

**ENVIRONMENTAL ASSESSMENT
CO-SJFO-02-054EA**

**Questar Exploration and Production Company
Cutthroat #14**

T.37N, R.19W, Section 35

United States Department of the Interior
Bureau of Land Management
San Juan Public Lands Center
Canyons of the Ancients National Monument

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1.0 PROPOSED ACTION AND ALTERNATIVES

1.1 INTRODUCTION

Questar Exploration and Production Company (Questar) has submitted a proposal to drill one (1) conventional gas well in the Canyon of the Ancients National Monument. This well is located approximately 18 miles west-northwest Cortez, Colorado. The proposed project area is located in Montezuma County, Colorado (Appendix A).

The planned drilling depth is approximately 6,600 feet targeting the Ismay and Desert Creek Formations. All surface disturbances will be reclaimed upon abandonment.

The well is identified as the Cutthroat #14. This well, access road and right-of-way are located on Federal surface with Federal minerals.

Project Summary Tables

<i>Well Name</i>	<i>Surface Land Status - Well pad</i>	<i>Surface Land Status - Roads</i>	<i>Mineral Ownership</i>
Cutthroat #14	Federal	Federal	Federal

Well Name	Road & Pipeline Length/ Acres Disturbed (assumes 40 feet wide ROW)	Well Pad Area	Total Affected Surface Area
Cutthroat #14	2696'/2.5 acres	230' x 325'/1.5 acres	4.0 acres

Note: ROW lengths are approximate, and may change in response to follow-up specialist site visits and input. ROW realignments will be kept within the 150' wide area cleared during archaeological surveys. If realignments are moved out of this cleared area, additional archaeological work will be required.

1.2 PURPOSE AND NEED

The Federal mineral estate, administered by the Bureau of Land Management (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.

The purpose of the proposal is to develop oil and gas reserves in the Ismay and Desert Creek Formations of the Paradox Group on oil and gas lease #COC-27189. The lease is committed to

the Cutthroat Unit, which has been in effect since 1987. As of December 31, 2001, the Cutthroat Unit has produced 4,582,880 barrels of oil and 15,631,267 mcf of natural gas from the Desert Creek Formation. As required under the terms of the unit agreement, this well was identified on the approved 2002 Cutthroat Unit Plan of Development to provide for timely exploration of the unitized area.

This Environmental Assessment (EA) has been prepared to address potential impacts associated with approval of Questar's Application for Permit to Drill (APD). The proposal includes all activities associated with gas development including activities to construct, operate, reclaim, and abandon one well per APD. The APD includes a new associated access road. If the well is productive, a pipeline will also be constructed.

The intent of this EA is to: 1) inform the public of the Proposed Actions and reasonable alternatives, 2) analyze the impacts associated with the Proposed Actions and alternatives, 3) identify mitigations which reduce or eliminate impacts, and 4) 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 Amendment / 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." [United States Department of Interior (USDI), BLM 1984]. The proposed action has been developed to comply with the conditions of the RMP and amendments, and is being 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). This amendment requires 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 CANM Proclamation (June 2000). The CANM was created to protect cultural, geologic, and biologic resources that make the area: one of the highest (if not 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...”

The CANM is currently initiating preparation of a new Resource Management Plan (RMP). Until this RMP is implemented, management of the CANM is guided by the 1984 San Juan/San Miguel Resource Management Plan (BLM 1984), the 1991 Oil and Gas Amendment to the RMP (1991 O&G Amendment), Interim Management guidance is provided in an October 5, 2000 BLM State Director’s Guidance memorandum and a September 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 the 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, and the Canyons of the Ancients proclamation. Oil and gas exploration and development is considered an appropriate management activity within the CANM. The 1991 RMP Amendment for Oil and Gas Development (p. B-65, Table 8) indicates that 313 wells (potential of development) could be drilled on Federal minerals in this

region by the year 2010. Cumulative effects from 313 wells were analyzed in the 1991 RMP Amendment. The analyses conducted for the 1991 RMP Amendment remain valid.

1.4 CONFORMANCE WITH EXISTING PLANS, STATUTES, 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, p1342, 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.

Executive Order 12898 of 1994 "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations" requires implementing procedures to ensure 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 within the Paradox Basin, 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 early 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 seismic surveys and the ongoing drilling of wells. Existing or previous oil and gas development consists of 45 active or abandoned wells within 5 miles of the proposed well (Dwights Database from COGCC 2002). Seventeen (17) oil and gas wells have been abandoned, seven (7) wells produce oil, eight (8) wells produce CO₂, and a dozen wells (12) yield carbon dioxide and gas. Status for one well is not available. Within a one-mile radius, there is one (1) abandoned well, four (4) producing wells and this (1) proposed well (Questar Exploration and Production by Permits West).

The BLM completed a Finding of No Significant Impact and Decision Record for the North Mail Trail 3D Seismic Survey, about 8 miles southwest of the Cutthroat #14 well location, and a Finding of No Significant Impact and Decision Record for four Kinder Morgan CO₂ wells.

1.6 PROPOSED ACTION

1.6.1 Project Description

Questar has filed an Application for Permit to Drill (APD) to construct one gas well on Mockingbird Mesa. The proposed project involves construction of a pad on which this well would be drilled. Should the well not prove productive, the well and location would be abandoned and reclaimed in accordance with applicable BLM requirements stipulated in Conditions of Approval (COA) for the well and according to the surface use plan submitted with each APD.

If the well is produced, reclamation would occur after the well is no longer economically productive. Interim reclamation activities would be required at producing well sites. Reclamation would involve re-contouring the well pads and access roads to blend with the natural topography, reseeded with natural grasses, and monitoring to ensure re-vegetation is successful. Reclamation efforts would continue until all related Conditions of Approval are met (Appendix B).

1.6.2 Project Location

Primary access for the well is on gravel-surfaced County Road BB west from U.S. Highway 666, thence southerly on CR 12, CR Z, CR 11, CR Y to the Kinder Morgan Plant and a locked access gate on CR Y extension along Mockingbird Mesa. The CR Y extension along Mockingbird Mesa changes to graded native materials. Travel is limited and generally restricted to dry periods. The increased use of this road due to the location of this new well should not necessitate road improvements. Although the operators are not directly responsible for maintenance of the county access road, it is common for them to coordinate with county road transportation departments for road improvements and periodic maintenance of county owned roads.

1.6.3 Project Construction

The following descriptions of project design features and construction practices are based on the surface use plan of the APD.

Access Road Construction - The proposed road access routes are located on Federal lands. The proposed access for this well would veer to the southwest 551' off of the Mockingbird (CR 12 Extension) Road to survey point PI#5 (point of intersection of two survey line segments), at which point the proposed access joins a two-track (serving a power transmission line COC-31201), thence heads southerly along that transmission line route for a distance of 2145' to the proposed Cutthroat #14 well pad. The 40' ROW will allow for a 12-14' bladed, ditched, and crowned running surface in native materials, as well as accommodate the construction of a potential pipeline route. Total disturbed area should not exceed 2.5 acres for the combined road/pipeline. Size and location of culverts and low water crossings are based on engineering judgment made during the on-site inspection. A low water crossing near Cutthroat # 14 was confirmed at the onsite between the surface water specialist and the applicant. The well pad location and the proposed access road/well-tie pipeline routes are shown in Appendix A.

Roads will be built to minimize erosion. If the well is productive, the access road will be crowned and graded. If the well is not productive, the road will be reclaimed after the well is plugged and abandoned.

Well Pad Construction - The proposed gas well pad would be approximately 230 feet by 325 feet and would encompass 1.5 acres. The affected area includes topsoil stockpile area and slash piles. The pad would be stripped of vegetation, leveled, graded, and a surface cover of gravel applied, if necessary.

Well Drilling - The operation is expected to commence soon after permits are issued. Drilling operations would last about 25 to 35 days. Fresh water for drilling operations would be obtained and trucked from a commercial or private source with purchase agreements made prior to procuring the water. Anticipated water volume for the drilling and completion of the well is 0.5 acre-feet. There

would be a reserve pit on the well pad measuring approximately 75 feet wide by 150 feet in length by 12 feet deep. The reserve pit would be lined with plastic liner of at least 10-mil thickness.

Materials generated during drilling include drill cuttings, drilling fluids, and additives used to maintain circulation and reduce borehole caving. Drilling fluids and mud additives are recirculated into the well during drilling. Drill cuttings would be extracted from the drilling mud and placed in the reserve pit. The drilling fluids may be transported to another drilling location for reuse; if not transported, the fluids would be allowed to dry in the reserve pit.

Mud products on site during the drilling process include bentonite, barite, soda ash, lime, polymer, lignite, and lost circulation material.

Well Completion, Testing, and Operation - Production casing would be run and the well would be completed for production following drilling. Near surface aquifers would be cased off with 9-5/8-inch surface casing string set at up to 3,300 feet below ground surface and cemented to surface. Questar may decrease the depth of surface casing to a depth that places the bottom of the surface casing 100' into the Chinle Formation. The shallower depth (approximately 2,600 feet) would still protect the freshwater aquifers above the Chinle Formation. Gas in all pay sections would be cased off with 5.5-inch casing, cemented from the bottom hole to a depth of 4,700 feet. All areas of the well pad not needed for production would be reclaimed once production commences (Appendix A).

Well-tie Pipeline Construction - Should the well prove productive, the well-tie pipeline would be constructed. Total length would be approximately 2,696 feet and the pipeline trenches would parallel the access road. The pipeline would include a 3 inch gas production line, a 2 inch fuel gas poly line carrying processed gas from the Questar plant, and a 2 inch fresh water injection line. The pipeline would be buried in trenches dug to depths of approximately 3 to 6 feet below the ground surface. Trenches would be backfilled and the ground surface reclaimed until abandonment of the pipeline is required. The pipeline route was selected to allow for the construction of buried pipelines.

Operation and Maintenance - Should the well be productive, Questar would own or have control of the following facilities/equipment on location: line heater, injection line, separator, wellhead, and production unit. Questar inspects well sites regularly. This ensures that all equipment is properly functioning. In the event leaks are identified, remedial work begins immediately to reduce any releases of produced fluids to the environment.

1.7 PROPOSED ACTION AND ALTERNATIVES

The following sections describe alternatives to the proposed Questar well. Alternative No. 1 is the Action Alternative: the Proposed Action with Conditions of Approval. Alternative No. 2 is to not approve the APD. This "No Action" Alternative, required under NEPA, is considered throughout the document.

Alternative No. 1 implements directional drilling to reach the intended target location. The original well site chosen by Questar was moved to the west during on-site review to avoid an archaeological site. Other alternatives, such as co-locating more than one well on a single pad were considered, but these were excluded from further analysis due to the absence of another well pad in the vicinity. The closest wells are in excess of 0.5 miles distant. The target bottom hole

location is beneath the surface expression of a 1000' high cliff. Further analysis of these alternatives was dropped because Questar is drilling to very specific target reservoirs.

The move to the west dictated by the archaeological site already had moved the surface location further (764') away from the target, making extended moves west away from the cliff top impractical. Directional drilling requires fairly precise siting of the wellhead so that the well bore can be drilled perpendicular to the strike of the strata. In the event the well bore is drilled at an angle to the dipping strata, significant deflection of the drill bit can occur, causing the borehole to miss the target zone.

The reservoirs in the Cutthroat Unit are carbonate buildups that have highly aligned linear facies. The depositional environment resulted in tremendous reservoir heterogeneity. To deal with the reservoir heterogeneity, extensive geologic work is required to identify specifically targeted portions of the Desert Creek Formation for drilling. Paradox Basin studies have found that missing these small target areas results in premature abandonment of wells and highly inefficient recovery of existing oil and natural gas. Horizontal and directional drilling results in small Desert Creek Formation fields that have been poor to date due to the reservoir heterogeneity ([Colorado and Utah Geologic Survey Study: *Heterogeneous Shallow Shelf Carbonate Buildups in the Paradox Basin, UT and CO*, DOE Contract No. DE-FC26-00BC15128](#)). It is therefore critical to have the proper directional drilling control that is required to hit the small targets presented. There is not a lot of geologic latitude to the placement of the surface location of the borehole.

1.7.1 Alternative No. 1: Proposed Action with Conditions of Approval (COAs)

The proposed action discussed in Section 1.6 represents the Action Alternative. Under this alternative, mitigation measures would be attached the APD as Conditions of Approval to minimize environmental impacts. The Surface Use Conditions of Approval for the wells are attached in Appendix B.

Based on the existing RMP, the 1991 Oil and Gas Amendment, and APDs that are being reviewed for approval, a proposed well location may be relocated by the BLM (43CFR 3101.1-2) up to 200 meters (656 feet) from the proposed site. This well surface site was moved within those parameters as a result of an on-site archaeological inspection. The surface well location 989' FSL and 2430' FWL Section 35, T.37N, R.19W has a target bottom hole location 989'FSL and 1666' FEL Section 35, T.37N.,R.19W.

1.7.2 Alternative No. 2: No Action

The No Action Alternative would deny Questar's proposed well pad development and the associated access roads/well-tie pipelines. Changes to the environment will not occur for this alternative. Therefore no further discussion will ensue under each resource section in Chapter 3 for this alternative.

2.0 AFFECTED ENVIRONMENT

Descriptions of the affected environment include discussions of soils, plant and animal communities, TES, and surface water and groundwater resources. There are no riparian areas in the project area.

2.1 INTRODUCTION

In this chapter, those resources identified as potentially affected by the proposed action or as a special concern are described. Environmental components that do not exist within the ecosystem boundaries are not discussed in detail.

Primary uses of the project area are grazing and some existing natural resource development activity consisting primarily of natural gas and oil production, gathering, and transport. Secondary uses include big-game hunting and possibly small game hunting.

Environmental components that do not require further discussion are:

- wilderness or wilderness study areas;
- geology; or
- wild and scenic rivers.

2.2 CRITICAL ELEMENTS

2.2.1 Air Quality

According to the *Colorado Air Quality Control Commission Report to the Public, 2001*, the project sites are within the West Slope Colorado Air Quality Control Region. The primary sources of air pollutants in this region are from unpaved roads and streets, seasonal sanding for winter travel, motor vehicles, and wood burning stove emissions.

The Colorado Department of Public Health and Environment, 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. Natural gas and associated fluids are produced from the wells. Produced natural gas is metered prior to entering pipelines that transport gas to central processing and compression facilities. Air emissions associated with natural gas production include hydrocarbons, carbon monoxide (CO) and nitrogen oxides (NO_x) associated with production equipment vents (separators), compressor plants, and vehicle exhaust. Air quality permits are required for emission sources on the well pads if established emission thresholds for designated pollutants are exceeded.

Elevated PM₁₀ (particulate matter smaller than 10 microns) levels have been identified in the Western Slope Region. These elevated levels are typically associated with high-density urban areas and communities located in long narrow valleys. Elevated levels were observed throughout the western slope in 2000-2001 due to dust storms; however, these did not violate regulatory limits because the elevated levels of particulates were caused by natural phenomena, not human activity.

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. The proposed project area is within the CANM, formerly the Anasazi Culture Multiple Use Area. The management objectives of the Anasazi Culture Multiple Use Area are superseded by the Monument designation. A description of the resources and management objectives of the CANM are presented in Section 1.3 Conformance with San Juan/San Miguel Resource Management Plan of this EA.

2.2.3 Cultural Resources

Human groups have inhabited the area during the past 10,000 to 12,000 years. They are characterized as Paleo-Indian hunters of big game; Archaic small game hunters and gatherers; Formative sedentary agriculturalists; and Proto-historic hunters and gatherers (BLM 1984).

A cultural resource assessment was conducted for the well pad, access road, and pipeline route. Three previously recorded sites were located and re-recorded during the assessment. The sites include two Ancestral Puebloan activity loci or fieldhouses, and one Ancestral Puebloan, Pueblo II-III habitation. Two of the sites have been determined to be eligible for inclusion on the National Register, and additional data is needed before a determination of eligibility can be made for the third site. All identified sites are located outside of, but within close proximity to, the proposed well pad and access road/pipeline. These three sites must be avoided by all project activities. A report of the findings of the cultural resource assessment has been prepared. The report has been submitted to the Colorado State Historic Preservation Office for informational purposes as per the State Protocol Agreement between the Colorado BLM and the Colorado State Historic Preservation Office.

2.2.4 Prime and Unique Farmlands

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

2.2.5 Floodplains, Wetlands, and Riparian Zones

No floodplains, wetlands, or riparian zones occur in the vicinity of the project area.

2.2.6 Native American Religious Concerns

No traditional cultural properties, sacred sites, or traditional use areas were identified in the project area during the assessment. Native Americans are being consulted through a request for comments on this environmental assessment. Comments will be considered by the decision-making office prior to finalization of this environmental assessment.

2.2.7 Threatened, Endangered, and Sensitive Species

A field review was conducted at this proposed location on May 8, 2002. The site was originally a pinyon-juniper forest that was chained. Currently, there is a heavy fuel component and an over

story of sagebrush. There is little shrub or grass component. The site is largely devoid of wildlife sign or indication of wildlife use.

Local records were searched for threatened, or endangered, plant and animal species locations within the project area. A species list was received from the U.S. Fish and Wildlife Service (USFWS) on July 15, 2002) and the Colorado BLM State Director's Sensitive List (BLM 2000) was reviewed for those plant and animal species potentially occurring in the project area.

Table 2.1 presents the listed species that may occur on the site. The black-footed ferret has been largely extirpated from its original range and is not expected to occur within the project area. There is no suitable habitat for the Canada lynx, southwestern willow flycatcher, Mexican spotted owl, or Uncompahgre fritillary butterfly within the project area. There are no proposed species at this time. There are three candidate species identified by the USFWS as having potential to occur in the project area: the boreal toad, Gunnison's sage grouse, and yellow-billed cuckoo. There is no suitable habitat for the boreal toad or yellow-billed cuckoo, or the Gunnison's sage grouse. The Colorado pikeminnow and razorback sucker are not located within the project area and would only be affected if there were water depletions associated with this project.

The Colorado BLM State Director's Sensitive List (2000) identified 15 sensitive species with potential to occur in the San Juan Resource Area. Of these, only four species could occur in the project area: the spotted bat, Allen's big-eared bat, fringed myotis, and ferruginous hawk. The ferruginous hawk is a rare winter migrant and may be seen in and near the project area.

One Endangered, one Threatened and one Candidate plant species are known to occur in Montezuma County. Eleven Sensitive plant species are known to occur on lands administered by the San Juan Field Office. A pre-field review considered all of these species.

Habitat for two of the sensitive species is present in the analysis area. Jones bluestar (*Amsonia jonesii*) is found in Arizona, Colorado and Utah. Habitat is described as sandy, gravely or sometimes loamy or clay soils in sagebrush and pinyon-juniper communities from 3,900 to 7,000 feet. It flowers in late April through early May and fruits in May (Cronquist et. al, 1984), (Welsh et. al 1993). Naturita milkvetch (*Astragalus naturitensis*) occurs on sandstone mesas, ledges, crevices and slopes in pinyon-juniper woodlands between 5,000 and 7,000 feet (Spackman et al, 1997). It flowers in late April through early June and fruits in late May through June. There are no occurrences for either of these species documented by the Colorado Natural Heritage Program in or near the project area. Neither of these sensitive species was found during a field review of the project area on May 8, 2002

Table 2.1 Animals - Threatened, Endangered, and Candidate Species with Potential to Occur in Montezuma County, CO

Common Name	Scientific Name	Federal Protection Status
Bald eagle	<i>Haliaeetus leucocephalus</i>	Threatened
Black footed ferret	<i>Mutela nigripes</i>	Endangered
Colorado pikeminnow	<i>Ptychocheilus lucius</i>	Endangered
Canada lynx	<i>Lynx Canadensis</i>	Threatened
Gunnison sage grouse	<i>Centrocercus minimus</i>	Candidate
Yellow-billed cuckoo	<i>Coccyzus americanus</i>	Candidate
Mexican spotted owl	<i>Strix occidentalis lucida</i>	Threatened
Boreal toad	<i>Bufo Boreas</i>	Candidate
Razorback sucker	<i>Xyrauchen texanus</i>	Endangered
Southwestern willow flycatcher	<i>Empidonax traillii</i>	Endangered
Uncompahgre fritillary butterfly	<i>Boloria acrocynema</i>	Endangered

2.2.8 Hazardous or Solid Wastes

Some potentially hazardous materials will be used during well drilling and maintenance. In addition, solid waste will be generated during these activities. Improper handling of these materials and wastes can affect the local environment.

2.2.9 Surface Water

No perennial water resources exist within the project area. Numerous dry washes and intermittent stream channels occur throughout the study 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 intermittent flow in these washes. Ephemeral drainages generally discharge toward Yellow Jacket Canyon to the east of the project area.

Primary surface water resources in the vicinity of the project area include Yellow Jacket and Negro Canyons, which are tributary to McElmo Creek 9 miles to the southwest, which in turn joins the San Juan River at Aneth, Utah. No wetlands or riparian zones occur in the project area.

Key factors that influence the surface water quality in the project area include sparse vegetative cover, erosive and saline soils, rapid runoff, and livestock grazing.

2.2.10 Groundwater

Water for residential development in the area is generally obtained from individual wells tapped into shallow groundwater aquifers of the Morrison or Dakota Formations. Useable groundwater may exist within the Kayenta, Wingate, and other sandstone formations that overlie the Chinle Formation. The Chinle Formation is a siltstone/mudstone low permeability formation at depths in excess of 2,300 feet in the project area.

2.2.11 Wilderness

There are no designated Wilderness Study Areas (WSAs) within, or immediately adjacent to, the project study area. The closest WSA is Cross Canyon 10 miles to the northwest (BLM 1984).

2.2.12 Environmental Justice

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. As no minority or low-income populations reside in the project area, environmental justice is not an issue.

2.2.13 Invasive, Non-native Plants

Invasive taxa were not noted at the time of field survey.

2.2.14 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>. The following is an evaluation of project study area standards.

	Achieving/Moving Toward Achieving	Not Achieving	Not Applicable
Standard 1	Yes		
Upland soils: Proper infiltration/permeability rate			
Remarks: Proper Construction techniques on the well location, access road and well-tie pipeline are designed into COAs, which would minimize potential erosion from this project. Once the specified reclamation measures take place, erosion should be returned to its pre-construction level.			
Standard 2			N/A
Riparian systems functioning properly			
Remarks: No riparian areas present.			
Standard 3	Yes		
Healthy and productive plant/animal communities			
Remarks: This project would remove sagebrush and scrub pinyon pine trees. These would ultimately be replaced by native and reseeded grasses and shrubs.			
Standard 4	Yes		
Threatened/Endangered/Sensitive species			
Remarks: There would be no effect to any federally listed threatened or endangered or sensitive species or critical habitat for said species.			
Standard 5	Yes		
Ensure water quality meets minimum Colorado Standards			
Remarks: No surface perennial surface water is on project. Well construction techniques would provide protection for groundwater.			

2.3 NON CRITICAL ELEMENTS

2.3.1 Topography

Summary of Well Site Topography

Well Name	Elevation	Slope	Aspect
Cutthroat #14	6207'	1-2%	East-Southeast

2.3.2 Geology

The surface geology consists of the Morrison and Dakota Formations. These are Cretaceous age stable sandstone formations.

2.3.3 Soils

Soils at the well locations are derived from sandstone and shale parent materials associated with the Dakota, Mancos, and Morrison Formations. The Cutthroat #14 well is located on a relatively flat mesa top with slopes of 1-2%. Surface rock fragment and bedrock outcroppings are associated with these sandy clay loam soils. Risk of soil erosion from water on these soils is low. Soils are shallow.

2.3.4 Vegetation

The well site and road/pipeline access all occur on a mesa top with chained pinyon-juniper vegetation. The area was chained about 40 years ago. The soil series is a Barx, which is a very deep and well-drained sandy clay loam developed from eolian material derived from sandstone. The ecological site for this soil series is a Semi-desert Loam; vegetation at potential would be a big sagebrush/galleta grass (*Seriphidium tridentatum/Hilaria jamesii*) vegetation association (NRCS, Cortez Soil Survey). Currently the vegetation is a light overstory cover of pinyon-juniper woodland with trees averaging five to ten feet tall. Understory vegetation is dominated by big sagebrush with some cliff rose (*Purshia stansburiana*) and a sparse ground cover of bottlebrush squirreltail (*Elymus elymoides*), crested wheatgrass (*Agropyron cristatum*), and cheatgrass (*Anisantha tectorum*). There was very little microbiotic soil crust cover, limited to protected areas beneath shrubs; otherwise the soil surface was bare.

2.3.5 Wildlife

The proposed well pad does not fall within a No Surface Occupancy (NSO) or restricted area as designated in the San Juan-San Miguel Resource Management Plan. Wildlife with potential to occur in the project area includes a variety of mammals, birds, and reptiles common to southwest Colorado. There was evidence of past rabbit use, but no recent sign; occasional deer sign; no elk sign; and little bird use. There appears to be little wildlife use at this proposed site.

2.3.6 Wildlife - Big Game

Some mule deer are resident in the vicinity of this proposed site. As described above, there was only occasional sign of deer in the area during the site visit. There was no elk sign. The project area was not designated as deer and elk winter range in the Resource Management Plan.

2.3.7 Range

The Cutthroat #14 proposed well pad site is located within the Cahone Mesa Grazing Allotment #08012. This allotment is grazed with cattle during November through May annually.

No new fence crossings are associated with the access roads to this well.

2.3.8 Visual Resources

The BLM has developed a Visual Resource Management (VRM) classification designed to maintain or enhance visual qualities and describe the different degrees of modification to the landscape (BLM 1984). Modifications to the visual resource must follow the guidelines for the types of change suitable for each class. The proposed project is within the BLM VRM Class III Objectives area.

The objective is to partially retain the existing character of this landscape. Changes to the landscape character can be moderate. Activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features.

2.3.9 Noise

Ambient sound levels in the project area vary greatly, depending on proximity to existing facilities, roadways or other sources. These sound levels will fluctuate with variations in weather conditions including temperature, wind and humidity and the general topography of the area. The project area is located in an area with limited access and moderate activities related to oil and gas development in the recent past. Ambient noise levels are limited to ranching operations and isolated gas well production. No background noise studies have been conducted for the project study area.

Private land holdings near the project area are rural.

2.3.10 Health and Safety

Traffic associated with oil and gas activities occurs on unimproved roads. These roads can be hazardous for travel during inclement weather if appropriate caution is not exercised. Miles of high-pressure natural gas pipelines and associated facilities are present in the project area. These existing pipelines and facilities can be 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.

Natural gas production equipment operates under high-pressures that can cause failed components to become hazards if dislodged from equipment. High-pressure liquid leaks could also result in an injection hazard to unprotected skin.

2.3.11 Socio-Economics

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 natural gas and oil, and other variables.

Temporary jobs would be generated by construction of the proposed action. These jobs would last for several weeks. Questar's 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 would benefit in the short-term from the presence (purchasing) of work crews in the project area.

2.3.12 Recreational 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 the project area. There are also no formal trails within the project area. Primary recreational activities include some big game hunting, primitive hiking, and horseback riding.

3.0 ENVIRONMENTAL CONSEQUENCES

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 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), impacts that are substantial in severity and therefore should receive the greatest attention in decision-making;

Moderate - impacts that cause a degree of change that is easy to detect, and do not meet the criteria for significant impacts; and

Low - impacts that cannot be easily detected, and cause little change in the existing environment.

3.2 CRITICAL ELEMENTS

3.2.1 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 natural gas production include hydrocarbons, carbon monoxide (CO) and nitrogen oxides (NOx) associated with 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;
- Hydrocarbon emissions from the drill rig, service/support vehicles, and operation of gasoline and diesel engines (i.e. generators and pumps); and
- Venting gas during well completion and development activities or work-over activities.

Gas production from the well pads may also result in localized reductions in air quality due to odors and emissions from the well sites. Wind dispersion and dilution will reduce the magnitude of emissions, and these impacts would be low beyond the well site boundaries. Air quality impacts from construction and drilling operations, primarily from vehicle exhaust and increased fugitive dust, would be low to moderate and short-term. During production, impacts would be low and long-term. Potential releases of H₂S gas are mitigated by a tested H₂S Contingency Plan that is designed to alter and protect the public from accidental releases during the drilling process.

3.2.1.1 Summary of Impacts

Under Alternative No. 1 [Proposed Action with Conditions of Approval (COAs) and the Surface Use COA)], the impacts on air quality would be low to moderate and short term during construction and drilling. The potential for releases of H₂S gas pose a potentially significant impact (refer to Health and Safety). This potential, however, is highly unlikely due to the required implementation of a H₂S Safety Plan whenever H₂S has a reasonable potential to be encountered. Impacts during production operations would be low and long term. These potential impacts would be mitigated by the implementation of mitigation measures described below and following adherence to Surface Use COAs should the APDs be approved. would be attached to the APD

3.2.1.2 Mitigation Measures

The proposed project area disturbance would be reseeded with a BLM-approved seed mix to stabilize soils and reduce the impacts of dust created from wind erosion. Suspended dust from construction could be reduced through sprinkling of disturbed areas with fresh water from a clean water source during construction. 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. Other dust control measures could be applied on county roads BB, 12, Z, and Y and in pits and staging areas. These would include water or magnesium chloride, emulsified asphalt or other dust palliatives to decrease the application frequency. Air permits would be required where emission thresholds are exceeded based on CDPHE standards.

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 CANM Interim Management Guidelines.

3.2.2.1 Summary of Impacts

Under Alternative No. 1 (Proposed Action), there would be no land use conflicts on the Anasazi ACEC or CANM during construction, drilling or production operations of the proposed action.

3.2.2.2 Mitigation Measures

No Mitigation measures proposed.

3.2.3 Cultural Resources and Native American Concerns

Three sites, two which are eligible for the National Register of Historic Places, were documented during the archaeological fieldwork completed La Plata Archaeological Consultants. Under the conditions of approval (COA) prescribed to protect cultural values specified for the proposed action, with avoidance, fencing and onsite monitoring during initial clearing and topsoil removal

operations in the vicinity of well pads, access road, and pipelines, the proposed action may proceed with no anticipated impact on sites.

There is a chance that subsurface cultural resources may be present in deeper soils in the actual project area, but none were evident during the surface inspections. Because there are known sites located in close proximity to the project area, and because there is potential for subsurface cultural resources to occur in the actual project area, site avoidance measures and archaeological monitoring will be required for this project.

No traditional cultural properties, sacred sites, or traditional use areas were identified in the project area during the assessment. Native Americans are being consulted through a request for comments on this environmental assessment. Comments will be considered by the decision-making office prior to finalization of this environmental assessment.

3.2.3.1 Summary of Impacts

Under Alternative No. 1 (Proposed Action), and following the implementation described in the COAs, there would be no known impact to cultural resources from developing the proposed action. Potential impacts would be mitigated by the implementation of mitigation measures described and adherence to Surface Use COAs, Site Specific COAs, and Cultural Values COAs.

The COAs would protect known cultural resources located within close proximity to the proposed well pad, access road, and pipeline, as well as any previously unidentified subsurface cultural resources that may be discovered during project construction. Impacts to cultural resources are anticipated as slight to non-existent as a result of the Proposed Action.

3.2.3.2 Mitigation Measures

The three sites located within close proximity to the proposed well pad, and access road/pipeline will be fenced for avoidance. Procedures for fencing are discussed in detail in the BLM Surface Use Conditions of Approval in Appendix B. A permitted archaeologist would be on site during initial clearing and topsoil removal operations in the vicinity of the well pad, access road, and pipeline to monitor for subsurface cultural resources. If subsurface cultural resources are unearthed during construction, activity in the vicinity of the cultural resource would cease and a BLM representative notified immediately. Procedures for notification are discussed in detail in the BLM Surface Use Conditions of Approval -Appendix B.

An archaeological monitor would be required onsite prior to and during any disturbance to the ground surface. 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. Contractors conducting work on the site would be briefed on procedures to follow if artifacts are uncovered and the potential consequences of knowingly disturbing cultural sites. The operator would conduct tailgate briefings, notifying all site workers that removing cultural artifacts is a crime.

Currently a locked gate secures the main access road onto Mockingbird Mesa. This road would be used to access the road proposed for development for this project. The Mockingbird Mesa road is closed for vehicular traffic to all but authorized personnel to protect cultural sites on the mesa from cumulative impacts. The existing Mockingbird Mesa road closure, and prompt closure and reclamation of construction areas following abandonment would assist with decreasing cumulative impacts. The posting of "Stay On Roads" signs is also an effective way to deter

inadvertent damage to sites along access roads. Although this is not required as a mitigation measure for this project, BLM would require this measure if new information indicates that cultural resources are being damaged.

3.2.4 Threatened, Endangered, and Sensitive Species

There are no known locations of federally listed Threatened, Endangered or Sensitive (TES) animal species in the project area, nor were any of the TES species found in the project area during the biological surveys of the project area. Therefore, no adverse effects are anticipated on TES species.

The project will affect a small amount of potential habitat for sensitive plants. A finding that the project “may adversely impact individuals, but is not likely to result in a loss of viability in the planning area, nor cause a trend to federal listing or a loss of species viability range-wide” was made.

3.2.4.1 Summary of Impacts

Under Alternative No. 1 (Proposed Action with COAs), impacts to TES species would be low and short term (No Effect) during construction and drilling operations, and low and long term (No Effect) as a result of development and operation of the well. Potential impacts would be mitigated by the implementation of mitigation measures described below and following adherence to Surface Use COAs should the APD be approved.

3.2.4.2 Mitigation Measures

Construction activities would be confined to the proposed well pads, access roads and well-tie pipeline right-of ways to avoid potential impacts to TES species possibly occurring outside the area surveyed during the biological survey. Should any TES species be identified during construction or operation of the proposed project, other than occasional incursions by TES raptors, BLM resource specialists would be contacted immediately. All raptor nests would be immediately reported to BLM resource specialists to determine whether they are active nest sites, and for species identification and mitigation measures, if required.

A site visit would be conducted prior to construction, and during the period when sensitive plant species are growing and/or flowering. Individual plants that may be in the proposed project footprint would be transplanted to the nearest suitable location.

3.2.5 Hazardous or Solid Waste

Questar 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 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). Hazardous substances at the site would be generally limited to proprietary treating chemicals. 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.

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.

3.2.5.1. Summary of Impacts

Under Alternative No. 1 [Proposed Action with Conditions of Approval (COA), the Surface Use COAs] 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. With implementation of the waste handling and containment measures described, no significant impact is foreseen for the project.

3.2.5.2 Mitigation Measures

Signs would be posted on the proposed project that identify potential hazards associated with its operation including chemical hazards. Material Safety Data Sheets 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.

A 1-foot earth berm would be constructed around the perimeter of each well location during the drilling and work-over phase of the operation to contain any accidental spill of motor fuel. The well pads would be designed in such a manner as not to allow runoff water to enter the pads. The need for the berm would be reassessed upon the completion of the well.

3.2.6 Surface Water Quality

Potential impacts to surface water may occur as a result of developing the proposed action. Disturbed project area soils would be subject to erosion by wind and/or water into nearby ephemeral washes. Spills or releases of hazardous substances, production fluids, fuels, or other constituents could be washed into surface drainages during storm events. Depletion of surface water could result from drilling cross-connection of water bearing zones that may be tributary to surface water. The actual effects on surface water quality depend on the proximity of roads, pads, and support facilities to surface water; the magnitude, duration, and intensity of precipitation events; well completion techniques, and management practices used for storm water pollution control. Absence of actively flowing surface waters near the proposed action area reduces the potential for surface water quality impacts. Due to the location of the proposed well pad, access road and well-tie pipelines, runoff from the project would be localized and not likely to affect surface waters. Given the topography over which several roads will be constructed, erosion from rain and snowmelt may accelerate down cutting at gully heads. Culverts and other drainage control features may worsen existing conditions, if improperly engineered and constructed. The Cutthroat #14 well site is on a mesa top in relatively flat terrain with small ephemeral drainages running through the area. These drainages would only carry surface water during storm events, mostly in response to spring and late summer thunderstorms.

3.2.6.1 Summary of Impacts

Under Alternative No. 1 [Proposed Action with Conditions of Approval (COA), the Surface Use COAs] the potential impact of the proposed action on surface water quality would be low to moderate and short-term during construction and low and long-term during production. The potential impact of the Proposed Action on surface water depletions would be low and long term. There would be moderate to low short-term impacts due to road construction and trucks accessing

the site during the construction and drilling phases of the project. Even with the application of the COAs, some surface water quality degradation may occur due to increased erosion, but the terrain is on a mesa top of low relief, and the effects of precipitation events between the time that construction occurs and when erosional restraints are in place would be anticipated as minimal.

3.2.6.2 Mitigation Measures

The access road would be upgraded if the well produces oil/gas, with proper road construction and maintenance. Unused portions of the proposed project area would be reseeded with a BLM-approved seed mix to stabilize soils and prevent erosion. Revegetation would follow immediately after drilling operations and pipeline construction are complete. Trees and shrubs cut during the construction of the facilities would be stockpiled and placed on disturbed areas to provide plant shade and cover during the re-vegetation process. After clearing of vegetation, slash would not be allowed to remain in drainages, but would be removed, burned, or chipped. Should re-vegetation attempts fail, reseeded would be repeated at the request of the BLM. All disturbed areas would be recontoured to natural topography. Best management practices for sediment and erosion control and inspection and monitoring should be conducted to assure functionality of these erosion control and reclamation measures.

There is one significant drainage crossing just off the main Mockingbird Road (at Cutthroat #14). This crossing should be a low-water crossing since there is a broad channel with a bedrock bottom. If during road construction, a low-water crossing is determined to be infeasible, at least two culverts would be used for this crossing, with the elevation of the roadbed at a lower elevation than the channel banks.

Water bars would be built as follows to control erosion:

Grade	Spacing
2%	Every 200 feet
2-4%	Every 100 feet
4-5%	Every 75 feet
5+%	Every 50 feet

For the Cutthroat #14 well, mitigation measures specifically would include:

- If possible, a low water crossing would be constructed on the main drainage crossing just off the main road. This crossing should only be used when there is no surface water

present and should be armored with large gravel during the drilling and construction phases. If culverts are used, at least two culverts would be used to span this section of the road.

- Construction of the access road would follow “Gold Book” guidelines and would include adequately sized culverts with none smaller than 18 inches in diameter. Best engineering would be used in designing road drainage and would be maintained and improved as necessary to protect surface water resources. The access road and turn around area on the would pad will be graveled if the well produces oil.
- Mitigation measures for all wells include: Operators should coordinate with Montezuma County regarding County Road 12 and BB dust abatement measures to accommodate increased use of this road.

3.2.7 Groundwater

Groundwater impacts associated with oil and gas wells and other related facilities include:

- possible cross-contamination of aquifers across geologic strata;
- contamination of shallow drinking water aquifers due to surface spills and releases; and
- migration of gas into shallow aquifers.

Groundwater contamination, dewatering, or gas migration could potentially occur as the result of improperly sealed surface casing, well bore stimulation activities, production, and abandonment activities. The potential for cross-contamination of groundwater aquifers, dewatering and gas migration is unlikely due to the requirements on gas and oil wells penetrating fresh water zones to be adequately cased and cemented. Releases of naturally occurring gases to groundwater include methane, hydrogen sulfide, and sometimes 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).

3.2.7.1 Summary of Impacts

Under Alternative No.1 (Proposed Action and COAs), potential impacts to groundwater 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 mitigating measures described below and following adherences to Surface Use COAs accompanying the APD.

Shallow groundwater aquifers could potentially be impacted in the long-term by surface oil and gas activities and accidental spills of toxic and/or hazardous materials. The impact of such spills would be minor due to the probable low volumes of spilled materials and localized extent of such spills.

While the possibility for groundwater quality impacts do exist, the likelihood of degradation is considered unlikely with the incorporation of proper cementing practices and care with potential surface contaminants, taking into consideration the stipulations in the APD and the COAs.

3.2.7.2 Mitigation Measures

Drilling and production fluids from well drilling, completion, and operation would be removed from the locations for appropriate disposal. Releases of hazardous substances, chemicals, or fuels during construction or operation would be contained and disposed in accordance with State and Federal regulations. Personnel working at the site should be informed of spill control procedures in accordance with a written plan. Contamination and dewatering of shallow groundwater would be minimized through *casing off* and *cement isolation* of shallow water bearing horizons. Specifically, contamination and dewatering of shallow groundwater would be minimized through casing off of the known sandstone strata above the Chinle Formation and cementing the annular space to ground surface. A second string of nominal 5 1/2-inch casing would be set in the surface casing extending to the total well depth and cemented to a depth of 4,700 feet.

In the event that cement circulation is lost, BLM will require a cement bond log to ascertain if remedial cementing is required to provide an adequate seal between the casing and the strata.

3.2.8 Invasive, Non-native Plants

Loss of vegetation in the proposed project area would occur due to blading and trenching. A total of approximately 4 acres 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 infestations in the project area. While earth surface disturbance has the potential to increase infestation of noxious weeds, none were identified in the Project Area. No additional impacts related to the spread of invasive, non-native species is anticipated. This impact would be low-to-moderate and short-term during construction, as there would be a noticeable change in the composition of the project area vegetation. As unused areas of the well pads are reclaimed, impacts would be anticipated to remain low and long-term during the operation of the well.

3.2.8.1 Summary of Impacts

Under Alternative No. 1 with the Surface Use COAs in place, there would be low to moderate short-term impacts 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 as prescribed in the Surface Use Plans and COAs, potential impacts would be low and long-term during the operation of the well.

3.2.8.2 Mitigation Measures

Reclamation (including reseeding and noxious weed management) of the project area is discussed in detail in the BLM Surface Use Conditions of Approval in Appendix B of this EA. Stripped topsoil and vegetation would be stockpiled for subsequent reclamation of unused areas of the well pads. Revegetation would be initiated by Questar at the direction of the BLM following construction for areas no longer required for production operations. Monitoring for noxious weeds and appropriate treatment and controls would be done by the project applicant.

Impacts from site clearing activities would be minimized through reclamation of the project areas with weed free BLM-recommended seed mix, and the project applicants noxious weed control. The seed 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.

The applicant must contract with a State Certified applicator licensed to work on public lands, and treat all State and Montezuma County identified noxious weed species at least annually on all facilities associated with this well. If this level of control does not prove adequate, more frequent treatments may be required. If the applicant believes annual control measures are no longer needed they may apply for approval to spray less frequently. Approval must be documented in writing by the BLM Authorized Officer. The applicator must operate under an approved Pesticide Use Proposal (PUP) application from the BLM. Use of pesticides and herbicides would comply with the applicable Federal and State laws. Pesticides and herbicides would be used only in accordance with their registered uses and within limitations imposed by the Secretary of the Interior. Prior to the use of pesticides, Holder would obtain from the AO written approval of a plan showing the type and quantity of material to be used, pest(s) to be controlled, method of application, location of storage and disposal of containers, and any other information deemed necessary by the AO. Emergency use of pesticides would be approved in writing by the AO prior to use.

3.2.9 Soils

Approximately 4 acres of soil would be directly disturbed from construction of the proposed well pads, access roads, and well-tie pipelines. Vegetation and litter will be cleared from the pad locations and surface soils to a depth of a minimum of 6 inches will be removed and stockpiled for later use during reclamation. The pad location would then be graded and the soil compacted. Soils associated with the new access road would be disturbed and compacted. Due to the susceptibility of the project area soils to wind and water erosion, construction activities would indirectly cause an indeterminate 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.

3.2.9.1 Summary of Impacts

Under Alternative No. 1 (with the Surface Use COAs) soil erosion from water would be minimal for well pad, road and pipeline locations provided the mitigation measures are followed. Soil losses to erosion are anticipated to be minimal with the COAs employed. Some fugitive dust would be generated primarily during the construction of the access road and well pad phases, but these would be short term and mitigated by dust reducing applications if dust generation becomes pronounced. No effects on surrounding soils are anticipated.

Impacts to soils from construction of the proposed project would have a low to moderate and long-term impact. During the operation and maintenance phase of the proposed action, stabilization and reclamation of unused portions should reduce the amount of soil disturbance. The impact from operation and maintenance would be low and long-term.

3.2.9.2 Mitigation Measures

Mitigation measures for construction and operation of the proposed action would consist of stockpiling top soils, reclamation and reseeding unused areas of the pad and pipeline with a weed-free BLM approved seed mix to stabilize soils and to prevent erosion in areas no longer needed for production. The proposed project area disturbance would be reseeded with a weed-free BLM-approved seed mix to stabilize soils and prevent erosion for areas no longer needed for production. Seed labels from each seed bag shall be available for inspection while seeding is being accomplished. There shall be no primary or secondary noxious weeds in the seed mixture. Should revegetation attempts fail, seeding would be repeated by Questar at the request of the BLM.

The well pad areas would be bermed to minimize off-site migration of disturbed soils. Vehicle and pedestrian traffic would be restricted to the well pads, access roads and well-tie areas or established roads to prevent further soil mixing and compaction outside the proposed project area surveyed. Specific erosion control measures, should the proposed action be permitted, would be included in the BLM Surface Use Conditions of Approval. Upon plugging and abandonment of the wells following their useful life, the entire well pad and access road would be reseeded to BLM specifications.

The operator would adhere to the construction and maintenance guidelines and requirements in the BLM Gold Book (Surface Operating Standards for Oil and Gas Exploration and Development, Third Edition), the leasing stipulations in the 1991 San Juan/San Miguel Resource Management Plan Amendment, and the Surface Use Conditions of Approval (Appendix B).

3.3 NON-CRITICAL ELEMENTS

3.3.1 Topography

Blading, excavation, and trenching during construction activities would alter existing surface topography of the well project area. Cut and fill activities associated with the construction of the well pad are detailed in the well site plat. These impacts involve cuts and fills to 2 feet, with an additional 12 feet excavated from the reserve pit, and will be low and long-term. No additional impacts to area topography would be required at the proposed well pad site. The access road would be minimally flat bladed with a 16 feet wide running surface and a maximum graded, crowned, and ditched disturbance 30 feet wide. If the well were turned to production, the access road would be crowned and ditched with surface materials applied as needed. Pipelines would be installed underground paralleling the access road, with excavated earth recontoured and reseeded.

3.3.1.1 Summary of Impacts

Under Alternative No.1 (Proposed Action with COAs), potential impacts to area topography would be low and long-term. These potential impacts would be mitigated by the implementation of mitigation measures described below and following adherence to Surface Use COAs, should the APD be approved.

3.3.1.2 Mitigation Measures

All disturbed areas would be recontoured to blend as nearly as possible with the natural topography. This includes removing all berms and refilling all cuts and removing all equipment once operations cease. Re-vegetation procedures would assist in stabilizing these re-contoured features.

3.3.2 Vegetation

Loss of vegetation in the proposed project area would occur due to blading and trenching. A total of approximately 4 acres of vegetation would be removed as a result of the development of the proposed action. Blading, trenching, and excavation would result in removal of vegetation and reduce the amount of forage available for wildlife while increasing the potential for noxious weed infestations in the project area.

3.3.2.1 Summary of Impacts

Under Alternative No. 1 (Proposed Action with COAs) vegetation removal would be low to 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 pads are reclaimed, impacts would shift to low and long-term. Operation of the proposed pipelines and wells could potentially affect the surrounding flora in the event of accidental spills or discharge of production fluids. These impacts during construction and operation would be low and long-term.

Trees in the area are pinyon/juniper of low height. Some would be removed in the construction phase, but these few would not be critical in sustaining the viability of overall vegetation dynamics of the area. In this harsh environment of low and unpredictable precipitation, shrub establishment and growth is slow. Considering the land health conditions in the area, shrub re-establishment would occur at a slow rate, but as is evidenced by re-vegetation in previously disturbed areas, such as the abandoned power line access road, re-vegetation does occur over a period of years.

3.3.2.2 Mitigation Measures

Reclamation (including reseeding and noxious weed management) of the project area is discussed in detail in the BLM Surface Use Conditions of Approval. Stripped topsoil and vegetation would be stockpiled for subsequent reclamation of unused areas of the well pad. Following well construction completion, areas no longer required for production operations would be reclaimed and re-seeded by Questar at the direction of the BLM. Monitoring for noxious weeds and appropriate treatment and controls would be the responsibility of Questar. Any spills or releases of hazardous substances would be cleaned up and disposed of in accordance with applicable County, State, and Federal requirements and Applicant spill plans. Reclaimed areas would be fenced to allow seeded species and natural vegetation to become firmly established prior to grazing. Once vegetation is established, fences would be removed.

3.3.3 Wildlife

The removal of 4 acres of vegetation and cover would result in a direct loss of wildlife habitat in the CANM. Construction activities could directly impact wildlife due to increased noise and human activity. The duration of construction activities would be for a period of approximately four weeks, thereby limiting the severity of potential impact to a short time period.

3.3.3.1 Summary of Impacts

Under Alternative No. 1, the Proposed Action with Conditions of Approval, some small-burrowing animals and reptiles may be killed or displaced during blading and trenching of the proposed well pads, access roads, and well-tie pipelines. (No burrows were identified during biological surveys of the proposed project area.)

There may be long-term disturbances to wildlife during operation of the well from periodic human activity, vehicular traffic in the area, and from the conversion of habitat to industrial use. These impacts are expected to be low to moderate and long-term, especially since there appears to be little wildlife use in the vicinity of the proposed well pad.

The impact of the proposed action on wildlife would be low to moderate and short-term during construction shifting to low to 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 COAs should the APD be approved.

3.3.3.2 Mitigation Measures

Construction activities would be confined to the proposed well pads, access roads and well-tie pipeline right-of-way to minimize disruption to wildlife. The impact to wildlife caused by the removal of vegetation would be mitigated through the implementation of reclamation measures outlined in the BLM Surface Use Conditions of Approval.

3.3.4 Wildlife- Big Game

Approximately 4 acres of big game habitat would be affected by development of the proposed project. Little sign of deer were observed during the onsite surveys. Construction activities could directly impact the normal migration patterns of big game in the general project area due to increased noise and human activity. The duration of construction activities would be for a period of approximately four weeks, thereby limiting the severity of potential construction impacts to low over the short term.

No big game habitat would be directly affected by development of the proposed project. This area appears to receive little deer use and no elk use. Impacts from construction and drilling activities would be low based on current seasonal drilling restrictions. Wintering animals may avoid the area due to noise, increased traffic, and equipment operations during production operations.

3.3.4.1 Summary of Impacts

Under Alternative No. 1 with the Surface Use COAs the potential construction impacts to big game are expected to be low to moderate and short term, and low and long-term during production operations. After drilling, the reclamation of unused portions of the wellpads would provide a denser forage base for big game, even if these areas are fenced. These potential impacts would be minimized by the implementation of mitigation measures described below and following adherence to Surface Use COAs, should the APD be approved.

3.3.4.2 Mitigation Measures

Construction activities would be confined to the proposed well pad, access road and well-tie pipeline right-of-way to minimize disruption to big game. The impact to big game wildlife caused by the removal of vegetation would be mitigated through the implementation of reclamation measures outlined in the BLM Surface Use Conditions of Approval. Reseeding could utilize a seed mix designed for big game to enhance forage.

3.3.5 Range

Loss of vegetation in the proposed project area would occur due to blading and trenching. Approximately 4 acres of vegetation would be removed as a result of the development of the proposed action. The removal of vegetation would slightly reduce the amount of forage available for both cattle and wildlife, and would increase the potential for noxious weed infestations in the

project area. There would be a loss of approximately less than one animal unit month (AUM) of forage production.

Greater impacts to grazing permittees' livestock operation are possible from damage to fences and associated gates and cattleguards; and the accessibility of toxins such as ethylene glycol to livestock. In the past cattleguard wings have been cut off to bring in drilling rigs that were too wide for the existing facilities. Open tanks associated with separators/dehydrators have not always been promptly fenced.

So long as the applicant operates responsibly, taking care to see that all fence-related facilities are properly maintained and toxins are not accessible to livestock, impacts should be low.

Mitigation measures have been recommended to address fence and weed related concerns. Standard Conditions of Approval adequately address concerns related to animal toxins.

The project would cause a loss of approximately one, or less, AUM within the affected grazing allotment. Grazing system would not be adversely affected.

3.3.5.1 Summary of Impacts

Under Alternative No. 1 (with the Surface Use COAs) potential impacts to grazing conditions and allotments would be low and long-term. The reduction in forage impact would be low and long-term. Assuming regular weed control activities by the applicant, operation of the proposed wells and pipelines is not expected to affect the surrounding flora significantly and impacts are expected to be low and long-term. Impacts from operation 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 COAs, should the APDs be approved.

3.3.5.2 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 applicant's noxious weed control. The reseeded well pads would be fenced for **2 years** to improve site reclamation. If these areas are not fenced after reseeding, cattle tend to concentrate in these areas and graze the new seedlings, thereby ruining the reclamation efforts. The BLM could consider a reduction in AUMs to maintain forage.

3.3.6 Visual Resources

The visual resources of the land within the immediate vicinity of the project area would be altered during the entire useful life of the well by the proposed action. During construction activities, machinery emissions, disturbed ground, and construction equipment and pipe staging in the project area would result in moderate and short-term, visual impacts. During the production and maintenance phase of the proposed project, visual resources in the project area would be moderate for the long-term.

3.3.6.1 Summary of Impacts

Under Alternative No. 1 (with the incorporation of Surface Use COAs) the visual resources of the land within the immediate vicinity of the well pad and access road would be permanently altered for the life of the well. The Cutthroat #14 well, which is located in a previously chained area on a mesa top. Visual impacts would be noticeable to the casual observer during the construction

period and may attract attention. This moderate visual impact would be most evident during the short term of construction. The long-term affect is anticipated to be low to minimal, long-term but not obtrusive. The character of the landscape would be partially retained. Impacts would be minimized by the implementation of mitigation measures described below and by adherence to Surface Use COAs.

3.3.6.2 Mitigation Measures

Disturbed areas would be recontoured to blend as nearly as possible with the natural topography, including removing all berms and refilling all cuts. Revegetation procedures would assist in minimizing visual disruption. All permanent structures (onsite for six months or longer) constructed or installed would be painted flat, non-reflective Juniper Green. Trees and shrubs that provide a natural visual buffer between the public roads and the well pads would be left in place, to the extent feasible. All trash materials would be removed from the area and disposed of in an authorized disposal area.

3.3.7 Noise

Noise would be associated with construction equipment during road and wellpads construction and during well drilling operations. During road construction, heavy equipment would be operated during normal working hours. A bulldozer, backhoe, and support trucks would be present during construction. Well drilling operations would be conducted on a 24-hour day basis until the well was complete. Well completion usually lasts about 25 days. These activities require a large rig with a diesel motor and support trucks for hauling casing, water, and other materials. Light truck traffic would be limited to the work crews.

During the operation phase, noise would be limited to daily inspection trips to the well by a worker in a pickup truck. Productive wells in this field do not require pump jacks for lifting fluids, thus reducing noise impacts during the operation phase.

Wells also require periodic work during their production life. Work-over operations would have a similar noise impact as the well drilling, lasting approximately 4 days during daylight hours. Work-over frequency may be every 3 to 5 years.

3.3.7.1 Summary of Impacts

Under Alternative No. 1 with Surface Use COAs ambient noise levels would increase moderately for the short-term duration of construction activities and would have low and long-term increases during operation and maintenance of the well. 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 bulldozer, and 83-94 db(A) using a truck (EPA, 1971). 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 are expected to decrease significantly during long-term operation and maintenance and would be dependant upon the type and size of compressor or pumping equipment installed at the well in order to increase production.

3.3.7.2 Mitigation Measures

The use of hospital type mufflers on all production equipment could be required if noise becomes a nuisance to neighbors. Sound panels would also be installed to reduce noise impacts in the event noise is a nuisance to residents.

3.3.8 Health and Safety

The proposed action could potentially result in health and safety hazards to operators during the construction and maintenance of the proposed project in addition to individuals that may travel or access the well pad sites. Potential hazards associated with operation of the proposed well pads include noise exposure, high-pressure liquid hazards, and chemical hazards.

3.3.8.1 Summary of Impacts

Under Alternative No. 1 (with Surface Use COAs) during well site construction, contractors would be present. By limiting site access to only those trained and authorized for site work, the recreating public would not be exposed to health and safety risks.

The limited access to Mockingbird Mesa would largely decrease the likelihood of public activity. The impact of the proposed action on project area health and safety would be low and short-term during construction and low and long-term during production operations.

3.3.8.2 Mitigation Measures

Signs would be posted on the proposed project facilities that identify potential hazards associated with their operation including noise, high pressure and chemical hazards. Material Safety Data Sheets 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.

3.3.9 Socio-Economic Impacts

No adverse socio-economic impacts are expected to occur as a result of developing the proposed project.

3.3.9.1 Summary of Impacts

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 beneficial impacts generated in the form of royalties paid if the well is productive. Royalty owners and participants would receive a long-term, moderate impact benefit.

3.3.9.2 Mitigation Measures

No mitigation measures are proposed.

3.3.10 Recreational Resources

The Cutthroat well would be located on BLM lands accessible by the public from county road 12 by foot traffic. The well access road would not be available to the general public for vehicle access. Occasional hunting, hiking, horseback riding, and other day use activities occur on these BLM lands.

3.3.10.1 Summary of Impacts

Under Alternative No. 1 with Surface Use COAs the operations at the proposed well site would produce noise and visual impacts perceivable by the recreating public. No increase in off-road vehicle use would result. The impact of the proposed action on public lands recreation resources within the project area would be low to moderate and short-term during construction and low and long-term during the production life of the well. These potential impacts would be minimized by the implementation of mitigation measures described below and adherence to Surface Use COAs, should the APD be approved.

3.3.10.2 Mitigation Measures

Mitigation on recreation is covered by those described under Health and Safety, Noise, and Visual impacts. These include public notices and signs warnings of hazards and the use of hospital grade mufflers and visual mitigation as complimentary color schemes used to paint permanent site fixtures. No other mitigation measures are proposed because of the low impact of the proposed activity. Many of the other mitigation factors for noise, air, visual impacts, etc. would serve to mitigate impacts to recreational users.

3.4 CUMULATIVE IMPACTS

Cumulative impacts are the environmental impacts that result from the proposed activity, added to the impacts from all other oil and gas operations, regardless of who is conducting such activity. In other words, Questar's proposed activity must be assessed cumulatively with all the other activity from Questar and other operators on private, state, and federal land. For the purpose of this EA, the area considered for cumulative effects analysis is Montezuma County. The lands in this region are primarily federally owned surface land and federally owned minerals. There is a mix of interspersed private surface and state-owned lands. Approximately 33% of the surface ownership is private and state.

The 1991 RMP Amendment for Oil & Gas Development (p. B-65, Table 8) indicates that 313 wells (potential of development) could be drilled on Federal minerals in this region by the year 2010. Cumulative effects from 313 wells were analyzed in the 1991 RMP Amendment. Fewer than 100 Federal and private wells have been drilled since 1991 in Dolores, Montrose, Montezuma and San Miguel Counties covering the Paradox Basin outside of the Ute Mountain Ute Reservation. Therefore, the analyses conducted for the 1991 RMP Amendment remain valid. Cumulative impacts to cultural resources were identified as potentially significant impacts associated with the drilling of 313 wells. Cumulative surface impacts by oil and gas development over 20 years in addition to vegetation manipulation, livestock projects, forest management, wildlife projects, recreation facilities, rights of ways for power lines and ditches, hazardous spill unanticipated events, the direct oil and gas usage in the San Juan/ San Miguel Planning Area for all of these wells was anticipated to add approximately 2.0% (1430 Acres) to the total 84,500 acres of public lands that will incur disturbance. Oil and gas operations are anticipated to represent an unreclaimed residual impact on 410 acres after mitigation 1 to 5 years after impacts, or 16% of the disturbed areas. This is in comparison to a total of almost 21 million acres in the Planning Area. Considering the total area involved, this disturbance was not considered significant.

Visual impacts would be noticeable to the casual observer, but would be mitigated by the removal of high profile machinery after the drilling is complete. Mitigations such as color schemes that allow permanent low profile equipment to blend with surroundings will reduce visual impairment.

Impacts related to *recreation* would represent the removal of 4 acres of wildlife habitat, contributing to habitat fragmentation that exists throughout the area from existing roads, pipelines and well pads. Off road access to the public would not be provided by this activity. *Noise* levels would increase dramatically during construction and drilling activities, but would lessen as the well was turned to production or abandoned. Mockingbird Mesa is removed from residences, so that the public should not be adversely affected unless they entered the area for recreation.

Air quality is expected to remain good, and meet State of Colorado standards. The contribution of federal oil and gas leasing and development to air quality degradation is virtually non-existent. Pollutants including dust, smoke and other emissions resulting from oil and gas activities will not be cumulatively significant.

The primary impact recognized would be the removal of 4 acres of *grazing* land from use to a grazing allottee, amounting to one or less AUMs. The most noticeable impact would include the loss of *vegetation* on land denuded for the project. The project area is mostly vegetated with sagebrush and scrub pinyon trees. Topsoils would be preserved for later reclamation efforts by stabilizing spoil slopes and seeding soils that would not be immediately used. Following re-vegetation, impacts to the area would include more productive forage for grazing than is currently present. Re-vegetation of unused areas could be anticipated in less than five years, with the remaining area reclaimed at the end of the useful life of the well. Grazing quality could ultimately be improved on the disturbed areas.

Soil erosion during construction could cause losses before controls were established, but should be of short duration by the incorporation of the Surface Use Plan and COAs. This should reflect only a short-term effect on *surface water quality* if precipitation events occur during the construction process. There should be no measurable increase in soil erosion/stream sedimentation in the affected watersheds.

With the use of specified measures as planned to assure zonal isolation within the well bore annulus, hydrocarbon migration of gas or fluids is not anticipated. Inter-zonal contamination of *groundwater* by lower quality water should be precluded.

The nature of surface *topography* would be restored through recontouring to pre-disturbance configuration. As the construction of the well is completed, unused portions of the pad would be reclaimed, reseeded, and protected for effective revegetation. If the well is productive, the pipeline route would be recontoured and reseeded upon completion of the burial of the lines. At the close of the useful life of the well, surface equipment would be removed and the area reclaimed per Surface Use COAs stipulating stringent guidelines to insure responsible performance.

While evidence of current *wildlife and big game* usage was not profusely evident, some wildlife could be temporarily displaced during construction activities and some fragmentation of habitat would occur. Wildlife populations would not be appreciably impacted. Short-term relocation would be possible. Some long-term disturbance would continue as long as the well remained productive and maintenance continued, but these continuing disturbances would be perceived as minimal.

Health and safety issues should be mitigated by measures such as posting warning signs, the following of best management safety precautions, the wearing of effective personal protective gear, and the proper attention to inadvertent or avoidable spills of hazardous substances.

Mitigation for cultural resource impacts was outlined in the 1991 RMP Amendment. These include identification of *cultural resources* prior to any surface disturbing activities, avoidance of cultural sites during surface disturbing activities, and continued avoidance of sites during operation of any oil and gas facilities. Such mitigation procedures are required for Questar's proposed action. Cultural sites are documented in the area and would be protected by fences and avoidance. All employees of the applicant or any subcontractors must be informed by the operator before commencement of operations against the disturbance of archaeological, historic, or sacred materials. A qualified archaeologist is to be present for all initial clearing and topsoil removing operations. If subsurface archaeology is found during excavation, construction will cease within 50 feet of the find and the authorized officer (BLM) notified as per the COAs to protect cultural values.

It is intended that reclamation and mitigation measures would minimize the majority of cumulative impacts from the proposed action. With proper mitigation measures, impacts to resources associated with the proposed action represent no incremental increase in impacts to the resource.

SUMMARY OF ENVIRONMENTAL CONSEQUENCES AND MITIGATION REQUIRED BY THIS EA AND FEDERAL MANDATES

CRITICAL ELEMENTS	<i>Environmental Consequences</i>	<i>Cumulative Impacts</i>	<i>Basis for Determination</i>
<i>AIR QUALITY</i>	Nominal increase in pollutants from natural gas, vehicles, equipment	low	Impacts ore dispersed and relatively minor for construction
<i>CULTURAL & NATIVE AMERICAN CONCERNS</i>	Disturbance of unidentified archaeological sites during construction	Low	Fencing of sites, avoidance; Presence of onsite archaeologist; Opearator training
<i>ENVIRONMENTAL JUSTICE</i>	Minority/Low-Income	None	Executive Order 12898
<i>INVASIVE & NON-NATIVE PLANTS</i>	Spread of weeds	Low	No noxious weeds noted at site. Weed control required on roads, well pads, & pipelines
<i>SOILS</i>	Disturbance, Compaction, erosion	Low	Stabilization, segregating, contouring, seeding
<i>THREATENED, ENDANGERED, SENSITIVE, CANDIDATE SPECIES</i>	Potential loss of species or ctirical habitat by development.	Low	No TES species/critical habitat identified. Biological assessment
<i>WASTES- HAZARDOUS OR SOLID</i>	Inhalation, Ingestion	Low	MSDS sheets, safe handling of materials, spill clean-up
<i>WATER QUALITY-Surface</i>	Contamination/Loss	Low	Lack of perennial surface water
<i>WATER QUALITY-Groundwater</i>	Contamination	Low	Cementing techniques
NON-CRITICAL ELEMENTS			
<i>BIG GAME/WILDLIFE</i>	Loss of Habitat or Fragmentation	Low	Loss of 4 acres of habitat
<i>HEALTH & SAFETY</i>	Public Safety	Low	OSHA standards, MSDS, fences, placards
<i>NOISE</i>	Excess	Low-moderate	Noise mitigation as required
<i>RANGE MANAGEMENT & VEGETATION</i>	Vegetation loss of 4 Acres	Low	Reseeding, reclamation, minor loss to allottee Return to pre-construction conditions
<i>RECREATION</i>	Loss of Recreation Areas	Low	
<i>SOCIO-ECONOMIC</i>	Revenue/Public needs	Low	Significant positive economic impact during construction, royalty potential
<i>TOPOGRAPHY</i>	Erosion	Low	Reclamation with re-contouring to surroundings, reseedng
<i>VISUAL</i>	Reduction in overall quality	Low to moderate	Vegetation screens, earth tone, non-reflective colors

4.0 CONSULTATIONS and LIST OF PREPARERS

Individuals and agencies listed below have been consulted in the preparation and review of this EA:

Applicant Contact Names:	Position	Organization/Company
Dave Nelson		Questar Exploration and Production Company
Brian Wood	Agent for Questar	Permits West

Preparers:	Position	Organization
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Kelly Shanahan	Watershed and Air Program Manager	US Forest Service
Kathy Nickell	Wildlife Biologist	Bureau of Land Management
Leslie Stewart	Ecologist-T&E Flora, Forestry	US Forest Service
Bob Lange	Hydrologist	US Forest Service
Mike Jensen	Range Specialist & Health of the Public Lands Standards	Bureau of Land Management
Stephanie Odell	Health and Safety Hazardous wastes	Bureau of Land Management
Clyde Johnson	Realty	Bureau of Land Management
Penny Wu	Recreation Specialist	US Forest Service
David Swanson	Acting Surface Protection Specialist	Bureau of Land Management
Helen Mary Johnson	Minerals Supervisor	Bureau of Land Management

The following organizations were consulted during preparation of this document:

- U.S. Fish and Wildlife Service regarding TES flora and fauna
- BLM State Director regarding TES flora and fauna and sensitive species.

5.0 REFERENCES

Bureau of Land Management

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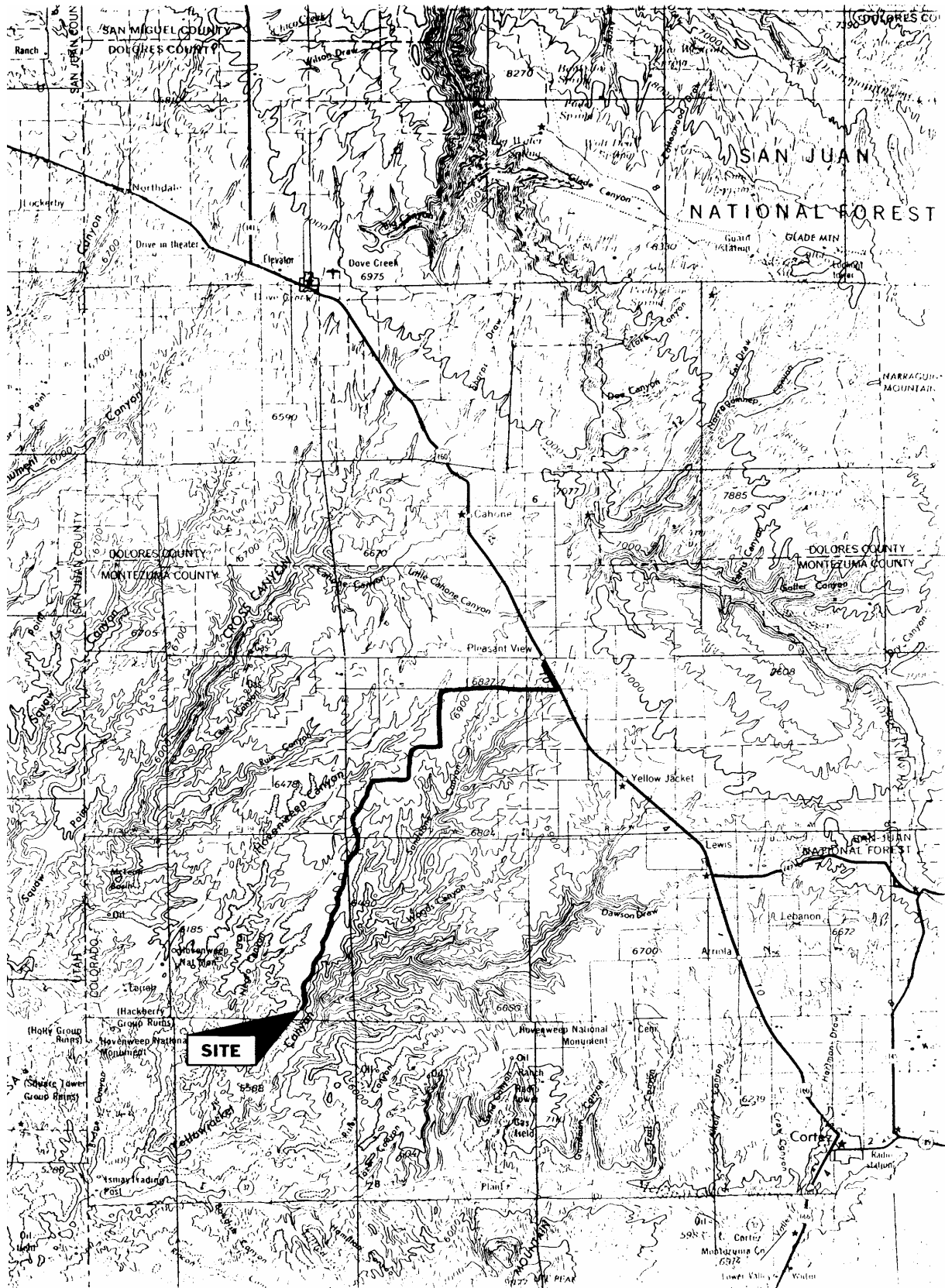
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Appendix A
Maps



Mitigations
To be Incorporated as
Conditions of Approval per CO-SJFO-02-054EA

Cultural Resource Conditions of Approval

1. 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.
2. 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 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.
3. Temporary protective fences consisting of steel posts and two strands of smooth wire will be installed in the manner described below. Fencing will be in place prior to clearing operations, and all fence construction will be directed by a permitted archaeologist familiar with the sites and the project. All site flagging will be removed following fence installation. During drilling and production operations, all protective fences will be monitored by the operator on a monthly basis and maintained to initially installed standards. Any damage or unauthorized vehicle entry will be reported to the BLM Authorized Officer.
4. Approximately 130 feet of fencing will be installed between site 5MT3112 and the proposed access road and pipeline route.
5. Approximately 200 feet of fencing will be installed between site 5MT3117 and the left rear (southern) corner of the well pad and pit.
6. Approximately 180 feet of fencing will be installed between site 5MT938 and the right rear well pad corner.

7. Temporary protective fencing will be removed by the operator after surface reclamation activities have been completed. Fence removal will be directed by a permitted archaeologist.
8. 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.
9. 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.
10. Disclosure or release of information regarding the nature and location of 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 location information present in cultural reports) is considered a violation of Federal statute.

Surface Water Conditions of Approval

1. Roads shall be wetted down and compacted where needed to avoid dust and loss of soil. If production is achieved, culverts at least 18 inches in diameter will be placed in the permanent road as outlined in the oil and gas Gold Book to reduce erosion and the access road will be graveled with sub-base gravel. BLM may require additional culverts, if erosion or road damage is not well controlled by initial construction.
2. The operator will assure that all vehicle traffic is limited to the bladed/traveled road surface. No pullouts or off-road parking will be allowed unless specifically authorized. The operator may install "Keep vehicles on the road surface" signs to assist with compliance as needed. No shortcutting will be allowed by any motor vehicles on roads not identified as access routes in the APD. Vehicular access to the pad will be strictly limited to authorized vehicles only; vehicles are restricted to use on the drill- pad only: no off pad or off road parking.
3. Topsoil piles will not be placed in drainages greater than 4 feet deep to avoid the possibility of mobilizing loose soil during storm events.
4. 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.

5. Any discharge to waters of the State of Colorado from a point source other than specifically authorized by a State approved water discharge permit is prohibited. Solids, sludges, or other pollutants shall be disposed in accordance with applicable state and federal regulations.
6. If possible, a low water crossing will be constructed on the main drainage crossing just off the main road. This crossing should only be used when there is no surface water present and should be armored with large gravel during the drilling and construction phases. If culverts are used, at least two culverts will be used to span this section of the road.
7. The following seed mix will be used for initial and final reclamation. Any changes to the seed mix must be approved by the BLM. Local native seed (VNS) will be used when available. The seed will be weed free, pounds per acre will be pure live seed. The site will be re-contoured to the original landscape shape and fenced. Woody material removed during site construction will be scattered over the soil surface after seeding to provide shade and erosion protection for the young seedlings. Fencing will remain in place until seeded species are firmly established, at least two years. Once it is determined that the seeding is successful the fence will be removed by the operator. If seeding does not appear successful after a two-year period it will be re-seeded until it is successful. BLM personnel will determine success.

Common Name	Scientific Name	Variety	Pounds/acre (PLS)
Bottlebrush Squirreltail	Elymus elymoides	Bottlebrush	4
Alkali sacaton	Sporobolus airoides	VNS	3
Mutton grass	Poa fendleriana	VNS	1
Indian ricegrass	Achnatherum hymenoides	Rimrock	8

Air Quality Conditions of Approval

1. The proposed project area disturbance shall be reseeded with a BLM-approved seed mix to stabilize soils and reduce the impacts of dust created from wind erosion.
2. Suspended dust from construction shall be reduced through sprinkling of disturbed areas with fresh water from a clean water source during construction. 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.
3. Other dust control measures shall, as conditions dictate, be applied on County Roads BB, 12, Z, and Y and in pits and staging areas. These would include water or magnesium chloride, emulsified asphalt or other dust palliatives to decrease the application frequency.
4. Operators are required to be in compliance with the Colorado Department of Public Health and Environment (CDPHE) standards for gas emissions.

Threatened, Endangered, and Sensitive Species Conditions of Approval

1. Construction activities shall be confined to the proposed well pads, access roads and well-tie pipeline right-of ways to avoid potential impacts to TES species possibly occurring outside the area surveyed during the biological survey. Should any TES species be identified during construction or operation of the proposed project, other than occasional incursions by TES raptors, BLM resource specialists shall be contacted immediately. All raptor nests will be immediately reported to BLM resource specialists to determine whether they are active nest sites, and for species identification and mitigation measures, if required.
2. A site visit will be conducted prior to construction, and during the period when sensitive plant species are growing and/or flowering. Individual plants that may be in the proposed project footprint will be transplanted to the nearest suitable location.

Hazardous Materials Conditions of Approval

1. Signs will be posted on the proposed project that identify potential hazards associated with its operation including chemical hazards. Material Safety Data Sheets for any treatment chemicals will be maintained on site during the construction phase. Equipment operators will be required to wear appropriate personal protective equipment to minimize exposure to these hazards.
2. A 1-foot earth berm will be constructed around the perimeter of each well location during the drilling and work-over phase of the operation to contain any accidental spill of motor fuel. The well pads will be designed in such a manner as not to allow runoff water to enter the pads. The need for the berm will be reassessed upon the completion of each well.

Surface Water Conditions of Approval

1. The proposed project area disturbance shall be reseeded with a BLM-approved seed mix to stabilize soils and prevent erosion. Revegetation shall follow immediately after drilling operations and pipeline construction are complete. Trees and shrubs cut during the construction of the facilities would be stockpiled and placed on disturbed areas to provide shade and cover during the revegetation process. After clearing of vegetation, slash shall not be allowed to remain in drainages, it will be removed, burned, or chipped. Should re-vegetation attempts fail, Questar shall repeat reseeded at the request of the BLM. All disturbed areas shall be recontoured to natural topography. Water bars shall be built as follows to control erosion:

Grade	Spacing
2%	Every 200 feet
2-4%	Every 100 feet
4-5%	Every 75 feet
5+%	Every 50 feet

2. A low water crossing will be constructed on the main drainage crossing just off the main road. This crossing should only be used when there is no surface water present and should be armored with large gravel during the drilling and construction phases. If culverts are used, at least two culverts will be used to span this section of the road.

3. Construction of the access road shall follow Gold Book guidelines and will include adequately sized culverts with none smaller than 18 inches in diameter. Best engineering will be used in designing road drainage and will be maintained and improved as necessary to protect surface water resources. The access road and turn around area on the well pad will be graveled if the well produces gas or oil in paying quantities.

4. Operators should coordinate with Montezuma County regarding County Road 12 and BB dust abatement measures to accommodate increased use of this road.

Surface Water Conditions of Approval

1. Releases of hazardous substances or fuels during construction and shall be contained and disposed in accordance with State and Federal regulations. Personnel working at the site shall be informed of spill control procedures in accordance with a written plan. Contamination and dewatering of shallow groundwater shall be minimized through casing off of the known sandstone strata above the Chinle Formation and cementing the annular space to ground surface. A second string of nominal 5 1/2-inch casing shall be set in the surface casing extending to the total well depth and cemented to a depth of 4,700 feet.

2. In the event the cement circulation is lost, BLM will require a cement bond log to ascertain if remedial cementing is required to provide an adequate seal between the casing and the strata.

Weed Control Conditions of Approval

1. Stripped topsoil and vegetation will be stockpiled for subsequent reclamation of unused areas of the well pads. Revegetation will be initiated by Questar at the direction of the BLM following construction for areas no longer required for production operations. Monitoring for noxious weeds and appropriate treatment and controls will be done by Questar.
2. Impacts from site clearing activities shall be minimized through reclamation of the project areas with weed free BLM-recommended seed mix, and the project applicant's noxious weed control. The seed 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.
3. Questar shall contract with a State Certified applicator licensed to work on public lands, and treat all State and Montezuma County identified noxious weed species at least annually on all facilities associated with this well. If this level of control does not prove adequate, more frequent treatments may be required. If the applicant believes annual control measures are no longer needed they may apply for approval to spray less frequently. Approval must be documented in writing by the BLM Authorized Officer. The applicator must operate under an approved Pesticide Use Proposal (PUP) application from the BLM. Use of pesticides and herbicides shall comply with the applicable Federal and State laws. Pesticides and herbicides shall be used only in accordance with their registered uses and within limitations imposed by the Secretary of the Interior. Prior to the use of pesticides, Holder shall obtain from the AO written approval of a plan showing the type and quantity of material to be used, pest(s) to be controlled, method of application, location of storage and disposal of containers, and any other information deemed necessary by the AO. Emergency use of pesticides shall be approved in writing by the AO prior to use.

Soils Conditions of Approval

1. The proposed project area disturbance shall be reseeded with a weed-free BLM-approved seed mix to stabilize soils and prevent erosion for areas no longer needed for production. Seed labels from each bag shall be available for inspection while seeding is being accomplished. There shall be NO primary or secondary noxious weeds in the seed mixture. Should revegetation attempts fail, reseeded would be repeated by Questar at the request of the BLM.
2. The well pad area shall be bermed to minimize off-site migration of disturbed soils. Vehicle and pedestrian traffic shall be restricted to the well pads, access roads and well-tie areas or established roads to prevent further soil mixing and compaction outside the proposed project area. Upon plugging and abandonment of the wells following their useful life, the well pads and access roads shall be reseeded to BLM specifications.
3. The operator shall adhere to the construction and maintenance guidelines and requirements in the BLM Gold Book (Surface Operating Standards for Oil and Gas Exploration and Development, Third Edition).

Wildlife Conditions of Approval

1. Construction activities shall be confined to the proposed well pads, access roads and well-tie pipeline right-of-ways to minimize disruption to wildlife. The impact to wildlife caused by the removal of vegetation would be mitigated through the implementation of reclamation measures outlined in the BLM Surface Use Conditions of Approval above.

Visual Quality Conditions of Approval

1. Disturbed areas shall be recontoured to blend as nearly as possible with the natural topography, including removing all berms and refilling all cuts. Revegetation procedures would assist in minimizing visual disruption. All permanent structures (onsite for six months or longer) constructed or installed will be painted flat, non-reflective Juniper Green.

2. Trees and shrubs that provide a natural visual buffer between the public roads and the well pads will be left in place, to the extent feasible.

Noise Conditions of Approval

1. The use of hospital type mufflers on all production equipment is reserved as an option if noise becomes a nuisance to neighbors.

2. Sound panels shall also be installed to reduce noise impacts in the event noise is a nuisance to nearby residents.

Hazardous Material Conditions of Approval

1. Signs shall be posted on the proposed project facilities that identify potential hazards associated with their operation including noise, high pressure and chemical hazards.

2. Material Safety Data Sheets for any treatment chemicals will be maintained on site during the construction phase.

3. Equipment operators will be required to wear appropriate personal protective equipment to minimize exposure to these hazards.

FINDING OF NO SIGNIFICANT IMPACT
and
DECISION RECORD
for
Questar Exploration and Production Company's
Well Cutthroat #14 and Associated Infrastructure

Canyons of the Ancients National Monument, Colorado
EA # CO-SJ FO-02-054EA

Finding of No Significant Impact Based on the analysis of environmental impacts contained in Environmental Assessment CO-SJFO-02-054EA for the Questar Exploration and Production Company's proposed drilling of 1 well and associated construction of a pipeline and access road, I have determined that Alternative Number One will not have significant impact on the human environment and that an Environmental Impact Statement (EIS) is not required. Alternative Number One provides that mitigation measures would be attached to the APD for the proposed action as Conditions of Approval to minimize environmental impacts. My determination relies on and adopts the BLM standard practices applied to surface-disturbing activities, and the additional environmental protection measures identified in the EA in Appendix B. The no significant impact determination is based on the following:

- Extensive site specific mitigation measures are included in the APD's Surface Use Plan, and attached Conditions of Approval, which will be attached to the approved Application for Permit to Drill (APD). These mitigation measures are directed toward reducing short and long term impacts to vegetation, visual, soils, air, water quality (surface and groundwater), cultural resources, threatened and endangered or proposed or candidate species, and cultural resources.
- After mitigation measures are applied, surface and subsurface disturbances are not of significant scale in terms of context or intensity.
- With the application of these mitigation measures, this well and associated road and pipeline will not contribute significantly to the cumulative impacts to the region as a result of oil gas development.

I have also determined that Alternative Number One conforms to the 1985 San Juan/San Miguel Resource Management Plan (RMP), the 1991 State of Colorado Oil and Gas Amendment, the June 9, 2000 Canyons of the Ancients National Monument (CANM) Presidential Proclamation, and the CANM Interim Management Guidance for Oil and Gas Leasing and Development.

Decision It is my decision to proceed with Alternative Number One as analyzed in the EA # CO-SJFO-02-054EA. Alternative Number One permits the drilling of the Cutthroat #14 well, construction of all associated production facilities outlined in the APD, Surface Use Plans, and construction and of associated access road and pipeline. Alternative Number One is the Proposed Action with mitigation as identified in the Environmental Analysis, CO-SJ FO-02-054EA,

incorporated as Conditions of Approval. It is my conclusion that selection of Alternative Number One will adequately mitigate impacts associated with the proposed well, access road, and pipeline.

Rationale for Decision The decision to allow the proposed action does not result in any undue or unnecessary environmental degradation and is in conformance with the 1985 San Juan/San Miguel Resource Management Plan, the 1991 Oil and Gas Amendment, the CANM Proclamation, and the Interim Guidelines for CANM. Conditions of approval have been applied to the Proposed Action, which will meet or exceed the standards for Public Land health.

Mitigation Environmental protection measures are outlined in Appendix B of the EA and are attached to the approval of the Application for Permit to Drill as Conditions of Approval.

Monitoring The project will be inspected according to BLM monitoring protocols. The inspections will be designed to monitor environmental effects of the project and to insure that the operator complies with the mitigation measures. Compliance actions are to ensure that these operations are conducted in accordance with the terms and conditions of the approval and associated stipulation, the elements of the Proposed Action, BLM standard practices applied to surface-disturbing activities, and the mitigation measures otherwise listed in the EA. A cultural resource monitor will continuously monitor operations to assure site avoidance and compliance with other protective conditions for cultural resources.

Energy Impact Statement This decision will not have an adverse impact to energy production.

LouAnn Jacobson
Manager, Canyons of the Ancients National Monument

Date

Response to Comments Received by the BLM 11/26/2002 – 12/30/2002

There is little reference to the Monument Proclamation, and to the need to prevent new impacts to the objects for which the Monument was designated.

Response: See discussion of the CANM Proclamation quoting authority for this action on pp 7-8. The potential for impacts to the objects for which the Monument was designated are addressed throughout the EA.

The description of wildlife fails to describe by name the species present in the project area.

Response: There was little wildlife actually observed at the onsite (p. 20). Species that may frequent the area are common and not in jeopardy of extinction by this action. Threatened, Endangered, and Sensitive species were evaluated (pp. 15-17).

The EA should include BLM's entire plan for reducing foreign energy dependence.

Response: The Federal Land and Policy Management Act of 1976 established the public land policy for Federal lands under BLM management. Through this Act, Congress declared that,

“... the public lands shall be managed in a manner which recognizes the Nation's need for domestic sources of minerals, food, timber, and fiber from the public lands (Sec. 102.(a)(12)).

The BLM has not been granted the authority to reduce foreign energy dependence.

We expect BLM will analyze these alternative energy supply sources (i.e., CAFE standards for improving gas mileage in vehicles, and solar, wind, and other renewable energy sources) in the EA.

Response: These alternatives would not meet the purpose and need of the proposed action, to develop mineral resources on public lands.

The EA does not thoroughly analyze the reasonable alternative of directional drilling.

Response: Alternative 1 (pp. 12 and 13) proposes to relocate the proposed well site to avoid cultural resources and would result in directional drilling. This alternative has been selected.

If BLM is using the distance greater than 0.5 miles as a rationale for not more carefully considering the directional drilling alternative, then it is using erroneous information... If instead, the well were drilled from the Questar Cutthroat #12 pad, this would move the location back towards the east which should help resolve that issue.

Response: Distance is a factor when considering directional drilling. The EA noted there were no wells in the vicinity of the proposed action that could be considered for co-location; it documented this by stating that the nearest well (Questar Cutthroat #12) is over 0.5 miles away. This well is approximately 2970' away, or 330' more than a half mile (2640'). Moving the surface location of the Cutthroat #14 to the Cutthroat #12 pad would lengthen the offset from the target from 1184' to 2720' and increase the angle of the well. The angle of the well can affect the ability to retrieve resources at this stage. There would be a danger of creating a loss of resource if the well cannot be pumped after the free flow character of the well stops. CFR 3161.2 states, “The authorized officer is ...directed to...require that all operations be conducted in a manner which...results in the maximum recovery of oil and gas with minimum waste...”

The EA should explain the discrepancy between what industry asserts is needed in its lobbying correspondence with elected officials and the well pad size noted in the EA, which is fully three times as large as what industry claims is needed.

Response: It is not clear as to what context industry is referring to when saying that well pads require only 0.5 acres. There is no standard size with regards to the size of a pad. The area required is dependent on a number of factors including, but not limited to, the depth of the proposed well, slope, whether oil and/or gas will be produced, or the type and number of facilities that may be located at the pad.

As a condition of approval for the Questar Cutthroat #14 well, BLM should insist on remedial action for the Cutthroat B facility.

Response: It has not been demonstrated that other facilities are impacting resources or affecting human health or safety in the Monument. Performing remedial actions for the Cutthroat B facility would not mitigate potential impacts disclosed in this EA.

Shattering the Monument's silence with new, noisy facilities is certainly a new impact from oil and gas development activities.

Response: Oil and gas development activities were present in the area prior to the creation of the Monument and the Proclamation that created the Monument recognized that existing oil and gas leases have valid existing rights that must be respected. Mitigation of noise is reserved as an option in the Conditions of Approval.

The EA makes a completely unsubstantiated statement about air quality impacts that is entirely at odds with the far more extensive air quality analysis incorporated in the recent Southern Ute EIS and Farmington RMP/EIS.

Response: This EA is addressing the environmental effects of construction and operation of a single new well. No new compressors or other wells were proposed. Our analysis for air quality impacts tiers to the Southern Ute Indian Reservation Final Environmental Impact Statement (SUIT FEIS), and the San Juan/San Miguel Area RMP. The Farmington EIS air quality analysis is not complete, and several changes regarding air quality impacts analysis are expected in the Final EIS compared to the Draft.

The conclusion of the Southern Ute EIS near field analysis, which considered a much higher impact build-out scenario, was “most predicted impacts are below applicable regulatory limits, and the scientific evidence is not compelling that reasonably foreseeable significant adverse impacts would occur.” (pp. 4-13, SUIT FEIS). It was determined that similar conclusions were justified for the Cutthroat #14.

The Southern Ute EIS concludes that for cumulative effects “most predicted impacts are below assumed threshold limits, and scientific evidence is not compelling that reasonably foreseeable significant adverse impacts would occur.” Based on the similar activities at a smaller scale, and the implementation of mitigation measures, it was determined there would not be significant cumulative impacts associated with the Cutthroat #14 well.

Mockingbird Mesa is specifically called out in the Monument Proclamation for its abundant and significant cultural resources. The EA needs to describe the cultural

significance of Mockingbird Mesa in greater detail, and place its cultural resources in context with the proposed project.

Response: Analysis in the EA has indicated that no known impacts to cultural resources would result from Alternative No. 1. The proposed action, as mitigated, is located within the Mockingbird Mesa Cultural Resource Emphasis Area (CREA). The three archaeological sites located in close proximity to the well pad and facilities would be avoided and protected. The research potential, enhancement opportunities, and uses of these sites, as well as that of Mockingbird Mesa as a whole, would be retained.

The Hopi Cultural Preservation Office has reviewed this Environmental Assessment. We note that three previously recorded archaeological sites, described as two Ancestral Puebloan activity areas and a habitation, are in close proximity to the proposed project area. Therefore, we conclude that this proposal will result in adverse impacts to these sites that at a minimum will be visual. The proposed Action is inconsistent with our support for, and very name and of the Canyons of the Ancients National Monument, as well as the preservation of the resources and values for which it was proclaimed. And therefore, we support Alternative 2, No Action, in this Environmental Assessment.

Response: Native American Religious concerns are addressed on p. 15. No new traditional cultural properties, sacred sites, or traditional use areas were identified as a result of tribal review of this EA. Visual changes would occur within the area of the well pad and associated facilities. However, the visual aspects of the terrain surrounding the sites has not been specifically identified as a characteristic qualifying the previously recorded sites for eligibility to the National Register of Historic Places. Two of the sites qualify based on their potential to yield information important to prehistory, and the eligibility of the third site is presently unknown as this site has not been evaluated. Because these sites would be completely avoided, and additional protective measures such as temporary fencing and archaeological monitoring would be implemented, the BLM has determined that the characteristics that qualify these sites for eligibility would not be affected by this project.

Where is the complete inventory for this so-called ‘Canyons of the Ancients National Monument’ and where is the Charter for it even to exist? Where has Congress given it’s expressed consent as required in the Federal Land Policy Act of 1976 Section 204, otherwise known as FLPMA? Where is the session statute, Enabling Act of 1874, in the State of Colorado ceding jurisdiction to the United States for the areas encompassing the Canyons of the Ancients National Monument?

Response: The Monument was established by Presidential proclamation on June 9,2000, under the authority of the Antiquities Act of 1906.

How can there be a claim to Federal Owned properties (as mentioned on page 6) when these land areas whether surface or otherwise are on public property?

Response: Periodic Oil and Gas lease sales are conducted to allow certain public lands to be available to the public for the extraction of minerals. The Federal Government retains ownership of the surface and obtains royalties from the minerals extracted. This is not a new area, but the development of an existing lease that already has demonstrated oil and gas production capability.

What American Indian Nations have you contacted/consulted with all regards to this request and process?

Response: The tribes contacted are:

The Northern Ute Tribe

The Ute Mountain Ute Tribe

The Southern Ute Tribe

The Navajo Nation

The Hopi Tribe

The Jicarilla Apache Tribe

The Pueblos of Acoma, Cochiti, Isleta, Jemez, Laguna, Nambe, Picuris, Pojoaque, Santa Ana, Santo Domingo, Sandia, San Juan, San Ildefonso, Santa Clara, Taos, Zia, and Zuni.

There is a comparison made between the ‘ambient noises of ranching operations and the isolated gas well production’ (p.21). Explain.

Response: The EA does not compare ambient noises of ranching operations and isolated gas well production. It is rather stating that existing noise in the area is due to these activities. The EA documents that there are no available studies on ambient noises in the area.

On page 24, 3.2.3; there is mention of three sites being eligible for the *National Register of Historic Places*, what sites and to what proximity are they to this #14 Cutthroat? Where is the proposed fencing to occur and does this include the entire area of Mockingbird Mesa to be fenced? If there are no cultural properties then why is there a need to have the area registered with the *National Register of Historic Places*?

Response: The exact locations of the eligible sites are not published in order to protect the sites. Fencing of cultural properties is discussed on page 25 of the EA and again in Appendix B (p. 1).

The proposed fencing is temporary in nature, and isolates quite small areas (measurable generally in a few tens of feet or less in circumference depending on the extent of artifacts found) to be avoided during construction phases.

The Mockingbird Mesa area is considered significant as a district of interrelated Ancestral Puebloan archaeological sites. It has one of the highest recorded archaeological site densities in the nation. The Mockingbird Mesa Cultural Resource Management Plan outlines a number of actions that are designed to meet the management objectives for cultural resources in the area. Enhancement, use, and protection of the sites are the primary management objectives. Avoidance of designated sites achieves these goals. The entire mesa does not require fencing to protect the cultural resources.

On page 22; there is mention of recreational activities as being the primary usage of the area which include big game hunting (?), primitive hiking, and horseback riding. At

Mockingbird Mesa this is an untruth as no vehicles are allowed beyond a certain point unless they are authorized, otherwise they are in violation of 43 U.S.C. ... as a large sign reads.

Response: Foot traffic and horseback riding is allowed on Mockingbird Mesa and would continue to be allowed.

It appears the ‘public access’ of this Mockingbird Mesa area has been limited for many years due to the archeology, cultural resources excuse and also due to the gas and oil monopolies.

Response: Public vehicular travel is restricted to reduce purposeful vandalism and inadvertent impacts to cultural resource sites.

On page 25; The Mockingbird Mesa road is closed for vehicular traffic to all but authorized personnel to protect cultural sites on the mesa from cumulative impacts.” Now, you just got done mentioning there are no significant cultural properties, re-read 3.2.3. Again, this further proves my aforementioned comments earlier, in schemes to further exclusive use by only ‘*certain and exclusive*’ groups of ‘*approved people*’ while still using public taxes for funding of these secrete schemed endeavors.

Response: Three cultural sites were identified near the proposed well pad. No traditional cultural properties, sacred sites, or traditional use areas important to Native Americans were identified in the project area.

With concern to the trees being chained wouldn’t someone in the BLM be in violation of 18 U.S.C. 1852 Section 1852 and Section 1853 of this U.S. Criminal Code for the destruction of these trees?

Response: This comment is outside the scope of this analysis.

When will BLM take care of this extreme fire hazard (discarded, rotting, dead, and previously scorched trees)?

Response: This comment is outside the scope of this analysis.

This (fire hazard) is jeopardizing the health, safety and welfare of all of the public by having such an accumulation of dead wood litter on the ground surface area so close to the oil & gas wells and along the CO2 pipeline area.

Response The well pad is cleared of all vegetative debris. The likelihood of a fire being started by a gas well is very low.

On page 32; “Vehicle and pedestrian traffic would be restricted to the well pads, access roads and well-tie areas or established roads to prevent further soil mixing and compaction outside the proposed project area surveyed.” As aforementioned, regarding the current access, are you stating there will be in additional restrictions?

Response: The citation refers to vehicle and pedestrian traffic associated with construction, drilling, and any development of the well pad. Public access is not anticipated to be further restricted.

On page 33, there is reference to the 4-acres being a direct loss in wildlife habitat. I viewed relatively fresh tracks of several different species very close to the existing gas & oil activity and on the main road. The noise was not a deterrent to the evident species of deer, rabbit, coyote, lion and I even viewed a crow flying in the sky near the gas & oil activity.

Response: Loss of habitat does not entirely indicate a loss of surface area that may be crossed by wildlife. Some well head equipment presence would prevent wildlife use. It does represent a loss of vegetation for forage or a loss of cover for smaller fauna species.

Should this area of #14 Cutthroat only occur on four-acres, then how many cattle are permitted to graze on four-acres and for how many months out of the year currently?... How many other permits has this one owner of this Allotment been reduced by for grazing on public lands?...On page 35, 3.3.5; a loss of less than one AUM of forage production is expected, loss to fences and cattleguards may happen. Will the rancher/owner be reimbursed for damages?

Response: Range resources are discussed on pages 21 and 35. The number of animal unit months permitted in this allotment would not be reduced as a result of this EA. The rancher would be required to pay only for those AUMs for which he is permitted. The “owner” of the property is the BLM. No loss of fences or cattleguards is anticipated

In 3.3.5.2; “The reseeded well pads would be fenced for 2-years to improve site reclamation.” You further state, the encouragement of fencing during these reclamation efforts is anticipated. But, on page 36 at 3.3.7; the work is expected to last for over 3 to 5-years? Explain.

Response: Fencing of reclaimed sites is separate from operations requiring a drilling rig to maintain the well described in section 3.3.7.

Will you plan for noxious weed control?

Response: Noxious weed control is discussed on page 31.

On page 37, 3.3.8.1; the objective is clear in your stating “The limited access to Mockingbird Mesa would largely decrease the likelihood of public activity.” This entire exercise is intended to deny all public access but only allow authorized people in an entire area, which extends farther than the proposed four-acres.

Response: This statement does not refer to increased limitations of public access. Rather, it notes that due to existing restrictions applied to Mockingbird Mesa and temporary restrictions applicable to the immediate site during construction, the public would be protected from potential health or safety hazards that may be associated with construction activities.

On page 38, 3.3.10; not only will the access be limited but there is mention that only day-use may occur in the form of occasional hunting (?), hiking, horseback riding, on these BLM lands. Explain. The public lands are intended to be open at all times for all multiple uses by the public.

Response: There are no time of day restrictions for hunting, hiking, or horseback riding.

3.4; refers to the federally owned lands. Explain. These are publicly owned lands and you as well as those in your office are public servants, you are to answer to the public, your boss.

Response: Federally owned lands are ultimately owned by the public of the United States of America.