ENVIRONMENTAL ASSESSMENT

Robert L. Bayless, Producer LLC, - North Mail Trail No.1 Well
November 2004

ENVIRONMENTAL ASSESSMENT (EA) NUMBER: CO-800-2004-009 EA

CASEFILE/PROJECT NUMBER: Oil and Gas Lease # COC-008426

PROJECT NAME: Robert L. Bayless North Mail Trail #1 - Application for Permit to Drill (APD)

ECOREGION/PLANNING UNIT: Canyons of the Ancients National Monument Planning Unit

LEGAL DESCRIPTION: North Mail Trail #1: NW, NW, Sec. 15, T35N, R20W
1010' FNL & 1185' FWL

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1.0 PROPOSED ACTION AND ALTERNATIVES

1.1 Introduction

Robert L. Bayless, Producer LLC (Bayless) has submitted a proposal to drill an oil and gas well on lands administered by the Bureau of Land Management (BLM) in Montezuma County, Colorado. Specifically, the well and associated components would be located south of the Ismay Trading Post on top of Mail Trail Mesa within Canyons of the Ancients National Monument (Monument) approximately 26 miles west of Cortez, Colorado.

The proposed well is identified as the Bayless North Mail Trail No. 1. The well would be drilled to approximately 5,980 feet, in the Flodine Park Field, targeting the Ismay Formation. As proposed, the project includes construction of the well pad (1.2 acres) and associated access road and pipeline (1.5 acres). A natural gas pipeline would be buried adjacent to the proposed access road and along the existing access road, ultimately connecting to an existing surface gathering system. Total surface disturbance would be approximately 2.7 acres. If the well is unproductive, it would be abandoned, and all surface disturbances reclaimed upon abandonment according to BLM specifications.

1.2 Purpose and Need

The Federal mineral estate, administered by the BLM as part of its mineral leasing program, provides minerals, including fossil fuels, for the benefit and use of the American public, and encourages development of domestic oil and gas reserves to reduce dependence on foreign energy supplies. Mineral development is supported by the Mineral Leasing Act (1920 30 USC 181 et. seq.), the Federal Land Policy and Management Act (FLPMA), Department of Interior (DOI) policy, the San Juan-San Miguel Resource Management Plan (RMP), and the issuance of leasing rights by the BLM.

The purpose of the proposal is to develop oil reserves in the Flodine Park Field on an existing valid oil and gas lease issued by the BLM. Oil and gas leases issued by the BLM at the direction of Congress (1920 Mineral Leasing Act as amended) are contractual agreements between the U.S. and the lessee. The lease rights granted consist of the right to occupy as much of the lease surface as is reasonable for the extraction of the resource and the right to remove the resource (oil and/or gas).

This Environmental Assessment (EA) has been prepared to address potential impacts associated with approval of Bayless' Application for Permit to Drill (APD) the Bayless North Mail Trail No. 1 well pad and access road, and to install a flowline. The proposed action includes all activities associated with oil development including activities to construct, operate, reclaim, and abandon the well in accordance with the APD. The APD includes an associated new access road and a flowline as described herein.

The intent of this EA is to: 1) inform the public of the Proposed Action and reasonable alternatives; 2) analyze the impacts associated with the Proposed Action and alternatives; 3) identify mitigation measures to potentially reduce or eliminate impacts; 4) solicit public comment on the Proposed Action and alternatives; and 5) provide agency decision makers with adequate information upon which to base the decision to approve or deny the Proposed Action or an alternative development.

1.3 Conformance with San Juan/San Miguel Resource Management Plan

In December of 1984, the San Juan/San Miguel Resource Area completed a Resource Management Plan (RMP), which was amended in 1991 (*San Juan/San Miguel Resource Management Plan Amended/Final Environmental Impact Statement Colorado Oil & Gas Leasing and Development)*. It is stated in the RMP, "BLM actively encourages and facilitates the development by private industry of public land mineral resources so that national and local needs are satisfied and economically and environmentally sound exploration, extraction and reclamation practices are provided." (BLM 1984). The proposed action has been developed to comply with the conditions of the RMP and amendments, and has been reviewed for consistency and compliance with this plan.

The RMP was developed to provide a framework for long range planning (10-20 years), "...land use plans and multiple use management decisions would recognize that mineral exploration and development can occur concurrently or sequentially with other resource uses" (BLM, 1984). The RMP addresses oil and gas exploration and development: "Except for Congressional withdrawals, public lands shall remain open and available for mineral exploration and development unless withdrawal or other administrative action is clearly justified in the national interest" (BLM, 1984).

The objectives of the 1991 Oil and Gas Amendments to the RMP are identified as "Facilitate orderly, economic, and environmentally-sound exploration and development of oil and gas resources using balanced multiple-use management" (BLM, 1991). These updates require the BLM to look at the impacts of site-specific oil and gas projects. In accordance, "areas are identified where (1) stipulations may be applied to new oil and gas leases, or (2) Conditions of Approval (COAs) may be attached to applications for APDs on existing leases" (BLM, 1991).

Additionally, the proposed action has been reviewed for conformance with the Monument Proclamation (9 June 2000). The Monument was created to protect cultural, geologic, and biologic resources, and the highest known density of archaeological sites in the Nation, geology that is remarkable for its landforms, and crucial habitat for several unique reptiles. The proclamation addresses oil and gas development as follows:

> "Because most of the Federal lands have already been leased for oil and gas, which includes carbon dioxide, and development is already occurring, the Monument shall remain open to oil and gas leasing and development; provided the Secretary of the Interior shall manage the development, subject to valid existing rights, so as not to create any new impacts that interfere with the proper care and management of the objects protected by this proclamation; and provided further, the Secretary may issue new leases

only for the purpose of promoting conservation of oil and gas resources in any common reservoir now being produced under existing leases, or to protect against drainage."

The Monument is currently in the process of preparing a new Resource Management Plan (RMP). Until this RMP is implemented, management of the Monument is guided by the 1984 San Juan/San Miguel Resource Management Plan (BLM, 1984) and the 1991 Oil and Gas Amendment to the RMP (1991 O+G Amendment). Interim management guidance is provided in an Oct. 5, 2000, BLM State Director's Guidance memorandum and a Sept. 13, 2000, BLM Washington Office memorandum "Interim Management Guidance for Oil and Gas Leasing and Development of the Canyon of the Ancients National Monument". A reprint of the Interim Guidance can be found at the following web site: www.co.blm.gov/canm/canmoginterim.htm.

Relating to NEPA review, the BLM Washington Office memorandum states:

"…The analysis would recognize the short-term nature of oil and gas operations in the context of the long-term nature of the natural and cultural resources environment.

If the analysis indicates no impact to the Monument resources, or indicates impacts to resources, but determines that the impacts are consistent with the Proclamation, the proposed operation can proceed in accordance with applicable regulations, standards and stipulations.

If the analysis and documentation indicate that the proposal may have impacts that are not in conformance with the Proclamation, the BLM would work with the applicant to find alternatives or modifications to the proposal that would minimize such impacts through special permit conditions, consistent with the applicants right under applicable laws, regulations, and stipulations."

The Proposed Action, as well as the other alternatives, is in conformance with the BLM 1984 RMP, the 1991 O+G Amendment, and the above referenced Interim Guidance from the BLM State Director and the BLM Washington Office. Oil and gas exploration and development is considered an appropriate management activity within the Monument.

1.4 Conformance with Existing Plans, Statues or Other Regulations

This EA is prepared under the authority of the National Environmental Policy Act (NEPA) of 1969 (PL 91-852) and its regulations (40 CFR 1500 - 1508), Chapter V.

Oil and gas operations are dependent upon valid existing leases. Federal leases are issued and administered by the BLM under the authority of the Federal Oil and Gas Leasing Reform Act of 1987 and the Federal Oil and Gas Royalty Management Act of 1982 (43 CFR Part 3160). The development and long term management of these resources is governed by a wide array of federal laws such as (but not limited to) Onshore Oil and Gas Order No. 1, Onshore Oil and Gas Order No. 2, the Endangered Species Act of 1973, the 1966 National Historic Preservation Act as amended and the National Environmental Policy Act of 1969.

Protection of some surface resources that are potentially affected by development is mandated by various requirements. Surface water resources are protected from pollution sources by the Federal Water Pollution Control Act (40 CFR Part 112) and the Clean Water Act of 1972. The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980 and other federal regulations are designed to control the releases of hazardous materials into the environment and to direct the handling of response to accidental spills. Cultural resources threatened by development are protected by the Antiquities Act of 1906, [Public Law (PL) 52-209], the National Historic Preservation Act of 1966 (PL 89-665) and as amended (PL 52-209) and its regulations (36 CFR 800), and other legislation including NEPA, the 1971 Executive Order No. 11593, the Archaeological and Historical Conservation Act of 1974 (PL 93-291), the Archaeological Resources Protection Act of 1979 (PL 96-95) and its regulations (36 CFR 296), the American Indian Religious Freedom Act (48 USC 1996) and the Native American Graves Protection and Repatriation Act of 1990.

Threatened and endangered flora and fauna species are protected under the Endangered Species Act of 1973 as amended (PL 94-325). Additionally, the Migratory Bird Treaty Act (16 USC 703-71L) and the Eagle Protection Act (16 USC I.S.C. 668a-668b) protect other sensitive wildlife species potentially occurring in the proposed project area.

The 1972 Clean Air Act as amended (EPA, 1990) regulates national ambient air quality standards (NAAQS) to control air pollution. In Colorado, the state oversees air quality regulations and standards for stationary sources of air pollution. Air quality impacts from oil and gas activities are accomplished by mitigation measures developed on a case-by-case basis. Impacts are evaluated to see if they are allowable or unacceptable.

The Clean Water Act of 1972, amended 1977, is the primary federal law that protects our nation’s waters, including lakes, rivers, aquifers and coastal areas. The discharge of dredged or fill material into waters of the United States is subject to permitting specified under Title IV (Permits and Licenses) of this Act and specifically under Section 404 (Discharges of Dredge or Fill Material) of the Act. Section 401 (Certification) specifies additional requirements for permit review particularly at the state and tribal levels. Additionally, Section 402(p) of the (Title 33, Chapter 26, § 1342, USC), the National Pollutant Discharge Elimination System (NPDES) Storm Water Program addresses the non-agricultural sources of storm water discharges which adversely affect the quality of our Nation's waters. In Colorado, water withdrawals from surface waters require prior approval from the state, regardless of private land ownership along or around the water source. Colorado requires notification of surface water withdrawals to determine if there is a call on or below the withdrawal point. In addition, the timing of water withdrawals should be planned to coincide with periods of average or above average flows. After the drilling operations are completed a final estimate of the volume of water used for all activities should be submitted in writing to the State of Colorado. Bayless would obtain the proper water rights permits from State of Colorado prior to water withdrawals associated with the proposed well.

Executive Order 12898 of 1994 "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations" requires implementing procedures to insure that proposed projects within the auspices of federal agencies do not result in disproportionate shares of negative environmental impacts affecting any group of people due to a lack of political or

economic strength. Environmental justice requires "...the fair treatment of people of all races, cultures, incomes, and educational levels with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies" (BLM, 1997). As such, this document includes an assessment of impacts of the project on minority and low-income populations.

1.5 Interrelations with Other Projects

The proposed project area is located on the Mail Trail Mesa, an area of sustained development by oil and gas producers. The area encompassed by the proposed project, as well as adjacent areas, have been affected by oil and gas development since the 1950s. Exploration and development of existing oil and gas leases on BLM administered lands in Montezuma County continues today.

Existing oil and gas exploration consists of recent seismic surveys and the ongoing drilling of oil, natural gas, and carbon dioxide wells. Existing or previous oil and gas development consists of over 80 active or abandoned wells within 5 miles of the proposed well in Colorado (Colorado Oil and Gas Conservation Commission [COGCC] 2003). Natural gas produced from North Mail Trail No. 1 would tie, via a flowline, into the existing gathering system of the Bayless operated Express Federal No. 1 gas flowline that connects to the existing Aneth Gathering System.

1.6 Proposed Action

Project specific descriptions of the proposed action and its components are presented in the following sections.

1.6.1 Project Description

Bayless has filed an APD to construct and drill an oil and gas well targeting the Ismay Formation in and near the Flodine Park Field. The proposed project involves construction of the Bayless North Mail Trail No. 1 well pad (1.2 acres) in order to drill the well. The well and the associated access road and 1,500 feet of pipeline are located on Federal lands managed by the BLM in Canyons of the Ancients National Monument.

New road construction associated with access to this location would consist of approximately 800 feet of a 50-ft wide corridor, accommodating an 18-ft wide graded road surface. The surface disturbance of the access road would be approximately 0.9 acres. Once drilling and testing are completed and the well is deemed productive, the gas produced from the well would be connected, via a pipeline, to the existing Aneth gathering system. A total of 1,500 feet of gas pipeline would be buried along the new, 700-foot long, north/south-trending, access road and then east about 800 feet along the existing road within the boundaries of Canyons of the Ancients National Monument (Figure 1.2). Because the pipeline will be buried inside the 50-foot-wide access road right-of –way for the new access road, there would be no additional surface disturbance in that 800-foot length. However, burying the pipeline along the north side of the existing east-trending road will cause 0.6 acres of surface disturbance. The total proposed surface disturbance within Canyons of the Ancients National Monument, for the well pad, access road, and pipeline, will be approximately 2.7 acres. After leaving federal land the pipeline will

be constructed on private land (Figure 1.1). The private land owner has jurisdiction regarding pipeline construction on his land. However, BLM recommends that:

1. The pipeline be constructed of steel to avoid the visual and safety concerns created by the use of black plastic pipe, and
2. The pipeline be laid on the surface, to avoid undue surface disturbance from trying to bury the pipeline across extensive rock outcrops.

If the well were deemed unproductive, the well and location would be abandoned and reclaimed in accordance with applicable BLM requirements stipulated in the Conditions of Approval (COA's) for the well (Appendix A). If the well proves to be a producer, partial reclamation would occur immediately following the installation of production facilities, to reduce the size of the well pad to the minimum needed for production.

Final reclamation of the well site would occur after the well is no longer economically productive. The subject well is expected to be productive for 12-30 years. Reclamation would involve re-contouring the well pad and access road alignments to blend with the natural topography. The site would be re-vegetated with natural grasses as specified by the BLM and monitored to ensure re-vegetation success and that invasive species are controlled (Appendix A). Reclamation efforts would continue until all related COA stipulations as described in Appendix A are met.

1.6.2 Project Location

The proposed Bayless North Mail Trail No. 1 well pad would be located approximately 26 miles west-southwest of Cortez, Colorado within the southwestern portion of Canyons of the Ancients National Monument. The proposed well would be entirely within Montezuma County, Colorado and can be found on the Wickiup Canyon, Utah-Colorado; 7.5 minute U.S. Geological Survey (USGS) topographic quadrangle map (Figure 1.1, Project Area Map). The well-site survey plat is included in the APD provided in Appendix A. The well would be vertically drilled at the following location:

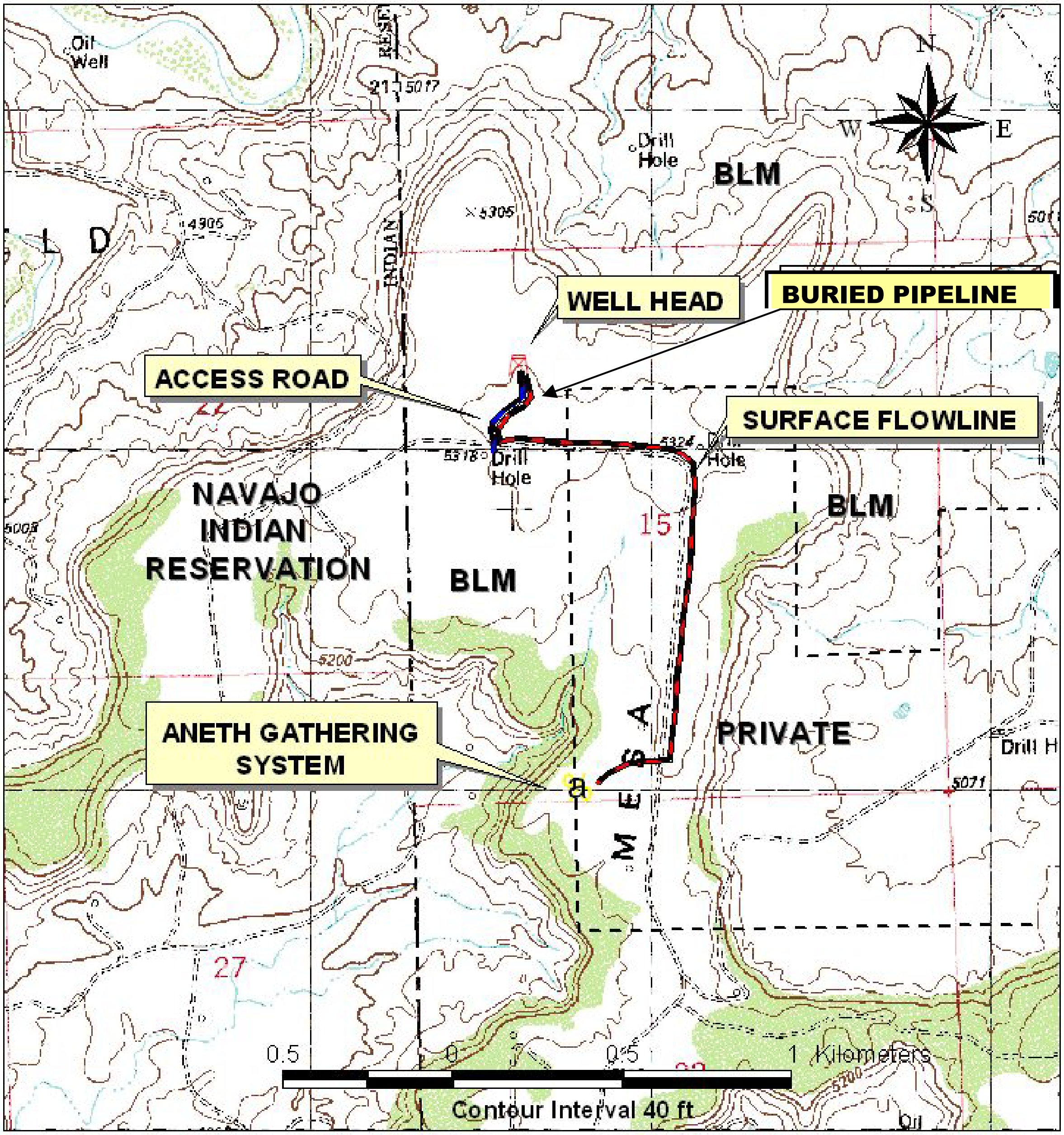
Township 35N, Range 20W, Section 15
(1010-feet FNL/1185-feet FWL)
Montezuma County, Colorado
5,318-feet Elevation
New Mexico Principal Meridian

1.6.3 Project Construction

The following description of project design features (Table 1.0) and construction practices are based on the *Surface Use Plan* provided to the BLM with the APD for the proposed well site. The surface use conditions of approval, included in Appendix A, correct and/or clarify certain points of the Surface Use Plan for this well. **Where differences exist between the COA's in Appendix B of this document and the SUP's, the COA's take precedence.**

USGS 7.5 MINUTE TOPOGRAPHIC SURVEY MAP

WICKUP QUADRANGLE MONTEZUMA COUNTY COLORADO



COLORADO

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ROBERT L. BAYLESS, PRODUCER LLC
NORTH MAIL TRAIL, #1
T35N, R20W, SECTION 15
NEW MEXICO PRINCIPAL MERIDAIN

FIGURE 1.2
PROJECT AREA MAP

Prepared By: Ecosphere Environmental Services

Table 1.0. Summary of New Disturbance: North Mail Trail #1

Well Name	New Road & Pipeline/ Acres Disturbed (Assumes 50-ft wide corridor)	Well Pad Area (Acres)	Pipeline buried on N. side of existing road	Total Affected Surface Area (Acres)
Bayless North Mail Trail No. 1	800 ft / 0.9 ac.	1.2 ac.	700 ft / 0.6 ac.	2.7 ac.

Existing Infrastructure – If productive, natural gas from North Mail Trail No. 1 would tie via flowline, into the existing gathering system of the Bayless-operated Retherford #2 at its tank battery. This location connects to the existing Aneth Gathering System. Access to the proposed well site would be via an existing road network with an 800-feet long new access road to the well site.

Access Road Construction - New road construction, plus the pipeline buried in the access road right-of-way, would consist of an 800-foot long by 50-foot wide (0.9 acres) alignment to the well site from existing area roadways (Table 1). The 50-ft wide corridor would accommodate an 18-ft wide driving surface with ditches along both sides, plus the production pipeline buried along the east side of the access road right-of-way. The proposed access road alignment follows a partially reclaimed seismic 2-track. The proposed access road would be constructed according to specifications outlined in the BLM SJRA "Gold Book" (BLM/FS 1989) for road design and construction. After road construction is complete and well operation commences, Bayless would perform regular maintenance of the well access road, as per Production COA #9 in Appendix A, to maintain a safe driving surface.

Well Pad Construction - The proposed well site will be constructed in a salt desert shrub community. The total disturbance at the well pad is estimated to be 1.2 acres (Table 1.0), including a stockpile for the reserve pit backfill and spoils, a topsoil stockpile, and fill slopes on the north end of the well pad. The pad will be stripped of vegetation, leveled, and graded. A surface cover of gravel may be applied to provide a safe working surface in inclement weather conditions. Trailers for the rig supervisor, tool pushers, mudloggers, geologists, mud engineers, and safety personnel would be temporarily placed on the pad location. The well pad layout, including reserve pit specifications, is shown in the APD.

Well Drilling – The construction and drilling operations are expected to commence soon after a permit is issued. Drilling operations would last approximately 18 days. The target well depth would be approximately 5,980 feet. A 12¼" surface hole would be drilled to approximately 330 feet, into the Dakota Formation. A full string of 8⅝" (steel) surface casing is set at this point and cemented to surface in order to protect ground water, if any, from mixing with drilling fluids. A 7⅞" hole would then be drilled from the surface casing point to approximately 6,000 feet (base of Desert Creek). Wireline logs would be run to assist in the evaluation of the reservoir. A 5½" diameter production casing would then be run and cemented to the surface.

Fresh water for drilling operations would be obtained and trucked from a private, off lease source during construction and drilling. Trucked water would be discharged onsite to the reserve pit. Approximately 4,500 barrels (bbls) of water would be needed to drill the well. The fresh water usage could vary depending on drilling conditions.

Water generated during production testing would be discharged to a flow-back tank where it would be collected by vacuum truck and hauled off-site to a permitted underground injection control (UIC) well. The water remaining at the end of the drilling program would be disposed of in the nearest permitted underground injection control (UIC) well. It is estimated that approximately 500 bbls of water would necessitate disposal upon completion of the drilling operation.

Drilling fluids and mud additives are re-circulated into the well during drilling. Drill cuttings are extracted from the drilling muds and placed in the reserve pit. The drilling fluids would be recycled whenever practical. Produced water or spent fluids would be allowed to evaporate in the reserve pit, or would be hauled to a Class I non-hazardous disposal well. Mud Products on site during the drilling process are listed in Table 1.1.

Table 1.1. Drilling Mud Products on Location for the Proposed Bayless North Mail Trail #1 Well Project

Mud Products	Quantity on Location
Bentonite	800 sacks
Barite	2500 sacks
Caustic Soda	30 sacks
Lime	15 sacks
Polymer	75 gallons
Sapp	3 sacks
Drispac	30 sacks
LCM, various	30 sacks

Well Completion and Testing – Production casing would be run and the well would be completed for production following drilling. Near-surface aquifers would be cased off with 8⅝" surface casing string set at 330 feet below ground surface and cemented to the surface. Once production commences, all areas of the well pad not needed for production would be reclaimed according to BLM specifications provided in the approved APD. Reclamation would include re-vegetation of the unused areas of the well pad, monitoring of re-vegetation, and noxious weed management. Wireline logging at the end of drilling operations will be conducted in one day by a double–axel logging truck. The completion rig would be on location for approximately 7 days.

On-site Personnel - During the construction, drilling, completion and operation of the well, the following personnel would be onsite for varying durations: Rig supervisor, tool pusher, mud logger's (2), mud engineer (1), in addition to the regular rig crew (5 people) which work 12-hour

shifts. Other personnel such as welders and mechanics may be at the site as needed. Other miscellaneous drilling and production staff, specialists, and consultants may be needed. Due to safety concerns all unnecessary personnel and vendors are prohibited from entering the project area. On-site personnel each have a vehicle on location.

Transportation – Typically 15 tractor-trailer loads are required to move the bulk of drilling equipment onto the surface location and the same numbers of loads (15) are required to relocate the drilling equipment from the location. Approximately 56 trips (total) would be needed to supply water for drilling, 2 trips for fuel, and 12 trips for cement. An additional 3 vehicle trips per day would be needed for transportation of crews to the site. Solid and liquid waste would be disposed of once per week for a total of 6 trips. There would also be other miscellaneous trips. It is estimated that there would be a total of 193 vehicle trips during drilling and completion activities. Because each vehicle trip includes travel to and from the project area, vehicles would travel along access roads an estimated 386 times during drilling and completion.

During the first year of production, approximately 5 tanker truck trips per month would be necessary to remove produced oil from the location (120 total roundtrips). Oil production typically decreases significantly after the first year, after which approximately 1-tanker trip per month would be necessary to remove produced oil from the location (24 total roundtrips). Very low produced water volumes are expected, which would be transported by truck to an existing permitted disposal well. During the first year of production, an estimated 1-tanker truck trip per month would be necessary to haul produced water (24 total roundtrips).

Flowline Construction – Should the well prove productive, a 3-in high-density polyethylene (HDPE) gas flowline would be buried within the new access-road right-of-way (ROW) and the existing road ROW on Federal lands. BLM does not have the authority to dictate how the pipeline will be constructed on the private land surface (Fee surface). Bayless has proposed to lay the pipeline on the surface where it crosses private land. It should be noted that the private land owner has the right to specify how the pipeline will be constructed on his land and should have a written agreement with Bayless prior to the beginning of the construction project. The land owner may specify whether the pipeline is to be buried or laid on the surface across his land. He can further specify the materials to be used (either HDPE or steel) so long as the material conforms to State regulations and industry standards for safety and applicability for natural gas transmission.

The polyethylene flowline that Bayless proposes to lay on the surface across private land, poses several safety and environmental health hazards. This type of flowline is vulnerable to vandalism, is vulnerable to punctures, and other damage that may result in gas leaks. A polyethylene flowline is also vulnerable to damage (melting) and ignition from range wildfire. In addition, black plastic is highly visible when lying across ground surfaces of mostly earth-tone colors, as found in the project area. Steel piping, in contrast, weathers to a rusty-brown color that matches the background colors much better than the black plastic which stays black for the life of the pipeline.

The North Mail Trail No. 1 flowline would consist of 5,800 feet of pipe constructed along the proposed access and existing roads to Bayless' Aneth Gathering System. Approximately 4,300

feet of the line would be laid on Fee surface, if the land owner so agrees, and 1,500 feet would be buried on Federal surface.

Operation and Maintenance - Should the well be productive, Bayless would operate the following facilities on location: a wellhead and a pumpjack, below ground piping to connect the well to a three phase separator, two 400-barrel oil tanks, one 400-barrel water tank, and a gas meter run All tanks and separators will be within earthen secondary containment areas capable of holding 150% of the volume of the largest tank in the containment area. Produced oil, gas, and water will flow from the wellhead to the separator. Oil would flow from the separator to the oil tanks. Water from the separator would flow to the production-water tanks. Gas from the separator would flow to the meter run, where it will be measured and sold. The gas would then flow through the flowline to the existing gas-gathering infrastructure described above.

Plans for Surface Reclamation - After completion of the proposed project, the location would be reclaimed according to BLM specifications provided in the conditions of approval in Appendix A of this EA. Reclamation activities would include removal of facilities and waste, reserve pit closure, re-contouring the abandoned site, re-seeding and monitoring of re-vegetation efforts, and noxious-weed management. Bayless would contact the BLM 48-hours prior to initiating reclamation activities and upon completion of restoration measures. Specific surface reclamation plans and details are provided in Appendix A.

Safety and Hazards – Safety and security are of primary concern to Bayless, particularly releases of hydrogen-sulfide gas (H_2S) during drilling and completion operations. H_2S releases have been a concern with other well sites within the Monument; however, H_2S is not known to occur in the strata to be encountered by this well or within the depth-range for the well. Therefore, there is no expected risk of H_2S releases from the zones to be penetrated by the North Mail Trail No. 1 well.

The polyethylene flowline that Bayless proposes to lay on the surface across private land, poses several safety and environmental health hazards. This type of flowline is vulnerable to vandalism and is vulnerable to punctures and other damage that may result in gas leaks. A polyethylene flowline is also vulnerable to damage (melting) and ignition from range wildfire.

All drilling and well-site operations will be conducted in accordance with required industry safety standards.

1.7 Alternatives Considered

A no-action alternative (alternative A), a proposed-action alternative (alternative B), an alternative-access alternative (alternative C), and a modified proposed action alternative (alternative D) are analyzed in this EA.

1.7.1 Alternative A: No-Action

Alternative A, the no-action alternative, is an untenable position for BLM because of the legal right to reasonable surface occupancy granted to Bayless through their mineral leases.

1.7.2 Alternative B: Proposed-Action

Likewise, alternative B, Bayless' proposed-action alternative, is an untenable position for BLM because the surface use plan contains some components that must be changed and does not include all of the surface use conditions of approval deemed necessary for the project.

1.7.3 Alternative C: Alternative-Access Roads

Two other access roads to the project area were considered. Both of these access roads proved untenable for the following reasons: The first alternative access considered was an unnamed bladed road off County Road G approximately 0.4 miles east of the Ismay Trading Post. This access road was eliminated from consideration due to its deteriorated condition, its direct crossing of McElmo Creek (ford crossing), steep access to the mesa top, and the difficulty of upgrading the upper end of the road to safe driving condition for large drilling and production vehicles. The second access road considered was through the Ute Mountain Ute Indian Reservation. This access road was eliminated from consideration because: 1) the route would increase the travel distance to the project area by approximately 17 miles of gravel and dirt roads; 2) the increased environmental impacts created by the additional access distance; and 3) travel restrictions imposed by the Ute Mountain Ute Tribe.

1.7.4 Alternative D: Modified-Proposed-Action

Alternative D, the modified-proposed-action alternative, consists of the proposed action as submitted by Robert L. Bayless, Producer, LLC and amended by conditions of approval. It describes the access, drilling, and production of one well, known as North Mail Trail #1, on Mail Trail Mesa in Canyons of the Ancients National Monument, Montezuma County, Colorado.

2.0 AFFECTED ENVIRONMENT

2.1 Introduction

In this chapter, to comply with the Council on Environmental Quality (CEQ) requirements of analytic and concise environmental documents (40 CFR 1502.2), those resources identified as potentially affected by the proposed action or as a special concern are described. All critical elements are addressed in accordance with the National Environmental Policy Act Handbook (H-1790-1). Non-critical environmental components are not discussed in detail. For the purpose of providing baseline data, the project study area is defined as 5 acres including and surrounding the well site. BLM/USFS biologists conducted an onsite biological field survey of the project area in July 2003, and Ecosphere Environmental Services conducted another in October 2003. La Plata Archaeological Consultants, of Cortez, Colorado, conducted cultural resource surveys of the project area.

Primary uses of the project area are recreation, grazing, and some existing natural resource development activity consisting primarily of natural gas (including CO_2) production, gathering, and transport.

2.2 Critical Elements

The critical environmental elements are shown in Table 2.0 and are discussed in detail, below.

Table 2.0 – Critical Environmental Elements:

Critical Element	Affected by proposed Action?			Critical Element	Affected by proposed Action?	
	Yes	No			Yes	No
Air Quality		X		Native America Religious Concerns		X
Areas of Critical Environmental Concern (ACEC)		X		Threatened or Endangered (T&E) Species		X
Cultural Resources		X		Hazardous or Solid Waste		X
Environmental Justice		X		Water Quality (Surface and Ground		X
Farm Lands (Prime & Unique)		X		Wetlands & Riparian Zones		X
Floodplains		X		Wild & Scenic Rivers		X
Invasive, Non-Native Species		X		Wilderness		X
Migratory Birds		X				

2.2.1 Air Quality

According to the Colorado Air Quality Control Commission Report to the Public, 2002-3, (Colorado Department of Public Health and Environment [CDPHE], 2003) the project study areas lie within the Western Slope Colorado Air Quality Control Region (Western Slope). The primary sources of air pollutants in this region are from unpaved roads and streets, seasonal sanding for winter travel, motor vehicles, wood burning stove emissions, and controlled and

uncontrolled burns. The Western Slope measures Carbon Monoxide, PM10 particulates, PM2.5, and Lead levels at monitoring sites in Grand Junction, Pagosa Springs, Durango, and Leadville. None of the monitoring sites exceeded the Colorado or Federal ambient standards for air pollutants in 2002-3 (CDPHE, 2003).

Air quality permits are required for emission sources on the well pad if established emission thresholds for designated pollutants are exceeded. State and Federal Air Quality Standards are presented in Table 2.1. No air quality permits are required for the proposed action.

Table 2.1. State and Federal Air Quality Standards (micrograms per cubic meter of air (ug/ m^3) and milligrams per cubic meter of air (mg/m^3).

Parameter	**Ambient Federal Standards**			**Colorado Standards**	
Parameter	**Averaging Time**	**Primary**	**Secondary**	**Primary**	**Secondary**
Carbon Monoxide	8 hours	10 mg/m^3		10 mg/m^3	
	1 hour	40 mg/m^3		40 mg/m^3	
Lead	Quarterly	1.5 ug/m^3	1.5 ug/m^3		
Nitrogen Dioxide	Annual Average	100 ug/m^3	100 ug/m^3	100 ug/m^3	
Oxidants (ozone)	1 hour	235 ug/m^3	235 ug/m^3	235 ug/m^3	
Sulfur Dioxide	Annual	80 ug/m^3			
	3 hours		1300 ug/m^3	700 ug/m^3	
	24 hours	365 ug/m^3			
Particulates (PM 10)	Annual Average	50 ug/m^3	50 ug/m^3	50 ug/m^3	
	24 hours	150 ug/m^3	150 ug/m^3	150 ug/m^3	
Particulates (PM2.5)	Annual Average	15 ug/m^3	15 ug/m^3		
	24 hours	65 ug/m^3	65 ug/m^3		

Sources: National Ambient Air Quality Standards (EPA 2003), Ambient Air quality Standards for the State of Colorado (CDPHE 2003).

2.2.2 Areas of Critical Environmental Concern

Areas of Critical Environmental Concern (ACEC) are those specific areas of BLM administered lands, which are managed to protect or enhance particular, special, or unique values. There are no designated ACECs within the analysis areas of the proposed well site. The project is within the Monument, and within the Anasazi Cultural Multiple Use Area. The management objectives of the Anasazi Cultural Multiple Use Area are superceded by the Monument proclamation. A description of the resources and management objectives of the Monument are presented in Section 1.3 Conformance with San Juan/San Miguel Resource Management Plan of this EA.

2.2.3 Cultural Resources

Humans have inhabited the project area and vicinity for the past 10,000 to 12,000 years. They are characterized by Paleo-Indian hunters of big game; Archaic small game hunters and gatherers; and Formative, sedentary agriculturalists and protohistoric hunters and gatherers (BLM, 1984).

Archeologists from La Plata Archaeological Consultants (LAC) inventoried the proposed North Mail Trail No. 1 well site and associated access road and flowline between June 30, 2003 and January 19, 2004 (LAC 2003-34a, LAC 2003 34a-1). The project area was inventoried by one or two persons walking a series of parallel transects spaced no greater than 15 meters apart. In June and July of 2003, a 550-ft by 440-ft block (5.6 ac) was surveyed for the well pad and a 900-ft by 150-ft corridor (3.1 acres) was surveyed for the proposed access road. In January of 2004, a 5,500-ft by 150-ft corridor was also surveyed for the proposed surface flowline. Prior to the field surveys, a records search was undertaken at the Monument office in order to identify previously recorded sites in proximity to the project study area. Provided, as follows, is a summary of the literature review and survey efforts for the site.

The record search indicated that there are four cultural resource sites previously recorded within ½-mile of the proposed well pad and access road, and 15 sites previously recorded within ½-mile of the proposed surface flowline. None of these sites are within 500 feet of the project area. Two new archeological sites (5MT16914 and 5MT16915) were identified along the originally proposed North Mail Trail No. 1 pipeline route. Both of these sites are lithic scatters of unknown cultural and temporal affiliation. Site 5MT16914 is located on the west side of the existing access road (the road lies north-south in this area) and its boundary is within 10 m of the proposed surface flowline. Site 5MT16915 is located on the south side of the existing road (the road lies east-west in this area) and its boundary is also within 10 m of the proposed surface flowline. Both of these cultural resources sites are eligible for nomination to the National Register of Historic Places (NRHP). As described in section 3.2.3, the pipeline was moved to the other side of the road to completely avoid these sites (Construction and Drilling COA #2 in Appendix A).

2.2.4 Environmental Justice

Environmental justice refers to the pledge or assurance that no population will endure a disproportionate share of the country's pollution. Evidence has been presented that minority and low-income communities are exposed to more environmental pollutants than the general population. Environmental justice is evaluated by considering the demographics of the project area, and by determining whether minority and/or low-income populations would be disproportionately adversely impacted by the project. The existing road to the proposed well site crosses approximately 2.8 miles of the Navajo Indian Reservation. The road is in close proximity to 5-10 Native American residences. These residences are currently affected by an undetermined number of vehicle trips per day, from both oil and gas and recreational activities. Any vehicle trips past these residences present both health and safety and air quality impacts to the people living there. As described in section 1.7.3, no reasonable alternative to the proposed access route could be found.

2.2.5 Farmlands, Prime and Unique

No prime and unique farmlands have been identified in the project area.

2.2.6 Floodplains

Existing access to the project area crosses the McElmo Creek floodplain in the Navajo Indian Reservation. Although the proposed action is not within a floodplain, the action has potential to affect the McElmo Creek floodplain since there will be extensive project-related traffic traveling the access road.

2.2.7 Invasive, Non-native Species

During the field investigation in July 2003, the BLM identified two plant species in the project area that are listed on the Colorado Noxious Weed List (USGS 2001) (Leslie Stewart, pers. comm.). The species identified were filaree (*Erodium cicutarium*) and cheatgrass (*Anisantha tectorum*).

2.2.8 Migratory Birds

The proposed project area and vicinity provides habitat for a variety of bird species protected under the Migratory Bird Treaty Act (MBTA). Desert shrublands are breeding sites for species such as sage thrasher (*Oreoscoptes montanus*), vesper sparrow (*Pooecetes gramineus*), sage sparrow (*Amphispiza belli*), Brewer's sparrow (*Spizella breweri*), and lark sparrow (*Chondestes grammacus*). Adjacent piñon-juniper woodlands also provide nesting and foraging habitat for a large suite of bird species, such as pinyon jay (*Gymnorhinus cyanocephalus*), black-billed magpie (*Pica hudsonica*), bushtit (*Psaltriparus minimus*), juniper titmouse (*Baeolophus griseus*), blue-gray gnatcatcher (*Polioptila caerulea*), gray flycatcher (*Empidonax wrightii*), and Virginia's warbler (*Vermivora virginae*). Numerous raptor species may also utilize habitat in lands adjacent to the project area for hunting and breeding grounds or wintering habitat. According to the Monument Proclamation (June 9, 2000), the following raptor species have been observed within the Monument: golden eagle (*Aquila chrysaetos*), northern harrier (*Circus cyaneus*), red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), and peregrine falcon (*Falco peregrinus anatum*). Other species with potential to occur within the Monument include ferruginous hawk (*Buteo regalis*), Swainson's hawk (*Buteo swainsoni*), and prairie falcon (*Falco mexicanus*).

The following avian species were observed during the field investigation conducted by Ecosphere in October 2003: western scrub-jay (*Aphelocoma californica*), common raven (*Corvus corax*), black-billed magpie (*Pica hudsonia*), bushtit (*Psaltriparus minimus*), rock wren (*Salpinctes obsoletus*), and vesper sparrow (*Pooecetes gramineus*). Because surveys were conducted during the non-breeding season, no Neotropical migratory bird species were present.

2.2.9 Native American Religious Concerns

No known Native American sacred site or Traditional Cultural Property occurs in the vicinity of the project area (Laura Kochanski, BLM Archaeologist, personal communication).

2.2.10 Threatened, Endangered, and Sensitive Species

In following the guidelines of the Endangered Species Act (ESA) of 1973, as amended, a search was made for threatened, endangered, and sensitive (TE&S) flora and fauna species with potential to occur in Montezuma County and/or in the project area. Table 2.2 contains a listing of all federally listed threatened, endangered and candidate species, including their protection status, that are considered in this EA. With the exception of the candidate species, all of these species are protected under the ESA. According to the U.S. Fish and Wildlife Service (USFWS), there are nine federally listed threatened and endangered flora/fauna species with potential to occur in Montezuma County and/or in the project study area, and four species considered candidates for ESA listing (USFWS 2003).

Table 2.2. USFWS Threatened, Endangered, and Candidate Species With Potential To Occur in Montezuma County, Colorado.

Species	Status[(1)]	Habitat Description	Potential to Occur in the Project Area
MAMMALS			
Black-footed ferret (*Mustela nigripes*)	E	Open grasslands with prairie dog colonies.	No prairie dogs colonies occur in the project area (PA) or vicinity.
Canada lynx (*Lynx anadensis*)	T	Mixed conifer forest above 8,000 ft.	PA elevation below 8,000 ft. No mixed conifer forest in the PA or vicinity.
BIRDS			
Bald eagle (*Haliaeetus leucocephalus*)	T	Prefer large, open-branched trees near perennial water sources for perch/roost/nest sites.	No perennial water sources in the PA or vicinity.
Southwestern willow flycatcher (*Empidonax traillii extimus*)	E	Breeds in riparian habitats with dense, shrubby vegetation.	No shrubby, riparian habitats in the PA or vicinity.
Gunnison sage grouse (*Centrocercus minimus*)	C	Low vegetation with sparse shrubs in/near big sagebrush-dominated communities.	No big sagebrush dominated communities in the PA or vicinity.
Mexican spotted owl (*Strix occidentalis lucida*)	T	Nests in caves or cliffs in steep-walled canyons of mixed conifer forests.	No mixed conifer forests in the PA or vicinity.
Yellow-billed cuckoo (*Coccyzus americanus*)	C	Breeds in riparian woodlands with dense, understory vegetation.	No riparian woodlands in the PA or vicinity.
FISH			
Colorado pikeminnow (*Ptychocheilus lucius*)	E	Large rivers of the Upper Colorado River Basin, with strong currents and deep pools.	No perennial water sources exist within the PA.
Razorback sucker (*Xyrauchen texanus*)	E	Upper Colorado River Basin, in rivers with strong currents and deep pools w/ sandy or rocky bottoms.	No perennial water sources exist within the PA.
AMPHIBIANS			
Boreal toad (*Bufo boreas boreas*)	C	High elevation (>8000 ft) pristine riparian areas in mixed conifer forests.	PA elevation below 8,000 ft. No of riparian areas in the PA or vicinity.
PLANTS			
Mesa Verde cactus (*Sclerocactus mesae-verdae*)	T	Rocky hills, mesa slopes, and alluvial benches in desert scrub communities (4,500-6,000 ft).	No potential habitat in the PA or vicinity.
Mancos milkvetch (*Astragalus humillimus*)	E	Ledges and mesa tops in slickrock communities of the Mesa Verde Formation.	No potential habitat in the PA or vicinity.
Sleeping Ute milkvetch (*Astragalus tortipes*)	C	Mixed desert scrub communities, in gravels derived from volcanic intrusion into Mancos Shale (5400-5700 ft.)..	No potential habitat in the PA or vicinity.

(1) T = Threatened; E = Endangered, C = Candidate species

Source: USFWS, 2003. http://mountain-prairie.fws.gov/endspp/County%20Lists/COLORADO082003.htm

Table 2.3 provides a listing of BLM sensitive species compiled from the Colorado BLM State Director's Sensitive Species List (2000), and from consultation with BLM/U.S. Forest Service (USFS) area biologists Leslie Stewart, Kathy Nickell, and Kristin Philbrook. There are 25 BLM sensitive species listed for the San Juan Field Office Region (BLM 2000). Additionally, according to the Monument Proclamation, crucial habitat for the Mesa Verde nightsnake (*Hypsiglena torquata*) and longnose leopard lizard (*Gambelia wislizenii*) exists within the Monument. According to Kathy Nickell, BLM biologist, the peregrine falcon is also a species of concern warranting impact consideration. These sensitive herpetological resources and the peregrine falcon are addressed in this section.

The proposed Bayless North Mail Trail No. 1 project area was surveyed for potential habitat of the TES species on July 28, 2003 by BLM and USFS biologists and on October 20, 2003 by biologists from Ecosphere Environmental Services. The potential for TE&S species to occur in the project area is presented in Table 2.2 and Table 2.3.

Of the TE&S fauna considered in this EA, potential habitat exists within the proposed project area for one species: the longnose leopard lizard. The project area vicinity also provides potential habitat for ferruginous hawk (*Buteo regalis*), peregrine falcon, Mesa Verde nightsnake, and six BLM Sensitive bat species: Townsend's big-eared bat (*Corynorhinus townsendii*), spotted bat (*Euderma maculatum*), Allen's (Mexican) big-eared bat (*Idionycteris phyllotis*), Fringed Myotis (*Myotis thysanodes*), Yuma Myotis (*Myotis yumanensis*), and big free-tailed bat (*Nyctinomops macrotis*). Ferruginous hawks are known to occur in the Monument during the winter, and the shrublands of the project area provide suitable hunting grounds for this species. The rocky cliffs adjacent to the project area provide suitable nest and perch sites for peregrine falcon. In addition, rocky slopes and canyons adjacent to the project area are suitable habitat for the Mesa Verde nightsnake. The cliffs and piñon-juniper woodlands adjacent to the project area also provide potential foraging/roosting habitat for the six bat species.

Of the federally listed and BLM sensitive flora species considered in this EA, potential habitat exists for Jones blue star (*Amsonia jonesii*), Cronquist milkvetch (*Astragalus cronquistii*), and comb wash buckwheat (*Eriogonum clavellatum*). No individuals of these species were observed within the project area during onsite biological surveys in July and October of 2003.

2.2.11 Wastes, Hazardous or Solid

Bayless maintains a file, per 29 CFR 1910.1200(g), containing current Material Safety Data Sheets (MSDS) for all chemicals, compounds, and/or substances which are utilized during the course of construction, drilling, completion and production operations for this project. Hazardous materials that may be found at the site may include drilling mud and cementing products that are primarily inhalation hazards, fuels (flammable and/or combustible), materials that may be necessary for well completion, stimulation activities such as flammable or combustible substances and acids/gels (corrosives). Human solid and liquid wastes would be generated primarily during the construction and drilling phases of the project and would be contained within portable facilities at the site.

Table 2.3. BLM Sensitive Species With Potential To Occur Within the San Juan Field Office Management Area and/or the Project Area.

Species	CNHP Status[(1)]	Habitat Description	Potential to Occur in the Project Area
MAMMALS			
Townsend's big-eared bat (*Corynorhinus townsendii*)	G4, S2	Semi-desert shrublands, piñon-juniper woodlands, and open montane forests**.** Roosts in caves, old mines, buildings, rock crevices, or hollow trees**.**	May occur foraging in piñon-juniper habitat adjacent to the project area; no mines or caves in the project area (PA) or vicinity.
Spotted bat (*Euderma maculatum*)	G4, S2	Cliff dwellers; roosts in cracks or crevices of canyons/cliffs. Known to forage in piñon-juniper and riparian habitat.	May occur foraging/ roosting in the cliffs or piñon-juniper woodlands adjacent to the PA.
Allen's (Mexican) big-eared bat (*Idionycteris phyllotis*)	G4, S2	Scrub woodlands and forests associated with cliffs and rocky slopes.	May occur in the rocky cliffs adjacent to the PA.
Fringed Myotis (*Myotis thysanodes*)	G5, S3	Breeds in caves; forages in piñon-juniper woodlands; may roost in caves, buildings, old mines, in rock crevices on cliff faces, or bridges.	May use cliffs adjacent to PA for roost sites; no caves in the PA or vicinity.
Yuma Myotis (*Myotis yumanensis*)	No CNHP listing	Riparian, arid shrubland, desert, and forest habitat. Associated with surface water. Roosts in caves, mines, bridges, cliffs, buildings, or trees.	May occur foraging/ roosting adjacent to the PA; no perennial water sources in the PA or vicinity.
Big free-tailed bat (*Nyctinomops macrotis*)	G5, S1	Rugged, rocky habitat in arid landscapes; mainly roosts in cliff crevices.	May occur foraging/ roosting in the rocky cliffs adjacent to the PA.
BIRDS			
Northern goshawk (*Accipter gentiles*)	G5, S3	Nests found on north aspects in aspen or conifer stands above 8,250 ft.	No aspen or conifer habitat in the PA or vicinity. PA elevation is approximately 5,300 ft.
Ferruginous hawk (*Buteo regalis*)	G4, S3	Open areas (grassland or shrubsteppe) in elevated sites: trees, rock outcrops, buttes, haystacks, and low cliffs.	Potential hunting/nesting habitat occurs in the vicinity of the PA. Winter migrant only. No nesting records for SW Colorado.
Peregrine falcon (*Falco peregrinus anatum*)	G4T3, S3B	Prefers open country and high vertical cliff areas for nesting (>200 feet).	Potential nesting habitat on cliffs adjacent to the PA.
Black tern (*Chlidonias niger*)	G4, S3 S4	Nests in inland marshes of the North American prairie, winters at sea.	No inland marshes or prairies in the PA or vicinity.

Table 2.3, cont. BLM Sensitive Species With Potential To Occur Within the San Juan Field Office Management Area and/or the Project Area.

Species	CNHP Status	Habitat Description	Potential to Occur in the Project Area
BIRDS, CONT.			
White-faced ibis (*Plegadis chihi*)	G5, S2	Associated with shoreline and marsh habitats bordering open water.	No shoreline or marsh habitat in the PA and vicinity.
FISH			
Bluehead sucker (*Catostomus discobolus*)	G4, S4	Inhabits headwater streams to large rivers.	No perennial water sources within the PA/vicinity.
Flannelmouth sucker (*Catostomus latipinnis*)	G3 G4, S3 S4	Inhabits headwater streams to large rivers.	No perennial water sources exist within the PA or vicinity.
Roundtail chub (*Gila robusta*)	G2 G3, S2	Inhabits pools and rapids of moderate to large rivers.	No perennial water sources exist within the PA or vicinity.
Colorado River cutthroat trout (*Oncorhynchus clarki pleuriticus*)	G5 T3, S3	Occurs in headwater streams and lakes.	No perennial water sources exist within the PA or vicinity.
REPTILES			
Longnose leopard lizard (*Gambelia wislizenii*)	G5, S1	Below 5,200 ft in extreme western Colorado; inhabit flat or gently sloping desert shrublands.	Potential habitat exists in the PA. This lizard is known to occur in CANM but has not been located in or near the PA.
Desert spiny lizard (*Sceloporus magister*)	G5, S2	Shrub-covered dirt banks and sparsely vegetated rocky areas near flowing streams (Hammerson, 1999).	No habitat exists for this lizard in the PA. There are no records south of Mc Elmo Creek.
Mesa Verde nightsnake (*Hypsiglena torquata*)	No CNHP listing	Rocky slopes and canyons with sparse piñon-juniper habitat or other shrubs and grasses.	Potential habitat occurs in the canyons and slopes adjacent to the PA.
PLANTS			
Jones blue star (*Amsonia jonesii*)	G4, S1	Runoff-fed draws on sandstone in piñon-juniper and desert shrub habitat (3,900-7,000 ft).	Potential habitat within the PA and vicinity. No individuals observed during biological surveys.

Table 2.3, cont. BLM Sensitive Species With Potential To Occur Within the San Juan Field Office Management Area and/or the Project Area.

Species	CNHP Status	Habitat Description	Potential to Occur in the Project Area
PLANTS, CONT.			
Cronquist milkvetch (*Astragalus cronquistii*)	G2, S2	Sandy and gravelly ridges on red sandstone; also on Mancos Shale and on substrates derived from Morrison Formations.	Potential habitat in the PA and vicinity. No individuals observed during biological surveys.
Naturita milkvetch (*Astragalus naturitensis*)	G3, S2 S3	Sandstone mesas in piñon-juniper (5,000-7,000 ft).	No potential habitat in the PA or vicinity.
Rollins cryptanth (*Cryptantha rollinsii*)	G4, S2	Shale slopes in piñon-juniper or cold desert shrubland communities (5,300-5,800 ft).	No potential habitat in the PA or vicinity.
Kachina daisy (*Erigeron kachinensis*)	G2, S1	Saline soils in seeps in canyon walls (4,800-5,600 ft).	No potential habitat in the PA or vicinity.
Comb wash buckwheat (*Eriogonum clavellatum*)	G3, S1	Mancos Shale badlands in salt desert shrub.	Potential habitat in the PA. No individuals observed during biological surveys.
Pagosa trumpet gilia (*Ipomopsis polyantha var. polyantha*)	G1, S1	Fine-textured soils derived from Mancos Formation (6,800-7,200 ft).	No potential habitat in the PA and vicinity. Elevation is approximately 5,200-5,400 ft.
Pagosa bladderpod (*Lesquerella pruinosa*)	G2, S2	Fine-textured soils derived from Mancos Formation (6,800-8,300 ft).	No potential habitat in the PA and vicinity. Elevation is approximately 5,200-5,400 ft.
Dolores skeleton plant (*Lygodesmia doloresensis*)	G1Q, S1	Shale slopes in piñon-juniper or cold desert shrublands (5,300-5,800 ft).	No potential habitat; San Miguel County only.
Eastwood monkey flower (*Mimulus eastwoodiae*)	G3, S1 S2	Shallow caves and seeps on canyon walls (4,700-5,800 ft).	No potential habitat within the PA or vicinity.

Source: Colorado BLM State Directors' Sensitive Species List (June, 2000), Leslie Stewart and Kristin Philbrook, pers. comms.

(1) **CNHP** = Colorado Natural Heritage Program. The following is an explanation of the codes used:

STATUS: The source used to assign status is from:
Colorado's Natural Heritage: Rare and Imperiled Animals ,Plants, and Plant Communities; Vol.3, No.1, 10/1997.
Colorado's Threatened, Endangered, and Special Concern Wildlife; May/98.
Conservation Status Handbook: Colorado's Animals, Plants and Plant Communities of Special Concern Vol. 3, No.2, 5/1999
GROUP: *Colorado Natural Heritage Program* (CNHP)

CNHP - <u>Global Rarity Ranking</u> is based on the range-wide status of a species.
G1- Critically imperiled globally because of extreme rarity (5 or fewer occurrences, or very few remaining individuals), or because of some factor of its biology making it especially vulnerable to extinction. (Critically endangered throughout its range).
G2-Imperiled globally because of rarity (6 to 20 occurrences), or because of other factors demonstrably making it very vulnerable to extinction throughout its range. (Endangered throughout its range).
G3-Very rare or local throughout its range or found locally in a restricted range (21 to 100 occurrences). (Threatened throughout its range).
G4-Apparently secure globally, though it might be quite rare in parts of its range, especially at the periphery.
G5-Demonstrably secure globally, though it may be quite rare in parts of its range, especially at the periphery.
T- Taxa of subspecies or varieties, ranked on same criteria as G1-G5.

CNHP - <u>State Rarity Ranking</u> is based on the status of a species (relative abundance of individuals) in each state.
S1- Critically imperiled in state because of extreme rarity (5 or fewer occurrences, or very few remaining individuals), or because of some factor of its biology making it especially vulnerable to extirpation from the state. (Critically endangered in state).
S2- Imperiled in state because of rarity (6 to 20 occurrences), or because of other factors demonstrably making it very vulnerable to extirpation from the state. (Endangered or threatened in state).
S3- Rare in state (21 to 100 occurrences).
S#B- Refers to the breeding season imperilment of elements that are not permanent residents.
S#N- Refers to the non-breeding season imperilment of elements that are not permanent residents. Where no consistent location can be discerned for migrants or non-breeding populations, a rank of SZN is used.
SZ- Migrant whose occurrences are too irregular, transitory, and/or dispersed to be reliably identified, mapped, and protected.

2.2.12 Water Quality

2.2.12.1 Surface-Water Quality

No perennial water resources exist within the proposed project area. Existing access to the project area, however, traverses and parallels McElmo Creek; a primary perennial water resource located approximately 2 miles north of North Mail Trail No. 1. Small, headwater ephemeral drainages occur on both the east and west sides of the proposed well site, which discharge over a steep cliff to the northwest into McElmo Creek, and ultimately the San Juan River, located approximately 11 miles southwest of the project area in Utah. Various other unnamed ephemeral drainages are located throughout the project area. The hydrological regime in the vicinity of the project area is such that surface water flows only on an intermittent basis in conjunction with significant precipitation events. Ephemeral waterways are fed by snowmelt, however thunderstorms are the primary source of flow in these ephemeral drainages. The San Juan River is the primary receiving waterbody within the watershed. Based on the past 25 years of recorded data, the San Juan River typically has experienced peak flows, primarily from snowmelt, between April and June (USGS 2004). Principal water uses within the San Juan River Basin include irrigation, municipal, industrial, domestic, recreational, transmountain, and transbasin diversion uses.

Available surface-water hydrograph data for McElmo Creek includes several U.S. Geological Survey (USGS) gage stations including one station downstream of Cortez (USGS, 09371700), and one station near the Colorado/Utah State line (USGS, 09372000). Mean monthly stream flow data for McElmo Creek near the State line indicates flows that range from 33.4 cubic feet per second (cfs) to 65.3 cfs based on approximately 50 years of recorded data (USGS 2004). Downstream of Cortez, flows in McElmo Creek range from 30.9 to 98.2 cfs based on the past 10 years of recorded data (USGS 2004). Mean minimum flows for the station downstream of Cortez were recorded in the month of April, while mean minimum flows for the Colorado/Utah State line were recorded in January. Mean peak flows for both gage locations, based on the period of record, were recorded in August.

Key factors that influence the surface-water quality in the project area include sparse vegetative cover, highly erosive and saline soils, rapid runoff, and livestock grazing. Total suspended solids, total dissolved solids (salinity), heavy metal and biogenic pathogens are the water quality parameters of concern (BLM 1984) within the project area. Water quality is managed to comply with State and Federal regulations including the Clean Water Act (1977), State Water Quality Standards, and the Colorado River Basin Salinity Control Act (1974). Available USGS water-quality data for McElmo Creek at the State line indicates suspended sediment discharges ranging from less than 1 ton/day to 1,440 tons/day for the period of record (1977-1991); total dissolved solids concentrations range from 89.9 tons/day to 1,450 tons/day for the period of record (1969-1999). McElmo Creek is also on the Colorado 2002 303(d) list for excessive iron. There has not been a Total Maximum Daily Load (TMDL) study conducted for McElmo Creek; therefore, the sources of iron have not been officially identified.

2.2.12.2 Ground-water Quality

The principle ground-water aquifer system in the project area consists of the Colorado Plateaus Aquifers that underlies an area of approximately 110,000 square miles in western Colorado, northwestern New Mexico northeast Arizona, and eastern Utah (Figure 2.1). Aquifers within the Colorado Plateaus are generally composed of permeable sedimentary rocks that vary in thickness, lithology, and hydraulic characteristics. Within the project area, the Dakota-Glen Canyon aquifer is the uppermost water-yielding unit in the Colorado Plateaus aquifers. Water from the Dakota-Glen Canyon aquifer is derived from the Dakota Formation, the Morrison Formation, and the Glen Canyon Group, consisting of the Navajo Sandstone, Kayenta, and Wingate Sandstone Formations (Robson and Banta 1995).

More localized and shallow ground-water resources may be encountered within alluvial deposits associated with the surface water drainages within the project area. These aquifers consist of Quaternary deposits of alluvial gravel, sand, silt, and clay or Quaternary deposits of eolian sand and silt (Robson and Banta 1995). These aquifers tend to be localized near-surface water and of limited aerial extent. In general, ground-water movement is from areas of recharge to areas of discharge (i.e. springs, seeps). Higher elevation mountains and low lying areas provide the most important recharge areas based on the presence of outcrops of permeable geologic formations.

No ground-water wells were identified within the project area based on a search of the USGS database of available ground-water data (USGS 2003). Furthermore, no residential properties or windmill wells for stock watering occur in proximity to the proposed well location.

Water-quality data for ground water in the project area is also unavailable although aquifers associated with sedimentary rocks and marine deposits are known to contain high salinity (BLM 1984) and abundant mineralization. Water quality in the deeper sedimentary aquifers may be influenced by upward movement of saline water through improperly plugged exploration holes (Robson and Banta 1995).

2.2.13 Wetlands/Riparian Zones

No wetlands or riparian zones occur in the vicinity of the project area. However, the main access road to the well site crosses McElmo Creek via a bridge in the Navajo Indian Reservation.

2.2.14 Wild and Scenic Rivers

No wild and scenic rivers occur in or near the proposed project area.

2.2.15 Wilderness

There are no designated Wilderness Study Areas (WSAs) within, or immediately adjacent to, the project study area. The nearest WSA is the Cross Canyon WSA located approximately 16 miles from the proposed North Mail Trail No. 1 well site.

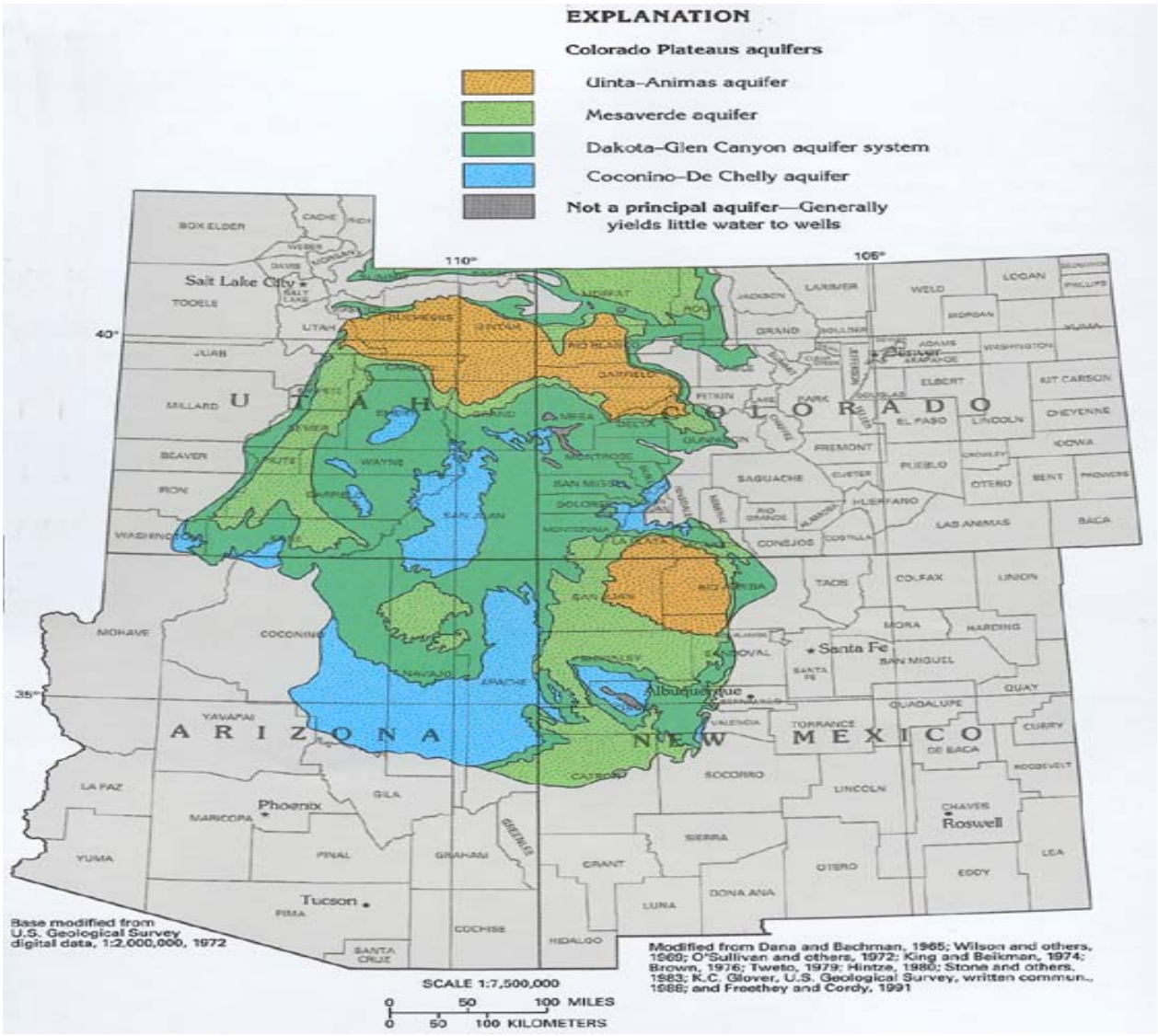

Figure 2.1. Colorado Plateau aquifers.

2.3 Non-Critical Elements

The following discussion of non-critical elements is based on the BLM 2004 *Template for Environmental Assessments.*

2.3.1 Standards for Public Lands Health

The BLM has adopted five standards for protecting Public Lands Health. These standards are:

- Ensure healthy upland soils;
- Protect and improve riparian systems;
- Maintain healthy, productive, native plant and animal communities;
- Maintain or enhance the habitat of threatened or endangered species; and
- Ensure water quality meets minimum Colorado state standards.

The Standards describe conditions needed to sustain public land health, and relate to all uses of the public lands. Standards are applied on a landscape scale and relate to the potential of the landscape. Additional information on the standards and guidelines can be found at the Colorado BLM website: http://www.co.blm.gov/standguide.htm. Table 2.4 provides an evaluation of project study area standards.

Table 2.4. Evaluation of Project Area Standards for Public Lands Health Criteria.

	Achieving or Moving Toward Achieving	**Not Achieving**	**Not Applicable**
Standard 1	Yes		
Upland soils: proper infiltration/permeability rates			
Remarks: Proper construction techniques on the well location and access road are included in the Surface Use Conditions Of Approval (COA), which would minimize potential erosion from this project. Once the specified reclamation measures takes place, erosion should be returned to its current level.			
Standard 2			N/A
Riparian systems functioning properly			
Remarks: There are no riparian areas present in the project area.			
Standard 3	Yes		
Healthy and productive plant/animal communities			
Remarks: This project would remove some salt desert shrubs, grasses, and forbs. During reclamation, these would eventually be replaced with native grasses and shrubs.			
Standard 4	Yes		
Threatened and Endangered Species			
Remarks: This project would have no affect on any federally listed threatened or endangered species or potential habitat for such species.			
Standard 5	Yes		
Ensure water quality meets minimum Colorado Standards			
Remarks: There is no surface water in project area.			

2.3.2 Soils

The eastern third of the proposed North Mail Trail No. 1 well site consists of Farb-Rock outcrop complex, 3 to 12 percent slopes. This is a very-shallow, excessively-drained soil type, with 3 inches of surface strong, brown, sandy loam. Sub-surface soil includes light-brown, sandy loam ranging from 3-13 inches, pink sandy loam ranging from 13-16 inches, and hard Dakota sandstone below 16 inches. Permeability of this soil type is moderately rapid and available water capacity is very low. Effective rooting depth is 5-20 inches. Shrink-swell potential of this soil type is low, and runoff is also low. The hazard of water erosion is severe, while the hazard of wind erosion is moderate (NRCS, 1997).

The soil in the western two-thirds of the site and the proposed access road consist of Mack fine sandy loam, on 0 to 6 percent slopes. This is a very deep, well-drained soil type, with moderate permeability and high water capacity. Surface soil consists of 13 inches of yellowish-red, fine, sandy loam, while the sub-surface layers include 13-33 inches of yellowish-red and light, reddish-brown, sandy clay loam and 33-60 inches of light-gray, sandy, clay loam. Effective rooting depth of this soil type is 60 inches or more. Shrink-swell potential is low and runoff is medium. The hazard of both water and wind erosion is moderate (NRCS 1997).

2.3.2.1 Cryptogrammic Soils

An insignificant amount of biological, or cryptogrammic soil crusts occur on the soil surface of the project area; however, no cryptogrammic soils occur within the proposed well site (Leslie Stewart, pers. comm.).

2.3.3 Vegetation

The proposed well site, access road, and pipeline are located within a salt desert shrubland community. Estimated (visual estimate) shrub cover in this area is 10-15%, with shrub height approximately 1-3 feet. Primary shrub species include spiny hopsage (*Atriplex grayii*), shadscale (*Atriplex confertifolia*), winterfat (*Krascheninnikovia lanata*), and wolfberry (*Lycium pallidum*). Other shrub species present in the project area include big sagebrush (*Artemisia tridentata*) and rabbitbrush (*Chrysothamnus nauseosus*). Estimated (visual estimate) grass cover in the North Mail Trail No. 1 project area is 15%. Dominant grass species include galleta grass (*Hilaria jamesii*), Indian ricegrass (*Achnatherum hymenoides*), sand dropseed (*Sporobolus cryptandrus*), and cheatgrass (*Anisantha tectorum*). Appendix A provides a complete list of plants occurring in the project area as recorded during the BLM onsite in July 2003.

2.3.4 Topography

The proposed well site, access road, and pipeline are located on the relatively flat-topped Mail Trail Mesa overlooking Rincon Canyon. The well site is approximately 2,000 feet from a 300-ft cliff dropping into the canyon. The elevation of the proposed well site is approximately 5,320 feet.

2.3.5 Geology

The North Mail Trail No. 1 well location is within Cretaceous aged Dakota Formation below developed soils and in outcrops found along ephemeral washes and adjacent cliffs. The Dakota Formation is the source for the numerous sandstone cobbles and boulders in the sandy loam soil developed in the area.

2.3.6 Wildlife

2.3.6.1 Aquatic Wildlife

There is no habitat for aquatic wildlife in the project area or vicinity. The nearest perennial water source is McElmo Creek, which is located approximately 2-3 miles from the project area.

2.3.6.2 Terrestrial Wildlife

The Monument supports a variety of terrestrial mammals, birds, and reptiles common to southwestern Colorado. A list of wildlife commonly occurring in salt desert shrub and piñon-juniper communities in southwestern Colorado is included in Appendix B.

BLM/USFS biologists conducted biological investigations of the North Mail Trail project area on July 28, 2003, and by Ecosphere biologists on October 20, 2003. The salt desert shrub in the project area and adjacent piñon-juniper woodlands support a number of mammal species. No mammals were observed during onsite investigations; however, rodent burrows were present on the proposed well pad site. These burrows could also be utilized by lizard species, as wintering habitat; however, none were observed during the biological surveys. Resident reptiles within the Monument are described in Section 2.2.10. Vegetative communities within and adjacent to the project area also provide habitat for a variety of bird species. Refer to Section 2.2.8 for further discussion of avian species with potential to occur in the project area.

2.3.7 Big Game

Mule deer (*Odocoileus hemionus*) and elk (*Cervus elaphus*) are known to winter within the Monument, according to the San Juan-San Miguel Resource Management Plan (BLM 1984). However, there are no designated mule deer or elk winter range or concentration areas within the project area or vicinity. Elk are known to occur on the Sleeping Ute Mountain but no elk sign has been noted in the open basins and adjacent mesas south of McElmo Creek. Deer and deer sign are frequently seen throughout the area.

2.3.8 Range

The proposed North Mail Trial No. 1 well site is located within the Flodine grazing allotment. The allotment is permitted for use for up to 143 cattle from December 14 through May 31 for a total of 600 BLM Animal Unit Months (AUMs) (Mike Jensen, Range Specialist, personal communication).

2.3.9 Visual Resources

The proposed North Mail Trail No. 1 well site is located on BLM lands within the Monument, on a mesa top overlooking Rincon Canyon. This area includes numerous graded and two-track roads. The nearest main road is County Road G, which is located approximately 1-2 miles from the proposed well pad. The nearest Outstanding Scenic Areas (OSAs) are Goodman Point OSA, which is located approximately 10 miles from the proposed well site, and Mesa Verde OSA, located approximately 25 miles from the well site.

The production structures at the well site will be visible from the Ismay Trading Post on the horizon to the south. The trading post is 2.3 miles north of the well site which means it is in a middle-ground visual distance zone (Kim Round, personal communication, 2004).

The well site production facilities will also be visible on the horizon from the "bridge" in Bridge Canyon – about four miles north of the well site. This distance of four miles puts the well site in a background visual zone from the Bridge Canyon area.

Production structures at the well site will almost certainly be in a visual line-of-sight from some visual vantage points in Hovenweep National Monument (Hovenweep). The distance from Hovenweep to the well site ranges from 7 to 8 miles on a north-south line. This distance puts the well site in a background visual zone (Kim Round, personal communication, 2004). Given the size of the production structures, the distance from Hovenweep, and the mitigation measures that will be implemented (Production COA #2 in Appendix A), it is unlikely that production structures at the well site will be visible to the naked eye.

Production structure at this well site will be visible from numerous vantage points in the Monument that are in visual resource Management Classes 2, 3, and 4. Visual distance zones from these vantage points range from Foreground (0 to ½ mile), Middle-Ground (½ to 3 miles), Background (3 to 10 miles), and Seldom Seen (greater than 10 miles).

The production structures will also be visible from various points in the Ute Mountain Ute Indian Reservation – particularly from Sleeping Ute Mountain. Again though, given the size of the production structures, the distance from Sleeping Ute Mountain, and the mitigation measures that will be implemented (Production COA #2 in Appendix A), it is unlikely that production structures at the well site will be visible to the naked eye form most of these vantage points.

2.3.10 Noise

The proposed well site is located in an area with limited access and moderate activities related to oil and gas development. No background noise studies have been conducted for the project area. Ambient sound levels in the project area are generally very low, but vary somewhat depending on proximity to existing facilities, roadways or other sources. All area existing well sites are adjacent to existing gravel, connector roads, primarily used for oil and gas development. These sound levels would fluctuate with variations in weather conditions including temperature, wind and humidity and the general topography of the area. Private land holdings surrounding BLM lands are primarily rural.

2.3.11 Health and Safety

Traffic related to oil and gas activity occurs on unimproved (bladed) roads throughout the project study areas. These roads could be hazardous for travel during inclement weather if appropriate caution is not exercised. Miles of low-pressure (<20 psi) natural gas flowlines and associated facilities are present in the project area. These existing flowlines represent project construction and maintenance hazards. Damage to any of these facilities during project operations and maintenance represent health and safety risks to workers and to the general public.

Production fluids may contain low concentrations of potentially hazardous substances but consist mainly of brackish water. Potential ingestion, eye contact, or skin irritation could result from contact with production fluids.

An existing graveled and bladed road to the proposed well site crosses the Navajo Indian Reservation. The road is in close proximity to 5-10 residences on the reservation, thereby posing an existing health and safety hazard to the residents see sections 2.2.4 – Environmental Justice and 3.2.4 – Impacts to Environmental Justice).

2.3.12 Socioeconomics

Oil and gas development in the San Juan Basin makes the industry a large employer in southwestern Colorado. The State of Colorado, Montezuma County, and the Federal government collect revenues from mineral development royalties in the project area. These revenues fluctuate with volumes generated, weather, world affairs, market prices for oil and natural gas, and other variables.

Temporary jobs would be generated by construction of the proposed action. Bayless' costs to develop the proposed action would be realized as economic gains to contractors and businesses in the project area. Restaurants and other service businesses in the vicinity may benefit in the short-term from the presence (purchasing) of work crews in the project area. There are 5-10 Native American residences within the project analysis area.

2.3.13 Recreation Resources

Recreation management guidelines for BLM lands are identified in the San Juan-San Miguel RMP/EIS (1984). No Intensive/Special Recreation Management Areas or Extensive Recreation Management areas occur within a mile of the proposed well site area. The closest recreation area to the project area is the Sand Canyon trail located approximately 13 miles to the east. Primary recreational activities include hunting, hiking, mountain biking, and horseback riding. The closest recreation site as defined in the RMP is the Lowry Pueblo site, located approximately 23 miles from the well site. Primary recreational activities include hunting, minimal firewood gathering, and hiking.

2.3.14 Transportation

Roads in close proximity to the proposed well site consist of improved and unimproved dirt surface. Access to the project area is via County Road G, the nearest paved road surface.

County Road G extends east approximately 26 miles to Highway 491 (formerly 666) in Cortez. From County Road G, access to the site includes approximately 3 miles of graded roads.

According to 1996-1998 road count data collected by the Montezuma County Planning Department, the average number of vehicles per day along County Road G just east of the Colorado-Utah border is approximately 201 vehicles.

3.0 ENVIRONMENTAL CONSEQUENCES AND MITIGATION MEASURES

3.1 General Discussion

This chapter discloses the environmental consequences of implementing the alternatives in accordance with the Council on Environmental Quality (CEQ) Guidelines. The information found in Chapter 2.0, Affected Environment, provides the baseline for describing these consequences.

Environmental resources may be affected in many ways during implementation of the proposed action. The effect, or impact, is defined as any change or alteration in the pre-existing condition of the environment produced by the proposed action, either directly or indirectly. Impacts can be beneficial to the resource (positive) or adverse (negative), and can be either long-term (permanent) or short-term (incidental, temporary). Short-term impacts affect the environment for only a limited time, and the environment generally reverts back to the pre-project condition. Short-term impacts are often disruptive and obvious. Long-term impacts are substantial and permanent alterations to the pre-project environment.

With long-term impacts, the environment would potentially not revert to pre-existing condition during the lifetime of the proposed project and beyond. Long-term impacts are defined as those impacts whose results endure more than five years. For the purpose of this EA, potential impacts have been divided into three categories:

> Significant – as defined in CEQ guidelines (40 CFR 1500-1508) are impacts that are substantial in severity and therefore should receive the greatest attention in decision-making;
>
> Moderate – impacts which cause a degree of change that is easy to detect, and do not meet the criteria for significant impacts; and
>
> Low – impacts which cannot be easily detected, and cause little change in the existing environment

Where critical or non-critical resources do not exist in the project study areas as described in Chapter 2 – Affected Environment, or would not be impacted by the proposed action, these resources are not further evaluated in this section. These consist of:

- The project area contains no prime/unique farmlands, wetlands/riparian zones, wild and scenic rivers, wilderness areas, or Native American Religious Concerns.
- No impacts to area geologic features are expected from the proposed action.
- Standards for Public Land Health are achieved in the project study areas.

3.2 Critical Elements

3.2.1 Impacts to Air Quality

The Colorado Department of Public Health and Environment (CDPHE), Air Quality Division regulates air quality impacts from oil and gas activities and develops mitigation measures on a case-by-case basis. Impacts are evaluated to see if they are allowable or unacceptable. Air emissions associated with oil and gas production include volatile organic compounds (VOC), carbon monoxide (CO) and nitrogen oxides (NOx) associated with gas production equipment; gas fired drilling equipment, and vehicle exhaust.

Air quality impacts associated with the construction, drilling, and operation of the proposed action would occur from several sources:

- Suspended particulates (dust) during construction and from vehicular traffic on unpaved roads;
- Suspended particulates (dust) from wind erosion on cleared construction areas;
- Volatile Organic compounds (VOC) and nitrogen oxides (NOx) emissions from the drill rig, service/support vehicles, and operation of gasoline and diesel engines (i.e. generators).

Oil production from the well sites may also result in localized reductions in air quality due to the release of odors/emissions from the well sites (i.e. hydrocarbons, natural gas, etc.) The engine that powers the pump jack will create exhaust emissions. Wind dispersion and dilution would reduce the magnitude of these impacts. Air quality impacts from construction and drilling operations, primarily from vehicle/equipment exhaust and increased fugitive dust, would be low to moderate and short-term within the vicinity of the well pad and along bladed access roads, and low and long-term along County Road G. Fewer vehicle trips would occur during production, shifting the impacts along bladed roads to low and long-term during operation. There would be low and long-term impacts along County Road G and other public roads used for access to the area.

3.2.1.1 Summary of Impacts

Under Alternative D (Modified Proposed Action), the impacts on air quality would be low to moderate and short-term during construction and drilling, and low and long-term for production. These potential impacts would be mitigated by the implementation of mitigation measures described below and following adherence to the conditions of approval (COA's) in Appendix A.

The No Action Alternative would deny Bayless' development of the proposed action. Under this alternative, there would be no impacts to project area air quality.

3.2.1.2 Mitigation Measures

The proposed project area disturbance would be re-seeded with a BLM approved seed mix to stabilize soils and reduce the impacts of dust created from wind erosion (Reclamation COA's 2, and 5-8). Suspended dust from construction could be reduced through sprinkling of disturbed areas with fresh water from a clean water source during construction (Construction and Drilling

COA #11). This would not only reduce the amount of dust in the air, but would maintain good construction site visibility thereby minimizing potential health and safety hazards. Air permits would be required where emission thresholds are exceeded based on CDPHE requirements.

3.2.2 Impacts to Areas of Critical Environmental Concern

The proposed action is consistent with the management direction of the Anasazi ACEC as outlined in the 1984, RMP, and consistent with the Monument Interim Management Guidelines.

3.2.2.1 Summary of Impacts

Under Alternative D (Modified Proposed Action), there would be no land use conflicts on the Anasazi ACEC or the Monument during construction, drilling or production operation of the proposed action.

The No Action Alternative would deny Bayless' development of the proposed action. Under this alternative, land use within the Anasazi ACEC and the Monument would remain unchanged.

3.2.2.2 Mitigation Measures

No mitigation measures proposed.

3.2.3 Impacts to Cultural Resources

Archeological clearance is recommended by LAC for the proposed North Mail Trail No. 1 well pad site. This determination was made based on the absence and/or avoidance of cultural resources within the project area. A detailed evaluation of cultural resources was conducted in the project area; therefore, it is very unlikely that there are undetected cultural resources in the project area.

3.2.3.1 Summary of Impacts

Under Alternative D (Modified Proposed Action), there would be no impacts to cultural resources during construction of the proposed action, based on implementation of the mitigation measures described below and following adherence to Surface Use COA.

The No Action Alternative would deny Bayless' development of the proposed action. Under this alternative, there would be no impacts to project area cultural resources.

3.2.3.2 Mitigation Measures

As specified in Construction and Drilling COA #2 of Appendix A of this EA, if subsurface cultural resources are unearthed during project construction, all activities in the vicinity of the cultural resource would cease and a BLM representative notified immediately (either Lou Ann Jacobson (970) 882-5600 or Lucas Vargo (970) 882-6845. Likewise, as specified in Construction and Drilling COA #2, the pipeline route will be moved to the north and east sides of the existing road to avoid sites 5MT16914 and 5MT16915. Construction and Drilling COA #2 of Appendix A also specifies a number of other mitigation measures related to potential cultural resources at the site and along the pipeline route.

3.2.4 Impacts to Environmental Justice

The proposed action would result in increased oil and gas related traffic along the existing project area bladed access road. During construction and drilling operations, there will be approximately 386 vehicle trips passing the 5-10 residences (Refer to Section 2.2.4). During operation of the well, there would be approximately 160 trips passing these residences the first year diminishing to approximately 70 trips annually. This increased traffic will have moderate short-term adverse impacts on localized air quality due to suspended particulates (dust) and vehicle emissions. There would also be a moderate increase in the traffic risks to human health and safety (Refer to Section 3.3.8). During construction and drilling and production operations, there would be an increased risk of transportation-related hazardous material releases (Refer to Section 3.3.11). Based on the potential impacts to air quality, health and safety, and transportation described within Chapter 3, impacts on environmental justice would be low to moderate and both short to long-term.

3.2.4.1 Summary of Impacts

Under Alternative D (Modified Proposed Action) there would be low to moderate short-term impacts during construction and drilling operations, and low to moderate long-term impacts during production. These potential impacts would be mitigated by the implementation of mitigation measures described below and following adherence to Surface Use COA.

The No Action Alternative would deny Bayless' development of the proposed action. Under this alternative, there would be no impacts to Environmental Justice.

3.2.4.2 Mitigation Measures

Suspended dust from oil and gas traffic during construction and drilling will be reduced through watering of the access roads, in the vicinity of the residences, with fresh water from a clean water source (Construction & Drilling COA # 11). Spills or releases of oil or production water will be removed and disposed of in accordance with State and Federal regulations (Construction & Drilling COA # 12). To reduce traffic hazards to area residents, signs would be posted to alert tanker and other vehicle drivers of pedestrians and/or children in the area (Construction & Drilling COA # 13). Bayless would also notify area residents of increased traffic related to construction and drilling activities prior to initiation of construction.

3.2.5 Impacts to Floodplains

The proposed action would result in increased oil and gas traffic within the McElmo Creek floodplain. Tanker trucks and other vehicles traveling along project area access roads increases the potential for vehicle-related hazardous material spills, particularly along the relatively steep, mostly unimproved road that ascends North Mail Trail Mesa. This impact is expected to be low to moderate and short-term during construction and drilling and low and long-term during production, depending on the frequency of tanker and/or vehicle trips to the well sites.

3.2.5.1 Summary of Impacts

Under Alternative D (Modified Proposed Action) there would be low to moderate and short to long-term impacts as a result of vehicle-related accidents and spills within the McElmo Creek floodplain.

The No Action Alternative would deny Bayless' development of the proposed action. Under this alternative, there would be no impact to project area floodplains.

3.2.5.2 Mitigation Measures

Spills or releases of oil or production water in the McElmo Creek floodplain would be removed and disposed in accordance with State and Federal regulations (Construction & Drilling COA # 12).

3.2.6 Impacts from Invasive, Non-native Species

Loss of vegetation in the proposed project area would occur due to blading and trenching. A total of approximately 2.7 acres (1.2 acres for the well pad, and 1.5 acres for new access roads and pipelines) of vegetation would be removed as a result of the development of the proposed action. The removal of vegetation could increase the potential for noxious weed infestation in the project area. Infestation could include species that are known to occur within the project area, *Erodium cicutarium* and *Anisantha tectorum*, as well as other species listed on the Colorado Noxious Weed List (USGS 2001). This impact is expected to be low and short-term during construction and drilling, and low and long-term during production, as unused areas of the well pad would be re-claimed.

3.2.6.1 Summary of Impacts

Under Alternative D (Modified Proposed Action) there would be low, short-term potential impact during construction and drilling operations associated with increasing the potential for invasive species to establish in the project area. Following successful reclamation and adherence to mitigation measures and Surface Use COA's in Appendix A, potential impacts are expected to be low and long-term during production.

The No Action Alternative would deny Bayless' development of the proposed action. Under this alternative, there would be no change to project area vegetation, and no increase in the likelihood of invasive species spreading.

3.2.6.2 Mitigation Measures

Reclamation, including re-seeding and noxious weed management of the project area, is discussed in detail in (Construction & Drilling COA's 7 & 8, Production COA #4, and Reclamation COA's 2, 3, and 5-9) in Appendix A of this EA. Stripped topsoil and vegetation would be stockpiled for subsequent reclamation of unused areas of the well pad. Following well construction, re-vegetation would be initiated by Bayless, at the direction of the BLM, for areas no longer required for production operations. Unused areas of the proposed project area disturbance would be re-seeded with a BLM approved seed mix to stabilize soils and prevent erosion. Reclamation will be considered successful when the desired vegetative species are established, erosion is controlled, weeds are considered a minimal threat, and it is likely that ground cover will return to a desirable condition (Reclamation COA #8). Should re-vegetation attempts fail to meet these criteria, the operator would continue re-vegetation efforts, at the request of the BLM, until this standard is met. Monitoring for noxious weeds and appropriate treatment and controls would be done by Bayless and the BLM throughout the production period.

3.2.7 Impacts to Migratory Birds

The proposed action would remove 2.7 acres of vegetation in the project area. Vegetation removal during construction activities would result in a loss of breeding and foraging habitat for avian species associated with salt desert shrublands. This impact would be low and short-term. There would be no "take" (violation of the Migratory Birds Treaty Act) to birds or nests following the implementation of mitigation measures described below (i.e. pre-construction breeding bird surveys). Construction and drilling activities would result in increased noise, human activity, and vehicle traffic in the project area, which could cause birds to avoid the project area vicinity. During production, there would be considerably less vehicle and human activity within the project area. However, noise generated from the well pumpjacks, operating 24 hours a day, could impact area birds, resulting in avoidance of the project area vicinity. Impacts to area birds associated with noise, vehicle, and human activity are expected to be low to moderate and short-term during construction and drilling, and low to moderate and long-term during production.

The reserve pit could also pose a long-term hazard to birds, due to individuals flying into or drinking from the pits. This hazard could result in deaths of individual birds protected under the Migratory Bird Treaty Act (16 USC 703 – 711). This risk could be radically reduced or eliminated by following the given mitigation measures.

3.2.7.1 Summary of Impacts

Under Alternative D (Modified Proposed Action), potential impacts to area birds associated with habitat loss would be low to moderate and long-term during construction and drilling. Impacts associated with noise, human and vehicular activity, and reserve pit lining would be low to moderate and short-term during construction and drilling, and low to moderate and long-term during operation. These potential impacts would be minimized by the implementation of mitigation measures described below and following adherence to Surface Use COA.

The No Action Alternative would deny Bayless' development of the proposed action. Under this alternative, there would be no impacts to birds in the project area.

3.2.7.2 Mitigation Measures

Construction activities would be confined to the proposed well pads, and access roads, and well-tie flowlines to minimize potential impacts to breeding birds (Construction & Drilling COA # 10 and Production COA #9). Potential takes to breeding birds or nests would be avoided as a result of the completion of breeding bird/nest surveys prior to vegetation removal. It is recommended that vegetation removal take place during the non-breeding season for area birds nesting in salt desert shrublands (approximately September-April). In addition, implementation of Construction & Drilling COA#14 (described in section 3.2.8.2, below, for protection of the longnose leopard lizard), also affords protection to migratory birds. This COA prohibits drilling and construction activity from May 15 - July 15, the primary nesting period for migratory birds in CANM. In the unlikely event that an active nest was found, vegetation removal would be postponed until after the nest either successfully fledges young, fails, or is no longer occupied. The impact to birds caused by the removal of vegetation would be mitigated through the implementation of reclamation measures outlined in the BLM Surface Use COA's (Appendix

A). After drilling of the well is complete and the reserve pit has been fenced, bird netting would be placed over the pit (Construction & Drilling COA # 4).

3.2.8 Impacts to Threatened, Endangered, and Sensitive Species

There are no federally listed threatened, endangered, or candidate species with potential to occur within the project area or project area vicinity. The Modified Proposed Action would have "No Affect" on any of these species.

Habitat for the longnose leopard lizard occurs within the project area but no lizards have been located during past surveys and there are no known records on North Mail Trail Mesa. The longnose leopard lizard utilizes salt desert shrubland habitat during the breeding season. Habitat for the Mesa Verde nightsnake is located in the rocky slopes and canyons that comprise the mesa slopes adjacent to the project area. The removal of 2.7 acres of vegetation at the well site would result in a direct loss of habitat for the longnose leopard lizard. This impact would be low and long-term. If this lizard is breeding within the project area, surface disturbance associated with vegetation removal and construction and drilling may destroy eggs, which are laid underground in burrows. If vegetation removal or construction and drilling were to occur during the non-breeding season (August-April), surface disturbance could destroy individuals burrowed underground within the project area. These impacts however are expected to be low and short-term. Construction activities could also result in avoidance of the project area vicinity by these reptiles, due to increased noise and human and vehicular activity. The duration of construction activities would be for a period of approximately three to four weeks, thereby limiting the severity of potential impact to a short time period. During production, there would be considerably less vehicle and human activity within the project area; however noise generated from the well pumpjack, operating 24 hours a day, could result in individuals avoiding the project area vicinity. Impacts to the longnose leopard lizard and Mesa Verde nightsnake associated with noise and vehicle and human activity are expected to be low to moderate and short-term during construction and drilling, and low to moderate and long-term during production.

A number of BLM State Sensitive Species may utilize the project area vicinity for foraging/roosting habitat. These include ferruginous hawk, peregrine falcon, Townsend's big-eared bat, spotted bat, Allen's (Mexican) big-eared bat, fringed myotis, Yuma myotis, and big free-tailed bat. Area ferruginous hawks may use the project area and vicinity for winter hunting grounds. The rocky cliffs adjacent to the project area are suitable roosting/foraging habitat for spotted bat, Allen's (Mexican) big-eared bat, fringed myotis, yuma myotis, and big-free-tailed bat. There is no potential breeding habitat, however, for these bat species in the vicinity of the well site. The adjacent rocky cliffs are also suitable nesting and perching sites for peregrine falcon. This species may also utilize the project vicinity for hunting. Piñon-juniper woodlands adjacent to the project area are potential foraging habitat for Townsend's big-eared bat, spotted bat, and fringed myotis.

Construction and drilling activities at the well site may cause individual ferruginous hawks, Townsend's big-eared bats, spotted bats, Allen's (Mexican) big-eared bats, fringed myotis, Yuma myotis, big free-tailed bats, and peregrine falcons to avoid the area due to increased noise and human activity. The duration of construction activities would be for a period of

approximately three to four weeks, thereby limiting the severity of potential impact to a short time period. During production, there would be considerably less vehicle and human activity within the project area; however noise generated from the well pumpjack, operating 24 hours a day, could result in TES species avoidance of the project area vicinity (Robert Garrigues, pers. comm.). Impacts to TES species associated with noise and vehicle and human activity are expected to be low to moderate and short-term during construction and drilling, and low to moderate and long-term during production.

No other BLM sensitive species are known to occur within the project area or project area vicinity. The Proposed Action would have no impact on these remaining 19 species.

3.2.8.1 Summary of Impacts

Under Alternative D (Modified Proposed Action), impacts to area TES species associated with habitat loss would be low to moderate and long-term during construction and drilling. Impacts associated with noise, human activity, and vehicular traffic would be low to moderate during construction and drilling, shifting to moderate during operation. These potential impacts would be mitigated by the implementation of mitigation measures described below and following adherence to Surface Use Conditions of Approval (Appendix A).

Impacts associated with noise, human and vehicular activity, and reserve pit lining would be low to moderate during construction and drilling, shifting to moderate during operation. These potential impacts would be minimized by the implementation of mitigation measures described

The No Action Alternative would deny Bayless' proposed action. Under this alternative, there would be no impacts to project area TES species.

3.2.8.2 Mitigation Measures

Construction activities would be confined to the proposed well pad, access road, and well-tie flowline to avoid potential impacts to TES species possibly occurring outside the area surveyed during the biological survey. If the construction and drilling activities are not completed prior to the breeding season, BLM would conduct surveys in the project area as part of the annual reptile survey effort in 2005. Positive locations of the longnose leopard lizard would result in additional protections at this location. Construction and drilling activities are not permitted during the lizard's breeding period (May 15th – July 15th), to avoid disturbing breeding adults or destroying eggs in the project area (Construction & Drilling COA # 14). Should any other TES species be identified during construction or operation of the proposed project, BLM resource specialists should be contacted immediately.

3.2.9 Impacts From Hazardous or Solid Waste

Bayless maintains a file, per 29 CFR 1910.1200(g), containing current MSDS for all chemicals, compounds, and/or substances which are utilized during the course of construction, drilling, completion and production operations for this project. Hazardous materials which may be found at the site, may include drilling mud and cementing products which are primarily inhalation hazards, fuels (flammable and/or combustible), materials that may be necessary for well completion, stimulation activities such as flammable or combustible substances and acids/gels (corrosives). The following hazardous substances may be present within the project area during

construction and drilling: oils, fuels, lubricants, ethylene glycol, etc. Impacts associated with spills or releases of hazardous materials would be low to moderate and short-term during construction and drilling activities.

Potential risks of spills or releases would be associated with tanker trucks carrying oil and production water during well operation. There would also be a risk of spills or releases of other hazardous substances, such as production fluids, fuels, or other constituents from the well sites. These impacts are expected to be low to moderate and long-term during well operation.

Human solid and liquid wastes would be generated during the construction and drilling phases of the project and would be contained within portable facilities at the site. The facilities would be pumped and removed from the project area by a Bayless contractor following construction. Impacts associated with human wastes would be low and short-term during drilling and construction, and low and long-term during operation.

3.2.9.1 Summary of Impacts

Under Alternative D (Modified Proposed Action), the potential of the proposed action to increase releases of hazardous or solid wastes is low to moderate and short-term during construction and drilling and low and long-term during production operations. These potential impacts would be mitigated by the implementation of mitigation measures described below and following adherence to Surface Use COA.

The No Action Alternative would deny Bayless' development of the proposed action. Under this alternative, there would be no exposure to hazardous or solid wastes.

3.2.9.2 Mitigation Measures

Signs would be posted on the proposed project facility that identifies potential hazards associated with its operation including chemical hazards. Material Safety Data Sheets (MSDS) for any treatment chemicals would be maintained on site during the construction phase. Equipment operators would be required to wear appropriate personal protective equipment to minimize exposure to these hazards. Personnel working on location during drilling and completion of the proposed wells would be informed on appropriate measures and procedures for response to accidental spills and releases of any on site materials. Any waste generated at the locations would be removed from the sites for appropriate disposal in accordance with State and Federal regulations. All tanks and separators will be within earthen secondary containment areas capable of holding 120% of the storage capacity of the largest tank/separator within the containment berm (Production COA #7). In addition, earthen berms would also be constructed around the well pads to contain any spilled hazardous substances (Production COA #6).

All hazardous substances and commercial preparations would be handled in an appropriate manner to minimize the potential for leaks or spills to the environment. Any spills or releases would be cleaned up and disposed in accordance with State and Federal regulations (Construction & Drilling COA #12).

3.2.10 Impacts to Surface-Water Quality

Potential impacts to surface water may occur as a result of developing the proposed action. Tanker trucks, carrying oil and production water, and other oil and gas related vehicles, carrying hazardous substances, pose risks of spills or releases into numerous drainages along project area access roads, particularly McElmo Canyon. The proposed action would also result in increased potential for spills or releases into McElmo Creek from oil and gas traffic along County Road G, which parallels and crosses McElmo Creek. These impacts are expected to be low to moderate and short-term during construction and drilling, shifting to low and long-term during production, based on fewer vehicle trips during operation of the wells. Spills or releases of hazardous substances from production equipment or the flowline present a potentially low to moderate adverse impact to area surface water quality. These impacts would be short-term to long-term through the duration of construction, drilling, and operation of the well.

In addition to potential impacts from spills or releases of hazardous substances, surface water could be impacted by disturbed project area soils, subject to erosion by wind and/or water into nearby ephemeral washes. This impact would be low to moderate and short-term to long-term through the duration of construction, drilling, and operation of the well.

Depletion of surface water could result from drilling and cross-connection of water bearing zones that may be tributary to surface water. The actual effects on surface water quality depend on the magnitude, duration, and intensity of precipitation events, well completion techniques, and best management practices (Fifield 2001) used for stormwater pollution control. Absence of actively flowing surface waters near the proposed well pad reduces the potential for surface water quality impacts. Impacts associated with depletion of surface water are expected to be low and long-term during drilling and operation of the well based on the proposed drilling and well completion specifications.

3.2.10.1 Summary of Impacts

Under Alternative D (Modified Proposed Action), potential impacts to surface water quality would be low to moderate and short-term during construction and drilling, and low to moderate and long-term during production. The potential impact of the proposed action on surface water depletions would be low and long term during construction and drilling as well as production. These potential impacts would be mitigated by the implementation of mitigation measures described below and following adherence to the Surface Use COA's in Appendix A.

The No Action Alternative would deny Bayless' development of the proposed action. Under this alternative, there would be no impacts to project area surface water resources.

3.2.10.2 Mitigation Measures

Unused areas of the proposed project area disturbance would be re-seeded with a BLM approved seed mix to stabilize soils and prevent erosion (Reclamation COA #5). Reclamation would follow the specifications described in the Reclamation COA's in Appendix A. All disturbed areas would be re-contoured to natural topography. Best management practices (Fifield 2001) for sediment and erosion control and inspection and monitoring should be conducted to assure functionality of these erosion control and reclamation measures.

All tanks and separators will be within earthen secondary containment areas capable of holding 120% of the storage capacity of the largest tank/separator within the containment area (Production COA #7). In addition, earthen berms would also be constructed around the well pad to contain any spilled hazardous substances (Construction & Drilling COA #6). Personnel working on location during drilling and operation of the proposed wells would be informed on appropriate measures and procedures for response to accidental spills and releases of any on site materials. Any spills/releases at the locations would be removed from the sites for appropriate disposal in accordance with State and Federal regulations.

During well site selection (BLM onsite), the BLM recommended the following general mitigation measures to reduce impacts to surface water: surface-disturbing activities should not be constructed during excessive wet periods, to minimize off-site sediment discharge; excelsior bales should be used to mitigate potential sediment discharge from the well pad into the ephemeral drainages near the well pad; no material from the well pad or road and pipeline construction should be put into ephemeral drainages (Construction & Drilling COA #5); and dust abatement measures and compaction should be used to avoid dust (Construction & Drilling COA #11). The reserve pit will be sealed in such a manner as to prevent leakage of the fluids (Construction & Drilling COA #3). Methods available to ensure containment of drilling fluids in the reserve pit include lining the inside of the pit with at least 10-mil plastic. If a plastic liner is used, the bottom of the pit shall be smooth and free of any sharp rocks. If the pit has a rocky bottom, it shall be bedded with a material such as soil, sand, straw or hay to avoid the possibility puncturing the liner. A minimum of not less than a 2-foot freeboard will be maintained in the pit at all times. All oil or floating debris will be removed from the pit immediately after the drilling phase or the well. Well construction techniques incorporate specific surface casing measures to minimize the potential for cross connection and potential dewatering of shallow ground-water aquifers.

3.2.11 Impacts to Ground-water Quality

Potential ground-water impacts associated with oil resource development include:

- Potential cross-connection and dewatering of aquifers across geologic strata;
- Migration of oil/gas into shallow aquifers; and
- Contamination of shallow drinking water aquifers due to surface spills and releases.

Ground-water contamination, dewatering, or oil/gas migration could potentially occur as the result of improperly sealed surface casings during drilling, well bore stimulation activities, production, and abandonment activities. The potential for cross contamination of ground-water aquifers, dewatering, and gas migration is unlikely due to the requirement that wells penetrating fresh water zones to be cased and cemented. Releases of naturally occurring gases to ground water include methane, hydrogen sulfide, or carbon dioxide. Although migration of gas by diffusion or through natural fractures is possible, manmade conduits account for most of the upward migration of gas to the near surface environment (USGS 1994). Potential impacts are expected to be low and long-term during drilling and operation.

Shallow ground-water quality could be impacted by leakage of fluids from transfer and transportation of drilling fluids, additives, and fuels. Trucks carrying oil and production water

pose risks of spills that could also impact shallow ground-water quality. These impacts are expected to be low to moderate and short-term during construction and drilling and low to moderate and long-term during production.

3.2.11.1 Summary of Impacts

Under Alternative D (Modified Proposed Action), potential impacts to ground-water quality and aquifer dewatering would be low to moderate and short-term during construction and low to moderate and long term during production operations. These potential impacts would be mitigated by the implementation of mitigation measures described below and following adherence to Surface Use COA.

The No Action Alternative would deny Bayless' development of the proposed action. Under this alternative, there would be no impacts to project area ground-water resources.

3.2.11.2 Mitigation Measures

Drilling and production fluids from well drilling, completion, and operation would be removed from the locations for appropriate disposal. All tanks and separators will be within earthen secondary containment areas capable of holding 120% of the storage capacity of the largest tank/separator inside the containment area (Production COA #7). In addition, earthen berms would also be constructed around the well pad to contain any spilled hazardous substances (Construction & Drilling COA #6). Releases of hazardous substances, chemicals, or fuels during construction or operation would be contained and disposed in accordance with State and Federal regulations (Construction & Drilling COA #12). Personnel working at the site should be informed of spill control procedures in accordance with a written plan. Contamination and dewatering of shallow ground water would be minimized through casing off of the shallow zone as specified in the drilling plan of the APD. The reserve pit would be sealed with plastic liner as specified in mitigations for surface-water quality (Construction & Drilling COA #3).

3.3 Non-critical Elements

3.3.1 Impacts to Soils

The proposed action would result in temporary displacement, compaction and mixing of soils in the project area. Accidental spills or releases of hazardous substances could result in soil contamination requiring remediation or removal. Due to the susceptibility of the project area soils to wind and water erosion, construction activities would indirectly cause an undetermined amount of loss of upper soil layers. Reduced capacity for plant growth due to removal and/or disturbance of the soil would be an additional indirect effect. These impacts are expected to be low to moderate and short-term during construction and drilling, with a reduction to low and long-term through stabilization and reclamation activities after construction and drilling.

3.3.1.1 Summary of Impacts

Under Alternative D (Modified Proposed Action), impacts to soils from construction of the proposed project would be low to moderate and short-term. During the operation and maintenance phase of the proposed action, stabilization and reclamation of unused areas should reduce the amount of soil disturbance. The impact from operation and maintenance would be low and long-term. These potential impacts would be mitigated by the implementation of

mitigation measures described below and following adherence to the Surface Use COA's in Appendix A.

The No Action Alternative would deny Bayless' development of the proposed action. Under this alternative, there would be no impacts to project area soils.

3.3.1.2 Mitigation Measures

Mitigation measures for construction and operation of the well pad and access road would consist of stockpiling topsoils, reclamation and re-seeding unused areas of the pads and flowlines with a weed-free BLM approved seed mix to stabilize soils and to prevent erosion in areas no longer needed for production (Construction & Drilling COA's 7 & 8, Production COA #4, and Reclamation COA's 2, 3, and 5-9). Bayless would utilize best management practices (Fifield 2001) to control erosion during construction of the proposed project, and during site reclamation. Vehicle and pedestrian traffic would be restricted to the well pad, access road and well-tie areas or established roads to prevent further soil mixing and compaction outside the proposed project area (Construction & Drilling COA #10 and Production COA # 9). Spills or releases of hazardous or solid wastes would be removed and disposed in accordance with State and Federal regulations (Construction & Drilling COA #12). Dust abatement measures and compaction should be used to avoid loss of soil (Construction & Drilling COA #11). The reserve pit would be sealed with plastic liner as specified in mitigations for surface water quality. The well pad area would be bermed to minimize off-site migration of disturbed soils.

Monitoring for noxious weeds and appropriate treatment and controls would be the responsibility of Bayless. During production, a reserve of topsoil would be kept for final reclamation. This reserve pile will be seeded to prevent loss to wind and water erosion and to prevent establishment of noxious weeds.

Specific erosion control measures would be included in the BLM Surface Use COA. Upon plugging and abandonment of the well following its useful life, the entire well pad and access road will be reclaimed and re-seeded as specified in the surface use conditions of approval in Appendix A.

3.3.2 Impacts to Vegetation

Loss of vegetation in the proposed project area would occur due to blading and trenching. Approximately 2.7 acres of salt desert shrubland habitat would be removed as a result of the development of the proposed action. The removal of vegetation could reduce the amount of forage and cover available for wildlife and increase the potential for noxious weed infestations in the project area. This impact would be moderate and short-term, as there would be a noticeable change in the composition of the project area vegetation. As unused areas of the well pad are reclaimed, impacts would shift to low and long-term for these reclaimed areas. Accidental spills of hazardous substances during construction and drilling or of oil or production water during operation could potentially affect the surrounding flora. These impacts would be low to moderate and short-term during drilling and construction, and low and long-term during operation.

3.3.2.1 Summary of Impacts

Under Alternative D (Modified Proposed Action), potential impacts to vegetation would be low to moderate and short-term during well pad and access road construction, and low and long-term during operation of the well. These potential impacts would be minimized by the implementation of mitigation measures described below and following adherence to Surface Use COA.

The No Action Alternative would deny Bayless' development of the proposed action. Under this alternative, there would be no impacts to project area vegetation.

3.3.2.2 Mitigation Measures

Reclamation, including re-seeding with a BLM seed mix and noxious weed management, of the project area is described in the conditions of approval in Appendix A. Stripped topsoil and vegetation would be stockpiled for subsequent reclamation of unused areas of the well pads (Construction & Drilling COA #8). Bayless would initiate re-vegetation at the direction of the BLM following construction for areas no longer required for production operations. Reclamation will be considered successful when the desired vegetative species are established, erosion is controlled, weeds are considered a minimal threat, and it is likely that ground cover will return to a desirable condition (Construction & Drilling COA #8). Should re-vegetation attempts fail to meet these criteria, the operator would continue re-vegetation efforts, at the request of the BLM, until this standard is met. Monitoring for noxious weeds and appropriate treatment and controls would be the responsibility of Bayless. All tanks and separators will be within earthen secondary containment areas capable of holding 120% of the volume of the largest tank/separator in each containment area. Any spills or releases of hazardous substances would be cleaned up and disposed of in accordance with applicable requirements and spill response plans.

3.3.3 Impacts to Topography

Blading, excavations and trenching during construction activities would alter the existing topography of the project area. Cut and fill activities associated with the construction of the well pad are detailed in the well site plat in Appendix A. These impacts would be low to moderate and long-term. There would be no additional impacts to area topography because of drilling and operation of the well pad, and or use of the access road.

3.3.3.1 Summary of Impacts

Under Alternative D (Modified Proposed Action), potential impacts to area topography would be low to moderate and long-term. These potential impacts would be mitigated by the implementation of mitigation measures described below and following adherence to Surface Use COA.

The No Action Alternative would deny Bayless' development of the proposed action. Under this alternative, there would be no impacts to project area topography.

3.3.3.2 Mitigation Measures

All disturbed areas would be re-contoured to blend as nearly as possible with the natural topography (Reclamation COA #5). This includes removing all berms and refilling all cuts once

operations cease. Re-vegetation procedures would assist in stabilizing these re-contoured features.

3.3.4 Impacts to Wildlife

The removal of 2.7 acres of vegetation from the project area would result in a loss of wildlife habitat. Specifically, vegetation removal will reduce available forage and cover for area mammals, birds, and reptiles. Construction activities could also result in avoidance of the project area vicinity by area wildlife due to increased noise and human activity. Some small, burrowing mammals and reptiles may also be killed or displaced during blading and trenching of the proposed well pad and access road. These impacts are expected to be low to moderate and short-term. The duration of construction activities would be for a period of approximately three to four weeks, thereby limiting the severity of potential impact to a short time period.

There would be long-term disturbances to area wildlife during operation of the well from noise from the pumpjack operating 24-hours a day, periodic human activity, vehicular traffic in the area, noise, and from the conversion of habitat to industrial use. These impacts are expected to be low to moderate and long-term. Impacts to migratory birds and TES species are also described in sections 3.2.7 and 3.2.8.

3.3.4.1 Summary of Impacts

Under Alternative D (Modified Proposed Action), potential impacts to area wildlife would be low to moderate and short-term during construction and drilling and moderate and long-term during production. These potential impacts would be minimized by the implementation of mitigation measures described below and following adherence to Surface Use COA's in Appendix A.

The No Action Alternative would deny Bayless' development of the proposed action. Under this alternative, there would be no impacts to project area wildlife.

3.3.4.2 Mitigation Measures

Construction activities would be confined to the proposed well pad, access road, and pipeline corridor to minimize disruption to wildlife (Construction & Drilling COA #10 and Production COA #9). The impact to wildlife, caused by the removal of vegetation, will be mitigated through the implementation of reclamation measures outlined in the COA's in Appendix A.

3.3.5 Impacts to Big Game

The proposed action would result in the removal of 2.7 acres of potential mule deer habitat from the project area. In addition, construction and drilling and production activities could cause area big game to avoid the project area vicinity due to increased noise, particularly from the pumpjack operating 24 hours a day, and increased vehicle and human activity. However, because there are no designated concentration areas for mule deer within the project area vicinity, there would be no impacts to big-game species as a result of the proposed action.

3.3.5.1 Summary of Impacts

Under Alternative D (Modified Proposed Action), there would be no impacts to area big game during construction and drilling or production activities.

The No Action Alternative would deny Bayless' development of the proposed action. Under this alternative, there would be no impacts to big game in the project area.

3.3.5.2 Mitigations

No mitigations are proposed.

3.3.6 Impacts to Range

Loss of vegetation in the proposed project area would occur due to blading and trenching. Approximately 2.7 acres of vegetation would be removed as a result of the development of the proposed action. The removal of vegetation could reduce the amount of forage available for cattle and increase the potential for noxious weed infestations in the project area. The impacts associated with forage removal during construction activities would be low to moderate and short-term. The potential for introduction of noxious weeds during construction are expected to be low and short-term. Operation of the proposed well and pipeline is not expected to affect the surrounding flora significantly and impacts are expected to be low and long-term.

3.3.6.1 Summary of Impacts

Under Alternative D (Modified Proposed Action), potential impacts to grazing conditions and allotments would be low to moderate and short-term. The potential for noxious weed introduction is low and short-term. Impacts from noxious weed infestation during production operations are expected to be low and long-term. These potential impacts would be minimized by the implementation of mitigation measures described below and following adherence to Surface Use COA.

The No Action Alternative would deny Bayless' development of the proposed action. Under this alternative, there would be no impacts to project area range conditions.

3.3.6.2 Mitigation Measures

Impacts from site clearing activities would be minimized through reclamation of the project area with weed free BLM recommended seed mix, and the project applicants noxious weed control (Reclamation COA's 2,3, and 5-8). The re-seeded well pads would be fenced for at least 3 years to improve site reclamation. If these areas are not fenced after re-seeding, cattle tend to concentrate in these locations and graze the new seedlings, thereby ruining the reclamation efforts (Reclamation COA # 10).

3.3.7 Impacts to Visual Resources

The visual resources of the land within the immediate vicinity of the project area would be permanently altered by the proposed action. The project area occurs within the boundaries of the Monument; therefore impacts to visual resources may be more significant because of the public's attention to the area. During construction activities, machinery emissions, dust, disturbed ground, drilling and construction equipment, and pipe staging in the project area would result in

moderate and short-term, visual impacts. During production, the well pumpjack and associated facilities would be visible from the access roads in the vicinity of the well pad. These impacts would be moderate and long-term. The vistas of Goodman OSA are approximately 9-10 miles away from the project area; therefore, there would be very low impacts to visual resources. The production structures at the well site will be visible from the Ismay Trading Post on the horizon to the south. The Trading Post is 2.3 miles north of the well site which means it is in a middle-ground visual distance zone. Drilling operations will be obviously visible from the Trading Post and visual impact during the drilling phase will be moderate and short term. Production facilities will be much less noticeable than the drilling equipment and when mitigation measures are implemented (Production COA's 1 & 2) the visual impacts at the Trading Post will be low and long term.

The well site production facilities will also be visible on the horizon from the "bridge" in Bridge Canyon – about four miles north of the well site. This distance of four miles puts the well site in a background visual zone from the Bridge Canyon area. Again, visual impacts of the drilling operations will be moderate and short term. Again, the production facilities will be much less noticeable than the drilling equipment and when mitigation measures are implemented (Production COA's 1 & 2) the visual impacts at the Trading Post will be low and long term.

Production structures at the well site will almost certainly be in a visual line-of-sight from some visual vantage points in Hovenweep National Monument (Hovenweep). The distance from Hovenweep to the well site ranges from 7 to 8 miles on a north-south line. This distance puts the well site in a background visual zone. The drilling rig may be visible to tehnaked eye from certain points in Hovenweep, but it will probably not be an obvious feature. The visual impacts during the drilling phase of the poperation will be low and short term. Given the size of the production structures, the distance from Hovenweep, and the mitigation measures that will be implemented (Production COA's 1 & 2 in Appendix A), it is unlikely that production structures at the well site will be visible to the naked eye and the visual impacts will be low and long term.

Production structure at this well site will be visible from numerous vantage points in the Monument that are in visual resource Management Classes 2, 3, and 4. Visual distance zones from these vantage points range from Foreground (0 to ½ mile), Middle-Ground (½ to 3 miles), Background (3 to 10 miles), and Seldom Seen (greater than 10 miles). Depending upon the vantage point, and distance from the well site, visual impacts during the drilling phase of the operation will range from low and short term to significant and short term. Visual impacts from the production phase of the operation will range from moderate and long term to low and long term.

The production structures will also be visible from various points in the Ute Mountain Ute Indian Reservation – particularly from on Sleeping Ute Mountain. Depending upon the vantage point, and distance from the well site, visual impacts during the drilling phase of the operation will range from low and short term to moderate and short term. Again, given the size of the production structures, the distance from Hovenweep, and the mitigation measures that will be implemented (Production COA's 1 & 2 in Appendix A), it is unlikely that production structures at the well site will be visible to the naked eye form most of these vantage points. Therefore, visual impacts from the production phase of the operation will be low and long term.

3.3.7.1 Summary of Impacts

Under Alternative D (Modified Proposed Action), potential impacts to area visual resources would be moderate and short-term during construction and moderate and long-term during production operations. These potential impacts would be minimized by the implementation of mitigation measures described below and following adherence to Surface Use COA.

The No Action Alternative would deny Bayless' development of the proposed action. Under this alternative, there would be no impacts to project area visual resources.

3.3.7.2 Mitigation Measures

All trash materials would be removed from the area and disposed of in an authorized disposal area. All disturbed areas would be re-contoured to blend as nearly as possible with the natural topography (Reclamation COA #5). This includes removing all berms and refilling all cuts. Re-vegetation procedures would assist in minimizing visual disruption. All permanent structures (onsite for six months or longer) constructed or installed would be painted a flat, non-reflective earth tone color, which would be Carlsbad Canyon (Munsell Color Chart) (Production COA #1). Low-profile production equipment (tanks, separators, and similar equipment) will be required at the site (Production COA #2). If a pump jack is, at any time, installed at the site, the long axis of the unit will be oriented north-south so that the pump-jack motion is less obvious from visual vantage points north of the site (Production COA #2).

3.3.8 Impacts from Noise

During construction of the proposed action there would be a direct short-term increase in project area ambient noise levels due to the operation of heavy equipment. Construction noise would range from 80-93 db(A) during the operation of a grader, 80-82 db(A) using a bull-dozer, and 83-94 db(A) using a truck. Drilling rig sound levels would be expected to exceed other heavy equipment on location. The direct impact would be moderate and short-term. Noise impacts during long-term operation and maintenance would be dependant on the type and size of pumping equipment installed at the well to increase production of natural gas and oil. A pumpjack would be operational 24 hours a day, generating moderate and long-term noise impacts. Oil and gas-related traffic during production would also contribute to increased noise levels in the project area.

3.3.8.1 Summary of Impacts

Under Alternative D (Modified Proposed Action), potential impacts from increases in noise generation would be moderate and short-term during construction and drilling and moderate and long-term during production operations. These potential impacts would be minimized by the implementation of mitigation measures described below and following adherence to the Surface Use COA's in Appendix A.

The No Action Alternative would deny Bayless' development of the proposed action. Under this alternative, there would be no increases to project area ambient noise levels.

3.3.8.2 Mitigation Measures

- Hospital-type mufflers will be required on all equipment used at the site, regardless of the phase of the operation (Production COA #3).
- If, during any phase of the operation, noise becomes a nuisance, adequate muffling techniques will be required (Production COA #3).

3.3.9 Impacts to Health and Safety

The proposed action could potentially result in health and safety hazards to operators during the construction, drilling and operation of the proposed project, in addition to individuals that may travel to or access the well pad site. Potential hazards associated with operation of the proposed well pad include noise exposure, high-pressure liquid hazards, and chemical hazards. These impacts are expected to be low to moderate and short-term during construction and drilling, and low and long-term during production.

Tanker trucks carrying oil and production water to and from the well pad could result in spills, posing a health and safety hazard. Spills could contaminate area floodplains or surface water resources. Increased truck traffic along access roads adjacent to homes in the Navajo Indian Reservation could also impact human health and safety by increasing suspended particulates (dust) and hydrocarbon emissions, increasing the risk of oil and production water spills in residential areas, and increasing traffic hazards to children. All of these impacts are expected to be low to moderate during construction and drilling, and low to moderate during production.

3.3.9.1 Summary of Impacts

Under Alternative D (Modified Proposed Action), potential impacts from the release of hazardous materials would be low to moderate and short-term during construction and drilling and low to moderate and long-term during production operations. These potential impacts would be minimized by the implementation of mitigation measures described below and following adherence to Surface Use COA.

The No Action Alternative would deny Bayless' development of the proposed action. Under this alternative, there would be no impacts to project area health and safety.

3.3.9.2 Mitigation Measures

Signs would be posted (as necessary) on the proposed project facilities that identify potential hazards associated with its operation including H_2S gas, noise, high pressure and chemical hazards. MSDS for any treatment chemicals would be maintained on site during the construction phase. Equipment operators would be required to wear appropriate personal protective equipment to minimize exposure to these hazards. Only authorized personnel would be permitted onsite. All tanks and separators will be within earthen secondary containment areas capable of holding 120% of capacity of the largest tank/separator in each containment area (Production COA #7). Any spills or releases of hazardous substances would be cleaned up and disposed of in accordance with applicable requirements and spill response plans (Construction & Drilling COA #12).

3.3.10 Impacts to Socioeconomics

No adverse socioeconomic impacts are expected to occur as a result of developing the proposed project. There would be low and short-term beneficial economic impacts for a variety of contractors and businesses as a result of development of the proposed action. Additionally there would be moderate long-term beneficial impacts generated in the form of royalties, taxes and employment.

3.3.10.1 Summary of Impacts

Under Alternative D (Modified Proposed Action), potential beneficial impacts from the proposed action area expected to be low and short-term during construction and moderate and long-term during production. There are no expected adverse impacts expected to occur as a result of the proposed project.

The No Action Alternative would deny Bayless' development of the proposed action. Under this alternative, there would be no impacts to project area socioeconomics.

3.3.10.2 Mitigation Measures

No mitigation measures are proposed.

3.3.11 Impacts to Recreation Resources

This isolated portion of public lands has legal access from U.S. Highway 491 (formerly 666) and Montezuma County Road "G". The proposed project area has few roads that allow access to most of the area. The vicinity of the project area is limited to recreation. Impacts to area recreation opportunities because of drilling of the proposed action would be low and short-term. The impact would be low and long-term during the production life of the well. Public use of the area for recreational purposes may decrease due to the increased presence of industrial facilities in the area.

3.3.11.1 Summary of Impacts

Under Alternative D (Modified Proposed Action), potential impacts to recreational resources would be low and short-term during construction and drilling and low and long-term during production operations. These potential impacts would be minimized by the implementation of mitigation measures described below and following adherence to Surface Use COA.

The No Action Alternative would deny Bayless' development of the proposed action. Under this alternative, there would be no impacts to project area recreation resources.

3.3.11.2 Mitigation Measures

Noise impacts on recreation would be reduced through the use of hospital grade mufflers. Visual impacts would be mitigated to the extent possible as described in Section 3.3.7 and in Reclamation COA's 1 & 2 in Appendix A.

3.3.12 Impacts to Transportation

After the first year, approximately 1 tanker trip every 1-2 months would be expected to haul produced water (12-24 trips). This vehicle traffic represents an approximately 300 percent

increase in Bayless-related oil and gas development in the area during the first year of production. After the first year, the vehicle traffic associated with North Mail Trail No 1 would represent an approximately 75-100 percent increase in Bayless-related oil and gas development in the area. Bayless is the only operator on the North Mail Trail Mesa.

The Proposed Action would result in increased vehicular traffic along existing roads in the Monument. The increase in wear and tear of the roads could result in a decline in transportation safety. Vehicular traffic in the project area would be highest during construction and drilling. Traffic would consist of vehicles for construction and drilling and vehicles for laying surface flowline. Impacts to transportation safety during drilling and construction are expected to be moderate and short-term. Vehicular traffic would decrease during production, consisting of tankers hauling oil from the wells and light-duty vehicles to check the well meters and battery. Impacts during production are expected to be low and long-term

3.3.12.1 Summary of Impacts

Under Alternative D (Modified Proposed Action), potential impacts to transportation would be moderate and short-term during construction and drilling and low and long-term during production operations. These potential impacts would be minimized by the implementation of mitigation measures described below and following adherence to Surface Use COA.

The No Action Alternative would deny Bayless' development of the proposed action. Under this alternative, there would be no impacts to project area transportation.

3.3.12.2 Mitigation Measures

To maintain transportation safety in the project area vicinity, Bayless would maintain and/or repair any damage to project area roads as a result of increased vehicular traffic during construction, drilling, or production of the oil and gas wells.

3.4 Cumulative Impacts

Cumulative impacts are an aggregate of direct and indirect impacts and include actions that have occurred or can be reasonably expected to occur both within and outside of the project area in the future.

According to the RMP and the 1991 Oil and Gas Amendment (BLM 1991) for the San Juan/San Miguel Planning Area (SJ/SMPA), approximately 2% (1,430 acres) of the surface area within the management area will be impacted by oil and gas activities by 2009. That considers the potential drilling of 353 wells with an average surface disturbance of 4.1 acres per well (BLM 1991). The acreage of new disturbance for Bayless's Proposed Action is 2.7 acres. Accordingly, the cumulative impact from the proposed action would result in less than 1% of the estimated oil and gas surface disturbance in the management area. Additionally, the proposed action results in a smaller surface disturbance impact per well than planned for in the BLM Colorado Oil and Gas Leasing and Development EIS (1991).

The 2.7 acres of disturbance associated with the development of the proposed North Mail Trail No. 1 well site would result in cumulative impacts to water quality, soils, wildlife, and

vegetation. The removal of 2.7 acres of wildlife habitat, including habitat for the long-nosed leopard lizard, a BLM sensitive species, would contribute to habitat fragmentation that exists in the area from existing roads, flowlines, and well pads. Long-term visual impacts will occur as described in previous sectionse of this EA. Less noticeable cumulative impacts include increases in impacts to local air resources and noise levels during construction. It is intended that reclamation measures would minimize the majority of cumulative impacts from the proposed action.

Cumulative effects within the context of present activities and the basis for the effects determination are summarized in Table 3.0. Overall, cumulative impacts are expected to be low and in conformance with the RMP and 1991 Oil and Gas Amendment.

Table 3.0. Bayless North Mail Trail No. 1 Cumulative Impacts Summary

Environmental Resource	Environmental Consequences	Cumulative Impact	Basis For Determination
Air Quality	Nominal increase in air quality pollutants from natural gas equipment and traffic.	Low	Impacts are dispersed and relatively minor for construction of the well.
Cultural Resources	Disturbance of unidentified archaeological sites during construction and operation.	Low	Archaeological clearance required for APD application, operator training for incidental findings.
Environmental Justice	Increase in air quality pollutants from traffic, potential for spills, and traffic hazards to Navajo Indian Reservation residents along access road.	Low	Few minority or low-income populations in project area.
Floodplains	Potential contamination of McElmo Creek floodplain	Low to moderate	Potential for transportation spill reaching McElmo Creek. Spill response plan.
Invasive, Non-native Species	Invasive species establish in project area	Low	Implementation of a weed management plan
Migratory Birds	Loss of habitat for birds associated with salt desert shrublands; noise and disturbance to area birds.	Low	Proposed action would result in the loss of 2.7 ac of habitat in salt desert shrublands. Pumpjack for production creates noise disturbance.
TES Species	Loss of habitat for long-nosed leopard lizard and desert spiny lizard. Noise disturbance to 8 other TES species occurring adjacent to the project area.	Low	Proposed action would result in the loss of 2.7 ac of potential long-nosed leopard lizard and desert spiny lizard habitat. Increases in area human induced noise. TES and wildlife mitigation measures.
Waste, Hazardous or Solid	Potential to contaminate air, soil and water	Low to moderate	Construction and operation BMPs and spill response plan.
Surface Water	Potential contamination of surface water from sediments and other pollutants.	Low to Moderate	Lack of perennial surface water resources in the project area. Though potential for transportation spill reaching McElmo Creek.
Ground water	Potential contamination of ground-water resources from leakage.	Low	Minimal ground-water use in project area, approved construction procedures to reduce potential contamination.
Soils	Soil transfer and erosion, road damage, rutting. Contamination	Low	Consequences directly related to number of wells, volume and frequency of traffic in the area.
Vegetation	Vegetation and habitat loss due to two operating wells, access roads, and flowlines. Weed infestation.	Low to Moderate	Partial reclamation of unused areas of the well pads; noxious weed management.
Wildlife	Fragmentation/loss of habitat, noise disturbance, wildlife/vehicle encounters.	Low	Proposed project would result in loss of 2.7 ac of salt desert shrublands.

Table 3.0. -Continued Bayless North Mail Trail No. 1 Cumulative Impacts Summary

Environmental Resource	Environmental Consequences	Cumulative Impact	Basis For Determination
Range	Loss of 2.7 ac of forage.	Low	Size of acreage allotments in relation to loss of forage is minimal.
Visual	Reduction in overall visual quality in the project area.	Low to moderate	Surface flowline on private land; Drilling and production equipment visible from varios points inside and outside of the Monument. Mitigation measures can reduce visual impacts of development.
Noise	Increase in localized noise levels	Moderate	Pumpjacks operating 24 hours a day.
Health and Safety	Increased vehicular travel and vehicle/wildlife/human encounters, high pressure and chemical hazards.	Low	Difficult roads restrict vehicle speeds. Spill planning, implementation of BMPs in all phases of development and production.
Socioeconomic	Increase in employment during construction and revenues for nearby communities.	Low	Minor positive economic impact on surrounding communities.
Recreation	Increased traffic noise and visual impacts.	Low	Limited dispersed recreation throughout the project area.
Transportation	Increased wear and tear on access roads in the Monument	Low to moderate	Operator would conduct periodic road maintenance as needed.

4.0 CONSULTATIONS

The individuals, sources, and agencies listed below have been consulted in the preparation and review of this Environmental Assessment:

Chester Anderson - BUGS Consulting
Tom McCarthy - Robert L. Bayless Producer LLC
Loren Wickstrom - BLM Geologist
Lou Ann Jacobson - BLM Canyons of the Ancients Manager
Mike Jensen - BLM Range Management Specialist
Kathy Nickell - BLM Wildlife Biologist
Robert Garrigues - BLM Resource Protection/NEPA Specialist – Review & Editing
Kristin Philbrook - USFS Biologist
Leslie Stewart - USFS Ecologist
Stacey Weber - BLM Hydrologist
Laura Kochanski - BLM Canyons of the Ancients Archaeologist
Penny Wu – U.S. Forest Service Visual & Recreational Resource Specialist
Kimberly Round - U.S. Forest Service Landscape Architect
U.S. Fish and Wildlife Service regarding TES Fauna
Colorado National Heritage Program regarding Montezuma species of concern
BLM State Director's List of BLM Sensitive Species

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Appendix A

Surface Use Conditions of Approval

Surface Use Conditions of Approval

Robert L. Bayless Producer LLC Well
Montezuma County, Colorado

Well Name	Surface Location
North Mail Trail #1	1010' FNL, 1185' FWL, Sec. 15, T35N, R20W

Approval of this APD is subject to all terms and conditions set forth in the APD surface use plan, and the following conditions of approval which take precedence. This is a partial "split estate" action and as such the responsibilities and jurisdiction of BLM are different than on lands where both the surface and minerals are owned by the federal government. In this case the well site and about 1,400 of the pipeline route are on Canyon of the Ancients National Monument (Monument) land administered by the BLM, and the rest of the pipeline route (about 4,300 feet) is on private land. Bayless has a signed surface-use agreement with the surface land owner for the pipeline crossing. The surface land owner has jurisdiction over the use of his/her land and the extent and type of reclamation. BLM is recommending actions related to land use and reclamation in the conditions of approval, below, but the land owner has final say as to the condition and use of the land surface. Since this is a federal action and since the well is on federal land, BLM has jurisdiction over drilling operations, control of drilling fluids and waste, site safety, production facilities, and transport of the product. Therefore, the following conditions of approval (COA's) are split into groups of mandatory mitigation (where BLM has authority), and recommended mitigation (where the surface land owner has authority). Bayless and their contractors should refer to the COA's, below, and the surface use plan for specifics about construction, drilling, production, and reclamation. Where differences exist between the mandatory conditions of approval, below, and Bayless' surface use plan (SUP), the conditions of approval take precedence.

Special Condition of Approval:

1. A pre-construction meeting will be held with the operator and the dirt contractor to discuss the conditions of approval associated with the approved APD.

Construction and Drilling:

Mandatory Construction and Drilling Mitigation Measures:

1. The operator or his contractor will contact the authorized BLM representative (Lucas Vargo) at the Dolores Public Lands Office in Dolores, Colorado (970) 882-6845, 48 hours before beginning any surface-disturbing activities and before beginning any reclamation.

2. As per the Cultural Resource Action Memorandum (CRAM), signed July 19, 2004, cultural mitigation is as follows:

- A permitted archaeologist will be on site during initial clearing and topsoil removal operations in the vicinity of all well pads, access roads, and pipelines to monitor for subsurface cultural resources.
- The pipeline route will be moved to the north and east sides of the existing road to avoid sites 5MT16914 and 5MT16915.
- If previously unidentified surface or subsurface cultural resources are discovered during construction, activity in the vicinity of the resource will cease, the resource will be protected, and the Authorized Officer with the BLM will be notified immediately. The operator shall take any additional measures requested by the BLM to protect the resources until they can be evaluated and treated. The discovered resources would be evaluated by a permitted archaeologist. The permitted archaeologist, in consultation with the BLM archaeologist, would make a determination of the nature and significance of the discoveries, and would determine the appropriate method of treatment for them. Avoidance of the resources by project re-design would be the preferable treatment. However, if the resources could not be avoided, then the appropriate treatment method would be determined, and a permitted archaeologist would prepare any and all necessary treatment plans. These plans would be reviewed by, and approved by the BLM. Treatment activities would be conducted after all necessary consultations had been completed as required by Section 106 of the National Historic Preservation Act, the Native American Graves Protection and Repatriation Act, and the Archaeological Resources Protection Act. The BLM would be responsible for conducting all necessary consultations. Construction within the area of the discovered resources would be allowed to proceed after the appropriate treatments had been completed.
- Pursuant to 43 CFR 10.4, the holder of this authorization must notify the BLM Authorized Officer, by telephone, with written confirmation, immediately upon the discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony. Further, the operator must stop activities in the vicinity of the discovery and protect it for 30 days or until notified to proceed by the authorized officer.
- All employees of the operator and any subcontractors must be informed by the operator before commencement of operations that any disturbance to, defacement of, or collection or removal of archaeological, historic, or sacred material will not be permitted and violation of the laws that protect these resources will be treated as law enforcement/administrative issues.
- Disclosure or release of information regarding the nature and location or archaeological, historic, or sacred sites without written approval of the Bureau of Land Management is prohibited under provisions of the Archaeological Resources Protection Act. Cultural resource permittees of the Bureau of Land Management are allowed to use this information during the course of the project for site protection purposes only, and unauthorized use or distribution of this information (which includes locational information present in cultural reports) is considered a violation of Federal statute.

3. The reserve pit will be sealed in such a manner as to prevent leakage of the fluids and to protect surface-water and ground-water quality. Methods available to insure containment of drilling fluids in the reserve pit include lining the inside of the pit with at least 10 mil plastic. If a plastic liner is used, the bottom of the pit shall be smooth and free of any sharp rocks. If the pit has a rocky bottom, it shall be bedded with a material such as soil, sand, straw or hay to avoid the possibility puncturing the liner. A minimum of not less than a 2-foot freeboard will be maintained in the pit at all times. All oil or floating debris

will be removed from the pit immediately after the drilling phase or the well.

4. The reserve pit will be fenced, "stock-tight", on three sides with four strands of barbed or twisted wire, prior to rig move in. The forth side of the pit will be fenced "stock tight" when the drilling rig is released. Fencing will be built as described in Reclamation COA #10. The pit will remain fenced until it is reclaimed. If fluids are present in the pit after drilling and testing are complete, bird netting will be placed over the pit to keep birds out of the pit and the fluids.
5. As agreed upon during the on-site field visit, excelsior bales or waddles will be placed across at the base of the fill slope at the north side of the well pad to prevent drill-pad sediment from washing down the drainage and over the nearby cliff face. No materials from the well pad or road and pipeline construction should be put into ephemeral drainages.
6. Prior to rigging up, a one foot high berm will be constructed around the perimeter of the well pad in such a manner as to contain all storm events/spills from going downstream of the well pad. A lined sump pit may be utilized to contain such fluids. The well pad will be designed in such a manner as not to allow runoff water to enter the pad. The need for the berm will be reassessed upon the completion of the well and production is established.
7. Heavy equipment will be pressure washed at an offsite location prior to working on road improvements, construction at the well site, or on the pipelines. This is a preventive measure for reducing noxious weed infestation at the drilling sites. If equipment is moved directly from site to site while on this project, pressure washing between sites is not required. However, if equipment is removed from the site, used elsewhere, then brought back to the project area, pressure washing is required before the equipment can be used in the project area. This pertains to heavy equipment such as bulldozers, backhoes, etc. Pickup trucks and passenger vehicles do not require pressure washing prior to entering these sites.
8. All brush, limbs, and other woody material must be stockpiled separately from the topsoil just outside the well pad perimeter. The stripped vegetation and 6 inches of topsoil should be stockpiled separately just outside the well pad perimeter. The stripped vegetation should not be removed from the location (it will be used later for reclamation). If the topsoil stockpile is not used within six months it should be seeded to insure topsoil integrity and prevent erosion.
9. Water withdrawals from surface waters require prior approval from the State of Colorado regardless of private land ownership along or around the water source. Colorado requests notification two weeks prior to the beginning of surface waters withdrawals to determine if there is a call on or below the withdrawal point. Regardless of when or how fresh water is used, the State of Colorado will be notified and respond before water is withdrawn from any surface waters in Colorado. The contact office for South Western Colorado is the Division of Water Resources in Durango, Colorado (970-247-1845), and for the Water Commissioner for the Dolores River is (970) 533-1333.
10. The operator shall assure that all vehicle traffic is limited to the bladed/traveled road surface on any road within the Monument. No pullouts or off-road parking will be allowed unless specifically authorized. "Keep vehicles on the road surface" signs may be installed by the operator to assist with compliance as needed. No shortcutting by any motor vehicles, operated by employees or contractors, is allowed on roads not identified as access routes in APD. Vehicular access to the well pad should be strictly limited to authorized vehicles only; these vehicles are restricted to use on the well pad only -- no off-pad or off-road parking.
11. All roads used for access to the well site will be wetted down and compacted where needed to avoid dust and loss of soil. This includes the access road through the Navajo

Indian Reservation – especially in the vicinity of the residences adjacent to the road.

12. Accidental spills will be cleaned up immediately, and contaminated soils will be removed to a State Permitted disposal site. BLM reporting procedures will be followed.
13. Bayless will post traffic-hazard signs on the west and east sides of the residence area in the Navajo Indian Reservation to alert drivers of pedestrian and or children in vicinity and of need for slow speed through the area.
14. Construction and drilling activities are not permitted during the longnose leopard lizard's breeding period (May 15th – July 15th), to avoid disturbing breeding adults or destroying eggs in the project area. Should any other TES species be identified during construction or operation of the proposed project, BLM resource specialists should be contacted immediately.
15. The well-site plat provided with the Surface Use Plan in the APD does not show the location and extent of the topsoil stockpile, the reserve-pit fill material stockpile, or the fill slopes on the north end of the well pad. Prior to commencing construction at the well site, Bayless and the dirt contractor must meet with a BLM authorized representative (Lucas Vargo at 970-882-6845 or Robert Garrigues at 970-385-1342) at the well site to determine the exact locations and lateral extent of the stockpiles and fill slopes. The boundaries of the well site will be staked and clearly marked during that on-site meeting so that the dirt contractor understands and can readily identify the limits of the well-pad site.

Recommended Construction and Drilling Mitigation Measures:

16. BLM recommends that the operator keep all project-related vehicle traffic limited to the bladed/traveled road surface on private land. No pullouts or off-road parking should be allowed unless specifically authorized by the surface land owner. "Keep vehicles on the road surface" signs may be installed by the operator to assist with compliance as needed. No shortcutting should be allowed by any motor vehicles operated by employees or contractors, on roads not identified as access routes in the APD.
17. The access road on private land should be wetted down and compacted where needed to avoid dust and loss of soil.

Production:

Mandatory Production Mitigation Measures:

1. All permanent structures (on site for six months or longer) constructed or installed will be painted a flat, non-reflective, earth-tone color which will be Carlsbad Canyon (from the list of 10 standard environmental colors designated by the Rocky Mountain Regional Coordinating Committee).
2. Since, visually, the well site is on the skyline from a number of visual vantage points in the area, low-profile production equipment (tanks, separators, and similar equipment) will be required at the site. Prior to installation of production equipment at this site, the operator shall submit a site plan, under a sundry action, to the authorized BLM representative (either Robert Garrigues at 970-385-1342 or Lucas Vargo at 970-882-6845. This site plan shall show the type equipment to be installed, the location of each piece of equipment, and the dimensions of each piece of equipment. The sundry action

shall be approved prior to installing any production equipment at the site. When choosing production equipment for this site, the operator should keep in mind that BLM's goal will be to minimize long-term visual impacts created by production equipment. If a pump jack is, at any time, installed at the site, the long axis of the unit will be oriented north-south so that the pump-jack motion is less obvious from visual vantage points north of the site.

3. All production equipment shall be equipped with hospital type mufflers. Regardless of whether the operation is at the construction, drilling, or production phase, if the BLM determines that noise has become a nuisance, additional muffling techniques will be applied to achieve adequate noise reduction and acceptable noise levels.
4. Noxious weeds which may be introduced due to soil disturbance or reclamation will be treated by methods to be approved by the Authorized Officer. These methods may include biological, mechanical, or chemical treatments. Should chemical or biological treatment be requested, the operator must submit a Pesticide Use Proposal to the Authorized Officer 60 days prior to the planned application date (see Reclamation COA No's 2 & 3).
5. Accidental spills will be cleaned up immediately, and contaminated soils will be removed to a State Permitted disposal site. BLM reporting procedures will be followed.
6. The reserve pit and that portion of the location and access road not needed for production or production facilities will be reclaimed as described in the reclamation section. Enough topsoil will be kept to reclaim the remainder of the location at a future date. This remaining stockpile of topsoil will be seeded in place using the prescribed seed mixture.
7. Compaction and construction of the berms surrounding the tank or tank batteries will be designed to prevent lateral movement of fluids through the utilized materials, prior to storage of fluids. The berms must be constructed to contain, at a minimum, 120 percent of the storage capacity of the largest tank within the berm. All load lines and valves shall be placed inside the berm.
8. No gravel or other related minerals from new or existing pits on Federal land will be used in construction of roads, well sites, or other structures, without prior approval from the Surface Managing Agency.
9. The roads shall be maintained reasonably smooth, and free of ruts, soft spots, chuckholes, rocks, slides and washboards. The BLM, "Gold" book (BLM/USFS, 1989) shall be followed for specifications on road design and culvert installation for the new access road to the well pad. The operator is required to correct maintenance deficiencies when documented and directed by the Authorized Officer. All vehicles servicing the well are restricted to use of the approved access road and well pad.
10. The production pipeline on Federal land shall be buried in the access-road right-of-way and along the north side of the existing BLM road to the BLM-/private- land boundary.

Reclamation:

Mandatory Reclamation Mitigation Measures:

1. Immediately on completion of the well, all trash and debris will be collected from the location and the surrounding area and removed to an approved sanitary landfill.
2. Whether the seed mix used is the one recommended by BLM or one specified by the land

owner, the mixture used must be ***certified*** weed free. There shall be NO primary or secondary noxious weeds in the seed mixture. Seed labels from each bag shall be available for inspection while seeding is being accomplished. Additionally the seeding contractor should keep a record of the dates seeding was accomplished for the site and send that information along with the seed labels from each bag to Lucas Vargo or Cara Gildar at the Dolores Public Lands Office (P.O. Box 210, 100 N. 6th Street, Dolores, CO 81323).

3. The Permit Holder (Holder) shall be responsible for control of all State listed noxious weed species on all disturbed areas. The Holder is responsible for consultation with the Authorized Officer and local authorities for acceptable weed control methods, and shall comply with the following:

   Use of pesticides shall comply with all applicable Federal and State laws. Pesticides shall be used only in accordance with their registered uses within limitations imposed by the Secretary of the Interior. Prior to the use of pesticides, the Holder shall obtain approval from the Authorized Officer of a Pesticide Use Proposal showing the type and quantity of material to be used, pests to be controlled, method of application, locations of storage and disposal of containers, and any other information deemed necessary by the Authorized Officer.

   All pesticide applicators must hold a valid Colorado Qualified Supervisor license or Certified Operator license, and the license must be valid for the applicable pesticide application category. For all areas treated, Pesticide Application Records (BLM Form 3-3-94) must be submitted to the BLM Dolores Field Office by November 1 of each year. Pesticide Application Records must be completed no later than 14 days following the pesticide application and must be maintained for ten years.

4. All reserve pit fluids must be removed or evaporated from the pit before starting reclamation procedures. Enhanced evaporation of the reserve pit fluids shall have prior approval of the authorized officer. The liner shall be cut off at the mud level and removed to an approved disposal site. The reserve pit must be reclaimed within 12 months (but no later than the following August 31) from the date the well is spudded. The reserve pit solids will not be squeezed out of pit, however the solids may be mixed with stockpiled materials as the pit is reclaimed. Mixing stockpiled materials and reserve pit solids can facilitate drying the reserve pit solids (by mixing damp solids with dry dirt), aid in compaction of materials in the pit, prevent subsequent settling of the pit, and shorten the time needed for the reserve pit reclamation. There will be a minimum of 2 feet of overburden on the pit prior to replacing the topsoil and seeding.
5. All disturbed areas shall be re-contoured and smoothed, as necessary, and seeded with the seed mixture shown in Table B-1, below. Seed may be distributed by either drilling or broadcasting. Whichever method is used, any woody materials stockpiled during construction be spread evenly back over the reclaimed and seeded areas (see COA #7, below).

Table B-1 Seed Mix

Common Name	NRCS Variety	Pure Live Seed (PLS) **lbs/acre** (drilled rate)
Indian ricegrass	Rimrock	10.2
Squirrel tail	VNS(1)	1.9
Winterfat	VNS(1)	0.6
Four-wing saltbrush	VNS(1)	6.0
Sand dropseed	VNS(1)	0.1
Alkali sacaton	VNS(1)	0.4
Total		**19.1 lbs/acre**

(1) VNS = Variety not stated (by local seed supplier)

6. If the seed is broadcast, application rates shall be twice the drilled rate shown in Table B-1 and some means such as a rake or harrow shall be used to incorporate the seed into the soil
7. Brush, limbs, crushed stumps and other woody material, stockpiled during construction, if any, shall be spread evenly back over the reclaimed area after seeding. This organic debris will provide cover and stabilizing material for the soil, seed mix, and young plants.
8. The following standards shall be applied to determine the success of reclamation efforts. Reclamation should be considered successful when the desired vegetative species are established, erosion is controlled, weeds are considered a minimal threat, and it is likely that ground cover will return to a desirable condition. The following parameters should be used to determine the success of re-vegetation efforts.
    a. Successful onsite establishment of species included in the planting mixture or other desirable species.
    b. Evidence of vegetation reproduction, either spreading by rhizomatous species or seed production

    The operator should continue re-vegetation efforts, at the direction of BLM, until these standards are met.

9. If the well is a producer, the well-pad site will be reduced in size to the minimum size needed to accommodate the production and maintenance equipment and the rest of the site will be reclaimed as specified herein.
10. A fence shall be installed around the perimeter of the area undergoing reclamation. This fence will give grasses and other vegetation a chance to get established without grazing cattle concentrating on the young plants. The fence shall be maintained in a manner to prevent cattle from entering the area, and be constructed as follows: Posts no more than 16’ apart; fence wire: four wires of at least 12.5 gauge, double strand twisted; two stays between posts; wire stretched taut between brace panels, wire spacing from the ground up: 14”, 22”, 30”, 42”. BLM further recommends that the fence be maintained in place for a minimum of 3 years.

Recommended Reclamation Mitigation Measures (For well pad and access road on private land):

11. It is recommended that all disturbed areas on private land be re-contoured and smoothed, as necessary, and seeded with the seed mixture shown in the table, above, or a seed mix specified by the land owner. BLM recommends that seed be distributed by either drilling or broadcasting. Whichever method is used, BLM recommends that the woody materials stockpiled during construction be spread evenly back over the reclaimed and seeded areas (see COA #12, below).

    If the seed is broadcast, BLM recommends that application rates be twice the drilled rate and some means such as a rake or harrow be used to incorporate the seed into the soil.

    In the event grasses and native vegetation are not established after the first seeding application, BLM recommends that subsequent applications will be made until grasses and/or native vegetation suitable to the land owner are established as specified in COA #13, below.

12. BLM recommends that the brush, limbs, crushed stumps and other woody material, stockpiled during construction, if any, be spread evenly back over the reclaimed well pad and associated pipelines after seeding. This organic debris will provide cover and stabilizing material for the soil, seed mix, and young plants.

13. BLM recommends that the following standards be applied to determine the success of reclamation efforts. Reclamation should be considered successful when the desired vegetative species are established, erosion is controlled, weeds are considered a minimal threat, and it is likely that ground cover will return to a desirable condition. The following parameters should be used to determine the success of re-vegetation efforts.
    c. Successful onsite establishment of species included in the planting mixture or other desirable species.
    d. Evidence of vegetation reproduction, either spreading by rhizomatous species or seed production

    The operator should continue re-vegetation efforts, at the direction of the land owner (or BLM, if the land owner so directs), until these standards are met. The surface land owner has jurisdiction to determine when reclamation efforts are successful.

References Cited:

BLM/USFS, 1989, Oil and gas surface operating standards for oil and gas exploration and development, Third edition (Gold Book): Rocky Mountain regional Coordinating Committee

APPENDIX B

PLANT AND WILDLIFE LIST

PLANTS OCCURRING IN THE ROBERT L. BAYLESS, NORTH MAIL TRAIL #1 PROJECT AREA

Cacti:

Opuntia erinacea	Common prickly pear

Forbs:

Astragalus calycosus	Matted poison milkvetch
Astragalus nuttallianus	Small flowered milkvetch
Cryptantha crassisepala	Thicksepal Catseye
Cymopteris purpurascens	Widewing spring parsley
Descurainia pinnata	Western tansymustard
Draba cuneifolia	Whitlow-wort
Erodium cicutarium	Filaree
Gilia opthalmoides	Eyed gilia
Ipomopsis gunnisonii	Sanddune skyrocket
Ipomopsis polycladon	Manybranched gilia
Ipomopsis pumila	Dwarf gilia
Lappula marginata	Stickseed
Lepidium densiflorum	Common pepperweed
Lepidium montanum	Peppergrass
Oreocarya flavoculata	Roghseed cryptantha
Phlox longifolia	Long leaf phlox
Plantago patagonica	Woolly plantain
Silene antirrhina	Sleepy catchfly
Streptanthella longirostris	Longbeak streptanthella
Tetraneuris ivesiana	Ive's fournerved daisy

Grasses:

Achnatherum hymenoides	Indian ricegrass
Anisantha tectorum	Cheatgrass
Critesion glaucum	Smooth barley
Hesperostipa neomexicana	New Mexico feathergrass
Hilaria jamesii	Galleta
Sporobolus airoides	Alkali sacaton
Vulpia octoflora	Sixweeks fescue

Shrubs:

Artemisia bigelovii	Bigelow's sagebrush
Atriplex confertifolia	Shadscale saltbush
Atriplex grayi	Spiny hopsage
Chrysothamnus greenei	Greene's rabbitbrush
Eriogonum ovalifolium	Cushion buckwheat

PLANTS OCCURRING IN THE ROBERT L. BAYLESS, NORTH MAIL TRAIL #1 PROJECT AREA, CONT.

Shrubs, cont:

Gutierrezia sarothrae	Broom snakeweed
Krascheninnikovia lanata	Winterfat
Leptodactylon pungens	Prickly gilia
Lycium pallidum	Wolfberry

List compiled by Leslie Stewart during the onsite, 28 July, 2003.

COMMON WILDLIFE WITH POTENTIAL TO OCCUR IN THE VICINITY OF THE ROBERT L. BAYLESS, NORTH MAIL TRAIL #1 PROJECT AREA

Mammals

Canis latrans	Coyote
Cynomys gunnisonii	Gunnison's prairie dog
Dipodomys spectobilis	Bannertail kangaroo rat
Lepus californicus	Blacktail jackrabbit
Mephitis mephitis	Striped skunk
Odocoileus hemionus	Mule deer
Peromyscus maniculatus	Deer mouse
Sylvilagus auduboni	Desert cottontail
Vulpes vulpes	Red fox

Birds

Apelocoma californica	Western scrub jay
Buteo jamaicensis	Red-tailed hawk
Cathartes aura	Turkey vulture
Chondestes grammacus	Lark sparrow
Chordeiles minor	Common nighthawk
Colaptes auratus	Northern flicker
Corvus corax	Common raven
Eremophila alpestris	Horned lark
Falco spaverius	American kestrel
Gymnorhinus cyanocephalus	Pinyon jay
Pica pica	Black-billed magpie
Pooecetes gramineus	Vesper sparrow
Salpinctes obsoletus	Rock wren
Sialia mexicana	Western bluebird
Sturnella neglecta	Western meadowlark
Turdus migratorius	American robin
Zenaida macroura	Mourning dove

Reptiles

Crotalus viridis	Prairie rattlesnake
Pitulophis melanoleucus	Bull snake
Gambelia wislizenii	Long-nosed leopard lizard
Sceloporus magister	Desert spiny lizard

Appendix C

Responses to Public Comments

R. L. Bayless North Mail Trail #1 Proposed Oil and Gas Well Environmental Assessment Number CO-800-2004-009 EA

Responses to Public Comments

The following responses are arranged in the order they were received.

Response to Comment-Letter "A" from Montezuma County Board of Commissioners

A-1: Comment Noted

Response to Comment-Letter "B" from the Jicarilla Apache Nation

B-1: Comment Noted – The Tribe will be notified in the event of an inadvertent discovery, during construction activities, of human remains or associated funerary objects.

Response to Comment-Letter "C" from the Pueblo of Isleta

C-1: Comment Noted – The Tribe will be notified if relevant cultural finds are discovered during construction activities.

Response to Comment-Letter "D" from Chris Lindell, Dolores, Colorado

D-1: This comment is related to air quality concerns. -- See the response to E-1, E-2, and E-4, below.

D-2: This comment is related to cumulative effects of numerous wells on air quality. -- See the response to E-1, E-2, and E-4, below.

D-3: Both noise and visibility are addressed in the environmental assessment (EA) and appropriate mitigation measures are required as conditions of approval (COA's) for the proposed action. See pages 28, 29, and 47-50 of the EA for discussion of affected environment, environmental consequences, and mitigation measures related to noise and visual-resource issues. See Production COA's 1 & 2 and Reclamation COA # 5 of Appendix A – Surface Use Conditions of Approval for conditions of approval related to visual resources. See Production COA #3 of Appendix A – Surface Use Conditions of Approval for conditions of approval related to noise.

D-4: This seems like a rhetorical question, but it relates to the question of environmental justice. See pages 15 and 35 of the EA for discussions of affected environment, environmental consequences, and mitigation measures related to environmental justice. See also Construction and Drilling COA's 11, 12, and 13 of Appendix A – Surface Use Conditions of Approval for conditions of approval related to environmental justice.

D-5: This comment is related to air-quality impacts from the coal-fired plants in northern New Mexico -- See response to E-2, below.

D-6: As explained on pages 1, 2, and 3 of the EA; as a legal lease holder, R.L. Bayless has a legal contractual agreement with the U.S. Government to access and occupy a reasonable portion of the surface to drill for, and develop the oil and gas resources within the lease. Approval of the application for permit to drill (APD) is subject to evaluation under the NEPA process, and to conditions of approval to protect surface and down-hole resources. The APD can only be denied if extraordinary impacts are identified that were not previously identified at the time the lease was issued. The EA determined that the conditions of approval in Appendix A adequately mitigate impacts from this proposed action and protect environmental resources.

Response to Comment-Letter "E" from San Juan Citizens Alliance

E-1: The air-quality analysis conducted for this EA is based on the best information available at this time. Given the limited size and spatial extent of the Proposed Action and Alternatives, significant cumulative air-quality impacts are not likely to occur. Regarding current and potential cumulative air quality concerns in the Four Corners Region, the Commentor is referred to the in-progress Northern San Juan Basin EIS process, and to the in-progress Canyon of the Ancients National Monument RMP/EIS process. The air-quality study for the Northern San Juan Basin EIS considers actions in the San Juan Basin but does not address actions in Canyon of the Ancients National Monument (the Monument) or the project area. The air-quality study that will be done as part of the Monument RMP/EIS will address cumulative air quality impact in the Monument. Existing air quality within the Monument is good (well below the regulatory limits), and limited additional air pollution associated with the single proposed North Mail Trail #1 well would not cause a significant adverse impact to air quality.

The North Mail Trail #1 EA clearly states that the limited additional air pollution associated with the single proposed well would not cause a significant adverse impact to air quality – neither directly nor cumulatively – and that conditions of approval (COA's) were developed to mitigate those limited impacts. There is no evidence to suggest that additional mitigation measures are necessary. The proposed action would comply with all applicable air-quality regulations.

E-2: The two existing coal-fired power plants (one operating since the 1960's and the other beginning operation in the early 1970's), are both meeting federal air-quality regulations. Air-quality impacts within the Monument, from these two plants, are reflected in the Existing Environment section of the EA. It is unknown at this time whether these coal-fired plants are affecting air quality in the Monument.

The proposed coal-fired power plants are "proposed," and are not "reasonably foreseeable" developments at this time. These plants will need to go through their own NEPA processes and decision records first.

E-3: The 2.0 g/hp-hr NOx (nitrogen oxides) emission rate for small well head engines is one of several proposed mitigation measures designed to address potentially significant visibility and atmospheric deposition impacts within the Mesa Verde National Park and Weminuche Wilderness - mandatory federal Class I areas. This proposed mitigation measure was based on extensive quantitative atmospheric dispersion modeling addressing several thousand potential oil and gas-related, as well as other Reasonably Foreseeable Development, air pollutant emission sources. There is no basis to require a similar potential mitigation measure for the well addressed in the North Mail Trail #1 EA.

E-4: The North Mail Trail #1 EA summarizes potential air-quality impacts as follows: "Under Alternative D (Modified Proposed Action), the impacts on air quality would be low to moderate and short-term during construction and drilling, and low and long-term for production. These potential impacts would be mitigated by the implementation of mitigation measures described below and following adherence to the conditions of approval (COA's) in Appendix A." In addition, given the limited size and spatial extent of the Proposed Action, significant cumulative air-quality impacts are not likely to occur. Therefore, the analysis adequately addresses the requirements of 40 CFR 1500.1.

E-5: The referenced comment raised some questions about the content of the EA concerning habitat for lizard species and other wildlife issues in the project area (PA). Upon additional review by the BLM wildlife biologist, it was determined that some of the original statements in the wildlife sections needed some revision. As a result the following changes were made:

1. Regarding habitat for the desert spiny lizard: *"Shrub-covered dirt banks and sparsely vegetated rocky areas near flowing streams (Hammerson, 1999)" and "No habitat exists for this lizard in the PA. There are no records south of Mc Elmo Creek."*(Table 2.3 on p. 21).
2. Concerning the longnose leopard lizard: *"This lizard is known to occur in the Monument, but has not been located in or near the PA"* (Table 2.3 on p. 21).
3. Concerning big game: *"Elk are known to occur on the Sleeping Ute Mountain but no elk sign has been noted in the open basins and adjacent mesas south of McElmo Creek. Deer and deer sign are frequently seen throughout the area."* (section 2.3.7, page 29).
4. Regarding mitigation measures for impacts to migratory birds: *"In addition, implementation of Construction & Drilling COA #14 (described in section 3.2.8.2, below, for protection of the longnose leopard lizard), also affords protection to migratory birds. This COA prohibits drilling and construction activity from May 15 - July 15, the primary nesting period for migratory birds in the Monument. In the unlikely event that an active nest was found, vegetation removal would be postponed until after the nest either successfully fledges young, fails, or is no longer occupied."* (section 3.2.7.2, page 38).
5. Regarding impacts to threatened, endangered, and sensitive species: *"Habitat for the longnose leopard lizard occurs within the project area but no lizards have been located during past surveys and there are no known records on North Mail Trail Mesa. The longnose leopard lizard utilizes salt desert shrubland habitat during the breeding season. Habitat for the Mesa Verde nightsnake is located in the rocky slopes and canyons that comprise the mesa slopes adjacent to the project area.* (section 3.2.8, page 39).
6. Regarding mitigation measures for impacts to TES species: The sentence, *"It is recommended that surveys for long-nosed leopard lizard and desert spiny lizard should occur (if possible) during the breeding season prior to the initiation of construction activities at the well sites."* was deleted and replaced by, *"If the construction and drilling activities are not completed prior to the breeding season, BLM would conduct surveys in the project area as part of the annual reptile survey effort in 2005. Positive locations of the longnose leopard lizard would result in additional protections at this location.*" (section 3.2.8.2, page 40).
7. Regarding big game: As per above, references to elk were deleted from section 3.35, on page 47.

E-6: BLM is aware of the situation described. As is pointed out in the comment, BLM has no jurisdiction over surface reclamation on private land -- without specific authorization from the land owner. In the case mentioned, that authorization has not been granted.

The proposed well is on BLM-administered land within Canyons of the Ancients National Monument and, as such, will be within BLM jurisdiction and will be held to the construction, drilling, and reclamation requirements described in the EA and in the conditions of approval in Appendix A.

E-7: Construction, drilling, production, and reclamation activities at this well site and access roads will be monitored by BLM staff from the Dolores and Durango offices and the operator will be held to the construction, drilling and reclamation requirements described in the EA and in the conditions of approval described in Appendix A.

Response to Comment-Letter "F" from Kimberly Lindell, Dolores, Colorado

F-1: If there is an existing well pad near a proposed drilling site, BLM always looks at the feasibility of using that site rather than disturbing new ground. However, in this case, the geologic character of the target formation and the difficulty of successfully hitting that target with a directionally-drilled well, does not allow the use of any of the existing well pads in the vicinity.

F-2: This comment is in reference to the condition of other well sites in the vicinity that are operated by R.L. Bayless, Producer – see the response for E-6, above.

F-3: Noise suppression equipment and requirements are addressed in the EA. See the response for D-3, above.

F-4: This comment relates to the question of environmental justice. -- See the response for D-4, above.

F-5: This comment relates to visual resources in the area. – See the response for D-3, above.

F-6: This comment relates to air-quality issues associated with this project and to cumulative air-quality affects in the Four-Corners area. – See the responses to E-1, E-2, and E-4, above.

Response to Comment-Letter "G" from Michael Cochran, Dolores, Colorado

G-1: This comment relates to air-quality issues associated with this project and to cumulative air-quality affects in the Four-Corners area. – See the responses to E-1, E-2, and E-4, above.

G-2: This comment relates to emissions from compressors and pump engines. – See the response for E-3, above.

G-3: The problems with Table 2.3 have been fixed. Thank you for pointing out the need for these changes.

G-4: The typographic errors mentioned in this comment have been fixed. Thank you for pointing out the need for these changes.

G-5: The text in Section 3.2.3.2 of the EA has been changed appropriately.

G-6: This comment relates to protection for area birds. -- See No. 4 of the response for E-5, above.

G-7: This comment relates to the long-nose leopard lizard. – See numbers 2, 4, 5, & 6, of the response for E-5, above.

G-8: This requirement is adapted by BLM from the Spill Prevention Control and Countermeasure (SPCC) regulations administered by the Environmental Protection Agency and described in the Oil Pollution Prevention regulations at Title 40 of the Code of Federal Regulations, Part 112, (40 CFR 112). The regulation described therein is an industry standard and BLM does not feel it is appropriate to require stricter standards.

G-9: The typographic error mentioned in this comment has been fixed. Thank you for pointing out the need for this change.

G-10: The typographic errors mentioned in this comment have been fixed. Thank you for pointing out the need for these changes.

G-11: The requested changes have been made in the EA and the conditions of approval.

G-12: The requested changes and clarifications have been made.

G-13: This comment relates to BLM monitoring of the site. – See the response for E-7, above.