

DECISION MEMO

Surface Use Related to the Recompletion of Leon Lake No. 2 (Leon Lake Unit No. 2) Natural Gas Well Federal Oil and Gas Lease COC-13563-A

USDA-Forest Service
Grand Mesa-Uncompahgre and Gunnison National Forests
Grand Valley Ranger District
Delta County, Colorado

I. INTRODUCTION

Gunnison Energy Corporation (GEC), is the Operator of Record (Operator) for the Leon Lake Unit No. 2 gas well (the well). GEC submitted a Sundry Notice to the USDI-Bureau of Land Management (BLM) and USDA-Forest Service, Grand Valley Ranger District (FS) for sidetracking and recompleting the well. The well is in the NE $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$ Section 14, T 12 S, R 94 W, 6th P.M., on the Grand Valley Ranger District of the Grand Mesa, Uncompahgre and Gunnison National Forests. The well is on federal oil and gas lease COC-13563-A.

The well was originally drilled in 1981 by Aries Resources, Inc. The well was completed at the surface with a standard “christmas tree” for gas production. At the time of drilling, the well was tested, and the information indicated that it was capable of producing gas. An unnamed sandstone member of the Barren member of the Mesaverde Formation was tested, and made 679 thousand cubic feet (mcf) per day of gas. The well has never been produced, as there is no pipeline servicing the location. The well has been ‘shut in’ since that time. Because the Leon Lake No.2 Well was determined to be capable of producing gas, the lease term has been extended.

The Operator filed the Sundry Notice in the BLM office in Durango, Colorado on August 22, 2002.¹ The proposed work provides for completion of the subsurface well bore, and testing of a number of sandstone and coal beds within the Mesaverde Formation. The data collected will help determine whether or not it is economically feasible to develop

¹ The Operator also filed a Sundry notice with the BLM on August 29, 2002 which changed the name of the well from the Leon Lake No. 2, to the Leon Lake Unit No. 2. This Sundry also corrected the land survey information on the well.

the natural gas. During the recompletion² operations, the operator proposes to test the gas and the formations by drilling deeper, casing and recementing the entire wellbore, and perforating, fracing, and testing selected horizons. The recompletion process will modernize the well and make it safer because it will then be updated to modern gas well standards.

Part of the proposed work on the well involves redisturbing the surface of the existing well pad. This proposal for surface disturbance is the basis for the FS to prepare this Decision Memo and disclose environmental effects.

II. PROPOSED ACTION

The proposed action for the Forest Service to consider is the surface disturbance and use needed to recomplete the Leon Lake Unit No. 2 gas well using the Conditions of Approval in Attachment A. The BLM has the responsibility for final approval of the Sundry Notice, including the ‘downhole’ or drilling and completion portions of the proposal. The BLM must have the Conditions of Approval for surface use from the Forest Service before issuing the final approval.

In the Sundry Notice, the operator proposes to recomplete the well through a process of sidetracking³ from the existing well bore, pressure testing the well, and stimulating selected horizons through hydraulic fracturing⁴. The lower portion of the well will be permanently plugged (in accordance with Federal regulations). A hole will be milled in the side of the casing above anticipated producing zones. From that point, a new wellbore will be drilled and partially cored to the bottom of the Mesaverde formation. The hole will be logged⁵ to gather gas reservoir information. Depending on the logging information, casing may be set the entire length of the well bore and cemented in place. Perforations will be made in the casing, and selected horizons may be hydraulically fractured (hydrofraced).

² “Recomplete” means to perform work on an existing well to prepare it for production of oil and/or gas from a new zone or a previously completed zone. (*modified from the term “complete”, Dictionary of Petroleum Terms*). “Rework” is another term commonly used to refer to the work done on an existing well to repair or replace mechanical equipment and/or to improve the production characteristics of the well.

³ Sidetrack means to drill around broken drill pipe or casing that has become lodged permanently in the hole, or to drill around a wellbore in which the geologic strata have been damaged in such a way as to limit production capability. (*modified in part from “A Dictionary of Petroleum Terms”*)

⁴ Hydraulic fracturing is a subsurface procedure that enhances permeability in a potential reservoir so that it can more easily produce hydrocarbons. The procedure involves pumping a fluid into a targeted subsurface zone to propagate fractures through which hydrocarbons (in this case, natural gas) can flow more freely into the wellbore. It is a practice used to fracture sandstones, and coals.

⁵ Logging” means the use of special tools in a wellbore to record information about the nature of geologic strata (electrical resistivity, radioactivity, acoustical properties, density, etc.).

A sidetrack well bore is commonly used in cases where older drilling and completion methods have resulted in damage to the formation that reduces its capability to produce hydrocarbons, or in cases where the downhole portion of the hole has collapsed or the integrity of the well bore has been compromised and requires plugging. In the case of the Leon Lake Unit No. 2, the well bore integrity is in question, and the proposed work will update the well using up-to-date techniques.

To accomplish this subsurface work, the operator also proposed surface disturbing activities that would involve re-leveling the existing reclaimed drill pad, constructing reserve and flare pits, and performing road maintenance work on the access road leading to the well.

The surface disturbance associated with recompleting the well involves leveling the existing drill pad to dimensions of 150 feet by 225 feet (0.77 acres). A reserve pit and flare pit would be constructed on the leveled pad. The reserve pit would measure 30 feet by 100 feet and the flare pit would measure 25 feet by 25 feet. The reserve pit and flare pit would be connected by a 2 feet wide by 15 feet long drain from the flare pit to the reserve pit. The reserve pit would be lined with an impermeable liner (Attachment A, Conditions of Approval). After recompletion activities, the pad size will be reduced to 90 feet by 180 feet (0.37 acres) and necessary reclamation work completed (seeding, waterbars, etc). It is anticipated that an 8-foot by 8-foot by 16-foot sized building would be left on the drill site to protect the surface completion equipment if left in place.

The well site would be accessed from FR 125 for about 0.75 mile from the Forest Boundary, and then for 100 yards on an existing access road to the well location. The Operator would need to perform some minor road maintenance work on the access road from Forest Road 125 to the well site.

The work will occur in two phases. The first phase will consist of plugging back, sidetracking, and testing the well, and if tests are encouraging, running casing and cementing the well. A second phase would consist of perforating and fracturing target horizons with a completion unit. It is estimated that the above procedures would occur over a 4-week period, assuming no mechanical difficulties occur. After the recompletion operations (perforating and fracturing), GEC is required to submit to the BLM information about the results of the operations, along with future plans for the well based on those results. The need for additional approvals will be determined at that time.

During drilling operations, a flaring may be used during the well testing. Flaring is controlled combustion, or burning of the methane in the natural gas, in order to keep it from exploding from an unwanted ignition source. This is a way of controlling the gas flowing from the well and reducing the combustibility of the hydrocarbons in the gas. The operator proposes to use a closed flaring system developed by Williams of Vernal, Utah to minimize the flaring. During the flaring process samples can be collected to analyze the BTU and other characteristics of the natural gas.

Water needed for the drilling and completion operations will be hauled to the site. The Operator proposes to obtain water from the Oxbow Mine near Somerset. Water used or produced during the recompletion activities will be hauled to disposal facilities outside

Delta County. Waste generated during the drilling and completion activities will be hauled off National Forest System lands to a certified disposal location.

As part of the work proposed in the Sundry Notice, GEC included a provision to collect baseline data from springs and creeks within a one-mile radius of the well site. The data from the initial baseline collection are in the project file.

The attached map shows the location of the Leon Lake Unit No. 2 gas well.

III. SCOPING AND PUBLIC INVOLVEMENT

The first of several news releases from the Forest Service concerning the proposal to recomplete the Leon Lake Unit No. 2 gas well was sent to newspapers, and television and radio stations on September 27, 2002. Subsequent news releases were sent on October 7, October 10 and October 31 to either extend the time for receipt of public comment or, as in the case of the October 31st news release, to invite the public to attend an open house concerning the proposed project. A news release and legal notice appeared on October 2, 2002 in the *Delta County Independent*, and a legal notice appeared the same day in the *Grand Junction Daily Sentinel*. The project was also listed on the Forest's Schedule of Proposed Actions (SOPA), an electronic listing available on the Forest website, and which is mailed to over 300 addresses. Public scoping comments were accepted through November 18, 2002. Record of the news releases and legal notices are contained in the project file.

Public comments, received mainly via e-mail and telephone calls, were also received prior to the official scoping period. These comments were prompted by a notice by the Western Slope Environmental Resource Council (WSERC) in the *Delta County Independent* on September 11 and 18, 2002, that informed citizens that Gunnison Energy Corporation was proposing to recomplete the well. The notice also encouraged citizens to send letters to the Colorado Oil and Gas Conservation Commission describing how the public health, safety and welfare would be impacted by approval of the application for permit to drill submitted by Gunnison Energy Corporation to the State.

The proposed Leon Lake Unit No. 2 recompletion was also subject of other news articles and public meetings. An article appeared in the *Grand Junction Daily Sentinel* on September 28, 2002, and on October 9, 2002 in the *Delta County Independent*. A local public interest group held a meeting on the subject on October 10, 2002. All of these documents are in the project file.

Forest Service and BLM employees held an open house from 2:30 p.m. to 8:00 p.m. on Thursday, November 7, 2002, in Cedaredge to talk informally with members of the public. Approximately 125 people attended the meeting, and 44 comments, many from anonymous persons, were placed in a comment box. The meeting was also attended by members of the press from Grand Junction television stations and local newspapers.

Because of the interest in the proposal, Forest Service and BLM personnel were interviewed on several occasions by newspaper, radio and television reporters during the entire public scoping period. On each of these occasions, the public was provided with

information on how to receive additional information, and where to send public comment.

As a result of all the public scoping activity, the Forest Service received about 467 letters. All of the public comment letters are contained in the project file.

The Grand Valley Ranger District and GMUG North Zone and BLM specialists were consulted for any resource issues. The individual resource specialist reports are contained in the project file.

IV. ISSUES RAISED and RESPONSES

The public input on the proposal was reviewed for issues and concerns. A compilation of the citizen comments/concerns with a detailed agency response has been completed in a separate document, and is contained in the project file. The comment/response document is available upon request. The responses in this Decision Memo reference environmental reviews performed in the individual resource specialist reports contained in the project file.

A summary of the most frequently identified comments/concerns with a brief response follows:

- Citizen Comment: The potential effects of the proposed recompletion (including subsurface hydrofracing) on surface and ground water resources, domestic water sources (Town of Cedaredge water supply, domestic water wells, drinking water aquifers).

Agency Response: The review performed regarding effects to water resources indicates insignificant risk to domestic water resources. The closest domestic water wells are 2 miles from the Leon Lake No. 2 well, and are completed in unconsolidated surface deposits. These domestic wells are separated from the depths of the proposed fracing and completion zones of the Leon Lake Unit No. 2 well by over 2,000 feet of strata. Hydraulic connections between the zones targeted for testing at the Leon Lake Unit No. 2 well, and the domestic water wells are not present. The Town of Cedaredge water supply comes from springs about 4 miles northeast, and reservoirs about 4 miles north of the Leon Lake Unit No. 2 well (project file). The water is piped from the springs and reservoirs to the Town. There will be no effects on the Town of Cedaredge water supply. A spring and wetland have been identified near the Leon Lake Unit No. 2 (map in the project file). They are supported by near surface and surface water, which will not be affected by the proposed activities.

A recent EPA study pertaining to hydraulic fracturing, reported that in the Piceance Basin (the geologic basin in which the well lies), coal layers that are useable as drinking water sources are unlikely to occur. Although this well recompletion would target certain horizons for fracturing, including coals, results of this study support that no effects to water sources are anticipated.

- Citizen Comment: The local geologic and hydrogeologic framework is not understood.

Agency Response: The Forest Service researched the available geologic and hydrogeologic reports and data for the area (project file). These data were used in evaluating the potential impacts of the proposed activity at the Leon Lake Unit No. 2. The Forest Service recognizes the need for site-specific knowledge, and the proposed action provides an opportunity to gather subsurface data.

- Citizen Comment: The potential of the Leon Lake Unit No. 2 recompletion to become a coalbed methane well, and to be the precursor to extensive coalbed methane development.

Agency Response: The proposed sidetrack of the Leon Lake Unit No. 2 provides for completion and testing of a number of sandstone and coal beds within the Mesaverde Formation. The Mesaverde Formation consists of interbedded sandstones, shales and coals and extends over much of the Rocky Mountain area, and is a noted gas producing reservoir. The vast majority of gas wells in the Mesaverde Formation are completed in “tight gas sands”. A well that produces natural gas consisting primarily of methane exclusively from coals is properly termed a coalbed methane well. Given that the earlier testing history of the Leon Lake Unit No. 2 well indicated the existence of a producible zone in a sandstone layer, and absent additional data on other potential gas producing zones, the Leon Lake Unit No. 2 cannot be termed a coalbed methane well.

- Citizen Comment: The proposed activities were unsuitable for submission in a Sundry Notice, and that the proposed recompletion activities should be considered a new well.

Agency Response: The BLM considers the sidetracking and recompletion activities proposed to be subsequent well operations as defined in regulations at 43 CFR 3162. These activities are allowable under a Sundry Notice.

- Citizen Comment: The need for the agencies to disclose effects of the proposed recompletion in a NEPA document.

Agency Response: The preparation of this Decision Memo and the project file comply with the requirements of NEPA.

- Citizen Comment: The potential effects of the proposed activities on wildlife habitat, TES species, MIS, and wildlife migration patterns.

Agency Response: Reports prepared by the Wildlife Biologist (project file) indicate that there would be no effects to TES species, MIS, or wildlife migration patterns. Conditions of Approval (Attachment A) mitigate effects on wildlife use in the area.

- Citizen Comment: The effects of truck traffic on local roads.

Agency Response: Trucks will travel roads in the area, and between 158 and 224 light and heavy loads are expected. A daily average of 18 light and heavy trucks is expected. The bulk of the traffic will occur during mobilizing and demobilizing the drill rig to the well site. Mobilization and demobilization is expected to take about 1 day each. Daily traffic associated with the proposed work would also use the roads. The Operator will be required to have a Road Use Permit to use Forest Service roads.

- Citizen Comment: The effects of flaring at the gas well.

Agency Response: Flaring is controlled combustion (burning) of any produced combustible gas, in order to keep the gas from exploding from an unwanted ignition source. This is a way of safely disposing of the gas flowing from the well and reducing the chance of unwanted combustion of produced hydrocarbons. The operator proposes to use a closed flaring system to minimize effects from the flaring. During the flaring process samples can be collected to analyze the BTU and other characteristics of the natural gas.

- Citizen Comment: The effects on other resources including air quality, visual quality, recreation, soil, and reclamation.

Agency Response: The project review indicated that there would be insignificant effects to air quality and visual quality. There will be short term changes to snowmobiling if the recompletion work occurs in the winter, as the snowmobile trailhead on FR 125 would be moved about 2 miles north. If the recompletion work occurs in the summer, there would be little effect to recreation. After the recompletion activities, the Leon Lake Unit No. 2 well site will be closed to dispersed camping. As the site is existing, little effects to soil are anticipated. Reclamation of the pad from 0.77 acre to 0.37 acre is proposed, and reclamation will be required (see Attachment A, Conditions of Approval).

- Citizen Comment: Effects of other wells, pipelines, and infrastructure

Agency Response: There are no pipelines or other infrastructure proposed.

- Citizen Comment: Cumulative effects.

Agency Response: Determination of cumulative effects of this project considers other activities in the area. Gunnison Energy has proposed to abandon the Leon Lake No. 1 well, located about one mile north of the Leon Lake Unit No.2. The Leon Lake No. 1 will be plugged and the site reclaimed. Gunnison Energy has also submitted applications to drill two new exploration wells (Leon Lake No. 4 and 5) about one mile east and northeast of the Leon Lake Unit No. 2. These activities propose to disturb about 1.5 acres for drill pads, and would involve about 0.3 miles of new road construction. The road access for the Leon Lake No. 1 abandonment and the proposed new drilling would use the same access route.

These activities would not occur at the same time. Traffic associated with these activities would occur at 4 week to 2 month intervals over a couple of years.

Cumulative effects to wildlife could potentially include additional drilling activities, road construction, habitat alteration necessary for pad construction, potential increase of weed infestations, and additional activities associated with monitoring and maintenance of these wells if and when they might be completed for production. All of these activities increase human activity, decrease available habitat and have the potential of decreasing wildlife use of the area.

It has been determined that the geologic formations targeted for natural gas are not in hydraulic communication with the shallow, near surface ground water tapped by domestic wells in the area. Therefore, effects to ground water resources currently being used are not anticipated. Insufficient subsurface data is available to estimate the amounts of water that may be encountered during drilling.

Subsequent NEPA analyses for any other future proposed actions will also consider cumulative effects based on individual resources.

The actions in this decision do not automatically trigger other actions; these actions can proceed without other actions being taken simultaneously. These actions are not interdependent parts of a larger action that depend on the larger for their justification.

As this is recompletion of a single, existing well to further understand the occurrence of gas resources, the consideration of future actions is conjecture and speculative without the information that will be gathered as a benefit of this action. All future proposals will be subject to environmental review, including cumulative effects analysis, public involvement and NEPA disclosure.

The Leon Lake Unit No. 2 well is in Management Prescription Area 4B, 'Wildlife Habitat Management for one or more indicator species'. The GMUG Oil and Gas Leasing EIS (1993) indicates that gas activity can occur so long as activities are managed to provide a visually appealing landscape, and that road use is managed to provide for habitat effectiveness. The nature of this proposed action complies with these standards, no changes to visual quality will occur, and no new road use is proposed. It should be noted that the 1993 GMUG Oil & Gas leasing decision does not apply to this lease, as the lease was in place (1971) when the leasing decision was made in 1993. Even though some conditions in the oil and gas leasing decision cannot be mandated for this lease, the operations can be conducted consistent with that direction without a violation of lease rights.

V. REASONS FOR CATEGORICALLY EXCLUDING THE PROPOSED ACTION

It was determined that public disclosure under a Categorical Exclusion (CE) was adequate because of the minimal disturbance associated with the proposed activities, and that the environmental reviews showed new effects to surface resources are minimal.

This is the recompletion of an existing well and the improvements associated with it will provide the following beneficial improvements:

- The well will be completely re-cased
- The casing will be cemented the entire length of the wellbore (approximately 4000')
- The pad size will be reduced from .77 to .37 acre and reclaimed to current standards
- New areas of disturbance will not occur; all disturbance is on the existing pad
- If flaring is needed, it will be done in a contained system
- The Operator will be able to obtain valuable data relating to exploration and development of the gas resource
- The length of time needed to perform the work is on the order of one month
- Recompletion of an existing well is the least intrusive way to obtain subsurface data
- Since the Operator has not requested confidentiality, the information and data gathered from the proposed work will be made available in accordance with 43 CFR 3100.4.

The proposed action falls under category 8, section 31.2 of the *Forest Service Handbook, 1909.15 – Environmental Policy and Procedures Handbook*, which states “short-term (one year or less) mineral, energy, or geophysical investigations and their incidental support activities that may require cross-country travel by vehicles and equipment, construction of less than one mile of low standard road, [o]r use and minor repair of existing roads” may be excluded from documentation in an EIS or an EA.

VI. FINDING OF NO EXTRAORDINARY CIRCUMSTANCES

Per Interim Directive No. 1909.15-2002-2, extraordinary circumstances include, but are not limited to, ground disturbing action in the presence of steep slopes or highly erosive soils; threatened or endangered species and their critical habitat; flood plains; wetlands; or municipal watersheds; Congressionally designated areas such as wilderness, wilderness study area, inventoried roadless areas, Research Natural areas; or Native American religious or cultural sites, archaeological sites, or historic properties or areas. This action will not affect any of these resource conditions; therefore extraordinary circumstances do not exist with this project decision.

The project Wildlife Biologist has determined that there will be no effects to TES species, including lynx. A BE/BA has been prepared and is in the project file. Consultation with the FWS regarding water use and depletion in the Colorado River system is on file. The project Archaeologist confirmed that no sites have been recorded, and that no further survey was required. No formally designated municipal watersheds are present. Specialist reports in the project file show that the proposed action will not affect these domestic water supplies.

Because this action does not involve any extraordinary circumstances and meets the criteria for categorical exclusion in category 8, section 31.2 of the *Forest Service Handbook, 1909.15 – Environmental Policy and Procedures Handbook* it can be categorically excluded from documentation in an environmental assessment or environmental impact statement.

VII. FINDINGS REQUIRED BY OTHER LAWS

Flood plains, wetlands, prime farmlands, threatened and endangered species, and heritage resource concerns were considered in this action. These resources will not be adversely affected (Specialists Reports, project file).

VIII. DECISION AND REASON FOR DECISION

In terms of NEPA analyses and decisions, oil and gas activities are considered in a staged process. NEPA is performed at the leasing stage, at the exploration stage and at the development stage (GMUG Oil and Gas EIS). It is important to note that a lease grants the holder an exclusive right to explore and develop the resources on the lease subject to applicable laws, terms, conditions and attached stipulations of the lease. Once a lease is issued, the Forest Service decisions are not “whether to allow” a proposed activity, but rather becomes “how the activity will be done”.

The **decision to be made by the Forest Service** for the Leon Lake Unit No. 2 recompletion is essentially **how the surface will be used, and under what conditions this use could occur while protecting the surface resources**. The Forest service authority is limited to use of the land surface. The approvals for the downhole, or subsurface portions of the proposed activity are under the authority of the BLM.

After evaluating the issues and concerns raised pertaining to this proposal, this decision allows the following activities to occur with Conditions of Approval (see Attachment A):

1. Perform maintenance of the existing segment of access road to the Leon Lake Unit No. 2 well site as authorized under a Forest Service Road Use Permit.
2. Allowing for surface activities associated with the redrilling, casing and cementing, perforating fracturing and testing the well.
3. Leveling the existing reclaimed drill pad, and constructing the reserve and flare pits.

4. Reclaiming the site from .77 to .37 acres consistent with guidelines in Appendix H (GMUG Oil and Gas EIS). A reclamation bond is being required under authority of 36 CFR 228.109.

My decision to ensure certain Conditions of Approval (COAs) for these recompletion activities is conditioned on Operator's compliance with the stipulations on Federal Oil and Gas lease COC-13563-A, consistency with the operating and reclamation standards described in Appendix H of the GMUG Oil and Gas Leasing EIS, and compliance with the site specific COAs.

In the event the well is capable of being put on line for production, further NEPA documentation for site production facilities and pipeline construction will be required.

This decision is consistent with the GMUG Forest Plan. Authority for this decision is given under 36 CFR 228, Subpart E.

IX. IMPLEMENTATION DATE

This decision may be implemented immediately.

X. CONTACT PERSON

Questions may be directed to Liane Mattson, Zone Geologist, Paonia-Grand Valley Ranger Districts, (970)-527-4131; electronic mail, lmattson@fs.fed.us.

XI. APPEAL OPPORTUNITIES

In accordance with 36 CFR 215.8(a)(4), this decision is not appealable.

XII. SIGNATURE

/s/ Connie Clementson
CONNIE J. CLEMENTSON
Grand Valley District Ranger

1/24/2003
DATE