# CHAPTER FOUR
# ENVIRONMENTAL CONSEQUENCES

## 4.1 Introduction

This chapter describes the environmental consequences of BLM approval of the Proposed Action and each of the alternatives considered in detail as described in Section 2.5. This chapter discusses both adverse impacts and benefits associated with the Proposed Action and the alternatives.

The No Action Alternative would only preclude installation of the 14.4-mile long portion of the proposed 611 Pipeline. This alternative would not preclude QGM from proceeding with the condensate pipeline route approved in the Questar Year-Round Drilling Proposal Decision Record (BLM, 2004a). It would also not preclude Questar from continuing winter drilling and development of their lease area in mule deer winter range or sage grouse breeding and nesting habitat. Development of these areas was approved by the Questar Year-Round Drilling Proposal Decision Record (BLM, 2004a). Consequently, if the No Action Alternative is selected, the impacts to resources discussed in Chapter 4 of the Questar Year-Round Drilling Proposal EA (BLM, 2004a) would still occur.

This chapter also discusses cumulative impacts. The cumulative impact assessment includes all existing, proposed and connected actions.

## 4.2 Socioeconomics and Environmental Justice

### 4.2.1 Proposed Action

Impacts to socioeconomic resources from construction of the proposed 14.4-mile long portion of the 611 Pipeline and other proposed modifications are expected to be mostly positive. There would be increased employment opportunities for the construction and operation of the proposed pipeline and other modifications. There would also be an increase in tax revenues generated by construction activities, which are generally evaluated as positive impacts for an area.

There would be no influx of workers and their families into the area because the workers who designed and would construct the pipeline are current employees of QGM and residents of southwestern Wyoming. Therefore, construction of the proposed pipeline would not place additional demands on schools and other governmental services. The same applies for the other Proposed Action modifications within the PAPA.

QGM and Questar estimate that the operation of the condensate pipeline and previously-approved produced water gathering system would reduce tanker traffic in the lease area by approximately 25,000 truck trips annually under peak production. The condensate pipeline and produced water gathering system would reduce trucking opportunities for firms that currently provide this service to QGM. However, this impact cannot be quantified and it is possible that truck capacity may be absorbed by current and future needs elsewhere in southwestern Wyoming.

It is unlikely that construction of the pipeline would generate high levels of concern, opposition, or dissatisfaction among local residents. The oil and gas industry is the primary revenue-generating activity in the area and provides employment opportunities for many local residents.

### 4.2.2 Alternatives

**No Action Alternative**. Under this alternative, construction of the previously proposed condensate pipeline route (BLM, 2004a) would continue. This pipeline route is longer and could require more man hours, thus an increase in potential revenue compared with the Proposed Action. The increase in tax revenue would remain, as well as the benefits discussed for the Proposed Action, with the exception that the other Proposed Action modifications would not be constructed.

**Alternative A**. Under this alternative, none of the socioeconomic benefits described above would occur. Socioeconomic impacts would be identical to those described in the PAPA EIS (BLM, 1999a). Questar would continue to develop their lease area and the proposed condensate pipeline and other Proposed Action modifications would not be constructed or operated.

### 4.2.3 Cumulative Impacts

The Proposed Action and the alternatives would not result in significant changes to the cumulative impacts described in the Questar Year-Round Drilling EA (BLM, 2004a) or the PAPA EIS (BLM, 1999a). The benefits are expected to be only locally important. However, additional benefits would be expected outside of the PAPA (Sublette County) with construction of the proposed condensate 611 Pipeline and other modifications previously analyzed under NEPA. Overall, increased employment opportunities may occur in the region if energy production grows as a result of the increased capacity to bring the NGL (condensate) resource to market after construction of the pipeline.

## 4.3 Transportation

### 4.3.1 Proposed Action

Construction of the 14.4-mile long portion of the 611 Pipeline is not expected to result in significant impacts to transportation resources and all impacts are expected to be temporary. Construction would comply with permit requirements from State and county regulatory agencies to assure that roads are repaired after construction and that adequate traffic control is implemented to protect the traveling public. Heavily-traveled roads (US 189 and State Highway 235) would be bored so that traffic would not be impeded. Shoe-fly (detour) roads would be constructed at appropriate road crossings to prevent disruption of use. Impacts to local transportation from construction of the condensate pipeline would be temporary.

Construction of the 630-foot 25 kV distribution line, pipelines connecting the new NGL Stabilizer and Water Handling Facility to the existing Gobblers Knob Pinedale Compressor Station, and the proposed 1,250-foot long 25 kV distribution line is not expected to impact local transportation.

### 4.3.2 Alternatives

**No Action Alternative**. Implementation of the No Action Alternative would require construction of the 107-mile condensate pipeline analyzed in the Questar Year-Round Drilling Proposal EA (BLM, 2004a). Construction of the pipeline within that proposed right-of-way was not expected to result in significant impacts to transportation resources and all impacts are expected to be temporary (BLM, 2004a). Exempting the other modified components of the Proposed Action from implementation would have no effect on transportation.

QGM is not expected to construct the three CDPs or any of the other components previously analyzed under NEPA under the No Action Alternative since condensate would not be able to be passed along the approved condensate pipeline. Consequently, Questar would have to

remove condensate from the PAPA by tanker trucks, significantly increasing traffic levels during all times of year from levels expected under the Proposed Action.

**Alternative A**. Questar would have existing pads with multiple wells but because the condensate gathering system would not be feasible, Questar would most likely develop new well pads with only one well on each pad. However, the number of new pads would be consistent with that allowed in the PAPA ROD (BLM, 2000b). With that expectation, there would be an extensive road network on the PAPA with concomitant high volumes of traffic during all seasons, including winter. Consequently, many more miles of roads on the PAPA would have to be maintained for access during winter and other times of year than under the Proposed Action. Questar would have to remove condensate from the PAPA by tanker trucks, significantly increasing traffic levels during all times of year from levels expected under the Proposed Action.

### 4.3.3 Cumulative Impacts

Unlike the No Action Alternative and Alternative A, implementation of the Proposed Action would result in less tanker truck traffic on the PAPA and other area roads. This reduced traffic volume would result in safer roads for the traveling public, wildlife, and livestock. Cumulative impacts described in the PAPA EIS and currently occurring in the vicinity of the PAPA would be reduced. Tanker truck traffic on Highway 351 would increase, however, when stored water would need to be removed from the 351 Tank Battery.

## 4.4 Land Use and Grazing

### 4.4.1 Proposed Action

Implementation of the Proposed Action would not preclude current land uses of the areas in and around the pipeline and power line routes, because the proposed routes follow existing pipeline and power line rights-of-way, as well as existing roads for most of the proposed lengths (see Appendix A). There would be no changes in surface ownership. Installation of the condensate pipeline, ten connecting pipelines, and buried power lines would not conflict with current zoning regulations.

Construction of the proposed condensate pipeline and other components within the rights-of-way would have a temporary effect on the quality and quantity of resources available, especially where lands are used for grazing. For example, if the proposed condensate pipeline, connecting pipelines, and power lines were constructed, vegetation would be bladed within the rights-of-way, completely removing vegetation and available forage within the construction area. After construction the surface would be available to grazing animals, although re-establishment of vegetation would require time (one to three years) and sufficient precipitation (Barker et al., 1985).

The total amount of disturbed area within the grazing allotments during condensate pipeline construction (50 feet right-of-way) would be approximately 81.3 acres, corresponding to 5.65 animal unit months (AUMs) (see Table 4-1). This impact would be short-term until grasses are re-established. After construction of the pipeline, an operational right-of-way of 30 feet would be maintained. This is would be approximately 48.8 acres of disturbance for all three grazing allotments, corresponding to 3.4 AUMs, during the life of the project (see Table 4-1). However, maintenance of the right-of-way would not have an impact on available forage. The impacts to grazing are considered to be minimal because they would be short-term (one to three years) and would not affect the long-term use of the grazing allotments.

Approximately 0.18 acres of vegetation would be temporarily disturbed on Mount Airy Common grazing allotment during construction of the buried power line to Stewart Point 16-18 CDP. This

corresponds to 0.01 AUMs. Construction on the ten connecting pipelines, as well as buried power line from Gobblers Knob Compressor Station to the NGL Stabilizer and Water Handling Facility would disturb approximately 0.53 acres within the Mesa Common Allotment, corresponding to 0.05 AUMs. Impacts to grazing would be minimal because they would be short-term and the proximity to existing facilities most likely would preclude high usage of this portion of both grazing allotments.

**Table 4-1**
**Grazing Allotments Potentially Affected by the Proposed Action**

| Allotment | AUMs/Acre | Pipeline Construction ROW (acres) | Pipeline Operation ROW (acres) | AUMs Disturbed (Construction) | AUMs Disturbed (Operation) |
|---|---|---|---|---|---|
| Figure Four | 0.017 | 44.3 | 26.6 | 0.76 | 0.46 |
| Bird Individual | 0.087 | 7.7 | 4.6 | 0.67 | 0.40 |
| North LaBarge Common | 0.147 | 29.3 | 17.6 | 4.22 | 2.54 |
| Mount Airy Common | 0.076 | 0.18 | 0.0 | 0.01 | 0.0 |
| Mesa Common | 0.090 | 0.53 | 0.0 | 0.05 | 0.0 |
| Total | 0.417 | 82.01 | 48.8 | 5.71 | 3.4 |
| Source: BLM, 1987, 1992 | | | | | |

Consistent with mitigation presented in Section 2.3, QGM would not trench more area than can be successfully backfilled and compacted in a two-day period. Portions of the proposed right-of-way within 0.25 mile of livestock would be fenced if required by the BLM field agent. Application of these measures would minimize impacts of open trench conditions on livestock and wildlife, particularly big game species.

### 4.4.2 Alternatives

**No Action Alternative**. Under this alternative, grazing and land use impacts described in the Questar Year-Round Drilling EA (BLM, 2004a) would continue. QGM would continue its original plans for constructing the condensate pipeline (BLM, 2004a). Disturbance associated with this alternative would be greater than the Proposed Action and Alternative A, since this alternative maintains the longer route proposed resulting in more surface disturbance during construction of the condensate pipeline and/or continues to construct a condensate pipeline not included with Alternative A.

No disturbance would occur to 1.07 acres of potential grazing sites in Mount Airy Common and Mesa Common, since the additional modifications of the Proposed Plan would not transpire.

**Alternative A**. Under this alternative, the winter stipulations in the PAPA ROD (BLM, 2000b) would be reapplied. There would no longer be a condensate gathering system on Questar's lease area, and therefore, no additional condensate pipeline would be constructed. As a result, no disturbance would occur to 81.30 acres of grazing allotments impacted under the Proposed Action. In addition, none of the other modification included in the Proposed Action or previously analyzed under NEPA would be implemented since those are dependent on the presence of the condensate gathering system.

If this alternative were implemented, additional well pads would be potentially constructed, resulting in a more extensive road network, thus impacting additional acres of grazing

allotments. Land use and grazing impacts from implementing this alternative would be identical to those described in the PAPA EIS (BLM, 1999a).

### 4.4.3 Cumulative Impacts

Questar's proposal to modify the route of the 611 Pipeline would reduce total disturbance during construction compared to action taken under the Questar Year-Round Drilling EA (BLM, 2004a). This reduced disturbance should result in less overall cumulative impacts to land use and grazing along the proposed pipeline route. The temporary loss of 5.65 AUMs represents only a small portion (less than 1 percent) of the AUMs currently available in the affected grazing allotments. In addition, the impacts from the pipeline are linear, further reducing the severity of the impact to grazing. Because the condensate pipeline is located adjacent to existing rights-of-way for most of its length, additional cumulative impacts to land use are expected to be negligible. In addition, placement of the buried power lines and ten connecting pipelines are mostly within previously disturbed sites, and therefore impacts to land use are also minor.

### 4.4.4 Recreation Resources

### 4.4.5 Proposed Action

The 14.4-mile long portion of the proposed 611 Pipeline is not expected to change recreation resource impacts because only dispersed recreation resources occur along the condensate pipeline right-of-way. There may be some limited displacement of recreation use on BLM-managed lands during construction. However, the impact is expected to be insignificant and temporary. Using HDD to cross the Green River would eliminate adverse impacts to water quality from an open-cut that would impair trout fishing downriver, as well as allow for continued boating passage. Proposed construction of the condensate pipeline would occur during many of the designated hunt seasons (see Table 3-5 in Section 3.5). Hunting success could be hindered during construction, although disturbance would be temporary. Other proposed modifications should not impact recreational opportunities.

### 4.4.6 Alternatives

**No Action Alternative**. Recreation impacts described in the Questar Year-Round Drilling EA (BLM, 2004a) would continue. Under this alternative, impacts to recreation resources described above for the proposed 14.4 mile condensate pipeline reroute and other proposed modifications would not occur, but impacts to recreation resources along the long 107-mile route would be impacted.

**Alternative A**. Recreation impacts from implementing this alternative would be identical to those described in the PAPA EIS (BLM, 1999a). There would be no potential adverse affects to fishing and boating opportunities on the Green River, since the proposed condensate 611 Pipeline would not be constructed. In addition, other proposed modifications would not be constructed since each is dependent on the presence of the condensate gathering system; therefore, there would be no adverse impacts on recreational resources.

### 4.4.7 Cumulative Impacts

Construction of the proposed 611 Pipeline would result in a temporary loss of recreational opportunities on BLM lands in the vicinity of construction activities, especially in areas used extensively for hunting purposes. However, it is anticipated that these impacts would be short-term and negligible. Other proposed modifications, including those previously analyzed using NEPA, should not impact recreational opportunities since they are located at previously established sites and are expected to be undesirable to recreationists.

## 4.5 Visual Resources

### 4.5.1 Proposed Action

**The 611 Pipeline**. The 14.4-mile long portion of the 611 Pipeline crosses approximately 2.2 miles of the Green River Floodplain which is land designated as VRM Class III. This represents approximately 15 percent of the 14.4-mile long proposed pipeline. The Green River crossing would be completed by a 0.29 mile HDD beneath the river instead of trenching the river banks and bed. This procedure would minimize disturbance within VRM Class III by eliminating the need for extensive stream bank grading and restoration. Construction and operation, including reclamation of this segment of the pipeline through VRM Class III lands would be adjacent to or within areas previously disturbed for other pipelines, roads and/or well pads and would not significantly change the existing character of the landscape. It also should not attract attention following the re-establishment of vegetation as part of committed reclamation of the disturbed construction right-of-way.

Two automated isolation valves are also proposed within the VRM Class III areas on each side of the Green River crossing in the State Section 16, Township 27 North, Range 112 West. These facilities would be designed to blend into and retain the existing character of the natural landscape. These exposed pipeline segments would be painted a non-contrasting color harmonious with the surrounding landscape (i.e., Shale Green unless otherwise specified by BLM on a case-by-case basis). Detailed construction plans for these facilities would be submitted to the authorizing officers for approval prior to construction. Additional mitigation measures would be applied as required by the State of Wyoming.

The 14.4-mile long pipeline also crosses approximately 3.95 miles (27 percent) of land outside the floodplain which is also designated as VRM Class III. This area is located on the western side of the Green River. The existing character of the landscape would be retained following right-of-way restoration. Pipeline construction and operation in this VRM class would be consistent with the objective to partially retain the existing character of the landscape. The activity may draw the attention of the causal observer, but should not dominate the landscape.

The remaining 8.25 miles (57 percent) of the 14.4-mile long pipeline would cross VRM Class IV landscapes that allow for major modifications of the existing character of the landscape. Construction and operation of the proposed pipeline is consistent with VRM Class IV objectives.

Currently condensate is stored in tanks of various heights and diameters at each pad. Upon completion of the proposed pipeline and condensate gathering system, serviced wells would no longer store condensate in tanks; therefore the tanks could be removed. The elimination of these tanks would reduce the visual impact from gas development in areas serviced by the pipeline, which occupy VRM classes II, III, and IV.

**Other Modifications**. Construction of the power line to Stewart Point 16-18 CDP would occur in VRM Class III. The connecting pipelines and power line from the NGL Stabilizer and Water Handling Facility to Gobblers Knob Compressor Station would be constructed in VRM Class III. These construction projects would maintain the objectives of each VRM class and retain the existing character of the landscape upon revegetation.

One water tank at each well pad would remain and be converted to blowdown tanks. At present these tanks vary in size from 300 to 540 barrels and range in height from 8 to 9 feet. Leaving these tanks would not benefit or adversely affect the current viewshed in each of the affected VRM classes. Two years after completion of the project, Questar has committed to replacing each water tank with a 90 barrel, low-profile tank that would not exceed 6 feet in height. Each tank would be painted a non-contrasting color harmonious with the surrounding landscape (i.e.,

Shale Green unless otherwise specified by BLM on a case-by-case basis). This conversion would reduce visual impact at each well pad.

### 4.5.2 Alternatives

**No Action Alternative**. Implementation of the No Action Alternative would result in no disturbance along the 14.4-mile long portion of the 611 Pipeline. Therefore, no impact to the existing character of the landscape would occur. However, there would be an increase of disturbance during construction of the condensate pipeline as described in the Questar Year-Round Drilling EA (BLM, 2004a), because it incorporates a longer route. No additional disturbance would occur from the other modifications included in the Proposed Action.

**Alternative A**. Visual impacts and benefits from implementing this alternative would be greater than the No Action Alternative or Proposed Action. Under this alternative, no condensate gathering system would be constructed and/or operable on Questar's lease area, thus Questar would not proceed with concentrating their drilling efforts to no more than 61 well pads. Well pads would be developed at the density allowed by Management Area in the PAPA ROD, which would likely create greater visual impact than developing the entire Questar leasehold with no more than 61 pads. Both condensate and water tanks storage tanks would remain on each well pad.

No disturbance would occur by the other modifications included in the Proposed Action, or any of the other modifications previously analyzed under NEPA, since those components are dependent on the presence of the condensate gathering system.

### 4.5.3 Cumulative Impacts

Implementation of the Proposed Action would result in a temporary increase to visual disturbance of VRM Classes II, III, and IV during construction of the 14.4-mile long portion of the 611 Pipeline. These impacts are expected to be short-term, although noticeable, until restoration is complete. Since the impacts would occur primarily adjacent to existing pipelines, in the long-term the impacts are expected to blend with the adjacent landscape.

Additional components of the Proposed Action (630-foot 25 kV distribution line, right-of-way for ten pipelines from the NGL Stabilizer and Water Handling Facility to the Gobblers Knob Compressor Station, and the 1,250-foot long 25 kV distribution line) and modifications previously analyzed under NEPA (CDPs within the PAPA, NGL Stabilizer and Water Handling Facility, Mesa Phase IV Multi-pipelines, the 16,000 barrel condensate storage tank at LaBarge, and the 351 Tank Battery) would increase visual impact throughout the PAPA.

## 4.6 Cultural and Historic Resources

### 4.6.1 Proposed Action

The potential for the project to affect subsurface historic properties not detected by the Class III inventory exists; therefore, an open trench inspection would be conducted in accordance with the terms of the Discovery Plan and Research Orientation detailed in the Class III Cultural Resource Inventories of the Questar Gas Management 611 Pipeline, Segments 3 and 4 (Yerkovich, 2005 and Murray, 2005).

Two cultural resource sites present in the 14.4-mile long portion of the 611 Pipeline right-of-way are eligible for nomination to the NRHP and would be affected by construction of the pipeline. However, the portion of 48SU852 (Opal Wagon Road) that would be crossed by the proposed pipeline occurs in an area that does not contribute to the site's overall eligible status. The archeological site located adjacent to the Green River, 48SU390, would also not be affected because the pipeline will cross the Green River using the HDD method.

The impacts anticipated at each of the eligible sites are discussed below.

**48SU390.** The proposed pipeline would cross the Green River by HDD. The pipeline would be installed 28 feet below the Green River and 44 feet below the known extent of archeological site 48SU390. The plan for the HDD was approved verbally by the Wyoming State Historic Preservation Officer (SHPO), Ms. Claudia Nissley, on March 8, 2005. Site 48SU390 has been characterized and researched extensively due to the construction of other pipelines in this area. The known extent of site 48SU390 would be avoided during construction using HDD and as a result, no surface disturbance is expected to occur. Monitoring of this activity would document any impacts to the site.

**Opal Wagon Road (48SU852).** The pipeline would encounter the Opal Wagon Road (48SU852) within an area of previous pipeline disturbance. A fence would be erected across the contributing portion of the road at the point of intersection to avoid inadvertent vehicle traffic along that portion of the road.

Cultural resources that are not eligible for nomination to the NRHP are not considered "historic properties". Consequently, by Advisory Council's guidelines (Section 106), there would be no effect on six of the eight historic properties identified within the proposed project area. However, two other historic sites within the project area are eligible for nomination to the NRHP. Though, in compliance with the Advisory Council's guidelines for Section 106, eligible site 48SU852 (Opal Wagon Road) that is crossed by the proposed pipeline in a portion that does not contribute to its eligible status, would not likely be adversely effected. The other eligible site, 48SU390, would be crossed by the condensate pipeline the archeological site and should have no impact on this historical site historic property. Section 106 compliance of this project would be in accordance with the Wyoming Protocol implementing the National Programmatic Agreement for cultural resources. A Memorandum of Agreement (MOA) between BLM, SHPO, and QGM has been executed and is included as Appendix C.

No impacts to traditional cultural properties are anticipated due to the absence of currently identified Native American tribal concerns.

### 4.6.2 Alternatives

**No Action Alternative**. Under this alternative, the potential impacts described above to subsurface historic properties and historic trails would not occur. Cultural and historic resource impacts would be identical to those described in the Questar Year-Round Drilling EA (BLM, 2004a).

**Alternative A** Under Alternative A, the potential impacts to subsurface historic properties and historic trails would be the same as those described in the PAPA ROD (BLM, 2000b). Potential impacts to cultural and historic resources would be evaluated by BLM to determine that field development activities were consistent with discovery plans and individual project treatment plans developed.

### 4.6.3 Cumulative Impacts

Implementation of the Proposed Action and alternatives would result in the same cumulative impacts described in the PAPA ROD (BLM, 2000b) and Questar Year-Round Drilling EA (BLM, 2004a). Because the portion of the Opal Wagon Road crossed by the condensate pipeline does not contribute to trail eligibility, there would be no additional unmitigated cumulative impacts on this historic property. In addition, using HDD to cross beneath archeological site 48SU390 would mitigate surface disturbance to this site and maintain its eligible status. Other proposed project components would not impact any cultural or historic sites.

## 4.7 Geology, Geologic Hazards, Minerals and Paleontological Resources

### 4.7.1 Proposed Action

The Proposed Action would have no adverse impacts on mineral resources along the pipeline route. The 611 Pipeline would not be allowed to encroach on other mineral leases, infrastructure, or rights-of-way without prior approval. Construction or operational activities of the pipeline would not precipitate seismic activity in the vicinity of the site because there are no active faults in the immediate area, and there would be only minor intrusion into bedrock. Excavation for the new pipeline would be slightly below the alluvial surfaces in some locations along the route. However, the fractured nature of the bedrock would probably allow excavation to proceed without blasting. Terrain along the route shows local variations in elevation. Because the slope is generally low, it is not physically predisposed to landslides that could be exacerbated by precipitation on surfaces exposed or denuded as a result of construction activities. The slope rating indicates that the surface along the route is suitable for surface and deep mechanical site preparations (Halasz et al., 2000).

There would be no impacts to the availability of locatable or salable minerals as a result of pipeline construction because there are no known occurrences of those resources along the pipeline route. Access to potentially available oil and gas resources along the 611 Pipeline route would not be hindered by construction and operation of the proposed pipeline due to the linear nature of the project and the minimal width of the right-of-way (30-feet).

Construction of the proposed pipeline would, in some areas, disturb unconsolidated bedrock as trenching occurs in the relatively shallow soils and would have the potential to impact undiscovered scientifically significant fossils. However, implementation of BLM's BMPs would effectively eliminate impacts to paleontological resources. BMPs include worker instruction and education with respect to legal requirements and procedures if fossils are uncovered. They also include contingency plans if a paleontological discovery were made. In Bird Canyon, where fossil wood, invertebrate trace fossils, and fossil vertebrate material were identified during the paleontological survey, a paleontology monitor would be on site during trenching operations.

Increased public access to the construction sites may increase the opportunities for unauthorized fossil collection. However, because the pipeline would be constructed adjacent to existing pipelines for much of its length, it is unlikely that new discoveries would be made.

### 4.7.2 Alternatives

**No Action Alternative**. This alternative would allow construction of the 107-mile condensate pipeline analyzed in the Questar Year-Round Drilling EA (BLM, 2004a). That document concluded that the condensate pipeline would have no adverse impacts on mineral resources. Further, there would be no impacts to the availability of locatable or salable minerals from the pipeline because there are no known occurrences of those resources along the route. Also, access to potentially-available oil and gas resources along the pipeline route would not be restricted.

**Alternative A**. No potential impact to geological resources from construction of the 14.4-mile long 611 Pipeline or the remainder of the 107-mile long condensate pipeline would occur under Alternative A. Impacts from implementing this alternative would be identical to those described analyzed under the PAPA EIS.

### 4.7.3 Cumulative Impacts

Construction of the 611 Pipeline is likely to disturb unconsolidated bedrock as trenching occurs in the relatively shallow soils. In those sites there is some potential to damage undiscovered,

scientifically-significant fossils. However, construction could also result in the discovery of fossils that add to the understanding of paleontological resources in southwestern Wyoming.

QGM would inform workers about the legal requirements of disturbing paleontological resources and procedures if fossils are uncovered. If paleontological resources are uncovered, construction activities would be suspended to prevent further disturbance and QGM would immediately contact the BLM who would arrange for a determination of significance and, if necessary, recommend a recovery or avoidance plan. Mitigation of paleontological resources would occur on a case-by-case basis, and QGM would be responsible for the costs. Increased public access to the construction sites may also increase opportunities for unauthorized fossil collection.

## 4.8 Surface Water

### 4.8.1 Proposed Action

Potential impacts to surface waters could include short-term increased turbidity, salinity and sedimentation of the surface waters during seasonal flows or precipitation events due to runoff and erosion from disturbed upland areas, and depletion of Green River tributary waters for construction and hydrostatic testing.

Clearing and blading followed by construction vehicle travel across ephemeral stream channels could break down banks, increase sediment load, cause or accelerate erosion, and destabilize the channel. However, vehicle access to the pipeline right-of-way would be confined to existing access roads and to the construction right-of-way. No new roads would be constructed. If vehicles were operated when soils were saturated, ruts could form that could increase erosion. However, QGM has committed to avoiding vehicle travel during saturated soil conditions to avoid impacts that could be caused by rutting.

Using conventional crossing techniques (i.e., open cut) for the Green River would cause an increase in sedimentation from river bank erosion and streambed excavation. To prevent this impact, the pipeline would be installed beneath the Green River using HDD. Potential adverse impacts to the floodplain of the Green River would be reduced by using HDD. QGM would obtain the permits required to complete pipeline construction across the Green River. Section 404 and Nationwide #12 permit conditions would require adequate measurements to be taken to protect these resources. In this area, erosion control BMPs would remain in place until disturbance is successfully reclaimed.

Accidental leaks from the pipeline could impact surface water quality. The principal risks of pipeline operations include excessive pressure, physical damage through flooding or soil erosion and corrosion. Pipeline failures due to excess pressure would be prevented through engineering design and relief valves which dissipate excessive pressures. The pipeline would be monitored through periodic leakage surveys and patrols to anticipate and correct problems before failures occur.

QGM has obtained a permit to appropriate surface water from the Wyoming State Engineer's Office for 2.31 acre-feet of water from the Green River. QGM would use 0.37 acre-feet of water for hydrostatic testing of the proposed 14.4-mile long pipeline. The additional water that is appropriated would be used for dust control and for drilling water for the HDD.

QGM and Questar's other modifications within the PAPA would have the same potential impacts as those described above for general clearing. Most of the components would be constructed within upland areas and are not expected to impact surface waters.

### 4.8.2 Alternatives

**No Action Alternative**. Under this alternative, the potential for impacts to surface water would increase. This alternative would result in greater surface disturbance than the Proposed Action because QGM would construct the condensate pipeline to the Blacks Fork Processing Plant in Sweetwater County which is an increase in over 40 miles condensate pipeline and two additional river crossings. Consequently, potential water quality degradation would increase under this alternative.

**Alternative A.** This alternative would require even less disturbance that the Proposed Action or Alternative A because no additional condensate pipeline would be constructed. Therefore, potential impacts to water resources from implementing this alternative would be reduced.

### 4.8.3 Cumulative Impacts

There could be additional cumulative water quality impacts (i.e., sedimentation) from construction of the condensate pipeline and the other modifications. However, BLM and the State of Wyoming have developed Best Management Practices to reduce off-site water quality degradation and QGM is proposing to cross the Green River by HDD. These practices would result in only and short-term water quality impacts. Depletions for the entire length of the QGM 611 Pipeline and dust control is estimated to be 5.65 acre-feet.

## 4.9 Groundwater

### 4.9.1 Proposed Action

Bedrock and alluvial groundwater aquifers underlie the proposed pipeline route. Vulnerability of these aquifers is a function of the depth to groundwater and the permeability of the overlying soils.

While routine operation of the pipeline would not affect groundwater, an accidental release of condensate from a pipeline segment could migrate through the overlying surface materials and enter the groundwater. Only those compounds that do not readily volatilize at atmospheric pressure (2-4 percent of the potential release) would be left to migrate. If a release were to occur, QGM would be responsible for monitoring groundwater to ensure that contaminants did not reach receptors.

In the unlikely event of a release, groundwater wells in close proximity to the pipeline would be potential receptors. There is also the potential for spills of fuel, oils, and solvents during pipeline construction of both the pipelines and other modifications included in the Proposed Action that could enter into shallow groundwater sources. These spills would be localized and adherence to the project Spill Prevention, Control and Countermeasures (SPCC) Plan would minimize the occurrence and impacts of these spills.

### 4.9.2 Alternatives

**No Action Alternative.** The potential impacts to groundwater resources would be greater under this alternative than for the Proposed Action because there would greater disturbance associated with the original condensate pipeline route approved in the Questar Year-Round Drilling Decision Record (BLM, 2004a). Potential operational impacts to groundwater quality would be the same as for the Proposed Action.

**Alternative A.** Under this alternative, the condensate gathering system would not be constructed and potential impacts to groundwater as a result of construction would not occur. However, the potential for operational impacts to groundwater would increase because there

would be greater overall disturbance within the PAPA if the condensate system is not installed and there are a larger number of well pads.

### 4.9.3 Cumulative Impacts.

There could be additional cumulative water quality impacts (i.e., contamination of groundwater from construction of the condensate pipeline and the other modifications. However, BLM and the State of Wyoming have developed Best Management Practices to reduce the potential for groundwater contamination. QGM would follow their SPCC Plan for the Proposed Action. These practices would result in only insignificant and short-term water quality impacts.

## 4.10 Soils

### 4.10.1 Proposed Action

Potential impacts from pipeline construction include stream sedimentation, soil contamination, and stream bank and channel instability. Linear features, such as a pipeline, can augment erosion impacts due to the large amount of edge between disturbed and undisturbed areas. There would be some loss of soils due to the physical alteration of the existing soil profile. In general, there are no large steep areas along the route where development would likely result in slumping or landslides.

Soil exposure to forces of erosion would be increased during construction after vegetation is stripped and topsoil is bladed into windrowed stockpiles within the construction right-of-way. Windrowed topsoil and exposed subsoils would be subject to accelerated water and wind erosion due to loss of protective vegetative cover, higher runoff rates, lower infiltration rates, and more direct exposure to wind. The temporary placement of topsoil and excavated subsoil into separate windrowed stockpiles for the duration of construction, one of BLM's BMPs, would prevent soil mixing and would allow for restoration of the soil profile and optimization for re-establishment of productive soil conditions and vegetative cover following trench backfilling.

Soil compaction from vehicular traffic could result in reduced soil productivity due to loss of soil structure, increased erodibility, and decreased infiltration and water storage capacity. Increased soil erosion can potentially increase sediment yield, turbidity, and salinity to drainages. As described in Section 2.2.1, all equipment and vehicular access would be confined to existing roads and the established right-of-way, thereby avoiding soil compaction on undisturbed areas. BLM would require that QGM avoid vehicle travel during saturated soil conditions to avoid impacts that could be caused by rutting.

Travel and pipeline construction through/across ephemeral stream channels could break down banks, increase sediment load, cause or accelerate erosion, and destabilize the channel potentially causing gully erosion. Where ephemeral stream channels are affected by pipeline construction, QGM would return the banks to their approximate original contour/form. However, where existing banks are unstable such as vertically-banked walls of gullies, QGM would recontour or lay banked slopes back to form stable slopes/bank configuration to minimize erosion and bank instability. Where necessary at ephemeral stream crossings, QGM would consult with the BLM field agent or resource specialist to ensure appropriate BMPs are implemented during construction and restoration to minimize accelerated erosion. Potential BMPs may include rip-rap, erosion control matting or fabric, check dams or other appropriate measures to minimize the potential of accelerated erosion or gully formation.

The pipeline would be drilled (HDD) beneath the Green River to prevent erosion and to minimize any increase in sediment load to the waters from pipeline construction. Use of HDD to install pipelines beneath the rivers preserves the vegetation along the river banks thereby maintaining soil stability. If river banks are affected by pipeline construction, QGM will return the

bank to its original form and stabilize the slope. With implementation of environmental protection measures presented in Section 2.4.1, impacts to soils along the pipeline route would be avoided or minimized.

### 4.10.2 Alternatives

**No Action Alternative**. Under the No Action alternative, there would be greater impact to soils than for the Proposed Action because the pipeline route would be longer as analyzed in the Questar Year-Round Drilling EA (BLM, 2004a).

**Alternative A**. Under this alternative, there would be no further disturbance to soils resulting from construction of the 611 Pipeline. However, there would be greater disturbance to soils within the PAPA because the number of well pads would increase as described in the PAPA EIS (BLM, 1999a). The reduction in the number of wells pads within the PAPA as described in the Questar Year-Round Drilling EA (BLM, 2004a) would not occur.

### 4.10.3 Cumulative Impacts

In the PAPA, implementation of the Proposed Action would result in less cumulative impact to soils than described in the PAPA EIS because disturbance necessary to complete development of Questar's lease area would be reduced. Under the No Action Alternative and Alternative A, cumulative impacts within the PAPA would be similar to those analyzed in the PAPA EIS (BLM, 1999a).

Additional cumulative impacts to soils in the region would occur from construction of the 611 Pipeline outside the PAPA. However, all impacts to soils from construction of the condensate pipeline, other modifications included in the Proposed Action, and components previously analyzed under NEPA (three CDPs, NGL Stabilizer and Water Handling Facility, Mesa Phase IV Multi-Pipelines, Condensate Storage at LaBarge, and Highway 351 Tank Battery) are expected to be short-term with non-significant impact to soils.

## 4.11 Vegetation and Noxious Weeds

### 4.11.1 Proposed Action

Construction of the proposed pipeline would temporarily disturb approximately 126 acres primarily within Wyoming big sagebrush – mixed grass steppe of which 87 acres would be affected by pipeline construction and 39 acres affected by temporary work areas necessary during construction. After construction, approximately 52.2 acres would remain within QGM's 30-year right-of-way.

During construction, surface disturbance to vegetation would be the result of blading, grading, and/or trenching within the right-of-way to install the pipeline. Vehicles and foot traffic would also crush or otherwise cause superficial damage to vegetation within the right-of-way.

Invasive, noxious weed species could become established in disturbed areas if seeds or regenerative plant parts of noxious species are transported naturally or accidentally to the disturbed areas. All disturbed areas would, however, be reclaimed and revegetated within one growing season after construction is complete in accordance with agency requirements. Grasses could require two to three years for successful re-establishment (70 percent cover) in the area's arid environment. The shrub component on newly disturbed areas may require more than 20 years for recovery to pre-disturbance levels after reseeding and reclamation activities begin. Long-term productivity of shrubs would be adversely affected within the 30-year right-of-way and construction areas. Long-term productivity of grasses would not be affected.

Impact to vegetation by other modifications included in the Proposed Action include trenching and burial of the 630-foot long 25 kV distribution line which would disturb approximately 0.18 acre of Wyoming big sagebrush – mixed grass steppe. Construction of ten parallel pipelines from the new NGL Stabilizer and Water Handling Facility to the existing Gobblers Knob Compressor Station would affect approximately 0.08 acre of previously undisturbed sagebrush – grass steppe but the temporary shoe-fly access road and remaining 108 feet of permanent right-of-way needed for the ten pipelines would be within previously disturbed vegetation. Likewise, portions of the 1,250-foot long 25 kV distribution line (NGL Stabilizer and Water Handling Facility to Gobblers Knob Compressor Station) would be within sagebrush – grass steppe (0.14 acre) and previously disturbed vegetation (0.44 acre). Installation of blowdown tanks at each of Questar's well pads would not be on disturbed surfaces.

### 4.11.2 Alternatives

**No Action Alternative**. There would be no disturbance to 126 acres of existing vegetation on the 14.4 miles of proposed right-of-way. Instead, there would be disturbance to approximately 755 acres of vegetation as described in the Questar Year-Round Drilling Proposal EA (BLM, 2004a). No disturbance to sagebrush – grassland steppe on the PAPA would occur by the other modifications included in the Proposed Action (630-foot long 25 kV distribution line, right-of-way for ten pipelines from the NGL Stabilizer and Water Handling Facility to Gobblers Knob Compressor Station, or the 1,250-foot long 25 kV distribution line).

**Alternative A.** Under this alternative, the winter stipulations in the PAPA ROD would be reapplied. There would be no condensate gathering system on Questar's lease area. Questar would have existing pads with multiple wells but, because the condensate gathering system would not be implemented. Questar would develop new well pads according to the PAPA ROD requirements, which would result in more than 9 new well pads associated with the year-round drilling proposal. Potentially, the number of new pads would be connected by a more extensive road network than under the Proposed Action. Disturbance to approximately 126 acres of vegetation by the 611 Pipeline, primarily within Wyoming big sagebrush – mixed grass steppe, would not occur under Alternative A.

No disturbance to sagebrush–grassland steppe on the PAPA would occur by the other modifications included in the Proposed Action (630-foot long 25 kV power line, right-of-way for ten pipelines from the NGL Stabilizer and Water Handling Facility to Gobblers Knob Compressor Station, or the 1,250-foot long 25 kV distribution line). Likewise, none of the other modifications previously analyzed under NEPA would be implemented since those are dependent on the presence of the condensate gathering system. In Alternative A, total disturbance to vegetation would be much greater than by the Proposed Action.

### 4.11.3 Cumulative Impacts

Construction of the 14.4-mile long portion of the 611 Pipeline would temporarily increase the area of disturbed lands along the pipeline route by 126 acres. The pipeline route, however, was planned to minimize impacts to natural resources, principally by locating it adjacent to existing parallel and adjacent to existing pipelines and/or power lines for approximately 74 percent of the 14.4-mile long route. The 611 Pipeline route adjacent to existing disturbed sites localizes surface disturbance rather than substantively increasing fragmentation of undisturbed vegetation. The incremental loss of vegetation by construction of the proposed pipeline would be minimal.

Likewise, implementation of other modifications included in the Proposed Action would have minimal impact to Wyoming big sagebrush – mixed grassland steppe vegetation. Other modifications previously analyzed under NEPA generally affect previously disturbed lands

including the three CDP's, the NGL Stabilizer and Water Handling Facility, the Phase IV Multi-Pipelines, condensate storage tank at LaBarge, and Highway 351 Tank Battery.

Weedy species often thrive on disturbed sites and out-compete more desirable plant species. Increased weed infestation may render a site less productive as a source of forage for wildlife and livestock. Although some weed infestation may be anticipated on the proposed 611 Pipeline right-of-way, any of the surface disturbances associated with various modifications included in the Proposed Action, and other modifications previously analyzed under NEPA, the application of weed preventative and control measures presented in Section 2.3.15 would minimize impacts from weed species. The overall impacts to vegetative resources would, therefore, be minimal.

## 4.12 Wetland and Riparian Resources

### 4.12.1 Proposed Action

The Green River would be crossed by HDD. Approximately 0.07 mile of the pipeline would be drilled below the river riparian zone while 0.06 mile would be drilled below the Green River. The pipeline would be installed 28 feet below the Green River and 44 feet below wetlands and riparian areas associated with the pipeline crossing of the Green River, avoiding direct impacts and allowing the wetlands/riparian area to continue to function. HDD allows the pipeline to be constructed beneath these environmentally sensitive areas to avoid surface disturbance.

The 14.4-mile long portion of the 611 Pipeline would affect approximately 1.58 acre (0.26 mile) of palustrine emergent wetlands on the west bank of the Green River. Effects to those wetlands would be temporary because successful revegetation can be accomplished with seed mixtures specified by the BLM. In addition, QGM would obtain the permits required to complete pipeline construction in these areas. Section 404 and Nationwide #12 permit conditions would require adequate measurements to be taken to protect these resources. Based on use of protective measures described in Chapter 2 and compliance with the Nationwide #12 permit administered by the U.S. Army Corps of Engineers, there would be no loss of wetlands/wetland function or riparian areas/riparian area functionality or impacts to existing wetlands/riparian areas. Therefore, wetlands and riparian areas would not be significantly adversely impacted by construction and operation of the pipeline.

No impact to wetlands or riparian vegetation would occur during implementation of other modifications included in the Proposed Action.

### 4.12.2 Alternatives

**No Action Alternative.** Under the No Action Alternative, wetlands and riparian areas associated with pipeline crossings of the Hams Fork River would be impacted as described in the Questar Year-Round Drilling Proposal EA (BLM, 2004a). There would be no effect to wetland and riparian vegetation associated on the Green River. Crossing of the Hams Fork River would be completed in such a way as to avoid direct impacts and to allow the wetlands/riparian area to continue to function.

**Alternative A.** Under Alternative A, wetlands and riparian areas affected by the 611 Pipeline crossing of the Green River would not occur. The number of new pads and extensive road network that would be constructed on the PAPA under this alternative would be consistent with those allowed in the PAPA ROD. Neither wetlands nor riparian vegetation would be affected.

### 4.12.3 Cumulative Impacts

Construction of the 14.4-mile long portion of the 611 Pipeline would affect approximately 1.58 acre (0.26 mile) of palustrine emergent wetlands on the west bank of the Green River over the

short-term. Approximately 0.07 mile of the pipeline would be drilled below the Green River riparian zone, thus avoiding impact to riparian vegetation. QGM has also placed a portion of the pipeline beneath the New Fork River within the PAPA. That action was included in Questar Year-Round Drilling Proposal EA (BLM, 2004a).

No impact to wetlands or riparian vegetation would occur during implementation of other modifications included in the Proposed Action or other modifications previously analyzed under NEPA including the three CDP's, the NGL Stabilizer and Water Handling Facility, the Phase IV Multi-Pipelines, condensate storage tank at LaBarge, and Highway 351 Tank Battery.

## 4.13 Threatened and Endangered Species

### 4.13.1 Proposed Action

#### 4.13.1.1 Federally Listed Species

Black-footed Ferret. FWS (2004a) has determined that all white-tailed prairie dog colonies within the area including the 611 Pipeline route have been cleared from the recommendation for black-footed ferret surveys. In addition, biological surveys were conducted during the spring of 2005. No white-tailed prairie dog colonies were located within 0.25 mile of the 611 Pipeline route. Although there are no white-tailed prairie dogs present within Questar's lease area on the PAPA, colonies are proximate to the new NGL Stabilizer and Water Handling Facility, Gobblers Knob Compressor Station, and 1,250-foot long 25 kV distribution line. Consequently, construction and operation of the 611 Pipeline would not impact black-footed ferrets or their habitat.

QGM and BLM would comply with requirements identified by the FWS's concurrence with BLM's determination for the PAPA EIS that project activities were not likely to adversely affect black-footed ferrets. That concurrence was based on mitigative measures provided in the PAPA EIS ROD including:

- Examining construction sites prior to surface disturbance for presence of prairie dog colonies;
- Avoid disturbance to prairie dog colonies that meet criteria as suitable habitat for black-footed ferrets;
- If colonies can not be avoided, conduct surveys for black-footed ferrets; and
- If black-footed ferrets or sign are detected during surveys, all actions that may affect black-footed ferrets would be stopped immediately and Section 7 review would be re-initiated with FWS.

These measures would insure that the Proposed Action would not impact black-footed ferrets or their habitat.

Gray Wolf. The proposed 611 Pipeline crosses four big game wintering areas where gray wolves could potentially be present. However, pipeline construction is expected to be complete before affected winter ranges become populated by wintering big game. In the event, however remote, of a wolf being in the project area during construction, it would be expected to avoid the slow conspicuous movements of construction equipment. The Proposed Action, including the 630-foot long 25 kV distribution line, right-of-way for ten pipelines from the NGL Stabilizer and Water Handling Facility to Gobblers Knob Compressor Station, the 1,250-foot long 25 kV distribution line, and blowdown tanks on each well pad, would have no impact on gray wolves or their habitat.

Bald Eagle. There are no active bad eagle nests within one mile of the 611 Pipeline crossing of the Green River. The closest bald eagle nest to any of Questar's well pads that are proposed for year-round drilling is approximately 1.2 miles away and none are proximate to any of the other modifications included in the Proposed Action. Since the 611 Pipeline and other project components will be implemented after nesting and prior to bald eagle use of wintering habitats along the Green River and new For River, bald eagles and their habitat would not impacted or otherwise disturbed by the Proposed Action.

Following their review of PAPA EIS, FWS concurred with BLM's determination that project activities were not likely to adversely affect bald eagles. That concurrence was based on mitigative measures provided in the PAPA EIS ROD including:

- No surface disturbing activities would occur within 1 mile of bald eagle winter use areas between November 15 and March 15;
- No surface disturbing activities (construction of roads, pipelines, well pads, drilling, completions, workovers) would occur within 1 mile of an active bald eagle nest between February 15 and August 15;
- No permanent structure would be placed within 2,600 feet from and out of direct line of sight to an active bald eagle nest;
- Wells placed closer than 2,600 feet (but not within 2,000 feet) of an active nest would be out of direct line of sight and would have no human activity from February 15 to August 15;
- Central production facilities would be at least 2,600 feet from an active bald eagle nest; and
- Prior to initiating surface disturbances during nesting and wintering periods, surveys for bald eagles would be conducted.
- Any new surface disturbing activities that my impact bald eagles would require re-initiation of Section 7 consultation with FWS.

Colorado River Fish. QGM estimates that 120,750 gallons (0.37 acre-feet) of water would be required for hydrostatic testing of the 14.4-mile long portion of the 611 Pipeline. Water withdrawals form the Green and New Fork rivers for hydrostatic testing and dust control could potentially impact Colorado river fishes due to downstream influences. FWS has determined that withdrawal of water from the Colorado River System will adversely affect and potentially jeopardize populations of the following listed species: Colorado pikeminnow, humpback chub, bonytail and razorback sucker.

BLM formal consultation with the FWS is required before hydrostatic testing and dust control activities take place. Payment to the mitigation fund for Colorado River fishes may be required after consultation is complete with the FWS. Additionally, all depletions for this project must be monitored and reported to the BLM.

### 4.13.2 Other Special Status Species.

Special Status Wildlife Species. The Proposed Action is not likely to jeopardize the status of sensitive wildlife species. Disturbance of sagebrush-grasslands may reduce potential habitat for the pygmy rabbit. Pygmy rabbits inhabiting big sagebrush within the pipeline right-of-way would be permanently displaced from those sites to habitat in surrounding areas but adverse effects to the population (increased mortality, decreased recruitment) are not expected. Construction of the 611 Pipeline is not expected impact nesting burrowing owl, ferruginous hawk, sage grouse, long-billed curlew, sage thrasher, loggerhead shrike, Brewers sparrow, and sage sparrow.

Because most of the proposed 611 Pipeline would be within or adjacent to existing pipeline and other existing rights-of-way and construction is not expected to create significant new edge features through otherwise continuous sagebrush habitat that could affect the species' nesting during operation. Burrowing owls or owl nests were not observed during field surveys. Areas of suitable habitat (prairie dog colonies) are not found within the proposed pipeline corridor. No significant adverse impacts to burrowing owls or their nests are expected.

Special Status Plant Species. The BLM has indicated the following special status plant species may occur within the vicinity of the proposed pipeline: Cedar Rim thistle, large-fruited bladderpod, beaver rim phlox, and tufted twinpod. There are no plant species listed under ESA known to occur in the vicinity of the proposed pipeline. Suitable habitat for BLM sensitive plant species was identified prior to construction and disturbance would be minimized using HDD. Locations with BLM sensitive plant populations would be avoided during construction and no impacts to the species are anticipated as a result of this project.

### 4.13.3 Alternatives

**No Action Alternative.** If the No Action Alternative is implemented, BLM would deny QGM's application to construct the 14.4-mile long 611 Pipeline between the Rocky Mountain Pipeline Terminal and the Bird Canyon Compressor Station. QGM would be allowed to construct the entire 107-mile long condensate pipeline from the PAPA to the Black's Fork Processing Plant near Granger as approved in the Questar Year-Round Drilling Proposal Decision Record (BLM, 2004a). As discussed under the Proposed Action, no impact to species listed under ESA would be expected with one exception. The increased volume of water required to hydrostatically test the 107-mile long pipeline would be more than the volume need to test the 14.4-mile 611 Pipeline.

Approximately 755 acres of vegetation would be disturbed by construction of the condensate pipeline analyzed in the Questar Year-Round Drilling Proposal EA (BLM, 2004a). Because most of that proposed condensate pipeline would be within or adjacent to existing pipeline rights-of-way, construction was not expected to create significant new edge features through otherwise continuous sagebrush habitat. Sage grouse, migratory landbirds that are also sagebrush obligates, and other sensitive species would not be impacted by the No Action Alternative.

None of the modifications in the Proposed Action (630-foot long 25 kV distribution line, right-of-way for ten pipelines from the NGL Stabilizer and Water Handling Facility to the Gobblers Knob Compressor Station, or the 1,250-foot long 25 kV distribution line, blowdown tanks) would be implemented. Consequently, there would be no high-profile manmade structures (blowdown tanks) retained on well pads that would serve as perch sites for avian predators and/or require human presence with concomitant vehicular traffic during sensitive periods in the annual cycle (winter for big game, lek attendance and nesting for sage grouse).

**Alternative A.** Under this alternative, the winter stipulations in the PAPA ROD would be reapplied. There would be no condensate gathering system on Questar's lease area. Questar would have existing pads with multiple wells but, because the condensate gathering system would not be implemented. Questar would develop new well pads according to the PAPA ROD requirements, which would result in more than 9 new well pads associated with the year-round drilling proposal. Potentially, the number of new pads would be connected by a more extensive road network than under the Proposed Action. None of that potential disturbance is expected to impact species listed under ESA although other sensitive species inhabiting the PAPA (pygmy rabbits, sage grouse, migratory landbird sagebrush-obligate bird species) would probably be subject to additional impacts due to increased habitat fragmentation by proliferating roads and high levels of vehicular traffic.

With no condensate gathering system in place or functional, Questar would have storage tanks on each well pad that would serve as perch sites for avian predators and/or require human presence with concomitant vehicular traffic during sensitive periods in the annual cycle (nesting by migratory birds, lek attendance and nesting for sage grouse). Stored condensate would be removed by tank trucks which would increase traffic on the PAPA during all times of year but especially during nesting periods. That consequence of the Alternative A would generate more impact than was evaluated in the Questar Year-Round Drilling Proposal EA (BLM, 2004a) and under the Proposed Action.

No impact to habitats used by sensitive species on the PAPA would occur by the other modifications included in the Proposed Action (630-foot long 25 kV distribution line, right-of-way for ten pipelines from the NGL Stabilizer and Water Handling Facility to the Gobblers Knob Compressor Station, or the 1,250-foot long 25 kV distribution line). Likewise, none of the other modifications previously analyzed under NEPA would be implemented since those are dependent on the presence of the condensate gathering system. In Alternative A, total disturbance to sensitive species' habitats would be much greater than by the Proposed Action due to construction of pads with single wells and the accompanying road network.

### 4.13.4 Cumulative Impacts

Construction of the 14.4-mile long portion of the 611 Pipeline would temporarily increase the area of disturbed lands along the pipeline route by 126 acres within habitats potentially utilized by various sensitive wildlife species. The 611 Pipeline route adjacent to existing disturbed sites localizes surface disturbance rather than substantively increasing fragmentation of undisturbed vegetation thus minimizing impact to wildlife including nesting migratory landbirds.

Likewise, implementation of other modifications included in the Proposed Action would have minimal impact to functional wildlife habitat since most disturbance would be on previously disturbed site or would be proximate to existing disturbance. Other modifications previously analyzed under NEPA generally impact previously disturbed lands including the three CDP's, the NGL Stabilizer and Water Handling Facility, the Phase IV Multi-Pipelines, condensate storage tank at LaBarge, and Highway 351 Tank Battery.

There would be a slight increase in visual impacts and potential for impacts from avian predators due to the 8 to 9 foot tall water storage tanks being left on each pad for blowdown. This impact would continue until the tanks are replaced with 90 barrel blowdown tanks within two years as committed to by Questar.

Truck traffic on Highway 351 is expected to increase since trucks would remove water from the storage facility offsite for disposal. Increased traffic on Highway 351 may increase potential vehicle-wildlife collisions and mortalities.

QGM's Proposed Action would not result in major changes to the cumulative impacts described for threatened and endangered species and special status species in the PAPA EIS. The cumulative water depletions would be 5.65 acre-feet to hydrostatically test the pipeline and dust control activities. The incremental disturbance associated with construction of the condensate pipeline would be a cumulative impact in the previously disturbed utility alignment but would not significantly add to new disturbed areas in the vicinity or threaten the viability of any of the species that may inhabit the area.

## 4.14 Wildlife and Aquatic Resources

### 4.14.1 Proposed Action

#### 4.14.1.1 Big Game

Construction of the 14.4-mile long portion of the 611 Pipeline would temporarily disturb approximately 51.52 acres of vegetation on pronghorn crucial winter yearlong range and 35.78 acres of vegetation on spring/summer/fall range within the Sublette Antelope Herd Unit. The proposed pipeline route crosses portions of the Sublette and Wyoming Range mule deer herd units. Approximately 31.52 acres of crucial winter range in the Sublette Mule Deer Herd Unit and 40.00 acres of crucial winter range in the Wyoming Range Mule Deer Herd Unit would be disturbed during construction.

Nearly 25 acres of crucial winter-yearlong range utilized by moose in the Sublette Herd Unit would be affected by construction of the 611 Pipeline, principally on both banks of the Green River. Construction would also affect 40.00 acres of winter-yearlong range within the Piney Elk Herd Unit. Surface disturbances to vegetation within these seasonally used big game ranges would result from blading, grading, and/or trenching within the right-of-way to install the pipeline. No construction would occur between November 15 and April 30, thereby avoiding disturbance to wintering big game.

The 630-foot long 25 kV distribution line is within crucial winter range on the Sublette Mule Deer Herd Unit while the NGL Stabilizer and Water Handling Facility and 1,250-foot long 25 kV distribution line (NGL Stabilizer and Water Handling Facility to the Gobblers Knob Compressor Station) are within crucial winter range on the Sublette Antelope Herd Unit. Blowdown tanks would be on each of Questar's well pads, all of which are within crucial mule deer winter range. Construction of those modifications included in the Proposed Action would not occur between November 15 and April 30. However, the presence of blowdown tanks would require some maintenance and personnel with vehicles are expected to servicing tanks more frequently than under the No Action Alternative, during the big game wintering period included.

#### 4.14.1.2 Upland Game Birds

Construction of the 14.4-mile long portion of the 611 Pipeline would remove approximately 19.39 acres of sagebrush-grassland steppe within 2 miles of two known sage grouse leks. Depending on vegetative characteristics of the affected sagebrush, potential sage grouse nesting habitat could be affected. Since there are 26 leks – not all of them active - on or within 2 miles of Questar's lease on the PAPA, implementation of the 630-foot long 25 kV distribution line and 1,250-foot long 25 kV distribution line (NGL Stabilizer and Water Handling Facility to the Gobblers Knob Compressor Station) may impact sage grouse nesting habitat. However, since those components of the Proposed Action are already within or adjacent to previously disturbed sites, the likelihood of sage grouse utilization during nesting is extremely remote.

Blowdown tanks would be present on each of Questar's well pads. Existing water storage tanks 8-9 feet tall would be utilized as blowdown tanks for up to 2 years, then replaced with smaller tanks approximately 6 feet tall. In either case, tanks remaining on well pads until abandonment provide manmade perch sites which can be used by raptors and ravens that prey on sage grouse and other wildlife. Blowdown tanks on each of Questar's well pads are likely to be within 2 miles of an active or inactive lek and generally within potential sage grouse nesting habitat. Construction of the 611 Pipeline and other components under the Proposed Action would not occur between March 1 and July 15, thereby avoiding impact to sage grouse leks, nesting habitat, and brood-rearing habitats.

#### 4.14.1.3 Migratory Birds

BLM would impose buffers around active raptor nest sites to prevent disturbance. No surface disturbing activities would be permitted within 0.5 mile of active raptor nests and within 1 mile of an active ferruginous hawk nest (active nests are defined as those occupied within the past 3 years) during the period from February 1 through July 31. Exclusion dates and buffer distances may be adjusted based on site-specific conditions. Consequently, no impacts to nesting raptors are anticipated. Nevertheless, Construction of the 611 Pipeline and other components under the Proposed Action would not occur from February 1 through July 31, thereby avoiding impact to nesting raptors.

Loss of sagebrush-steppe and increasing levels of fragmentation in remaining sagebrush-dominated habitats have become concerns since there have been concomitant declines of sagebrush-dependent migratory passerine bird species (Knick and Rotenberry, 1995; Knick et al., 2003). Because most of the proposed 611 Pipeline would be within or adjacent to existing pipeline and other existing rights-of-way and construction is not expected to create significant new edge features through otherwise continuous sagebrush habitat. Migratory landbirds that are also sagebrush obligates are not expected be adversely affected by the project or face significant cumulative effects in the pipeline area of disturbance.

#### 4.14.1.4 Wild Horses

The BLM considers any activity that results in substantial habitat loss or a permanent reduction in the wild horse population below established management levels to be a significant impact. Revegetation with palatable forage would occur along the right-of-way after completion of the 611 Pipeline. Grasses would be established in approximately 3 years. Horses would be able to leave the relatively small, affected area during pipeline construction. Due to the availability of habitat in the area surrounding the pipeline route, the 126-acre disturbance and short-term loss of forage caused by construction of the 14.4-mile long portion of the 611 Pipeline would not have a significant impact on wild horses in the project area. Implementation of other components of the Proposed Action would have no effect on wild horses.

#### 4.14.1.5 Aquatic Resources

Construction of the 14.4-mile long portion of the 611 Pipeline is not expected to measurably affect fish populations in the Green River. The pipeline would be placed beneath the river by HDD. Successful use of HDD is considered an effective technique for avoidance of instream impacts by eliminating the need for instream excavation (Reid et al., 2004). Even with this technique there is a potential for impact with the HDD process. Drilling requires use of a drilling mud for lubrication of the bit and removal of cuttings. Bentonite clay would be used as the drilling mud. Because the drilling mud is under pressure during drilling, if the bit encounters substrate fractures or channels it is possible for bentonite to escape from the hole (termed a “frac-out”). Bentonite can escape to the surface if the fractures lead to and through the drilled substrate.

Bentonite, by itself, is essentially non-toxic (Breteler et al., 1985; Hartman and Martin, 1984; and Sprague and Logan, 1979). Bentonite, as with any fine particulate material, can interfere with oxygen exchange by gills (Environmental Protection Agency, 1986), and the degree of interference generally increases with water temperature (Horkel and Pearson, 1976). This is a localized effect, and if any impacts do occur, those impacts would be limited to individual fish in the vicinity of the leak. Fish move away from turbidity spots and plumes and if a frac-out occurred, there would be minimal impact to fisheries and aquatic resource in the immediate area. However, the depth of the HDD beneath the Green River and the overlying strata are conducive to successful HDD without a frac-out.

### 4.14.2 Alternatives

**No Action Alternative.** There would be no disturbance to 126 acres along the 14.4 miles of proposed pipeline right-of-way through the seasonally ranges used several big game populations that would occur under the Proposed Action. Instead, approximately 8 miles of the condensate pipeline route analyzed in the Questar Year-Round Drilling Proposal EA (BLM, 2004a) would be constructed through pronghorn crucial winter range. No crucial winter ranges or other sensitive areas utilized by mule deer or moose would be crossed by the pipeline under this alternative. However, 6 miles of the pipeline route would cross crucial severe winter relief range used by elk during extreme winter conditions.

Approximately 755 acres of vegetation would be disturbed by construction of the condensate pipeline analyzed in the Questar Year-Round Drilling Proposal EA (BLM, 2004a). Because most of that proposed condensate pipeline would be within or adjacent to existing pipeline rights-of-way, construction was not expected to create significant new edge features through otherwise continuous sagebrush habitat. Sage grouse and migratory landbirds that are also sagebrush obligates were not expected be adversely affected by the No Action Alternative.

Construction of the condensate pipeline under the No Action Alternative was not expected to measurably affect fish populations in the Blacks Fork, Hams Fork, Green and New Fork rivers (BLM, 2004a). The pipeline would be placed beneath those rivers by HDD which would be subject to similar risks of frac-out that were described under the Proposed Action.

None of the modifications in the Proposed Action (630-foot 25 kV distribution line, right-of-way for ten pipelines from the NGL Stabilizer and Water Handling Facility to the Gobblers Knob Compressor Station, or the 1,250-foot long 25 kV distribution line, blowdown tanks) would be implemented. Consequently, there would be no high-profile manmade structures (blowdown tanks) retained on well pads that would serve as perch sites for avian predators and/or require human presence with concomitant vehicular traffic during sensitive periods in the annual cycle (winter for big game, lek attendance and nesting for sage grouse). Without approval of the modifications in the Proposed Action which are necessary to remove condensate from the PAPA, Questar would likely have to retain condensate storage tanks on each well pad; stored condensate would be removed by tank trucks which would increase traffic on the PAPA during all times of year but especially during winter. That consequence of the No Action Alternative would generate more impact, particularly to big game, than was evaluated in the Questar Year-Round Drilling Proposal EA (BLM, 2004a).

**Alternative A.** Under this alternative, the winter stipulations in the PAPA ROD would be reapplied. There would be no condensate gathering system on Questar's lease area. Questar would have existing pads with multiple wells but, because the condensate gathering system would not be implemented. Questar would develop new well pads according to the PAPA ROD requirements, which would result in more than 9 new pads associated with the year-round drilling proposal. Potentially, the number of new pads would be connected by a more extensive road network than under the Proposed Action. All of that potential disturbance would be within mule deer crucial winter range.

With no condensate gathering system in place or functional, Questar would have storage tanks on each well pad that would serve as perch sites for avian predators and/or require human presence with concomitant vehicular traffic during sensitive periods in the annual cycle (winter for big game, lek attendance and nesting for sage grouse). Stored condensate would be removed by tank trucks which would increase traffic on the PAPA during all times of year but especially during winter. That consequence of the Alternative A would generate more impact, particularly to big game, than was evaluated in the Questar Year-Round Drilling Proposal EA (BLM, 2004a) and under the Proposed Action.

No disturbance to sagebrush–grassland steppe on the PAPA would occur by the other modifications included in the Proposed Action (630-foot long 25 kV distribution line, right-of-way for ten pipelines from the NGL Stabilizer and Water Handling Facility to the Gobblers Knob Compressor Station, or the 1,250-foot long 25 kV distribution line). Likewise, none of the other modifications previously analyzed under NEPA would be implemented since those are dependent on the presence of the condensate gathering system. In Alternative A, total disturbance to vegetation would be much greater than by the Proposed Action due to construction of pads with single wells and the accompanying road network.

### 4.14.3 Cumulative Impacts

Construction of the 14.4-mile long portion of the 611 Pipeline would temporarily increase the area of disturbed lands along the pipeline route by 126 acres within various big game seasonally used ranges. The 611 Pipeline route adjacent to existing disturbed sites localizes surface disturbance rather than substantively increasing fragmentation of undisturbed vegetation thus minimizing impact to wildlife including nesting migratory landbirds.

Likewise, implementation of other modifications included in the Proposed Action would have minimal impact to functional wildlife habitat since most disturbance would be on previously disturbed site or would be proximate to existing disturbance. Other modifications previously analyzed under NEPA generally affect previously disturbed lands including the three CDP's, the NGL Stabilizer and Water Handling Facility, the Phase IV Multi-Pipelines, condensate storage tank at LaBarge, and Highway 351 Tank Battery.

Truck traffic on Highway 351 is expected to increase since trucks would remove water from the storage facility offsite for disposal. Increased traffic on Highway 351 may increase potential vehicle-wildlife collisions and mortalities, including mortality of pronghorns on crucial winter ranges adjacent to the highway. That possibility cannot be estimated.

## 4.15 Air Quality

### 4.15.1 Proposed Action

As a part of the Proposed Action, QGM would install the 14.4 miles of condensate pipeline. BLM has previously approved installation of a produced water gathering system. The northern portion of the condensate pipeline was approved in the Questar Year-Round Drilling Decision Record (BLM, 2004a). These pipeline systems would eliminate the need to store condensate and produced water on well sites. Questar has estimated that at peak production in 2008, a total of 25,000 annual tanker truck trips would be eliminated by these pipeline systems. The benefits to air quality as a result of the installation of the pipelines are two-fold. First, there would be no need for the on-site tanks that store the condensate. Volatile organic compounds (VOCs) and hazardous air pollutants (HAPs) are emitted from the condensate storage tanks through the vent lines and are also released into the atmosphere when the truck hooks up to the tank to empty it. Therefore, there would be a net reduction of VOC and HAP emissions in the PAPA as a result of the Proposed Action. Secondly, $NO_x$, other combustion-related emissions and fugitive dust would be reduced by eliminating the tanker truck traffic (25,000 annual trips) in the PAPA.

The Questar Year-Round Drilling Proposal Decision Record (BLM, 2004a), states that "as committed to by Questar, by January 1, 2007, all drilling rigs operating in Questar's leasehold will be either EPA Tier II compliant or will utilize alternate fuels engines whose emissions are equivalent to Tier II engines". Due to the lack of availability of Tier II-compliant rig engines, Questar is not able to implement the EPA Tier II or equivalent engines on drilling rigs until January 1, 2008. This would result in additional air quality impacts for one additional year.

Table 4-2 shows the reduction in nitrogen oxide emissions on an annual basis by implementation of the EPA Tier II technology on drill rigs.

**Table 4-2**
**Estimated Nitrogen Oxide Emission Reduction in the PAPA Using EPA Tier II Compliant Engines**

| Average Drill Rig Engine Horsepower | No Emission Controls NOx Emissions (tons/year)2 | Tier II Emission Controls NOx Emissions (tons/year)3 | Net Reduction in NOx Emissions (tons/year) |
|---|---|---|---|
| 1,000 | 623 | 134 | 489 |
| 2,000 | 1,246 | 268 | 978 |
| 3,000 | 1,869 | 402 | 1,467 |

1 Calculations are based on 2003 actual drilling data from WOGCC. Assumes 4,010 days of drilling per year with a load factor of 0.42.
2 No Emission Controls case uses an emission rating of 14 g/hp-hr.
3 Tier II Emission Controls case assumes an emission rating of 3 g/hp-hr.

Installation of the condensate pipeline and the other modifications in the Proposed Action (630-foot long 25 kV distribution line, right-of-way for ten pipelines from the NGL Stabilizer and Water Handling Facility to the Gobblers Knob Compressor Station, or the 1,250-foot long 25 kV distribution line) would cause temporary and short-term emissions and dust during construction due to truck traffic to and from the work location and equipment used during construction. Once the pipelines and power lines are installed, there would be no additional impacts to air quality as a result of operation.

As part of the Proposed Action, Questar has determined that it is necessary to have one blowdown tank at each well pad for upset conditions. Questar is currently using the water storage tank at each well pad for blowdown which was originally to be removed once the gathering system was installed. Emissions from the blowdown tanks would be intermittent and short term in nature and not expected to impact air quality on a long-term basis.

### 4.15.2 Alternatives

**No Action Alternative.** Under this alternative, the impacts to air quality would be greater than for the Proposed Action. The condensate gathering system could still be constructed, however, it is likely that QGM would not construct the pipeline without the other components (630-foot long 25 kV distribution line, right-of-way for ten pipelines from the NGL Stabilizer and Water Handling Facility to the Gobblers Knob Compressor Station, or the 1,250-foot long 25 kV distribution line). If the 107-mile condensate pipeline were constructed, there would be short-term impact to air quality.

**Alternative A.** Under this alternative, benefits to air quality in the PAPA would be greatly reduced because the condensate gathering system would not be implemented. Emissions from condensate tanks at each well pad would continue as described in the PAPA EIS (BLM, 1999a). However, there would be no short-term impacts to air quality from installation of the gathering system or other modifications (630-foot long 25 kV distribution line, right-of-way for ten pipelines from the NGL Stabilizer and Water Handling Facility to the Gobblers Knob Compressor Station, or the 1,250-foot long 25 kV distribution line).There would also be no air quality impacts from the stabilizer facility or the CDPs.

### 4.15.3 Cumulative Impacts

Other modifications have been proposed by QGM and Questar and have been previously analyzed under NEPA and include the CDPs, the NGL Stabilizer and Water Handling Facility, the Mesa Phase IV multi pipelines, the 16,000 barrel condensate storage tank at the Rocky Mountain Pipeline Terminal near LaBarge and the 351 Tank Battery. Of these, the Mesa Phase IV multi pipelines and the 351 Tank Battery would have short term emissions associated with construction but no long term emissions. The 16,000 barrel condensate storage tank would have fugitive emissions associated with operation but would be intermittent because the tank would be used only for upset conditions. Table 4-3 shows the estimated emission levels for the CDPs and the NGL Stabilizer and Water Handling Facility.

**Table 4-3**
**Estimated Emission Levels in Tons per Year Other Modifications Previously Analyzed**

| Facility | NOx | CO | SO2 | VOC | Total HAPS |
|---|---|---|---|---|---|
| Stabilizer | 14.34 | 16.21 | 0.05 | 1.50 | 0.00 |
| Mesa 14-16 CDP | 11.22 | 9.85 | 0.01 | 4.11 | 1.09 |
| Stewart Point 16-18 CDP | 2.40 | 1.17 | 0.01 | 0.06 | 0.02 |
| Mesa 15-16 CDP | 10.82 | 9.52 | 0.01 | 4.09 | 1.08 |
| 16,000 Barrel Storage Tank | 0.0 | 0.0 | 0.0 | 1.42 | 0.00 |
| **Total** | **38.78** | **36.75** | **0.08** | **11.18** | **2.19** |