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REPORTS

DATE:

May, 2003

ENVIRONMENTAL ASSESSMENT

USDA Forest Service

San Juan 30-4 Unit #28B Well

Energen Resources Corporation

Surface Location: Township 30 North, Range 4 West, NMPM
Section 31: 660 feet from South Line and 660 feet from East Line

Jicarilla Ranger District, Carson National Forest
Rio Arriba County, New Mexico

May 2003

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CHAPTER 1 - PURPOSE AND NEED

This environmental assessment (EA) complies with the requirements of the National Environmental Policy Act (NEPA) of 1969. It summarizes the environmental effects of the San Juan 30-4 Unit #28B well, access road, and associated pipeline proposed on National Forest System lands within the Jicarilla Ranger District of the Carson National Forest. This EA also provides information needed by the Responsible Official to determine whether or not the decision may have significant effects requiring an Environmental Impact Statement (EIS). A project record has been developed to support the findings in this document. A number [#] corresponding to the Project Record Index (PR) (Appendix A) is used to reference a specific document in the Project Record Index.

INTRODUCTION

The Mineral Leasing Act of 1920, as amended (30 United States Code 181 et seq.) authorizes the Bureau of Land Management (BLM), US Department of the Interior (USDI), to issue mineral leases for federal oil and gas. A federal lease is a binding legal contract that allows development of the federal mineral estate (oil and gas) by the leaseholder. An oil and gas lease authorizes development of oil and gas resources, subject to terms and stipulations of the lease instrument, and current laws and regulations. The proposed well for this analysis would be located on land currently leased to Energen Resources Corporation (Energen, Inc.) [PR #1].

The BLM is also one of the agencies designated to manage the federal mineral program and is responsible for the management of federal and Indian oil and gas. Bureau of Land Management regulations (43 CFR 3160) establish procedures for obtaining approval of an Application for Permit to Drill (APD) on existing onshore federal and Indian oil and gas leases. These regulations require a specific Surface Use Plan of Operations (Surface Plan) to be included in each APD submitted for approval. The Surface Plan must address 13 specific points concerning surface use. The Forest Service (FS) is the surface managing agency for this proposed action and has authority over the Surface Plan, in accordance with the Federal Onshore Oil and Gas Leasing Reform Act of 1987. When an APD is submitted to the BLM and the proposed well

location is on National Forest System lands, it is forwarded to the Forest Service for surface analysis, NEPA analysis, comment, and a decision on the Surface Use Plan of Operations (Appendix G). Also required with each APD is an eight point Drilling Plan of Operations (Drilling Plan), addressing down-hole operations. The Drilling Plan is approved by the BLM as part of the submitted APD.

If a well produces natural gas in economic quantities, construction of a gas pipeline tie from the wellhead to a transportation pipeline would be required. A Special Use Permit (SUP) from the Forest Service would be required, as the pipeline company, Williams Gas Processing, is not the leaseholder. A SUP from the Forest Service is required before the commencement of any type of pipeline construction or gas transportation. Environmental effects of the pipeline must also be analyzed under NEPA. The SUP is usually issued for a period of 30 years with the right to renew.

An APD authorizes activities on a specific federal leasehold, and/or within participating areas of a recognized federal unit. The APD includes the use of existing access roads required for the drilling, production, and abandonment phases of the oil and gas mineral estate. Construction of a proposed access road (approximately 50 feet in length) will also be a part of the APD proposal.

An approved APD issued by the BLM, with approval of the FS, authorizes the leaseholder to construct, drill, produce, transport, maintain, abandon, and finally reclaim the proposed well pad and access road, and (if included) construct, operate and abandon the gas well-tie pipeline. When an APD is approved by the BLM, with approval of the FS, it is subject to all attached Conditions of Approval (COA). COAs are both standard and site-specific mitigation measures developed to protect the rights and uses of others, and to avoid and/or reduce the impacts to the natural, cultural, and social resources on federal lands and minerals.

This EA is not a decision document. The EA discloses the environmental consequences of implementing the proposed action and alternatives to the proposed

action. By utilizing the analyses contained within this document, a decision will be made by the Responsible Official concerning what shall be included in the Surface Use Plan of Operations.

PROPOSED ACTION AND PURPOSE AND NEED

The Forest Service is proposing to approve the Surface Use Plan of Operations and therefore, concur with the Bureau of Land Management, to approve the Application for Permit to Drill as submitted by Energen Inc. for the San Juan 30-4 Unit #28B well, access road, and associated well-tie pipeline (see Appendix C-F).

The well, access road, well-tie pipeline, and associated facilities are proposed to be developed in the San Juan Basin of northern New Mexico, approximately eighteen (18) miles east of Navajo City, approximately three and one-half (3.5) miles north of highway 64, and approximately 1200 feet northwest of Mesteñas Peak, Rio Arriba County, New Mexico. The proposed well, access road and well-tie pipeline would have a surface location at 660 feet from the south line (FSL), 660 feet from the east line (FEL), of Section 31, T30N, R4W, Rio Arriba County, New Mexico, NMPM. (see Appendix E)

The proposed well would be drilled to the Blanco Mesaverde formation on National Forest System lands, under the surface jurisdiction of the USDA Forest Service and under the federal mineral jurisdiction of the BLM. In accordance with Energen Inc.'s lease rights and in accordance with the latest New Mexico Oil Conservation Division (NMOCD) spacing rules, Energen Inc. can drill and produce eight (8) Blanco Mesaverde wells per section (a section is a square mile or 640 acres).

As authorized by the Mineral Leasing Act of 1920, as amended, federal lease (NMNM-078418-B) was issued to Energen Inc. in 1997 [PR#1]. With the issuance of this federal lease, came the right to utilize, in an environmentally responsible manner, that portion of the surface necessary to efficiently develop the leased federal minerals. The purpose and need for the proposed action is to allow for development of the existing lease rights while protecting the surface resources to the maximum extent possible. This is

consistent with Carson National Forest Plan, October 1986 [PR # 2] direction to administer the mineral leasing laws, regulations, direction and policies, and to support sound energy development of existing lease rights, while minimizing surface resource impacts.

Site-specific surface Conditions of Approval for the proposed San Juan 30-4 Unit #28B well and pipeline are taken from the Jicarilla Ranger District Staff's experience with mineral development and from site-specific concerns identified during the on-site inspection [PR #5]. Standard Conditions of Approval (COAs) address comprehensive mitigation measures, whereas site-specific COAs consider site-specific mitigation needs. All COAs will be included in the APD, if approved, to protect surface and subsurface resources. The mitigation measures are an integral part of the proposed action and the analysis of environmental effects are made with these mitigation measures in place. Standard surface COAs for the gas well and access road are in Appendix H. Appendix I describes the stipulations required for the gas pipeline that would be included in the SUP.

Construction & Drilling Phase

Construction of the proposed well pad, access road and well-tie pipeline is proposed for the summer of 2003. The Jicarilla Ranger District operates under standard winter closure on all construction and drilling activities from November 1st – March 31st, for the protection of wintering big game and eagles, and because of muddy winter road and construction conditions.

The proposed action would:
Develop a 275 feet (east to west) by 250 feet (north to south) level well pad (see Appendix E). Clearing for the well pad is needed to provide space and a flat surface for a drilling rig and other heavy equipment to access the site and drill the well. An additional 50 feet of construction zone will be added around the sides of the staked pad for cut and fill slopes. The well location and construction zone would require approximately 3.01 acres of surface disturbance. The proposed well pad would be

constructed by using a D-8 bulldozer to level the location, with a maximum cut of 8 feet on corner #3, and a maximum fill of 3 feet corner #5. Excavated materials from the cuts would be used on the fill portion of the location, to level the pad. The reserve and blow pits will be located on the north side (from corner #5 to #6). A dike for a silt trap will be constructed from approximately corner #5 to corner #4 with a minimum of an 18 inch culvert placed on the west side of the dike under the existing roadway (see appendix E). A sheep fence (tight) would be constructed around three sides of the pits during drilling and completion, and around the fourth side after the completion rig leaves the wellhead.

The drainage for the western part of Mesteñas Mesa is to the southwest (approximately one mile) into La Baca Canyon. La Baca Tank lies approximately one mile southwest of the proposed well pad. The top six inches of topsoil would be stockpiled and redistributed for reclamation. The topsoil would be stockpiled (over the sagebrush) on the north side of the well pad. Natural drainage for the proposed well pad would be to the southwest, with the slope of the well pad bearing to the southwest. Energen would reroute the two existing ditch outlets adjacent to the proposed well pad after construction of the well pad.

Approximately 10-15 piñon and juniper trees of various heights and diameters would be removed from the proposed well pad. An estimated 1-2 chords of wood would be removed as a result of this project. The usable wood would be placed on the existing FS road 312 for the public to utilize, and slash from the trees would be chipped and put over the recontoured, seeded, and mulched areas to further help with erosion control. There will be 2 Ponderosa Pine trees removed for the construction of the well pad. The Ponderosa Pine trees will be placed off the well pad for wildlife cover. (see appendix H)

A well-tie pipeline 1726.50 feet in length will be laid below the ground. The entire length of the well-tie pipeline would be constructed adjacent to FS road 312F thus requiring only 10 feet of surface disturbance. New surface disturbance for the well-tie pipeline will be 0.40 acres. The well-tie pipeline would connect the proposed well pad, SJ 30-4

#28B, to the existing well pad 30-4 #33. The pipeline tie is needed in order to transport the gas from the proposed well into Williams Gas Processing pipeline system, and then into the central pipeline, which would take the gas to a processing plant near Bloomfield, New Mexico.

Construct 50 feet of dirt access road 20 feet wide (0.02 acres) off of Forest Service Road 312 to the proposed well pad. The proposed access road would have a 14-foot driving surface that will be crowned with sandstone. The sides of the road will be ditched. A minimum of an 18-inch culvert will be placed approximately 15 feet north of the proposed access road on the existing FS road 312. The construction of the proposed access road is needed for the drill rig, trucks, and other heavy equipment to reach the well site, and for use by Energen Inc. to transport equipment to and from the site, maintain the well site, and monitor well production. If needed, existing FS access roads 310 and 312 would be re-crowned and re-ditched, to provide proper drainage. Road surfacing and maintenance of existing access roads will be the responsibility of Energen Inc. and will be at the direction of the U. S. Forest Service Representative. No trees will be removed to construct the road.

The top six inches of topsoil would be stockpiled on the north side of the well pad and redistributed for reclamation. Excavated materials (after the topsoil has been removed) from the cuts would be used on fill portions to level the road. Once the pad is constructed, a drilling rig would be moved onto the location and assembled. Drilling to the Blanco Mesaverde would take approximately 14 days. Following drilling, estimated well completion would take two (2) additional weeks. Completion of the well would include a foam frac procedure that would take approximately one (1) day to complete. This subsurface procedure for the stimulation of the producing formation, would require about ten (10) frac tanks to temporarily be on the well location. The total construction, drilling, and completion time are expected to take approximately six (6) to eight (8) weeks. During the construction, drilling and completion phase, both heavy equipment and light vehicle traffic would use Forest Service Roads 310 and 312 to access the site. Traffic would include drilling rigs, large tractor-trailers, construction equipment, water

trucks, drilling and production equipment and supplies, tanks and numerous light pick-ups.

Production Phase

During production phase, all areas of the well pad (approximately 1.51 acres) not occupied by equipment, and the new surface disturbance from the construction of the well-tie pipeline (1726.50 feet along the access road and 10 feet in width) would be recontoured and seeded with the recommended seed mixture as described in the COA (appendix H). Approximately 1.51 acres of the well pad would remain in use for production purposes for equipment and vehicle access and so would not be seeded. If successful vegetation cannot be reestablished due to heavy grazing, the U. S. Forest Service may require the well pad to be fenced, with a cattleguard at the entrance, until successful revegetation is achieved. Production equipment remaining on-site would include the wellhead, meter house, a small condensate tank, and separation equipment. Depending upon well production, operating pressures, and line pressure, a pumping unit and/or a compressor may be required. If installed, the compressor would have to meet BLM Noise Policy guidelines [PR # 4].

After production of the well begins, normal maintenance of the well would be required. Initially, a pick-up truck would visit the well site every day to check on production and resolve other problems that may occur. Water hauling trucks may be required to come to the well site to remove produced water stored in tanks on the site. Frequency of water hauling would be minimal, as Blanco Mesaverde wells generally do not produce large amounts of produced water, once gas production is stabilized. Occasionally, the well bore may require maintenance to retain economic production. A work-over drilling rig would then be moved to the well site, for down-hole repairs. Surface impacts of a work-over rig could be similar to those described for drilling. The estimated economic production phase of the well is 20 to 30 years.

Abandonment

When the well is no longer commercially viable, it would be abandoned. Abandonment would be completed under current BLM regulations for plugging the borehole, with FS

concurrence for surface requirements. Surface equipment would be removed, except for an aboveground well bore marker, indicating the well location and identification information of the plugged hole. Usually, underground well-tie pipelines are purged, then plugged, and left in place. The pad and access road, if not needed for other purposes, would be recontoured and revegetated as specified in the COA's (see Appendix H).

DECISION TO BE MADE

In compliance with the Federal Onshore Oil and Gas Leasing Reform Act of 1987, the Forest Service is to review and make a decision on the Surface Use Plans of Operations (see Appendix G) portion of the submitted Application for Permit to Drill. The Forest Service must determine whether or not the specific well location and ancillary facilities applied for can be drilled, operated, and abandoned in an environmentally responsible manner. The Forest Service must also determine if the proposed action can be accomplished such that surface resources are protected and environmental impacts mitigated and not be significant; thus not requiring an environmental impact statement. The decision to be made is, in what manner drilling should occur, not whether drilling can occur.

The Jicarilla District Ranger is the Responsible Official who will decide either:

To approve the Surface Use Plan of Operations as submitted or;
To approve the Surface Use Plan of Operations with additional Conditions of Approval or;
To not approve the Surface Use Plan of Operations, and go forward to analyze the effects of the proposal in an environmental impact statement.

The District Ranger must also determine whether their decision is consistent with the 1986 Carson Forest Plan, as amended. A decision will be submitted to the BLM for inclusion in the APD permit.

PUBLIC INVOLVEMENT AND SCOPING

The Council on Environmental Quality (CEQ) defines scoping as "...an early and open process for determining the scope of issues to be addressed and for identifying the significant issues related to a proposed action" (40 CFR 1501.7). The scoping process is used to invite public participation, to help identify issues, and to obtain comment at various stages of the environmental analysis process. In addition to the following specific activities, the San Juan 30-4 Unit #28B well proposal has been listed on the Carson National Forest Schedule of Proposed Actions (SOPA) since January, 2003. [PR #7]. Specific mailing list for each SOPA are available at the Carson National Forest Service Office [PR #7]. The SOPA and mailing list are also on the Carson National Forest's website – *www.fs.fed.us/r3/carson/* (select "NEPA Calendar"). To date, the public has been invited to participate in the project in the following ways:

Mailing

On September 19, 2002, a letter providing information and seeking comment was mailed to approximately 48 individuals, and groups. This included federal and state agencies, Native American Tribes, municipal offices, businesses, interest groups and individuals [PR #10]. No responses to this initial mailing were received.

30-Day Comment Period on EA

The 36 CFR 215 appeal regulations require a 30-day notice and comment period for Environment Assessments before a decision can be made. A notice of the decision will be mailed to persons that submitted comments and to Native American Tribes.

ISSUES

An issue is a point of discussion, debate or dispute about the environmental effects of the proposed action. No comments were received, therefore, no external issues were identified.

CHAPTER 2 -- ALTERNATIVES

Alternatives are developed to explore different ways to accomplish the purpose and need in response to the controversy or argument presented in the significant issues. A reasonable alternative is one that responds to an argument presented in a significant issue, substantially accomplishes the purpose and need.

Alternatives Considered, But Eliminated from Further Study

The following alternative was dropped from detailed consideration with an explanation as to why it is not being fully developed.

The alternative of drilling from an existing well pad location to the targeted bottom hole location via directional drilling is not technically feasible because the nearest existing well pad is too far away to mechanically reach the targeted bottom hole depth. The nearest well pad is the San Juan 30-4 #28A (approximately 1100 feet north).

Alternatives Considered in Detail

Alternative A – No Action

Analysis of the No Action alternative provides a point of reference, enabling decision makers to compare the magnitude of environmental effects of the alternatives.

The no action alternative consists of not approving the Surface Use Plan of Operation (Surface Plan) portion of the APD for the San Juan 30-4 Unit #28B well, access road, and pipeline. The San Juan 30-4 Unit #28B well, access road, pipeline, and associated facilities, as proposed at the surface location at 660' feet from the south line (FSL), 660 feet from the east line (FEL), of Section 31, T30N, R4W, New Mexico Principal Meridian, Rio Arriba County, New Mexico, would not be developed. The proposed 275 feet (east to west) by 250 feet (north to south), level well pad (see Appendix E) would not be constructed or cleared. The well location and construction zone totaling 3.01 acres would remain undisturbed. No well production or production equipment would be hauled to the site. No abandonment of the well pad or well production equipment would be necessary.

The proposed 1726.50 feet of gas pipeline would not be laid. The 0.40 of an acre for the pipeline would remain undisturbed. The 50 feet of dirt road access road, 20 feet wide, would not be constructed. The 0.02 acres of surface disturbance needed for the access road would not be disturbed. No additional drill trucks and other heavy equipment would be realized on existing Forest Roads 310 and 312. No new site-specific conditions of approval would be required.

ALTERNATIVE B – PROPOSED ACTION

A natural gas well, access road, well-tie pipeline, and associated facilities are proposed to be developed in the San Juan Basin of northern New Mexico. The proposed well would be drilled to the Blanco Mesaverde formation on National Forest System lands. Develop a 275 feet (east to west) by 250 feet (north to south) level well pad.

Approximately 1726.50 feet of gas pipeline tie would be laid below the ground. A dirt access road approximately 50 feet in length and 20 feet wide would be constructed. After production of the well begins, normal maintenance of the well would be required. When the well is no longer commercially viable, it would be abandoned (for a more detailed description, refer to Proposed Action and Purpose and Need on page 6).

Mitigation/Monitoring for Alternative B

After drilling and completion, the disturbed surface area for the non-working areas of the well pad will be re-contoured and revegetated with the appropriate FS approved seed mixture. Following final down-hole plugging and abandonment of the well, the entire well pad and access road would be reclaimed, as directed by the Forest Service.

- Topsoil will be stockpiled for reclamation.
- Slash from the 10-15 piñon/juniper trees will be chipped and spread over the seeded and mulched topsoil to help reduce erosion during reclamation.
- The two Ponderosa Pine trees removed will be placed off the pad for wildlife cover.
- Maintaining slopes at a 3:1 ratio or less.

• A timing restriction will be placed on all construction from November 1st through April 1st. Activities may be granted on a case by case basis.

• Forest Roads 310 and 312 will be re-ditched and re-crowned, and increased maintenance of the roads would be managed by Energen Inc. during construction, drilling, production, and abandonment phases of the proposed action and will be at the direction of the Forest Service.

• Two culverts and sandstone will be installed on approximately 200 yards of roadway on FS road 311 to alleviate drainage problems and two soft wet areas. This will be done under the direction of the FS.

• If vegetation cannot be re-established due to heavy grazing, the U. S. Forest Service may require the well pad to be fenced, with a cattleguard at the access road entrance, until successful revegetation is achieved.

• Energen Inc. may choose to fence the location (with a cattleguard at the access road entrance) following the initial seeding. Fencing would reduce the potential of having to seed the location for a second time to ensure adequate vegetation establishment.

• Energen Inc. will be responsible for the control and eradication of all noxious/invasive weeds within the proposed project area during the life of the project.

• All pits will be fenced to exclude wildlife and livestock.

• Pits containing petroleum must be netted to exclude birds, especially those regulated under the Migratory Bird Treaty Act.

• If impacts to Management Indicator Species or migratory birds, nests, or eggs are observed at any time during the proposed action, the FS will be notified. Specific mitigation to that species would be immediately implemented as directed by the FS.

• Surface facilities would be painted to blend into the surrounding ecosystem. The color of paint to be used will be Juniper Green-Federal Standard 595a-34127.

Comparison of Alternatives

The following matrix details the differences between the two alternatives: Alternative A (No action) and the Alternative B (Proposed action).

Measures	Alternative A (No Action)	Alternative B (Proposed Action)
Surface acres disturbed for well pad	0	3.01
Surface acres disturbed for access road	0	0.02
Surface acres disturbed for pipeline	0	0.40
Total surface acres disturbed	0	3.43
Total acres reclaimed after construction phase	0	1.91
Total disturbed acres w/in 1 mile radius	37.63	41.06
Feet of new road	0	50
Maximum cut and fill (feet)	0	8' cut and 3' fill
Estimated number of trees removed	0	~10-15
Estimated cords of wood	0	~1-2
Dates of winter construction closure for protection of wintering wildlife	Nov. 1 – March 31	Nov.1 - March 31
Effects on Mexican spotted owl	none	No Effect
Effects on bald eagle	none	No Effect
Effects on American peregrine falcon	none	No Effect
Archeology mitigation required	none	No Effect

CHAPTER 3 -- ENVIRONMENTAL CONSEQUENCES

Soil and Water:

The Carson National Forest was the subject of an intense ecosystem survey in 1986, under the US Department of Agriculture (USDA), Comprehensive Soil Survey System, with findings published in Terrestrial Ecosystems Survey (TES) of the Carson National Forest, 1987 [PR #3]. The purpose of the Terrestrial Ecosystem Survey is to map and evaluate the ecosystems for land uses, limitations and potentials of the natural resources. Survey information is presented as an ecological unit, recognizing the interaction of three major components; soil, climate and vegetation. "Information...of the report presents important properties pertaining to the nature and behavioral characteristics of terrestrial ecosystems" (Terrestrial Ecosystems Survey of the Carson National Forest, 1987).

The well location is located in the Typic Eutroboralfs, Map Unit, #162. These soils are mixed, fine-loamy, and fine loams. They occur on plains with simple linear and convex slopes. Average gradient is 6%, with an average slope length of 82 feet. Typic Eutroboralfs soil properties are: depth of 1.97 inches to 28.34 inches, with a low to moderate shrink-swell potential. Parent material includes old alluvium from various sources. Ephemeral streams are present in the area, with a dendritic (spider-like) drainage pattern. Sheet and rill erosion potential is slight where adequate ground cover has been removed. Plant competition from big sagebrush (Artemisia tridentata) is considered severe. Present major uses for areas with this soil unit are: grazing, recreation, road location, and timber. The potential for revegetation and reforestation are considered moderate to high.

The proposed location is located approximately 1200 feet northwest of Mesteñas Peak and lies on the west side of Mesteñas Mesa. Drainage for the proposed project would be southwest into La Baca Canyon (approximately 2000 feet). La Baca Tank lies approximately 1.5 miles southwest of the proposed project. Arroyos and ephemeral

washes are in the area usually carrying surface water during the spring and following summer thunderstorms.

Shallow ground water is estimated at 200 feet or greater. There are no live streams, wetlands, riparian, or Federal Emergency Management Act (FEMA) listed floodplains in the vicinity of the proposed project area. There are no parklands, prime farmlands, designated or eligible wild and scenic rivers or ecologically critical areas in the vicinity of the proposed project area.

NO ACTION-ALTERNATIVE A

The No Action alternative would not alter any of the environmental conditions that are presently occurring to the soils. Natural processes currently taking place will continue at present rate; soil will erode from rain, wind, natural slope of the land, sheet/rill, etc. (see TES for details).

PROPOSED ACTION- ALTERNATIVE B

The proposed action would not violate any Federal, State or local law or other requirements imposed for the protection of the environment. The proposed action would comply for water quality, quantity, and ground water protection under the Clean Water Act of 1977, and the Safe Drinking Water Act of 1974 as amended. The proposed action is less than five (5) acres, therefore, a Storm Water Pollution Prevention Plan for the Environmental Protection Agency under the Clean Water Act will not be required. The proposed project will not cross any ephemeral washes, therefore a Nationwide 404 Permit from the U.S. Army Corps of Engineers, Albuquerque District Office would not be required.

The proposed well pad and pipeline tie would disturb a total of approximately 3.43 acres. Approximately 1.91 acres would be reclaimed and seeded following well completion. The remaining 1.53 acres would remain disturbed for the life of the well, for production equipment and vehicle travel surfaces. Following final down-hole plugging

and abandonment of the well, the entire well pad would be reclaimed, as directed by the Forest Service COA's.

Revegetation will reduce or minimize impacts created by water or wind erosion. The cut and fill slopes of the proposed action will be especially susceptible to wind and water erosion until vegetation has been reestablished (one to two growing seasons). The heaviest amounts of erosion sediments (silt loading) eventually entering an existing waterway will be short-term (one to two growing seasons) until the vegetation has established. The mitigation measures of: stockpiling topsoil for reclamation, maintaining slopes at a 3:1 ratio or less, water-bars, covering soil with chipped slash, and seeding will lessen the erosion impacts.

Drainage from the proposed well pad would be to the southwest with the slope bearing southwest. Drainage diversion for the proposed well pad would be below the cut on the north side, draining mainly south and southwest. Soils in the proposed project area that are presently eroding in the existing natural conditions are estimated at approximately 2.2 tons/acre/year (t/ac/yr). The quantity of soils in the proposed project area that will potentially erode after the proposed project area has been cleared of vegetation will be approximately 31.9 t/ac/yr. (TES, page 58)

A timing restriction will be placed on all construction from November 1st through April 1st. The timing restriction on construction, drilling, and completion will assist in mitigating any impacts to soils, roads, and soil erosion during wet winter weather, as well as, wintering big game. Forest access roads 310 and 312 would be re-ditched and re-crowned, at the direction of the Forest Service, to minimize sedimentation.

Energen Inc. proposes to set surface casing to a depth of 250 feet, or as specified by the BLM, to protect any shallow aquifers. Water for drilling and completion would come from various sources. Drilling water would be trucked to location (the trucking company supplies water, Energen Inc. pays for services). Water stored on location until disposed

of, will be held in storage tanks that will be enclosed within compacted gravel covered earthen berms, to contain any potential spills.

Cumulatively, approximately 37.63 acres of disturbance presently exists within a one-mile radius of the proposed action. Within a one-mile radius of the proposed action, it is estimated that nine (9) additional well locations could be constructed with approximately 2.38 acres of disturbance for each well. An estimated access road length of 300 feet and 30 feet in width, and an estimated pipeline tie length of 400 feet with 40 feet for construction are estimated for each location. The total potential future disturbance for a one-mile radius of the proposed project area could reach approximately 61.84 acres. The surface disturbance of 61.84 acres of land in a one-mile radius of the proposed project area represents approximately 3.07 percent. The proposal is not related or dependent upon other actions proposed within a one-mile radius of the proposed action. Each of the existing and potential proposals would have very similar individual impacts to soil, water, and grazing as described for the proposed action. Excessive grazing by livestock can result in increased soil erosion, soil loss, and sedimentation to water supplies. Wildlife foraging in the one-mile area will also contribute to these impacts. Taken in the context of a one-mile radius, all of these land uses have impacts on soil and water resources, but with the mitigation measures as stated above, the impacts will be reduced.

Roads:

Access to the proposed project would utilize two existing FS roads; 310 and 312. The FS roads are crowned and ditched. Native sandstone and two culverts will be placed on FS road 311 at the discretion of the Forest Service Representative discretion (also in mitigation measures). The proposed action does not lie within a restricted Travel Management Area where off-road vehicle travel is restricted within 300 feet of open roads. The proposed project is on an open road.

NO ACTION-ALTERNATIVE A

The No Action alternative would not alter any of the environmental conditions for existing roads. Natural processes currently taking place will continue at present rate; soil will erode off the roads from rain and wind, cars will continue to drive on and impact the roads, etc. (see TES for details).

PROPOSED ACTION- ALTERNATIVE B

The proposed action would increase traffic to the area on a short-term basis; during construction, drilling, and abandonment phases of the well. There would be a minor long-term increase in road traffic during the production phase of the well. New Mexico State Highway 64, FS roads 310, and 312 would notice these traffic increases. FS roads 310, and 312 would need increased maintenance during well location construction, drilling, production, and abandonment phases of the proposed action. The maintenance of the roads will be the responsibility of Energen for the life of the well. The proposed 50-foot access road, the increase in vehicle traffic, and human activity would have the following potential foreseeable direct and indirect effects on the roads:

- Potential vector for introduction of exotic species including noxious weeds. An introduction of exotic species would result in the reduced indigenous biodiversity, reduced grazing potential, and the increase in weed control costs. (Barbour, et.al, *Terrestrial Plant Ecology*, 1999)(see appendix A, [PR #17])

- Impacts to sedimentation and erosion. The current erosion rates as determined by TES are: 2.2 t/ac/yr. Potential rates after the proposed project area is cleared for construction is approximated at 31.9 t/ac/yr.

- Potential for chemical and/or petroleum product spills would be increased from the traffic to/from the location area, drilling of the well, and production after the well is constructed.

- Positive benefits of regional oil and gas related jobs and associated revenues would continue. The company (Energen) will employ workers for maintenance of the well, water trucking companies would be employed for hauling off water from the location,

and oil and gas support companies may be hired for potential work-overs, down-hole repairs, etc. that may occur.

- Short-term airborne dust emissions during road, well-tie pipeline, and well pad construction will be realized and has not been quantified.

A number of these impacts would be lessened by the mitigation measures in the Conditions of Approval (see Appendix H) and in the Mitigation section (page 14). The mitigation measures would include the seasonal closure for construction and drilling (November 1st, to April 1st), maintenance of Forest Roads 310, and 312, the proposed access road.

Approximately 7.85 miles of existing roads are within a one-mile radius of the proposed action: 5.6 miles of open roads, 1.5 miles of closed roads, .75 mile of decommissioned road. There are approximately 1.78 miles per square mile of open roads and approximately 0.72 miles per square miles of closed and decommissioned roads in the analysis area.

Each of the existing, proposed, and potential energy proposals would have very similar road related impacts and mitigation measures, as described above in this section and in mitigation measures on page 14.

Vegetation:

The proposed location is in an area of big sagebrush. The immediate area consists of piñon/juniper (Pinus edulis and Juniperus spp.) with scattered Ponderosa Pine (Pinus ponderosa). The piñon/juniper offers an understory of brush, that includes antelope bitterbrush (Purshia tridentata), oak (Quercus spp.), serviceberry (Amelanchier spp.), Cliff fendlerbush (Fendlera rupicola), snowberry (Symphorocarpos oreophilus), skunkbush (Rhus trilobata), and mountain mahogany (Cercocarpus spp.). Grasses in

the area include blue grama (Bouteloua gracilis), junegrass (Koeleria cristata), mutton bluegrass (Poa fendleriana), pinion ricegrass (Piptochaetium fimbriatum), galleta (Hilaria jamesii), and western wheatgrass (Agropyron smithii). Rabbitbrush (Chrysothamus nauseous) and broom snakeweed (Gutierrezia sarothrae) are also found in the area. No unique vegetation such as cottonwood, willow, or Douglas fir, is found within the proposed action area.

The 1998 Farm Bill included an amended Section 15 of the Federal Noxious Weed Act (1974) states that Federal agencies will work at managing noxious weeds in an integrated systems approach.

NO ACTION – ALTERNATIVE A

The No Action alternative would not alter the vegetation in the area of the proposed location from the existing dynamic conditions. Natural processes currently taking place will continue at present rate; plants will continue to grow, die, and wildlife and or livestock will continue to graze on the vegetation.

PROPOSED ACTION – ALTERNATIVE B

Approximately 5-8 piñon and juniper and 2 ponderosa pine trees would be removed for the proposed action. The piñon and juniper trees will be cut to reasonably usable sizes, then placed on the road for the public to obtain. The slash from the trees will be chipped and spread over the recontoured, seeded, and mulched topsoil to further minimize erosion. Following the removal of the big sagebrush over-story and browse, there would be a change in species composition from the seed mixture used for reclamation (see [PR 16]). Following well drilling and completion, approximately 1.91 acres of the proposed project would be seeded. Re-establishment of vegetative cover is expected to take one to two growing seasons depending on precipitation. Reestablishment of vegetation is considered successful when the disturbed soil has been stabilized (no evidence of active soil erosion, i.e. no rills, sheet, gullies, etc.). If vegetation cannot be re-established due to heavy grazing, the U. S. Forest Service may require the well pad to be fenced, with a cattleguard at the access road entrance, until

successful revegetation is achieved. Alternatively, the operator may choose to fence the location (with a cattleguard at the access road entrance) following the initial seeding. The fencing would reduce the potential of having to seed the location for a second time. The remaining long-term disturbance of 1.53 acres, used for production equipment and vehicle driving surfaces, is projected to have minimal impact to the general vegetation. This acreage would be reclaimed as directed by the COAs and the Forest Service, after final abandonment of the well.

An impact from the increased traffic, especially any interstate traffic, is the disbursement of noxious weeds. To assist in controlling noxious and invasive weeds, approximately 1.91 acres (non-working areas) of the proposed project would be seeded with FS approved certified seed. Following final abandonment, all disturbed areas would again be reseeded. It will be the responsibility of Energen Inc. to control and eradicate all noxious/invasive weeds within the proposed project area during the life of the project.

Public use of the proposed project area includes: grazing, hunting, and unorganized recreation activities. These activities also impact vegetation and usable fuel wood. The public has the potential to contribute to noxious weed distribution within the proposed project area and on the roads used to access the project area (FS roads 310 and 312) by the activities listed in this paragraph. The cumulative impacts to vegetation will be reduced with the mitigation measures outlined in this document.

Wildlife:

Threatened, Endangered or Sensitive Species

Three federally listed species could possibly occur within the Carson National Forest. They are the Bald Eagle (Haliaeetus leucocephalus), the Mexican Spotted Owl (MSO, Strix occidentalis lucida), and the Southwestern Willow Flycatcher (Empidonax traillii extimus). None of these species are known to occur within the vicinity of the proposed action. The Jicarilla Ranger District conducted a Biological Assessment and Evaluation (BAE) and Wildlife Specialist Report, on May 1, 2003 [PR #6].

The Bald Eagle (Haliaeetus leucocephalus), a federally listed threatened species, is found within the region during the winter from approximately November through March. There are no known nest sites within the surrounding vicinity. The closest known roost site is approximately three and one half miles from the proposed project area.

The Mexican Spotted Owl (MSO, Strix occidentalis lucida), a federally listed threatened species, is known to have nested on the Jicarilla Ranger District, but not within the proposed action vicinity. The closest potential Mexican Spotted Owl habitat is approximately six miles from the proposed project.

The Southwestern Willow Flycatcher (Empidonax traillii extimus), a federally listed endangered species, is not known or suspected to reside within the area of the proposed project. It is highly unlikely that the flycatcher would be found within the project area. There is no suitable habitat in the project area. The nearest confirmed occurrence of the species is on BLM land along the San Juan River below Navajo Dam, approximately 50 miles away.

Forest Service Region 3 Sensitive Species of primary concern for the region surrounding the project area are the Northern Goshawk (*Accipiter* gentiles) and the American Peregrine Falcon (*Falco peregrinus*). The nearest goshawk territory is over thirteen miles from the proposed project. No known northern goshawk nests are within the vicinity. The American peregrine falcon is also federally listed species of concern. It is a possible migrant or forager within the region. However, no peregrine falcons are known or suspected to use the marginal habitat of the vicinity. There is no suitable habitat for these birds in the project area.

A threatened, endangered and sensitive species plant survey was conducted in 1995. No threatened, endangered, Category 2 or FS Sensitive plants were found. No sensitive species plants of concern were identified during on-site inspections [PR #6].

NO ACTION – ALTERNATIVE A

The No Action alternative would not alter threatened, endangered, and sensitive species (none have been recorded in the proposed project area), or their potential habitats from their existing condition. Natural processes currently taking place will continue at present rate; soils will continue to erode, vegetation will continue to grow and die, livestock will continue to graze in the area, and animals will continue to inhabit the area.

PROPOSED ACTION – ALTERNATIVE B

Based on the Biological Assessment and Evaluation (BAE) [PR #6] no impacts to threatened and endangered or sensitive species or their habitats, under the Endangered Species Act of 1973, are anticipated from the proposed action. Additionally, the proposed action would not impact any known raptor nests. Other uses in the area of the proposed action, including the public uses, would have minimal impacts on potential threatened, endangered, sensitive, category 2 species or on species of concern. There are no anticipated effects by the proposed action to potential threatened, endangered, or sensitive species, or to their habitats. There will be no cumulative effects to threatened, endangered, sensitive, category 2 species or on species of concern species since none have been previously recorded to inhabit the area. There will be no cumulative effects to the potential habitats of threatened, endangered, sensitive, category 2 species or on species of concern since the nearest potential habitat is located approximately 3.5 miles away from the proposed project area. (see appendix A, [PR #6])

Management Indicator Species and Migratory Birds

The Carson Forest Plan [PR #2] identifies eleven (11) management indicator species (MIS) with suitable habitat on the Jicarilla Ranger District. MIS are those species selected during the planning process to monitor the effects of planned management activities on viable populations of all wildlife and fish species, including those that are economically important. The proposed action and immediate vicinity of the proposed project action area contains potential habitat for the following six (6) of the eleven listed

Management Indicator Species:

Management Areas	Management Indicator Species
Sagebrush	Brewer's sparrow (*Spizella breweri*)
Ponderosa pine, under 40%	Hairy woodpecker (*Picoides villosus*)
	Abert's squirrel (*Sciurus aberti*)
	Turkey (*Meleagris gallopavo*)
Piñon/Juniper	Plain titmouse (*Baeolophus (Parus) ridgwayi*)
Sagebrush, piñon/juniper, and Ponderosa Pine, under 40%	Elk (*Cervus elaphus*)

Other key wildlife species such as black bear (*Ursus americanus*) and mountain lion (*Felis concolor*) inhabit the area of the proposed action. A wide variety of migratory songbirds and neo-tropical migratory birds also use the proposed action vicinity. No MIS, migratory birds, or nesting birds were observed during the field inspections of the proposed action. [PR #5]

NO ACTION - ALTERNATIVE A

The No Action alternative would not alter the habitat requirements for MIS or Migratory birds from the existing condition. Natural processes currently taking place will continue at present rate. MIS and/or Migratory birds will continue to inhabit the area or conversely move out of the area, and the populations may increase or decrease depending on the available forage present.

PROPOSED ACTION – ALTERNATIVE B

Although some habitat for the MIS and migratory birds would be altered by the proposed action, all species are very mobile, and could easily move to and from the altered habitat. The area of habitat to be altered from the implementation of the proposed project would be approximately 3.43 acres. No overall population impacts to the MIS or their habitat, or migratory bird species are anticipated. To help protect wildlife, all pits would be fenced to exclude wildlife and livestock. Pits containing

petroleum would be netted to exclude all birds. If any impacts to MIS or migratory birds, their nests or eggs are observed at any time during the implementation of the proposed action, the FS will be immediately contacted and appropriate measures will be taken to mitigate the situation.

The Renewable Resources Planning Act (RPA), as amended by the National Forest Management Act (NFMA) required the preparation of the Carson Forest Plan [PR #2]. All subsequent activities on the Carson National Forest, Jicarilla Ranger District, are to be based and consistent with the NFMA and the Carson Forest Plan. This consistency includes the protection of MIS species viability, and their habitat. Based on the BAEs [PR #6], the on-site investigation of the proposal, and any appropriate future mitigation; the proposed action has been determined to be consistent with the current Forest Plan and the NFMA. Also based on the BAEs, on-site examination, the proposed action would not violate any federal, state or local law or other requirements imposed for the protection of the environment, including the Endangered Species Act (ESA) and the MBTA.

Other human activities within the area of proposed project area include hunting, general public recreation, firewood gathering, and livestock grazing operations. These activities are not anticipated to effect or impact any Management Indicator Species or migratory bird species as stated in the BAE. Cumulative effects to these species will be reduced with the preventative actions of fencing and netting of the pits.

Grazing Wildlife

The vicinity of the proposed action provides habitat for deer and elk, both migratory and resident. The entire Jicarilla Ranger District and the proposed action area are within a designated big game winter range. During winter, there is a large influx of big game, depending on the weather conditions. The majority of big game move onto the District in late October and November, and leave in April or May. There are no designated

areas or seasonal restrictions for big game fawning, calving or breeding within the Jicarilla Ranger District.

NO ACTION – ALTERNATIVE A

The No Action alternative would not alter any habitat for grazing wildlife. Natural processes currently taking place will continue at present rate; wildlife will continue to migrate through and graze the available forage in the area.

PROPOSED ACTION – ALTERNATIVE B

The proposed action would alter 3.43 acres of available wildlife habitat and forage. The proposed action is within a sagebrush vegetation community with piñon/juniper in the immediate surrounding area. There are Ponderosa Pine trees (under 40%) scattered throughout the piñon/juniper. La Baca Tank lies approximately 1 mile south of the proposed project. Approximately 1.91 acres of disturbance will be revegetated with the approved FS seed mixture (appendix H, COA), therefore, wildlife forage loss will be reduced. Establishment of this vegetation would take one to two growing seasons, regaining some of the wildlife forage loss. Reestablishment of vegetation is considered successful when the disturbed soil has been stabilized (no evidence of active soil erosion, i.e. no rills, sheet, gullies, etc.). If the initial seeding is not successful, reseeding would continue until the seeded vegetation is established. During well production, approximately 1.53 acres of long-term loss would be realized on the well pad and access road, for equipment and vehicle traffic areas. Upon final well abandonment, this acreage would be revegetated as directed by the COAs and the Forest Service. The impacts of the proposed action on grazing wildlife would be mitigated through a number of measures incorporated into the proposal and are as follows:

- A winter range restriction (closure) from November 1st through April 1st, would apply to the proposed action, greatly decreasing stress and therefore, impacts to all wintering wildlife. The winter closure of the area for wintering big game has been determined to be the most critical season for the restriction of human activity.

• Standard mitigation measures associated with construction, drilling, or production of the proposed well would be pit fencing, assuring all production fluids and other hazards are inaccessible to wildlife.
• Revegetation of all disturbed areas with the seed mixture that includes wildlife preferred species. Seed mix listed in appendix H in COA under Reclamation Requirements.

Impacts from other activities would include hunting, firewood gathering, livestock grazing and unorganized public recreation in the proposed action area. Some of these activities would impact wildlife by decreasing forage and habitat availability. Based on past experience and similar actions on the District, the cumulative effects to wildlife will be minimal.

Range:

The proposed action is within the Forest Service, Vaqueros Allotment. The current allotment permit for grazing cattle is from May 16th to October 15th. The proposed action is in a sagebrush vegetation community that is surrounded by piñon/juniper woodland vegetation community that has Ponderosa Pine (less than 40%) scattered throughout the woodlands. The sagebrush provides an understory of grasses for grazing livestock. A man-made pond is located between the proposed well pad and the existing road. La Baca tank lies approximately one mile south of the proposed well pad. Both watering sources periodically supply livestock with water. Livestock forage within the proposed well pad location is minimal with sparse grasses under the sagebrush and piñon/juniper.

NO ACTION - ALTERNATIVE A

The No Action alternative would not alter any of the range conditions or grazing activities from their existing condition. Natural processes currently taking place will continue at present rate; livestock and wildlife will continue to graze and forage in the area.

PROPOSED ACTION - ALTERNATIVE B

It is estimated that the proposed action area supports 12 acres per Animal Unit Month (AUM). Therefore, the removal of approximately 3.43 acres from the proposed action would remove 0.29 of an AUM. Approximately 1.91 acres of the disturbed areas would be revegetated. The reclamation of approximately 1.91 acres for the proposed action would restore approximately 0.21 AUMs. After drill operations, establishment of vegetation is expected to take two growing seasons, which could result in approximately 0.58 AUM over a 2-year period. If the initial seeding was not successful, reseeding would continue until the seeded vegetation is established. Re-establishment of vegetative cover is expected to take one to two growing seasons depending on precipitation. Reestablishment of vegetation is considered successful when the disturbed soil has been stabilized (no evidence of active soil erosion, i.e. no rills, sheet, gullies, etc.) and/or 70% of the existing vegetation. If vegetation cannot be re-established due to heavy grazing, the U. S. Forest Service may require the well pad to be fenced, with a cattleguard at the entrance, until successful revegetation is achieved. During well production, approximately 1.53 acres of long-term loss would be realized on the well pad and access road, for equipment and vehicle traffic areas. Upon final well abandonment, this acreage would be revegetated as directed by the Forest Service, retrieving this forage loss. Reserve pits will be fenced and all hazardous materials will be contained in storage tanks in order to minimize the potential hazards to livestock and wildlife.

The cumulative disturbance of 61.84 acres for a one-mile radius (reasonable foreseeable future disturbance and proposed action) would result in the loss of 2.79 AUM's per year. The cumulative disturbance is based on current spacing requirements for Fruitland Coal wells within one section. Successful revegetation may result in an overall AUM increase and therefore, a benefit to livestock because of the increase of palable forage species. Cumulative impacts to livestock grazing from implementing the proposed project will be reduced with the mitigation measures of reclaiming disturbed areas, installation of fences over pits, and installing cattleguards to restrict cattle in potentially harmful areas.

Cultural Resources:

Cultural history of the San Juan Basin spans time from the Paleo-Indian Period to the present. There are numerous sites recorded in San Juan Basin. Sites of the Archaic Period, the Ancestral Puebloan Period, and the Navajo Period are found in the basin. Ute raiders occasionally made forays into the basin. A few sites associated with these visitations have been documented (no record of Ute raiders in the Carson Forest) in the San Juan Basin. In the 1870's, northern New Mexico was settled by Euro-Americans. Euro-American sites primarily represent farming and ranching, as well, as the towns that evolved to supply service needs of the settlers. Several historic sites in the basin contain evidence of multi-component, multi-cultural occupation.

San Juan College Cultural Resources Management Program conducted intensive, 100% Cultural Resources Surveys for the well pad, access road, well-tie pipeline, associated construction, and cultural buffer zones . Surveys of the proposed project location were conducted on August 19, 23, and October 8, 2002. Prior to fieldwork, a literature review was conducted at the Carson National Forest, Jicarilla Ranger District Office and the New Mexico Cultural Resource Information System files at the Laboratory of Anthropology were searched. These file searches indicated no documented sites within a one half (0.5) mile radius of the proposed project. [PR #8]

During the surveys, no isolated finds nor heritage sites were identified. A complete cultural resources inventory report has been submitted to the Forest Service for review and approval. The proposed action will not impact any known cultural sites or traditional cultural properties. All final decisions on the management of cultural resources would come from the Forest Service, with concurrence of the New Mexico State Historic Preservation Officer (NM SHPO), as outlined in the Programmatic Agreement Regarding Cultural Historic Property Protection and Responsibilities, known as the Region 3 PA.

Consultation was conducted with 15 Native American Tribes and Pueblos [PR #10]. There were no responses, or objections to the proposed action in regards to cultural sites or traditional cultural properties.

NO ACTION - ALTERNATIVE A

The No Action alternative would not alter heritage resources from their existing condition. Natural processes currently taking place will continue at the present rate. Cultural sites will continue to be disturbed by humans and will continue to be exposed due to soil erosion, etc.

PROPOSED ACTION - ALTERNATIVE B

No cultural resources were identified during the surveys, however, if any cultural materials were encountered during the construction phase of the proposed action, the contractor would immediately stop all construction activities and notify the Forest Service. The FS would then evaluate the cultural materials in consultation with the NM SHPO. Should a site be evaluated as eligible for inclusion on the National Register of Historic Places, it would be treated in the proper manner to mitigate any effects of construction, according to the guidelines set by the Forest Service and NM SHPO. Mitigation strategies have been and would continue to be required to protect sites adjacent to the proposed action area.

Construction, drilling, and development of the well would result in increased human access and activity in the area. A potential indirect effect from the proposed action is the increased use of the vicinity and consequently the likelihood of removal of, or damage to cultural artifacts. The increase in human activity of the area increases the possibility of irretrievable loss of information pertaining to the cultural past of the project region. Conversely, the benefits to cultural resources derived from the proposed action are the cultural and historic survey that adds to literature, information and knowledge of these irreplaceable resources.

Each of the existing, proposed action, and potential energy proposals would have very similar impacts to cultural resources as described for the proposed action. Other public uses of the land including livestock grazing, recreation, firewood gathering, and hunting have potential negative impacts to cultural resources. No cumulative impacts are expected to cultural resources since none were encountered during the three surveys that were conducted in the proposed project area.

Recreation:

The surrounding area of the proposed action is nationally known for the seasonal hunting of big game species. Hunters and other forest users have been known to drive off designated roads, which may cause temporary damage to soil and vegetation. Although no developed recreation sites are within the vicinity, the public utilizes the forest to enjoy picnics, various scenic travels, viewing wildlife, and other various recreation activities.

NO ACTION - ALTERNATIVE A

The No Action alternative would not alter any of the recreation activities from their existing condition. Natural processes currently taking place will continue at present rate; hunters and the public will continue to utilize the area.

PROPOSED ACTION - ALTERNATIVE B

The proposed action would increase traffic on a short-term basis, during construction, drilling and abandonment phases of the well. There would be a minor long-term increase in road traffic during the production phase of the well. Traffic increases on existing roads, would result in increased exposure to potential hunters to the area and consequently may create a higher population of hunters during hunting season.

Increased traffic during the construction, drilling and abandonment phases of the proposed action would have direct impacts to recreation activities of hunting, picnics, scenic travels, viewing wildlife, collecting firewood, and other various activities. Following initial reclamation, and during the well production phase, traffic to and from

the location will be reduced thus reducing impacts to recreation. The addition of another road in the forest will further decrease the unroaded areas that are in high demand for recreation opportunities for the public. Roaded areas still may have qualities of naturalness that are conductive to sightseeing, however, the roaded areas lack the distinctive scenery that would make recreation a dominant activity. The construction of another road will have direct cumulative impacts on recreation. (USFS 1986)

Visual Quality:

The proposed action would not be visible from any highway, county road, or designated recreation area. The Jicarilla Ranger District does not have visual quality objectives defined for the vicinity of the proposed action. Vistas include views of existing roads, livestock ponds, and existing gas wells.

NO ACTION - ALTERNATIVE A

The No Action alternative would not alter the visual quality from the existing condition. Natural processes currently taking place will continue at present rate. The dynamics of the environment will continue to occur.

PROPOSED ACTION - ALTERNATIVE B

During well pad construction activities, heavy equipment, machinery emissions, and disturbed ground would result in moderate, short-term visual impacts in the proposed action area. During drilling and completion of the well, the drilling rig and rig tower would result in moderate, short-term visual impacts within the immediate vicinity.

The duration of visual impacts would be minimized by rapid construction and drilling of the well, site restoration, re-contouring, seeding, and revegetation. Surface facilities would be painted to blend into the surrounding ecosystem. The color of paint to be used will be Juniper Green-Federal Standard 595a-34127. Safety equipment will be painted the appropriate colors. After drilling and completion, the above ground well and

pipeline facilities, including storage tanks, meter-run, and separator, would result in a low, long-term visual impacts.

Cumulative impacts on visual resources would be minimal; the proposed project is similar to many other oil and gas well development throughout the Carson Forest. Each of these existing, proposed action, and potential energy proposals would have very similar impacts to visual resources as described for the proposed action.

Public Health and Safety:

All worker safety is governed by Occupational Safety and Health Administration (OSHA) safety laws and regulations. Worker safety incidents must also be reported to the BLM under the procedures of Notice to Lessees (NTL)-3A. Pipeline safety regulations are administered by OSHA as well as Department of Transportation (DOT) regulations. Pipeline safety regulations (49 CFR Parts 190 and 192) govern design, construction and operation of gas transmission lines. Any incidents involving DOT-regulated pipelines must be reported under these regulations.

Most substances and wastes generated at oil and gas facilities are exempt from regulation under the Resource Conservation and Recovery Act (RCRA). The Environmental Protection Agency (EPA) and DOT regulate materials associated with well construction and production activities that are classified as hazardous. When significant amounts of chemicals are stored on-site, governmental agencies will be notified as required under the Emergency Planning and Community Right to Know Act. The notification of releases such as natural gas, natural gas liquids, and petroleum, outside the facility site is required under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) and under BLM NTL-3A. Additionally, Spill Control Prevention and Countermeasures (SPCC) may be required and enforced by the EPA, for sites that could impact navigable waters of the United States. The well location must have an informational sign, as directed under 43 CFR 3160.

NO ACTION - ALTERNATIVE A

The No Action alternative would not cause any public or worker health or safety issues. The public is in the Forest at their own risk and the company workers in the area of the proposed project will not have any further health or safety issues than they currently have associated with their job and the area.

PROPOSED ACTION - ALTERNATIVE B

Public health and safety pertaining to the proposed action of oil and gas development includes the issues of worker-related safety; public health and safety associated with: construction, drilling and operating the well. Hazards to the public would include (but not limited to): generation, handling, storage, and disposal of hazardous and non-hazardous materials and wastes, spills of wastes, chemicals, or condensate; and potential well or pipeline failures. Because the proposed action would take place in a remote area with restricted public access, effects of the proposed action would be the above-mentioned risks to company employees and subcontractors.

Air Quality:

The air quality of a geographical area is controlled primarily by the magnitude and distribution of pollutant emissions and the regional climate. The transport of pollutants from specific source areas is strongly affected by local topography. In the mountainous western United States, topography is particularly important in channeling pollutants along valleys, creating upslope and down slope circulations which entrain airborne pollutants, and blocking the flow of pollutants toward certain areas. In general, local effects are superimposed on the general synoptic weather regime and are most important when the large-scale wind flow is weak.

Emissions from producing gas wells can be classified as one of three general types of emissions (Kirchgessner, Lott, Cowgirl, Harrison, and Shires, Estimate of Methane Emissions From the U.S. Natural Gas Industry, updated) [PR #16]: (1) fugitive emissions; (2) vented emissions; (3) combustion emissions. Fugitive emissions are unintentional leaks emitted from sealed surfaces such as packings and gaskets or leaks

from underground pipelines. Vented emissions are releases to the atmosphere by design or operational practice. Examples of vented emissions include: emissions from continuous process vents such as dehydrator reboiler vents, maintenance practices such as blow downs, and small individual sources such as gas operated pneumatic device vents. Combustion emissions are exhaust emissions from combustion sources such as compressor engines, burners, and flares. This report estimates annual methane loss rates as reported by a number of different sources as ranging from 1 to as much as 10 percent. No accurate forecast of emissions from this well are possible as each well is different.

Even though specific air quality monitoring is not conducted throughout the area, air quality conditions are likely to be very good, as characterized by limited air pollution emission sources (few industrial facilities and oil and gas activity in the area) and good atmospheric dispersion conditions, resulting in relatively low air pollutant concentrations. Known contributors to pollutant levels within the Forest include the following: exhaust emissions primarily carbon monoxide [CO], and oxides of nitrogen [No_{2x}]) from existing compressor engines used in production of natural gas; vehicle tailpipe emissions of combustion pollutants (CO, No_{2x}, particulate matter less than ten microns in effective diameter [PM_{10}], and sulfur dioxide [SO_2]); and dust (particulate matter) generated by vehicle travel on unpaved roads and windblown dust from neighboring areas.

NO ACTION - ALTERNATIVE A

The No Action alternative would not alter air quality from the existing condition. Natural processes currently taking place will continue at present rate; car emissions, emissions from existing well pad compressors, etc.

PROPOSED ACTION - ALTERNATIVE B

Energen Inc. will use state of the art technology to minimize the release of gas to the atmosphere. Average gas composition of released gas into the atmosphere is Nitrogen (N2) -.232%, Carbon Dioxide (C02) -.945%, Methane (CH4) –83.723 and Ethane thru Heptane (C7h16) –15.101%. Total estimated volume vented for wells for a ten (10)

month period equates to approximately .0011% of total volume, while natural gas lost to loose fittings, leaking seals etc. are estimated at less than one (1) MCF per month.

A lease operator visits each well every day and checks on operations to fix or call to have fixed any problems that are found. Per manufactures data, emissions from the burners are expected to be 100 PPM NOX (.1197 lb per million btu) or less 100 PPM CO (.0722 lb per million btu) or less. Note that the burners are seasonal and are used only during cold weather periods (October to April) to prevent freezing of tank/separator contents and aid in gas/liquid separation. Natural gas usage during this time is 1 MCF per day. No wellhead compressor is planned for this well.

The cumulative emissions fall well below the maximum 25 TPY of a regulated pollutants per the above discussion from the methane study. The proposed action would be within all legal standards for air quality, as designated by Region VIII of the Environmental Protection Agency (EPA). Air shed pollution sources are a complex combination of vehicles, electrical power generation in the San Juan Basin, oil and gas refineries and compressor stations. Air quality standards in New Mexico are under the jurisdiction of the New Mexico Environment Department/ Air Quality Bureau (NMED/AQB). It is not anticipated that the proposed action would require any air quality permits. Vehicle traffic, construction, drilling procedures, and reclamation activities would increase the levels of dust and air pollution during these phases of the proposed action. If necessary, dust levels would be mitigated by spraying fresh water, only under the direct supervision of a USFS Representative. Any decrease in air quality is expected to be low and short-term. During production, air quality permits, if required, would be administered by the NMED/AQB. It is anticipated that the proposed action should have a low cumulative impact to local air quality for the long-term production phase.

CHAPTER 4 -- AGENCIES AND PERSONS CONSULTED

The following agencies and individuals contributed to the preparation of this document:

BLM, Farmington Field Office

Jicarilla Ranger District
Energen Resources Corporation

The environmental document was prepared by Nelson Consulting, Inc. to the US Forest Service standards and under the direction of the US Forest Service. A scoping letter and, a request for comments on the proposed action were sent to the following agencies, tribes and individuals:

Pueblo of Picuris

Pueblo of Pojoaque
Pueblo of San Ildefonso
NM Wilderness Alliance
Forest Conservation Council
Forest Guardians
Pueblo of Tesuque
Jicarilla Apache Tribe
The Navajo Nation
New Mexico Department of Game and Fish
National Resource Conservation Service
US Fish and Wildlife Service
Preservation Ute Mountain Ute Tribe
Pueblo of Jemez
Pueblo of Nambe

Comanche Tribe of Oaklahoma
Biodiversity Legal Fund
Native Forest Network, SW Rep.
NM Environmental Law Center
NM Wilderness Alliance
Rio Arriba County Commissioners Conservation Committee

Taos County Planning Dept.
Western Environmental Law Center
Western Network
Cliff Bain
Carson Forest Watch
Sierra Club Nt. Forest Campaign
Bonnie Bonneau
Don Conklin
NM Cattlegrowers Assoc.
Deertrack and Assoc.
La Compania Ocho
Sonoran Bioregional Diversity
Bill & Beth Gibson, Jr.

SW Center for Biological Diversity

Hopi Tribe
Pueblo of San Juan
Pueblo of Santa Clara
Pueblo of Taos

Pueblo of Zuni
San Juan Citizens Alliance
Southern Ute Indian Tribe
New Mexico Environmental
Navajo Nation Historic Program

Carson National Forest
State Historic Preservation Office

BIA – Northern Pueblos Agency
Colfax County Manager
NM State Library
NM State Forestry
NNM Stockmans Assoc.
Rio Arriba County Planning Office
Taos County Chamber of Commerce
Tricon Timber Company
Western Land Exchange
Wallowa-Whitman NF
Olguin's Firewood & Sawmill
US Senate
Bruce Bolander
Sipapu Ski Area
Max Cordova
Barbara & Duke Cozart
Forest Products Assoc.
Eight N. Pueblos
Jock Fleming
NMSU Coop. Service

Madera Forest Products
Forest Trust
Audubon Society
James Hines
Keith Howard
NMED Air Quality Bureau
Tanya Leherlssey
Marco Lowerstein
Robert Malchie
Tom McKinney
USDA/ FS SW Region
Frederick Peralta
White Mountain Apache Tribe
BLM- Taos Office
David Richerson
Ben Sanchez
Randy Scholfield
Bates Lumber
Bob Stewart
NM Farm & Livestock Bureau
Las Comunidades
Quivira Coalition
Continental Divide Trail Society
Gustin Enterprises
College of Natural Resources
Mike Hildner
Forest Guardians
Common Ground
URS
Paul & Susan Lisko
ENSR Consulting
RioPueblo
Tim Mylet
Louise Pasaka
NM Natural History Institute
Taos Outdoor Rec. Assoc.
Barry Rhea
Sandra Samora
Laura Schneberger
Amigos Bravos
Jeffery Stebbins
Larry Temple
US House of Rep.
Mark Werkmeister
Sannon Williams

APPENDICES

APPENDIX A

PROJECT RECORD INDEX

Doc. #	DATE	DOCUMENT	AUTHOR	RECEIVED BY
1	1972	Lease NMNM 014922	BLM	Found at Jicarilla RD office
2	10/31/86	Carson Forest Plan	FS, Carson NF	Found at any Carson NF office
3	08/87	Terrestrial Ecosystems Survey of the Carson NF	FS, Carson NF	Found at any Carson NF office
4	1999	Draft Notice to Lessees (Noise Policy)	BLM, Farmington Field Office	www.nm.blm.gov See "Additional News"
5	05/16/02	On-site Field Notes	FS, District Minerals Staff	Project File
6	05/16/02	Biological Assessment & Evaluation	FS, District Biologist	Project File
7	6/01/02	Quarterly SOPA & Mailing List	FS, Carson NF	Project File & Mailing List
8	11/21/02	Inventory standards & Accounting Form for report 2002-02-102	San Juan College Cultural Resources Management Program	FS District Archeologist
9	09/19/02	Scoping Letter and mailing list	FS, District Ranger	Project File & Mailing List
10	9/19/02	Tribal Scoping Letter and Mailing List	FS, District Ranger	Project File & Mailing List
11	08/02	Surface Use Plan of Operations	Company	FS District Minerals Staff
12		New Mexico Oil Conservation Division (NMOCD) spacing rules	NMOCD	FS, District Ranger
13		Approved FS Seed Mixture		FS, District Ranger
14		Noxious Weed Act		FS, District Ranger
15		Estimate of Methane Emissions From the U.S. Natural Gas Industry, updated	Kirchgessner, Lott, Cowgirl, Harrison, and Shires,	FS, District Ranger
16		Terrestrial Plant Ecology	Barbour, et.al.	FS, District Ranger

APPENDIX B

COMMON ACRONYMS

APD- Application for Permit to Drill

AUM- Animal Unit Month

BAE-Biological Assessment and Evaluation

BLM- Bureau of Land Management

CEQ- Council of Environmental Quality (regulations)

CERCLA- Comprehensive Environmental Response Compensation and Liability Act

CFR-Code of Federal Regulations

COA- Conditions of Approval

Dbh – Diameter breast height

DCA- Division of Conservation of Archaeology

DN- Decision Notice

DOT- Department of Transportation

EA- Environmental Assessment

EIS- Environmental Impact Statement

EPA- Environmental Protection Agency

FEMA- Federal Emergency Management Act

FNL- from the North Line

FONSI- Finding of No Significant Impact

FS-Forest Service

FWL- from the West Line

MBTA- Migratory Bird Treaty Act

MIS- Management Indicator Species

MSO- Mexican Spotted Owl

NEPA-National Environmental Policy Act

NFMA-National Forest Management Act

NMED/AQB- New Mexico Environmental Dept/ Air Quality Bureau

NMOCD- New Mexico Oil Conservation Division

NMPM- New Mexico Principal Meridian

NTL- Notice to Lessees

OSHA- Occupational Safety & Health Administration

PAC- Protected Activity Center

PR- Project Record Index

RCRA- Resource Conservation & Recovery Act

ROW- Right-of-Way

RPA- Resources Planning Act

SHPO- State Historic Preservation Office

SOPA- Schedule of Proposed Actions

SPCC- Spill Control Prevention and Countermeasures

SUP- Special Use Permit

Surface Plan- Surface Use Plan of Operations

TES- Terrestrial Ecosystem Survey

USDA- US Department of Agriculture

USDI- US Department of the Interior

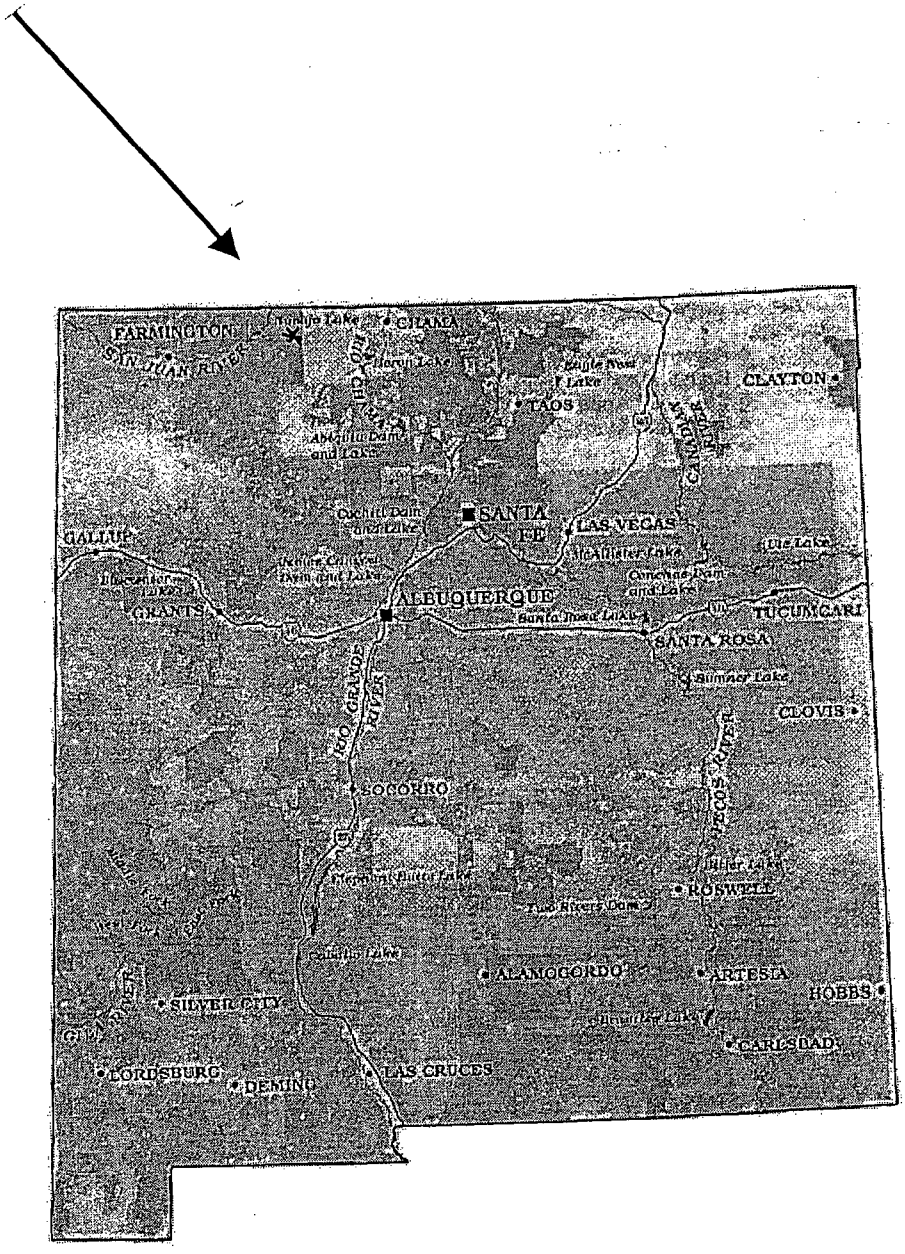
ENERGEN- Energen Resources Corporation

APPENDIX C

VICINITY MAP

Vicinity Map

Energen 30-4 #28B
Well Pad, Access Road, and Well-tie Pipeline
T30N, R4W, Section 31: 660 FSL, 660 FEL
Rio Arriba, County, New Mexico, N.M.P.M.

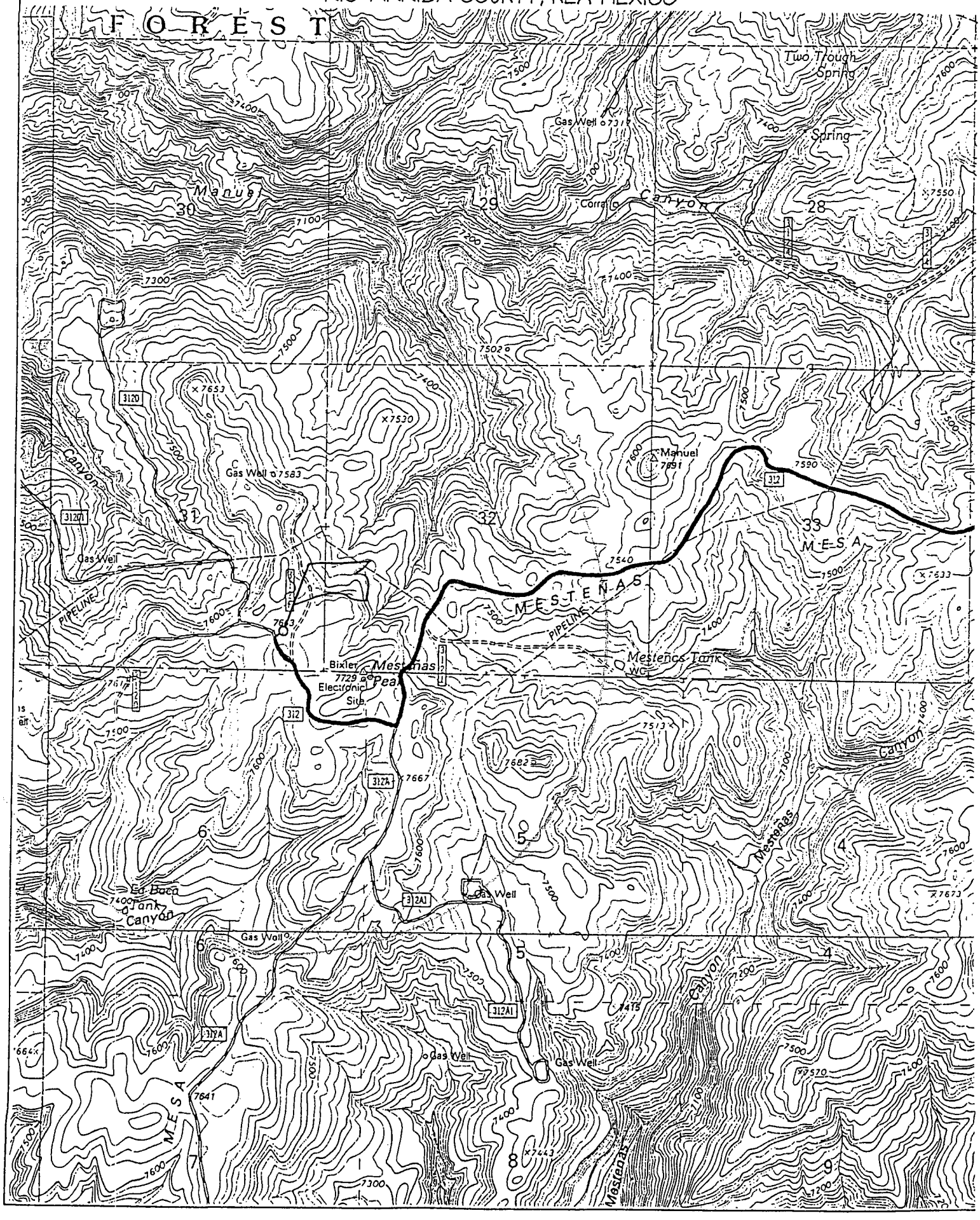


APPENDIX D

TOPOGRAPHIC SITE MAP

ENERGEN RESOURCES CORPORATION SAN JUAN 30-4 UNIT #28B

660' FSL & 660' FEL, SECTION 31, T30N, R4W, N.M.P.M.
RIO ARRIBA COUNTY, NEW MEXICO



APPENDIX E

PLATS OF LOCATION

District I
PO Box 1980, Hobbs, NM 88241-1980

District II
PO Drawer DD, Artesia, NM 88211-0719

District III
1000 Rio Brazos Rd., Aztec, NM 87410

District IV
PO Box 2088, Santa Fe, NM 87504-2088

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

Form C-102
Revised February 21, 1994
Instructions on back
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name
	72319	BLANCO MESAVERDE

[4] Property Code	[5] Property Name	[6] Well Number
	SAN JUAN 30-4 UNIT	28B

[7] OGRID No.	[8] Operator Name	[9] Elevation
162928	ENERGEN RESOURCES CORPORATION	7667'

[10] Surface Location

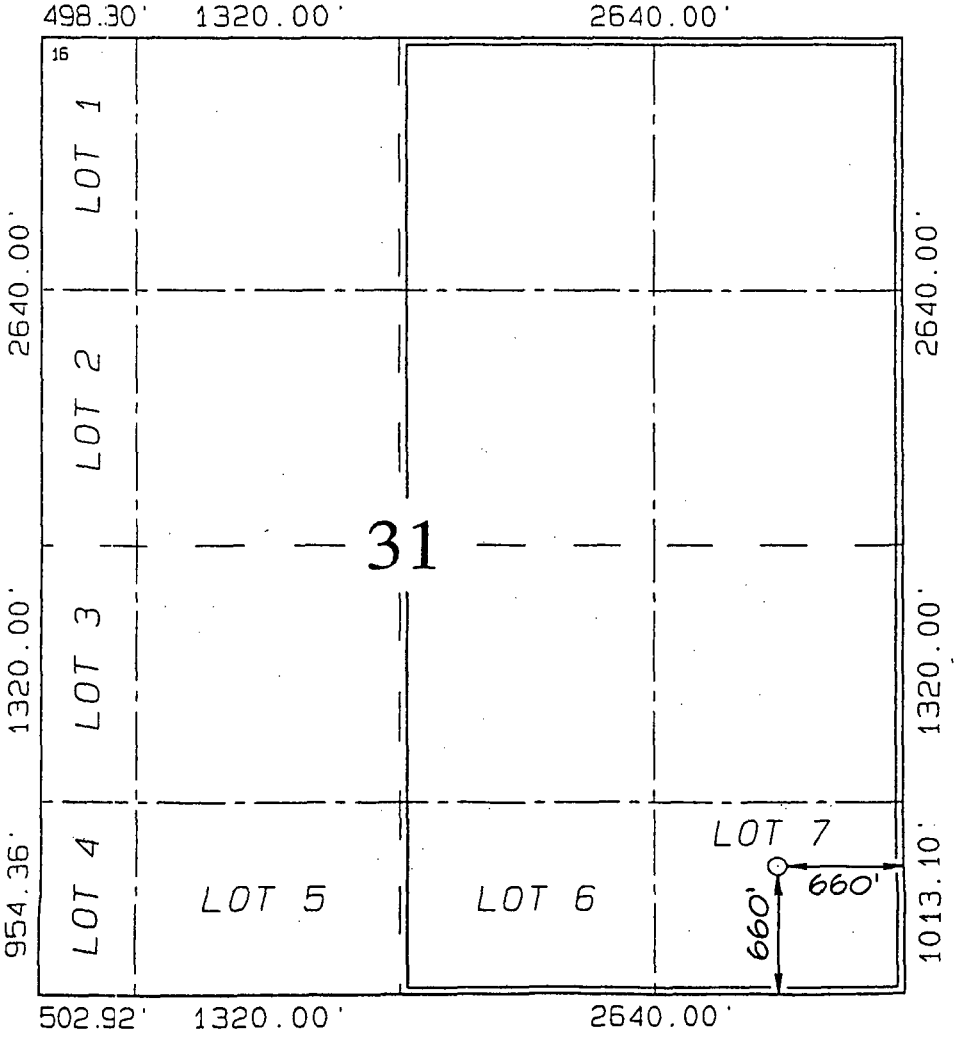
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	31	30N	4W		660	SOUTH	660	EAST	RIO ARRIBA

[11] Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
300.36 Acres - (E/2)			

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



[17] OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief

Signature

Don Graham

Printed Name

Production Superintendant

Title

Date

[18] SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief:

Survey Date: AUGUST 12, 2002

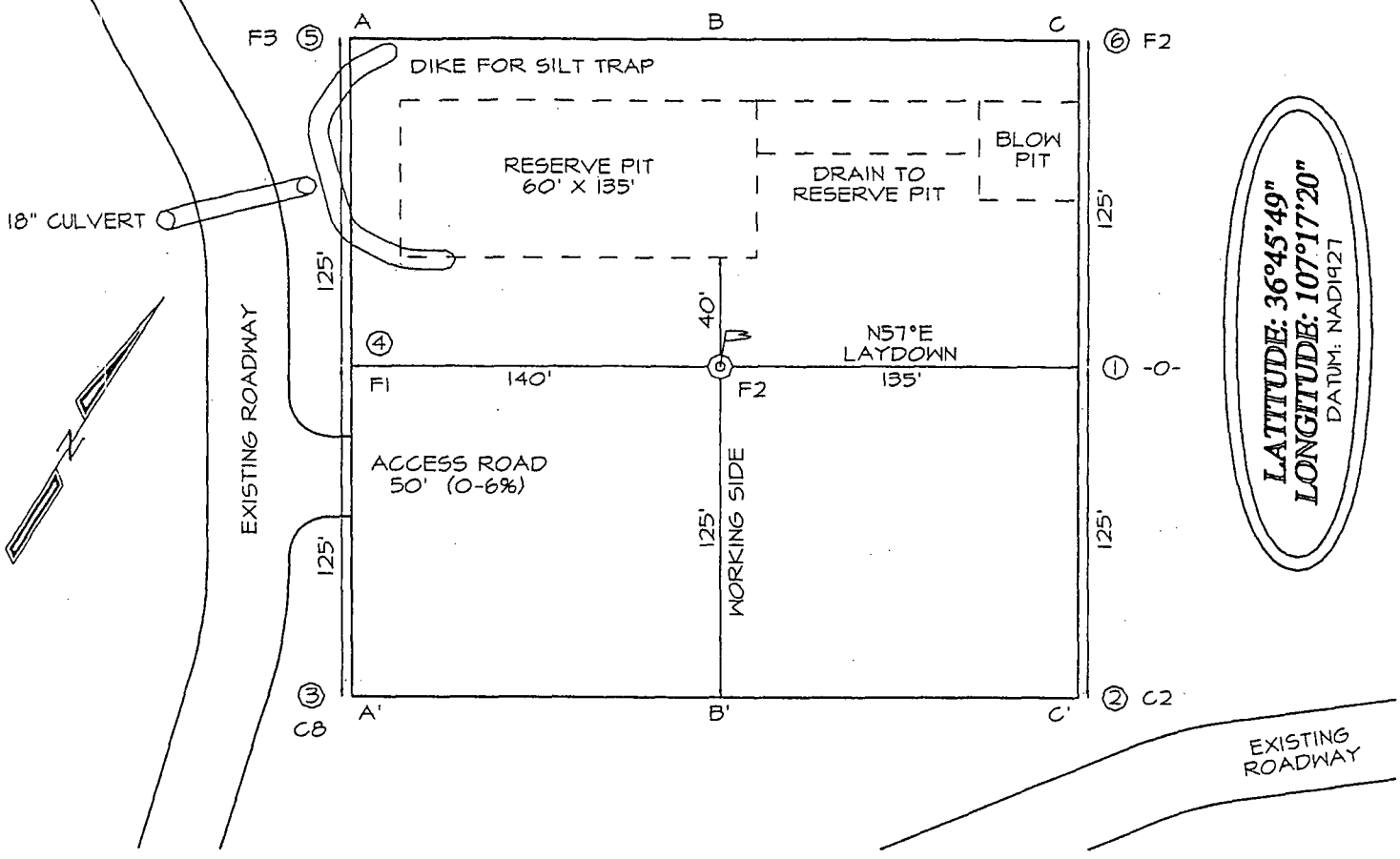
Signature and Seal of Professional Surveyor

JASON C. EDWARDS
NEW MEXICO
15269
REGISTERED PROFESSIONAL SURVEYOR

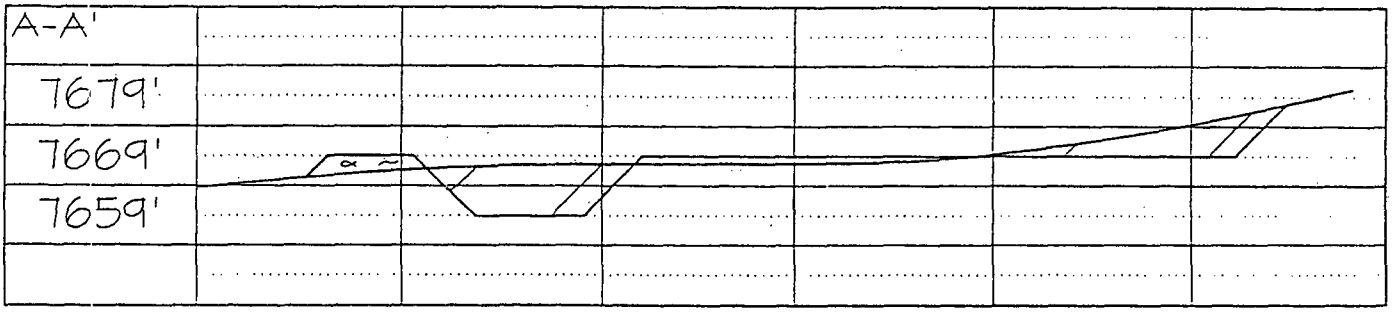
JASON C. EDWARDS

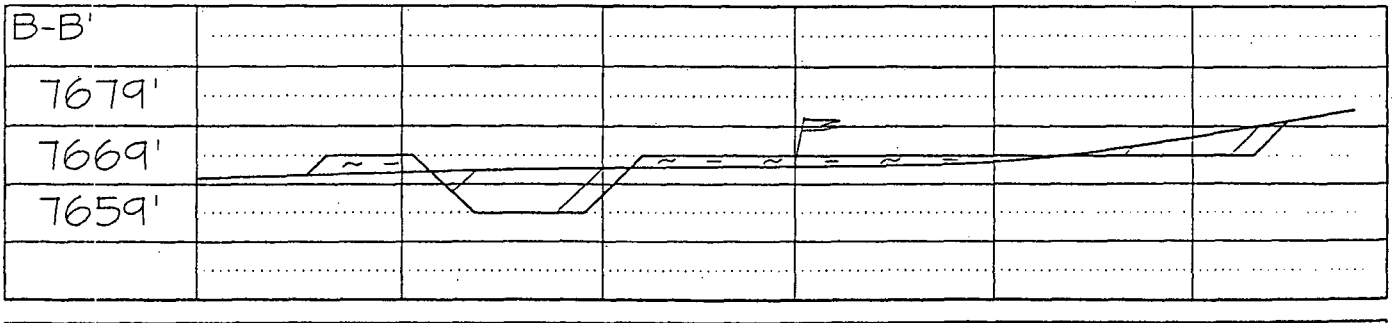
Certificate Number 15269

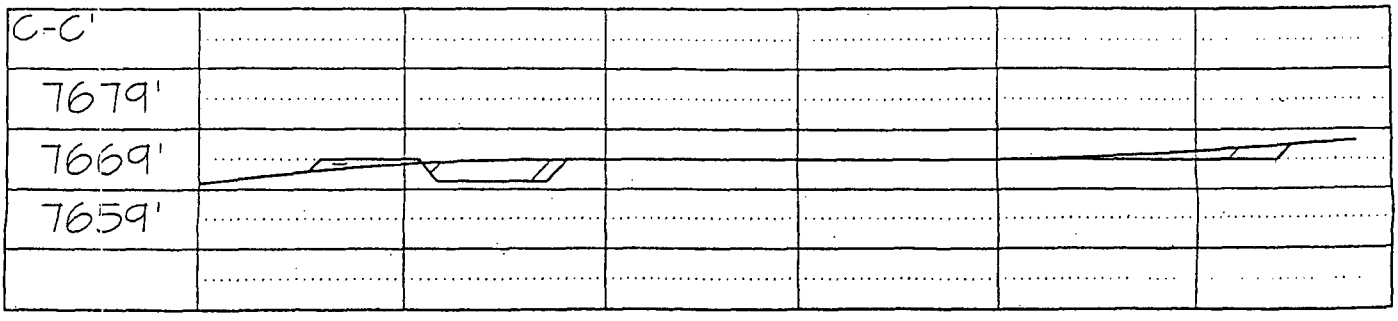
ENERGEN RESOURCES CORPORATION SAN JUAN 30-4 UNIT #28B
660' FSL & 660' FEL, SECTION 31, T30N, R4W, NMPM
RIO ARRIBA COUNTY, NEW MEXICO GROUND ELEVATION: 7667'



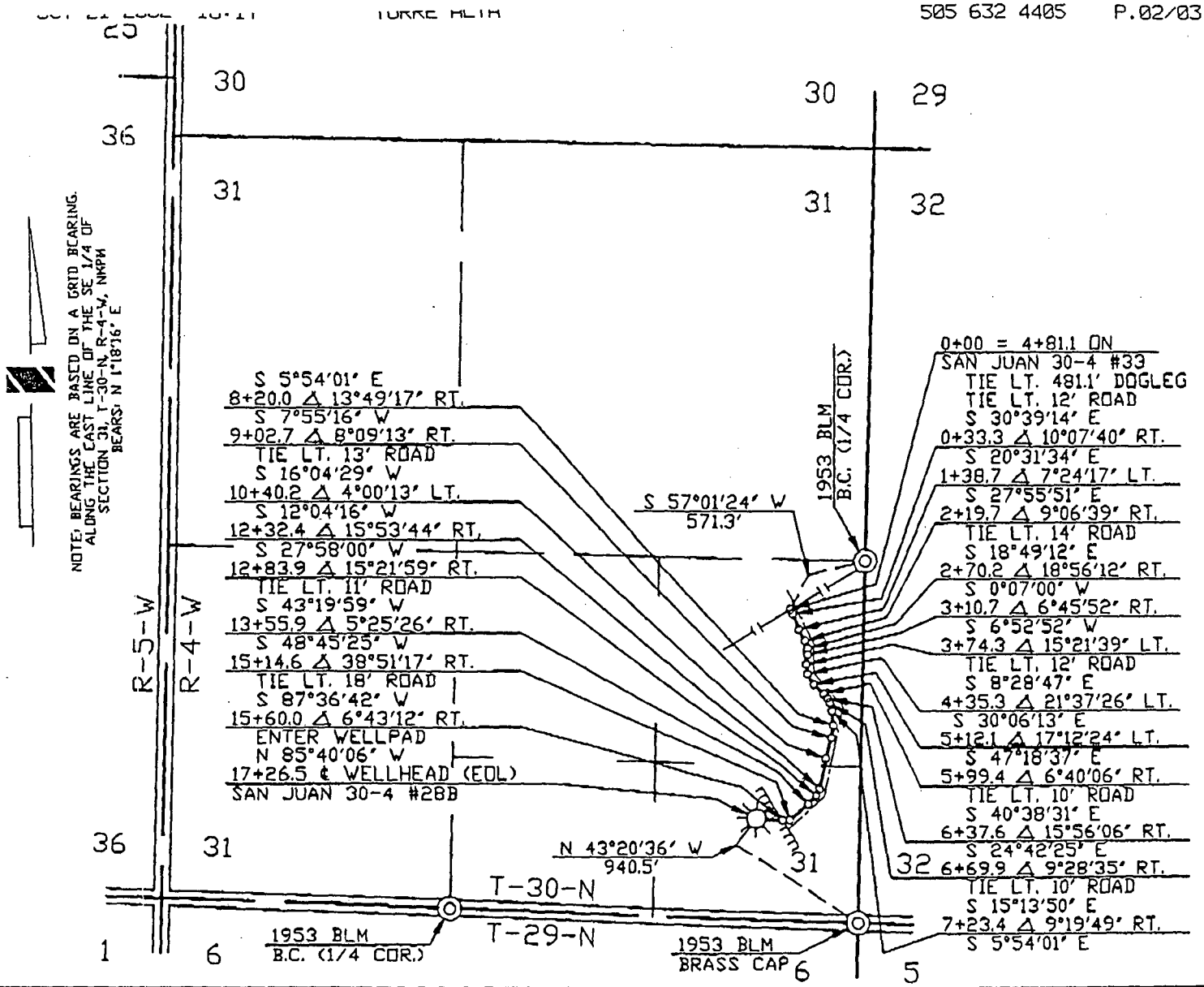
LATITUDE: 36°45'49"
LONGITUDE: 107°17'20"
DATUM: NAD1927







FILENAME: 30431PT	SHEET 2 OF 3	NCE SURVEYS, INC.	DRAWN BY: SLE	CHECKED BY: JCE



PIPE DATA

OWNERSHIP

SUBDIVISION	OWNER	FEET	MILES	ACRES	RODS
0+00 TO 17+26.5	CARSON NATIONAL FOREST	1726.5	0.327	1.585	104.636

REVISION

NO.	DATE	BY	DESCRIPTION	W.O.NO.	CHK.	APP.
1	10/17/02	SRB	ISSUED FOR REVIEW	17313	PB	

NO.	DATE	BY	DESCRIPTION	V.O.NO.	CHK.	APP.

INFO		DRAFTING	BY	DATE
R/W #:	05195	DRAWN BY	SRB	10/17/02
METER #:		CHECKED BY	PB	10/18/02
SURVEYED:	9/30/02	APPROVED BY		
		ENGINEER	BY	DATE
		DESIGNED BY		
		PROJ. APPROVED		

STATE: NEW MEXICO
COUNTY: RIO ARRIBA

WILLIAMS GAS PROCESSING
ONE OF THE WILLIAMS COMPANIES

SAN JUAN GATHERING SYSTEM
ENERGEN - SAN JUAN 30-4 #28B
0+00 = 4+81.1 ON SAN JUAN 30-4 #33
(REF DWG. 6M765.0-4-1)
SEC. 31, T-30-N, R-4-W, NMPM

SCALE: 1" = 1000'
W.O. NO. 17313

DWG NO. 6M765.0-28-1

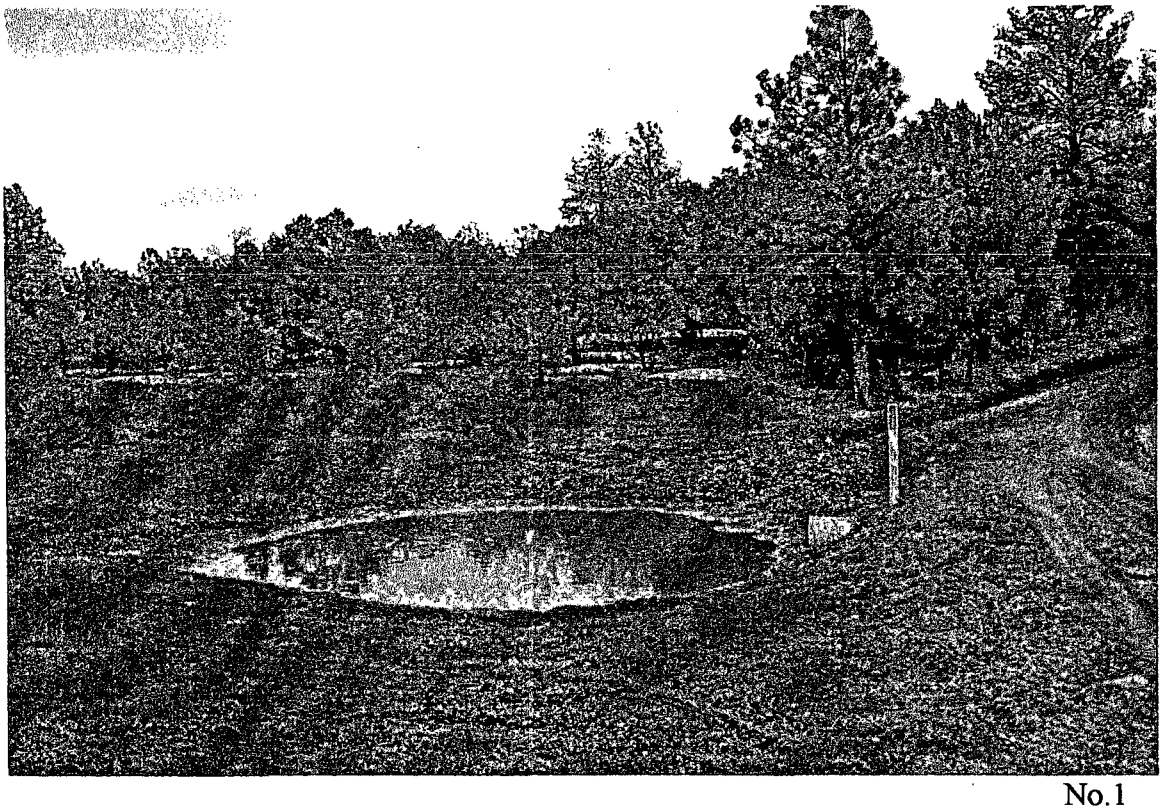
SHEET 1 OF 1 | REV 1

T:\DS\MAPPING\DRAWINGS\SANJUAN\765\00\6M765-28-1_R01.DWG 10/21/2002 2:34PM PAULB

APPENDIX F

PHOTOGRAPHS OF LOCATION

Energen Resources Corp.
San Juan 30-4 #28B
3.26.03



No.1

Standing on the existing road facing southeast towards the proposed well pad.

No.2

Standing on the existing road facing east towards the proposed well head stake. The entire well pad will be in the sagebrush flat.

APPENDIX G

SURFACE USE PLAN OF OPERATIONS

San Juan 30-4 Unit #28B

ENERGEN ENERGY INC.

SURFACE USE PROGRAM

RIO ARRIBA COUNTY, NM

Blanco Mesaverde

SURFACE LOCATION 660' FSL – 660' FEL

Section 31, Township 30 North, Range 04 West

EXISTING ROADS:
Starting in Blanco, NM, go east on Highway 64 for 31 miles to Carson Forest Road #310 turn left (north) and go uphill and to the northwest for 2 miles. Turn left on FS 312 (west) for approximately 4 miles. The proposed access road will take off (to the east) FS #312, approximately 500 feet past FS road 312F.

ACCESS ROAD TO BE CONSTRUCTED:
This well location will require approximately 50' of access road that will be constructed from FS road 312. The pipeline is to be laid adjacent to the access road and existing FS road 312F.

LOCATION OF EXISTING WELLS:
Energen 30-4 #28A lies approximately one half mile north on FS road 312F. See Appendix D for topogrphic map of area.

LOCATION OF EXISTING AND/OR PROPOSED FACILITIES IF WELL IS PRODUCTIVE:
If the well is productive it will initially be equipped with a separator, automation and gas measurement equipment, a buried, double wall, steel water tank and necessary lines. If necessary, a wellhead compressor and pumping unit may be installed. All equipment will be installed in an appropriate manner within the boundaries of the well pad. Location of equipment on the pad will be determined after the well is drilled. Williams Gas Processing will install the required pipeline. This well will require approximately 1726.50' of pipeline to connect this well to the existing El Paso pipeline gathering system.

LOCATION AND TYPE OF WATER SUPPLY:

Water to be used for drilling purposes will be purchased from an approved, non-federal source and will be transported by an approved commercial contractor such as Triple S Trucking Company or Three Rivers Trucking Company. Existing roads will be used to haul the water to the new drill location.

CONSTRUCTION MATERIALS:

All construction materials needed for the drilling of this proposed location will be purchased by the subcontractor(s). If materials are needed from the BLM, the subcontractor(s) will be responsible for obtaining the proper permits.

METHODS OF HANDLING WASTE DISPOSAL:

A trash trailer will be provided on location. All drilling line, oil filters, etc. will be hauled away by the drilling contractor. At conclusion of drilling operations, the trash trailer will be hauled and disposed of at a commercial sanitary landfill. Any produced water or oil will be hauled to a proper approved disposal site.

ANCILLARY FACILITIES:

Airstrips and camps for workers are not needed for completion of this well. The operator will notify the appropriate parties involved if there is a change in plans.

WELL SITE LAYOUT:

See Appendix E for cut & fill diagram.

PLANS FOR RECLAMATION OF THE SURFACE:

Reclamation of the proposed location after completion of operation will be per the standard FS guidelines for such projects. This will include, but not limited to, restoring original contours, drainage pathways, revegetation and soil treatments for all disturbed areas including access roads and portions of well pads no longer needed.

SURFACE OWNERSHIP:

Surface ownership is the Carson National Forest and is administered by the Farmington District Bureau of Land Management Office located at 1235 La Plata Highway, Farmington, NM.

OTHER INFORMATION:

The drilling program as proposed by ENERGEN Energy Inc. is attached. The Archaeological Report was completed by DCA and will be forwarded to the appropriate department. Nelson Consulting of Farmington, NM has completed and will submit the EA to the appropriate department.

LESSEE'S OR OPERATOR'S REPRESENTATIVE AND CERTIFICATION:

I hereby certify, I, or persons under my direct supervision, have inspected the proposed drill site and access route; that I am familiar with the conditions which currently exist; that the statements in this plan are, to the best of my knowledge, true and correct; and that the work associated with operations proposed herein will be performed by **ENERGEN ENERGY INC.** and its subcontractors in conformity with this plan and the terms and conditions under which it is approved. This statement is subject to the provisions of 18 U.S.C. 1001 for the filing of a false statement.

Date:

Name and Title:

Signature: _____

APPENDIX H

CONDITIONS OF APPROVAL

ENERGEN RESOURCES

San Juan 30-4 Unit #28B

T.30N.,R.4W. N.M.P.M. Sec. 31 660'FSL/660'FEL

JICARILLA RANGER DISTRICT
CARSON NATIONAL FOREST

CONDITIONS OF APPROVAL
FOR
APPLICATION FOR PERMIT TO DRILL

May, 2003

The following conditions of approval will apply to this well on the Jicarilla Ranger District of the Carson National Forest.

A. Construction and Drilling Operation

1. Snow Removal

A. If there is snow on the ground when construction begins, the operator will remove it before the soil is disturbed, and pile it downhill from the topsoil stockpiles.

2. Topsoil Stockpile

A. **Topsoil shall be stripped from the permitted area (minimum 4"-6" deep) and be deposited in storage piles apart from other excavated material. It will be kept separate and protected.** After the desired amount of material has been removed, and the resulting pit has been trimmed and smoothed as required, the stored topsoil shall be evenly spread over exposed subsoil to the extent that may be practicable and shall be revegetated. Gravel will be utilized to stabilize the pad area.

3. Reserve Pit

A. Large vegetation such as sagebrush, pinon, juniper, oak, and browse species will not be incorporated in the pit walls. Sagebrush, stumps and other slash must be disposed of. They may be buried in the reserve pit when it is filled in .

B. The reserve pit will have a minimum of one-half the total depth below the original ground surface at the lowest point within the pit and will be designed to prevent the collection of surface runoff.

C. All drilling and production pits will be constructed so as not to break, or allow discharge of liquids. The bottom of the reserve pit shall not be in fill material. Pits are not to be located in natural drainages. Pit walls are to be "walked down" by a crawler-type tractor and stabilized prior to usage. This is an upland site. A pit liner is not required by the Forest Service. However, a new liner may be required by the New Mexico Oil Conservation Division. If no pit liner is installed, all drilling, completion, and workover operations must utilize only fresh water and non-toxic drilling muds and no produced water, hydrocarbons, oily waste or other materials that may be toxic to wildlife, livestock or vegetation may be placed in the reserve pits. Should unlined pits have hydrocarbons, oily waste, or produced water placed in them they will be promptly emptied. All pits required to be lined will be lined with an impervious material at least 12 mil thick and/or 200 psi resistance. Plastic material used to line pits must be removed to below-ground level before pits are covered. Pit walls are to be "walked down" by a crawler-type tractor and stabilized prior to usage.

D. The fluid level, within the pit, is to be maintained at least two (2) feet below the lowest point of the pit wall. The reserve pit will be backfilled and reclaimed when dry. In addition, stockpiled material will be evenly distributed and landscaped to the surrounding topography over all areas on the pad which are not needed for production.

4. Fencing

A. All pits will be fenced with woven wire. A top rail or barbs will be utilized. Fence the reserve pit with fencing on three sides during the drilling phase and the fourth side immediately after the rig is removed. **Corner "H" bracing must be constructed at all corners.**

5. Equipment and Vehicles

A. Road building, pad construction, drilling, and completion activities are permitted from April 1 through October 31 of each year. Approval of activities between November 1 and March 31 may be granted on a case by case basis by permission from the Jicarilla District Ranger.

B. All equipment and vehicles must be confined to the access road and pad. The Jicarilla Ranger District does not allow off-road vehicle use unless specifically authorized.

C. Driving on Forest Roads will be done in a responsible and safe manner, or be in violation of 36CFR 261.54(f).

6. Sanitation

A. The operation and maintenance of all sanitation, food service, and water-supply methods, systems, and facilities shall comply with the standards of the local and state authorities and the Federal Water Pollution Control Administration of the United States. The operator shall dispose of all garbage and refuse in a place and manner specified by the Forest Officer in charge. Sewage will be confined to a chemically-treated portable unit on location. Burying of sewage will not be allowed.

7. Refuse Disposal

A. The operator shall dispose of refuse resulting from this use, including waste materials, garbage, and rubbish of all kinds in an approved sanitary landfill or appropriate recycling center. A trash cage must be on location throughout all drilling, testing and completion activities. Burying trash or trash in the reserve pit will not be allowed. Burning of trash will not be allowed.

8. Rat and Mouse Hole

A. For safety purposes, the rat/mouse hole must be filled and compacted immediately after the rig is removed.

9. Hydrocarbons and Produced Water

A. Produced hydrocarbons shall be put in tanks on location during completion work, and not allowed into the reserve pit. If produced hydrocarbons, or machinery oil find their way into an unlined reserve pit, they shall be removed immediately. Produced water will be put in onsite tanks or within lined reserve pit during completion work. Under no circumstances will pits be cut and drained. No produced water is to be released from the storage tanks but is to be physically removed from the site, for proper disposal.

10. Ground Water

A. All state permits are required prior to hauling water. State procedures concerning disposal of saltwater will be followed. Fiberglass tanks or metal tank battery will be used to store saltwater prior to disposal.

11. Spills

A. The operator shall inform the Forest Service immediately of the nature, time, date, location, and action taken for any oil or hazardous substance spill (including salt water). The operator shall list all hazardous substances to be used by the drilling operator, and provide this list to the Forest Service.

12. Explosives

A. Should the use of explosives be required during construction, the operator shall comply with all applicable local, State, and Federal laws, regulations and requirements involving the storage, handling, preparation and use thereof. Prior to any blasting, the District Ranger will be notified and an approved blasting plan will be prepared.

13. Company Signs

A. Drilling company signs will be allowed on National Forest System lands during the construction and drilling phase. These signs are not to be attached to any trees by any means.

14. Archaeological-Paleontological Discoveries

A. The operator will employ an archaeologist permitted by the Forest Service to conduct an archaeological clearance on any lands which may be disturbed.

B. The operator will not commence construction until an approved heritage resource clearance has been received by the Forest Service office in Bloomfield, and the operator will abide by all of the stipulations contained in the clearance.

C. If, prior to or during excavation work, items of archaeological, paleontological, or historic value are reported or discovered, or an unknown deposit of such items is disturbed, the operator will immediately cease excavation. The operator will then notify the Forest Service immediately and will not resume excavation until written approval is given by the authorized officer.

D. If it is deemed necessary, the Forest Service may require the operator to perform recovery, excavation, and preservation of the site and its artifacts at the operators expense. At the option of the Forest Service, this authorization (permit to drill) may be terminated with no liability by the United States when such termination is deemed necessary or to preserve or protect archaeological, paleontological, or historic sites and artifacts.

E. The operator shall be responsible for the protection of all identified cultural resources within the area which may be affected by his actions. In addition, the operator shall be liable for all damage or injury to the identified cultural resources caused by his actions.

15. Threatened, Endangered or Sensitive Species

A. A survey for threatened, endangered or sensitive species shall be conducted by the Forest Service or by an approved surveyor, prior to any construction activities. The Forest Service will indicate which species require surveys.

16. Slope Ratios

A. The final cut slope shall not exceed a 4:1 ratio. The final fill slope shall not exceed a 4:1 ratio. To obtain this ratio, pits and slopes shall be backsloped into the pad upon completion of drilling and prior to setting production equipment. Construction slopes can be much steeper during drilling, but will be contoured to the above final slopes upon pit reclamation.

17. Pipelines

A. All areas disturbed, due to the burial of any gas/oil pipelines, will need to be revegetated and silt fencing installed. The only exception shall be a pipeline that is placed directly into a roadway. The seed mixture is identified in C.2 of this document, and will be done prior to silt fencing installation. Silt fencing will be installed in areas where active erosion is occurring or is likely to occur. Mulching or matting may be required for areas determined to be particularly difficult to revegetate. Topsoil shall be stripped over the trench of each pipeline and protected. It shall placed on top during reclamation and will not be used as pipe padding. Utilize Forest Roads as working surface to minimize disturbance for installation of pipeline.

18. Vegetation Removal

A. The Forest Service will indicate the methods of disposal for timber and fuelwood removed during construction. The operator may be required to purchase the wood at commercial rates.

B. Willow, cottonwood, aspen, and Douglas fir tree species will not be destroyed whenever possible.

C. Tree stumps, branches, and tops, uprooted sagebrush, and other slash must be disposed of. The preferred method is to place the slash back on seeded areas to help provide favorable

micoclimates for revegetation. This may have to be by hand or by machinery such that seeded areas are not damaged. It may be buried in the reserve pit when the pit is filled in. It may be chipped and broadcast or otherwise broken down and spread out. Burning of slash will not be allowed.

19. Notification

A. The operator or his contractor will contact the Forest Service (632-2956) approximately 48 hours prior to beginning of pad construction activities and prior to rig movement across Forest lands. The operator will contact the Forest Service and the BLM (599-8900) prior to drilling activity and prior to fluid pumping from the reserve pit.

B. Producing Well

1. Production Facilities

A. Production facilities (including dikes) will be placed on cut and located a minimum of 10 feet from the toe of the backcut.

B. All pits, tanks, and exhaust vents will have devices to prevent bird mortalities to comply with the Migratory Bird Protection Regulations.

C. Due to the cumulative nature of gas extraction activities, a "residential style" muffler is required on production engines to reduce noise levels.

2. Spacing of Facilities

A. Maintain a minimum distance of seventy five (75) feet between individual production facilities (treater/separator, storage tanks, well head/pumpjack, etc.).

3. Diking

A. All storage facilities (including salt water tanks) must be diked. The dikes must be constructed of compacted subsoil, be impervious, be sufficient in size to contain the storage capacity of the facility being diked and be independent of the backcut. The dike must be covered with a layer of gravel to alleviate wind erosion. The loadout line must remain inside the dike, except where a production pit tank is located below ground level. A "walkover" stairstep must be provided to allow access without causing deterioration of the dike.

4. Wind Erosion

A. Gravel will be placed around the bases of well/meter buildings and on dikes to alleviate wind erosion.

5. Roads & Surfacing

A. Unless otherwise approved, the driving surface on all access roads must be limited to 14 feet in width, and total disturbance will be limited to 20 feet not including cuts and fills or turnouts. Road will be crowned and ditched and drained as needed and approved by the Forest Service. This may require installation of culverts and/or armored waterbars. Topsoil will be stockpiled and redistributed for reclamation. Pipelines will be constructed within 10 feet of the access road. During drilling and completion operations, the operator will be responsible for all road maintenance from pavement to well location. All roads on Forest Service lands must be maintained in a good, passable condition..

B. No gravel or other related minerals from new or existing pits on Federal land will be used in construction of roads, well sites, etc., without prior approval from the Forest Service.

C. Water bars and culverts will be constructed and maintained in working condition on the access road to the well location and conform to surface management specifications. The maximum slope distance between water bars will be:

% Slope	Slope Distance
Less than 1%	400 feet
1% - 5%	300 feet
5% - 15%	200 feet
15% - 25%	100 feet
Greater than 25%	50 feet

D. When the access road is graded, water bars will be left in the road or replaced immediately upon completion of grading. The access road must be crowned and ditched, drained, and surfaced as required. No new unauthorized road(s) (short cut roads) are authorized.

E. Prior to crossing any fence located on federal land, or any fence between Federal land and private land, the operator shall contact the Minerals Staff at the Jicarilla Ranger Station. All cut fences are to be tied to braces prior to cutting.

F. Any cut fence openings will be protected as necessary during construction to prevent the escape of livestock. A temporary closure will be installed on all cut fences the same day the fence is cut. A permanent cattleguard will be installed and maintained in any cut fence

unless otherwise stipulated in writing. A twelve-foot gate will be installed adjacent to all new cattleguards.

G. All cattleguards must have wings installed on both ends to prevent livestock from stepping around the ends. Cattleguards must be at least 8 feet wide, the length is left to the discretion of the operator. They must be set on concrete or pressure treated wood bases to prevent them from sinking. A 12 foot gate must be installed between the cattleguard and brace assemblies on whichever side of the cattleguard is most convenient. If the gate is made of wire, it must have at least four horizontal strands of barbed wire, with at least four 3 inch diameter vertical wood stays evenly spaced. When the gate is closed the wires must be taut.

H. Produced water will either be piped or trucked. If trucked, operator will be responsible for road maintenance and/or surfacing from the well location to pavement. Maintenance will consist of maintenance of cattleguards, fences, culverts and the actual road surface. The time-of-day of water hauling may be limited.

I. A proposed use of pesticide, herbicide or other possible hazardous chemical on Forest Service lands and roads shall be cleared for use prior to application.

J. Controlled access roads are to be used by the operators and his contractors for the sole purpose of servicing wells and equipment. Activities not associated with oil and gas production are not allowed. Unauthorized use is in violation of 36 CFR 261.10k, which carries a maximum penalty of $5000.00 and/or six months in jail.

6. Production Pits

A. Precipitation/production pits and tanks will be constructed of fiberglass or metal. They will be fenced and covered to prevent wildlife access. They will be diked in the manner described under B.3 above.

B. Fluids in the production pit will be hauled away in a timely manner to prevent overflow of the pit. Any overflow will be treated as a spill as described in A.11 above.

7. Reclamation Requirements

A. All areas of the well pad and access road not needed for production facilities will be recontoured to blend as nearly as possible with the natural topography, topsoiled, mulched (weed free straw crimped in at 2 tons per acre or use excelsior mats or equivalent), and revegetated with the seed mix specified in C.2. On slopes greater than 4% waterbars (contour ditches) will be constructed on the contour at seventy-five (75) foot intervals beginning at the top of the disturbed slope. They should be at least on one (1) foot deep, with approximately two (2) feet of drop per one hundred (100) feet and

with the berm on the downhill side. Cut and fill slopes on areas kept for production facilities should be also be topsoiled, mulched as specified above, and revegetated.

B. Recommended seeding date is between September 15 and November 1. Seeding will be done with a disc-type drill with two boxes for various seed sizes. The drill rows will be eight (8) to ten (10) inches apart. The seed will be planted between one-half (1/2) and three-forths (3/4) of an inch deep. The seeder will be followed with a drag, packer or roller to insure uniform coverage of the seed, and adequate compaction. Drilling of the seed will be done on the contour where possible. Where slopes are too steep for contour drilling a "cyclone" hand-seeder or similar broadcast seeder will be used, using twice the recommended seed per acre. Seed will then be covered to a depth described above by whatever means is practical.

C. In order for revegetation to be accepted, it must meet current Forest Service Standards. Reclamation will be approved (minimum timeframe of two growing seasons) when the established vegetative cover is equal to 70% of the adjacent areas and the soil is stabilized. There should be no indicators of active erosion including rills and gullies. Seeding should be repeated annually until reclamation is accepted by the Forest Service.

8. Painting

A. All above ground permanent surface structures and equipment will be painted a non-glare color that simulates the natural color of the site as follows: Green, Federal Standard 595a-34127. The exception being that Occupation Health and Safety Act Rules and Regulations are to be complied with where special safety colors are required. All facilities must be painted within six months of installation. Repainting will be periodically necessary as needed to keep all facilities maintained in a condition satisfactory to the Forest Service.

9. Spark Arrester and Engine Mufflers

A. A muffler or spark arrester satisfactory to the authorized officer shall be maintained on the exhausts of all trucks, tractors or other internal combustion engines used in connection with this permit.

10. Fencing and Livestock-Wildlife Access

A. Fencing of individual facilities, such as the pump jack (including well head), treater, and tank battery with cattle tight fencing may be required. The fence around any fluid storage facilities must be constructed on the outside perimeter of the dikes to protect them from deterioration due to animals walking over them.

D. A gate for access must be provided at each facility.

C. All well facilities will prevent wildlife (including wild horses) and livestock from having access to all produced fluids and any other onsite fluids or solids that could be harmful. This may include fencing all production pits (48 inch height, braced corners, top rail or barbed top wire) compressors, tank batteries, and containment troughs. Screens, covered troughs, and drip pan covers may be used where suitable. Self closing gates or walk throughs will be needed in conjuction with any fencing. All gates need to be kept closed and fences should not be mashed with hard lines. Fences should be located and maintained to keep all animals at least three feet from any hazardous materials.

11. Noxious Weed/Plant Control

A. Control of noxious weeds that invade the well pad and access road is required. Pesticides/herbicides may be used to control undesirable woody and herbaceous vegetation, insects, rodents, etc., with prior written notification to the Forest Service. A listing of all pesticides/herbicides being used or are planning on being used, will be submitted annually by the operator. The report will cover a 12-month period of planned use and will be due on the last day of the calendar year. Exceptions to this schedule may be allowed, subject to emergency request and approval, only when unexpected outbreaks of pests require control measures which were not anticipated at the time an annual report was submitted.

B. Only those materials registered by the U.S. Environmental Protection Agency for the specific purposes planned will be considered for use on National Forest System lands. Label instructions will be strictly followed in the application of pesticides and disposal of excess materials and containers. Any barrels of chemicals or fluids needed to maintain well operations will NOT be stored on site.

12. Facility Identification

A. Individual well facilities (oil, gas, injection, saltwater, etc.) shall have a sign in legible condition until final abandonment. The sign will show the operator's name, lease name and unit number, well name and number and location (quarter section, township, range and footages from section lines).
B. Storage tanks must be labled to identify contents.

13. Notification

A. The operator will contact the Forest Service (632-2956) and the BLM (599-8900) approximately 48 hours prior to conducting workover activities.

C. Abandoned Well

1. Abandonment Marker

A. A Forest Service approved permanent abandonment marker inscribed with operator, well number, and location (quarter section, township, range) is required. This marker will extend 24" underground in concrete, and extend 48" above ground level. The inscription will be made with arc welding directly onto the pipe marker.

2. Reclamation Requirements

A. All gravel will be removed from the location and all disturbed areas will be scarified (the gravel can be placed on roads designated by the Forest Service). The cut and fill slopes will be recontoured to original contours. The entire disturbed area will then be backfilled with topsoil, landscaped, seeded, and mulched. On slopes greater than 4% waterbars (contour ditches) will be constructed on the contour at seventy-five (75) foot intervals beginning at the top of the disturbed slope. They should be at least on one (1) foot deep, with approximately two (2) feet of drop per one hundred (100) feet and with the berm on the downhill side.

B. Compacted areas of the well pad will be plowed or ripped to a depth of twelve (12) inches before reseeding. Recommended seeding is between July 1 and September 15. Seeding will be done with a disc-type drill with two boxes for various seed sizes. The drill rows will be eight (8) to ten (10) inches apart. The seed will be planted between one-half (1/2) and three-forths (3/4) of an inch deep. The seeder will be followed with a drag, packer or roller to insure uniform coverage of the seed, and adequate compaction. Drilling of the seed will be done on the contour where possible. Where slopes are too steep for contour drilling a "cyclone" hand-seeder or similar broadcast seeder will be used, using twice the recommended seed per acre. Seed will then be covered to a depth described above by whatever means is practical.

C. Recommended Seed Mixtures.
Species to be planted in pounds pure-live-seed per acre: Pure Live Seed = Germination x Purity

Forest Service seed mix	Variety	Pounds/Acre
Indian ricegrass	Paloma	1
Western wheatgrass	Arriba	2
Blue Gramma	Hacheta or Alma	1
Antelope Bitterbrush	Unknown	.10
Four-wing saltbush	Unknown	.25
Pubescent wheatgrass	Luna	2.0
Intermediate wheatgrass	Oahe	2.0
Small burnet	Delar	1.0

D. To maintain purity and quality, certified seed is required.

E. All disturbed areas will be mulched at the rate of 2 tons/acre of native grass hay/straw. The mulch must be crimped into the surface.

F. The operator shall be responsible for prevention and control of soil erosion and gullying on lands covered by this permit and adjacent thereto, resulting from construction, operation, maintenance, and termination of the permitted use. The operator shall so construct permitted improvements to avoid the accumulation of excessive heads of water and to avoid encroachment on streams. The operator shall revegetate or otherwise stabilize all ground where the soil has been exposed and shall construct and maintain necessary preventive measures to supplement the vegetation. This may include the use of silt fencing and erosion control mats as needed.

G. In order for revegetation to be accepted, it must meet current Forest Service standards. Reclamation will be approved (minimum timeframe of two growing seasons) when the established vegetative cover is equal to 70% of the adjacent areas and the soil has been stabilized. Seeding will be repeating annually until the area has been satisfactorily reclaimed. The operator's bond will not be released until the area has been successfully reclaimed.

3. Roads

A. If, upon abandonment of a well, the retention of the access road is not considered necessary for the management and multiple use of the natural resources, it will be lightly ripped to eliminate compaction . After ripping, water bars will be installed as stated in B.5.C. The access road and well location will be closed to vehicular travel. Construction of a barricade at the entrance to these areas may be required. **If deemed necessary by the Forest Service, the location and access road will be recontoured to as near natural as possible.** Revegetetation of the affected area will be required.

B. If, upon abandonment of the well, the retention of the access road is considered necessary for the management and multiple use of the natural resources, then the gate will remain in place, and it is to be converted to a single Forest Service locking system.

4. Notification

A. The operator will contact the Forest Service (632-2956) and the BLM (599-8900) approximately 48 hours prior to conducting any abandonment activities.

D. Miscellaneous

1. Health, Safety, and Environmental Protection

A. The operator shall take all measures necessary to protect the health and safety of all persons affected by its activities performed in connection with the construction, operation, maintenance, or termination of the right-of-way, and shall promptly abate as completely as possible any physical or mechanical procedure, activity, event, or condition, existing or occurring at any time: (1) that is susceptible to abatement by the operator, (2) which arises out of, or could adversely affect the construction, operation, maintenance, or termination of all or any part of the oil and gas drilling and extraction operations, and (3) that causes or threatens to cause: (a) a hazard to the safety of workers or the public health or safety, or (b) serious and irreparable harm or damage to the environment (including but not limited to areas of vegetative or timber, fish or other wildlife populations, or their habitats, or any other natural resource). The operator shall immediately notify the authorized officer of all serious accidents which occur in connection with such activities.

2. Area Maintenance

A. The permitted area will be maintained to present a clean, neat, and orderly appearance. Trash, debris, unusable machinery, improvements, etc., will be disposed of currently.

3. Environmental Standards

A. The operator shall conduct all activities associated with this oil and gas drilling and extraction operation in a manner that will avoid or minimize degradation of air, land, and water quality. In the construction, operation, maintenance, and termination of this oil and gas drilling and extraction operations, the operator shall perform its activities in accordance with applicable air and water quality standards, related facility siting standards, and related plans of implementation, including but not limited to standards adopted pursuant to the Clean Air Act, as amended (42 USC 1857) and the Federal Water Pollution Control Act, as amended (33 USC 1321).

4. Water Pollution

A. No waste or byproduct shall be discharged into water if it contains any substance in concentrations which will result in harm to fish and wildlife, or to human water supplies.

B. Storage facilities for materials capable of causing water pollution, if accidentally discharged, shall be located so as to prevent any spillage into waters or channels leading into water, that would result in harm to fish and wildlife or to human water supplies.

5. Esthetics

A. The operator shall protect the scenic esthetic values of the area under this permit, and the adjacent land, as far as possible with the authorized use, during construction, operation, and maintenance of the improvements.

6. Surveys, Land Corners

A. The operator shall protect, in place, all public land survey monuments, private property corners, and Forest boundary markers. In the event that any such land markers or monuments are destroyed in the exercise of the privileges authorized by this permit, depending on the type of monument destroyed, the operator shall see that they are reestablished or referenced in accordance with (1) the procedures outlined in the "Manual of Instructions for the Survey of the Public Land of the United States," (2) the specification of the county surveyor, or (3) the specification of the Forest Service.

B. Further, the operator shall cause such official survey records as are affected to be amended as provided by law. Nothing in this clause shall relieve the operator's liability for the willful destruction or modification of any Government survey marker as provided at 18 U.S.C. 1858.

7. Vandalism

A. The operator will take reasonable measures to prevent and discourage vandalism or disorderly conduct, and when necessary, will call in the appropriate law enforcement officer.

8. Butane and Propane Installations

A. All butane, propane, or other liquefied petroleum gas equipment shall be installed and operated in accordance with the laws and regulations of the State.

9. Pollution

A. The operator shall take reasonable precautions to prevent pollution of or deterioration of lands or waters which may result from the exercise of the privileges extended by this permit. In particular, the operator shall at all times comply with applicable local, State, and Federal requirements for pollution abatement. Failure of the operator to so comply may result in termination or suspension of this authorization.

10. Area Access

A. The operator agrees to permit the free and unrestricted access to and upon the premises at all times for all lawful and proper purposes not inconsistent with the intent of the permit or with the reasonable exercise and enjoyment by the operator of the privileges thereof.

11. Subleasing, Requirements

A. The operator, in the exercise of the privileges granted by this permit, shall require that employees, sub-lessees, contractors, subcontractors, or renters and their employees comply with all applicable conditions of this permit and that the conditions of this permit be made a part of all subleases, contracts, subcontracts, or rental agreements. This clause shall not be construed as authorizing such subleases, contracts, subcontracts, or rental agreements unless specifically authorized elsewhere in the permit.

12. Improvements

A. Prior to crossing, using, or paralleling any improvement on public lands, the operator shall contact the owner of the improvement to obtain mitigation measures to prevent damage to the improvements.

E. ADDITIONAL FOREST SERVICE CONDITIONS OF APPROVAL

APPLICABLE WHEN MARKED

___1. A ____ foot tree screen will be left on the ___ side(s) of the location.

___2. Earthen berm(s) will be placed on the _____side(s) of the location between the reserve pit and the drainage.

___3. The _____ corner(s) of the well pad will be rounded off.

___4. The drainage shall be diverted around the _____ side of the location above/below (circle one) the cut slope, draining to the _____.

___5. Ponderosa pine timber will be charged at the current rates for pine timber.

__X_6. Ponderosa pine logs will be dragged off location and left lying for wildlife habitat.

___7. Pinon and juniper trees on controlled access roads and well pad locations will be sold to the operator for commercial fuelwood prices. Operator is responsible for the removal of all fuelwood purchased and disposal of all slash produced. Stump burying may be approved upon request. No burning of trees or branches is authorized.

___8. Due to special wildlife concerns, there will be no construction/development activity from _____to _____.

____9. As a mitigation measure, a wildlife guzzler will be purchased and delivered to the location. The guzzler will meet specifications provided by the Forest Service.

__10. A locked gate will be required in a location determined by the Forest Service. The gate will be constructed of 2" pipe in a design that will prohibit ATV's from driving under or around it. The gate will be painted federal standard green, and incorporate a lock box containing enough holes for all necessary company locks plus one hole for a FS lock. Maintenance of this structure will be the operator's responsibility for the life of the well.

___11. The existing gate on Forest Road ___ will be in functioning condition when drilling and completion are done. The gate may remain unlocked during drilling and completion operations when necessary to accommodate heavy traffic. During periods when the gate is unlocked, a sign will be installed at the gate stating that the road is not open to motorized public travel. If unauthorized travel behind the gate becomes a problem, the gate will remain locked or an individual will be posted at the gate to regulate traffic. If there are

periods of inactivity and after completion, the gate will remain locked at all times. Operator shall have routine maintenance responsibility for this gate for life of well.

__12. The location must be resurveyed for Mexican spotted owl by a Forest Service approved person before construction may begin. Survey done in 2000. Will need a new survey in 2003 if not drilled in 2002.

___13. The location must be surveyed for northern goshawk by a Forest Service approved person before construction may begin.

___14. Spread sandstone 4-6" thick after compaction on the portion of Forest Road _312_ from __in front of pad location__ to __length of pad location approximately 100 yards using the sandstone pit located at Mestenas Peak Pit .

___17. Construction will be monitored by a qualified archeologist and a report submitted. Avoid sites as noted on the IS&A form

_X_18. Low Profile: production equipment will be no more than 8' tall.

____19. Within a noise sensitive area. Operations will need to comply with applicable BLM NTL on noise.

___ 20. Liner required in reserve pit.

_X 21. Well pad may require fencing to protect reclamation efforts. If rehabilitation fails due to grazing pressure, the Forest Service may request fencing of the location until reclamation is determined to be successful.

__22. Place firewood on side of Forest Road 312 for public use. Slash may be chipped and spread over topsoil for use in erosion control or stockpiled and placed back over topsoil after seeding for erosion control.

APPENDIX I

STIPULATIONS FOR PIPELINE

PIPELINE STIPULATIONS

1. The Permittee will employ an archaeologist permitted by the Forest Service to conduct an archaeological clearance on any lands which may be disturbed.

2. The Permittee will not commence construction until an approved heritage resource clearance has been received by the Forest Service office in Bloomfield, and the Permittee and all subcontractors will abide by all of the stipulations contained in the clearance.

3. If, prior to or during excavation work, items of archaeological, paleontological, or historic value are reported or discovered, or an unknown deposit of such items is disturbed, the Permittee will immediately cease excavation. The Permittee will then notify the Forest Service immediately and will not resume excavation until written approval is given by the authorized officer.

4. If it is deemed necessary, the Forest Service may require the Permittee to perform recovery, excavation, or preservation of the site and its artifacts at the operators expense. At the option of the Forest Service, this authorization may be terminated with no liability by the United States when such termination is deemed necessary to preserve or protect archaeological, paleontological, or historic sites and artifacts.

5. The Permittee shall be responsible for the protection of all identified cultural resources within the area which may be affected by his actions. In addition, the operator shall be liable for all damage or injury to the identified cultural resources caused by his actions.

6. The conditions of clearance shown on the attached approved archeological report sign-off sheet will be followed.

7. Ground disturbances will be limited to the approved pipeline right-of-way. Under no conditions, will disturbance occur in areas which are not included in the archeological survey for the report

8. Surface disturbance will be limited by installing pipelines within 10 feet of existing roadways or within previously existing pipeline corridors. The exception shall be when the Forest Service requires the pipeline be located around large ponderosa pine or other features to be protected. Use roadways for working surface. Strip 4 to 6 inches of topsoil off the trench or any areas to be cut. Place trench spoil in roadway and topsoil into vegetation across from trench. Topsoil must be placed back on top during reclamation and must not be used for pipe padding. Use care when pulling topsoil back so that vegetation is not unreasonably damaged..

9. Any damage done to any man-made barriers (fence, cattleguard, etc.) will be repaired to the original or better condition. If fences are cut, they shall be braced and secured to prevent movement of livestock. Any natural barrier used for livestock control will be fenced to prevent movement of livestock.

10. Trees cleared from the right-of-way shall be bought as firewood by the company if right-of-way if behind a locked gate. If the right-of-way to be cleared is not behind a locked gate, the trees shall be limbed and left for the public to gather as firewood. In both cases the branches should either be scattered on the right of way and walked down or crushed with a bulldozer, or chipped.

11. Barriers satisfactory to the Forest Service will be constructed as to prevent vehicular traffic on the reclaimed pipeline right-of-way.

12. The pipeline right-of-way will be drill seeded with the seed mixture specified by the Forest officer. Cut banks and slopes will be hand seeded and erosion control matting may be required.

13. No side hill cuts of more than 3 feet are permitted. Areas requiring greater cuts than this shall be terraced so no cuts are greater than the 3 foot. Any cut or fill area shall be restored to its natural condition - to the extent possible.

14. Water diversions shall be required as determined by the Forest officer during final reclamation. Water diversions will be constructed in the berms covering the pipeline as directed by the Forest officer.

15. All above ground structures will be painted to blend with the natural surroundings.

16. If construction activities are alongside Forest Service roads, traffic will not be impaired for any great length of time.

17. All Forest Roads damaged by construction activities will be returned to their original or better condition. This includes restoring ditch lines to their previously existing or better condition.

18. All liquids and other trash shall be disposed of in an approved manner which will not impact the air, soil, water, vegetation, and/or animals. Citations will be issued if employees are found to be littering.

19. The contractor constructing the pipeline shall have these and additional stipulations in his possession during construction and reclamation activities.

20. Vehicles associated with this construction will be driven in a safe manner. Speeding and careless driving will not be tolerated. The public always has the right-of-way.

21. Construction is permitted between April 1 and October 31. Exceptions to this stipulation may be given by the District Ranger on a case-by-case basis.

22. All existing Forest Road markers shall be replaced if disturbed.

This is only a partial listing of stipulations common to pipeline construction. Consult the pipeline route plan for specific pipeline stipulations.