

**FINDING OF NO SIGNIFICANT IMPACT  
AND DECISION RECORD  
EA-NM-510-06-52**

**DECISION:** It is my decision to authorize the Application For Permit To Drill Or Deepen (APD), for the Brennan Federal Com. #2 gas well, submitted by Manzano Oil Corporation. The provisions for the approval of the APD will include the attachment of the Roswell Field Office requirements as defined in the following exhibits; **Exhibit A** - Location Map, **Exhibit B** - Well Drilling Requirements, **Exhibit C** - Conditions of Approval, **Exhibit D** - Permanent Resource Road Requirements and **Exhibit E** - Surface Restoration/Reclamation Requirements, and any special mitigating measures developed in the environmental assessment.

In the event the well proves to be a dry hole, or when the well is abandoned, I recommend that reclamation requirements be attached to the well abandonment, including additional requirements imperative for the complete reclamation of the disturbed areas. These actions are subject to 43 CFR 3160 regulations for Onshore Oil and Gas operations on federal lease NM-111966.

Authority for these actions is the Mineral Leasing Act of February 25, 1920, as amended.

These actions will affect public land described as:

*New Mexico Principal Meridian*

**Section 34; SW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>, T. 6 S., R. 34 E.  
1980' FNL & 660' FWL  
Roosevelt County**

**FINDING OF NO SIGNIFICANT IMPACT:** Based on the analysis of potential environmental impacts contained in the attached environmental assessment, I have determined that impacts resulting from the proposed actions are not expected to be significant and an environmental impact statement is not required.

**RATIONALE FOR DECISION:** The proposed actions would not result in any undue or unnecessary environmental degradation. Portions of the subject land and adjacent land have been used for similar purposes and all present and potential uses and users have been considered.

**COMPLIANCE AND MONITORING:** The construction phase of the proposed actions and subsequent operational phases will be monitored as per regulations.

/s/Larry D. Bray

2/28/06

**Larry D. Bray, Assistant Field Manager,  
Lands and Minerals**

**Date**

# ENVIRONMENTAL ASSESSMENT

EA# NM-510-06-52

**WELL NAME & NO.: Brennan Federal Com. #2**  
**BLM Serial #: NM-111966**

Section 34, T. 6 S., R. 33 E., NMPM,  
1980' FNL & 660' FWL, Unit Letter E

Roosevelt County, New Mexico

**OPERATOR: Manzano Oil Corporation**

**ACTION:** Application for Permit to Drill

**SURFACE/MINERAL ESTATE:** Federal Minerals/Private Surface

## **I. Introduction**

### A. Need for the Proposed Action:

Manzano Oil Corporation proposes to drill and complete a natural gas well at the location described above. The proposed action is needed to develop the mineral lease. If completed as proposed, the well would be produced under a communitization agreement that would include a portion of the lease.

### B. Conformance with Land Use Plan:

Oil and gas lease development is in conformance with the Roswell Approved Resource Management Plan and Record of Decision, October 1997.

### C. Relationship to Statutes, Regulations, or other Plans:

The proposed action does not conflict with any known State or local planning, ordinance or zoning.

## **II. Proposed Action and Alternatives**

### A. Proposed Action:

Manzano Oil Corporation submitted Notice of Staking on 1/11/06, to drill the Brennan Federal Com. #2 gas well. The Application for Permit to Drill was submitted on 1/31/06.

The proposed action would include:

1. The proposed road is approximately 3035 feet in length, beginning from the RR35S County road to the proposed well pad. Of the 3035 feet, 1800 feet is existing road and approximately 1235 feet is new access road construction, and none will cross public land. The road would have a driving surface (travelway) of 14 feet, with a maximum 30-foot wide surface disturbance area for the road construction. The proposed access road would be constructed and maintained in accordance with the New Mexico Road Policy. A review of the Master title Plat and Oil & Gas Plat revealed the access

road and pipeline are located entirely on private surface. Private Surface - No Right-of-Way is required.

The construction of approximately 1235 feet of new access road would begin from an existing road and would access the southwest corner of the proposed well pad. All other existing access roads would be maintained in as good or better condition than was existing at the commencement of operations.

2. The construction of the proposed well pad would be 260 feet long by 185 feet wide. The construction of the reserve pit would be about 100 feet by 100 feet and dug 4 feet below ground level. The reserve pit would be located on the north side of the well pad. Standard oilfield construction equipment consisting of; track-type tractors, motor graders, dump trucks, and water trucks would be used to construct the access road and well pad. A rotary drilling rig would be used to drill the well to a depth of 9000 feet. Associated production facilities (e.g., pipeline, separator, storage tanks, etc.) would be installed during the production phase of this well. Topsoil would be stockpiled for future use over the disturbed areas.

3. Surfacing material (caliche/gravel) needed for the construction of the access road and well pad could be obtained by the operator from a private source.

#### B. Alternatives:

##### 1. Relocate the Proposed Action:

The well location is determined on the basis of subsurface geologic formation and to some extent, by spacing regulations imposed by the New Mexico Oil Conservation District II. No other alternative location would have significantly fewer impacts than, or have a clear advantage over, the proposed location. Therefore, the alternative of changing the location involved in this action is not analyzed further in this EA.

##### 2. No Action:

Under this alternative, the application would be rejected. None of the environmental impacts associated with the proposed action or alternate location would occur. Additionally, economic benefits of the proposed action would not be realized, and the existing environment, including the developments in place, would remain unchanged.

##### 3. Alternative Of The Proposed Action:

The new access road was rerouted because the operator encountered a grave site within the alignment of the proposed access road. In order not to impact the grave site the proposed access road was rerouted around the grave site so as the segment of new access road entirely avoids the grave site.

### **III. Description of the Affected Environment**

#### A. General Setting:

The proposed access road and well pad are located on federal minerals and private surface, about 15 miles SE of Elida, N.M.. Historical and present use of the land has been limited to livestock grazing

and energy development.

The proposed action is adjacent to the New Mexico Department of Game and Fish North Bluit Prairie Chicken Management Area.

B. Rights of Record:

An inspection of the Master Title Plats and other Bureau records revealed the following title information pertaining to valid existing prior rights on the subject land:

- Oil and gas leases: NM-111966 - covers lease actions.
- No federally administered rights-of-way would be affected in the project area.
- No mining claims are recorded within Sec. 34, T. 6 S., R. 33 E., NMPM.

C. Affected Resources:

The following critical resources have been evaluated and are either not present or are not affected by the proposed action or the alternatives in this EA:

Areas of Critical Environmental Concern (ACEC's)  
Cultural Resources (06-R-041-A)  
Farmlands, Prime/Unique  
Floodplains  
Native American Religious Concerns  
Wastes, Hazardous/Solid  
Wetlands and Riparian Zones  
Threatened and Endangered Species  
Wild & Scenic Rivers  
Wilderness

1. Air Quality:

The area of the proposed action is considered a Class II air quality area. A Class II area allows moderate amounts air quality degradation. The primary sources of air pollution are dust from blowing wind on disturbed or exposed soil and exhaust emissions from motorized equipment.

2. Soil:

The *Soil Survey of Roosevelt County, New Mexico, Northern Part (USDA Soil Conservation Service 1967)* was used to describe and analyze impacts to soils from the proposed action. The soil map units represented in the project area are:

Amarillo and Clovis soils, severely eroded (Af) Scattered areas of Amarillo loamy fine sand, 0 to 3 percent slopes, and Clovis loamy fine sand, 0 to 3 percents slopes. Drainage is good, and runoff is slow.

Arvana fine sandy loam, 1 to 3 percent slopes (Ar) Runoff is moderate and internal drainage is restricted at a moderate depth by the layer of hard caliche. Wind erosion and water erosion are moderate hazards.

Brownfield fine sand, 0 to 3 percent slopes (Be) Runoff is slight and internal drainage is good. The hazard of wind erosion is severe.

### 3. Vegetation: SHINNERY-OAK DUNE

This lease is within the shinnery-oak dune vegetative community as identified in the Roswell Resource Management Plan/Environmental Impact Statement (RMP/EIS). Appendix 11 of the Draft RMP/EIS describes the Desired Plant Community (DPC) concept and identifies the components of each community. The primary features in the shinnery oak dune (SOD) community are topography influenced by aeolian and alluvial sedimentation on upland plains forming hummocks, dunes, sand ridges and swales and the presence of shinnery oak (*Quercus havardii*). The topography is gently sloping and undulating sandy plains, with moderate to very steep hummocky dunes of up to ten feet and more in height scattered throughout the area. Some of the dunes are stabilized with vegetation, while a number of them are unstable and shifting. Dune blowouts with shinnery oak and bluestem, either isolated or in dune complexes are common in this community. Dominant grasses include sand bluestem (*Andropogon hallii*), little bluestem (*Schyzachirium scoparium*), and three-awn (*Aristida* spp.).

The Ecological Site Description for the proposed well pad and access road is [HP-3 Sandy (Southern High Plains)].

### 4. Invasive & Noxious Weeds:

There are no known populations of invasive or noxious weed species on the proposed access road and well pad.

Infestations of noxious weeds can have a disastrous impact on biodiversity and natural ecosystems. Noxious weeds affect native plant species by out-competing native vegetation for light, water and soil nutrients. Noxious weeds cause estimated losses to producers \$2 to \$3 billion annually. These losses are attributed to: (1) Decreased quality of agricultural products due to high levels of competition from noxious weeds; (2) decreased quantity of agricultural products due to noxious weed infestations; and (3) costs to control and/or prevent the noxious weeds.

Further, noxious weeds can negatively affect livestock and dairy producers by making forage either unpalatable or toxic to livestock, thus decreasing livestock productivity and potentially increasing producers' feed and animal health care costs. Increased costs to operators are eventually borne by consumers.

Noxious weeds also affect recreational uses, and reduce realty values of both the directly influenced and adjacent properties.

Recent federal legislation has been enacted requiring state and county agencies to implement noxious weed control programs. Monies would be made available for these activities from the federal government, generated from the federal tax base. Therefore, all citizens and taxpayers of the United States are directly affected when noxious weed control prevention is not exercised.

### 5. Ground Water Quality :

Fresh water for irrigation and stock use is obtained from the Ogallala and Chinle Formation in the depth range of 120 ft. to 250 ft..

### 6. Wildlife:

Wildlife species utilizing this area for habitat include mule deer, pronghorn, coyote, fox, rabbits, kangaroo rats, pocket gophers, amphibian and reptile species, as well as a variety of songbirds, dove, quail, and raptors.

There are no known threatened or endangered species of plant or animals within the project area. The list of federal threatened, endangered and candidate species reviewed for this EA can be found in Appendix 11 of the Roswell Approved RMP (AP11-2).

The project area contains habitat for the Lesser Prairie Chicken, a Federal Candidate under the endangered species act. Due to the amount of private land, surveys of the area have not been completed. Lesser prairie chickens utilize the shinnery oak dune plant community which is comprised of tall grass species with inclusions of mid to short grass prairie.

7. Range: The access road and well pad are located on a BLM grazing allotment #61008 Gallina Wells, permitted to Shannon Kizer, P.O. Box 56, Pep, NM 88126.. Johnnie Firestone Private Surface Landowner.

8. Visual Resources:

The setting presents a year-around gray green setting due to exposed landform and soil colors and vegetation.

The proposed actions are located within a designated VRM Class IV area. The settings present a winter gray setting and in warm months, with foliage, a gray to gray-green color pattern.

9. Recreation: The area is private surface with no public access to the area.

10. Cave/Karst:

No surface cave/karst features were observed in the immediate vicinity of the proposed actions. However, the proposed actions are located in the *Low Karst Potential Area*.

11. Minority or Low-income Populations or Communities:

The proposed actions would not affect the minority or low-income populations or communities.

#### **IV. ENVIRONMENTAL IMPACTS**

A. Proposed Action Impacts:

The surface disturbance involved in the construction of the access road, well pad, and reserve pit would total about 2.2 acres of federal minerals/private surface.

1. Air Quality:

Air quality would temporary be impacted with pollution from exhaust emissions, chemical odors, and dust that would be caused by the motorized equipment used to construct the access road, well pad, and by the drilling rig that will be used to drill the well. Dust dissemination would discontinue upon completion of the construction phase of the access road and well pad. Air pollution from the motorized equipment would discontinue at the completion of the drilling phase of the operations. The winds that frequent the

southeastern part of New Mexico generally disperse the odors and emissions. The impacts to air quality would be greatly reduced as the construction and drilling phases are completed.

## 2. Soil:

The construction of the access road and well pad would physically disturb about 2.2 acres of topsoil and would expose the substratum soil. The exposed soil would be susceptible to wind blowing and water erosion. Surfacing the exposed soil on the access road and well pad would minimize these impacts. Construction of the reserve pit 4 feet below ground level would impact deeper soil horizons on the well pad. The impact to the soil would be remedied upon reclamation of the well pad when the stockpiled soil that was specifically conserved to establish a seedbed is spread over the well pad and vegetation re-establishes.

Additional soil impacts associated with lease development would occur when heavy precipitation causes water erosion damage. When water saturated segment(s) on the access road become impassable, vehicles may still be driven over the road. Consequently, deep tire ruts would develop. Where impassable segments are created from deep rutting, unauthorized driving may occur outside the designated route of the access road. Road construction requirements and regular maintenance would alleviate potential impacts to the access road from water erosion damage.

## 3. Vegetation:

The construction of the access road and well pad would remove about 2.2 acres of native vegetation. If it is a producing well, reclamation would not commence until the well is a depleted producer and plugged and abandoned. Vegetation recovery on the access road and well pad would depend on the life of the well. Native vegetation would encroach on the well pad over time with only high traffic areas remaining unvegetated. If drilled as a dry hole and plugged, reclamation of the access road and well pad would immediately follow. Vegetation impacts would be short-term when the access road and well pad re-vegetate within a few years, and the reclamation of the access road and well pad are successful.

## 4. Invasive & Noxious Weeds:

The construction of an access road and well pad may unintentionally contribute to the establishment and spread of noxious weeds. Noxious weed seed could be carried to and from the project areas by construction equipment, the drilling rig and transport vehicles. The main mechanism for seed dispersion on the road and well pad is by equipment and vehicles that were previously used and or driven across or through noxious weed infested areas. The potential for the dissemination of invasive and noxious weed seed may be elevated by the use of construction equipment typically contracted out to companies that may be from other geographic areas in the region. Washing and decontaminating the equipment prior to transporting onto and exiting the construction areas would minimize this impact.

Impacts by noxious weeds will be minimized due to requirements for the company to eradicate the weeds upon discovery. Multiple applications may be required to effectively control the identified populations.

## 5. Ground Water Quality:

The use of a plastic-lined reserve pit would reduce or eliminate seepage of drilling fluid into the soil and eventually reaching groundwater. Spills or produced fluids (e.g., saltwater, oil, and/or condensate in the event of a breach, overflow, or spill from storage tanks) could result in contamination of the soils onsite, or offsite, and may potentially impact groundwater resources in the long term. The casing and cementing

requirements imposed on the proposed well would reduce or eliminate the potential for groundwater contamination from drilling muds and other surface sources.

#### 6. Wildlife:

Some small wildlife species may be killed and their dens or nests destroyed during construction of the access road and well pad. Construction of the access road and well pad would cause fragmentation of wildlife habitat. Short-term negative impact to wildlife would occur during the construction phase of the operation due to noise and habitat destruction. In general, most wildlife species would become habituated to the new facilities. In the long term, impacts to wildlife habitat may occur by the continued fragmentation of habitat caused by possible future construction of the well, roads, pipelines, and the increased presence of human traffic, to develop the lease.

#### Special Status Species – Lesser Prairie Chicken

Specific direct impacts to this species are unknown at this time. Surveys have not been conducted for the lesser prairie chicken on private land even though the project is within the historic lesser prairie chicken range. Presence within historic range and availability of preferred habitat do not imply occupancy of the area by prairie chickens. Although the birds are known to occupy similar habitat on public and state lands a few miles to the east and south of the proposed location.

The proposed location is not within preferred habitat for the lesser prairie chicken as evidenced by field reconnaissance conducted by BLM biologists. **Timing stipulations would be waived for this proposed action.**

#### 7. Range:

There would be some minor disruption of livestock grazing in the pasture, specifically on the well pad, during the construction and drilling phase of the well. Vehicle traffic would increase in the area, which may lead to conflicts with livestock.

#### 8. Visual Resources:

The objective of Class IV is to: “Provide for management activities which require major modification of the existing landscape character...Every attempt, however, should be made to reduce or eliminate activity impacts through careful location, minimal disturbance, and repeating the basic landscape elements.”

Through color manipulation, by painting well facilities to blend with the rolling to flat vegetative and/or landform setting with a gray-green to brownish color, the view is expected to favorably blend with the form, line, color and texture of the existing landscape. The flat color Olive Drab from the Supplemental environmental colors also closely approximates the gray green color of the setting. All facilities, including the meter building, would be painted this color.

Cumulative adverse visual impacts can be avoided by gradually moving into a more appropriate vegetative/landform setting color scheme.

#### 9. Recreation:

The area is private surface with no public access. Recreation will not be affected by the proposed action

10. Cave/Karst:

There would be no impact to known cave entrances, or karst features within the areas of the proposed actions. The proposed action is located in a low karst potential area.

11. Minority or Low-income Populations or Communities:

The proposed actions would not impact the minority or low-income populations or communities.

B. Alternatives:

1. Relocation Alternative:

The alternative of changing the location involved in this action was not analyzed further because no other alternative location would have significantly fewer impacts than, or has a clear advantage over, the proposed location.

2. No Action Alternative:

The no action alternative would constitute denial of the application. This alternative would have no consequential results from the identified environmental impacts. There would, however, be an adverse economic impact to the applicant through the denial of the lessee's right to develop the mineral reserves or through increased costs of accessing those mineral reserves through other means. There have been no significant or unmitigatable impacts identified as a result of this analysis, which would warrant selection of the no action alternative.

C. Mitigation:

The Roswell Field Office; (Exhibit A) Well Location Map, Well Drilling Requirements (Exhibit B), Conditions of Approval (Exhibit C), Permanent Resource Road Requirements (Exhibit D) and Surface Restoration/Reclamation Requirements (Exhibit E), and the special requirements derived from this EA, would be applied to this proposed action to minimize the surface disturbance and conserve the surrounding landscape.

All above ground facilities should be painted Olive Green to blend into the surrounding landscape in accordance to the BLM supplemental environmental color chart.

D. Cumulative Impacts:

While it is likely that there will be no significant cumulative impact from the proposed action, continued oil and gas development, and other surface-disturbing activities in this area, may potentially have negative cumulative impacts on vegetation, soil, water, livestock, wildlife, and visual resources.

**V. Consultation and Coordination**

An onsite inspection was conducted on the access road and well pad on 1/18/06. In attendance was Mr. John Thompson, Production Manager for Manzano Oil Corporation, Mr. Gene Schull, Dirt Contractor from Oil Field Services, Mr. Richard Barr, Crew Chief for John West Surveying Co., Mr. Johnny Firestone, Private Surface Landowner, and Richard Hill, Environmental Protection Specialist, BLM

Roswell Field Office. Coordination and consultation has occurred with the applicant's agent. The comments and suggestions expressed during the onsite consultation have been incorporated into this EA.

Coordination and consultation has occurred with Roswell Field Office's Staff. The comments and suggestions expressed during the review of the proposed action and environmental analysis has been incorporated into this EA. Roswell Field Office's Staff at on-site; Mel Moe.

Reviewed by:

\_\_\_\_\_  
Irene Gonzales, Realty Specialist

\_\_\_\_\_  
Date

# EXHIBIT B

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## WELL DRILLING REQUIREMENTS

OPERATORS NAME: Manzano Oil Corporation LEASE NO.: NM-111966  
WELL NAME & NO: Brennan Federal Com. #2  
QUARTER/QUARTER & FOOTAGE: SW¼NW¼ - 1980' FNL & 660' FWL  
LOCATION: Section 34, T. 6 S., R. 33 E., NMPM  
COUNTY: Roosevelt County, New Mexico

### I. GENERAL PROVISIONS:

- A. The operator has the right of administrative review of these requirements pursuant to 43 CFR 3165.1(a).
- B. The operator shall hereafter be identified as the holder in these requirements. The Authorized Officer is the person who approves the Well Drilling Requirements.

### II. WELL PAD CONSTRUCTION REQUIREMENTS:

- A. The BLM shall administer compliance and monitor construction of the access road and well pad. Notify Richard G. Hill at least 3 working days (72 Hours) prior to commencing construction of the access road and/or well pad. Roswell Field Office number (505) 627-0247.
- B. Prior to commencing construction of the access road, well pad, or other associated developments, the holder shall provide the dirt contractor with **a copy of the approved APD signature page, a copy of the location map (EXHIBIT A), a copy of pages 1 & 2 from the Well Drilling Requirements (EXHIBIT B), and a copy of the Permanent Resource Road Requirements (EXHIBIT D).**
- C. The holder shall stockpile the topsoil from the surface of the well pad. The topsoil on the Brennan Federal Com. #2 well pad is approximate 6 inches in depth. Approximately 800 cubic yards of topsoil shall be stockpiled on the Southeast corner of the well pad, opposite the reserve pit.
- D. **Reserve Pit Requirements:**
  - 1. The reserve pit shall be constructed 100' X 100' on the **North** side of the well pad.
  - 2. The reserve pit shall be constructed to a minimum depth of four (4) feet below ground level. The reserve pit shall be constructed, so that the cuttings in the reserve pit can be buried a minimum depth of three (3) feet below ground level. **See Exhibit E – Surface Reclamation/Restoration Requirements.**
  - 3. A synthetic or fabricated liner 12 mil in thickness shall be used to line the reserve pit. The liner shall meet ASTM standards that are designed to be resistant to the reserve pit contents.

## WELL DRILLING REQUIREMENTS

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4. The reserve pit shall be fenced on three (3) sides during drilling operations. The fourth side shall be fenced immediately upon rig release.
5. The reserve pit shall be constructed so as not to leak, break, or allow discharge of drilling muds. Under no circumstances will the reserve pit be cut to drain drilling muds on the well location.
6. The reserve pit shall not be located in any natural drainage.
7. The reserve pit shall be equipped to deter entry by birds, bats, other wildlife, and livestock, if the reserve pit contains any oil and/or toxic fluids.
8. Drilling muds shall be properly disposed of before the reserve pit is reclaimed. Drilling muds can be allowed to evaporate in the reserve pit or be removed and transported to an authorized disposal site. The reserve pit shall be backfilled when dry.
9. Dumping of junk or trash into the reserve pit is not allowed. Junk or trash shall be removed from within the reserve pit before the reserve pit is reclaimed. **Junk or trash shall not be buried in the reserve pit.**

### E. Federal Mineral Materials Pit Requirements:

1. Caliche, gravel, or other related materials from new or existing pits on Federal mineral estate shall not be taken without prior approval from the authorized officer. Contact Jerry Dutchover at (505) 627 -0236.
2. Payment for any Federal mineral materials that will be used to surface the access road and the well pad is required prior to removal of the mineral materials.
3. Mineral Materials extracted during construction of the reserve pit may be used for development of the pad and access road as needed, for the Brennan Federal Com. #2 gas well only. Removal of any additional material on location must be purchased from BLM prior to removal of any material.
  - a. An optional mineral material pit may be constructed within the archaeologically cleared area. The mineral material removed in the process can be used for pad and access road construction. However, a mineral material sales contract must be purchased from the BLM prior to removal of any material.

### F. Well Pad Surfacing Requirement:

The well pad shall be surfaced with 6 inches of compacted caliche, gravel, or other approved surfacing material. The well pad shall be surfaced prior to drilling operations. **See Permanent Resource Road Requirements - EXHIBIT D - requirement #4, for road surfacing.**

### G. Cave Requirements:

1. If, during any construction activities any sinkholes or cave openings are discovered, all construction activities shall immediately cease. Contact Larry Bray at (505) 627-0250.
2. The BLM Authorized Officer will, within 24 hours of notification in "A" above, conduct an on-the-ground field inspection for karst. At the field inspection the authorized field inspector will authorize or suggest mitigating measures to lessen the damage to the karst environment. A verbal order to proceed or stop the operation will be issued at that time.

## III. CONDITIONS OF APPROVAL - DRILLING

### I. DRILLING OPERATIONS REQUIREMENTS:

1. The Bureau of Land Management (BLM) is to be notified at (505) 627-0272 in sufficient time for a representative to witness:

## WELL DRILLING REQUIREMENTS

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A. Spudding      B. Cementing casing: 13-3/8 inch 8-5/8 inch 5-1/2 inch      C. BOP tests

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.

3. Include the API No. assigned to well by NMOCD on the subsequent report of setting the first casing string

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

### II. CASING:

1. 13-3/8 inch surface casing should be set at approximately 375 feet, below usable water and circulate cement to the surface. If cement does not circulate to the surface, the BLM Roswell Field Office shall be notified at (505) 627-0272 and a temperature survey or cement bond log shall be run to verify the top of the cement. Remedial cementing shall be completed prior to drilling out that string.

2. Minimum required fill of cement behind the 8-5/8 inch intermediate casing is sufficient to circulate to the surface.

3. Minimum required fill of cement behind the 5-1/2 inch production casing is sufficient to tie back 500 feet above the uppermost perforation in the pay zone.

### III. PRESSURE CONTROL:

1. Before drilling below the 13-3/8 inch surface casing, the blowout preventer assembly shall consist of a minimum of One Annular Preventer or Two Ram-Type Preventers and a Kelly Cock/Stabbing Valve. Before drilling below the 8-5/8 inch intermediate casing, the blowout preventer assembly shall consist of a minimum of One Annular Preventer, Two Ram-Type Preventers, and a Kelly Cock/Stabbing Valve.

2. Before drilling below the 13-3/8 inch surface casing, minimum working pressure of the blowout preventer and related equipment (BOPE) shall be 2000 psi. Before drilling below the 8-5/8 inch intermediate casing, minimum working pressure of the blowout preventer and related equipment (BOPE) shall be 3000 psi.

### III. PRESSURE CONTROL:

1. After setting the 8-5/8 inch intermediate casing and before drilling into the Wolfcamp formation, the BOPE shall be tested as described in Onshore Order No. 2. Any equipment failing to test satisfactorily shall be repaired or replaced.

A. The Roswell Field Office shall be notified at (505) 627-0272 in sufficient time for a representative to witness the tests.

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

C. The results of the test shall be reported to the BLM Roswell Field Office at 2909 West Second Street, Roswell, New Mexico 88201-1287.

D. Testing fluid must be water or an appropriate clear liquid suitable for sub-freezing temperatures. Use of drilling mud for testing is not permitted since it can mask small leaks.

E. Testing must be done in a safe workman like manner. Hard line connections shall be required.

### IV. DRILLING MUD:

1. Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the Wolfcamp formation, and shall be used until production casing is run and cemented. Monitoring equipment shall consist of the following:

A. Recording pit level indicator to indicate volume gains and losses.

B. Flow-sensor on the flow-line to warn of abnormal mud returns from the well.

IV. ON LEASE - WELL REQUIREMENTS:

A. The holder shall post signs identifying the location permitted herein with the requirements contained in Onshore Oil and Gas Order #1 and 43 CFR 3162.6.

B. The following data is required on the well sign that shall be posted in a conspicuous place on the well pad. **The communitization agreement number shall be posted on the well sign.** The sign shall be kept up with current identification and shall be legible for as long as the well is in existence:

Operator Name: Manzano Oil Corporation  
Well Name & No.: Brennan Federal Com. #2  
Lease No.: NM-111966  
Footage: 1980' FNL & 660' FWL  
Location: Section 34, T. 6 S., R. 33 E.

C. UPON ABANDONMENT OF THE WELL, THE SAME INFORMATION SHALL BE INSCRIBED ON THE DRY HOLE MARKER WITH A BEADED WELD.

D. The approval of the APD does not in any way imply or grant approval of any on-lease, off-lease, or off-unit action(s). It is the responsibility of the holder to obtain other approval(s) such as rights-of-way from the Roswell Field Office or other agencies, including private surface landowner(s).

E. All vehicles, including caterpillar track-type tractors, motor graders, off-highway trucks and any other type of motorized equipment that is used in the construction of the access road and well pad shall be confined to the area(s) herein approved. The drilling rig that is used to drill the well shall also be confined to the approved area(s).

F. **Containment Structure Requirement:**

1. A containment structure or earthen dike shall be constructed and maintained around all storage facilities/batteries. The containment structure or earthen dike shall surround the storage facilities/batteries.

2. The containment structure or earthen dike shall be constructed two (2) feet high around the facilities/batteries (the containment structure or earthen dike can be constructed higher than the two (2) feet high minimum).

3. The perimeter of the containment structure or earthen dike can be constructed substantial larger for greater holding capacity of the contents of the largest tank.

4. The containment structure or earthen dike shall be constructed so that in case of a spill the structure can contain the entire contents of the largest tank, plus 24 hour production, within the containment structure or earthen dike, unless more stringent protective requirements are deemed necessary by the Authorized Officer.

**G. Painting Requirement:**

All above-ground structures (e.g.: meter houses, tanks, above ground pipelines, and related appurtenance, etc.) not subject to safety requirements shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be a color which simulates "Supplemental Environmental Colors" designated by the Rocky Mountain Five-State Interagency Committee. The color selected for painting all the well facilities is Olive Drab 18-0622 TPX.

**H. Fence Requirement:**

The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair impacted improvements to at least their former state. On private surface the holder shall contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates shall be allowed unless approved by the Authorized Officer.

**I. Open-vent Exhaust Stack Requirements:**

1. All open-vent exhaust stacks associated with heater-treater, separators and dehydrator units shall be modified to prevent birds and bats from entering them and to the extent practical to discourage perching and nesting.
2. New production equipment installed on federal leases after November 1<sup>st</sup>, 1993, shall have the open-vent exhaust stacks constructed to prevent the entry of birds and bats and to the extent practical, to discourage perching, and nesting.

**V. Invasive and Noxious Weeds Requirement:**

A. The holder shall be held responsible if noxious weeds become established within the area. Evaluation of the growth of noxious weeds shall be made upon discovery. Weed control will be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipelines, and adjacent land affected by the establishment of weeds due to this action. The holder is responsible for consultation with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policy.

B. The holder shall insure that the equipment and or vehicles that will be used to construct, maintain and administer the access roads, well pad and resulting well are not polluted with invasive and noxious weed seed. Transporting of invasive and noxious weed seed could occur if the equipment and vehicles were previously used in noxious weed infested areas. In order to prevent the spread of noxious weeds, the Authorized Officer shall require that the equipment and vehicles be cleaned with either high pressure water or air prior to construction, maintenance and administration of the access roads, well pad, and resulting well.

**VI. SPECIAL REQUIREMENT(S): NONE**

# EXHIBIT C

1 of 3 pages

## CONDITIONS OF APPROVAL

OPERATOR: Manzano Oil Corporation

LEASE NO: NM-111966

WELL NAME & NO.: Brennan Federal Com. #2

LOCATION: Section 34, T. 6 S., R. 33 E., N.M.P.M.

QUARTER/QUARTER & FOOTAGE: SW $\frac{1}{4}$ NW $\frac{1}{4}$  - 1980' FNL & 660' FWL

COUNTY: Roosevelt County, New Mexico

### GENERAL CONDITIONS OF APPROVAL:

1. The **operator** shall hereafter be identified as the **holder** in these requirements. The Authorized Officer is the person who approves the Conditions Of Approval.
2. The holder shall indemnify the United States against any liability for damage to life or property arising from occupancy or use of public lands under this authorization.
3. The holder shall have surface use approval prior to any construction work on change(s) or modification(s) to the access road and/or well pad. The holder shall submit (Form 3160-5), Sundry Notice and Report On Wells, an original plus one (1) copy to the Roswell Field Office, stating the basis for any changes to previously approved plans. Prior to any revised construction the holder shall have an approved Sundry Notice and Report On Wells or written authorization to proceed with the change in plans ratified by the Authorized Officer.
4. **Weed Control:**
  - A. The holder shall be held responsible if noxious weeds become established within the area. Evaluation of the growth of noxious weeds shall be made upon discovery. Weed control will be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipelines, and adjacent land affected by the establishment of weeds due to this action. The holder is responsible for consultation with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policy.

B. The holder shall insure that the equipment and or vehicles that will be used to construct, maintain and administer the access roads, well pad and resulting well are not polluted with invasive and noxious weed seed. Transporting of invasive and noxious weed seed could occur if the equipment and vehicles were previously used in noxious weed infested areas. In order to prevent the spread of noxious weeds, the Authorized Officer shall require that the equipment and vehicles be cleaned with either high pressure water or air prior to construction, maintenance and administration of the access roads, well pad, and resulting well.

#### 5. **Hazardous Substances:**

a. The holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act Of 1976, as amended (15 U.S.C. 2601, *et. seg.*) with regard to any toxic substances that are used, generated by or stored on the project/pipeline route or on facilities authorized. (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193). Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation and Liability Act, Section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the Authorized Officer concurrent with the filing of the reports to the involved Federal agency or State government.

b. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substances or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, *et. seg.* or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, *et. seg.*) on this project/pipeline (unless the release or threatened release is wholly unrelated to the holder's activity on the pipeline). This agreement applies without regard to whether a release is caused by the operator, its agent, or unrelated third parties.

#### 6. **Undesirable Events:**

If, during any phase of the construction, operation, maintenance, or termination of the authorization, any oil or other pollutants, should be discharged, and impacting Federal land, the control and total removal, disposal, and cleaning up of such oil or other pollutants, wherever found, shall be the responsibility of the holder, regardless of fault. Upon failure of the holder to control, dispose of, or clean up such discharge on or affecting Federal land, or to repair all damages to Federal land resulting therefrom, the Authorized Officer may take such measures as deemed necessary to control and cleanup the discharge and restore the area, including, where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the holder. Such action by the Authorized Officer shall not relieve the holder of any liability or responsibility.

**7. Archaeological, Paleontology, and Historical Sites:**

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

b. The holder is hereby obligated to comply with procedures established in the Native American Graves Protection and Repatriation Act (NAGPRA) to protect such cultural items as human remains, associated funerary objects, sacred objects, and objects of cultural patrimony discovered inadvertently during the course of project implementation. In the event that any of the cultural items listed above are discovered during the course of the project work, the holder shall immediately halt the disturbance and contact the BLM within 24 hours for instructions. The holder or initiator of any project shall be held responsible for protecting, evaluating, reporting, excavating, treating, and disposing of these cultural items according to the procedures established by the BLM in consultation with Indian Tribes. Any unauthorized collection or disturbance of cultural resources may result in a shutdown order by the Authorized Officer.

**8. Sanitation:**

The holder shall be responsible for maintaining the site in a sanitary condition at all times; waste materials shall be disposed of promptly at an appropriate waste disposal site. "Waste" means all discarded matter including, but not limited to, human waste, trash, garbage, refuse, oil drums, petroleum products, ashes, and equipment.

**9. Open-top Tanks:** Any open-top tank containing oil and/or toxic fluids shall be covered with netting or equipped to prevent birds, bats, and other wildlife from entering the open-top tank.

**10. Other:** None

# EXHIBIT D

1 of 6 pages

## PERMANENT RESOURCE ROAD REQUIREMENTS

**Operator: Manzano Oil Corporation**  
**BLM Serial Number: NM-111966**  
**Well Name & NO.: Brennan Federal Com. #2**  
**Location: Section 34, T. 6 S., R. 33 E.**  
**1980' FNL & 660' FWL, Roosevelt County, N.M.**

The holder agrees to comply with the following requirements:

### 1. GENERAL REQUIREMENTS:

- A. The **operator** shall hereafter be identified as the **holder** in these requirements. The Authorized Officer is the person who approves the Permanent Resource Road Requirements.
- B. The holder shall minimize any disturbance to structures on public domain surface. Damages caused to any structure during road construction operations shall be promptly repaired by the holder. Functional use of any structure shall be maintained at all times. The holder shall make a documented good-faith effort to contact the owner prior to disturbing any structure.
- C. When necessary to pass through an existing fence line, the fence shall be braced on both sides of the passageway prior to cutting and the fence shall be promptly repaired to at least its former state or to a higher standard than it was previously constructed.
- D. A professional engineer shall design the access road if the road grade exceeds 10 percent slope.

### 2. INGRESS AND EGRESS:

The access road shall be constructed to access the well pad on the **Southwest** corner of the well pad to comply with the planned access road route and private surface landowner onsite agreement.

### 3. ROAD TRAVELWAY WIDTH:

The travelway of the road shall be constructed 14 feet wide. The maximum width of surface disturbance shall not exceed 30 feet of road construction. The specified travelway width is 14 feet for all road travelway surfaces unless the Authorized Officer approves a different width.

### 4. SURFACING:

A. Beginning from the dedicated road (county road and/or state highway) all access roads on federal surface and the entire length of the new access road travelway shall be surfaced prior to drilling operations.

B. **The access road travelway shall be surfaced** with caliche or gravel material. If other surfacing material is used, the new type of material shall be approved by the Authorized Officer. The travelway of the road shall be surfaced with **caliche** material. The caliche material shall be compacted to a minimum thickness of **6** inches for the entire length of the travelway surface on the access road. The width of surfacing shall not be less than 14 feet of travelway surface. Prior to using any mineral materials from an existing federal pit, authorization must first be obtained from the Authorized Officer.

**5. CROWNING AND DITCHING:**

Crowning with materials on site and ditching on one side of the road, on the uphill side, shall be required. The road cross section shall conform to the cross section diagrams in Figure 1 (attached page 6). Where conditions dictate, ditching shall be required on both sides of the road. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road).

**6. DRAINAGE:**

A. Drainage control shall be ensured over the entire road through the construction of ditches, sidehill outcropping and insloping, lead-off ditches, culvert installation, and low water crossings.

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

**PERCENT SLOPE AND SPACING INTERVALS FOR LEAD-OFF DITCHES:**

Percent slope	Spacing interval
0 - 4%	150' - 350'
4 - 6%	125' - 250'
6 - 8%	100' - 200'
8 - 10%	75' - 150'

**CROSS SECTION OF TYPICAL LEAD-OFF DITCH**

1' MINIMUM DEPTH

BERM

NATURAL GROUND SURFACE



## **PERMANENT RESOURCE ROAD REQUIREMENTS**

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

### **10. MAINTENANCE:**

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

B. The holder shall cooperate with other authorized users in maintenance of the road(s). Failure of the holder to share maintenance costs in dollars, equipment, materials, and manpower proportionate to the holders use with other authorized users may be adequate grounds to terminate the road use. The determination as to whether maintenance expenditures have been withheld by the holder and the decision to terminate the road use shall be at the discretion of the Authorized Officer. Upon request, the Authorized Officer shall be provided with copies of any maintenance agreements entered into by the holder.

### **11. PUBLIC ACCESS:**

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

### **12. ROAD REHABILITATION REQUIREMENTS:**

A. SEE -SURFACE RECLAMATION/RESTORATION REQUIREMENTS - Exhibit E.

B. On private estate land the restoration procedures on the reclamation of the access road shall be accomplished in accordance with the Private Surface Land Owner concurrence. If the surface land owner does not retain the access road for his ranch operations, upon abandonment of this well, the surface material (caliche/gravel) shall be removed from the access road. The removal of the surface material on the road could be re-used for maintenance of other federal roads within close proximity of the reclaimed area or properly disposed of in a federal mineral material pit.

### **13. SPECIAL REQUIREMENT(S):**

**A. Precautionary measures shall be taken by the holder during construction of the access road to protect the existing gas pipeline(s) that the access road will cross over (See map - EXHIBIT A). The holder shall be held responsible for any damage to the existing gas pipelines. If the gas pipeline is ruptured and/or damaged the holder shall immediately cease construction operations and repair the pipeline(s). The holder shall be held liable for any unsafe construction operations that threaten human life and/or cause the destruction of equipment.**

# EXHIBIT E

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## SURFACE RECLAMATION/RESTORATION REQUIREMENTS

OPERATORS NAME: Manzano Oil Corporation LEASE NO.: NM-111966  
WELL NAME & NO: Brennan Federal Com. #2  
QUARTER/QUARTER & FOOTAGE: SW $\frac{1}{4}$ NW $\frac{1}{4}$  - 1980' FNL & 660' FWL  
LOCATION: Section 34, T. 6 S., R. 33 E., NMPM  
COUNTY: Roosevelt County, New Mexico

### I. GENERAL PROVISIONS:

- A. The operator has the right of administrative review of these requirements pursuant to 43 CFR 3165.1(a).
- B. The operator shall hereafter be identified as the holder in these requirements. The Authorized Officer is the person who administers the reclamation requirements.
- C. The holder shall comply with all the surface reclamation/restoration required by the Authorized Officer pertaining to the reclamation/restoration of the access road and well pad.

### II. FORM 3160-5, SUNDRY NOTICES AND REPORTS ON WELLS:

- A. The holder shall adhere to the following:
  1. If the well is not drilled, please notify the BLM so that an official release can be approved.
  2. **Downhole requirement:** If the well is a dry hole and will be plugged, approval of the proposed plugging program may be obtained orally. However, oral approval must be confirmed in writing by immediately filing a Sundry Notice And Report On Wells (Form 3160-5) "**Notice of Intention to Abandon**", an original and five (5) copies shall be submitted to the Roswell Field Office. The report should show the total depth reached, the reason for plugging, and the proposed intervals, by depths, where plugs are to be placed, type of plug, type of plugging mud, etc..
  3. The same notification shall be required of the Holder for the reclamation/restoration of the access road and well pad. The Holder shall initially report surface reclamation/restoration of the access road and well pad concurrently with the Downhole requirement. A Sundry Notice And Report On Wells (Form 3160-5) "**Notice of Intention to Abandon**", an original and five (5) copies shall be submitted to the Roswell Field Office. Upon receipt of the "**NOI**" the Authorized Officer shall provide the holder with the specific requirements for the reclamation/restoration of the access road and well pad.

4. **Subsequent Report Of Abandonment:** The holder shall submit a second report on Form 3160-5, Sundry Notices and Reports On Wells, an original and five (5) copies shall be submitted to the Roswell Field Office, pertaining to the reclamation/restoration of the access road and well pad. The holder shall demonstrate that the surface reclamation/restoration requirements have been complied with. The holder shall specify that the reclamation work accomplished the restoration of the disturbed areas to as near the original surface condition the land was in prior to construction of the access road and well pad.

5. **Final Abandonment Notice:** The holder shall submit a third report on Form 3160-5, Sundry Notices and Reports On Wells, an original and five (5) copies shall be submitted to the Roswell Field Office, that shall ascertain that all surface reclamation/restoration requirements have finally been completed and that the access road and well pad are ready for final inspection. The holder shall specify that the surface has been reclaimed in accordance with federal regulations and request for the final approval of the access road and well pad.

**III. BOND LIABILITY:**

A. Liability under bond shall be retained until all surface reclamation/restoration of the access road and well pad has been completely reclaimed to the satisfaction of the Authorized Officer.

**IV. ACCESS ROAD AND WELL PAD RECLAMATION REQUIREMENTS:**

1. If the well is completed, all areas of the well pad not necessary for operations shall be reclaimed to resemble the original contours of the surrounding terrain.

2. Upon abandonment of the well, cut-and-fill slopes shall be re-contoured and reduced to a slope of 3:1 or less. The road shall be recontoured to as near the original topography, as possible.

3. Upon abandonment of the well, all production equipment shall be removed from the well pad and properly disposed of.

4. On private estate land the restoration procedures on the reclamation of the access road and well pad shall be accomplished in accordance with the Private Surface Land Owner concurrence. If the surface land owner does not retain the access road and/or well pad for his ranch operations, upon abandonment of this well, the surface material (caliche/gravel) shall be removed from the access road and well pad.

5. The surfacing material that is removed can be used on existing roads in need of maintenance, or hauled to a federal material pit for disposal. If the material is to be used on a road or hauled to a material pit, contact the BLM Authorized Officer at (505) 627-0272 for possible additional requirements.

6. Upon removal of the surfacing material, the access road and well pad shall be ripped a maximum of **16** inches deep (Ripping depth will be determined by depth of soil shown in the Soil Conservation Service Survey Handbook).

7. All culverts and other road structures (e.g.: cattleguard, H-Braces, signs, etc.) shall be removed and properly disposed of.

- 8. All over-burden material shall be replaced in the cut areas, ditches, lead-off ditches, and any other excavated earthwork shall be back filled.
- 9. An earthen berm shall be constructed at the entrance of the road to prevent vehicular traffic on the reclaimed road.

**V. Reserve Pit Reclamation Requirements:**

- A. Upon reclamation of the reserve pit, the impervious, reinforced, synthetic or fabricated 12 mil in thickness liner shall be used to encapsulate the reserve pit cuttings.
- B. The dried cuttings in the reserve pit shall be buried a minimum depth of three (3) feet below ground level.
- C. The reserve pit area shall be covered with a three (3) feet minimum cap of clean soil or like material that is capable of supporting native plant growth. Once the reserve pit contents have been capped, the cap shall not be disturbed without NMOCD approval.
- D. Should the cuttings in the reserve pit not meet the three (3) feet below ground level depth, the excess contents shall be removed from the reserve pit until the required minimum depth of three (3) feet below ground level requirement has been met. The excess cuttings shall be removed from the well location and shall be properly disposed of at an authorized disposal site.
- E. Contact Randy Legler at (505) 627-0215, three days before commencing the reserve pit reclamation.

**VI. SEEDING REQUIREMENTS:**

- A. The stockpile of topsoil shall be spread over the well pad to cultivate a seed bed. The holder shall not contaminate the topsoil stockpile with the reserve pit muds and/or cuttings.
- B. The reclaimed area(s) shall be seeded with the seed mixture that was determined by the Roswell Field Office for the Desired Plant Community on this well site.
- C. The same seed mixture shall be used for the reclamation of the access road and well pad.
- D. The planting of the seed shall be done in accordance with the following seeding requirements:
  - 1. The topsoil soil shall be plowed under with soil turning equipment and the plowed surface shall be disked before seeding. Seed shall be planted using a drill equipped planter with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture shall be evenly and uniformly planted over the disturbed area. Smaller/heavier seeds have a tendency to drop to 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 shall be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre noted below are to be doubled.

**SURFACE RECLAMATION/RESTORATION REQUIREMENTS**

**4 of 5 pages**

2. The holder shall seed all the disturbed areas with the DPC seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed per acre, (Pounds of pure live seed per acre: pounds of seed X percent purity X percent germination = pounds pure live seed). There shall be no primary or secondary noxious weeds in the seed mixture.

In accordance with State law(s) the seed should be tested for purity and viability within nine (9) months prior to sell. Commercial seed shall be either certified or registered seed. The seed mixture container shall be tagged in accordance with State law(s) and the certified seed tag shall be made available for inspection by the Authorized Officer.

3. Desired Plant Community seed mixture to be planted in pounds of pure live seed per acre:

Ecological Site: Sandy HP-3

<u>Common Name and Preferred Variety</u>	<u>Scientific Name</u>	<u>Pounds of Pure Live Seed Per Acre</u>
Blue grama, var. Lovington	<i>Bouteloua gracilis</i>	2.00 LBS.
Sideoats grama var. Vaughn or El Reno	<i>Bouteloua curtipendula</i>	3.00 LBS.
Little bluestem	<i>Schizachyrium scoparium</i>	0.50 LB.
Sand dropseed	<i>Sporobolus cryptandrus</i>	1.00 LB.
Plains bristlegrass	<i>Setaria macrostachya</i>	1.00 LB.
Indian blanketflower	<i>Gaillardia aristata</i>	0.50 LB.
Desert or Scarlet Globemallow	<i>Sphaeralcea ambigua</i> or <i>S. coccinea</i>	<u>1.00 LB.</u>
<b>TOTAL POUNDS PURE LIVE SEED PER ACRE</b>		<b>9.00 LBS.</b>

4. If one species is not available, increase ALL others proportionately. The seed mixture shall be certified weed free seed. A minimum of 4 species is required, including 1 forb species.

E. The recommended time to seed is from June 15<sup>th</sup> through September 15<sup>th</sup>. The optimum seeding time is in mid-July. Successive seeding should be done either late in the fall (Sept. 15<sup>th</sup> - Nov. 15<sup>th</sup>, before freeze up) or early as possible the following spring to take advantage of available ground moisture. However, the holder may seed immediately after completing surface abandonment requirements.

F. The seeding of the disturbed areas shall be repeated until a vegetative thicket is established on the access road and well pad. The Authorized Officer shall make the determination when the regrowth on the disturbed areas is satisfactory.

G. The holder shall be responsible for the establishment of vegetation on the access road and well pad. Evaluation of vegetation growth will not be made before the completion of the first growing season after seeding. The Authorized Officer reserves the right to require reseeding at a specific time if seed does not germinate after one growing season. Waiver of this requirement would be considered if diligent attempts to revegetate the disturbed areas have failed and the Authorized Officer determines that further attempts to replant the access road and well pad are futile.

H. Contact Mr. Randy Legler at (505) 627-0215 to witness the seeding operations, two (2) days prior to seeding the disturbed areas.

I. Invasive and Noxious Weeds Requirement:

1. The holder shall be held responsible if noxious weeds become established within the reclaimed areas. Evaluation of the growth of noxious weeds shall be made upon discovery. Weed control will be required on the disturbed land where noxious weeds exist, which includes the road, pad, associated pipeline corridor/routes, and adjacent land affected by the establishment of weeds due to this action. The holder is responsible for consultation with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policy.

2. The holder shall insure that the equipment and or vehicles that will be used to reclaim the access roads and well pad are not polluted with invasive and noxious weed seed. Transporting of invasive and noxious weed seed could occur if the equipment and vehicles were previously used in noxious weed infested areas. In order to prevent the spread of noxious weeds, the Authorized Officer shall require that the equipment and vehicles be cleaned with either high pressure water or air prior to reclamation of the access roads and well pad.