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Form 3160-5  
(August 2007)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT *Farmington Field Office*  
*Bureau of Land Management*

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

**SUNDRY NOTICES AND REPORTS ON WELLS**  
*Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.*

5. Lease Serial No.  
**Jicarilla Contract 459**  
6. If Indian, Allottee, or Tribe Name  
**Jicarilla Apache Tribe**  
7. If Unit or CA. Agreement Name and/or No.  
8. Well Name and No.  
**Jicarilla 459 #5**  
9. API Well No.  
**30-039-24344**  
10. Field and Pool, or Exploratory Area  
**Cabresto Cnyn Tert / E Blanco PC**  
11. County or Parish, State  
**Rio Arriba County, New Mexico**

**SUBMIT IN TRIPLICATE - Other Instructions on page 2.**

1. Type of Well  
 Oil Well  Gas Well  Other

2. Name of Operator  
**Black Hills Gas Resources, Inc.**

3a. Address **P.O. Box 249 Bloomfield, NM 87413**  
3b. Phone No. (include area code) **(505) 634-5104**

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)  
**1165' FSL / 460' FEL SE/SE Section 19 T30N R3W (UL: P)**

**12. CHECK APPROPRIATE BOX(S) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA**

TYPE OF SUBMISSION	TYPE OF ACTION			
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production ( Start/ Resume)	<input type="checkbox"/> Water Shut-off
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Altering Casing	<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input type="checkbox"/> Other
	<input type="checkbox"/> Change Plans	<input checked="" type="checkbox"/> Plug and abandon	<input type="checkbox"/> Temporarily Abandon	
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug back	<input type="checkbox"/> Water Disposal	

13. Describe Proposed or Completed Operation Clearly state all pertinent details including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with the BLM/ BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notice shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

**Black Hills Gas Resources intends to plug and abandon Jicarilla 459 #5 per attached procedure. A closed loop system will be used.**

**Attachments:**

- Proposed procedure
- Current wellbore diagram
- Proposed wellbore diagram
- Reclamation plan

OIL CONS. DIV DIST. 3

AUG 15 2016

**BLM'S APPROVAL OR ACCEPTANCE OF THIS ACTION DOES NOT RELIEVE THE LESSEE AND OPERATOR FROM OBTAINING ANY OTHER AUTHORIZATION REQUIRED FOR OPERATIONS ON FEDERAL AND INDIAN LANDS**

**SEE ATTACHED FOR CONDITIONS OF APPROVAL**

14. I hereby certify that the foregoing is true and correct. Name (Printed/ Typed)

**Daniel Manus**

**Regulatory Technician II**

Title

Signature

*Daniel Manus*

Date

*August 8 2016*

**THIS SPACE FOR FEDERAL OR STATE OFFICE USE**

Approved by

*Abdelgadir Elmadani*

Title

*PE*

Date

*8/10/16*

Conditions of approval, if any are attached. Approval of this notice 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.

Office

*FFO*

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 any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Instructions on page 2)

**NMOCD**

*9 KC*

## PLUG AND ABANDONMENT PROCEDURE

July 29, 2016

### Jicarilla 459 #5

East Blanco Pictured Cliffs/Cabresto Canyon Tertiary  
1156' FSL, 460' FEL, Section 19, T30N, R3W, Rio Arriba County, NM  
API 30-039-24344 / Long: \_\_\_\_\_ / Lat: \_\_\_\_\_

Note: All cement volumes use 100% excess outside pipe and 50' excess inside. The stabilizing wellbore fluid will be 8.3 ppg, sufficient to balance all exposed formation pressures. All cement will be Class B, mixed at 15.6 ppg with a 1.18 cf/sx yield.

1. This project will use an A-Plus steel tank to handle waste fluids circulated from the well and cement wash up.
2. Install and test location rig anchors. Comply with all NMOCD, BLM, and Operator safety regulations. MOL and RU daylight pulling unit. Conduct safety meeting for all personnel on location. Record casing, tubing and bradenhead pressures. NU relief line and blow down well. Kill well with water as necessary and at least pump tubing capacity of water down the tubing. ND wellhead and NU BOP. Function test BOP.
3. Rods: Yes \_\_\_\_\_, No X, Unknown\_\_\_\_\_.  
Tubing: Yes X, No \_\_\_\_\_, Unknown\_\_\_\_\_, Size 2-3/8", Length 3845'.  
Packer: Yes X, No \_\_\_\_\_, Unknown\_\_\_\_\_, Type Model R Packer at 3740'.  
If this well has rods or a packer, then modify the work sequence in step #2 as appropriate.
4. **Plug #1 (Pictured Cliffs interval, Fruitland, Kirtland and Ojo Alamo tops, 3800' – 3258')**: Round trip 5.5" casing scraper to 3800', or as deep as possible. TIH and set 5.5" CR or CIBP at 3800'. Pressure test tubing to 1000#. Mix 77 sxs Class B cement (excess due to open perfs) and spot plug inside the casing above the CR or CIBP to isolate the PC interval and cover the Fruitland, Kirtland and Ojo Alamo tops. PUH and WOC. TIH and tag cement, if necessary top off.
5. **Plug #2 (Nacimiento top, 2127'- 2027')**: Mix 17 sxs Class B cement and spot a balanced plug inside the casing to cover the Nacimiento top. TOH and LD tubing.
6. **Plug #3 (8-5/8" Surface casing shoe, 188' - Surface)**: Perforate 3 HSC holes at 188'. Establish circulation out 5.5" x 8-5/8" annulus. Mix and pump approximately 60 sxs cement down the 5.5" casing until good cement returns out annuli and bradenhead. Shut in well and WOC.
7. ND cementing valves and cut off wellhead. Fill annuli with cement as necessary. Install P&A marker to comply with regulations. Record GPS coordinate for P&A marker on tower report. Photograph P&A marker in place. RD, MOL and cut off anchors. Restore location per BLM stipulations.

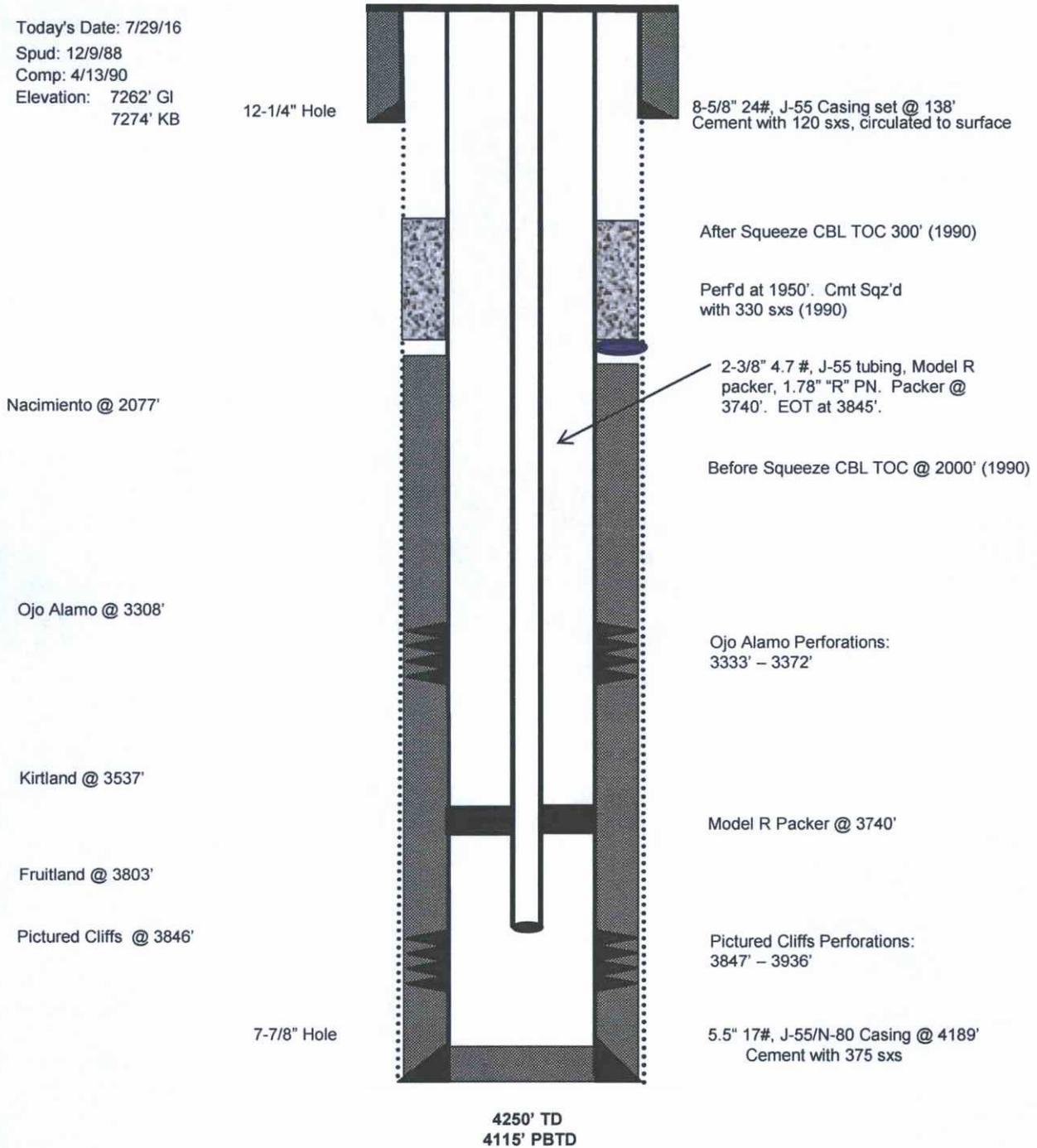
# Jicarilla 459 #5 Current

East Blanco Pictured Cliffs / Cabresto Canyon Tertiary

1165' FSL & 460' FEL, Section 19, T-30-N, R-3-W, Rio Arriba County, NM

Long: \_\_\_\_\_ / Lat: \_\_\_\_\_ / API 30-039-24344

Today's Date: 7/29/16  
Spud: 12/9/88  
Comp: 4/13/90  
Elevation: 7262' GI  
7274' KB



# Jicarilla 459 #5 Proposed P&A

East Blanco Pictured Cliffs / Cabresto Canyon Tertiary

1165' FSL & 460' FEL, Section 19, T-30-N, R-3-W, Rio Arriba County, NM

Long: \_\_\_\_\_ / Lat: \_\_\_\_\_ / API 30-039-24344

Today's Date: 7/29/16  
Spud: 12/9/88  
Comp: 4/13/90  
Elevation: 7262' GI  
7274' KB

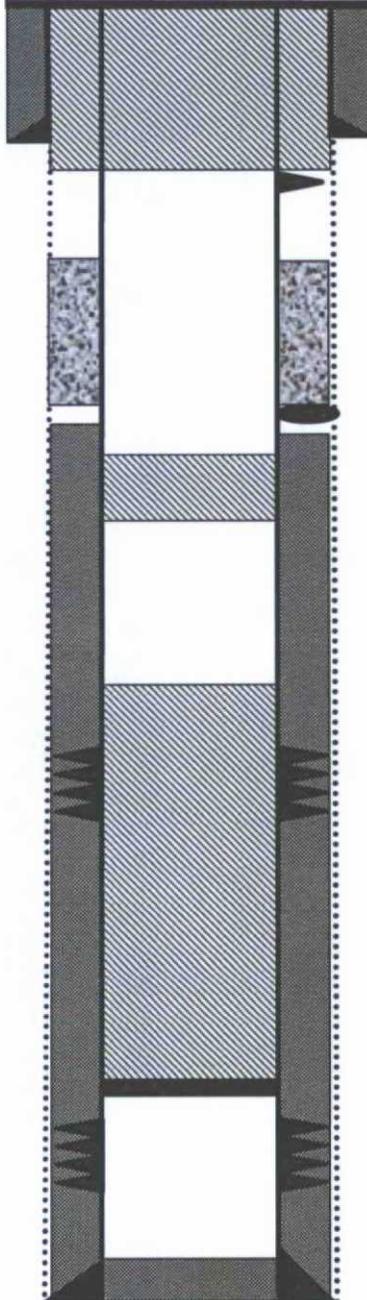
Nacimiento @ 2077'

Ojo Alamo @ 3308'

Kirtland @ 3537'

Fruitland @ 3803'

Pictured Cliffs @ 3846'



**Plug #3: 188' - 0'**  
Class B cement, 60 sxs

8-5/8" 24#, J-55 Casing set @ 138'  
Cement with 120 sxs, circulated to surface

**Perforate @ 188'**

After Squeeze CBL TOC 300' (1990)

Perf'd at 1950'. Cmt Sqz'd  
with 330 sxs (1990)

Before Squeeze CBL TOC @ 2000' (1990)

**Plug #2: 2127' - 2027'**  
Class B cement, 17 sxs

Ojo Alamo Perforations:  
3333' - 3372'

**Plug #1: 3800' - 3258'**  
Class B cement, 77 sxs  
(excess due to open perms)

**Set CR @ 3800'**

Pictured Cliffs Perforations:  
3847' - 3936'

5.5" 17#, J-55/N-80 Casing @ 4189'  
Cement with 375 sxs

7-7/8" Hole

4250' TD  
4115' PBDT

**Black Hills Gas Resources**  
**Jicarilla 459 #5**  
API 30-039-224344  
1165' FSL & 460' FEL in SE/SE of Section 19, T30N R3W  
**P&A Reclamation Plan**

**PURPOSE AND SCOPE**

The purpose of this Reclamation Plan is to ensure final reclamation of the Jicarilla 459 #5 well pad site and associated access road based on the Bureau of Land Management (BLM) / Black Hills Gas Resources (BHGR) on-site inspection conducted on June 23, 2016 and in accordance with Onshore Order #1 and the Farmington Field Office (FFO) Bare Soil Reclamation Procedures.

**PROPOSED RECLAMATION PLAN**

BHGR will comply with the requirements in accordance with the approved Sundry Notice associated with this submittal.

- Contact BLM 48 hours prior to commencing earthwork.
- Reclamation to be completed within 1 year of plugging date.
- Remove all underground production piping.
- Remove Power poles, rectifier and radio equipment.
- Remove all rig anchors on the location.

Strip available topsoil from areas that will be disturbed during the reclamation of this well site.

- Remove all gravel on well pad surface. Gravel may be used as fill material at the base of the cut slope to re-establish the natural topography.
- Use fill material on the location to reconstruct natural topography. If enough fill material is available, excess material will be used to build up the access road AFTER ripping the road base to eliminate surface compaction hard pan.

**NOTE: NO disturbance will occur outside the areas currently disturbed by the well location access road boundaries.**

- After location has been re-contoured, rip, disk and seed the location and access road with a disk type seed drill.
- Install a woven wire fence at and across the access road leading to the well site at the intersection of the main road and take off point(s) to discourage access on rehabilitated access road. • Install a sign on fence, i.e. Seeded Area -- Do Not Disturb.

**WASTE MATERIAL HANDLING AND DISPOSAL**

All surface equipment and trash, if any, will be removed from the location and disposed of at an approved waste disposal facility.

If contaminated soil is discovered during the reclamation of this well location, BHGR will follow NTL 93-1 "Guidelines for Unlined Surface Impoundments Closure" for testing requirements and allowable threshold limits.

**SURFACE RECONSTRUCTION AND STABILIZATION**

The long term objective of final reclamation is to set the course for eventual ecosystem restoration including the restoration of natural vegetation. BHGR will avoid disturbance to the mature vegetation that has become well established on the pad perimeter to the extent practicable, and will focus reclamation efforts toward de-compaction, removing sharp, angular features to more closely approximate the natural contours, re-establishing natural drainage patterns, and re-vegetating the abandoned well pad and associated access road.

### WELL PAD RECLAMATION

1. The following activities would take place before commencing with any dirt work to restore the pad surface:

- The BLM Authorized Officer will be notified at least 48 hours prior to construction;
- Pre-construction conditions will be documented and pictures taken from the four cardinal directions for future reference;
- The P&A marker will remain as is. All pertinent well information is permanently imprinted onto the marker for future reference.
- Temporary and/or permanent stormwater and erosion control BMPs will be employed at appropriate locations around the pad as dictated by local drainage patterns and expected areas of disturbance and slopes AND across the access road. BMP selection will be determined by local factors and will be a combination of sediment and erosion controls that are deemed effective and low maintenance. Straw wattles, diversion ditches, mulch, soil blankets, and/or other suitable BMPs may be used in various combinations, as appropriate, during and after construction activities;
- Remove all gravel on well pad surface. Gravel may be used at the base of the cut slope underneath the fill material to re-establish the natural topography;
- Use fill material to reconstruct natural topography.
- If enough fill material is available, excess material will be used to build up the access road (which is lower in depth than the natural grade due to compaction and erosion) AFTER ripping the road base to eliminate surface compaction hard pan;
- Those areas where healthy, mature, and weed-free vegetation has established along the pad perimeter will remain undisturbed to the extent possible;
- Natural drainage patterns will be restored, as practical, as near as possible to pre-disturbance conditions;
- The pad surface will be ripped by Bulldozer or Grader to reduce compaction and to establish a suitable root zone in preparation for topsoil replacement;
- Topsoil will be redistributed across the pad surface and disked to prepare the soil for seeding;
- After location has been re-contoured, rip, disk and seed the location and access road with a disk type seed drill;
- All disturbed areas will be seeded in accordance with the FFO Bare Soil Reclamation Procedures.

*(Note: some steps may occur in a different sequence than listed below or may occur simultaneously as the case may be)*

### ACCESS ROAD RECLAMATION

Upon completion of all well pad reclamation activities, the associated access road will be reclaimed using much the same methods as described above. The road will be ripped and scarified to reduce compaction, and any sharp or angular cuts or fills would be restored as near as possible to pre-disturbance contours. Natural drainage patterns will be restored, to the extent practical, as near as possible to pre-disturbance conditions. **NO disturbance will occur outside the areas currently disturbed by the access road boundaries.**

Established vegetation along the roadsides will remain undisturbed where possible to encourage native plant growth onto the new disturbance and to maintain erosion and sediment control. Straw wattles and/or diversion ditches will be placed at appropriate locations along the road as needed to prevent sediment transport to local drainages. Other suitable BMPs may be used in various combinations, as appropriate, during and after construction activities.

All disturbed areas will be re-seeded in accordance with BLM FFO Bare Soil Reclamation Procedures.

To discourage future use of the road, a temporary fence consisting of woven wire fence at and across the access road leading to the well site at the intersection of the main road and take off point(s) to discourage access on rehabilitated access road and will serve as a barricade to discourage access to the newly reclaimed road and will be left in place until the road & well pad have been stabilized.

A sign will be installed on the fence, i.e. "Seeded Area -- Do Not Disturb" or equivalent.

### **RE-ESTABLISHING SURFACE HYDROLOGY**

Natural drainage patterns will be restored as near as possible to pre-construction conditions, except where restoring the natural drainage will cause excessive disturbance and disrupt the natural rehabilitation processes that have already established. In those areas, additional means for ensuring proper drainage, such as water bars or diversion ditches, may be employed.

Eroded areas will be filled in using fill material from the well location and Best Management Practices (BMP's) for Storm water pollution prevention such as silt traps, excelsior mats, wattles/sediment control logs and straw distributed on the surface and crimped or harrowed into the soil after drill seeding.

Given that the well pad will effectively be inaccessible following road reclamation and because the only potential pollution source will be runoff sediment; the temporary stormwater BMPs will be removed upon completion of construction activities. Drainage, sediment, and erosion controls will be managed through vegetative practices and/or biodegradable materials (i.e. soil blankets, straw wattles, crimped straw, mulch, brush and woody debris, pocking, etc.).

All drainage, sediment, and erosion controls will be implemented in accordance with BHGR standard Stormwater Management Plan.

### **SITE PREPARATION, SOIL MANAGEMENT AND HANDLING**

Fill material will be pushed into cuts and over the back slope as necessary and any sharp, angular cuts and fills will be smoothed to conform as nearly as practical to the adjacent landform. The pad and road surfaces will then be ripped, scarified, and/or disked to a depth adequate for establishing a suitable root zone.

All salvaged topsoil material will be reused and spread evenly over the disturbed areas. Prior to seeding, all disturbed areas will be left with a rough surface to facilitate moisture and seed retention, and vegetative slash/brush will be placed at expected discharge areas to minimize sediment transport. The topsoil in the area is generally deep and no soil amendments are expected or proposed.

### **REVEGETATION**

Following soil preparations, a range drill (disk type seed drill) will be used to apply the approved seed mix over the disturbed areas. The drill will be equipped with a depth regulator to ensure even planting depths appropriate to the plant species and soil types. Should broadcast seeding be deemed more appropriate in some areas, the seed application rates will be doubled and a rake or harrow used to incorporate the seed into the soil. Any steep slopes, greater than 2:1, will be blanketed for soil stabilization and seed retention.

The seed mixture and application rates for the Bureau of Indian Affairs, Jicarilla Agency, and the Jicarilla Environmental Protection Office Recommendation will be as follows:

<b><u>Species</u></b>	<b><u>Variety</u></b>	<b><u>Pound/Acre (PLS)</u></b>
Western wheatgrass	Arriba	3.2
Arizona Fescue	Redondo	1.0
Intermediate Wheatgrass	Amur or Oahe	2.25
Smooth Brome	Manchar	1.95
Galleta (caryopsis)	Viva	0.6
Spike Muhly	El Vado	0.45
Rocky Mountain Penstemon	Bandera	0.1
Small Burnet	Delar	2.0

Seed mixtures will be certified weed-free and the seeding records (bag labels) or other official documentation will be available to the Authorized Officer prior to seeding.

Seeding will be accomplished as soon as reasonably possible following completion of earthwork activities. The Authorized Officer will be notified forty-eight (48) hours prior to commencing with seed application.

#### **WEED MANAGEMENT**

BHGR's objective is to implement an integrated weed management program to control weed populations and establish desirable vegetation utilizing the following strategies:

- Control the introduction and spread of weeds through early detection.
- Establish desirable native vegetation on disturbed areas through successful re-vegetation efforts.
- Treat and control known weed populations.

Among the measures that will be implemented to prevent the introduction or establishment of weeds in areas not already infested include:

- Identification and eradication of new infestations as quickly as practical.
- Implement successful re-seeding efforts as quickly as practical in areas that have been disturbed.

Local factors, such as soil type and stability; grade; associated vegetation; existing and proposed land use; proximity to water; weed type and stage of growth; and severity of infestation; will be considered in selecting the appropriate weed management method(s). The management method(s) selected will be the least environmentally damaging, yet practical and reasonable in achieving the desired results.

BHGR will utilize chemical treatment as the preferred method of weed management and control. The proper use of herbicides at the optimum time can be an effective method for controlling persistent weeds. A Pesticide Use Proposal (PUP) will be pre-approved by the BLM prior to any chemical treatment. The use and handling of herbicides will be in accordance with all application rates, restrictions, and warnings listed on the label and MSDS. Preparation and application of all herbicides will be licensed by the State of Colorado Department of Agriculture, and a Daily Weed Pesticide Application Record will be completed and retained for all spraying activities.

Other methods to be used for weed control will include the following:

- Remove soil, seeds, and vegetative matter prior to entering or leaving the project site on all construction equipment and transport vehicles, trucks, pickups, and other vehicles ;
- Ensure that all seed mixes, straw, and/or mulch used in reclamation are certified weed-free;
- Promptly revegetating disturbed areas;
- Treating and/or removing weeds prior to ground-disturbing activities to limit seed production and dispersal;
- Treating noxious weeds that have escaped the project area onto adjacent areas to prevent further expansion into un-infested areas and re-infestation of the treated area;

#### **MONITORING**

After the earthwork and seeding is completed, BHGR will submit a Sundry Notice informing the BLM that reclamation has been completed and which includes a request for an inspection of the earthwork and seeding.

A joint inspection will be conducted by BHGR and the BLM. During the inspection, the BLM and BHGR will establish a line point intercept transect.

After establishment of adequate vegetation, BHGR will read the line point intercept transect and take photos of the site. BHGR will submit a Final Abandonment Notice Sundry (FAN) requesting approval of the remediated well location and access road. Data results from the line point intercept transect and photos of the location and access road will be submitted as supporting documentation for the FAN Sundry.

UNITED STATES DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT  
FARMINGTON DISTRICT OFFICE  
6251 COLLEGE BLVD.  
FARMINGTON, NEW MEXICO 87402

Attachment to notice of  
Intention to Abandon:

Re: Permanent Abandonment  
Well: Jicarilla 459 # 5

CONDITIONS OF APPROVAL

1. Plugging operations authorized are subject to the attached "General Requirements for Permanent Abandonment of Wells on Federal and Indian Lease."
2. Farmington Office is to be notified at least 24 hours before the plugging operations commence (505) 564-7750.
3. The following modifications to your plugging program are to be made:
  - a) Set Plug #2 (2162-2062) ft. to cover the Nacimiento top. BLM picks top of Nacimiento at 2112 ft.

**NOTE: Operator reports High concentrations of H<sub>2</sub>S (266ppm GSV) at this well site. High to very high concentrations of H<sub>2</sub>S (135 ppm – 3,000 ppm GSV) have been reported in wells which produce gas from the San Jose, Nacimiento, Ojo Alamo, and P.C. formations within a 1 mile radius of this location. It is imperative that H<sub>2</sub>S monitoring and safety equipment be on location during P&A operations at this well site.**

You are also required to place cement excesses per 4.2 and 4.4 of the attached General Requirements.

Office Hours: 7:45 a.m. to 4:30 p.m.