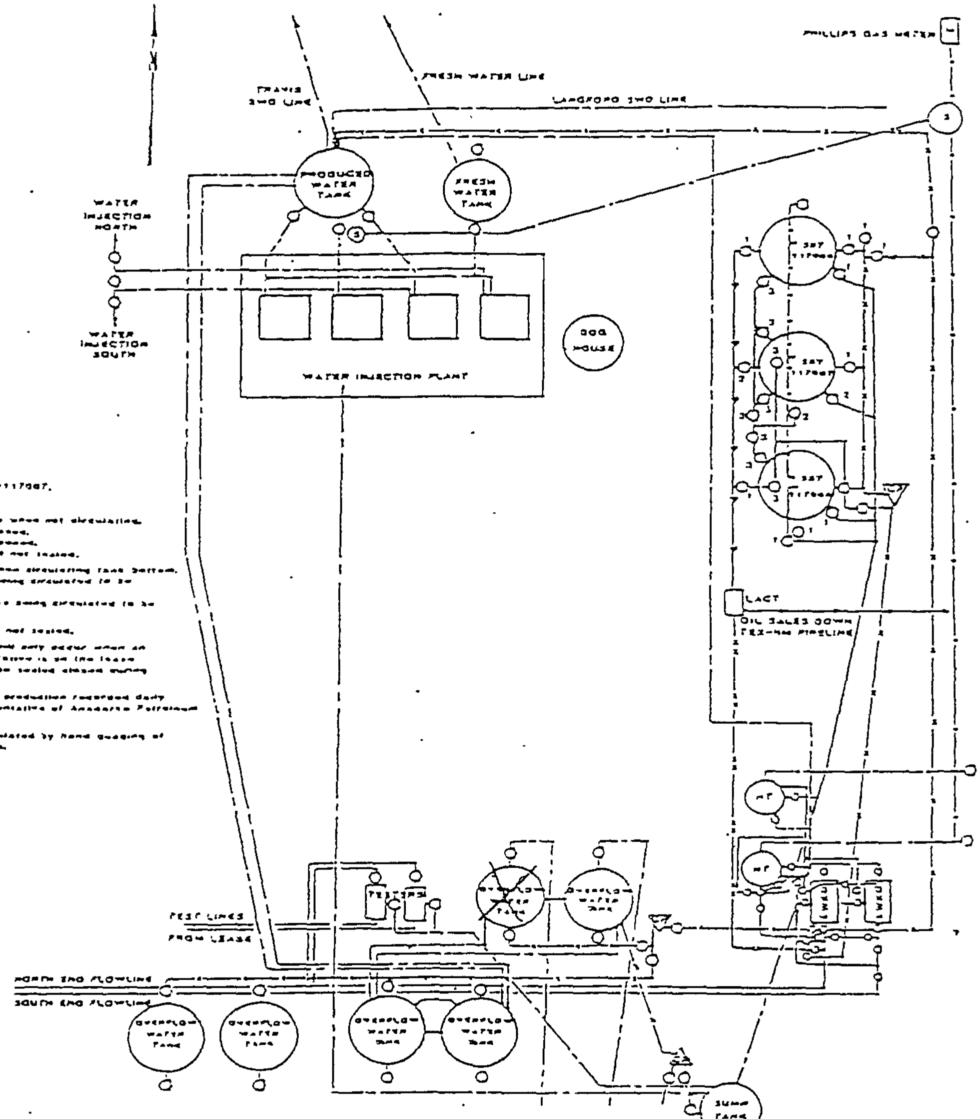
TANDEM ENERGY

SITE FACILITY DIAGRAM

P.O. DRAWER 130
ARTESIA, NEW MEXICO 88211-0130

BALLARD GRAYBURG-SAN ANDRES

UNIT NO. 8910123990
SW1/4 NW1/4, SEC. 8 T18S-R29E
EDDY COUNTY, NEW MEXICO
LSE #LC-061702



PRODUCTION SYSTEM—CLOSED

1. Oil sales by lact unit from tank #117067.
2. Seal Requirements:
   A. Production and Sales On Phase when not circulating.
      (1) All #1 valves to be sealed closed.
      (2) All #2 valves to be sealed opened.
      (3) All #3 valves to be open and not sealed.
   B. Production and Sales Phase when circulating tank bottom.
      (1) All #1 valves on tanks not being circulated to be sealed closed.
      (2) All #1 and #2 valves on tanks being circulated to be sealed open.
      (3) All #3 valves to be open and not sealed.

NOTE: Circulating of tank bottoms will only occur when an authorized company representative is on the lease. All circulating #1 valves will be sealed closed during off duty hours.

3. This facility will be inspected and production recorded daily by an authorized company representative of Anadarko Petroleum Corporation.
4. Production at this facility is calculated by hand gauging of tanks and lact unit measurements.

10-96

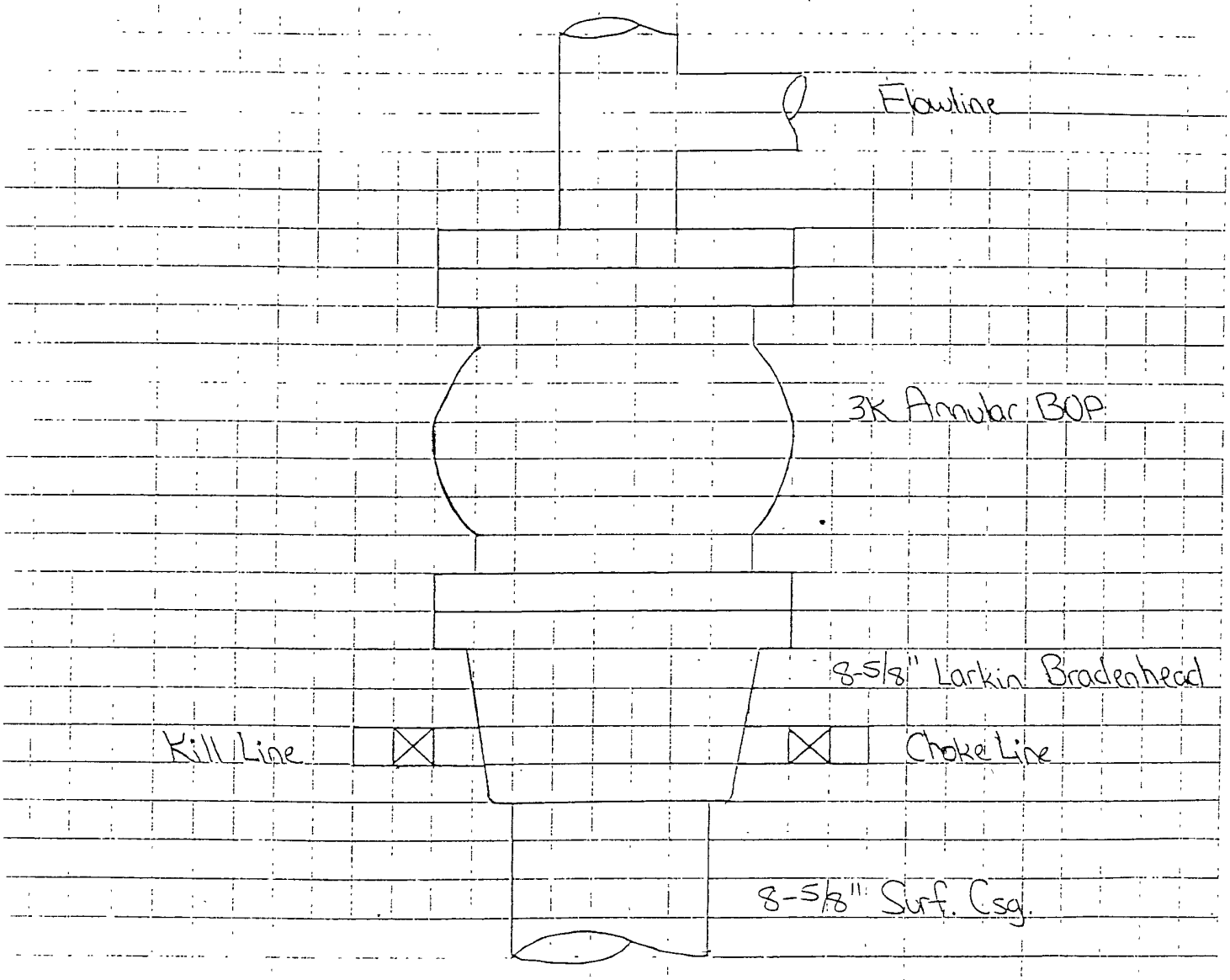
PATTERSON DRILLING COMPANY, LP

A LIMITED PARTNERSHIP

TANDEM ENERGY CORPORATION

NIXON DRILLING RIG # 11

Blowout Preventer Hookup



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TANDEM ENERGY
corporation

Hydrogen Sulfide Drilling Operations Plan

A. Hydrogen Sulfide Training

All rig crews and company personnel will receive training from a qualified instructor in the following areas prior to penetrating any hydrogen sulfide bearing formations during drilling operations.

1. The hazards and characteristics of hydrogen sulfide (H2S)
2. The proper use and maintenance of the H2S safety equipment and of personal protective equipment to be utilized at the location such as H2S detection monitors, alarms, and warning systems, and breathing equipment. Briefing areas and evacuation procedures will also be discussed and established.
3. Proper rescue techniques and procedures will be discussed and established.

In addition to the above, supervisory personnel will be trained in the prevention of oil and gas well blowouts in accordance with Minerals Management Service Standards Subpart -0-250-212.

Prior to penetrating any known H2S bearing formation, H2S training will be required at the rig sight for all rig crews and company personnel that have not previously received such training. This instruction will be provided by a qualified instructor with each individual being required to pass a 20 question test regarding H2S safety procedures. All contract personnel employed on an unscheduled basis will be required to have received appropriate H2S training.

This Hydrogen Sulfide Drilling and Operations Plan shall be available at the well site during drilling operations.

B. H2S Safety Equipment and Systems

All H2S safety equipment and systems will be installed, tested and operational when drilling operations reach a depth of approximately 500' above any known or probable H2S bearing formation. The safety systems to be utilized during drilling operations are as follows:

1. Well Control Equipment
    a. 3K annular BOP with a properly sized closing unit.
2. H2S Detection and Monitoring Equipment

200 N Loraine, Suite 500, P O. Box 1559 / Midland, Texas 79702-1559 / 432-686-7136 Fax 432-686-0527

a. Three H2S detection monitors will be placed in service at the location. One monitor will be placed near the bell nipple on the rig floor, one will be placed at the rig substructure, and one will be at the working mud pits or shale shaker. This monitoring system will have warning lights and audible alarms that will alert personnel when H2S levels reach 10 ppm.

3. Protective Equipment for Essential Personnel

Protective equipment will consist of the following:

a. Two five minute escape packs located at strategic points around the rig.

4. Visual warning system will consist of the following:
   a. One wind direction indicator
   b. One condition/warning sign which will be posted on the road providing direct access to the location. The sign will contain lettering of sufficient size to be legible at a reasonable distance from the immediate location. The sign will inform the public that a hydrogen sulfide gas environment could be encountered at the location.
5. Mud Program
   a. The mud program has been designed to minimize the volume of H2S circulated to surface. Proper mud weight and safe drilling practices (for example, keeping the hole filled during trips) will minimize the hazards when drilling in H2s bearing formations.
6. Metallurgy
   a. All drill strings, casings, tubing, wellhead, blowout preventers, drilling spools, kill lines, and valves shall be suitable for H2S service.
7. Communication
   a. Cellular telephone communication will be available by and between rig crews and company supervision.

C. Diagram of Drilling Location
   1. Attached is a diagram representing a typical location layout as well as the location of H2S monitors, briefing areas, and wind direction indicators.

Surface Use and Operation Plan

Attachment to Form 3160-3
Tandem Energy Corporation
Ballard Grayburg San Andres Unit (BGSAU), 2007/2008 Drilling Program
Eddy County, New Mexico

Tract	Well #	Legals		Gr. Elev.
6	6-4	SW/SE 6-18S-29E	80' FSL, 2540' FEL	3599'
6	6-5	SE/SE 6-18S-29E	70' FSL, 1025' FEL	3588'
12	12-5	NE/NW 8-18S-29E	253' FNL 1068' FWL	3567'
11	11-3	SE/NE 6-18S-29E	1770' FNL 1090' FEL	3610'

1. **Existing Roads**:
   A. The well sites and elevation plats for the above proposed wells are reflected in Exhibit 2. The wells were staked by Terry Asel Surveying of Hobbs, New Mexico.
   B. All roads to location are depicted in Exhibit #3. No more than 600' of new road will have to be constructed for 5 of the wells and about 1500' for the # 11-3.
   C. Directions to locations: From Artesia, New Mexico, go east on Highway 82 for 14 miles to State Road 360 and go approximately 5.1 miles. Turn left (East) onto caliche road at the BGSAU sign. Go approximately 0.7 miles to water plant. Follow Exhibit #3 map to each location.

2. **Proposed Access Roads**:
   Exhibit #3 shows the new access roads to be constructed from the existing lease roads. They will be constructed as follows.
   A. The maximum width of the road will be fifteen feet.
   B. It will be crowned and made of 6 inches of rolled and compacted caliche. Water will be deflected, as necessary, to avoid accumulation and prevent surface erosion.
   C. Surface material will be native caliche. This material will be obtained from a BLM approved pit nearest to the location.
   D. Grades will be no more than 8%.
   E. No cattle guards, grates, or fence cuts will be required.
   F. No turnouts are planned.

3. **Location of Existing Wells:**
   Exhibit #4 shows all active wells within the unit offsetting the planned new-drills.

4. **Location of Existing and/or Proposed Facilities:**
   A. The production facilities will be located at Tandem's central tank battery.
   B. In the event that the wells are found to be productive, they will be added to the facilities shown in Exhibit #5.
   C. The wells will be operated by means of electric motors.

D. If the wells are productive, rehabilitation plans are as follows:
   1. The reserve pit will be back-filled after the contents of the pit are dry (within 120 days of completion, weather permitting)
   2. Caliche from unused portions of the drill pad will be removed. The original top soil from the well sites will be returned to the location. The drill site will then be contoured to the original source.

5. **Location and Type of Water Supply:**
All wells will be drilled with fresh water and brine mud systems (outlined in drilling program). The fresh water will be obtained from commercial sources and pumped through poly line to each location. No water wells will be drilled on any location.

6. **Source of Construction Materials:**
All caliche utilized for the drilling pad and proposed access roads will be obtained from an exiting BOM approved pit. All roads will be constructed of 6" rolled and compacted caliche.

7. **Methods of Handling Water Disposal:**
   A. Drill cuttings will be disposed into the reserve pit.
   B. Drilling fluids will be contained in the reserve pits. The reserve pit will contain excess drilling fluid, or fluid from the well during drilling, cementing, and completion operations. The reserve pits will be three rectangular 90' x 10' x 5' pits.
   C. The reserve pits will be fenced on four sides throughout drilling operations and will be totally isolated upon removal of the rotary rig. The pit will be lined using a 20 mil plastic to minimize loss of drilling fluids.
   D. Water produced from the well during completion operations will be disposed into a steel tank or reserve pit, if volumes prove excessive. After placing the well on production through the production facilities, all water will be collected in tanks and injected into the water injection system. Produced oil will be separated into steel stock tanks and sold.
   E. Garbage, trash, and waste paper produced during drilling operations will be collected in a contained trailer and disposed at an approved landfill. All waste material will be contained to prevent scattering by the wind. All water, fluids, salt or other chemicals will be disposed into the reserve pit. No toxic or hazardous chemicals will be generated by this operation.
   F. All waste material will be removed within 30 days after the well is either completed or abandoned. The reserve pit will be completely fenced until it has dried. At the point the reserve pit is found sufficiently dry, it will be backfilled and reclaimed. The portion of the drilling pad used by the production equipment (pumping unit) will remain in use. If the well is deemed non-commercial, only a dry hole marker will remain.

8. **Ancillary Facilities:**
No campsite or other facilities will be constructed as a result of this well.

9. **Well Site Layout:**
   A. The drill pad is shown on exhibit #6. Approximate dimensions of the pad, pits, and general location of the rig equipment are displayed. Top soil, if any found will be stored adjacent to the pad until reclamation efforts are undertaken. Only modest cuts will be necessary to build the pads which will be covered with 6" of compacted caliche.
   B. No permanent living facilities are planned, but temporary trailers for the tool pusher, and mud loggers may be on location throughout drilling operations.
   C. The reserve pit and earthen pits will be lined using plastic sheeting of 20 mil thickness.

10. **Plans for Restoration of Surface:**
   A. After concluding the drilling and/or completion operations, if the well is found non-commercial, the caliche will be removed from the pad and transported to the original pit or used for other drilling locations or access roads. The road will be reclaimed as directed by the BLM. The reserve pit area will be broken out and leveled after drying to a condition where these efforts are feasible. The original top soil will again be returned to the pad and contoured, as close as possible, to the original topography.
   B. The pit lining will be buried or hauled away in order to return the location and road to their pristine nature. All pits will be filled and location leveled, weather permitting, within 120 days after abandonment.
   C. The location and road will be rehabilitated as recommended by the BLM.
   D. The reserve pit will be fenced on four sides throughout drilling operations and will remain in place when the rotary rig is removed to precluded endangering wildlife. The fencing will be in palace until the pit is reclaimed.
   E. If the well is deemed commercially productive, the reserve pit will be restored as described in 10(A) within 120 days after the completion date. Caliche from areas of the pad site not required for operations will be reclaimed. The original top soil will be returned to the area of the drill pad not necessary to operate the well. The unused area of the drill pad will be contoured, as close as possible to match the original topography.

11. **Surface Ownership**
   Tract 6, 11, & 12 well sites are owned by Bogle, Ltd., (o) 505-734-5442. Louis Derrick of Bogle, Ltd. inspected each of the locations on 2/15/06 and had no concerns with any of the locations. Linda Denniston of the BLM was notified of that correspondence in an e-mail on 2/16/06. Damages have already been paid to Bogle, Ltd. on all locations except for the # 11-3. Once this location has been built within the next 45 days, damages will then be estimated and appropriate damages will be paid. Mr. Derrick was again notified on 11/29/07 of Tandem's intent to spud the subject wells and of the need to assess damages on the #11-3.

12. **Other Information**
   A. The area surrounding the well site is gypsiferous and supportive of desert scrub and grassland formation. The vegetation is moderately sparse with desert scrub.

"Toben Scott"
<tscott@tandem-energy.com>

02/16/2006 03:20 PM

To <Linda_Denniston@nm.blm.gov>
cc
bcc
Subject Tandem Energy--Ballard Unit--Landowner Agreement

Louis Derrick of Bogle Farms called me yesterday and said that he had looked at all eight locations and didn't have a problem with either of the locations or entry roads. Mr. Derrick quoted me price for damages for roads and locations and we have accepted. We will be adding those figures up and sending him a check early next week.

Do you need a formal letter stating the above? Do you need to know what amounts were agreed upon?

Toben Scott

B. There are no known active water wells within a 1 mile radius of any wellsite. The nearest permanent water is a water stock tank located approximately near the southeast edge of the unit.
C. A cultural resources examination will be submitted by Boone Archaeological Services to the BLM office in Carlsbad, New Mexico.

13. Lessee's and Operators Representative

The Tandem Energy Corporation representative responsible for ensuring compliance of the surface use plan is

Toben Scott
VP-Operations
(o) 432-686-7136 ext. 1102
(m) 432-528-3127
e-mail: tscott@tandem-energy.com

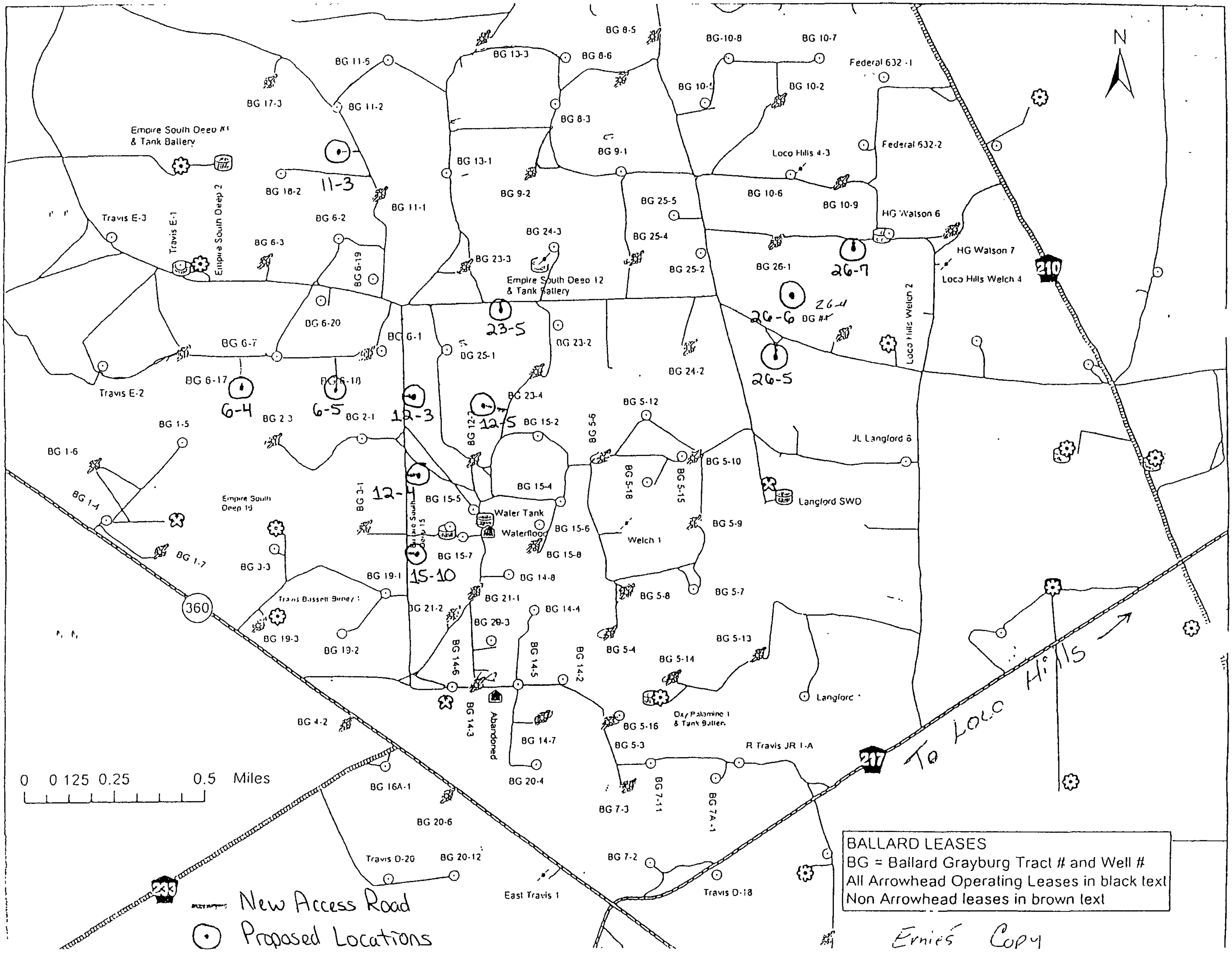
Tandem Energy Corp.
P.O. Box 1559
Midland, TX 79702-1559

Operator Certification

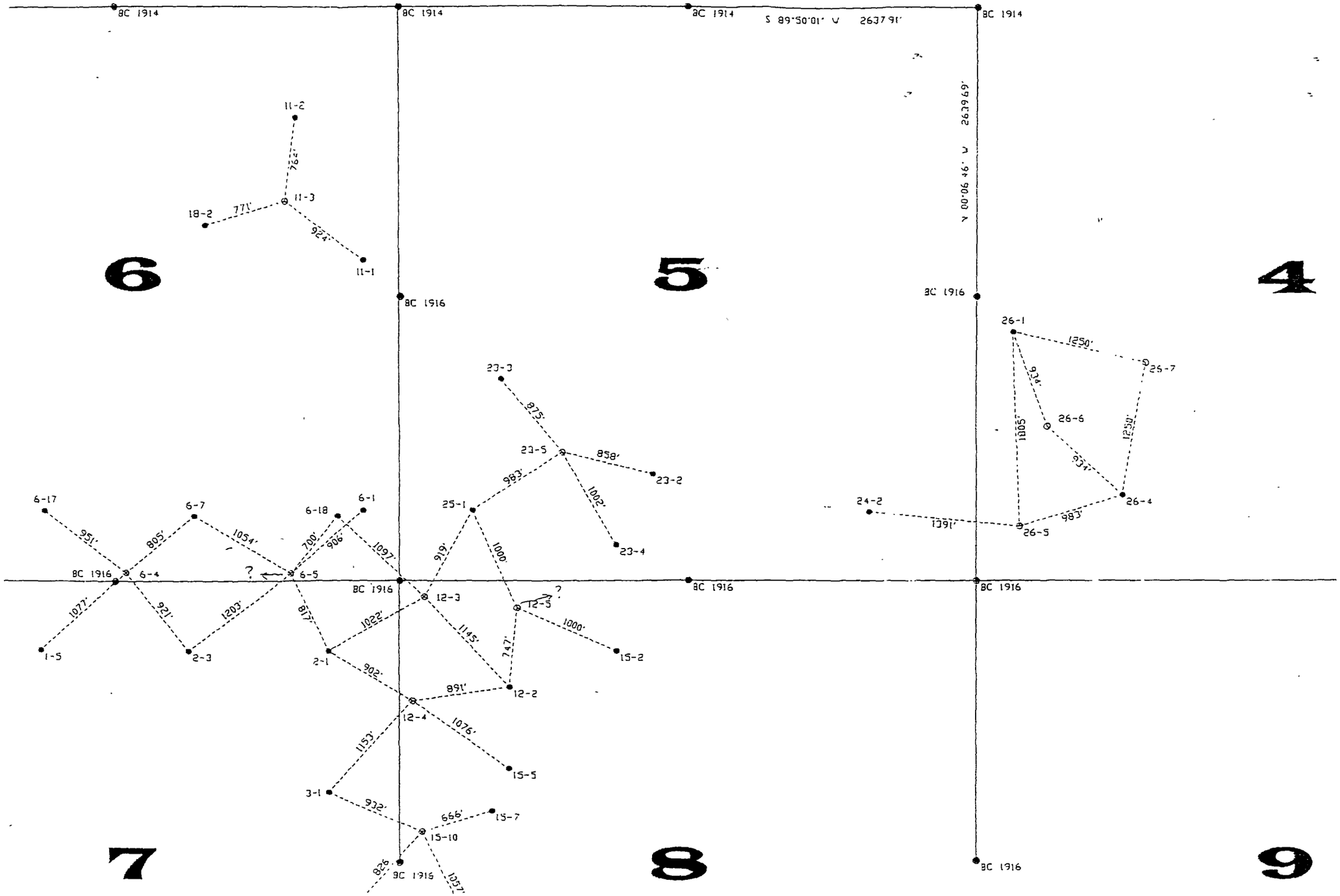
I hereby certify that I, or persons under my direct supervision, have inspected the drill site and access road proposed herein; that I am familiar with conditions that presently exist; that I have full knowledge of State and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with the APD package and the terms and conditions under which it is approved. I also certify that I, or Tandem Energy Corporation, am responsible for the operations conducted under this application. These statement are subject to the provisions of 18; U.S.C. 1001 for the filing of false statements.

Toben Scott
Vice President Operations

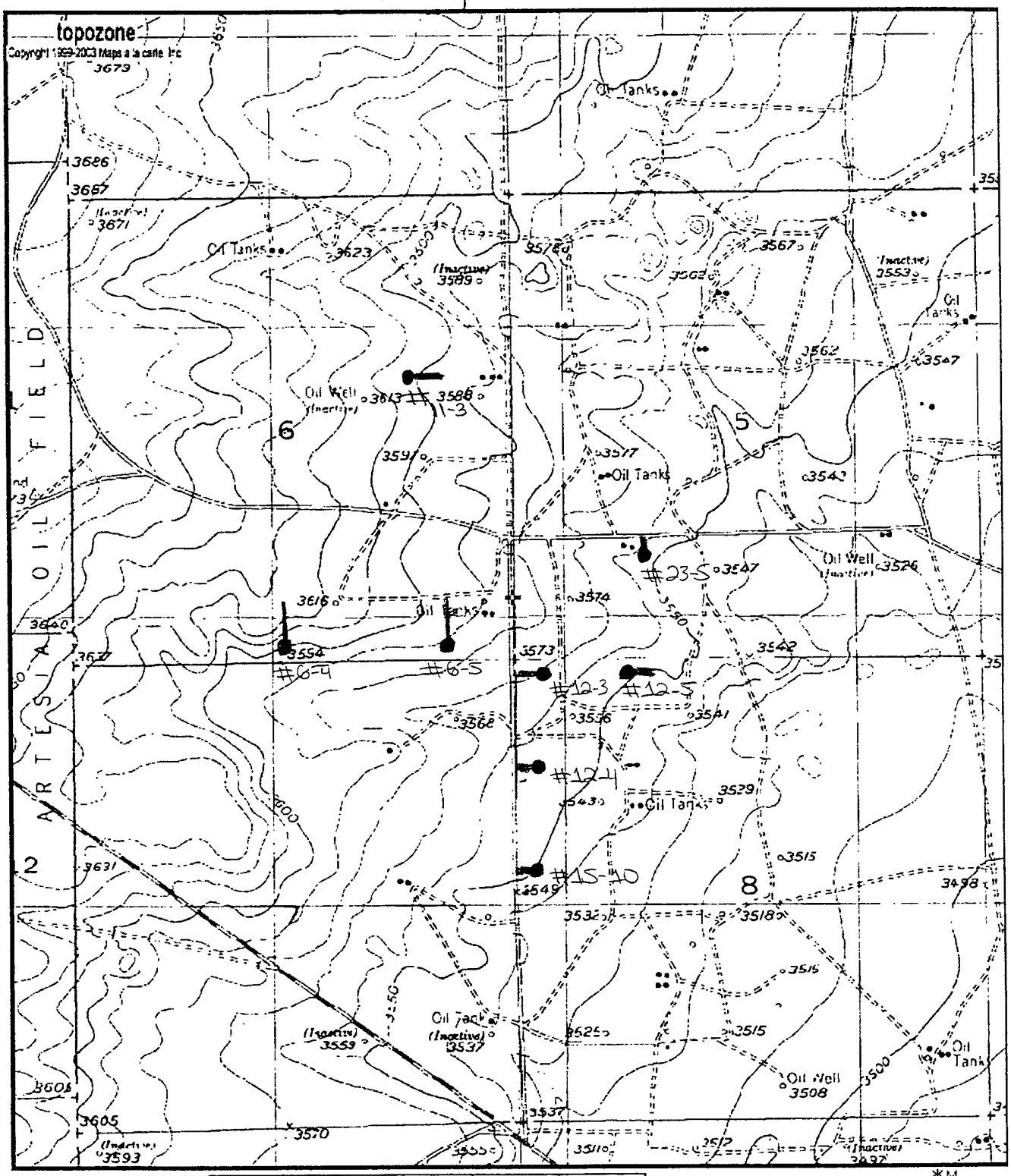
11/29/07
Date



BALLARD LEASES
BG = Ballard Grayburg Tract # and Well #
All Arrowhead Operating Leases in black text
Non Arrowhead leases in brown text
0 0.125 0.25 0.5 Miles
N
New Access Road
Proposed Locations
To Loco Hills
Ernie's Copy
360
210
217
BG 8-5
BG-10-8
BG 10-7
BG 11-5
BG 13-3
BG 8-6
Federal 632-1
BG 10-2
BG 17-3
BG 11-2
BG 8-3
Empire South Deep #1 & Tank Battery
BG 9-1
Federal 632-2
Loco Hills 4-3
11-3
BG 13-1
BG 18-2
BG 9-2
BG 11-1
BG 10-6
BG 10-9
BG 25-5
HG Walson 6
Travis E-3
Travis E-1
Empire South Deep 2
BG 6-2
BG 24-3
BG 25-4
BG 6-3
BG 23-3
HG Walson 7
Loco Hills Welch 4
26-7
BG 26-1
BG 25-2
Empire South Deep 12 & Tank Battery
BG 6-19
23-5
26-6
26-4
BG 6-20
Loco Hills Welch 2
BG 6-7
BG 6-1
BG 25-1
BG 23-2
26-5
BG 6-17
BG 6-10
BG 24-2
Travis E-2
6-4
6-5
12-3
BG 23-4
BG 5-12
BG 1-5
BG 2-3
BG 2-1
12-5
BG 15-2
BG 5-6
JL Langford 6
BG 1-6
BG 5-10
BG 5-18
BG 5-15
12-4
BG 15-4
Empire South Deep 15
BG 15-5
BG 3-1
Water Tank
Langford SWD
BG 1-4
Waterflood
BG 15-6
BG 5-9
Welch 1
BG 1-7
BG 15-7
BG 15-8
BG 3-3
BG 19-1
15-10
BG 14-8
BG 5-8
BG 5-7
Travis Bassett Burney 1
BG 21-1
BG 21-2
BG 14-4
BG 20-3
BG 19-3
BG 19-2
BG 14-6
BG 14-5
BG 14-2
BG 5-4
BG 5-13
BG 5-14
Langford 1
Oxy Palamine 1 & Tank Battery
BG 4-2
BG 14-3
Abandoned
BG 14-7
BG 5-16
BG 5-3
R Travis JR 1-A
BG 16A-1
BG 20-4
BG 7-11
BG 7A-1
BG 7-3
BG 20-6
Travis D-20
BG 20-12
BG 7-2
East Travis 1
Travis D-18


BC 1914
BC 1914
BC 1914
BC 1914
S 89°50'01" W 2637.91'
N 0°06'46" W 2639.69'
11-2
794'
11-3
18-2
771'
924'
11-1
6
5
4
BC 1916
BC 1916
26-1
1250'
25-7
934'
26-6
1805'
1250'
934'
24-2
1391'
26-5
983'
26-4
23-3
875'
23-5
858'
23-2
983'
1002'
25-1
23-4
6-17
951'
6-7
805'
1054'
6-18
700'
906'
6-1
1097'
919'
1000'
BC 1916
6-4
6-5
BC 1916
BC 1916
BC 1916
12-3
12-5
1077'
921'
1203'
817'
1022'
1145'
1000'
747'
1-5
2-3
2-1
15-2
902'
891'
12-2
12-4
1076'
1153'
15-5
3-1
932'
666'
15-7
15-10
826'
BC 1916
1237'
BC 1916
7
8
9

● well location
— incoming road



Map center is UTM 13 583763E 3626288N (WGS84/NAD83)
Red Lake SE quadrangle - Elevation 3,585.7 ft / 1,092.9 m (USGS NED)
Projection is UTM Zone 13 NAD83 Datum

M=8.857
G=0.484

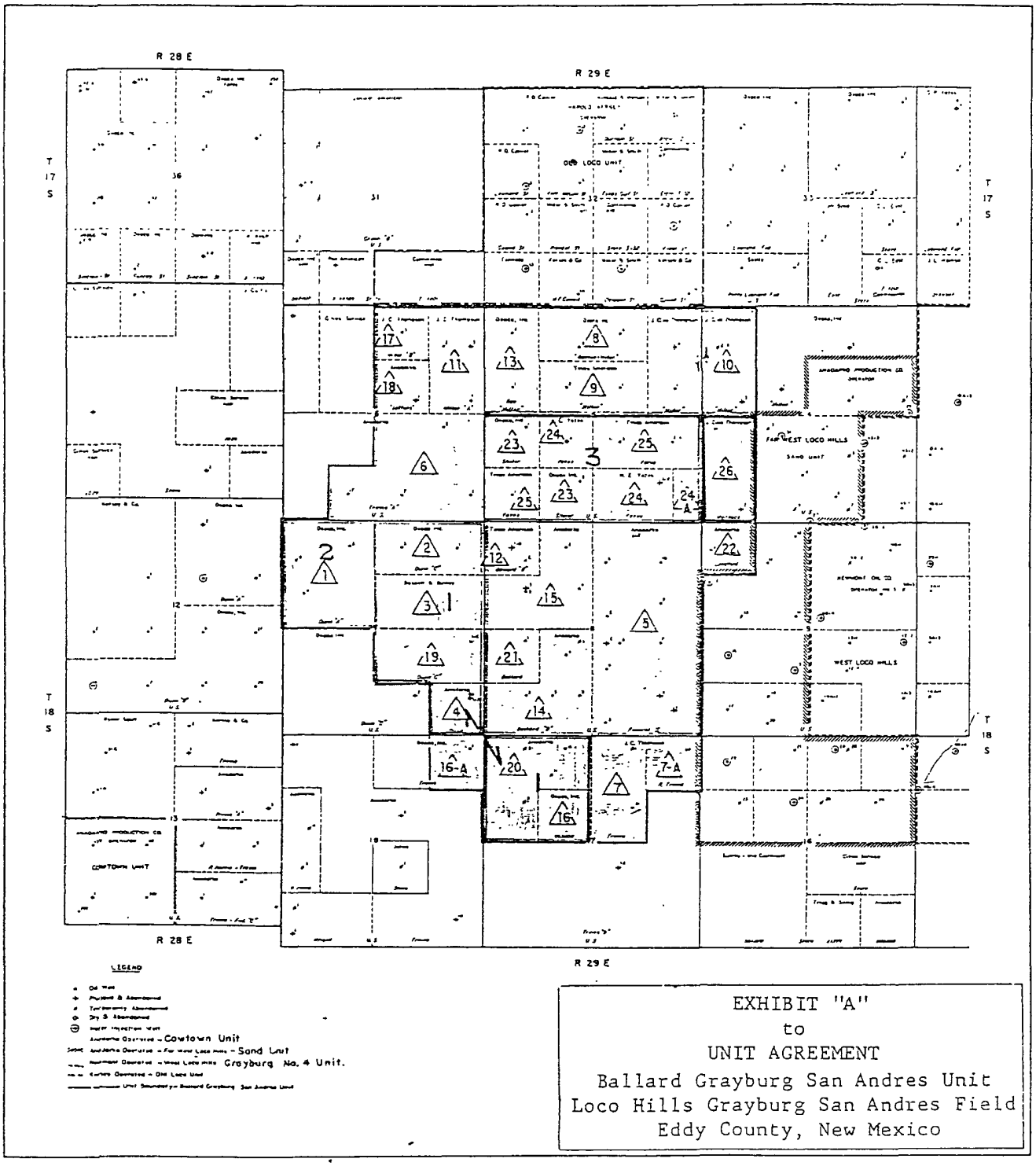


EXHIBIT "A"
to
UNIT AGREEMENT
Ballard Grayburg San Andres Unit
Loco Hills Grayburg San Andres Field
Eddy County, New Mexico

- ☐ W.I. OWNERS - SURF & MINS. (NO R.O.W. PROBLEM)
- ☐ OWNERS RATIFIED UNIT - SURF & MINS. (NO R.O.W. PROBLEM)
- ☐ U.S.A. - MINS., BOYLE FARMS - SURF.
- ☐ U.S.A. - MINS., C.A. BISHOP - SURF.
- [1] U.S.A. - SURF & MINS., BOYLE FARMS - GRAZING LESSEE
- [2] U.S.A. - SURF. & MINS., J.W. SALT - GRAZING LESSEE
- [3] U.S.A. - SURF & MINS., ? GRAZING LESSEE

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Tandem Energy Corporation
LEASE NO.:	LC058582
WELL NAME & NO.:	BGSAU No. 11-3
SURFACE HOLE FOOTAGE:	1770' FNL & 1090' FEL
BOTTOM HOLE FOOTAGE	SAME
LOCATION:	Section 6, T. 18S S., R 29 E., NMPM
COUNTY:	Eddy County, New Mexico

TABLE OF CONTENTS

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

I. GENERAL PROVISIONS

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

II. PERMIT EXPIRATION

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

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

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

IV. NOXIOUS WEEDS

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

V. CONSTRUCTION

A. NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (505) 234-5972 at least 3 working days prior to commencing construction of the access road and/or well pad.

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

B. TOPSOIL

The operator shall stockpile the topsoil of the well pad. The topsoil to be stripped is approximately 6 inches in depth. The topsoil shall not be used to backfill the reserve pit and will be used for interim and final reclamation.

C. RESERVE PITS

The reserve pit shall be constructed and closed in accordance with the NMOCD rules.

The reserve pit shall be constructed 80' X 30' on the North side of the well pad.

The reserve pit shall be constructed, so that upon completion of drilling operations, the dried pit contents shall be buried a minimum depth of three feet below ground level. Should the pit content level not meet the three foot minimum depth requirement, the excess contents shall be removed until the required minimum depth of three feet below ground level has been met. The operator shall properly dispose of the excess contents at an authorized disposal site.

The reserve pit shall be constructed and maintained so that runoff water from outside the location is not allowed to enter the pit. The berms surrounding the entire perimeter of the pit shall extend a minimum of two (2) feet above ground level. At no time will standing fluids in the pit be allowed to rise above ground level.

The reserve pit shall be fenced on three (3) sides during drilling operations. The fourth side shall be fenced immediately upon rig release.

D. FEDERAL MINERAL MATERIALS PIT

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

Payment shall be made to the BLM prior to removal of any additional federal mineral materials from any site other than the reserve pit. Call the Carlsbad Field Office at (505) 234-5972.

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation.

The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

F. ON LEASE ACCESS ROADS

Road Width
The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed thirty (30) feet.

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

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

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

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

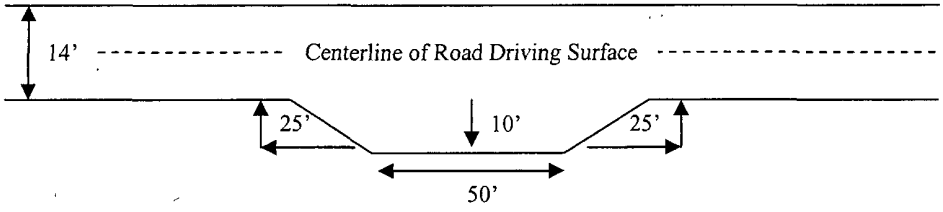
Ditching

Ditching shall be required on both sides of the road.

Turnouts

Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet.. Turnouts shall be constructed on all blind curves. Turnouts shall conform to the following diagram:

Standard Turnout – Plan View

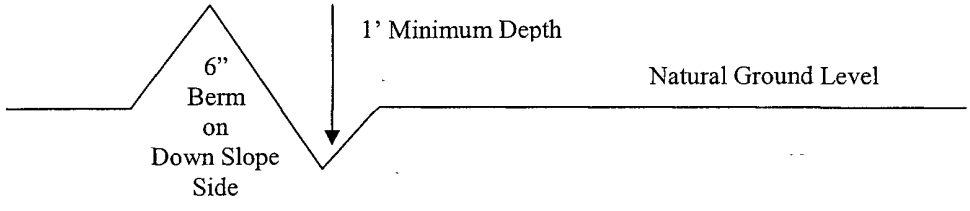


Drainage

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

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

Cross Section of a Typical Lead-off Ditch



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

Formula for Spacing Interval of Lead-off Ditches

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

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

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

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

Any existing cattleguard(s) on the access road shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattleguard(s) that are in place and are utilized during lease operations.

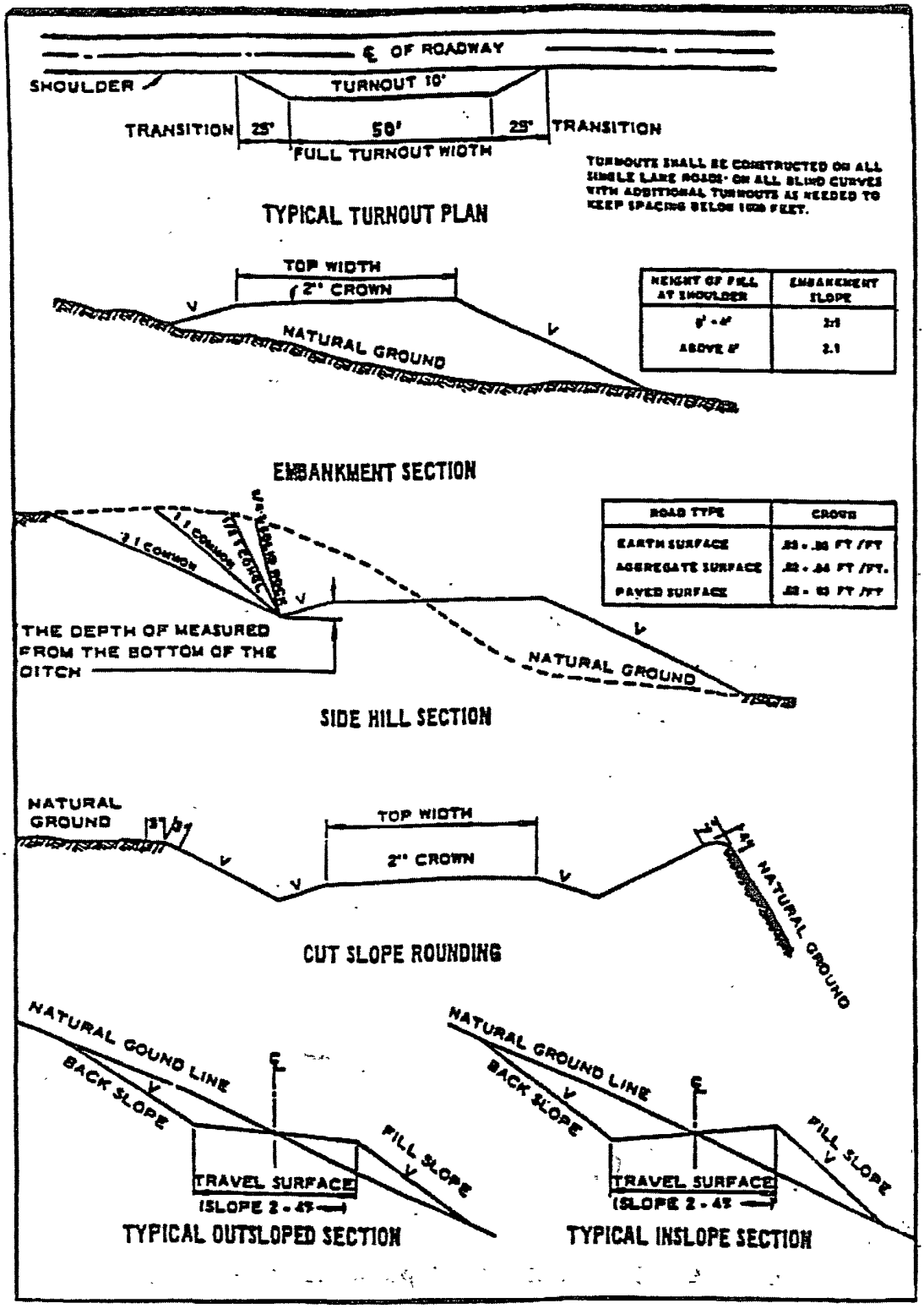
A gate shall be constructed and fastened securely to H-braces.

Fence Requirement
Where entry is required across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting.

The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fence(s).

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

Figure 1 – Cross Sections and Plans For Typical Road Sections



VI. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

The BLM is to be notified a minimum of 2 hours in advance for a representative to witness:

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

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

1. A Hydrogen Sulfide (H2S) Drilling Plan should be activated 500 feet prior to drilling into the **Grayburg** formation. **Hydrogen Sulfide has been reported in this section measuring 8000 ppm in the gas stream and 10 ppm in STVs.**

2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.

B. CASING

1. The **8-5/8** inch surface casing shall be set **a minimum of 25 feet into the Rustler Anhydrite at approximately 335** feet and cemented to the surface. **Fresh water mud to be used to setting depth.**

   a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with a surface log readout will be used or a cement bond log shall be run to verify the top of the cement.

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

   c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.

   d. If cement falls back, remedial action will be done prior to drilling out that string.

Possible lost circulation in the Grayburg and San Andres formations.
Possible water flows in the Salado and Artesia Groups.

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

   ☒ Cement to surface. If cement does not circulate, contact the appropriate BLM office.

4. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

C. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.

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

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

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

   c. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.

   d. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug.

   e. **A variance is approved for the BOPE to consist of only a 3M annular and no choke manifold due to the low pressure expected by the operator and their extensive drilling knowledge in this area.**

Engineer on call phone (after hours): Carlsbad: (575) 706-2779

WWI 112907

VII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

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

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

VIII. 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.

At the time reserve pits are to be reclaimed, 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.

B. RESERVE PIT CLOSURE

The reserve pit, when dried and closed, shall be recontoured, all trash removed, and reseeded as follows:

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

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

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

*Pounds of pure live seed:

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

(Insert Seed Mixture Here)

X. FINAL ABANDONMENT & REHABILITATION REQUIREMENTS

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

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