Form 3160-3 (August 2007) OCD-ARTESIA

OCD-ARTESIA

FORM APPROVED OMB No. 1004-0137

UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT

NM-LC-058126 6. If Indian, Allotee or Tribe Name

RESUBMITTA

APPLICATION FOR PERMIT TO DRILL OR REENTER 7 If Unit or CA Agreement, Name and No. | ✓ | DRILL REENTER la. Type of work: BGSAU-NM68291Y 8. Lease Name and Well No. Single Zone ODO Multiple Zone ✓ Oil Well Gas Well Other BGSAU#6-5 lb. Type of Well: 9. API Well No. Name of Operator Tandem Energy Corporation OCD-ARTESIA 30-015-366 3b. Phone No. (include area code) 10. Field and Pool, or Exploratory 3a. Address P.O. Box 1559 Midland, TX 79707-1559 432-686-7136 Loco Hills QU-GB-SA 11. Sec., T. R. M. or Blk and Survey or Area Location of Well (Report location clearly and in accordance with any State requirements.*) UNORTHODOX Section 6, Twnp. 18-S. Rng. 29-E At surface 70' FSL,1025' FEL At proposed prod. zone MOITADON 12. County or Parish 13. State 14. Distance in miles and direction from nearest town or post office Eddy NM 6 miles SW Loco Hills, NM 15. Distance from proposed* 16. No. of acres in lease 17. Spacing Unit dedicated to this well 2935' from W. unit line location to nearest 20 property or lease line, ft. (Also to nearest drig. unit line, if any) 2580 19. Proposed Depth 20. BLM/BIA Bond No. on file 18. Distance from proposed location* 700' (#6-18) to nearest well, drilling, completed, NMB000312 3200 applied for, on this lease, ft. Elevations (Show whether DF, KDB, RT, GL, etc.) 22. Approximate date work will start* 23. Estimated duration 3588 01/10/2008 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. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). 2. A Drilling Plan. 5. Operator certification 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). Such other site specific information and/or plans as may be required by the Name (Printed/Typed) 25. Signature Date **Toben Scott** 11/28/2007 Title Vice President-Operations Approved by (Signature) Date DEC 2 /s/ Don Peterson Title FIFI D MANAGER SBAD 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. APPROVAL FOR TWO YEARS Conditions of approval, if any, are attached. Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Sect If earthen pits are used in ly to make to any department or agency of the United

association with the drilling of this well, an OCD pit permit must be

obtained prior to pit construction.

Roswell Controlled Water Basin

States any false, fictitious or fraudulent statements

(Continued on page 2)

SEE ATTACHED FOR CONDITIONS OF APPROVAL APPROVAL SUBJECT TO **GENERAL REQUIREMENTS** AND SPECIAL STIPULATIONS **ATTACHED**

*(Instructions on page 2)

District I Form C-102 State of New Mexico 1625 N. French Dr., Hobbs, NM 88240 Revised October 12, 2005 Energy, Minerals & Natural Resources Department District II Submit to Appropriate District Office 1301 W. Grand Avenue, Artesia, NM 88210 OIL CONSERVATION DIVISION State Lease- 4 Copies District III 1220 South St. Francis Dr. 1000 Rio Brazos Rd., Aztec, NM 87410 Fee Lease-3 Copies District N Santa Fe, NM 87505 1220 S. St. Francis Dr., Santa Fe, NM 87505 ☐ AMENDED REPORT WELL LOCATION AND ACREAGE DEDICATION PLAT Pool Name API Number Pool Code ON- GB-SA <u>-015-3620</u> 39520 Well Number Property Code Property Name OOCBALLARD GRAYBURG - SAN ANDRES UNIT 6-5 OGRID No. Elevation Operator Name TANDEM ENERGY CORPORATION 3588 Surface Location Range UL or lot no. Section Township Lot Idn Feet from the North/South line East/West line Feet from the 18 SOUTH 6 29 EAST, N.M.P.M. SOUTH 1025 EAST Bottom Hole Location If Different From Surface UL or lot no. Section Township Lot Idn Feet from the North/South line Feet from the East/West line **Dedicated Acres** Consolidation Code Order No. Joint or Infill No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the 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

> SURVEYOR CERTIFICATION I hereby certify that the well location

10BEV Printed Name

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

ey Signatule

Certificate Number

15079 WO# 060106WL-b (cog)

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County

County

EDDY

NEW MEXICO EAST NAD 1927 Y=643657.1 X=569155.1

LAT.: N 32.7693036 LONG.: W 104.1085501

1025

Drilling Plan

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

Trac	et 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	Тор	;
Top of Salt	+/- 325'	1
Base of Salt	+/- 725'	,
Yates	+/- 900'	•
Seven Rivers	+/- 1250'	
Queen	+/- 1875'	
Grayburg	+/- 2275'	1
Loco Hills	+/- 2350'	5
Top of Unit	+/- 2400'	1
Metex	+/- 2450'	í
Premier	+/- 2575'	;
San Andres	+/- 2650'	:
TD	+/- 3300'	

3. Estimated Depths of Anticipated Fresh Water, Oil, or Gas

Water: None Anticipated 2475'-3100' Oil:

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	<u>Interval</u>	Casing Size	Weight	<u>Grade</u>	<u>Type</u>
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

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.

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.

<u>Depth</u>	Type	<u>Weight</u>	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

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.

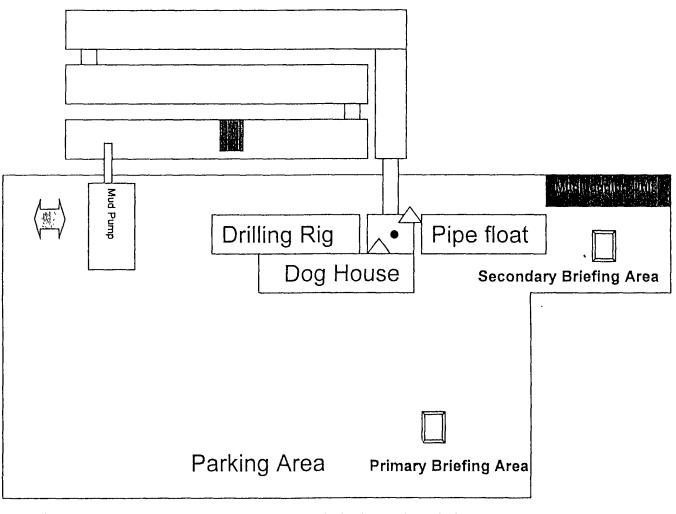
9. Anticipated Starting Date and Duration of Operations

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

- 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.
- 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.



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



Wind direction indicators



Safe briefing areas with caution signs and protective breathing equipment



PATTERSON DRILLING COMPANY, LP

MG COMP	A LIMITED PARTNERSHIP
	TANDEM ENERGY CORPORATION
	MIXON DRIVING RIG = 11
	Blowart Areventer Hadrup
	Flouline
	
	3K Annuar BOP
	8-5/8" Larkin Bradenhead
K	11 Line Choke Line
	8-5/8" Suf Csa
	3 18 SUT. CSG.
	



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

- 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
 - 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

Trac	et 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 <u>Tandem Energy Corporation</u>, 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

Date