265 H. rd. Bogle

HTS-08-552

Form 3160-3
(August 2007)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OCD-ARTESIA

1272 S

FORM APPROVED
OMB No 1004-0136
Expires July 31, 2010

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a Type of Work ☒ DRILL ☐ REENTER — Split Estate	5. Lease Serial No NMLC060888 — OCT 14 2008
1b Type of Well ☒ Oil Well ☐ Gas Well ☐ Other ☐ Single Zone ☒ Multiple Zone	6. If Indian, Allottee or Tribe Name — OCD-ARTESIA
2. Name of Operator TANDEM ENERGY CORPORATION — Contact: TAMMY ADAIR — E-Mail: tadair@tandem-energy.com — 236183	7. If Unit or CA Agreement, Name and No.
3a. Address MIDLAND, TX 79702 — 3b. Phone No. (include area code) Ph: 432-686-7136 Ext: 310 — UNORTHODOX LOCATION	8. Lease Name and Well No BGSAU 8-7 — 302006
4. Location of Well (Report location clearly and in accordance with any State requirements *) B. Hunt	9. API Well No. 30-015-36723
At surface NWNW ~~1242~~ 1167 FNL 1285FWL 32.78023 N Lat, 104.10082 W Lon	10. Field and Pool, or Exploratory LOCO HILLS
At proposed prod. zone ~~NWNW 1242FNL 1285FWL 32.78023 N Lat, 104.10082 W Lon~~	11. Sec., T., R., M., or Blk. and Survey or Area Sec 5 T18S R29E Mer NMP SME: FEE
14. Distance in miles and direction from nearest town or post office* 6 MILES SW LOCO HILLS, NM — Capitan Controlled Water Basin	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) 1242' FNL	16. No. of Acres in Lease — 17. Spacing Unit dedicated to this well 40.00
18. Distance from proposed location to nearest well, drilling, completed, applied for, on this lease, ft. 858'	19. Proposed Depth 3200 MD — 20. BLM/BIA Bond No. on file NM B000313
21. Elevations (Show whether DF, KB, RT, GL, etc. 3575 GL	22. Approximate date work will start 06/15/2008 — 23. Estimated duration 10 DAYS

24. Attachments

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

1. Well plat certified by a registered surveyor
2. A Drilling Plan.
3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO shall be filed with the appropriate Forest Service Office).
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 authorized officer.

25. Signature (Electronic Submission)	Name (Printed/Typed) TAMMY ADAIR Ph: 432-686-7136 Ext: 310	Date 04/09/2008
Title ENGINEERING TECH		
Approved by (Signature) /s/ Don Peterson	Name (Printed/Typed) /s/ Don Peterson	Date OCT - 9 2008
Title FIELD MANAGER	Office CARLSBAD FIELD OFFICE	

Application approval does not warrant or certify 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.

Electronic Submission #59538 verified by the BLM Well Information System
For TANDEM ENERGY CORPORATION, sent to the Carlsbad
Committed to AFMSS for processing by TESSA CISNEROS on 04/09/2008 (08TLC0292AE)

Bureau of Land Management
Received
JUN 25 2008
Carlsbad Field Office
Carlsbad, N.M.

SEE ATTACHED FOR CONDITIONS OF APPROVAL

APPROVAL SUBJECT TO GENERAL REQUIREMENTS AND SPECIAL STIPULATIONS ATTACHED

**** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ****

TANDEM ENERGY
corporation

June 24, 2008

BLM
Carlsbad Office
620 E. Greene St.
Carlsbad, NM 88220-6292

As of June 20, 2008 we have a written approval from John R. Gray to drill the below mentioned location.

BGSAU 8-7
5-18S-29E
1242' FNL & 1285' FWL

Surface Owner
John R. Gray, LLC
P.O. Box 1182
Artesia, NM 88211-1182

Thank You,
Tammy Adair

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

OCD-ARTESIA

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
	39520	

Property Code	Property Name	Well Number
	BALLARD GRAYBURG – SAN ANDRES UNIT	8-7

OGRID No.	Operator Name	Elevation
	TANDEM ENERGY CORPORATION	3571.5'

Surface Location

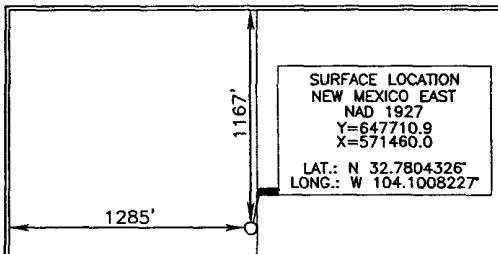
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	5	18 SOUTH	29 EAST, N.M.P.M.		1167'	NORTH	1285'	WEST	EDDY

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.

John Scott 8/15/08
Signature Date

Robin Scott
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.

15079
JULY 24, 2008
Date of Survey

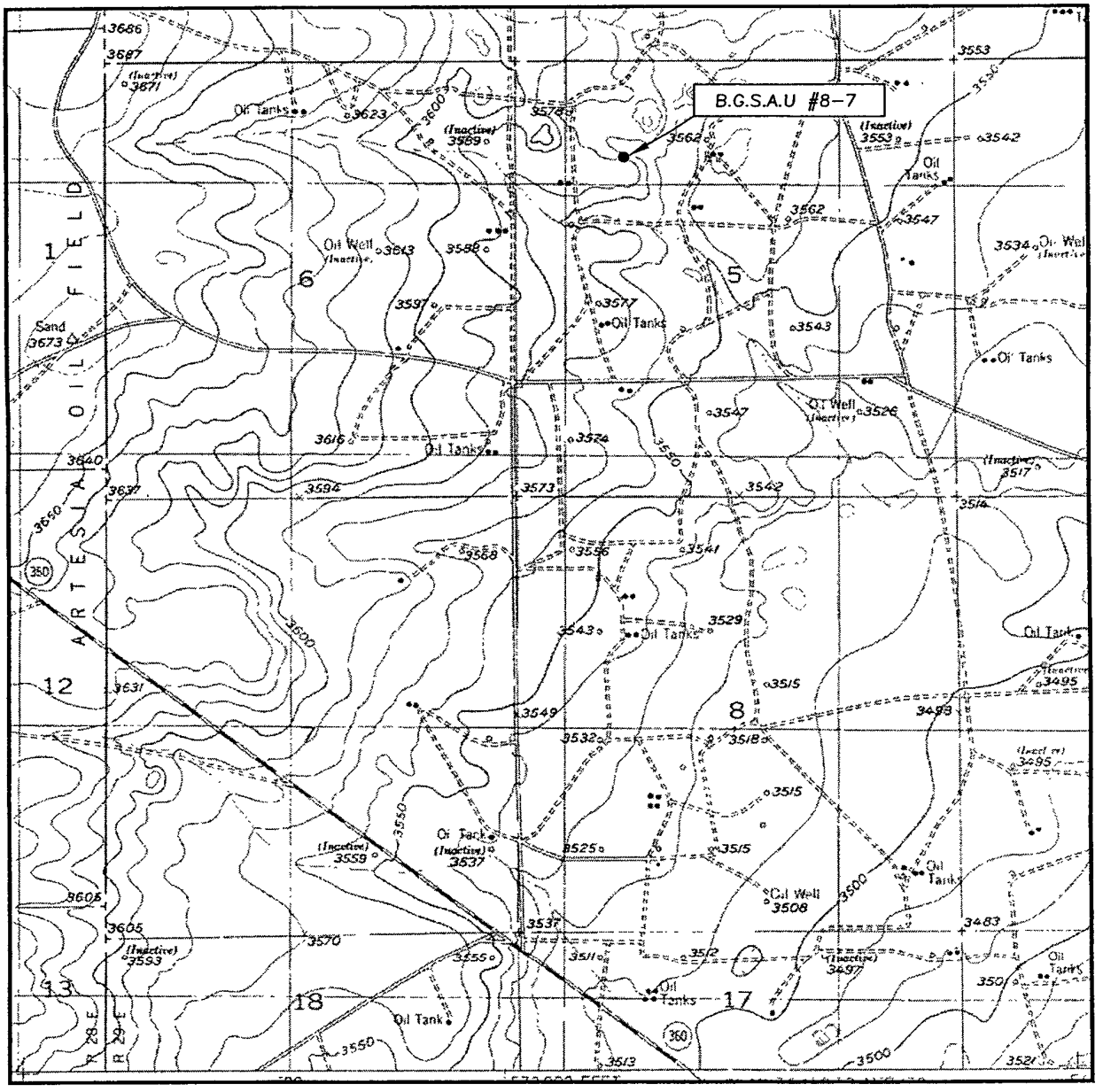
Signature and Seal of Professional Surveyor

NEW MEXICO REGISTERED PROFESSIONAL LAND SURVEYOR

Terry J. Asel 7/25/2008
Certificate Number 15079

WO# 080208WL-c (Rev. A) (KA)

LOCATION VERIFICATION MAP



SEC. 5 TWP. 18-S RGE. 29-E

SURVEY N.M.P.M.

COUNTY EDDY

DESCRIPTION 1167' FNL & 1285' FWL

ELEVATION 3571.5'

OPERATOR TANDEM ENERGY CORP.

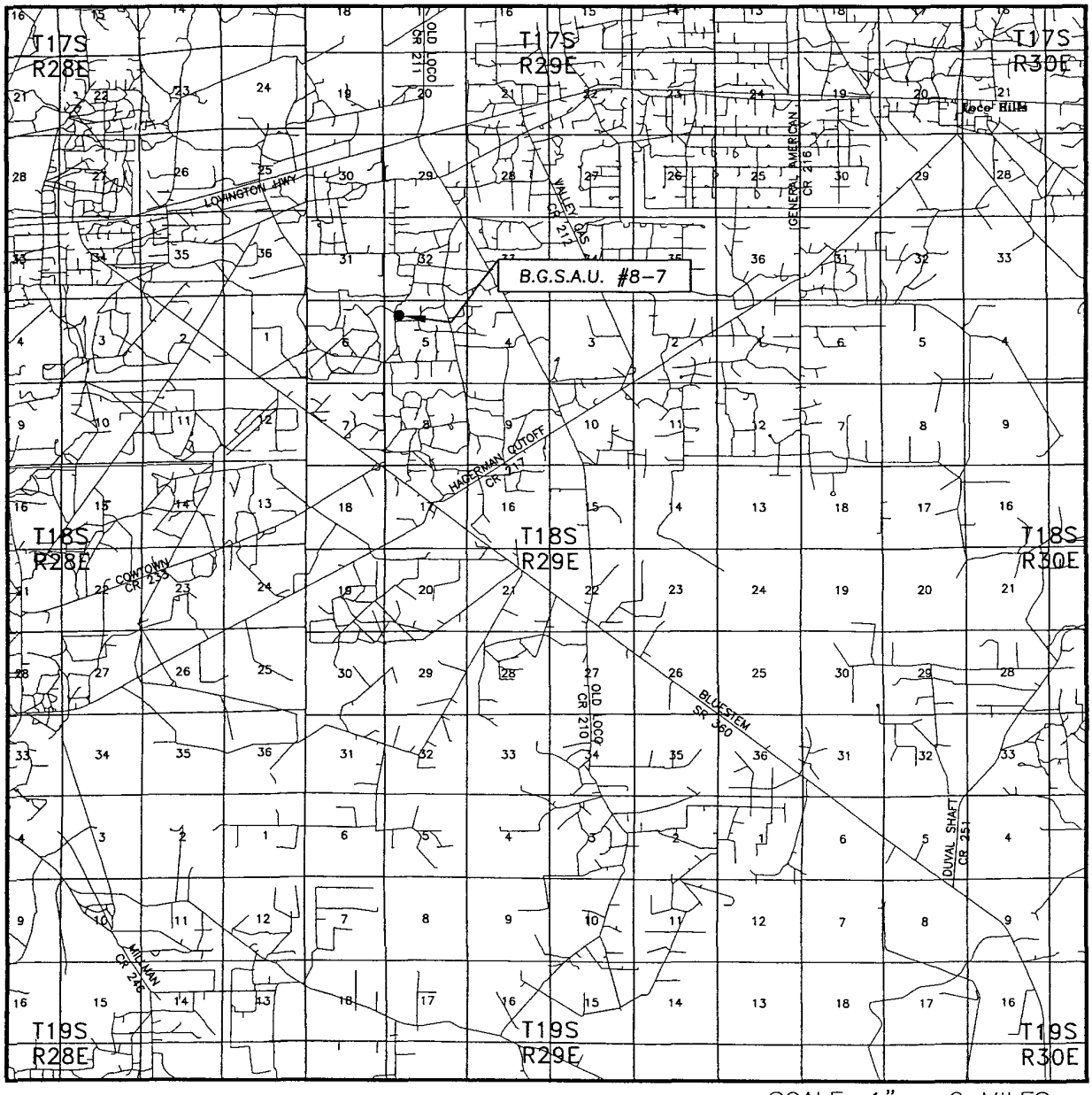
LEASE B.G.S.A.U. #8-7

U.S.G.S. TOPOGRAPHIC MAP
RED LAKE SE, N.M.

Asel Surveying

P.O. BOX 393 - 310 W. TAYLOR
HOBBS, NEW MEXICO - 575-393-9146

VICINITY MAP



SEC. 5 TWP. 18-S RGE. 29-E
SURVEY N.M.P.M.
COUNTY EDDY
DESCRIPTION 1167' FNL & 1285' FWL
ELEVATION 3571.5'
OPERATOR TANDEM ENERGY CORP.
LEASE B.G.S.A.U. #8-7

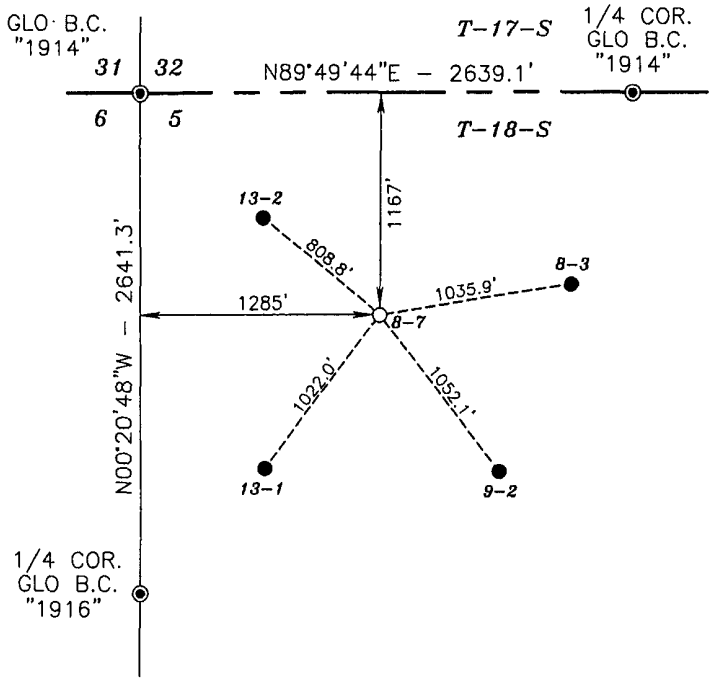
SCALE: 1" = 2 MILES

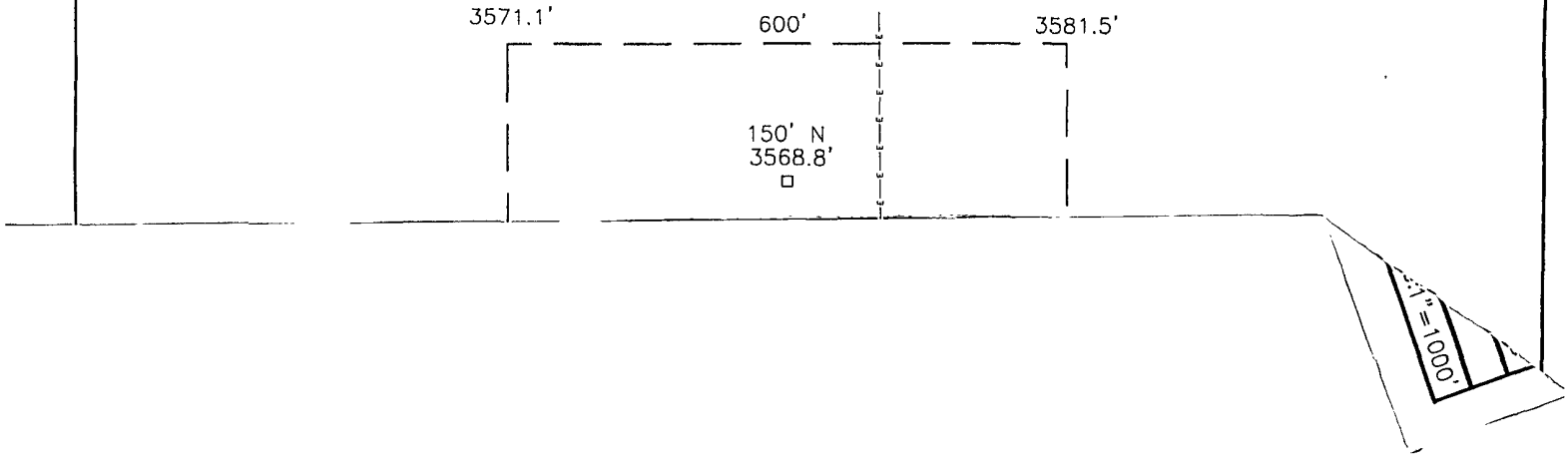
Asel Surveying

P.O. BOX 393 - 310 W. TAYLOR
HOBBS, NEW MEXICO - 575-393-9146

SECTION 5, TOWNSHIP 18 SOUTH, RANGE 29 EAST, N.M.P.M.,
EDDY COUNTY NEW MEXICO

Basis of Bearings – GPS Geodetic Measurements
NM East Zone (83) North American Datum of 1983





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.
1	1-8	7-18S-29E	1362' FNL & 1198' FWL	3630'
8	8-7	5-18S-29E	1167' FNL & 1285' FWL	3571'
10	10-11	5-18S-29E	1538' FNL & 104' FEL	3543
11	11-4	6-18S-29E	1330' FNL & 95' FEL	3583'
14	14-9	8-18S-29E	90' FSL & 221' FWL	3563'
16	16-2	17-18S-29E	1467' FNL & 2602' FWL	3494'
19	19-4	7-18S-29E	2581' FSL & 1196' FEL	3565'

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'	Oil
Queen	+/-1875'	Oil
Grayburg	+/-2275'	Oil
Loco Hills	+/-2350'	Oil
Top of Unit	+/-2400'	Oil
Metex	+/-2450'	Oil
Premier	+/-2575'	Oil
San Andres	+/-2650'	Oil
TD	+/-3300'	Oil 3200'

3. **Estimated Depths of Anticipated Fresh Water, Oil or Gas**
   Water: None Anticipated
   Oil: 3200'-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 +/-325' and circulating cement back to surface. The Grayburg and San Andres intervals will be isolated by setting 5-1/2" csg to TD of +/-3200' and circulating cement to surface.

4. **Casing Program (New Casing):**

Hole Size	Interval	Casing Size	Weight	Grade	Type
12-1/4"	0'-325'	8-5/8"	24#	J-55	ST&C
7-7/8"	0'-TD	5-1/2"	17#	J-55	LT&C

See COA

Safety Factors: Collapse – 1.125; Burst – 1.10; Tension – 1.8

Cementing Program:

See COA

8-5/8" Surface Casing: Cement to surface with 150 sx Lite (35% Poz, 65% Class "C", 6% gel) 12.7#/1.94 yd. with 2% CaCl and ¼ lb/sx Cellophane flakes + 100 sx Class "C" with 2% CaCl and ¼ lb/sx Cellophane flakes 14.8#/1.32yd.

5-1/2" Production Casing: Cement to surface with 650 sx Lite (35% Poz, 65% Class "C", 6% gel) 12.7#/1.94 yd with 5 lb/sx salt and ¼ lb/sx Cellophane flakes + 165 sx Class "C" ¼ lb/sx Cellophane flakes 14.8#/1.32 yd.

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.

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'-325'	Fresh Water	8.3-8.8	28-36	No Control
325'-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, when OH logs are required
   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 bottom hole 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**
   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 June 15th, 2008. The 7 well package is anticipated to take 90 days. If the wells are deemed productive, completion operations could require an additional 30 days.

Attachment to Exhibit #B
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 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.

TANDEM ENERGY CORPORATION

BALLARD GRAYBURG SAN ANDRES UNIT

2008 DRILLING PROGRAM

OPERATION AND MAINTENANCE PLAN FOR CLOSED LOOP MUD SYSTEMS

OPERATIONS:

TANDEM ENERGY IS PROPOSING A TWO-TIER LOCATION CONSTRUCTION TO ACCOMMODATE THE SHORT RKB ON THE ANTICIPATED DRILLING RIG. ALL CLOSED LOOP SYSTEM EQUIPMENT WILL BE PLACED ON THE LOWER ELEVATION. TWO 200 BBL STEEL TANKS (400 BBLS) WILL BE USED FOR THE SURFACE FLUID VOLUME. ALL RETURNS FROM THE WELL WILL BE TAKEN TO A SHALE SHAKER AND CENTRIFUGE COMBINATION PROVIDED BY MI DRILLING FLUIDS. FLUIDS WILL BE DIVERTED TO THE TWO STEEL PITS AND SOLIDS WILL BE DIVERTED TO TWO 20 BBL ROLL OFF BINS PROVIDED BY CRI. ALL SOLIDS WILL BE PROPERLY DISPOSED OF AT CRI'S HALFWAY DISPOSAL SITE. ALL LEFTOVER FLUIDS AT THE END OF THE WELL WILL EITHER BE TRANSPORTED TO THE NEXT DRILLING LOCATION FOR DRILLING USE OR WILL BE DISPOSED OF AT AN APPROVED PUBLIC SWD.

SEE ATTACHED PLAT OF LOCATION AND EQUIPMENT SETUP.

MAINTENANCE:

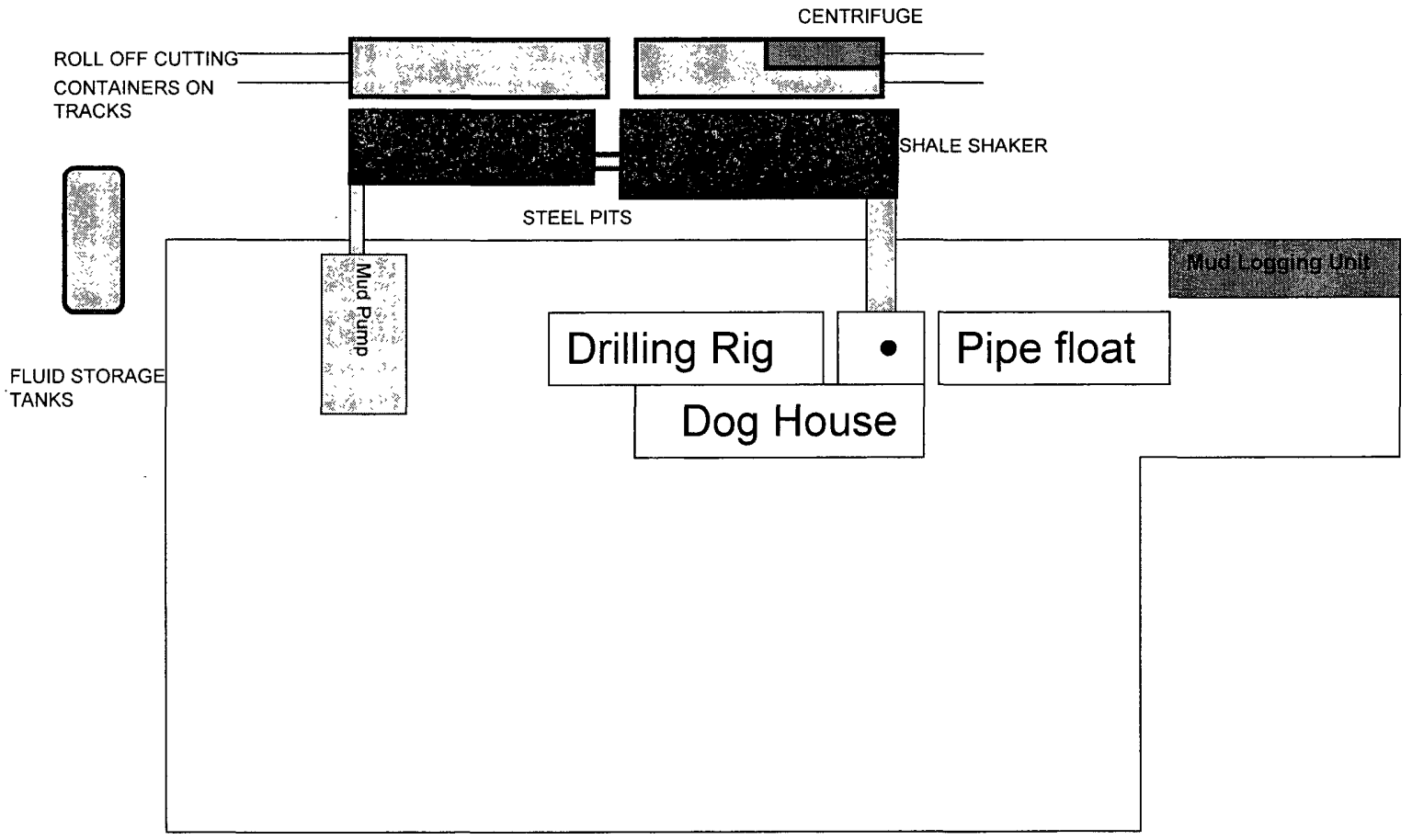
RIG CREW WILL BE RESPONSIBLE FOR OPERATING AND MAINTAINING MUD CLEANING EQUIPMENT. CRI WILL BE NOTIFIED TO HAUL OFF BINS AS THEY BECOME FULL TO THEIR HALFWAY DISPOSAL SITE.

CRI PERMIT #R9166 AS STATED ON C-144-CLEZ

Tandem Energy Corporation

2008 BGSAU Drilling Program

Closed Loop Pit System & Location Diagram

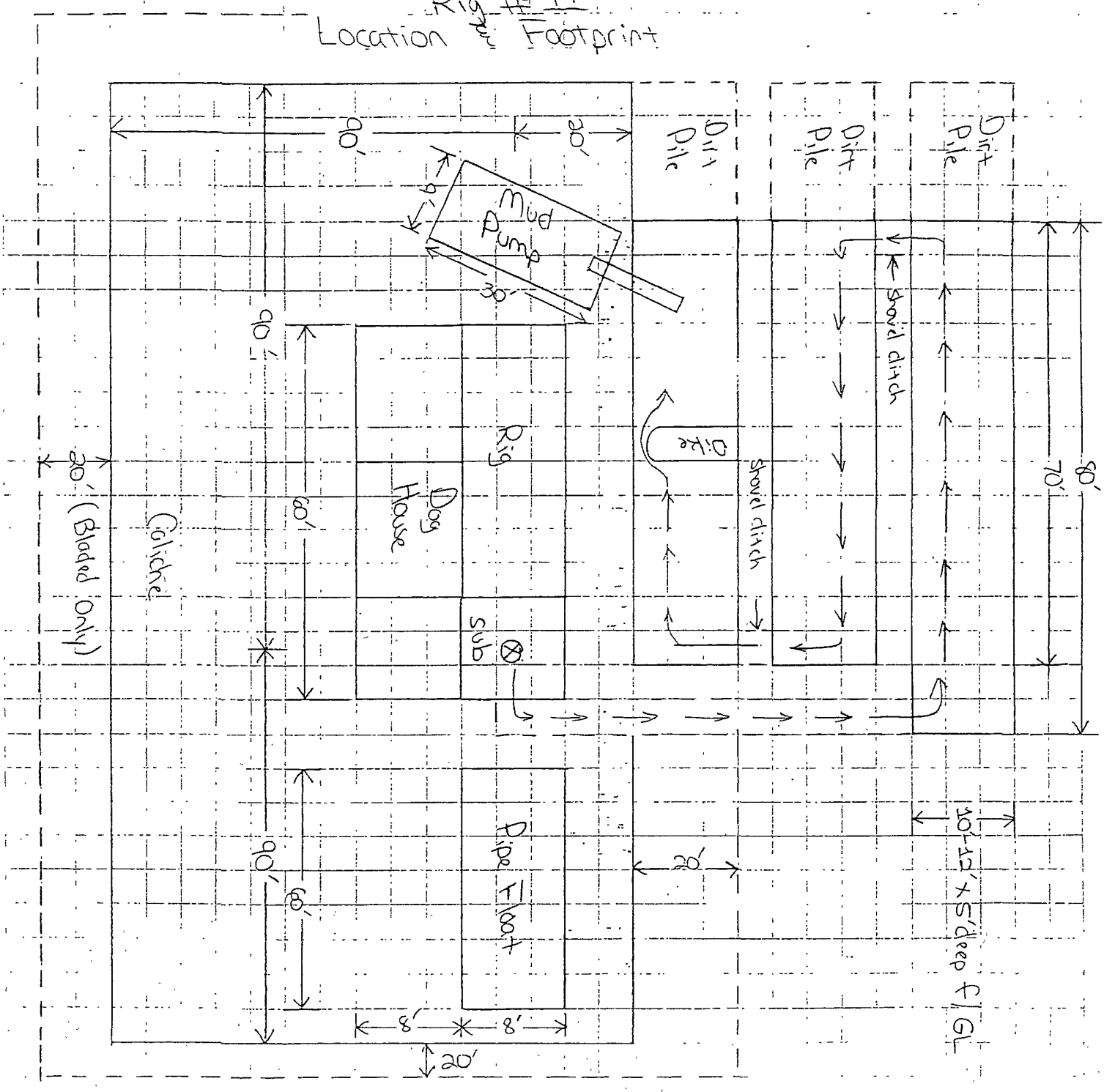


See COA's

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

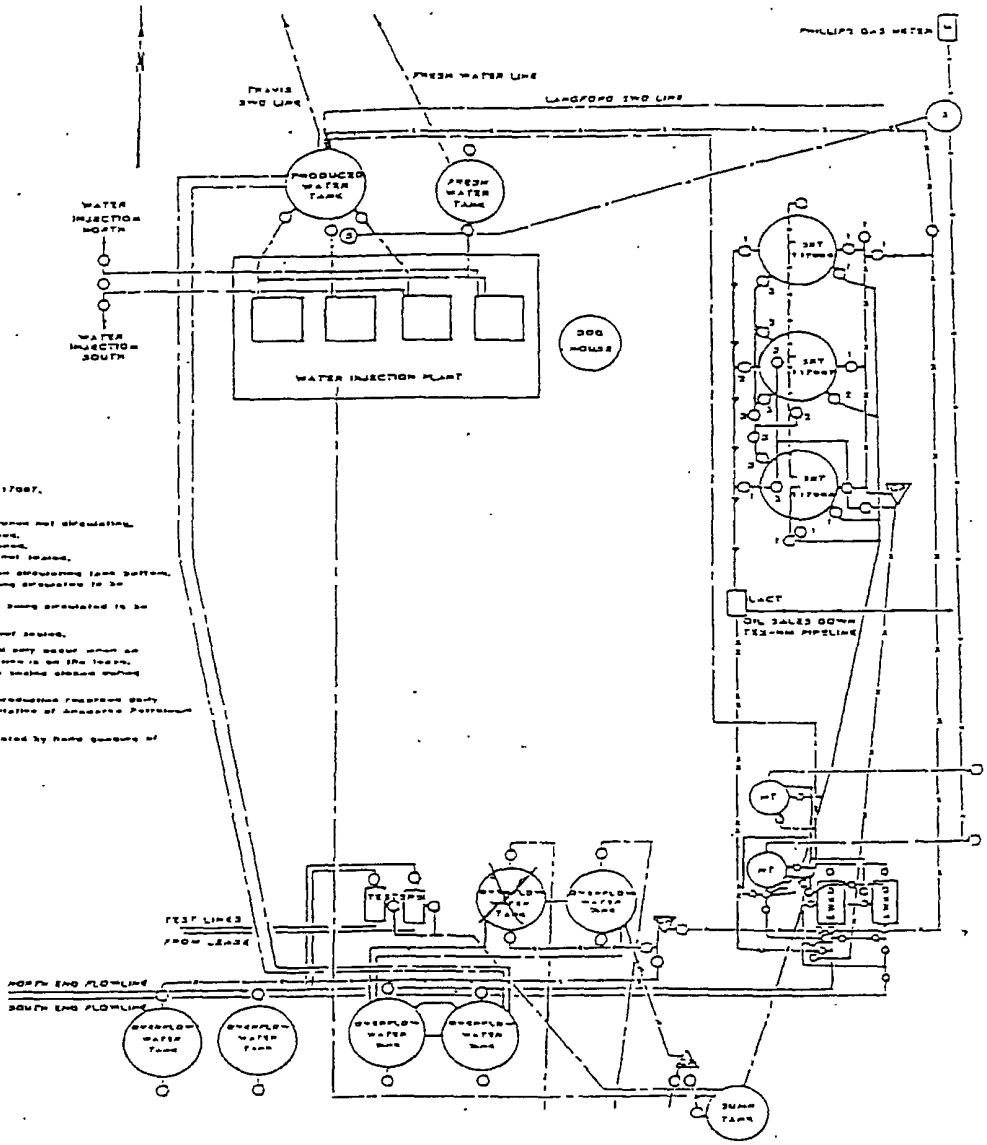
[redacted]

SITE FACILITY DIAGRAM

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

BALLARD GRAYBURG-SAN ANDRES

UNIT NO. 891012399O
SW1/4 NW1/4, SEC. 8 T18S-R29E
EDDY COUNTY,NEW MEXICO
LSE-PLC-061702



PRODUCTION SYSTEM-CLOSED

1. Oil sales by test unit from tank #117087.
2. Gas Measurements:
   4. Production and Sales (In Phase when not circulating.
      (1) AM-1 valves to be sealed closed.
      (2) AM-2 valves to be sealed closed.
      (3) AM -3 valves to be open and not sealed.
   5. Production and Sales Phase when circulating tank bottoms.
      (1) AM -#1 valves on tanks not being circulated to be sealed closed.
      (2) AM #1 and -#2 valves on tanks being circulated to be sealed open.
      (3) AM -#3 valves to be open and not sealed.

NOTE: Circulating of tank bottoms and any sales shall be performed company representative is on the locate. AM circulating -#1 valves will be sealed closed during off duty hours.

3. This facility will be responsible and production responsibility by an authorized company representative of Amoskeag Petroleum Corporation.
4. Production of this facility is calculated by tank gaugings of tanks and Lact unit measurements.

10-94

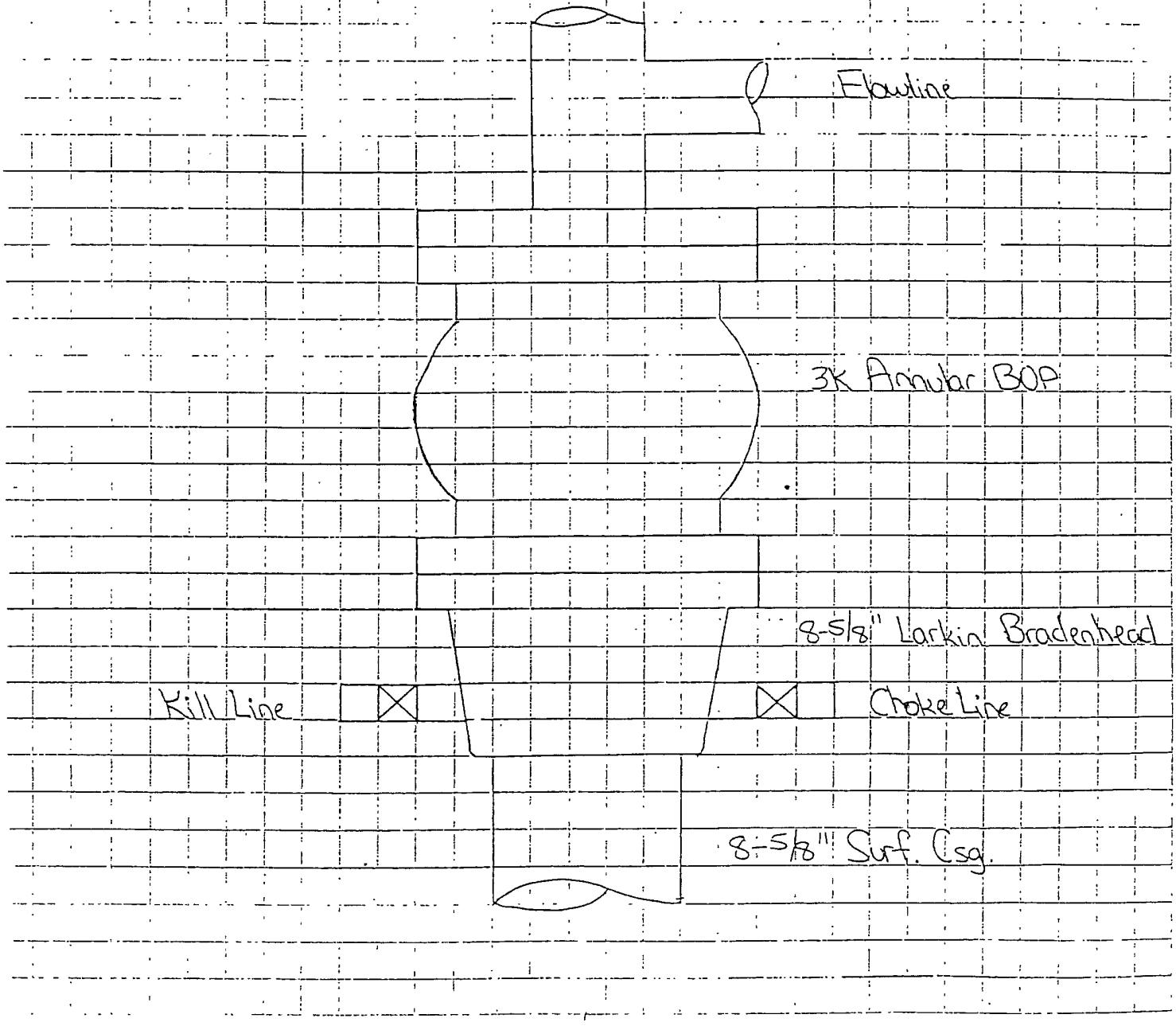
PATTERSON DRILLING COMPANY, LP

A LIMITED PARTNERSHIP

TANDEM ENERGY CORPORATION

NIXON DRILLING RIG # 11

Blowout Preventer Hookup



Consolidated H_2S Contingency Plan

Eddy and Lea Counties, New Mexico

August 2008

Prepared for:
Platinum Energy Resources, Inc.
120 S. Main Street, Suite 350
Victoria, TX 77901

Prepared by:

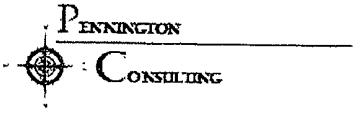


Table of Contents

Section **Page**

Table of Contents

Appendices

DISTRIBUTION LOG

The distribution of this Plan is controlled by the copy number that is located on the front cover.

COPIES	PLAN HOLDER	LOCATION

1.1 PLAN PURPOSE/OBJECTIVES

The purpose of this H_2S Contingency Plan (hereinafter referred to as "Plan") is to assist the Platinum Energy Resources, Inc. (Platinum) personnel in preparing for, and responding quickly and safely to a potentially hazardous volume of H_2S gas in the event of a release.

The specific objectives of the Plan are designed to protect Platinum personnel, its contractors and the public located within the Radius of Exposure (ROE). The key considerations to meeting this objective include:

- Define the radius of exposure.
- Establish a response team, assign individuals to fill the positions on the team, and define the roles and responsibilities of team members.
- Define notification, activation, and mobilization procedures to be followed.
- Define organizational lines of responsibility to be adhered to during a response operation.
- Document equipment, manpower, and other resources available to assist with the response.
- Identify emergency response options.
- Identify provisions for advance public briefings.
- Ensure compliance with the State of New Mexico and US Bureau of Land Management.

1.2 SCOPE OF PLAN

A description of the operations covered in this plan has been detailed in Appendix A, Facility Information. Prioritized mitigation procedures and response guidelines are provided in Section 3.0 and Appendix A for discharges that could result from any of the following:

- Blowout
- Explosion and/or fire
- Equipment failure
- Piping rupture/leak
- Vandalism
- Loss of wellhead integrity

1.3 PLAN DISTRIBUTION PROCEDURES

The H_2S Contingency Plan will be distributed as follows:

- Platinum's Victoria, Texas office shall have the responsibility for distribution of the Plan.
- Distribution of the Plan is controlled by the number on the cover page. A distribution list is included in the Foreword to facilitate control in updating the Plan.
- All members of the Response Teams will have access to a copy of the Plan for their use and training.
- Copies of the Plan will be provided to Local Emergency Response Organizations upon request.
- It is the responsibility of Plan holders to ensure that the copy is transferred to their replacement in the event of reassignment or change in responsibility.

1.4 PLAN REVIEW AND UPDATE PROCEDURES

Review/Updates

Platinum's Victoria, Texas office will coordinate with the following Plan review and update procedures:

- Additions or deletions to the systems included in this plan.
- Changes to Response Team Notification References will be made on an as needed basis.
- Operational or organization changes that change the ROE will be incorporated into the Plan.
- Telephone references detailed in Section 2.0 will be updated as necessary.
- Annual review of the Plan, at a minimum.
- Distribute revisions to all Plan holders, as listed in the Distribution List on Page iii.

Incorporation of Plan Revisions

The **plan holder**, immediately upon receipt of any revisions, shall review and insert the revised pages into the Plan, discarding obsolete pages.

1.5 REGULATORY COMPLIANCE

The development, maintenance, and utilization of this Plan protects public safety and addresses the following regulatory requirements and guidelines:

- New Mexico Energy, Minerals and Natural Resources Department, Oil Conservation Division, 19.15.3.118 HYDROGEN SULFIDE GAS (HYDROGEN SULFIDE), Contingency Plan Provisions.

2.1 RESPONSE TEAM NOTIFICATIONS

This section is a notification procedures guide that should be implemented immediately after discovering a release incident. Internal and external notifications are described separately for clarification purposes only. All notifications are of extreme importance and must be completed in a timely manner.

The following notifications should be initiated for each emergency incident to the extent that the incident demands (telephone references are provided in this section). The Safety Manager will typically determine the number of personnel needed to respond. However, in no event shall notification be delayed because the Safety Manager is inaccessible. **Authorization has been delegated to operating personnel, as necessary, to provide immediate notification and response assistance.**

The Area Superintendent will request assistance from local emergency organizations and other area resources on an as-needed basis. Emergency telephone numbers are provided in Figures 2.1 through 2.4 of this section. Some notifications may be made simultaneously to facilitate a timely response.

FIGURE 2.1

INTERNAL NOTIFICATION REFERENCES

GENERAL FACILITY		
PLATINUM PERSONNEL	**LOCATION**	**PHONE NUMBERS**
William Bonneau	Corpus Christi, TX	(361) 876-8335
Chester Sackett	Victoria, TX	(361) 576-0180
Dean Mathiews	Victoria, TX	(361) 576-0180

EMERGENCY TELEPHONE NUMBER
(361) 876-8335

FIGURE 2.2

RESPONSE TEAM NOTIFICATION REFERENCES

NAME/TITLE	PHONE
Ramaldo Hinojosa – Area Superintendent	(505) 626-9969 (Cell)
William Bonneau – Safety Manager	(361) 876 -8335 (Cell)
Chester Sackett – Executive Director, HSSE	(361) 576-0180 (Office)
Dean Mathiews – Operations Manager	(361) 576-0180 (Office)

Consultant Services for H_2S Monitoring (Response capabilities listed in Section 5.3)	
Boots & Coots IWC Houston, Texas	(800) 256-9688 (281) 931-8884

FIGURE 2.3

ADDITIONAL RESOURCES/NOTIFICATIONS

STATE AND FEDERAL AGENCY NOTIFICATIONS		
GOVERNMENT AGENCY	**GOVERNMENT AGENCY**	**GOVERNMENT AGENCY**
National Response Center	Washington, DC	(800) 424-8802 (24 hour)
New Mexico Environment Department	Santa Fe, NM	(505) 827-9329 (24 hour)
New Mexico Energy, Minerals and Natural Resources Department	District 1 Hobbs, NM Lea County	(575) 393-6161 (575) 631-5296 (24 hour)
	District 2 Artesia, NM Eddy County	(575) 748-1283
New Mexico Department of Homeland Security and Emergency Management (SERC)	Santa Fe, NM	(505) 476-9600 (24 hour)
US Bureau of Land Management	Carlsbad, NM	(575) 887-9264
U.S. EPA - Region 6 Emergency Hotline	Dallas, TX	(800) 887-6063 (24 hour)
Eddy County Office of Emergency Management (LEPC)	Carlsbad, NM	(575) 887-9511
Lea County Office of Emergency Management (LEPC)	Hobbs, NM	(575) 397-9231

FIGURE 2.3, Continued

ADDITIONAL RESOURCES/NOTIFICATIONS

EDDY COUNTY, NM	
Fire Departments	
All County Volunteer Fire Departments dispatched through the Eddy County 911 Center (Sheriff's Department)	911 or (575) 887-7551
Police Departments	
Eddy County Sheriff Department	911 or (575) 887-7551
State Police	(575) 885-3137
Ambulance	
All County EMS are dispatched through the Eddy County 911 (Sheriff's Department)	911 or (575) 887-7551
Air Ambulance	
Lifeguard Air Transport	(888) 866-2756 (505) 272-3116
Hospitals	
Carlsbad Medical Center	(575) 887-4100
University of New Mexico Hospital	(505) 272-2111

FIGURE 2.3, Continued

ADDITIONAL RESOURCES/NOTIFICATIONS

LEA COUNTY, NM	
Fire Departments	
All County Volunteer Fire Departments dispatched through the Lea County 911 Center (Sheriff's Department)	911 or (575) 396-3611
Police Departments	
Lea County Sheriff Department	911 or (575) 396-3611
State Police	(575) 392-5588
Ambulance	
All County EMS are dispatched through the Lea County 911 (Sheriff's Department)	911 or (575) 396-3611
Air Ambulance	
Lifeguard Air Transport	(888) 866-2756 (505) 272-3116
Hospitals	
Lea Regional Hospital	(575) 492-5000
University of New Mexico Hospital	(505) 272-2111

FIGURE 2.4

RESPONSE CONTRACTORS

In case of a release, the following contractors may be called to assist Platinum with the control and clean up of a release of oil or hazardous substances.

Service	Contractor	Phone
H2S Safety, Blow Out Specialists	Boots & Coots IWC Houston, TX	(800) 256-9688 (281) 931-8884
Rental Tools	Key Energy Services, Inc. Hobbs, NM	(575) 393-3171
Flood Lights/Power Plants	Key Energy Services, Inc. Hobbs, NM	(575) 393-3171
Vacuum Trucks	Key Energy Services, Inc. Hobbs, NM	(575) 393-3171
Water Haulers	Key Energy Services, Inc. Hobbs, NM	(575) 393-3171
Roustabouts	Key Energy Services, Inc. Hobbs, NM	(575) 393-3171
Workover Rigs	Cudd Energy Services Odessa, TX	(432) 563-3356

3.1 Response Actions

The appropriate response to a particular incident may vary depending on the nature and severity of the incident and the surrounding conditions. Many response actions may be made simultaneously.

The response actions for the Workover Operations are found in Appendix A for each respective operation. It is important to note that the response actions contained therein are intended as guidelines only, and that each response event must be evaluated on a case-by-case basis to provide the maximum safety to all personnel involved.

The 500 and 100 PPM Radius of Exposure (ROE) for the operations contained in this H_2S Contingency Plan are presented in Appendix B, along with the location of residential/commercial/industrial dwellings and other structures located within these ROEs. These ROEs are depicted on street maps, and include potential evacuation routes.

In the event that evacuation is the chosen method for protection of the pubic, the appropriate evacuation route will be dependent on factors such as wind direction, road conditions and personnel mobility. Care should be taken in choosing the route(s) that provide the quickest and safest evacuation of the public

If a release of H_2S gas is a planned release, the Field Superintendent or designated representative will notify the Oil Conservations Division (OCD) at least 12 hours in advance of the release. The OCD will be notified immediately, or as soon as is safely practical, of an emergency release of H_2S gas.

4.1 INTRODUCTION

Shelter-in-Place (shelter-in-residence or in-place sheltering) is often recognized as the best method for protecting the public from a short-term hazardous substance release. The essential concept of shelter-in-place is to shelter residents inside a building until the threat has passed. A release of H_2S gas will typically be plugged, isolated or ignited before such time that the gas could present a significant threat to the indoor air quality of the homes within the ROE. This response method is also used to protect the public while the emergency response teams are being mobilized.

Evacuation can be an effective method for protecting the public from a long-term release of H_2S gas. More importantly, the two methods, shelter-in-place and evacuation, may be used in conjunction with each other, based on site-specific conditions.

During an emergency release of H_2S, the magnitude of hazard will vary within the ROE. Moderate to strong winds will increase the rate of dispersion of gas, thereby reducing the hazard. A concentration of trees may inhibit the dispersion rate. Low-lying areas should be considered as potential harbors of H_2S gas. These and other factors should be considered when choosing shelter-in-place, evacuation, and the evacuation route(s) to be taken. Maps providing potential evacuation routes for each well site can be found in Appendix A.

The success of shelter-in-place and evacuation response is dependent on public education. See Appendix D, Advance Briefing of the Public, for additional information.

4.2 SHELTER-IN-PLACE

When initiating shelter-in-Place, the resident will be asked to:

- Immediately go to, or remain inside, a building.
- Close all windows and doors.
- Turn off air-conditioning and heating systems.
- Close fireplace dampers.
- Seal any obvious air leaks, such as outside vents, attic fans. Use duct tape and plastic to seal leaks. Put damp towels under doors to help prevent gas from migrating in through the threshold.
- Tune the radio to a local station.
- Stay off the telephone unless a medical emergency develops. Leave the telephone line open for receiving emergency status information from Platinum representatives.

The resident will be notified to shelter-in-place by telephone or door-to-door contact. If the residence not reached by telephone will be visited by a responder to ensure that any persons in residence have received the emergency response information. Additional emergency information will be provided by emergency bulletins over local radio stations.

4.3 EVACUATION

Evacuation of personnel that might be in the affected area during a release of H_2S gas must be planned in advance and conducted in an organized manner to be effective. The evacuation plan must be understood by all parties involved, including Platinum personnel, and local emergency response organizations. This evacuation plan will be reviewed during Platinum's H_2S Contingency Plan training and during the advance any briefing of the public.

The primary challenge to an effective evacuation is the amount of time necessary to notify all of the appropriate individuals, assemble whatever belongings they need to carry, and leave the area without coming into contact with the hazard from which they are evacuating. Other difficulties involved with evacuation include incomplete evacuations, in which individuals refuse to leave their homes. If evacuation is determined to be the optimal method of protection, the resident will be notified through emergency bulletins on local radio stations, by telephone and by neighborhood drive-throughs, as conducted by the Response Team and other emergency response personnel.

Areas that are within the potential 500 PPM ROE are considered to be the worse-case scenario in every direction of the leak. Residents within the 500 PPM ROE will be evacuated first.

Although the true radius of exposure will typically not encompass a 360° area around the leak site, the 100 PPM and 500 PPM radiuses will be observed as 360° around the point of the gas release until:

- Wind direction is confirmed, and
- Air monitoring indicates the area to be <10 PPM.

Wind socks are installed at well sites to identify the wind direction. Responders will travel off-road to conduct a search for personnel, as warranted by the specific conditions at the time of a release.

4.4 EVACUATION PROCEDURES

Evacuations may include the resident and potential traffic within the ROE, Platinum's personnel and contractors. As such, the restriction and re-routing of traffic may be necessary.

Whenever possible, at least 2 response team members (the buddy system) equipped with self-contained breathing apparatus and monitoring equipment will evacuate personnel. In the event that 2 response team members are not immediately available, constant communication must be maintained with the single response team member during entry into the ROE.

4.4 EVACUATION PROCEDURES, Continued

The Field Superintendent will immediately direct additional response team members to the targeted area if communications with any response team member is lost.

In the event that an immediate threat to the safety of the resident or other personnel is suspected, the on-site Supervisor will immediately assist affected personnel in sheltering-in-place or evacuating the ROE, whichever response method best fits the leak scenario. The Record of Contacts on Page 4-4 provides a means of documenting any public contact. The Record of Shelter-In-Place Personnel and Evacuations on Page 4-5 provides a means of documenting any shelter-in-place and evacuations.

Temporary emergency first aid will be provided by the local emergency response organizations, as needed. Medical examination and more extensive treatment will be secured for personnel or residents that are adversely affected by exposure to the H_2S gas. Local hospital and ambulance service telephone references are found in Section 2.0.

Document the date, name of each household member and name of motel used to accommodate the resident on the Record of Shelter-In-Place Personnel and Evacuations.

4.5 COMBINATION OF SHELTER-IN-PLACE AND EVACUATION

Shelter-in-place is typically used as a first step if an evacuation is ultimately necessary. With the resident safely sheltered in their home, emergency managers are given additional time to evaluate situations, determine best courses of action, and advise the public accordingly.

Even with very low wind speeds, the entire gas released will typically disperse to non-life-threatening levels, depending on the distance from the leak and amount of gas released. Almost any enclosed, insulated structure will provide adequate safe harbor in this situation. Evacuating the area may not be able to be accomplished in this very short period of time. Therefore, in most scenarios, in-place sheltering is viewed as the best response to a leak.

4.6 POST-EVACUATION PROCEDURES

When the leak is repaired or otherwise stopped, air monitoring confirms that the H_2S concentration is < 10 PPM, and the Supervisor determines that it is safe to allow personnel to conduct unrestricted activities within the ROE, the resident will be notified that it is safe to return to their normal activities, and/or return to their home. The response team will stand down. Response team members will remove any road-blocks or other equipment that was mobilized.

RECORD OF CONTACTS	
Date	**Remarks**

RECORD OF SHELTER-IN-PLACE PERSONNEL AND EVACUATIONS	
Date	**Remarks**

5.1 SYSTEM RESPONSE TEAM EQUIPMENT

Each member of the response team will be provided the following equipment before responding to a release:

- Personal protective equipment (e.g. gloves, safety glasses, and ear plugs).
- Communications equipment (2-way radio, mobile/cellular phone, etc.).
- 30-minute SCBA when entering an H_2S atmosphere.

5.2 SAFETY EQUIPMENT AND SECURITY

Workover Operations

- Workover sites will be manned 24 hours per day during workover operations. Workover operations that do not include 24 hour operations will be fenced with a locked gate.
- H_2S warning signs will be posted at each direct-access road and at the well sites.
- A windsock will be maintained at the well site to enable an immediate assessment of wind direction.
- H_2S monitors will be located at each well site. Upon detection of H_2S gas, a warning light will illuminate and an audible siren will sound.
- The well site will be illuminated with flood lights to enable operations after dark.
- Self-contained breathing apparatus (SCBA) will be maintained in two separate locations on the well site.
- A temporary ignitable flare will be placed on location for ignition of H_2S gas, as needed.

5.3 CONTRACT RESOURCES

In the event of a release which is beyond the initial response capabilities of the response team, contract manpower and equipment resources can be mobilized. Implementation of these resources will typically be handled by Boots & Coots IWC. Section 2.0 provides a quick telephone reference for response contractors. The following is a list of safety equipment available through Boots & Coots IWC:

5.3 CONTRACT RESOURCES, Continued

- 30 minute SCBA
- Work and escape air packs
- Personal H_2S monitors
- First aid kit
- Cell phones
- Flare gun and cartridges
- Safety harness & rope
- Diesel generator
- Cascade air system
- Personal LEL monitors
- 20# dry chemical fire extinguishers
- 2-way radios
- Loud speaker
- 30' & 50' portable flare stacks
- Warning signs and wind socks
- Light plant
- Trained response personnel

5.4 COMMUNICATIONS

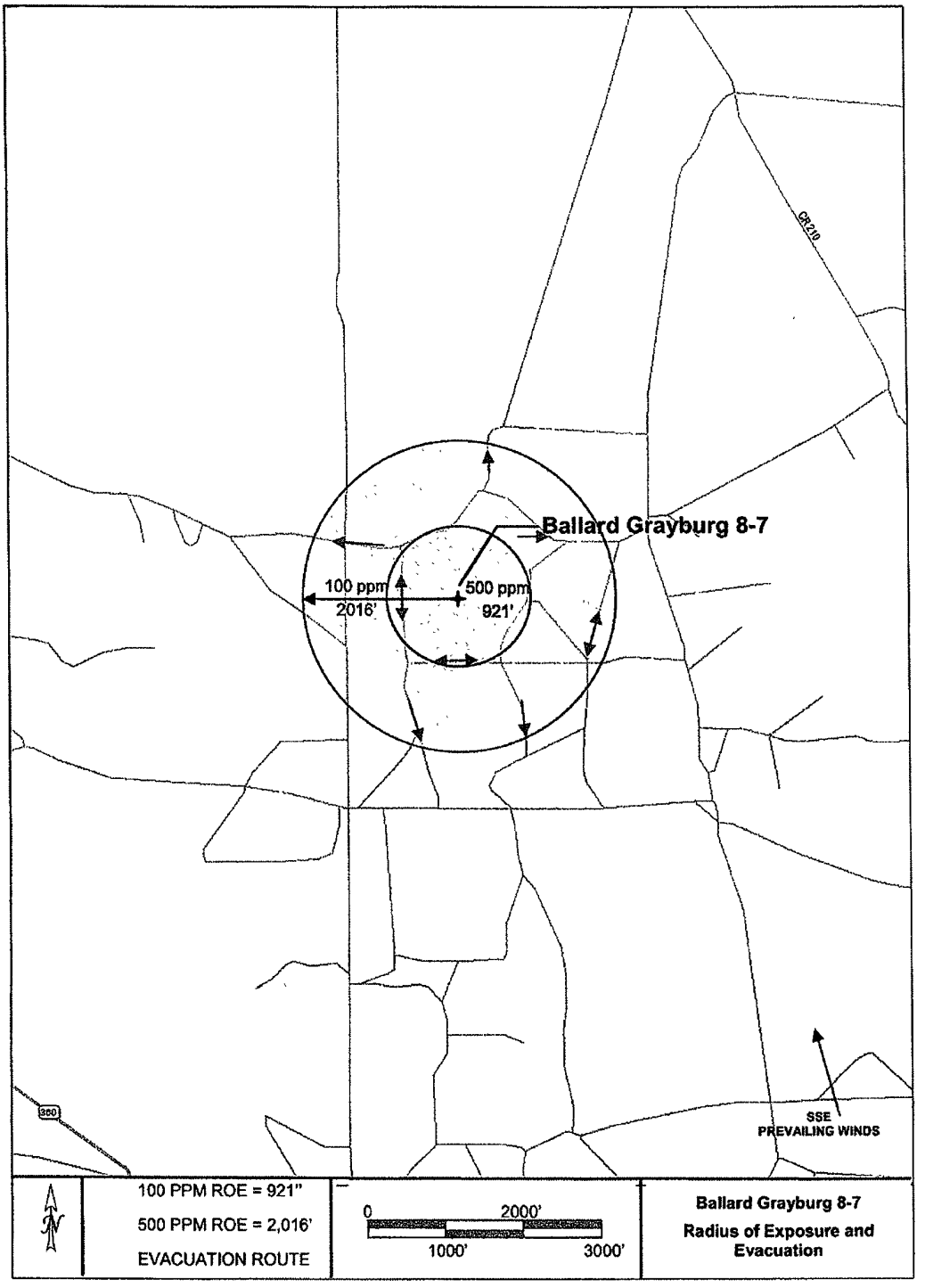
A communications system will be utilized to make emergency notifications, gather information and current status reports, and to provide coordination and direction to widely separated work groups involved in assessment, search, repair, traffic control, public assistance, evacuation, and restoration. Open lines of communication between the response team and the emergency response organizations are imperative to a successful response operation.

Communications Systems

- Internal and external telephone numbers, as well as Platinum's 24-hour emergency contact number are provided in Section 2.0.
- Communications with the response team will typically be via mobile/cellular phone or two-way radio.
- If at any time communications with a lone responder is lost, Platinum will solicit additional response resources.
- Boots & Coots IWC maintains a 24-hour phone line for emergency response (see Section 2.0).
- Telephone notifications to the public will typically be by the Supervisor or made from the Victoria, Texas office. However, in the event that immediate contact cannot be made with these parties, the first responder will not delay in making telephonic notifications to the affected public

BALLARD GRAYBURG 8-7

FACILITY LOCATION	
Location:	The Ballard Grayburg 8-7 site is located at the following global positions: Latitude: North 32° 46' 49.56" Longitude: West 104° 06' 02.96"
County:	Eddy County, New Mexico
Area Map:	Provided on Appendix B, along with the radius of exposure (ROE) and evacuation routes.
SAFETY	
Radius of Exposure	The radius of exposure (ROE) for this drilling operations has been calculated through gas dispersion modeling as: • 100 PPM ROE = 2016' • 500 PPM ROE = 921' Prevailing winds are out of the south-southeast. The average prevailing wind speed range is 5 miles per hour. No residents are located within the ROE are depicted on the ROE & Evacuation Map in Appendix B.


CR 210
Ballard Grayburg 8-7
100 ppm
2016'
500 ppm
921'
380
SSE
PREVAILING WINDS
100 PPM ROE = 921"
500 PPM ROE = 2,016'
EVACUATION ROUTE
0
2000'
1000'
3000'
Ballard Grayburg 8-7
Radius of Exposure and
Evacuation

CHARACTERISTICS OF H_2S

PHYSICAL PROPERTIES

- Colorless gas at room temperature
- Boiling Point = -761F (-601C)
- Soluble in liquid
- Density = 1.19 x Air (Heavier than air)
- Ignition Temperature = 5001F (2601C)
- Flame is practically invisible
- One combustion by-product is SO_2, which is also toxic
- Explosive at mixtures between 4.3% and 46%, by volume
- Noxious at low concentrations (smells similar to rotten eggs)
- Corrosive to High Carbon Steel

H_2S is also known by such names as:

- Sour Gas
- Acid Gas
- Poison Gas
- Sewer Gas
- Rotten Egg Gas
- Sulfur Gas

PHYSICAL EFFECTS

CONCENTRATION			PHYSICAL EFFECTS
PERCENT (%)	**PPM**	**GRAINS/110 SCF @ 15 psia, 60°F**	
0.001	10	.65	Obvious and unpleasant odor. Safe for 8 hours exposure.
0.01	100	6.48	Kills smell in 3 to 15 minutes; may sting eyes and throat.
0.02	200	12.96	Kills smell shortly; stings eyes and throat.
0.05	500	32.96	Dizziness; breathing ceases in a few minutes; need prompt respiration.
0.07	700	45.36	Unconscious quickly; death will result if not rescued promptly.
0.10	1000	64.80	Unconscious at once; followed by death within minutes.

CHARACTRISTICS OF H_2S, Continued

TOXIC EFFECTS COMPARISON					
COMMON NAME	**CHEMICAL FORMULA**	**SPECIFIC GRAVITY SG = 1**	**THRESHOLD[1] LIMIT**	**HAZARDOUS[2] LIMIT**	**LETHAL[3] CONCENTRATION**
Hydrogen Cyanide	HCN	0.94	10 PPM	150 PPM/hr	300 PPM
Hydrogen Sulfide	H_2S	1.19	10 PPM[4] 20 PPM[5]	250 PPM/hr	600 PPM
Sulfur Dioxide	SO_2	2.21	5 PPM		1,000 PPM
Chlorine	CL_2	2.45	1 PPM	4 PPM/hr	1,000 PPM
Carbon Monoxide	CO	0.97	50 PPM	400 PPM/hr	1,000 PPM
Carbon Dioxide	CO_2	1.52	5,000 PPM	5%	10%
Methane	CH_4	0.55	90,000 PPM	Combustible above 5% in air	

[1] Threshold Limit — Concentration at which it is believed that all workers may be repeatedly exposed day after day without adverse effects.

[2] Hazardous Limit — Concentration that may cause death.

[3] Lethal Concentration — Concentration that will cause death with short-term exposure.

[4] Threshold Limit = 10 PPM, 1972 ACGIH (American Conference of Governmental Industrial Hygienists)

[5] Threshold Limit = 20 PPM, 1996 ANSI acceptable ceiling concentration for eight-hour exposure (based on 40-hour week) is 20 PPM. OSHA Rules and Regulations (Federal Register, Vol. 87, No. 202, Part II, dated October 19, 1972).

CHARACTRISTICS OF SULFUR DIOXIDE

Sulfur dioxide (SO_2) is a colorless gas with a pungent odor that can be detected at ambient concentrations of around 0.3 ppm. This gas reacts in the atmosphere to form other pollutants, i.e. sulfur trioxide, sulfuric acid and particulate sulfates. SO_2 is a by-product of burning H_2S gas.

Sulfur dioxide is a reactive, soluble gas which is rapidly absorbed by the nasal cavity and upper respiratory tract. It is an irritant which causes bronchial constriction typical of asthma and increases mucus secretion. Chronic SO_2 exposure may aggravate existing respiratory diseases.

PUBLIC EXPOSURE RISK

Actual exposure potential will be a function of the quantity and concentration of the release combined with real weather conditions at the time of the release.

In the event of a release from the well, the wellhead will be shut in, isolating the source of the gas.

WIND DIRECTION AND SPEED

The prevailing wind direction for the area is out of the southeast.

IGNITION OF H_2S

In the event of a significant release of H_2S gas, the well will be shut in and the decision to flare will be made by the Field Superintendent. Examples of situations where flaring will be required include the following:

- Immediate threat to the public.
- Large volumes of escaping gas or liquids.
- Total system failure.
- Emergency shut-in valves fail to close.

The combustion of hydrogen sulfide produces sulfur dioxide gas as a product of combustion. A flare provides good dispersion of air contaminants because the velocity of the vertical release and the thermal rise caused by the heated combustion products carry the sulfur dioxide high into the atmosphere. The sulfur dioxide is then diluted with ambient air while it cools and sinks to the ground as it is carried downwind.

BRIEFING OF AREA RESIDENTS

The key to the effectiveness of emergency response efforts designed to protect the public is in public awareness. There are no residences within the ROE of the Ballard Grayburg 8-7.

LOCAL EMERGENCY RESPONSE ORGANIZATIONS

Communications with the local Sheriff, Fire Department and LEPC will be maintained to provide information on the hazards of H_2S gas and to facilitate integrated response capabilities between the local emergency response agencies and the Platinum personnel.

In addition, Platinum will provide reciprocal mutual aid assistance to other area operators in the event of an emergency release of H_2S gas.

PERSONNEL TRAINING

All onsite supervisors and response personnel shall receive H_2S training in addition to other safety training, commensurate with their roles and responsibilities as responders. H_2S training will include a thorough understanding of this Contingency Plan, covering, at a minimum the following topics:

- The characteristics of H_2S gas.
- The hazards of H_2S gas.
- H_2S dispersion and the ROE for each system element.
- Anticipated sources of H_2S gas.
- Safety precautions to be taken when entering an H_2S atmosphere.
- Onsite safety equipment and self-contained breathing apparatus, and use of such equipment, commensurate with job responsibilities.
- Leak reporting instructions.
- Procedures in which Platinum personnel will be notified.
- Roles and responsibilities of responders.
- Notification of the public within the ROE.
- Shelter-In-Place and evacuation procedures.
- Public liaisons with local emergency response organizations.
- Mutual aid assistance.
- Contractor resources.

Additionally, onsite supervisors will receive adequate training in the effects of hydrogen sulfide on metal components in the system, corrective actions, shutdown, well control and blowout procedures.

All personnel working in H_2S environments will have air pack training. All contractors working on this system will be informed of the presence of H_2S prior to their work assignment. Contractor companies must demonstrate that their employees have been trained for H_2S operations by means of written certification of training.

Surface Use and Operation Plan

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

Tract	Well #	Legals		Gr. Elev.
1	1-8	7-18S-29E	1362' FNL & 1198' FWL	3630'
8	8-7	5-18S-29E	1167' FNL & 1285' FWL	3571'
10	10-11	5-18S-29E	1538' FNL & 104' FEL	3543
11	11-4	6-18S-29E	1330' FNL & 95' FEL	3583'
14	14-9	8-18S-29E	90' FSL & 221' FWL	3563'
16	16-2	17-18S-29E	1467' FNL & 2602' FWL	3494'
19	19-4	7-18S-29E	2581' FSL & 1196' FEL	3565'

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.
   C. Directions to locations: From Artesia, New Mexico, go east on Highway 82 for 14 miles to State Road 360, turn right (south) and go approximately 5.1 miles. Turn left (East) onto caliche road at the BGSAU sign. Go approximately 0.7 miles to water station. 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 John R. Gray, LLC. A letter agreement is attached.

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.

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

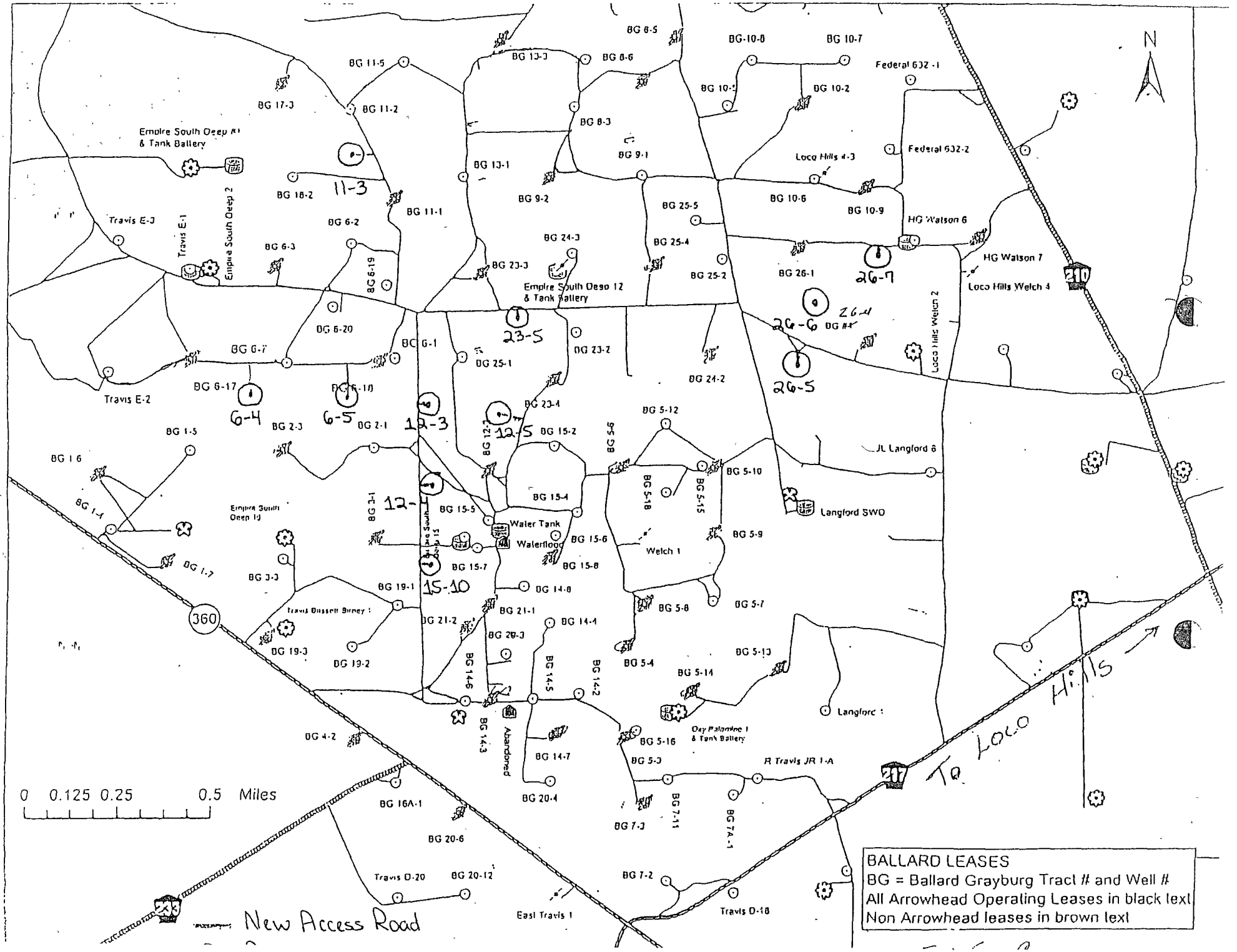
Tandem Energy Corp.
P.O. Box 1559
Midland, TX 79702-1559

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

8/15/08
Date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Empire South Deep #1
& Tank Battery
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Federal 632-2
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& Tank Battery
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BG 5-3
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BG 20-4
BG 7-3
BG 7-11
BG 7A-1
BG 16A-1
BG 20-6
Travis D-20
BG 20-12
BG 7-2
East Travis 1
Travis D-18
0 0.125 0.25 0.5 Miles
N
To Loco Hills
New Access Road
BALLARD LEASES
BG = Ballard Grayburg Tract # and Well #
All Arrowhead Operating Leases in black text
Non Arrowhead leases in brown text

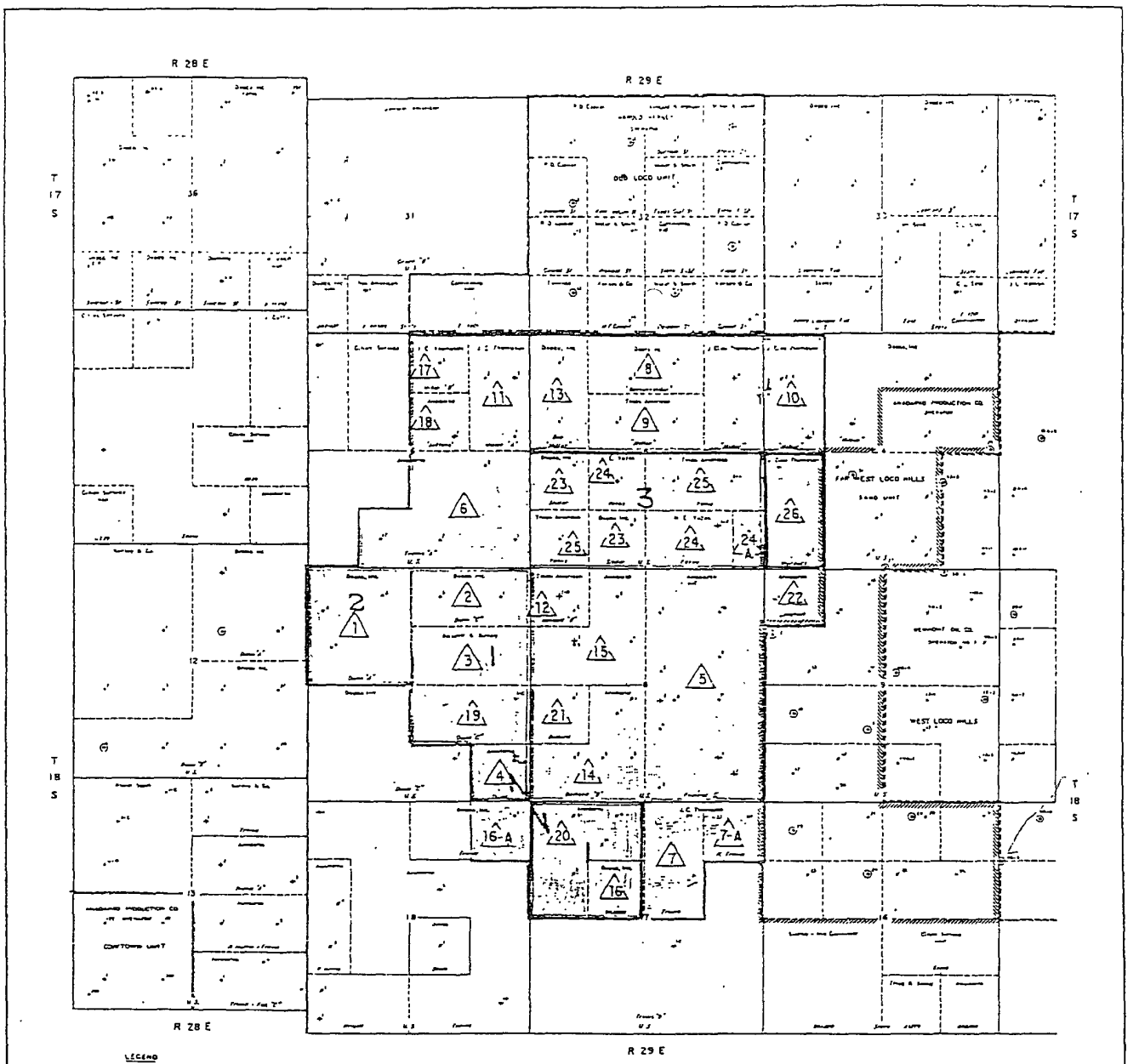


EXHIBIT "A"
to
UNIT AGREEMENT
Ballard Grayburg San Andres Unit
Loco Hills Grayburg San Andres Field
Eddy County, New Mexico

- 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.:	NMLC060888
WELL NAME & NO.:	BGSAU No 8-7
SURFACE HOLE FOOTAGE:	1167' FNL & 1285' FWL
BOTTOM HOLE FOOTAGE	
LOCATION:	Section 5, T. 18 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 4 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 South 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.

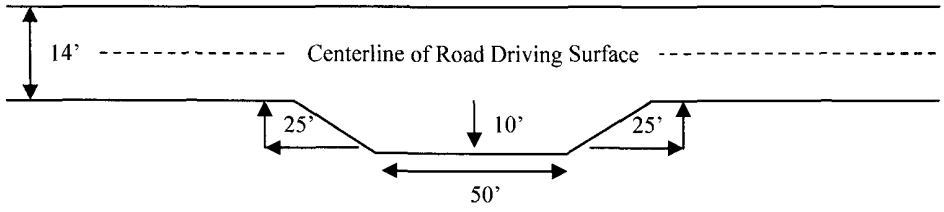
Crowning
Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

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:

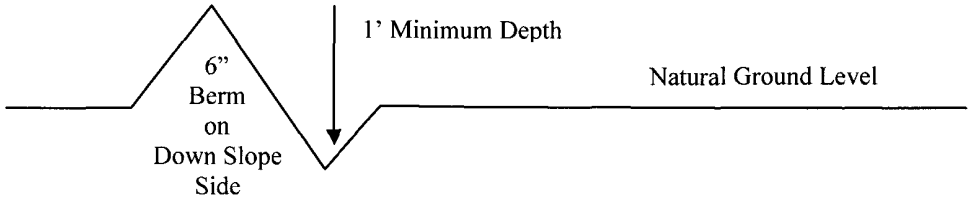
Standard Turnout – Plan View



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.

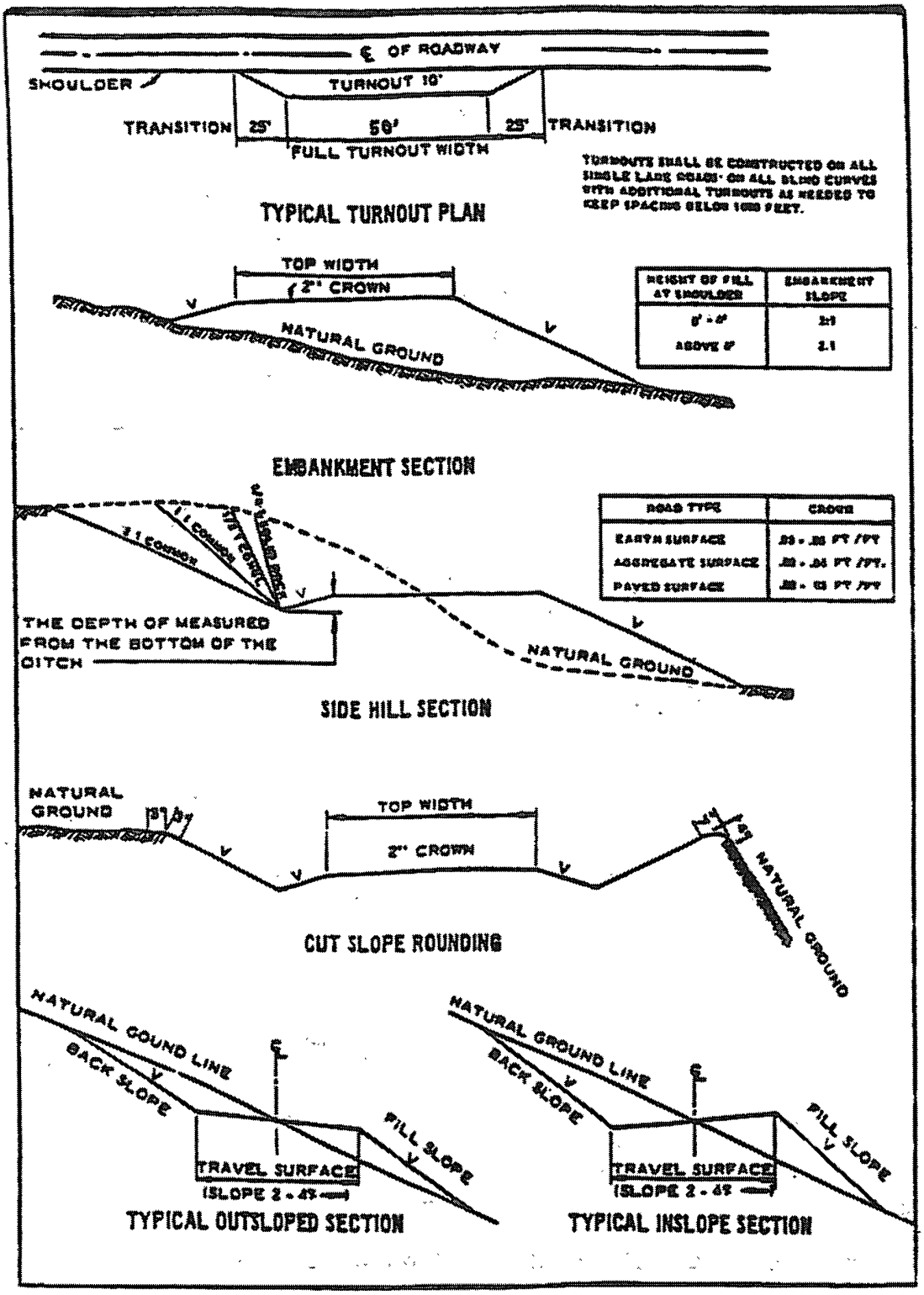
A gate shall be constructed and fastened securely to H-braces.

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 4 hours in advance for a representative to witness:

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

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

1. A Hydrogen Sulfide (H2S) Drilling Plan should be activated 500 feet prior to drilling into the **Grayburg** formation. **If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.**

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

B. CASING

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

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

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 for all casing strings. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. See individual casing strings for details regarding lead cement slurry requirements.

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

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

1. The **8-5/8** inch surface casing shall be set **at approximately 310 feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt)** and cemented to the surface.

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

    b. Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.

    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.

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 4 hours in advance for a representative to witness the tests.

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

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

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

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

e. **A variance 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.**

D. DRILL STEM TEST

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

WWI 100508

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 3, for Shallow Sites

The holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

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

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

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

*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.