

4.0 ENVIRONMENTAL ANALYSIS

4.1 GEOLOGY

4.1.1 Rockies Express

4.1.1.1 Geologic Setting

The proposed REX-West Project would be located within three main geologic regions: the Wyoming Basin province, the Great Plains province, and the Central Lowlands province, as follows:

- Wyoming Basin: northwestern Colorado and south-central Wyoming;
- Great Plains (High Plains Subdivision): northeastern Colorado, southeastern Wyoming, and southern Nebraska; and
- Central Lowlands: northeastern Kansas and northwestern Missouri.

Topography in the Wyoming Basin portion of the project area consists mainly of isolated mountain ranges separated by broad downwarped basins, while the Central Lowlands and High Plains provinces are characterized by level plains and rolling hills incised by drainages. Elevations along the proposed REX-West pipeline route range from about 6,500 feet above mean sea level (msl) in the vicinity of Meeker, Colorado, to about 800 feet above msl in Audrain County, Missouri. The entire route is underlain by areas of unconsolidated alluvial (transported by water) and eolian (wind blown) deposits. A summary of general geologic conditions existing along the proposed REX-West route is presented in table 4.1.1-1.

MP Range	Description of Bedrock Formations Crossed	Approximate Miles of Shallow Bedrock ^{a/}
0 to 150	Upper Cretaceous and Tertiary sandstone, siltstone, shale, and coal	35.6
150 to 310	Tertiary sand and gravel with localized beds of sandstone, siltstone, silt, and clay	0.0
310 to 450	Cretaceous shale, limestone, and sandstone	1.9
450 to 475	Permian shale, shaley limestone, and limestone	0.0
475 to 713	Pennsylvanian shale, sandstone, limestone, and some coal beds	9.9

^{a/} Includes soils that have bedrock within 60 inches of the soil surface based on information from the State Soil Geographic (STATSGO) database maintained by the United States Department of Agriculture (USDA), NRCS.

Construction of the REX-West facilities would result in the temporary disturbance of the natural topography due to grading and trenching activities. Following completion of construction, Rockies Express would restore surface contours and drainage patterns as closely as possible to pre-construction conditions.

Rockies Express does not anticipate that blasting would be required during construction and, as such, has not prepared a project-specific blasting plan. Table 4.1.1-1 identifies general locations where shallow bedrock may be encountered. If consolidated rock is encountered during construction that requires blasting to attain required trench depths, Rockies Express would use controlled blasting techniques in compliance with all state and federal regulations governing the use of explosives. In order

to ensure that blasting would not have a significant impact on other environmental resources in the project area (including water wells, mining and extraction operations, sensitive species, etc.), we recommended in the draft EIS that Rockies Express develop a site-specific Blasting Specification Plan prior to any use of explosives. In its comments on the draft EIS, Rockies Express stated that it would develop a plan of this type that would include the following information:

- identification and compliance with applicable blasting regulations;
- provisions for pre-blast geotechnical investigations;
- determination of appropriate charge type, weight, and configuration;
- depth and spacing of charges;
- detonation delays;
- procedures for notifying nearby residents;
- procedures for pre- and post-blasting structural and well inspections;
- identification of sensitive biological resources in the blast area (within 0.5 mile), including mitigation measures that would be implemented to minimize blasting impacts on nesting birds; and
- blast mat placement.

Rockies Express further stated that it would file the Blasting Specification Plan with the Secretary for review and written approval by the Director of OEP prior to the commencement of any blasting. In order for us to verify that the Blasting Plan would provide adequate protection to resources, **we recommend that Rockies Express file its Blasting Plan, for the review and written approval of the Director of OEP, prior to the commencement of any project-related blasting activities. The Blasting Plan should also contain Rockies Express' plan for rock disposal.**

Based on the overall geologic conditions present in areas crossed by the REX-West pipeline route and at the compressor station locations, and Rockies Express' proposed construction methods discussed in section 2.3 of this EIS, as well as our recommendation, we conclude that construction of the Rex-West Project would not significantly alter the geologic and physiographic conditions or worsen unfavorable geologic conditions in the region.

4.1.1.2 Mineral Resources

The construction and operation of REX-West facilities near or over mineral resources could impact the present and future extraction of those resources. The types of potentially exploitable mineral resources identified in the REX-West Project area include oil and gas, coal, sand and gravel, and clay. Table 4.1.1-2 (pipeline facilities) and table 4.1.1-3 (aboveground facilities) identify the known mineral resource production areas in the project area.

TABLE 4.1.1-2			
Summary of Mineral Resources – REX-West Pipeline Facilities			
State/Facility	MP	Mineral Resource	Distance and Direction From Centerline (feet)
Colorado			
REX-West Mainline	0.0 to 200.0 20.6	Oil and gas wells Sand and gravel mine	> 1,000 Adjacent to Right-of-Way
Wyoming			
Echo Springs Lateral	0.3 ^{ES} 0.9 ^{ES} 1.6 ^{ES} 2.1 ^{ES} 2.1 ^{ES} 2.2 ^{ES} 2.4 ^{ES} 3.1 ^{ES} 3.1 ^{ES}	Oil or gas well Oil or gas well	400 - East 700 - West 400 - West 1,200 - West 1,500 - West 750 - East 200 - West 600 - West 1,750 - East
Nebraska			
REX-West Mainline	214.2	Sand and gravel mine	> 1,000 - North
Missouri			
REX-West Mainline	712.7	Clay pits (inactive)	5,280 - North

TABLE 4.1.1-3			
Summary of Mineral Resources – REX-West Aboveground Facilities			
State/Facility	MP	Mineral Resource Produced in Facility Vicinity	Potentially Exploitable Mineral Resource in Facility Vicinity
Colorado			
Meecker Compressor Station	0.0 ^{EN}	Oil, Natural Gas	Coal
Questar Meter Station ^{a/}			
Cheyenne Compressor Station	0.0	Oil, Natural Gas	None Identified
WIC Meter Station			
Julesburg Compressor Station	143.8	Oil, Natural Gas	None Identified
Wyoming			
Wamsutter Compressor Station ^{a/}	136 ^{EN}	Natural Gas	Coal
Echo Springs Compressor Station	147 ^{EN}	Natural Gas	Coal
Echo Springs Meter Station	0.0 ^{EN}	Natural Gas	Coal
Kansas			
ANR Meter Station	497.8	None Identified	Natural Gas
Missouri			
Turney Compressor Station	572.5	None Identified	Natural Gas

^{a/} Existing certificated facilities. Expansion would not impact resource extraction.

In addition to the known mineral resources described above, coal deposits are located in the vicinity of the Echo Springs Lateral and the portion of the REX-West Project located in northeast Kansas and northwest Missouri. However, no active coal mines or coal bed methane production areas were identified in the locations crossed by the proposed REX-West facilities. Rockies Express states that it is not aware of any immediate plans for coal mining or methane production in the project vicinity; however, we note the potential does exist for future coal bed methane production in the region.

Rockies Express conducted overflights of the REX-West Project route on March 28 and 29, 2006, and identified two active sand and gravel operations within 0.25 mile of the proposed right-of-way. The first site is immediately adjacent to the proposed right-of-way at about MP 20.6 (Weld County,

Colorado), and the second site is approximately 0.2 mile north of the proposed right-of-way at about MP 214.2 (Lincoln County, Nebraska). Both of these sand and gravel operations appeared active during the overflight.

Based on a review of aerial photography in the vicinity of the mining operation at MP 20.6, it does not appear that stockpiling or excavation activities fall within the proposed permanent or temporary rights-of-way for the REX-West pipeline. According to Rockies Express, the landowner stated that the REX-West pipeline would be sufficiently separated from any current or proposed mining operations and that construction or operation of the pipeline would not impact mining at the site. The quarry in the vicinity of MP 214.2 is about 1,000 feet north of the proposed REX-West pipeline route. Furthermore, State Highway 23 is between the quarry and the pipeline route. Based on this information, we do not believe that construction of the REX-West facilities would adversely affect mining operations at these locations.

Construction of the Echo Springs Lateral could have an impact on near-surface components of nearby oil and gas wells. However, Rockies Express has routed the proposed pipeline to minimize potential impacts and would coordinate final alignments in consultation with the owners/operators of nearby well facilities.

Because of the extensive development at oil and gas facilities in the Project area, Rockies Express has proposed to implement certain measures to address the unanticipated discovery of any non-reported or abandoned oil or gas wells during construction, in consultation with the affected well owner. Specifically, Rockies Express would:

- determine a safe buffer zone around the well for each stage of construction. This buffer would be determined based on the size and condition of the well;
- adjust the pipeline centerline, if necessary, to ensure that the pipe trench excavation would not interfere with the integrity of the well. A minimum distance of 50 feet would generally be maintained between the well and the pipeline;
- reduce the construction work space as necessary to keep stockpiled soil and associated equipment a safe distance from the well;
- flag wells within the construction right-of-way and place barricades at the edge of the buffer zone to exclude construction equipment and personnel;
- document the condition of each well before construction and repair any damage caused by pipeline construction activities to well surface facilities or casings, as appropriate; and
- follow the safety precautions similar to those maintained while crossing foreign pipelines in the vicinity of oil and gas wells, as appropriate (*i.e.*, no mechanized equipment within a prescribed distance, no open flames or smoking, and monitoring for detection of 25 percent of the lower explosive limit of natural gas in the air).

Our review indicates that none of the identified wells are within the proposed construction right-of-way. In addition, because oil and gas are produced at significantly greater depths than any excavation that would be required for construction of the proposed pipeline facilities, impacts on the production ability of wells (current or future) are not anticipated. However, trenching activities could have an impact on below-grade gathering pipelines associated with existing wells. Rockies Express' proposed mitigation measures for avoidance and protection of oil and gas well systems would serve to minimize potential impacts to such facilities resulting from trenching activities.

Blasting, if required to attain proper trench depth, could also impact nearby oil and gas wells. Rockies Express does not expect that blasting would be required during construction; however, to ensure

wells are taken into consideration and effects are minimized, we have recommended in section 4.1.1.1 that Rockies Express develop a Blasting Specification Plan prior to the commencement of any blasting.

No known extraction of mineral resources occurs within the limits of construction for the proposed REX-West aboveground facility locations. Rockies Express would implement the same mitigation measures for construction of the aboveground facilities as proposed for the pipeline facilities discussed above.

Operation of the REX-West Project is not anticipated to have a significant impact on current or future mineral recovery operations. We note that future mineral development has been prohibited from within the existing rights-of-way that would be used by the majority of the REX-West Project.

4.1.1.3 Geologic Hazards

Potential geologic hazards identified in the REX-West Project area include seismicity (earthquakes and faults), landslides, subsidence, and flooding/scour. Each of these hazards is discussed below.

Seismicity

Seismic hazards include earthquakes, ground faulting, and secondary effects such as liquefaction and related slope failures. Liquefaction is a phenomenon where saturated, non-cohesive soils (typically having uniform grain size) temporarily lose their strength when subjected to intense ground shaking.

No active faults were identified in the vicinity of the proposed REX-West facilities. The New Madrid Fault, which had three rupturing events of Richter magnitudes between 7.2 and 8.0 in 1811 and 1812, is the nearest historic fault (fault age less than 150 years), at least 190 miles southeast of the portion of the project corridor located in Audrain County, Missouri. The nearest active fault (causing displacement of earth materials in the last 11,000 years) is the Williams Fork Mountain Fault, located approximately 100 miles southwest of the Cheyenne Compressor Station site at MP 0.0.

Several other historic earthquakes have been recorded in the vicinity of the proposed REX-West facilities. These events were recorded between 1882 and 1935 and were primarily located in southeastern Nebraska and northeastern Kansas. These events had maximum Modified Mercalli Intensities (MMI) of VI to VII (National Atlas, 2006). Based on the MMI scale, this generally means that the earthquakes were felt by people and that damage to well-built ordinary structures in good condition was slight to moderate.

Earthquake shaking can also be expressed in terms of the acceleration due to gravity (g). Based on published seismic hazard mapping for the United States (USGS, 2002), an earthquake with a 10 percent probability of occurrence within any 50-year interval (500-year earthquake) would result in a peak ground acceleration of 5 percent g or less in the REX-West Project area. Damage to buildings or structures is not likely at ground motions of less than 10 percent g (Utah Geologic Survey, 1994).

The proposed REX-West route crosses an area of relatively low seismic risk. Although the intensity, frequency, and duration of impacts resulting from the potential hazard of minor earthquakes is difficult to quantify, all REX-West facilities would be designed and constructed in accordance with 49 CFR, Parts 192 and 193. These specifications ensure that pipeline facilities are designed and constructed in a manner to provide adequate protection from washouts, floods, unstable soils, landslides, or other hazards that may cause the pipeline facilities to move or sustain abnormal loads. Pipeline installation techniques, especially padding and use of rock-free backfill, effectively protect the pipeline from minor

earth movements. Also, given the ductility of modern pipelines, minor earth movements would have little impact on the REX-West pipeline.

O'Rourke and Palmer (1994a) evaluated the seismic performance of gas transmission pipelines in southern California. Based on their findings, electric arc-welded pipelines constructed after World War II and properly maintained have never experienced a break or leak as a result of a southern California earthquake. O'Rourke and Palmer also concluded (1994b) that electric arc-welded pipelines in good repair are the most resistant type of piping and are generally highly resistant to traveling ground wave effects and moderate amounts of permanent deformation. Therefore, we do not expect seismic hazards to pose a significant risk to the proposed pipeline facilities.

Landslides

A landslide is defined as the movement of a mass of rock, debris, or earth down a slope. Landslides can be initiated by heavy rainfall, earthquakes, changes in groundwater conditions, and/or slope disturbance resulting from construction activity.

The majority of the proposed REX-West pipeline route is located in areas of low landslide incidence. While approximately 24 percent of the pipeline route (based on length) crosses areas of moderate landslide risk, no areas of high landslide incidence were identified along the route (National Atlas, 2006). Table 4.1.1-4 summarizes locations of moderate landslide susceptibility along the REX-West pipeline route.

TABLE 4.1.1-4 Areas of Moderate Landslide Susceptibility – REX-West Pipeline	
State	Approximate MPs
Nebraska	435.0 to 438.5
Kansas	438.5 to 445.0 490.0 to 534.0
Missouri	534.0 to 600.0 630.0 to 680.0

Landslides are not common in the REX-West Project region; however, there may be isolated areas of instability along the steep sides of drainages. Escarpments along the Missouri River floodplain (MPs 534 to 539) were identified by Rockies Express as areas of special concern with regard to potential landslide activity.

Based on published information, naturally occurring landslides and slope failure resulting from secondary seismic effects (soil liquefaction) are not anticipated to have a significant impact on construction or operation of the REX-West facilities. Pipeline construction on steep slopes could initiate localized slope movement. However, we believe that modern construction techniques along with the implementation of Rockies Express' Plan would reduce the potential for construction-related activities to trigger landslides or other slope instability.

Along with the design measures to mitigate for minor earth movements (as set forth by 49 CFR, Part 192), the orientation of the pipeline along the long axis of a slope face would minimize the overall energy to which a segment of pipe would be exposed during a landslide event. Should a landslide occur, it is likely that sections of the pipe would become exposed and would require subsequent reburial.

Subsidence

Subsidence can range from small localized areas of collapse to broad, regional lowering of the ground surface. It can be associated with areas of karst terrain, past underground mining, earthquake-induced liquefaction, and withdrawal of fluids such as groundwater and petroleum. Subsidence related to withdrawal of groundwater or petroleum is generally not a concern in the REX-West Project area.

Karst terrain refers to areas characterized by dissolution of rocks such as limestone, gypsum, and salt, resulting in sinkholes (closed depressions), pinnacled bedrock, caves/caverns, and underground drainage systems. The tendency for and rate of solubility of rock formations is variable and is believed to be affected by rock mineralogy as well as local structural features, such as jointing, bedding characteristics, and differences in groundwater chemistry.

Fissures, tubes, and caves formed in karst terrain are generally absent along the majority of the pipeline route. Rockies Express did not identify karst terrain during project field surveys. In addition, no areas of subsidence were evident in the immediate vicinity of the proposed REX-West facilities based on evaluation of available aerial photography along the project route.

Flooding and Scour

Seasonal and flash flooding hazards are a potential concern where the pipeline route crosses major streams and small watersheds. Although flooding itself does not present a risk to buried pipelines, bank erosion and/or scour could expose pipe or result in sections of pipe becoming unsupported.

The REX-West pipeline would be constructed at appropriate depths to minimize scour potential. The Missouri River crossing location at about MP 537.0 is the only location identified by Rockies Express with the potential for severe scour. However, Rockies Express is proposing to install the pipeline across the Missouri River with an HDD. Use of this technique would reduce surface disruption of soils and sediments in the area subject to scour along the banks of the Missouri River (MPs 536.9 to 537.1). We conclude that Rockies Express' proposed use of HDD between approximate MPs 536.7 and 537.8 and implementation of the measures contained in its Procedures would minimize potential adverse impacts on the pipeline from scour.

4.1.1.4 Paleontological Resources

Many geologic formations have the potential to contain paleontological resources; however, those containing vertebrate fossils are generally considered to be most scientifically significant. This is because vertebrate fossils are rarer than invertebrate or plant fossils. Potential impacts in fossil localities during construction could include direct impacts (such as damage to or destruction of fossils resulting from excavation activities) and indirect impacts (such as erosion of fossil beds resulting from slope regrading and clearing of vegetation, and unauthorized collection of significant fossils by construction personnel or the public).

Mammals (titanotheres, rhinos, giant pigs, gomphotheres, bear dogs, and others), crocodiles, and turtles are examples of animal fossils contained in Tertiary-age deposits of northeastern Colorado, southeastern Wyoming, and western Nebraska. Fossils of mammoths, mastodons, camels, ferrets, birds, bison, horses, and other vertebrates have also been found in Nebraska's Quaternary deposits. Invertebrate fossils are the most common fossils found in Cretaceous and Permian deposits of eastern Nebraska and Kansas. A variety of plant and animal fossils are found in Pennsylvanian deposits of Missouri (Paleontology Portal, 2006).

The segment of the proposed REX-West Project route extending from about MP 0 to MP 100 is underlain by the White River group, a Tertiary-age geologic formation that has high potential to contain significant fossils. The potential for proposed construction activities to disturb fossil bearing rock would be dependent on the depth of the existing soil overburden with respect to depth of the proposed excavation(s). Rockies Express conducted additional consultation regarding the need to survey or monitor for paleontological resources along the REX-West Project route. Consultation with the BLM concluded that no additional surveys would be required along the route of the Echo Springs Lateral. Additionally, no comments or concerns were identified by other agencies regarding paleontological resources elsewhere along the proposed mainline route. Rockies Express would still prepare and implement a Paleontological Mitigation Plan to protect significant fossil resources that may be encountered during project construction. Primary elements of the Paleontological Mitigation Plan are expected to include:

- mitigation procedures (*e.g.*, avoidance, excavation, recording of localities) for fossil localities identified during construction;
- provisions for the preparation and curation of fossil collections; and
- provisions for the preparation of a final report based on the recovered data.

All work conducted under the Paleontological Mitigation Plan would be performed by qualified paleontologists with trained assistants. The plan would be filed with the Secretary prior to construction. In addition, Rockies Express would implement protective measures in its POD for any paleontological resources discovered during construction on BLM land. These measures would be similar to those developed for the Entrega Project and approved by the BLM.

Normal operation of the proposed pipeline and aboveground facilities would not disturb paleontological resources. Although maintenance activities would result in surface disturbance, this disturbance would typically occur in areas previously disturbed by construction. Therefore, operational impacts to paleontological resources are considered negligible.

4.1.2 TransColorado

4.1.2.1 Geologic Setting

TransColorado's Blanco to Meeker Project would be located in the Colorado Plateau physiographic province. The pipeline facilities and the Blanco Compressor Station would be in northern New Mexico within the Navajo section of the Colorado Plateau physiographic province, and the Conn Creek and Greasewood Compressor Stations would be in the Uinta Basin section. The Navajo section is composed of mesas, cuetas, rock terraces, retreating escarpments, canyons, and dry washes. The Uinta Basin is a structural depression with a broad east-west trending strip of higher plateau to the south. The topography at the compressor station locations is relatively flat, with elevations ranging from 5,700 feet above msl at the Blanco location, 5,900 feet above msl at Conn Creek, and 7,500 feet above msl at Greasewood. All of the proposed facility locations are underlain by unconsolidated surficial deposits consisting of alluvial material.

Table 4.1.2-1 includes information regarding the general bedrock geology at the proposed Blanco to Meeker Project facility locations.

TABLE 4.1.2-1		
Summary of Geologic Conditions – Blanco to Meeker Project		
Facility	Description of Bedrock	Shallow Bedrock <u>a/</u>
Blanco Compressor Station, Meter Station, Suction/Discharge Piping, Receipt Pipeline, and Lateral Pipeline	Paleocene Shale and Sandstone	Not present
Conn Creek Compressor Station	Tertiary sandstone and siltstone	Possible <u>b/</u>
Greasewood Compressor Station	Tertiary shale, sandstone, marlstone, and limestone	Present

a/ Includes soils that have bedrock within 60 inches of the soil surface based on information from the STATSGO database maintained by the USDA and NRCS.

b/ Soils in the Conn Creek portion of the project area are Happle soils and Happle-Rock Outcrop association. Based on information from the STATSGO database, Happle soils do not have shallow bedrock; however, as implied by the name, shallow bedrock may be encountered in soils of the Happle-Rock Outcrop association.

Blasting is not anticipated to be required during construction of the TransColorado facilities. Should blasting be necessary, it would be conducted in accordance with all appropriate federal, state, and local requirements. No municipal water supply wells or registered water wells have been identified within 150 feet of any areas that would be disturbed by construction. Prior to construction, TransColorado would contact landowners to identify the location of all private wells within 200 feet of its construction workspaces and setback zone locations crossed by workspaces. The proposed Blanco and Greasewood Compressor Stations, and associated facilities, would be in the immediate vicinity of existing oil and gas processing and compression facilities. There is one residence located about 0.25 mile northwest of the proposed Blanco Compressor Station. There are no residential dwellings or mobile homes within 0.25 mile of the Conn Creek or Greasewood Compressor Stations. Therefore, we do not expect any impacts from blasting.

4.1.2.2 Mineral Resources

TransColorado did not identify any active, abandoned, or proposed mines, quarries, or oil or gas wells at the proposed compressor station locations. Furthermore, no proposed mining areas or oil and gas wells were identified within 0.25 mile of the construction areas. We conclude that construction and operation of the Blanco to Meeker Project would not impact mineral resources. Furthermore, based on currently available information, no future recovery of mineral resources is anticipated at project locations.

4.1.2.3 Geologic Hazards

Seismicity

The northwestern and southwestern corners of Colorado have had no seismic activity in historic times. The nearest active fault from the Greasewood Compressor Station is the Williams Fork Mountain Fault, approximately 75 miles to the east. The nearest active fault from the Conn Creek Compressor Station site is the Robideau Fault, about 70 miles to the south. The historic fault nearest to both the Greasewood and Conn Creek sites is the Hansel Valley Fault, located in Box Elder County, Utah, more than 250 miles to the northwest.

The majority of the seismic activity in New Mexico has been in the Rio Grande Valley between Socorro and Albuquerque. The nearest active fault from the Blanco facilities is the Paharito Fault,

approximately 100 miles to the southeast. The nearest historic fault is the Pitaycachi Fault, more than 375 miles to the south-southwest in Mexico.

All of the TransColorado facilities would be designed and constructed in accordance with 49 CFR, Parts 192 and 193. These specifications ensure that pipeline facilities are designed and constructed in a manner to provide adequate protection from washouts, floods, unstable soils, landslides, or other hazards that may cause the pipeline facilities to move or sustain abnormal loads. Pipeline installation techniques, especially padding and use of rock-free backfill, effectively insulate the pipeline from minor earth movements.

The TransColorado facilities would be located in an area of relatively low seismic risk. Further, the previously cited study by O'Rourke and Palmer (1994b) demonstrated that electric arc-welded pipelines in good repair are generally highly resistant to traveling ground wave effects and moderate amounts of permanent deformation. As a result of this information, we conclude that seismic hazards would not pose a significant risk to the TransColorado facilities.

Landslides

The proposed TransColorado facilities in Colorado (the Conn Creek and Greasewood Compressor Stations) would be located in areas of low landslide incidence (*i.e.*, less than 1.5 percent of the region). The proposed facilities in New Mexico (at the Blanco Compressor Station site) are predominantly located in areas of low landslide incidence, with some areas of moderate landslide incidence (*i.e.*, 1.5 to 15 percent of the region). All of these facilities are located in areas of relatively flat terrain, which further reduces the potential for impacts resulting from landslide activity.

Subsidence

No areas of karst terrain or previous underground mining were identified in the vicinity of the proposed TransColorado facilities.

Flooding and Scour

Flooding/scour was not identified as a potential geologic hazard for the proposed TransColorado facilities. No wetland or waterbody crossings would be required during construction of the TransColorado facilities.

4.1.2.4 Paleontological Resources

In addition to fossils found in Colorado, fossils from large land mammals, magnolia, Gomphotherium (a four-tusked elephant), and Coryphodon (a hippopotamus-like mammal) are common from Tertiary and/or Quaternary deposits of northwest New Mexico. TransColorado reports that because all aboveground structures would be constructed either in or adjacent to existing pipeline facilities, the potential for disturbance of any new areas of paleontological significance is low. If such resources are discovered during construction, TransColorado would halt all work until the area is evaluated by a qualified professional. An Unanticipated Paleontological Discoveries Plan is being prepared in consultation with the BLM.

4.1.3 Overthrust

4.1.3.1 Geologic Setting

The Wamsutter Expansion Project would be located in the Wyoming Basin province. The Roberson Compressor Station would be within the Green River Basin, one of several intermontaine basins within the Wyoming Basin province. The Rock Springs Compressor Station and western half of the pipeline route would be within the Rock Springs Uplift, which is situated on the east flank of the Green River Basin. The eastern half of the pipeline route crosses between the Wamsutter Arch to the north and the Washakie Basin to the south, which generally consists of mountain ranges separated by broad basins. Table 4.1.3-1 summarizes the physiographic province, section, and geology along the proposed pipeline route.

Construction of Overthrust's proposed facilities would include topographic disturbances along the pipeline right-of-way and aboveground facility sites due to grading and trenching activities. Upon completion of construction, Overthrust would restore topographic contours and drainage patterns as closely as possible to their pre-construction condition. Operation of the pipeline and its associated facilities would not affect the geologic and physiographic conditions in the project area.

4.1.3.2 Mineral Resources

The Wamsutter Expansion Project would cross sedimentary basins in known oil and gas producing regions. Potentially exploitable mineral resources in the general project area consist of sand and gravel, sodium sulfate, coal, trona, zeolite, barium, strontium, oil, natural gas, and baked and fused shale.

Potentially exploitable sand and gravel deposits are present where the pipeline route crosses unconsolidated alluvium/colluvium and dune/loess deposits. Five active or inactive sand and gravel mining operations are within 1,500 feet of the proposed pipeline route:

- a sand and gravel pit 500 to 750 feet south of MP^{OT} 1.5 and 1.7 (just west of Little Bitter Creek);
- gravel pit (appears inactive) in the Bitter Creek area, 300 feet east of MP^{OT} 13.0;
- gravel pit (appears inactive) 200 feet south of the proposed pipeline at MP^{OT} 50.4;
- gravel pit (appears inactive) 500 feet south of MP^{OT} 65.4; and
- gravel pit (appears inactive) 1,000 feet north of MP^{OT} 77.0.

Overthrust would confirm the activity status of these mines prior to project construction. The aboveground facilities would be sited over 1,500 feet from sand or gravel mining operations

Trona (natural sodium carbonate/bicarbonate) is the most important industrial mineral produced in Wyoming in terms of value and employment (WSGS, 1992). Trona-bearing deposits are primarily located in west-central Sweetwater County (WSGS, 1996). However, the eastern-most extent of trona-bearing deposits is about 8 miles west from the western end of the Wamsutter Expansion pipeline route. Also, deposits of zeolite, barium, strontium, and sodium sulfate have been identified in the area but all are located 1 mile or more from the project area.

TABLE 4.1.3-1

Summary of Geologic Conditions – Wamsutter Expansion Project

MPs ^{OT}	Geologic Formation	Age	Composition
2.9 – 3.2 11.8 – 12.3 7.9 – 8.3 25.9 – 26.8	Alluvium/Colluvium (unconsolidated)	Pleistocene and Holocene (1.8 million years ago [mya] to present)	Clay, silt, sand, and gravel in flood plains, fans, terraces, and slopes
58.0 – 60.3 60.5 – 62.8	Dune Sand/Loess (unconsolidated)	19,000 to 12,000 years ago	Includes active and dormant sand dunes
69.9 – 73.0	Playa Lake /Lacustrine (unconsolidated)	Pleistocene and Holocene (1.8 mya to present)	Chiefly clay, silt, and fine sand
0.0 – 2.4 49.9 – 58.0 60.3 – 60.5 62.8 – 69.9 73.0 – 73.2 74.2 – 75.8	Wasatch Formation – Main Body	Eocene (54 to 38 mya)	Variiegated red to gray, brown, and gray mudstone and sandstone, with conglomeratic lenses
73.2 – 74.2 75.8 – 77.2	Luman Tongue of the Green River Formation	Eocene (54 to 38 mya)	Oil shale, carbonaceous shale, and sandstone
2.4 – 2.9 3.2 – 3.5 45.2 – 49.9	Fort Union Formation	Paleocene (65 to 54 mya)	Brown to gray sandstone, gray to black shale, and thin coal beds
41.6 – 45.2	Lance Formation	Cretaceous (146 to 65 mya)	Brown and gray sandstone and shale; thin coal and carbonaceous shale beds
40.2 – 41.6	Fox Hills Sandstone and Lewis Shale	Cretaceous (146 to 65 mya)	Light-colored sandstone and gray sandy shale containing marine fossils; Gray marine shale containing many gray and brown lenticular concretion-rich sandstone beds
33.0 – 40.2	Almond Formation	Cretaceous (146 to 65 mya)	White and brown soft sandstone, gray sandy shale, coal and carbonaceous shale
3.5 – 4.0 31.5 – 33.0	Erickson Shale	Cretaceous (146 to 65 mya)	White massive sandstone, lenticular chert-grit conglomerate in upper part
4.0 – 9.2 26.3 – 31.5	Rock Springs Formation	Cretaceous (146 to 65 mya)	White to brown sandstone, shale, and claystone; numerous coal beds
9.2 – 11.4 22.9 – 26.3	Blair Formation	Cretaceous (146 to 65 mya)	Drab-yellow and brown sandstone and sandy shale
11.4 – 11.8 12.3 – 22.9	Baxter Shale	Cretaceous (146 to 65 mya)	Gray to black soft sandy shale and shaly sandstone

Coal has been and continues to be recovered in the project area through surface strip mining and underground operations. The proposed pipeline route crosses portions of the Sweetwater No. 2 Mine between MPs^{OT} 3.0 and 4.5, and passes the northern edge of Peacock No. 12 Mine at about MP^{OT} 7.0. A strip mine was also identified adjacent to the north side of the pipeline right-of-way at MP^{OT} 6.4. These coal deposits have been mined out (WSGS, 1986) and there are no active or planned coal mines in the vicinity of the pipeline route as it crosses the western flank of the Rock Springs Uplift (BLM, 2006; WSGS, 2006).

Coal mining remains active along the eastern flank of the Rock Springs Uplift. From about MP^{s_{OT}} 33.5 to 34.7, the Wamsutter Expansion pipeline route crosses the Leucite Hills, a large area from which coal has been recovered from surface mines. However, the route does not cross any former or active mines within this area, and it is largely collocated with existing pipelines. The BLM indicated that routing through the Leucite Hills area should not impact existing or planned coal operations (BLM, 2006). Also, along the eastern flank of the Rock Springs Uplift, the pipeline would be approximately 600 feet south of the active Jim Bridger open pit coal mine between MP^{s_{OT}} 43.7 and 44.3. The pipeline would be collocated with existing pipelines in proximity to the Jim Bridger mine and would not impact mine operations (BLM, 2006).

The proposed pipeline route is within 1,500 feet of 63 active and plugged wells (WOGCC, 2006). Overthrust identified 12 abandoned wells and 3 active wells within 400 feet of the proposed pipeline (see table 4.1.3-2).

The Rock Springs Compressor Station would be located in an area of historic coal production along the western flank of the Rock Springs Uplift. However, as previously noted, these coal deposits have been mined out and there are no active or planned coal mines in the area.

Typically, the pipeline trench would be about 6 to 7 feet deep to account for the pipe and adequate cover. Limited blasting could be required in areas where shallow bedrock or boulders encountered could not be removed by conventional excavation. Table 4.2.3-1 identifies areas along the proposed pipeline route where shallow bedrock is probable.

TABLE 4.1.3-2

Active and Plugged Oil and Gas Wells Within 400 Feet of the Wamsutter Expansion Project Pipeline Route

MP ^{s_{OT}}	Distance from Pipeline Centerline (feet)	Direction	Status
22.0	50	North	Plugged
26.6	76	North	Plugged
37.7	250	North	Plugged
39.3	94	South	Plugged
44.8	275	North	Plugged
46.3	345	North	Active
47.4	364	South	Active
47.7	148	North	Plugged
50.5	211	North	Plugged
51.3	201	South	Plugged
51.8	93	North	Plugged
52.2	312	North	Plugged
59.2	75	North	Plugged
74.9	222	South	Active
75.7	204	North	Plugged

Depending on Overthrust's right-of-way configuration, four of the oil and gas wells identified would be within the proposed pipeline construction right-of-way (MP^{s_{OT}} 22.0, 26.6, 39.3, and 59.2). These wells are in areas where Overthrust would use a wider right-of-way width (125 to 150 feet). Gathering lines associated with these and other wells could also occur in the construction right-of-way.

Grading and trenching activities could damage well heads or gathering lines, creating a potential safety hazard to workers and interrupting oil and gas production until appropriate repairs are made. Blasting operations could also damage nearby oil and gas wells. Prior to construction, Overthrust would identify any underground gathering lines in the construction right-of-way. Abandoned wells would be tied with orange flagging within 6 inches of the top of the existing steel pipe column, to allow construction personnel to visibly locate the well. These flags would be maintained for the duration of construction. If requested by the owner/operator, Overthrust would implement special construction techniques to maintain day-to-day operation (*e.g.*, placing pipe section for well pad in safe area, ensuring same day ditch and tie-in work, and allowing constant well site access). Potential affects of blasting on nearby wells would be mitigated by implementing the Blasting Plan being developed by Overthrust. Primary elements of the Blasting Plan are expected to include:

- blasting would be performed by registered licensed blasters who would be required to secure all necessary permits and comply with regulatory requirements in connection with the transportation, storage, and use of explosives, and blast vibration limits for nearby structures, utilities, wildlife, and fish (where blasting is conducted in water bodies);
- appropriate flags, barricades, and warning signals would be used to ensure safety during blasting operations. Blast mats would be used when needed to prevent damage and injury from fly rock;
- blasting in the vicinity of other pipelines would be coordinated with the pipeline operator, and follow operator-specific procedures, as necessary;
- pre-blast surveys may be conducted with landowner permission to assess the conditions of structures of water wells within 200 feet from the edge of the construction right-of-way where blasting is anticipated; and
- during blasting, Overthrust may monitor ground vibration at the nearest structure or water well that is within 200 feet of the blast site. Should the property owners identify damage or change to the properties, or if excessive peak particle velocities have been recorded during the blasting operations, post-blast survey of the structures, wells, and utilities may be conducted to verify property damage. Overthrust would either repair, or fairly compensate the owner, for damages that result from blasting.

By implementing measures to avoid and/or protect existing oil and gas production facilities, we believe that the Wamsutter Expansion Project would not interfere with current oil and gas production in the area. Additionally, because oil and gas are generally produced from depths of more than 1,000 feet, construction of the pipeline is not expected to affect future oil or gas production in the area.

Potential impacts on surface mining operations, if any, would be limited to temporary short-term encumbrances during construction and would be minimized by Overthrust working with the owners and/or operators of these mining operations during right-of-way negotiations. Because construction of the pipeline would be limited to near-surface disturbance, the proposed project would not impact oil and gas production in the area or other underground resource recovery operations, such as coal or trona.

4.1.3.3 Geologic Hazards

Seismicity

The potential for seismic events sufficient to damage the pipeline is relatively low. Based on the relatively low historic seismic activity and the low level of ground motion predicted for the Wamsutter Expansion Project area, it is not likely that a damaging earthquake would occur during the operating life

of the project. In addition, modern arc-welded gas pipelines in good repair are generally highly resistant to traveling ground waves, further reducing the potential for an earthquake to damage the project (O'Rourke and Palmer, 1994b). No active or potentially active surface faults are known to be present along the proposed route. Due to the low potential for strong earthquakes to occur in the project area, the potential for damaging surface faulting to occur is also low.

Unconsolidated materials underlie about 9.8 miles (13 percent) of the Wamsutter Expansion pipeline route. However, due to the low potential for strong and prolonged ground shaking to occur in the project area, the potential for soil liquefaction and its related impacts on development is also low. Also, no liquefaction-prone areas were identified within 20 miles of the proposed project. Therefore, liquefaction is not expected to impact the Wamsutter Expansion Project.

To protect the pipeline and facilities from seismic activity and its associated hazards, project facilities would be constructed and tested to meet federal standards outlined in 49 CFR Part 192. Overthrust would conduct geotechnical studies to ensure that facilities would be designed and constructed to minimize any effects from shaking or faulting.

Landslides

Slopes of 20 to 30 percent grade occur near MPs^{OT} 8.0 and 9.0, at MP^{OT} 14.8, at a number of locations between MPs^{OT} 22.5 and 33, at MP^{OT} 40.8, and at MP^{OT} 70.1. Due to steeper slopes, the risk of landslides is higher in these areas when compared to the remainder of the proposed route. While a large, naturally-occurring landslide is not likely to occur in the project area, excavation on isolated, steep slopes could cause localized landslides, creating a potential safety concern for construction workers and project delays.

Because the pipeline route would generally follow existing or previously studied corridors, the majority of potential slope instability hazards would be avoided. In addition, the proposed route generally parallels the fall line of steep slopes in order to minimize the amount of pipe exposed transversely to the slope, thereby lowering the potential landslide hazard. Implementation of Overthrust's Plan would reduce the potential for construction-related activities to trigger landslides or other slope failures. Specifically, restoring pre-construction contours, using trench breakers and permanent slope breakers, and establishment of permanent vegetation would further reduce the potential for slope instability to occur.

None of the aboveground facilities would be located in an area of historic landslides or on steep slopes.

Subsidence

The Wamsutter Expansion pipeline would cross portions of the abandoned underground Sweetwater No. 2 mine between MPs^{OT} 3.0 and 4.5; however, no subsidence is known to be associated with this mine, and the BLM stated that the risk of subsidence over the mine is low because mining operations in the area ceased more than 50 years ago. Subsidence is not expected elsewhere along the pipeline route.

Flooding and Scour

The proposed Wamsutter Expansion route crosses 1 perennial and 93 intermittent waterbodies. Though flooding in and of itself does not represent a significant risk to buried pipelines, stream scour and mud/debris flows that can accompany flooding can impact pipelines by exposing and leaving unsupported spans of pipe. To minimize these effects, the pipeline would be buried at a sufficient depth to avoid

possible scour at waterbody crossings. Overthrust's ongoing inspection and maintenance programs would ensure that any scouring or erosional problems that develop over time are fixed.

4.1.3.4 Paleontological Resources

Overthrust conducted a paleontological overview study and field survey of the Wamsutter Expansion Project area and identified fossil occurrences at 13 locations along the proposed pipeline route; however, none of these fossils were deemed significant. Overthrust provided the BLM and FERC with its Paleontology Survey Report. Site-specific mitigation is recommended at 10 locations, primarily consisting of monitoring during construction along bladed portions of the right-of-way and at excavated spoil piles. Overthrust would conduct spot checking at nine other locations, all of which are in areas with low probability for significant fossil discoveries during construction. If monitoring yields fossil occurrences that are significantly scientific, either the fossils or a scientifically representative sample would be collected, assessed, and curated into the permanent collections of an established institution.

Construction and operation of the aboveground facilities associated with the Wamsutter Expansion Project would not affect paleontological resources.

4.2 SOILS

Much of the soils discussion is applicable to the entire Rockies Western Phase Project. For the sake of brevity and clarity, the Rockies Express/REX-West Project section includes our descriptive overview of soil definitions and general characteristics. Our project-specific analysis of soils impacts is included in the appropriate project section without repeating the general information from the REX-West Project section.

Information regarding the soil types occurring in the Project area and their characteristics was obtained using the STATSGO database. STATSGO is an electronic database maintained by the USDA, NRCS. Soil characteristics/limitations evaluated are erosion potential (wind and water), designation as prime farmland, compaction potential, percentage of stones/rocks, droughty soil, hydric soil, and potential for shallow bedrock.

Pipeline construction activities such as clearing, grading, trench excavation, backfilling, heavy equipment traffic, and restoration along the construction right-of-way may result in adverse impacts on soil resources. Clearing removes protective vegetative cover and exposes soil to the effects of wind, sun, and precipitation, which could potentially increase soil erosion and the transport of sediment to sensitive areas. Grading and equipment traffic can compact soil, reducing porosity and percolation rates, which can result in increase runoff potential. In addition, grading can result in the mixing of topsoil with subsoil which can result in long-term reduction of agricultural productivity and introduce subsurface rocks to the soil surface. Trench excavation and backfilling could also lead to the mixing of topsoil and subsoil; the introduction of excavated rocks from the fracturing of bedrock; and excavation of rock and/or gravel into the soil surface resulting in future increase in operation labor, decreased agricultural productivity, and potential damage to agricultural field equipment. Soil contamination from equipment spills and/or leakage of fuels, lubricants, and coolants could also impact soils. Certain practices, such as the use of the Plan and specific Applicant-proposed mitigation measures, help minimize impacts on soils.

4.2.1 Rockies Express

4.2.1.1 Soil Limitations

Table 4.2.1-1 provides a summary of the soil limitations that could be encountered by the proposed REX-West pipeline route, while table 4.2.1-2 provides a summary of the soil limitations associated with the proposed aboveground facilities. Impacts associated with construction and operation of aboveground facilities would be similar to those described above for the pipeline; however, impacts at aboveground facilities would be permanent. Due to the fact that land used for construction of the aboveground facilities would be permanently converted to industrial use, mitigation measures implemented at the aboveground facilities are limited to erosion and sediment control measures.

Erosion Potential

Erosion is a natural process where surface soils are worn away, typically by wind or water. Factors that influence the erosion potential of soil include gradation (distribution of soil particles), vegetative cover, length and percent of slope, rainfall, and wind intensity. Soils on steep, long slopes are much more susceptible to water erosion than those on shallow, short slopes because the steeper slopes accelerate the flow of surface runoff.

TABLE 4.2.1-1

Summary of Soil Limitations – REX-West Project Pipeline Facilities (by miles crossed)

County	Highly Water Erodible <u>a/</u>	Highly Wind Erodible <u>b/</u>	Prime Farmland <u>c/</u>	Compaction Prone <u>d/</u>	Stony-Rocky/ Droughty <u>e/</u>	Hydric <u>f/</u>	Shallow Bedrock <u>g/</u>
Colorado							
Weld	0.0	32.6	0.0	0.0	34.6	0.0	4.0
Logan	0.0	10.0	0.0	0.0	12.0	0.0	4.5
Sedgwick	0.0	5.1	0.0	0.0	33.6	0.4	0.2
Wyoming							
Laramie	0.0	4.0	0.0	0.0	0.5	0.0	0.2
Sweetwater <u>h/</u>	0.0	5.3	0.0	0.0	0.0	0.0	0.0
Nebraska							
Kimball	0.0	9.7	0.0	0.0	0.0	0.0	26.7
Perkins	0.0	16.0	8.1	0.0	19.1	19.7	0.0
Lincoln	0.0	30.8	12.1	0.0	25.6	15.8	0.0
Dawson	0.0	0.0	12.1	0.0	0.0	5.9	0.0
Frontier	0.0	0.0	3.5	0.0	0.0	3.5	0.0
Gosper	0.0	0.0	18.0	0.0	0.0	13.4	0.0
Phelps	0.0	0.0	25.2	0.0	21.0	4.2	0.0
Kearney	0.0	0.0	10.8	0.0	9.0	0.0	0.0
Franklin	0.0	0.8	12.7	0.0	0.0	9.6	0.0
Webster	0.0	0.0	24.5	0.0	0.0	5.5	0.0
Nuckolls	0.0	0.0	24.5	0.0	0.0	22.8	0.0
Thayer	0.0	0.1	21.4	0.0	0.0	12.0	0.0
Jefferson	0.0	0.3	22.9	0.0	0.0	1.8	1.9
Gage	0.0	0.0	8.0	0.0	0.0	0.0	0.0
Kansas							
Marshall	0.0	0.0	24.9	0.0	0.6	0.0	0.0
Nemaha	0.0	0.0	13.0	0.0	0.0	18.0	0.0
Brown	0.0	0.0	12.5	10.0	0.0	2.4	0.0
Doniphan	0.0	0.2	1.1	0.0	0.5	7.0	0.0
Missouri							
Buchanan	0.2	0.0	5.1	1.4	3.7	20.4	0.0
Clinton	0.0	0.0	8.5	8.5	0.0	21.3	0.0
Caldwell	0.0	0.0	12.4	12.4	0.0	24.3	1.5
Carroll	0.0	0.0	16.8	16.8	0.0	25.2	8.4
Chariton	0.1	0.0	17.3	17.3	0.8	32.6	0.0
Randolph	0.0	0.6	3.2	14.7	18.7	21.9	0.0
Audrain	0.0	0.0	0.0	26.7	14.4	30.0	0.0
Total	0.3	115.5	294.1	107.8	194.1	317.7	47.4
Percent of Total	0	10.7	27.3	10.0	18.0	29.5	4.4

a/ Includes soils with a water erosion factor between 0.47 and 0.69.

b/ Includes soils in wind erodibility groups 1, 2 and 3.

c/ Includes map unit designated as prime farmland by the NRCS.

d/ Includes map unit having fine texture in somewhat poor, poor, or very poor drainage classes.

e/ Includes map unit meeting criteria for stony-rocky or droughty soils.

f/ Includes map unit designated as hydric by the NRCS.

g/ Includes map unit having bedrock within 60 inches of the soil surface.

h/ Soils information for the Echo Springs Lateral.

TABLE 4.2.1-2

Summary of Soil Limitations – REX-West Aboveground Facilities

Facility/(County)	Total Acres	Highly Water Erodible	Highly Wind Erodible	Prime Farmland	Compaction Prone	Stony-Rocky/Droughty	Hydric	Shallow Bedrock
Colorado								
Meeker Compressor Station (Rio Blanco) <u>b/</u>	20.0	No	No	No	No	Yes	No	Yes
Questar Interconnect (Rio Blanco)	<u>a/</u>	No	No	No	No	Yes	No	Yes
Cheyenne Compressor Station (Weld)	25.0	No	No	No	No	No	No	No
WIC Interconnect (Weld)	<u>a/</u>	No	No	No	No	Yes	No	No
Julesburg Compressor Station (Sedgwick)	15.5	No	No	If Irrigated	No	Yes	No	No
Wyoming								
Echo Springs Interconnect (Carbon)	<u>a/</u>	No	No	No	No	Yes	No	No
Wamsutter Compressor Station (Sweetwater)	<u>b/</u>	No	Yes	No	No	Yes	No	Yes
Echo Compressor Station (Sweetwater)	7.0	No	No	No	No	Yes	No	No
Nebraska								
KMIGT Meter Station (Franklin)	<u>a/</u>	No	No	Yes	No	No	Yes	No
NGPL Meter Station (Jefferson)	<u>a/</u>	No	No	Yes	No	No	No	No
NNG Meter Station (Gage)	<u>a/</u>	No	No	Yes	No	No	No	No
Steele Compressor Station (Gage)	12.3	No	No	Yes	No	No	No	No
Kansas								
ANR Meter Station (Brown)	<u>a/</u>	No	No	No <u>c/</u>	Yes	No	No	No
Missouri								
Turney Compressor Station (Clinton)	13.0	No	No	No <u>c/</u>	Yes	No	Yes	No
PEPL Meter Station (Audrain)	<u>a/</u>	No	No	Yes	Yes	No	Yes	No
<u>a/</u> Acreage not reported by Rockies Express. Delivery meter stations would be installed within fenced facilities; receipt meter stations would be located at compressor stations. <u>b/</u> Construction would be an addition to an existing facility. No additional acreage is expected to be necessary at the existing site. <u>c/</u> Farmland of statewide importance.								

As presented in table 4.2.1-1, approximately 10.7 percent of the soils crossed by the REX-West pipeline route are highly susceptible to wind erosion. Less than 0.1 percent of the soils are most susceptible to water erosion. Erosion in these areas can be compounded by the poor revegetation potential of the soil. Clearing, grading, and equipment movement could accelerate the erosion process. Without adequate protection this could result in topsoil loss, reduced soil fertility, and discharge of sediment into sensitive areas. The sloping banks of ravines, waterbodies, and soil storage piles would be most susceptible to water erosion.

Rockies Express would implement the measures in its Plan that are designed to control erosion and sedimentation during construction. For example, during construction Rockies Express would install and maintain various erosion control measures. These include temporary slope breakers on slopes and temporary sediment barriers such as straw bales or silt fence at the base of slopes adjacent to waterbodies, wetlands, and roadways, and along the edge of the right-of-way as necessary to prevent sediment from flowing off the right-of-way. During restoration, Rockies Express would use active revegetation using seed mixtures recommended by the NRCS that would act to stabilize soils. The selection of seed mixes would take into account the poor revegetation potential of the soil. Seed mixtures would be free of non-native plant species.

In non-agricultural areas where wind erosion is a specific concern, Rockies Express would install and monitor erosion control devices to ensure soil stabilization. During construction in areas prone to wind erosion, Rockies Express would “wet down” topsoil stockpiles to maintain a surface crust which would act to minimize wind-blown losses. Rockies Express would also implement waterbody crossing methods as outlined in its Procedures to minimize potential impacts from water erosion and sedimentation near waterbodies. For example, spoil from waterbody crossings would be maintained in the construction right-of-way at least 10 feet from the water’s edge or in an additional workspace. Sediment barriers would be installed and properly maintained to prevent flow of sediment into the waterbody and to contain spoil and sediment within the construction right-of-way. In addition, trench plugs would be used as necessary to prevent diversion of water into upland portions of the pipeline trench, and all waterbody banks would be returned to a stable condition.

Where trench dewatering is required, Rockies Express has indicated that water would be pumped from the trench into stable upland areas to prevent soil erosion in areas disturbed by construction. Filtering and/or discharge dissipation devices would be employed as appropriate, in accordance with Rockies Express’ Plan and Procedures, to ensure that trench dewatering activities do not cause erosion or result in the discharge of heavily silt-laden water to sensitive areas.

Rockies Express has detailed several ways it would construct and monitor its pipeline to ensure proper depth of cover and right-of-way stability. Upon commissioning of the pipeline, Rockies Express would implement a surveillance plan that includes monthly aerial pipeline patrolling to inspect for excavation activities, ground movement, wash-outs, leakage, or other changes along the right-of-way. Within 1 year of the cathodic protection system installation, Rockies Express would conduct a close interval survey along the pipeline route on foot. In addition, Rockies Express would utilize an outreach program for landowner and tenant communication to discuss pipeline location, operation, maintenance, and emergency reporting. We believe these measures would ensure right-of-way stability and minimize the potential for operational disturbances, including increased erosion.

We received a comment that expressed concern regarding potential erosion in the Sand Hills area of Nebraska resulting from construction of the pipeline facilities. The Sand Hills is a contiguous 19,600 square-mile, grass-stabilized sand dune formation located in north-central Nebraska and the southern part of South Dakota. The dunes vary from high, steep hills in the western region to small mounds in the east. Many of the valleys contain small lakes and wetlands. Plants associated with arid conditions inhabit the

top of dunes while lush stands of aquatic plants are found in the valleys a few hundred yards away. This large dune region is easily susceptible to erosion and depends upon the complex root system of the grasses and forbs inhabiting the area for stability. At the public comment meeting held on December 12, 2006, in North Platte, Nebraska, a commentor provided documentation that the Sand Hills area extends for about 25 miles across Lincoln County, Nebraska, from near the western county line to just east of U.S. Route 83. This information indicates that the proposed REX-West pipeline route would cross the Sand Hills from about MP 191 to MP 217.

Erosion in this area of the Sand Hills has exposed existing pipelines in several locations, altering grazing and irrigation practices and exposing the sandy subsoil to additional erosion forces. In order to minimize impacts from construction of the REX-West Project on soil resources in the Sand Hills area, we recommended in the draft EIS that Rockies Express develop a site-specific construction and restoration plan for the Sand Hills area. In its comments on the draft EIS, Rockies Express committed to developing a site-specific construction and restoration plan for the Sand Hills Area. This plan would include greater depth of cover for the pipe, special revegetation measures, and post-construction monitoring to ensure stability of the right-of-way. In order for us to verify that the Sand Hills construction plan would provide adequate protection to resources, **we recommend that Rockies Express file its site-specific plan to actively monitor depth of cover over the pipeline in the Sand Hills area (approximate MPs 191 to 217) including restoration and post-construction mitigation measures to ensure adequate depth of cover and right-of-way stability in the Sand Hills area. This plan should be filed with the Secretary, for review and written approval by the Director of OEP, prior to construction.**

We also received comments regarding other project locations where erosion is a concern to farmers. Several commentors expressed concern that Rockies Express' proposed 3 feet of cover would not be adequate in areas of active agriculture where erosion may reduce the clearance over the pipeline and expose it to damage by farm equipment. Our discussion and recommendations for minimizing impacts in agricultural land and on specific agricultural practices are in section 4.8.1.2.

None of sites for the aboveground facilities include soils with a high potential for erodibility from water. The Rockies Express Wamsutter Compressor Station contains soils with a high potential for erodibility from wind; however, gravel would be placed about 15 feet in and around all major equipment and roads inside the compressor station site. We believe the placement of gravel at this facility would minimize the potential for erosion.

Prime Farmland

According to the USDA, prime farmland soils consist of soils classified as those best suited for production of food, feed, forage, fiber, and oilseed crops. These soils generate the highest yields with the least amount of expenditure. Soils currently occupying pastures and fields or otherwise undeveloped forest and open land can be classified as prime farmland soils; lands occupied by surface water or residential, commercial, or industrial uses can not receive this designation. Prime farmland soils generally meet the following criteria: have an adequate water supply, either from precipitation or irrigation; contain few or no rocks; are permeable to water and air; are not excessively erodible or saturated for long time periods; and either do not flood frequently or are protected from flooding.

Approximately 62 percent (441 miles) of the REX-West Project route would cross agricultural lands, and 27.3 percent of the soils crossed are designated as prime farmland. Agricultural land uses are present throughout the region, with soils classified as prime farmland primarily located along the portion of the route beginning in Perkins County, Nebraska and continuing eastward through Chariton County, Missouri. Potential impacts on agricultural uses and prime farmland soils from pipeline construction include soil erosion, interference with and damage to agricultural surface and sub-surface drainage

systems and irrigation systems, the mixing of topsoil and subsoil, the potential loss of fertile topsoil, and topsoil compaction. Additional analysis of agricultural-related issues is presented in section 4.8.1.2 of this EIS.

Construction of the REX-West aboveground facilities would affect about 29.9 acres of prime farmland soils and 13.5 acres of farmlands of statewide importance. Soils designated as prime farmlands were identified at the Steele City Compressor Station site and the proposed KMIGT, NGPL, NNG, and PEPL Meter Stations. Soils designated as prime farmlands (if irrigated) were identified at the Julesburg Compressor Station site, and soils designated as farmlands of statewide importance were identified at the Turney Compressor Station site. Based on information provided by Rockies Express, land currently used for agriculture would be affected by construction of the Julesburg and Steele City Compressor Stations, and the KMIGT, NGPL, NNG, ANR, and PEPL Meter Stations. While these soil resources would be permanently lost, the acreage affected would not significantly reduce the agriculture production in the REX-West Project area.

Compaction Potential

Soil compaction occurs when soil particles are compressed. This modifies soil structure and can result in a reduction in the porosity and moisture-holding capability of the soil, thus restricting rooting depth. Compaction also decreases infiltration and thus increases runoff and the potential for water erosion. The risk for compaction is greatest when soils are wet. Therefore, fine-grained soils having poor drainage characteristics have the greatest propensity for compaction. Construction equipment traveling over wet or saturated soils could disrupt soil structure, reduce pore space, increase runoff potential, and cause rutting and topsoil-subsoil mixing. We also received a comment stating that after backfilling and decompaction, loose soils and settling over time could cause heavy equipment (*e.g.*, pivots, tractors, reapers, etc.) to bog down or turn over. Approximately 10.0 percent of the soils crossed by the proposed REX-West route are susceptible to compaction.

Due to the granular nature of the majority of the soils encountered in the project vicinity, soil compaction is not anticipated to be a significant concern for the REX-West facilities. In accordance with its Plan, Rockies Express would test for and alleviate compaction in agricultural and residential areas. Testing would be conducted using a penetrometer or other appropriate device and would be performed on the same soil type under similar moisture conditions in undisturbed areas. Decompaction efforts would be commensurate with the level of pre-construction compaction identified during testing. Compaction impacts could be mitigated through use of a paraplow or other deep tillage implement. As an alternative, Rockies Express could make arrangements with the landowner to plant and plow under a “green manure” crop, such as alfalfa, to decrease soil bulk density and improve soil structure.

Stony-Rocky or Droughty Soils

Stony soils are identified as soils having more than 5 percent by weight of particles larger than 3 inches. Stony-rocky soils could interfere with agricultural practices and inhibit revegetation efforts.

Droughty soils have a surface texture of sandy loam or coarser material and are moderately-well to excessively drained. As a result, droughty soils may not be able to sustain adequate moisture levels in the root zone, making revegetation difficult.

Approximately 18.0 percent of the soils crossed by the REX-West facilities are stony-rocky or droughty. Construction through stony-rocky soil could bring rock to the surface, which could interfere with agricultural practices and also hinder revegetation of the right-of-way. Rockies Express reports that none of the soils crossed by the proposed route contain abundant, large stones in the subsoil. Currently,

no specific areas have been identified along the proposed route that would require blasting. For these reasons, we do not anticipate the introduction of large stones or rock fragments into the topsoil. These soils would have a moderate to low potential to increase the rock content of surface layers following construction.

In the event that blasting is required, Rockies Express' Plan allows blast rock to be used to backfill the trench up to the level of the preexisting bedrock profile, but requires the removal of excess blast/excavated rock (which is considered construction debris). The Plan also requires the removal of excess stones and rock in areas where soils off the right-of-way do not contain similar materials. Mulch application could be used to conserve soil moisture in droughty soils, in addition to providing stability of the soil surface and reducing erosion. We conclude that Rockies Express' use of its Plan would minimize impacts from construction through these types of soils.

Hydric Soils

Hydric soils are defined as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper horizon. This includes soils developed under sufficiently wet conditions to support the growth and regeneration of hydrophytic vegetation, and soils that are sufficiently wet because of artificial measures. Locations where hydric soils are encountered may also contain artificial drainage systems.

Approximately 29.5 percent of the soils crossed by the REX-West route are designated as hydric soils. Construction through hydric soils and wetlands is discussed in section 4.3.1.4 of this EIS. Implementation of the measures contained in Rockies Express' Plan and Procedures would also minimize impacts on hydric soils.

Shallow Bedrock

Soils indicated as having shallow bedrock have the potential for bedrock to occur within 60 inches of the soil surface. In these areas, specialized mechanical equipment or blasting may be required for trench excavation.

Approximately 4.4 percent of the soils that would be crossed by the REX-West facilities have the potential for shallow bedrock. Although areas of shallow bedrock have been identified in the project vicinity, Rockies Express anticipates that rock excavation would be accomplished through use of rippers or hammering. Little, if any, blasting is anticipated to be necessary during construction. As noted in section 4.1.1.1, we have included a recommendation regarding the preparation of a detailed Blasting Specification Plan to minimize impacts if blasting is required during construction.

4.2.1.2 Spill/Contamination Prevention

Soil contamination along the pipeline route could result from at least two sources: material spills during construction and trench excavation through existing contaminated areas. Contamination from spills or leaks of fuels, lubricants, coolants, and solvents from construction equipment could impact soils. Rockies Express has not identified the presence of any existing contaminated sites in the immediate project vicinity.

Rockies Express' Spill Prevention, Control and Countermeasures (SPCC Plan) includes clean-up procedures designed to minimize soil contamination that could result from accidental spills or leaks of fluids from construction-related equipment or materials. If an unanticipated area of suspected contamination is encountered during construction, Rockies Express would implement the procedures set

forth in the SPCC Plan to minimize the spread of contamination and to ensure the health and safety of construction workers and the general public.

4.2.1.3 Topsoil Segregation

In addition to erosion and compaction, construction activities such as grading, trenching, and backfilling can cause mixing of soil horizons. Mixing of topsoil with subsoil, particularly in agricultural lands, leaves less productive soil in the root zone, which lowers soil fertility and the ability of disturbed areas to revegetate successfully. To prevent or minimize the mixing of topsoil with subsoil, Rockies Express' Plan includes directives for topsoil segregation, including methods and locations where it is appropriate.

According to section IV.B.1 of its Plan, Rockies Express could use either full right-of-way topsoil stripping or the ditch-plus-spoil-side method in 1) actively cultivated or rotated croplands and pastures; 2) residential areas; 3) hayfields; and 4) other areas at the landowner's or land managing agency's request. Generally, the decision of which separation method to use is made by the landowner. However, Rockies Express proposes to only use the ditch-plus-spoil-side topsoil segregation method (except for certain instances where ditch-line only segregation is proposed--see our discussion of this proposal below). At the time of the draft EIS, Rockies Express had not presented any evidence that it has provided landowners an opportunity to choose their preferred method of topsoil stripping. We believe that landowners should be given this choice, especially due to the large amount of actively cultivated cropland crossed. Landowners should be aware that stripping and storing topsoil from the full work area would require a wider construction right-of-way (*e.g.*, 10 additional feet). Landowners choosing this method must grant Rockies Express a wider construction easement.

Rockies Express originally proposed to use ditch-line only topsoil stripping in CRP land, pasture, non-active agricultural areas, and on residential land (see appendix C-1, section IV.B.1.) as an alternative measure to the FERC Plan. We determined that Rockies Express's proposal would not provide an equal or greater level of protection to topsoil in these areas. In addition, we believe that the topsoil for CRP land should be handled as if it were actively cultivated land. Therefore, we recommended in the draft EIS that Rockies Express implement either full right-of-way topsoil stripping or the ditch-plus-spoil-side topsoil segregation method in CRP land, actively cultivated or rotated cropland and pastures, residential areas, and other areas at the landowner's or land managing agency's request.

In its comments on the draft EIS, Rockies Express committed to implement either full right-of-way topsoil stripping or the ditch-plus-spoil-side topsoil segregation method on CRP lands, actively cultivated or rotated cropland and pastures, residential areas, and other areas at the landowner's or land managing agency's request. We conclude that implementation of these measures would minimize impacts on soil resources that would be affected during construction.

Regarding the depth of topsoil, Rockies Express proposes to strip a maximum of 12 inches in actively cultivated or rotated croplands, and other areas as requested by landowners or land managing agencies. In areas where the topsoil is less than 12 inches, Rockies Express would attempt to segregate the entire topsoil depth. Rockies Express would protect the topsoil piles from loss or mixing with subsoil, being utilized as trench backfill or pipe padding, and from wind and water erosion as indicated its Plan.

We received several comments suggesting the benefit of stripping of topsoil to depths greater than 12 inches in active agricultural areas that exhibit deeper topsoil layers. Stripping topsoil to depths greater than 12 inches may require additional right-of-way width to provide storage for the larger topsoil piles, and may increase the overall impact of the project. We acknowledge that stripping topsoil to a deeper layer may be desirable to a landowner despite the potential increased width of the construction

right-of-way. Landowners may request additional topsoil segregation as a part of easement negotiations with Rockies Express.

Operating heavy equipment under wet soil conditions can cause deep soil compaction and topsoil/subsoil mixing in agricultural areas, especially where the ditch-plus-spoil-side topsoil segregation method is used. Under wet soil conditions, construction vehicles and heavy equipment could leave ruts and cause excessive soil compaction. Rockies Express would reduce rutting and compaction in agricultural and non-agricultural soils by implementing the procedures in its Plan, such as conducting compaction tests across the right-of-way using a cone penetrometer or other similar instrument and using a paraplow or other deep-tilling equipment in severely compacted agricultural areas. To further minimize the potential for soil impacts during wet conditions in agricultural areas, Rockies Express indicated that it would modify its construction practices by stopping construction activities that would cause irreparable rutting and mixing of the topsoil and subsoil. We believe that additional mitigation measures should be implemented to minimize these potential impacts, and recommended in the draft EIS that Rockies Express submit an Agricultural Wet Weather Contingency Plan that details proposed mitigation measures to protect soil resources.

In its comments on the draft EIS, Rockies Express stated that rutting can occur during both dry and wet weather conditions, is inevitable, and would occur on the REX-West Project to some degree. Rockies Express also contends that variable soil types would preclude the establishment of standard allowable rutting limits to prevent topsoil and subsoil mixing. Rockies Express has committed to the following additional preventative measures to keep topsoil from mixing with subsoil during construction in agricultural areas. These measures would include the following:

- The on-site AI for Rockies Express would have stop-activity authority in the event wet weather conditions place topsoil at risk.
- Topsoil should not be mixed with subsoil on agricultural lands.
- Construction activities that cause topsoil and subsoil mixing would be stopped to prevent further mixing.
- The AI would monitor the right-of-way conditions during construction activities. Should the AI determine that construction activities are, or have the potential to create rutting sufficient to mix topsoil with subsoil, construction activities in this area would cease until site conditions improve.
- Partial or full right-of-way topsoiling may be implemented as an alternative measure to enable construction to continue during unseasonably wet weather construction seasons.
- All areas would be restored during final cleanup activities to a condition comparable to that existing prior to construction. This would include the elimination of any rutting, and decompaction and/or revegetation where required.

Our review indicates that the measures proposed by Rockies Express represent a reasonable approach to minimizing impacts on soils in agricultural areas. Empowering the AIs to halt construction activities that could result in the mixing of subsoil with topsoil, the commitment to mitigate any mixing that does occur, and compensating landowners for any crop losses attributable to construction of the project would lessen potential impacts.

4.2.2 TransColorado

4.2.2.1 Soil Limitations

Table 4.2.2-1 provides a summary of the soil limitations crossed by the proposed Blanco to Meeker Project. Impacts associated with construction and operation of the aboveground facilities would be similar to those described above for pipeline facilities; however, impacts at these facilities would be permanent. No soils designated as prime farmlands or residential areas were identified at TransColorado's proposed aboveground facility locations. Likewise, no compaction-prone or hydric soils would be crossed.

Erosion Potential

As presented in table 4.2.2-1, the NRCS map units crossed by the TransColorado pipeline facilities contain soil types that are highly susceptible to wind erosion and water erosion. Erosion in these areas can be compounded by the poor re-vegetation potential of the soil. Clearing, grading, and equipment movement could accelerate the erosion process. Without adequate protection, this could lead to topsoil loss, reduced soil fertility, and discharge of sediment to sensitive areas. Sloping ground surfaces and soil storage piles would be most susceptible to water erosion resulting from pipeline construction.

TransColorado would implement the measures in the FERC Plan designed to control erosion and sedimentation during construction. Revegetation using seed mixtures recommended by the NRCS would stabilize soils when construction is completed. In its comments on the draft EIS, TransColorado agreed to apply water or a tackifier to topsoil piles to maintain a surface crust to minimize wind-blown losses during construction.

TABLE 4.2.2-1

Summary of Soil Limitations – Blanco to Meeker Project Facilities

Facility/(County)	Total Acres <u>a/</u>	Highly Water Erodible <u>b/</u>	Highly Wind Erodible <u>c/</u>	Prime Farmland <u>d/</u>	Compaction Prone <u>e/</u>	Stony- Rocky/ Droughty <u>f/</u>	Hydric <u>g/</u>	Shallow Bedrock <u>h/</u>
Colorado								
Greasewood Compressor Station (Rio Blanco) <u>i/</u>	0.7 / 0.7	Yes	No	No	No	Yes	No	Yes
Conn Creek Compressor Station (Garfield)	6.1 / 2.6	Yes	No	No	No	Yes	No	Yes
New Mexico (San Juan)								
Blanco Compressor Station	5.7 / 4.1	Yes	Yes	No	No	No	No	Yes
Receipt Pipeline	2.0 / 1.5	Yes	Yes	No	No	No	No	Yes
Lateral	0.1 / 0.1	Yes	Yes	No	No	No	No	Yes
<u>a/</u> Temporary / Permanent Disturbance								
<u>b/</u> One or more soils in map unit have soils with a Land Capability Class of 4E through 8E (as designated by the NRCS) and/or an average slope greater than 8 percent.								
<u>c/</u> One or more soils in map unit Wind Erodibility Group (WEG) classification of 1 or 2.								
<u>d/</u> One or more soils in map unit designated as prime farmland by the NRCS.								
<u>e/</u> One or more soils in map unit having clay loam or finer texture in somewhat poor, poor, or very poor drainage classes.								
<u>f/</u> One or more soils in map unit meeting criteria for stony-rocky or droughty soils. Stony-rocky includes soils that have either 1) a cobbly, stony, bouldery, gravelly, or shaly modifier to the textural class, or 2) have >5 percent (weight basis) of stones larger than 3 inches in the surface layer. Droughty includes coarse-textured soils (sandy loams and coarser) that are moderately well to excessively drained.								
<u>g/</u> One or more soils in map unit designated as hydric by the NRCS.								
<u>h/</u> One or more soils in map unit having bedrock within 60 inches of the soil surface.								
<u>i/</u> Construction would be an addition to an existing facility.								

No wetlands or perennial waterbodies have been identified within the construction locations; therefore, potential impacts from water erosion and sedimentation near waterbodies are not anticipated.

With the exception of surficial aquifers associated with drainage features, the regional water table occurs at sufficient depth so that interaction with groundwater from construction activities is not anticipated. If trench dewatering is required, the water would be pumped from the trench into stable upland areas to minimize soil erosion, in accordance with the Plan.

Map units having soils with high potential for water erosion were identified at all three of the compressor station sites. Map units having soils with high potential for wind erosion were identified at the Blanco Compressor Station in San Juan County, New Mexico. However, implementation of the measures in the Plan would minimize the potential for erosion at this location. In addition, because TransColorado would place gravel at all compressor sites after construction, we believe potential erosion impacts would be minimized.

Prime Farmland

None of the proposed TransColorado facilities would affect agricultural lands or soils designated as prime farmland.

Compaction Potential

None of the soils that would be crossed by the TransColorado facilities are highly susceptible to compaction. Due to the granular nature of the majority of the soils encountered in the project vicinity, soil compaction is not anticipated to be a significant concern for the TransColorado facilities.

Stony-Rocky or Droughty Soils

All of the NRCS map units crossed by TransColorado pipeline facilities contain soils that are stony-rocky or droughty. Construction through stony-rocky soil could bring rock to the surface, which could hinder revegetation of the right-of-way. The Plan requires the removal of excess stones and rock in areas where soils off the right-of-way do not contain similar materials. Droughty soils may not be able to sustain adequate moisture levels in the root zone, also making revegetation difficult. We conclude that implementation of the mitigation measures contained in the Plan would minimize impacts from construction through stony-rocky and droughty soils.

Hydric Soils

None of the soils crossed by the TransColorado pipeline facilities are designated as hydric soils.

Shallow Bedrock

All of the NRCS map units crossed by TransColorado pipeline facilities contain soils that are indicated as having the potential for shallow bedrock. Blasting is not anticipated to be required during construction of the TransColorado facilities. Should blasting be necessary, it would be conducted in accordance with all appropriate federal, state, and local requirements.

4.2.2.2 Spill/Contamination Prevention

The TransColorado Spill Prevention and Response Plan (SPR Plan) includes cleanup procedures designed to minimize soil contamination that could result from accidental spills or leaks of fluids from construction-related equipment or materials.

4.2.2.3 Topsoil Segregation

To protect topsoil during trenching, TransColorado proposes to implement topsoil segregation in accordance with the FERC Plan. The Blanco to Meeker Project does not cross any agricultural land; however, TransColorado would segregate topsoil as requested by landowners and/or BLM along its receipt pipeline that would connect the existing Conoco Gas Plant to TransColorado's proposed Blanco Compressor Station. TransColorado would be required to protect topsoil piles at all times from loss or mixing with subsoil, being utilized as trench backfill or pipe padding, and from wind and water erosion as indicated in the Plan.

4.2.3 Overthrust

4.2.3.1 Soil Limitations

Table 4.2.3-1 provides a summary of the soils and soil limitations crossed by the proposed Wamsutter Expansion Project, and table 4.2.3-2 provides a summary of topsoil depth and slope classes. Sensitive soils crossed by the proposed pipeline are discussed below. Table 4.2.3-3 provides a summary of the soil limitations associated with the aboveground facilities. Impacts associated with construction and operation of the aboveground facilities would be similar to those described above for pipeline facilities; however, impacts at these facilities would be permanent.

MPs ^{OT}	Total Acreage	Water Erodible <u>b/</u>	Wind Erodible <u>c/</u>	Hydric <u>d/</u>	Stony/ Rocky <u>e/</u>	Shallow to Bedrock <u>f/</u>	Droughty Soils <u>g/</u>
0.0 -1.2	16.1	14.4	0.8	0.0	1.6	13.6	1.6
1.2 – 3.5	31.0	29.5	1.6	0.0	4.7	27.9	6.2
3.5 – 11.1	100.6	90.5	5.0	0.0	10.1	85.5	10.1
11.1 – 13.5	31.7	1.3	5.4	3.2	0.0	0.0	2.2
13.5 – 19.7	83.3	74.9	4.2	0.0	8.3	70.8	8.3
19.7 – 21.4	22.7	0.9	3.9	2.3	0.0	0.0	1.6
21.4 – 23.4	26.6	23.9	1.3	0.0	2.7	22.6	2.7
23.4 – 24.7	17.5	16.6	0.9	0.0	2.6	15.7	3.5
24.7 – 26.5	24.2	21.8	1.2	0.0	2.4	20.6	2.4
26.5 – 28.8	30.7	29.1	1.5	0.0	4.6	27.6	6.1
28.8 – 31.1	30.3	1.2	5.2	3.0	0.0	0.0	2.1
31.1 – 34.7	48.0	45.6	2.4	0.0	7.2	43.2	9.6
34.7 – 39.1	58.7	52.8	2.9	0.0	5.9	49.9	5.9
39.1 – 41.6	32.9	1.3	5.6	3.3	0.0	0.0	2.3
41.6 – 55.0	179.1	161.2	9.0	0.0	17.9	152.2	17.9
55.0 – 57.8	37.7	35.1	9.4	0.0	5.7	19.6	1.5
57.8 – 69.7	158.1	142.2	7.9	0.0	15.8	134.3	15.8
69.7 – 71.9	29.0	2.9	0.0	0.0	0.0	0.0	2.9
71.9 – 72.5	8.8	5.7	2.2	0.0	1.8	1.8	8.4
72.5 – 77.2	63.1	6.3	0.0	0.0	0.0	0.0	6.3
Total Acres	1,029.9	757.4	70.3	11.8	91.1	685.4	117.4
Percent of Total		74	7	1	9	67	11

a/ Acreage is based on a 110-foot-wide construction right-of-way and does not include access roads or temporary extra workspace. Values within a row may not sum to the total listed because soils may occur in more than one characteristic class or may not occur in any class listed in the table. No compaction-prone or prime farmland soils were identified.

b/ Includes soils with a Land Capability Class of 4 thru 8 and a subclass of E (as designated by the NRCS) and/or a slope of greater than 8 percent.

c/ Includes soils with a Wind Erodibility Group classification of 1 or 2 (as designated by the NRCS), which indicates a susceptibility to erosion by wind.

d/ As designated by the NRCS.

e/ Soils that have a cobbly, stony, bouldery, gravelly, or shaly modifier to the textural class of the surface layer or have a surface layer that contains greater than 5 percent (weight basis) stones larger than 3 inches.

f/ Soils with bedrock at a depth of less than 5 feet from the surface.

g/ Includes soils with a sandy loam or coarser surface texture that are moderately well drained, well drained, somewhat excessively drained, or excessively drained.

TABLE 4.2.3-2

Topsoil Depth and Slope Class Along the Wamsutter Expansion Pipeline a/

MPs ^{OT}	Total Acres	Topsoil Depth (inches)					Slope Class (%)				
		0-6	>6-12	>12-18	>18-24	>24	0-5	>5-8	>8-15	>15-30	>30
		Acres									
0.0 – 1.2	16.1	12.8	0.0	3.2	0.0	0.0	4.8	1.6	4.0	4.8	0.8
1.2 – 3.5	31.0	80.5	0.0	20.1	0.0	0.0	1.6	0.0	9.3	9.3	10.9
3.5 – 11.1	100.6	66.6	0.0	16.7	0.0	0.0	30.2	10.1	25.2	30.2	5.0
11.1 – 13.5	31.7	21.3	0.0	5.3	0.0	0.0	31.1	0.0	0.6	0.0	0.0
13.5 – 19.7	83.3	19.4	0.0	4.8	0.0	0.0	25.0	8.3	20.8	25.0	4.2
19.7 – 21.4	22.7	46.9	0.0	11.7	0.0	0.0	22.2	0.0	0.5	0.0	0.0
21.4 – 23.4	26.6	143.3	0.0	35.8	0.0	0.0	8.0	2.7	6.6	8.0	1.3
23.4 – 24.7	17.5	126.4	0.0	31.6	0.0	0.0	0.9	0.0	5.2	5.2	6.1
24.7 – 26.5	24.2	5.6	3.3	0.0	0.0	0.0	7.3	2.4	6.1	7.3	1.2
26.5 – 28.8	30.7	7.3	21.8	0.0	0.0	0.0	1.5	0.0	9.2	9.2	10.7
28.8 – 31.1	30.3	15.8	47.3	0.0	0.0	0.0	29.7	0.0	0.6	0.0	0.0
31.1 – 34.7	48.0	24.8	3.1	3.1	0.0	0.0	2.4	0.0	14.4	14.4	16.8
34.7 – 39.1	58.7	14.0	1.7	1.7	0.0	0.0	17.6	5.9	14.7	17.6	2.9
39.1 – 41.6	32.9	24.5	3.1	3.1	0.0	0.0	32.2	0.0	0.7	0.0	0.0
41.6 – 55.0	179.1	38.4	4.8	4.8	0.0	0.0	53.7	17.9	44.8	53.7	9.0
55.0 – 57.8	37.7	15.2	16.5	0.0	0.0	0.0	20.4	0.0	17.0	0.0	0.4
57.8 – 69.7	158.1	10.9	11.8	0.0	0.0	0.0	47.4	15.8	39.5	47.4	7.9
69.7 – 71.9	29.0	14.5	15.8	0.0	0.0	0.0	29.0	0.0	0.0	0.0	0.0
71.9 – 72.5	8.8	15.8	17.1	0.0	0.0	0.0	8.4	0.3	0.2	0.0	0.0
72.5 – 77.2	63.1	23.8	3.8	10.2	0.0	0.0	63.1	0.0	0.0	0.0	0.0
	Total	727.7	150.0	152.2	0.0	0.0	436.4	64.9	219.3	232.1	77.2
	Percent of Total	71	14	15	0	0	43	6	21	23	7

a/ Acreage is based on a 110-foot-wide construction right-of-way and does not include atypical right-of-way, access roads, or temporary extra workspace.

TABLE 4.2.3-3

Summary of Soil Limitations – Wamsutter Expansion Project Aboveground Facilities a/

Facility/ (County)	Total Acres	Highly Water Erodible <u>b/</u>	Highly Wind Erodible <u>c/</u>	Prime Farmland <u>d/</u>	Compaction Prone <u>e/</u>	Stony- Rocky/ Droughty <u>f/</u>	Hydric <u>g/</u>	Shallow Bedrock <u>h/</u>
Wyoming								
Roberson Compressor Station (Lincoln)	7.6	Yes	Yes	No	No	No	No	No
Rock Springs Compressor Station (Sweetwater)	5.9	Yes	Yes	No	No	Yes	No	Yes
Wamsutter Delivery Point (Sweetwater) <u>b/</u>	1.4	Yes	No	No	No	Yes	No	No
<p><u>a/</u> Opal receipt points not included as they will be located within fenced and graveled sites constructed for other projects. Block valve locations are not included in summary as they will be located within the permanent right-of-way.</p> <p><u>b/</u> One or more soils in map unit have soils with a Land Capability Class of 4E through 8E (as designated by the NRCS) or an average slope greater than 8 percent.</p> <p><u>c/</u> One or more soils in map unit have Wind Erodibility Group classification of 1 or 2.</p> <p><u>d/</u> One or more soils in map unit designated as prime farmland by the NRCS.</p> <p><u>e/</u> One or more soils in map unit having fine texture in somewhat poor, poor, or very poor drainage classes.</p> <p><u>f/</u> One or more soils in map unit meeting criteria for stony-rocky or droughty soils.</p> <p><u>g/</u> One or more soils in map unit designated as hydric by the NRCS.</p> <p><u>h/</u> One or more soils in map unit having bedrock within 60 inches of the soil surface.</p>								

Erosion Potential

The majority of the proposed Wamsutter Expansion pipeline route crosses range and shrublands on gently rolling to moderately steep slopes that are highly erodible. Of the total 1,170.8 acres potentially affected by pipeline construction, the majority (757.4 acres, or 74 percent) are considered highly water erodible. About 7 percent (70.3 acres) of soils along the route are highly wind erodible. Removal of vegetation and topsoil increases the likelihood of erosion by wind or water. About 42 percent (436.4 acres) of the soils along the route have average slope-ranges in the 0 to 5 percent category. Fifty percent of the remaining soils range from greater than 5 percent to 30 percent slope (516.3 acres). About 7 percent of soils have slopes greater than 30 percent (77.2 acres).

The majority of the soils within the compressor station sites are considered susceptible to erosion by water (12.1 acres). In addition, about 2.7 acres of the soils within the Roberson Compressor Station site are considered susceptible to erosion by wind.

Topsoil losses reduce soil productivity, which results in further erosion. Overthrust would control erosion and sedimentation by a variety of different methods as discussed in the Plan, Procedures, and the POD. Temporary slope breakers, permanent slope breakers, sediment barriers, and mulches are some of the practices that would be implemented as erosion and sedimentation control.

In areas susceptible to erosion, it is anticipated that the soil covering the pipeline could be severely eroded and could compromise restoration over time.

Prime Farmland

None of the Overthrust's proposed facilities would affect agricultural lands or soils designated as prime farmland.

Compaction Potential

No compaction-prone soils were identified along the Wamsutter Expansion Project.

Stony-Rocky or Droughty Soils

About 9 percent of the pipeline route contains soils with substantial rocks and stones in the surface soil horizons, and about 11 percent (117.4 acres) are inherently droughty. During construction, Overthrust would minimize the introduction of subsoil rock into topsoil by separating topsoil from subsoil. Also, the amount of rock on the right-of-way after construction would be similar to or less than the area adjacent to the right-of-way. Where necessary, excess rock would be hauled off the right-of-way and disposed of at an approved off-site facility. To mitigate the adverse effects of pipeline construction on droughty soils that are not under cultivation and to assist with revegetation efforts, Overthrust would apply mulch and stabilize the soil surface to minimize wind erosion and to conserve soil moisture.

Hydric Soils

Pipeline construction would affect about 11.8 acres of hydric soils. Construction through hydric soils and wetlands is discussed in section 4.3.3.4 of this EIS. Implementation of the measures contained in the Plan and Procedures would also minimize impacts to hydric soils.

Shallow Bedrock

Soils containing shallow bedrock occupy about 67 percent (685.4 acres) of the proposed pipeline route. About 9 percent of the total acreage of shallow bedrock is designated as hard rock that could require blasting. The remaining areas of shallow bedrock are soft enough to be ripped with backhoes or bulldozers equipped with rippers. Implementation of Overthrust's Blasting Plan would minimize affects of blasting.

4.2.3.2 Spill/Contamination Prevention

Overthrust would develop a SPCC Plan that specifies cleanup procedures in the event of soil contamination from spills or leaks of fuels, lubricants, coolants, or solvents. Overthrust would be required to clean up spills in accordance with its SPCC Plan.

There are currently no known contaminated sites crossed by the proposed pipeline route or affected by aboveground and ancillary facilities. Overthrust reviewed the Voluntary Remediation Program (VRP) database and the Solid Hazardous Waste Division database of the Wyoming Department of Environmental Quality (WDEQ). Based on a review of the VRP list, no sites were identified within 1 mile of the project area. Review of the Solid Hazardous Waste Division database identified the Rock Springs landfill and transfer station as approximately 500 feet south of MP^{OT} 1.5.

If contaminated or suspect soils (*e.g.*, hydrocarbon contamination) are identified during trenching operations, Overthrust would contact the appropriate federal and state agency in adherence to the notification procedures outlined in its SPCC Plan. Work in the area of the suspected contamination would be halted until the type and extent of the contamination was determined. The type and extent of

contamination, the responsible party, and local, state, and federal regulations would determine the appropriate cleanup method(s) for these areas.

4.2.3.3 Topsoil Segregation

During construction across BLM and state-owned lands, and subject to the approval of the land managing agency, Overthrust proposes to strip and segregate topsoil from either the full work area or from the trench and subsoil storage area (ditch-plus-spoil-side method) in actively cultivated or rotated croplands and pastures, residential areas, hayfields, and other areas at the landowner's or land managing agency's request. In areas where the topsoil is less than or equal to 6 inches deep, Overthrust would attempt to strip the full topsoil layer. In areas where the topsoil layer is greater than 6 inches deep, Overthrust would strip at least 6 inches of topsoil. The stripped topsoil would be stored separately and not allowed to mix with trench spoil. To further minimize potential impacts on soil resources, topsoil would not be stripped from areas used for subsoil stockpiles.

Overthrust has committed to replace or repair any drain tiles damaged by construction activities in accordance with its Plan. Overthrust would maintain water flow to irrigation systems throughout construction unless landowner permission is obtained to temporarily interrupt water flow. If damage to irrigation systems occurs during construction, Overthrust would restore or repair the damage. Trench backfilling would be conducted in lifts, with water additions and compaction between lifts to minimize settling and misdirection of irrigation flows.

4.3 WATER RESOURCES

4.3.1 Rockies Express

4.3.1.1 Groundwater Resources

Aquifers within the REX-West Project area include large scale systems formed in unconsolidated sedimentary deposits and bedrock formations, to waterbearing zones of relatively small extent in glacial deposits, to alluvial deposits along streams and rivers. Major regional aquifers along the project route are discussed below.

The major aquifer system underlying the Wamsutter Compressor Station and the proposed Echo Springs facilities is the Upper Cretaceous Aquifer. Much of northwestern Colorado and southern Wyoming contributes to this aquifer. Consolidated sandstone interbedded with shale, siltstone, and occasional lenticular beds of coal comprise the aquifer. Fractures, bedding planes, and joints transmit most of the water; however, most of the water is held in the interstitial spaces between individual grains of sand in the sandstone. Depth to groundwater may range from less than 800 feet deep to up to 3,000 feet, and water production ranges from 5 to 50 gallons per minute (gpm) (USGS 1996).

The major aquifer system underlying the Meeker Compressor Station is the Uinta-Animas Aquifer. Water can be at the surface in valleys; however, depth to water generally ranges from 0 to 500 feet (USGS 1996). Flow rates of wells in the aquifer are generally about 20 gpm, with some as high as 100 gpm.

The High Plains Aquifer is the major aquifer that would be crossed by Rockies Express' proposed pipeline route in Colorado, Nebraska, and Kansas including the proposed Cheyenne, Julesburg, Steele City, and Turney Compressor Stations. This aquifer underlies large portions of eastern Colorado, most of Nebraska, and western/central Kansas. It is a major source of water for agriculture in all three states. The High Plains Aquifer consists of near-surface deposits of unconsolidated to partially consolidated gravel, sand, silt, and clay that range in age from late Tertiary to Quaternary. The uppermost waterbearing zone in northeastern Colorado, southeastern Wyoming, and western Nebraska is the Brule Formation, which outcrops along the right-of-way near the Nebraska state line (MP 144). However, the principal geologic unit in the High Plains Aquifer in Nebraska and western Kansas is the Ogallala Formation, which mostly consists of unconsolidated sand and gravel. (Locally, the High Plains Aquifer is called the Ogallala Aquifer). The Ogallala Aquifer formation is the most significant groundwater source in western and central Nebraska and is used for irrigation and domestic and municipal water supply. Long-term water table decline in the High Plains system has been a continuing problem for more than 50 years. In parts of western Nebraska, water tables have dropped 10 to 50 feet since the initiation of irrigation withdrawals.

The REX-West pipeline route would also cross a surficial aquifer associated with the South Platte River in Colorado and Nebraska. The surficial aquifer along this river consists of Quaternary-aged deposits of alluvial gravel, sand, silt, and clay or Quaternary deposits of eolian sand and silt. The aquifer ranges from 20 to 200 feet in thickness and varies from 1 to 15 miles in width. Near the river, groundwater is close to the land surface, but it increases in depth toward the edges of the river valley. In general, groundwater depths range from less than 5 feet to 200 feet.

Aquifer systems underlying the pipeline route from Thayer County, Nebraska (MP 390) to the pipeline terminus in Audrain County, Missouri include a combination of glacial drift aquifers, streamlain alluvial aquifers, and bedrock aquifers. In the glacial aquifer zones, the depth to water and the quantity and quality of groundwater are extremely variable and generally reflect the surface topography. Depth to groundwater can range from approximately 50 feet to 100 feet or more. Streamlain alluvial aquifers are

unconsolidated deposits of sand and gravel along stream channels, where depth to groundwater is typically less than 10 feet. Examples of where these aquifers occur include the Little Blue River, the Big Blue River, the Missouri River, the Platte River, the Grand River, and the Chariton River drainages. Bedrock aquifers consist of upper Cretaceous sedimentary formations in southeastern Nebraska and sandstone and limestone of varying ages in Missouri. Water depths can range from 10 feet to 200 feet.

None of the aquifers crossed by the proposed REX-West route have been identified as EPA-designated sole-source aquifers. The EPA defines a sole- or principal-source aquifer as one that supplies at least 50 percent of the drinking water consumed in the area overlying the aquifer. The EPA guidelines also stipulate that these areas can have no alternative drinking water source(s), which could physically, legally, and economically supply all those who depend upon the aquifer for drinking water.

Two state groundwater management districts in Colorado and eight state groundwater management areas in Nebraska are crossed by the proposed pipeline route (table 4.3.1-1). These management districts/areas are designated to administer groundwater withdrawals and conduct water quantity and quality investigations within their jurisdictions. No groundwater management districts/areas are crossed by the pipeline route in Wyoming, Kansas, or Missouri.

Name	County, State	Management District Headquarters	Approximate MP Range
Upper Crow Creek	Weld, CO	Denver, CO	22 – 34
South Platte	Kimball, NE	Sidney, NE	40 – 55
Marks Butte	Sedgwick, CO	Holyoke, CO	120– 140
Upper Republican	Perkins, NE	Imperial, NE	140 – 185
Middle Republican	Lincoln, NE	Curtis, NE	185 – 240
Central Platte	Dawson, Frontier	Grand Island NE	240 – 260
Tri-Basin	Gosper, Phelps, Kearney, NE	Holdrege, NE	260 – 315
Lower Republican	Franklin, Webster, NE	Alma, NE	315 – 370
Little Blue	Webster, Nuckolls, Thayer, Jefferson, NE	Davenport, NE	370 – 430
Lower Big Blue	Gage, NE	Beatrice, NE	430 – 435

Construction activities, including clearing, trench excavation and dewatering, fuel handling, and blasting could affect groundwater in several ways. Clearing and grading removes vegetation that provides filtration and slows surface runoff. In addition, heavy equipment used for construction could compact the soil along the right-of-way, slowing the rate of recharge to the groundwater.

Groundwater impacts during construction would be minimized or avoided by the use of construction practices outlined in Rockies Express’ Plan and Procedures. Ground disturbance during construction would be limited to approximately 8 feet or less below ground surface. This is above most surficial aquifers and wells that could be installed within a shallow aquifer. For this reason, construction effects on deep aquifers near the construction area are not likely.

Areas of shallow groundwater (*e.g.*, near wetlands or waterways) could be encountered. Construction activities could affect shallow groundwater systems proximal to the construction activity by increasing total suspended solid levels and/or fluctuating the level of the water table (*e.g.*, drawdown) near the construction area. Impacts on shallow groundwater systems are anticipated to be temporary, since shallow aquifers typically recharge quickly due to rapid groundwater movement. Effects from construction of the pipeline would likely be temporary, and the shallow groundwater system would

recover to equilibrium quickly. Impacts from construction activities such as trenching and dewatering are likewise anticipated to be localized and temporary.

A major use of water during project construction is for dust control. Rockies Express has not specified the source of water to be used for dust control, or whether groundwater would be used for this purpose. Based on a review of data published by the National Drought Mitigation Center, portions of Wyoming, Colorado, and western Nebraska are currently experiencing moderate to extreme drought conditions. The use of water for dust control purposes could stress the already limited water supply in these areas. As such, local water sources may not be available for dust control purposes, thus requiring Rockies Express to make other arrangements, such as trucking in water from approved sources.

Upon completion of construction, Rockies Express would restore the ground surface as closely as practicable to pre-construction contours and revegetate the right-of-way to ensure restoration of preconstruction overland flow and recharge patterns. Rockies Express would alleviate soil compaction by implementation of its Plan, which provides for testing and decompaction measures (see section 4.2.1.1). Impacts from compaction would be localized and temporary. The area of potential compaction would be small compared to the total recharge area.

Some landowners along the proposed pipeline route expressed concern that the pipeline would change drainage patterns on their property within or near the right-of-way. Rockies Express' Procedures detail measures to be implemented to mitigate for potential impacts resulting from dewatering, excavation, excessive soil compaction, and removal of vegetation within construction areas, and require the construction area to be restored to pre-construction conditions. Although drainage patterns could be changed during construction, these impacts would be localized and temporary. Rockies Express' Plan details measures to be implemented to mitigate for changes in drainage patterns. These measures include restoration, monitoring, and correction of drainage and irrigation system problems that have resulted from pipeline construction in active agricultural areas.

Construction of the pipeline necessitates the use of heavy equipment and associated fuels, lubricants, and other potentially hazardous substances that, if spilled, could affect shallow groundwater and/or unconsolidated aquifers. Potential contamination due to accidental spills or leaks of hazardous materials associated with vehicle fueling, vehicle maintenance, and construction materials storage presents the greatest potential threat to groundwater resources. Potential impacts on groundwater resources can be avoided or minimized by restricting the location of refueling locations and storage facilities and by requiring prompt clean-up in the event of a spill or leak.

Rockies Express developed a SPCC Plan to address preventative and mitigative measures that would be used to avoid or minimize the potential impacts of hazardous material spills during construction. The SPCC Plan specifies preventative measures such as spill training for construction personnel, regular inspection of construction equipment for leaks, and construction of containment systems around hazardous liquids storage facilities. Rockies Express' SPCC Plan also restricts refueling or other liquid transfer areas within 100 feet of wetlands and waterbodies, prohibits refueling within 150 feet of any water supply well, and provides additional precautions when specified setbacks cannot be maintained. The SPCC Plan identifies emergency response procedures, equipment, and clean-up measures in the event of a spill, and requires the contractor to complete an inventory of all construction fuels, lubricants, and other hazardous materials that may be used or stored in designated project areas. We have reviewed Rockies Express' SPCC Plan and find that it adequately addresses the storage and transfer of hazardous materials and the response to be taken in the event of a spill. We conclude that the potential for the REX-West Project to contaminate local aquifers would be minimal.

Water Supply Wells and Springs

Rockies Express has conducted a GIS-level analysis of water supply wells in the REX-West Project area and has identified a total of 110 potential well sites in the vicinity of the proposed route. According to the GIS data, the pipeline right-of-way would cross within 150 feet of 7 water wells in Colorado, 17 water wells in Nebraska, and 1 water well in Missouri (see table 4.3.1-2). Rockies Express is currently in the process of field verifying the occurrence and locations of active wells within 150 feet of its proposed mainline and Echo Springs Lateral rights-of-way. Rockies Express will file this information along with any site-specific mitigation measures prior to construction.

TABLE 4.3.1-2				
Water Supply Wells in the Vicinity of the Proposed REX-West Pipeline				
State	County	Approximate MP	Well Use	Distance and Direction from Centerline
Colorado	Weld	2.7	Stock	ND
	Weld	28.1	Stock	ND
	Weld	41.1	Stock	ND
	Logan	75.4	Stock	ND
	Logan	98.4	Stock	ND
	Sedgwick	121.3	Unknown	ND
	Sedgwick	132.2	Spring	ND
	Sedgwick	135.0	Domestic, Stock	ND
Nebraska	Perkins	149.2	ND	138 feet south
	Perkins	172.5	ND	135 feet south
	Perkins	174.9	ND	441 feet south
	Perkins	176.7	ND	58 feet north
	Lincoln	194.3	ND	526 feet south
	Lincoln	211.2	ND	282 feet south
	Lincoln	212.7	ND	191 feet south
	Lincoln	229.5	ND	116 feet south
	Lincoln	231.7	ND	674 feet north
	Lincoln	236.5	Windmill	119 feet north
	Lincoln	237.1	Windmill	174 feet north
	Lincoln	238.9	ND	72 feet north
	Lincoln	245.6	ND	166 feet north
	Frontier	247.4	ND	238 feet south
	Frontier	255.4	ND	93 feet north
	Frontier	255.8	ND	272 feet south
	Frontier	257.7	ND	434 feet north
	Phelps	282.8	ND	167 feet south
	Phelps	284.1	ND	505 feet north
	Phelps	284.8	ND	39 feet north
	Phelps	285.1	ND	377 feet north
	Phelps	285.6	ND	814 feet south
	Phelps	287.2	ND	39 feet south
	Phelps	287.7	ND	29 feet south
	Phelps	288.3	ND	79 feet south
	Phelps	288.4	ND	433 feet north
	Phelps	288.7	ND	495 feet south
	Phelps	288.9	ND	169 feet north
	Phelps	289.4	ND	251 feet north
	Phelps	290.9	ND	180 feet south
	Kearney	309.1	ND	44 feet south
	Kearney	309.8	ND	51 feet north
	Kearney	312.4	ND	83 feet south
Nuckolls	377.3	ND	138 feet north	
Thayer	383.8	ND	73 feet north	
Thayer	388.3	ND	34 feet north	

TABLE 4.3.1-2 (Continued)

Water Supply Wells in the Vicinity of the Proposed REX-West Pipeline

State	County	Approximate MP	Well Use	Distance and Direction from Centerline
Kansas	Thayer	393.8	Unknown	ND
	Marshall	440.2	Domestic	ND
	Marshall	441.1	Domestic	ND
	Marshall	442.0	Stock	ND
	Marshall	442.1	Unknown	ND
	Marshall	442.9	Domestic	ND
	Marshall	445.3	Domestic	ND
	Marshall	445.3	Unknown	ND
	Nemaha	468.5	Stock	ND
	Nemaha	469.1	Domestic	ND
	Nemaha	471.4	Unused	ND
	Nemaha	474.3	Domestic	ND
	Nemaha	475.4	Domestic	ND
	Nemaha	476.2	Stock	ND
	Nemaha	477.4	Domestic	ND
	Nemaha	477.7	Domestic	ND
	Nemaha	478.4	Domestic	ND
	Nemaha	478.7	Unused	ND
	Nemaha	479.4	Domestic	ND
	Nemaha	480.1	Unused	ND
	Nemaha	480.1	Domestic	ND
	Nemaha	480.1	Domestic	ND
	Nemaha	483.9	Unused	ND
	Nemaha	485.7	Unused	ND
	Nemaha	488.6	Domestic	ND
	Nemaha	488.6	Unused	ND
	Brown	496.3	Unused	ND
	Brown	502.3	Domestic	ND
	Brown	506.6	Unknown	ND
	Brown	513.4	Domestic	ND
	Doniphan	516.8	Domestic	ND
	Doniphan	517.2	Unused	ND
	Doniphan	518.9	Domestic	ND
Doniphan	519.6	Domestic	ND	
Doniphan	523.1	Unused	ND	
Doniphan	524.7	Public Supply	ND	
Doniphan	524.8	Domestic	ND	
Doniphan	527.0	Unused	ND	
Doniphan	527.4	Domestic	ND	
Doniphan	529.2	Domestic	ND	
Doniphan	531.8	Unused	ND	
Doniphan	532.1	Domestic	ND	
Doniphan	532.1	Domestic	ND	
Doniphan	532.4	Stock	ND	
Doniphan	533.7	Domestic	ND	
Doniphan	534.2	Domestic	ND	
Doniphan	534.3	Unused	ND	
Missouri	Buchanan	549.5	Domestic	ND
	Clinton	560.4	Domestic	ND
	Clinton	561.9	Domestic	ND
	Clinton	568.3	Domestic	ND
	Clinton	577.8	Domestic	ND
	Caldwell	582.6	Domestic	ND
	Caldwell	583.9	Domestic	ND
	Caldwell	587.4	Domestic	ND
	Caldwell	601.6	Domestic	ND
	Carroll	604.2	Domestic	ND
	Carroll	607.2	Domestic	ND
	Carroll	608.0	Domestic	ND
	Carroll	619.3	Unknown	39 feet north
	Carroll	625.8	Spring	ND

TABLE 4.3.1-2 (Continued)

Water Supply Wells in the Vicinity of the Proposed REX-West Pipeline				
State	County	Approximate MP	Well Use	Distance and Direction from Centerline
Missouri (Cont'd)	Randolph	680.7	Unknown	336 feet north
	Audrain	683.2	Domestic	ND
	Audrain	693.2	Domestic	ND
	Audrain	694.1	Domestic	ND
	Audrain	706.6	Domestic	ND
<u>a/</u> ND – No Data. Rockies Express will file additional information once field verifications are complete.				

Potential impacts on wells and springs within 150 feet of the construction right-of-way could include localized decreases in groundwater recharge rates, changes to overland water flow, contamination due to hazardous materials spills, decreased well yields, decreased water quality (such as an increase in turbidity or odor in the water), interference with well mechanics, or complete disruption of the well. These impacts could result from trenching, equipment traffic, or blasting.

Rockies Express notes that most of the existing wells located along the proposed right-of-way would not be susceptible to observable decreases in groundwater recharge. Many of these wells are completed in bedrock aquifers or other groundwater-bearing zones at depths over 100 feet. Others in alluvial settings are recharged within the setting of river and stream deposits. Recharge to these aquifers occurs over a much wider source area than would be affected by pipeline clearing and trenching. Trench backfill and compaction mitigation, along with implementation of site restoration, storm water pollution prevention, and spill prevention, control, and cleanup activities, would avoid or minimize potential impacts on groundwater recharge and water quality.

Rockies Express would also prohibit the refueling and storage of hazardous materials within 150 feet of all identified wells and springs. In addition, Rockies Express has committed to documenting the condition (*i.e.*, water quality and flow evaluations) of potable water wells within 150 feet of the construction right-of-way prior to the start of construction and after construction is completed. In the event that a potable water well is damaged by construction activities, Rockies Express would provide a temporary source of water and would restore the well to its original capacity or provide other mutually agreeable remedies.

To protect agricultural water supplies during construction, Rockies Express would identify the location of agricultural water supplies and maintain safe operations if construction activities occur near the supply. Should damage occur to agricultural water supplies, Rockies Express would provide a temporary source of water and restore the original source, to the maximum extent possible. Rockies Express would adhere to mutually agreed upon damage remedies that would be specified in individual easement agreement with the landowner.

Rockies Express does not expect to conduct any blasting during construction. Based on our recommendation in section 4.1.1.1, if blasting is required for any portion of the REX-West Project, Rockies Express would submit a blasting plan for review and approval by the Director of OEP prior to any blasting activity.

Rockies Express identified a number of public water supply systems and 29 wellhead protection areas (WHPAs) along the proposed route (table 4.3.1-3). Based on additional consultations, Rockies

Express determined that there would be no WHPAs located in the vicinity of the project route in Wyoming or Kansas.

State	Community or Name	Approximate MP	Centerline Distance from Feature (feet)
Colorado	Herreford	26.6	5,491
	Sedgwick	123.3	2,429
Nebraska	Kenton Heights	164.0	1,706
	Wallace	194.2	2,231
	Elwood	267.0	3,576
	Bertrand	280.4	1,040
	Wilcox	306.7	3,871
	Hildreth	312.9	6,955
	Upland	321.7	7,825
	Deshler	386.6	1,706
	Hebron	392.3	246
	Reynolds	406.8	6,480
	Fairbury	408.8	19,029
	Steele City	424.5	1,083
	Missouri	Watershed for Smithville Reservoir	564.8
Clinton County		571.6	863
Livingston County		603.9	2,693
Chariton County		635.6	2,211
Keytesville		647.4	5,089
Keytesville		647.5	4,873
Keytesville		647.6	4,287
Keytesville		647.8	2,580
Salisbury		651.0	367
Salisbury		651.1	226
Salisbury		651.3	1,959
Thomas Hill PWSD #1		673.5	4,385
Thomas Hill PWSD #1		673.5	4,416
Thomas Hill PWSD #1	673.5	4,358	
National Refractories & Mineral	708.0	2,935	

Based on the additional consultations conducted by Rockies Express, no additional special construction practices would be required for the crossings of WHPAs by the project beyond those contained in Rockies Express' Plan and Procedures. We conclude that adherence to and implementation of the measures contained in Rockies Express' Plan and Procedures, as described above, would minimize potential construction-related impacts on public water supply resources.

4.3.1.2 Surface Water Resources

The REX-West Project would cross eight major drainage basins. The proposed mainline would cross seven river basins: the South Platte, Republican, Platte, Kansas/Lower Republican, Missouri/Nishnabotna, Lower Missouri/Chariton/Grand, and the Upper Mississippi/Salt. The Echo Springs Lateral route would be located entirely within the Great Divide Basin. Table 4.3.1-4 provides the approximate location by milepost and description of each river basin.

TABLE 4.3.1-4

Major River Basins Crossed by the REX-West Project

River Basin	Approx. MP Range	Description
South Platte	0 – 129	The South Platte River Basin has a drainage area of about 24,300 square miles and is located in parts of three States; Colorado (79 percent of the basin), Nebraska (15 percent of the basin), and Wyoming (6 percent of the basin). The South Platte River originates in the mountains of central Colorado at the Continental Divide and flows about 450 miles northeast across the Great Plains to its confluence with the North Platte River at North Platte, Nebraska.
Republican	129 – 242, 282 – 323	The Republican River Basin has a drainage area of about 24,900 square miles and is located in parts of three states; Colorado, Nebraska, and Kansas. The major tributaries to the main branch of the Republican River originate in the mountains of central Colorado, and the Republican river flows east across the Great Plains to its confluence with the Kansas River near Junction City, Kansas.
Platte	242 – 282	The Platte River Basin has a drainage area of about 8,160 square miles. It begins near North Platte, Nebraska, where the South Platte and North Platte Rivers converge, and flows east for about 310 miles to its confluence with the Missouri River near Plattsmouth, Nebraska.
Kansas/Lower Republican	323 – 462	The Kansas/Lower Republican River Basin is located in northeastern Kansas and covers approximately 10,500 square miles. It begins near Junction City, Kansas, where the Republican River and Smoky Hill River converge to form the Kansas River, and flows east approximately 170 miles to its confluence with the Missouri River, near Kansas City.
Missouri/ Nishnabotna	462 – 571	The Missouri/Nishnabotna River Basin has a drainage area of about 13,300 square miles and is located in Kansas, Missouri, Nebraska, and Iowa. It begins below the confluence with the Platte River Basin and flows to the confluence with the Kansas River Basin.
Lower Missouri/Chariton/Grand	571 – 675	The Lower Missouri/Chariton/Grand River Basin is in northwestern Missouri.
Upper Mississippi/Salt	675 – 713	The Upper Mississippi/Salt River Basin is located in parts of Iowa, Missouri, and Illinois and has a drainage area of about 9,970 square miles. It begins below the confluence with the Des Moines River Basin and ends at the confluence with the Missouri. In Missouri, it includes all of the tributaries to the Mississippi River in northeastern Missouri from the Mouth of the Missouri to Iowa.
Echo Springs Lateral		
Great Divide Basin	0 – 5 ^{ES}	The Echo Springs Lateral is located entirely within the Great Divide Basin. The Great Divide Basin (also called the Great Divide Closed Basin) is in south central Wyoming. The basin is a natural anticline in the surface of the land, and forms a self-contained closed watershed.

The REX-West Project would cross 1,320 surface waters, including 149 perennial stream/river crossings, 684 intermittent/ephemeral stream crossings, 55 ponds, and 412 ditches, as follows:

- Colorado: 1 perennial stream/river, 68 intermittent/ephemeral waterbodies, 1 pond, and 26 manmade ditches;
- Wyoming: 6 ephemeral waterbodies and 1 manmade ditch;
- Nebraska: 18 perennial streams/ivers, 114 intermittent waterbodies, 16 ponds/lakes, and 185 manmade ditches;
- Kansas: 30 perennial streams/ivers, 170 intermittent waterbodies, 2 ponds, and 39 manmade ditches; and
- Missouri: 100 perennial streams/ivers and 325 intermittent/ephemeral waterbodies, 36 ponds/lakes, and 161 manmade ditches.

The six unnamed ephemeral waterbodies in Wyoming would be crossed by the Echo Springs Lateral; the remaining waterbodies would be crossed by the mainline (see table E-1 in appendix E). Table E-1 lists the location, flow size, width, fishery classification, water quality/use classification, impaired water quality and proposed crossing method to be used for the perennial waterbodies and selected intermittent waterbodies along the pipeline route. Rockies Express is in the process of analyzing its field survey data to verify waterbody crossings and document water depths and crossing widths.

Rockies Express previously proposed to exclude certain surface waters (*e.g.*, roadside ditches, agricultural grass waterways, and other waters that the COE considers non-jurisdictional) from the FERC's definition of "waterbody." Based on our recommendation in the draft EIS, Rockies Express has committed to this revision. The text of the Procedures in Appendix D reflects this information. Rockies Express has the option to request site-specific variances for construction and mitigation measures if it believes an exception is warranted. We will review any such requests on a case-by-case basis.

There are 16 major waterbodies (*i.e.*, greater than 100 feet wide) that would be crossed by the REX-West Project: the South Platte River in Colorado; Rose Creek, Dry Branch Rose Creek, and the Little Blue River in Nebraska; the Big Blue River, South Fork of Big Nemaha River, an unnamed creek, Cedar Creek, and South Fork Wolf River in Kansas; the Missouri River along the Kansas/Missouri border; and the Platte River, Little Shoal Creek, an unnamed creek, Big Creek, Grand River, and Chariton River in Missouri. In accordance with its Procedures, Rockies Express would file site-specific crossing plans for these waterbody crossings for the review and written approval of the Director of OEP prior to construction.

Surface waters are classified according to a beneficial use classification system as developed by each state crossed by the REX-West Project. Water use classifications for each state crossed by the project are summarized below. There are no surface waters within or immediately adjacent to the boundaries of the aboveground facility sites. Potential impacts associated with construction on fisheries and special status species are discussed in sections 4.6 and 4.7, respectively.

Colorado

The state of Colorado categorizes surface waters according to five main use classifications: recreation, agriculture, aquatic life, domestic water supply, and wetlands. Colorado also groups waters into three classifications (outstanding waters, use-protected, and non-designated), which provide varying levels of protection. Classification regulations have been developed for each of the eight designated surface water basins within Colorado. Because the REX-West Project lies within the South Platte River Basin, use classifications specific to that basin are utilized to classify waterbody crossings in Colorado.

None of the waterbodies crossed by the project in Colorado are designated as impaired waters by the EPA and no contaminated sediments were identified near the project area.

Wyoming

The state of Wyoming designates four major classifications to surface waters: Class 1 (highest class) – outstanding waters, Class 2 – fisheries and drinking water, Class 3 – aquatic life other than fish, and Class 4 (lowest class) – agriculture, industry, recreation, and wildlife. Except for Class 1 waters, each classification is protected for its specified uses in addition to all of the uses contained in each lower classification (WDEQ 2001). These classifications are designed to conserve, protect, maintain, and improve water quality for public water supplies; for the propagation of wildlife, fish, and aquatic life; and for domestic, agricultural, industrial, recreational, and other legitimate beneficial uses.

There are no sensitive waterbodies or contaminated sediments identified along the pipeline route in Wyoming. No potable water intake sources have been identified within 3 miles downstream of any of the proposed waterbody crossings.

Nebraska

The state of Nebraska categorizes surface waters according to four beneficial use classifications: primary contact recreation, aquatic life, water supply (including public drinking water, agricultural and industrial), and aesthetics.

Contaminated sediments were identified less than 0.5 mile downstream of the Rose Creek (MP 416.6) and Little Blue River (MP 424.3) crossings, and contaminated sediments were identified 2.2 miles upstream of the Big Blue River (MP 447.34) crossing.

Kansas

The state of Kansas categorizes surface waters according to seven main use classifications: agricultural water supply, aquatic life support, domestic water supply, food procurement, groundwater recharge, industrial water supply, and recreational. Kansas also groups waters into three classifications (outstanding national resource waters, exceptional state waters, and general purpose waters), which provide varying levels of protection.

No contaminated sediments were found within 3 miles of any waterbody crossing locations in Kansas.

Missouri

The state of Missouri categorizes surface waters according to 15 beneficial use classifications: irrigation; livestock and wildlife watering; cold-water fishery; cool-water fishery; protection of aquatic life (general warm-water fishery); protection of aquatic life (limited warm-water fishery); human health protection; whole body contact recreation; secondary contact recreation; drinking water supply; industrial process water and industrial cooling water; storm- and flood-water storage and attenuation; habitat for resident and migratory wildlife species; recreational, cultural, educational, scientific, and natural aesthetic values and uses; and hydrologic cycle maintenance.

Contaminated sediment has been identified 1 mile downstream of the Grand River crossing and 2.8 miles upstream of the South Fork Salt River crossing. No other contaminated sediments are known to occur within 3 miles of any other waterbody crossing locations.

Pipeline construction could affect surface waters in several ways. Clearing and grading of stream banks, in-stream trenching, trench dewatering, and backfilling could result in modification of aquatic habitat, increased sedimentation, turbidity, decreased dissolved oxygen concentrations, releases of chemical and nutrient pollutant from sediments, and introduction of chemical contaminants such as fuel and lubricants. The crossing of irrigation canals could interrupt the flow of irrigation water, which could damage crops and reduce crop yields.

The greatest potential impact on surface waters would result from the temporary suspension of sediments during in-stream construction. The extent of the impact would depend on sediment loads, stream velocity, turbidity, bank composition, and sediment particle size. These factors would determine the density and downstream extent of sediment migration. In-stream construction could cause the dislodging and transport of channel bed sediments and the alteration of stream contours. Changes in the bottom contours could alter stream dynamics and increase downstream erosion or deposition, depending on circumstances. Turbidity resulting from resuspension of sediments from in-stream construction or erosion of cleared right-of-way areas could reduce light penetration and photosynthetic oxygen production. In-stream work could also introduce chemical and nutrient pollutants from sediments. Resuspension of deposited organic material and inorganic sediments could cause an increase in biological and chemical use of oxygen, potentially resulting in a decrease of dissolved oxygen concentrations in the affected area. Lower dissolved oxygen concentrations could cause temporary displacement of motile organisms and may kill non-motile organisms within the affected area.

In-stream blasting could injure or kill aquatic organisms, displace organisms during blast-hole drilling operations, and temporarily increase stream turbidity. Byproducts from the blast could be released, potentially contaminating the water.

The clearing and grading of streambanks would expose soil to erosional forces and would reduce riparian vegetation along the cleared section of the waterbody. The use of heavy equipment for construction would cause compaction of near-surface soils, an effect that could result in increased runoff into surface waters. The increased runoff could transport additional sediment into the waterbodies, resulting in increased turbidity levels and sedimentation rates in the receiving waterbody.

Refueling of vehicles and storage of fuel, oil, or other hazardous materials near surface waters could create a potential for contamination. If a spill were to occur, immediate downstream users of the water could experience a degradation in water quality. Acute and chronic toxic effects on aquatic organisms could also result from such a spill.

Rockies Express has stated that no instream blasting would be required to install the waterbody crossings. The measures that Rockies Express would implement to avoid or minimize the other potential impacts of construction on surface waters are contained in its Procedures and SPCC Plan and discussed below. No long-term impacts are anticipated as a result of the project because designated water uses would not be permanently affected, the pipeline would be installed beneath the bed of waterbodies, erosion controls would be implemented, and the streambanks and streambed contours would be restored.

Waterbody Construction and Mitigation Procedures

Rockies Express proposes to open-cut all perennial waterbody crossings except the Missouri River, Big Creek, and Little Blue River, which would be crossed by HDD. Rockies Express is currently evaluating the feasibility of crossing the Grand and Chariton Rivers using a HDD.

Rockies Express would minimize impacts on surface waters by implementing the construction and mitigation procedures contained in its Procedures, which include:

- limiting clearing of vegetation between extra work areas and the edge of the waterbody to preserve riparian vegetation;
- constructing the crossing as close to perpendicular to the waterbody as site conditions allow;
- maintaining adequate flow rates throughout construction to protect aquatic life and prevent the interruption of existing downstream uses;
- locating equipment staging areas, soil stockpile areas and equipment refueling areas at appropriate setbacks from surface waters;
- requiring construction across waterbodies to be completed as quickly as possible and during the windows specified in the Procedures or required by applicable permits;
- developing and adhering to any required site-specific construction plan for each waterbody greater than 100 feet wide at the crossing location (major waterbody);
- requiring temporary erosion and sediment control measures to be installed across the entire width of the construction right-of-way after clearing and before ground disturbance;
- requiring maintenance of temporary erosion and sediment control measures throughout construction until streambanks and adjacent upland areas are stabilized;
- requiring bank stabilization and reestablishment of bed and bank contours and riparian vegetation after construction;
- limiting post-construction maintenance of vegetated buffer strips adjacent to streams; and
- implementing the SPCC Plan if a spill or leak occurs during construction.

In addition to the use of the measures described above, Rockies Express would need to obtain and comply with all conditions of its COE Section 404 permit and Section 401 state water quality certifications. Rockies Express would also need to obtain a permit for pipeline stream crossings in compliance with the Kansas Obstruction in Streams Act (K.S.A. 82A 301 to 305a).

Rockies Express would develop a Stormwater Pollution Prevention Plan (SWPPP) to minimize impacts to surface waters associated with silt-laden runoff during construction. Rockies Express had suggested that elements of its SWPPP could take precedence over any contradictory conditions of the FERC Plan. Given the possibility that there may be differing interpretations on which conditions may be “contradictory,” we did not agree to a blanket approval of this request and recommended in the draft EIS that Rockies Express revise its Procedures to remove this statement. In its comments on the draft EIS, Rockies Express agreed to revise its Procedures regarding SWPPPs. This modification is reflected in the Procedures in Appendix D. We note that section I.A. of Rockies Express’ Procedures provides a mechanism by which an applicant can request a variance if it believes a particular construction or mitigation measure is contradictory or otherwise not applicable, or an alternate measure provides at least equal protection to resources. We will review any such requests on a case-by-case basis.

The majority of the waterbodies that would be crossed by the pipeline are intermittent drainages and washes that are expected to be dry at the time of construction. These waterbodies do not typically support fisheries or provided critical aquatic habitat or migratory passage for aquatic organisms. Rockies Express would cross intermittent waterbodies using conventional upland construction methods if the

waterbodies are dry at the time of the crossing. The depth of cover over the pipeline at intermittent waterbodies would be a minimum of 3 feet. After construction, Rockies Express would restore all contours to preconstruction conditions. Impacts on intermittent waterbodies would be limited to temporary alteration of channel beds and banks and possibly increased sediment load during initial storm events following construction. If intermittent waterbodies are flowing at the time of construction, Rockies Express states it would install the pipeline using the open-cut method in accordance with the measures in its Procedures.

Sensitive Waterbodies

Waterbodies may be considered sensitive for a number of reasons including, but not limited to, the presence of coldwater fish species or special status species, the presence of high-quality recreational or visual resources, historic value, or the presence of impaired water or contaminated sediments.

There are eight waterbodies that would be crossed by the REX-West Project that are considered sensitive because of significant fisheries resources: the Little Blue River and Rose Creek, which are high-value/high priority fisheries in Nebraska; and Castile Creek, Little Platte River, Shoal Creek, Log Creek, Crabapple Creek, and Brush Creek, which are designated fish spawning streams in Missouri. Mitigation measures to avoid or minimize impacts on significant fishery resources within these waterbodies are discussed in section 4.6.1.2.

An additional five waterbodies that would be crossed by the REX-West Project are considered sensitive because of the presence of special status species: the South Platte River in Colorado; North Elm Creek, the South Fork Big Nemaha River, and Wolf River in Kansas; and the Missouri River along the Kansas/Missouri border. Mitigation measures to avoid or minimize impacts on special status species within these waterbodies are discussed in section 4.7.1.

As shown in table E-1 in appendix E, 14 waterbodies are designated as impaired waters by the EPA. Fecal coliform and pathogenic impairments appear to be the most common impairments in the waterbodies crossed by the western portion of the project, while the most common waterbody impairments in the eastern portion of the project area include metals, biological limitations, and sediment.

There are no federally designated or state-designated wild and scenic rivers along the proposed pipeline route.

4.3.1.3 Hydrostatic Testing

Rockies Express would verify the integrity of its pipeline before placing it into service by conducting a series of hydrostatic tests. These tests involve filling the pipeline with water, pressurizing it, and then checking for pressure losses due to pipeline leakage. Sources of hydrostatic test water are expected to be surface waterbodies in close proximity to the pipeline. Rockies Express would require approximately 257,001,000 gallons (787 acre-feet) of water to hydrostatically test the entire mainline (from about 30 to 43 million gallons for each of the seven construction spreads) and 700,000 gallons (2 acre-feet) to test the Echo Springs Lateral. Rockies Express states it will make use of a “cascading” process, by which the test water from one section is transferred for reuse to subsequent sections within that spread. The vast majority of the test water is expected to be drawn from surface waters, with the exception of the Echo Springs Lateral, for which test water would be purchased and brought to the site via trucks.

Rockies Express identified preliminary hydrostatic test water sources and the approximate amount of water required for construction Spreads 1 through 7 (see table 4.3.1-5). In accordance with its

Procedures, Rockies Express would file a final list of all waterbodies/water sources proposed for use as a hydrostatic test water source and discharge locations for the review and approval of the Director of OEP prior to construction.

Spread	From MP	To MP	Spread Length (miles)	Approx. Volume (gallons)	Approx. Volume (acre-feet)	Primary Sources	MP
1	0.0	120.3	120.3	43,394,000	133	South Platte River	120.3
2	120.3	217.4	97.1	35,033,000	107	South Platte River	120.3
3	217.4	323.4	106.0	38,236,000	117	Fox Creek Elwood Reservoir	229.5 267.9
4	323.4	434.4	111.0	40,032,000	123	Little Blue River	424.2
5	434.4	536.5	102.1	36,937,000	113	Big Blue River South Fork Big Nemaha Middle Fork Wolf River South Fork Wolf River Halling Creek Missouri River	446.7 477.6 508.4 513.0 517.8 536.5
6	536.5	621.5	85.0	30,753,000	94	Missouri River Platte River Mud Creek Big Creek	536.5 549.0 599.9 617.2
7	621.5	712.7	91.2	32,616,000	100	Grand River Musseel Fork Creek Chariton River South Fork Salt River	628.3 645.2 650.1 705.9
	Total:		712.7	257,001,000	787		
Echo Springs Lateral	0.0	5.3	5.3	700,000	2	Truck-in	N/A

The withdrawal of large volumes of hydrostatic test water from the surface water sources could temporarily affect the recreational and biological uses of the resource if the diversions constitute a large percentage of the source's total flow or volume. The diversion of large volumes of water from waterbodies could also result in the temporary loss of habitat, changes in water temperature and dissolved oxygen levels, and entrainment or impingement of fish or other aquatic organisms.

Rockies Express would minimize the potential effects of hydrostatic testing on surface water resources by adhering to the measures in its Procedures. These measures include screening intake hoses to prevent the entrainment of fish and other aquatic organisms and regulating the rate of withdrawal of test water to avoid adverse impact on aquatic resources or downstream flows. Rockies Express would not add chemicals to the water during testing. Rockies Express would acquire the necessary permits from state agencies before withdrawing hydrostatic test water, including specific approvals from applicable resource agencies.

Four of Rockies Express' proposed hydrostatic test water sources (the South Platte, South Fork Big Nemaha, Wolf, and Missouri Rivers) are known to contain federal and state-listed endangered and threatened species. In addition, the FWS has expressed concern about the potential downstream impacts on federally listed species due to hydrostatic test water withdrawals (depletions) from the South Platte

River. We discuss impacts on federally listed species, including potential depletion impacts, in section 4.7.1.1.

Rockies Express would discharge the test water on upland areas within the construction right-of-way unless direct discharge into surface waters is determined to be acceptable and permitted by the applicable agencies. Along the Echo Springs Lateral, Rockies Express anticipates discharge locations near the Williams Meter Station at MP 0.0 and near the Echo Springs Compressor Station at MP 5.3. Discharge rates would be monitored and energy dissipation devices and/or filter bags would be deployed to prevent soil erosion and scouring at upland discharge sites. Hydrostatic test water discharged into waterbodies has the potential to cause erosion of the streambanks and streambottoms, resulting in a temporary increase of sediment load and destruction of habitat. These discharges could potentially affect state-designated uses. If discharge into waterbodies is permitted, Rockies Express would minimize the potential for these effects through the use of energy dissipating devices that would disperse and slow the velocity of any discharges. In addition, Rockies Express has agreed to coordinate with the applicable agencies to resolve and implement measures to avoid transport issues regarding aquatic nuisance species, pathogens, or other organisms. Final test water discharge locations would be in accordance with Rockies Express' NPDES permit and any state-issued hydrostatic test water discharge permits.

4.3.1.4 Wetlands

Wetlands are areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of wetland vegetation typically adapted for life in saturated soil conditions (Environmental Laboratory, 1987). In eastern Colorado and Nebraska, wetlands occur primarily in riparian areas associated with perennial streams, abandoned meander loops, isolated depressions that have a permanent or occasional water supply, playa lakes, reservoirs, and irrigation ditches (Fretwell et al., 1996). In Wyoming, freshwater marshes are found in the mountains, foothills, and plains regions; wet meadows are found along streams and around mountain lakes and ponds; and semi-permanently and permanently flooded riverine wetlands are associated with river drainages throughout the state. Playa wetlands exist in closed basins throughout Wyoming. In Kansas and Missouri, wetlands are found primarily in temporarily flooded sinks, along drainageways, in shallow basins, and in association with riparian areas.

Rockies Express utilized National Wetland Inventory (NWI) data to assess impacts to wetlands from the proposed REX-West pipeline right-of-way and aboveground facilities. In addition, Rockies Express conducted field delineations during the spring of 2006 in accordance with the methodology outlined in the COE's 1987 Wetland Delineation Manual (Environmental Laboratory, 1987). Rockies Express completed its wetland delineation report and filed it with the Commission on January 17, 2007. This information has also been included in Rockies Express' Section 404 permit application filed with the COE.

The REX-West pipeline route would cross 454 wetlands for a total distance of about 20.4 miles. Of this distance, approximately 2.8 miles of wetlands are in Colorado, 5.3 miles in Nebraska, 3.9 miles in Kansas, and 8.4 miles in Missouri. Only one wetland is crossed by the proposed Echo Springs project facilities in Wyoming (less than 0.1 mile crossing distance).

Palustrine emergent wetlands are the most common type of wetland community crossed by the pipeline route, followed by forested wetlands and unconsolidated bottom and shore wetlands. Other wetland communities crossed include palustrine aquatic bed wetlands, scrub shrub wetlands, and perennial and intermittent riverine wetlands. A description of wetland types is presented in table 4.3.1-6.

TABLE 4.3.1-6

Wetland Community Descriptions ^{a/}

Wetland Type	NWI code	Description
Palustrine Aquatic Bed	PAB	Includes wetlands and deepwater habitats dominated by plants that grow principally on or below the surface of the water for most of the growing season in most years. Water regimes include irregularly exposed, regularly flooded, permanently flooded, intermittently exposed, semipermanently flooded, and seasonally flooded. Aquatic bed wetlands represent a diverse group of plant communities that requires surface water for optimum growth and reproduction. They are best developed in relatively permanent water or under conditions of repeated flooding. The plants are either attached to the substrate of float freely in the water above the bottom or on the surface.
Palustrine Emergent Wetland	PEM	Emergent wetlands are characterized by erect, rooted herbaceous hydrophytes, excluding mosses and lichens. This vegetation is present for most of the growing season in most years and are usually dominated by perennial plants. All water regimes are included except subtidal and irregularly flooded. Emergent wetlands are known by many names, including marsh, meadow, fen, prairie pothole, and slough. In areas with relatively stable climatic conditions, emergent wetlands maintain the same appearance year after year. However, in other areas, such as the prairies of the central United States, violent climatic fluctuations cause them to revert to an open water phase in some years.
Palustrine Forested Wetland	PFO	Forested wetlands are characterized by woody vegetation that is six meters tall or taller. All water regimes are included except subtidal. Forested wetlands are most common in the eastern United States and in those sections of the West where moisture is relatively abundant, particularly along rivers and in the mountains. Forested wetlands normally possess an overstory of trees, an understory of young trees or shrubs, and a herbaceous layer.
Palustrine Scrub-Shrub Wetland	PSS	Scrub-shrub wetlands include areas dominated by woody vegetation less than six meters tall. Vegetation forms found in this wetland include true shrubs, young trees, and trees or shrubs that are small or stunted because of environmental conditions. All water regimes are included except subtidal. Scrub-shrub wetlands may represent a successional stage leading to a forested wetland or they may be relatively stable communities.
Palustrine Unconsolidated Bottom	PUB	The unconsolidated wetland type includes all wetland and deepwater habitats with at least 25 percent cover of particles smaller than stones, and a vegetative cover less than 30 percent. Water regimes are restricted to subtidal, permanently flooded, intermittently exposed, and semipermanently flooded. These wetlands are characterized by the lack of large stable surfaces for plant and animal attachment. They are usually found in areas with lower energy than rock bottoms, and may be very unstable. Exposure to wave and current action, temperature, salinity, and light penetration determines the composition and distribution of organisms.
Palustrine Unconsolidated Shore	PUS	The unconsolidated shore includes all wetland habitats having three characteristics: (1) unconsolidated substrates with less than 75 percent aerial cover of stones, boulders or bedrock; (2) less than 30 percent aerial cover of vegetation other than pioneering plants; and (3) any of the following water regimes: irregularly exposed, regularly flooded; irregularly flooded; seasonally flooded, temporarily flooded, intermittently flooded, saturated, or artificially flooded. These habitats are characterized by substrates lacking vegetation except for pioneering plants that become established during brief periods when growing conditions are favorable. Erosion and deposition by waves and currents produce a number of landforms such as beaches, bars, and flats.
Riverine	R2 and R4	The riverine system includes all wetlands and deepwater habitats contained within a channel, with two exceptions: (1) wetland dominated by trees, shrubs, persistent emergents, emergent mosses, or lichens, and (2) habitats with water containing ocean-derived salts. Water is usually, but not always, flowing in the riverine system. Upland islands or palustrine wetlands may occur in the channel but they are not included in the riverine system. The lower perennial subsystem includes waterbodies where some water flows throughout the year and the gradient is low and water velocity is slow. Substrates consist mainly of sand and mud. The intermittent subsystem includes channels where the water flows for only part of the year.

^{a/} Source: Cowardin, 1979.

The primary impact of pipeline construction and right-of-way maintenance activities on wetlands would be the temporary and permanent alteration of wetland vegetation. These effects would be greatest during and immediately following construction. Generally, the wetland vegetation community would eventually transition back into a community functionally similar to that of the wetland prior to construction. In emergent and scrub-shrub wetlands, the herbaceous and shrub vegetation would regenerate quickly (typically within 1 to 3 years). In forested wetlands, the impact of construction would be extended due to the longer period needed to regenerate a mature forest community. Following revegetation, there would be little permanent impact on emergent wetland vegetation in the maintained right-of-way because these areas naturally consist of, and would remain as, an herbaceous community. In addition, herbaceous wetland vegetation in the pipeline right-of-way is not generally mowed or otherwise maintained, although the Plan allows for the annual maintenance of a 10-foot-wide strip centered over the pipeline.

Given the tree species that typically dominate forested wetlands in the project area (cottonwood, willow, locust, and elm), regeneration may take up to 30 years. In addition, trees within 15 feet of the pipeline centerline greater than 15 feet tall may be selectively cut and removed. By limiting revegetation of a portion of forested and scrub-shrub wetlands, some of the functions (primarily wildlife habitat) of these forested and scrub-shrub wetlands would be permanently altered. This does not result in a loss of wetlands, but rather a conversion from forested to a more scrub or emergent type.

Based on Rockies Express' field survey data, construction of the REX-West Project would temporarily disturb approximately 84.0 acres of emergent wetland (see table 4.3.1-7). No permanent impacts to emergent wetlands are anticipated. The project would also disturb about 28.3 acres of forested wetlands, mostly in the Missouri and Kansas segments of the pipeline route. Of these 28.3 acres, about 8.5 acres would be within the maintained portion (30 feet) of the right-of-way and would be permanently impacted by periodic maintenance activities. This would cause a change in wetland type from palustrine forested to palustrine emergent or shrub/scrub wetland. Other wetland communities disturbed by the project include palustrine open water (0.9 acre) and scrub-shrub wetlands (3.2 acres during construction and 0.4 acre of permanent disturbance).

Other types of impacts associated with construction of the pipeline could include temporary changes in wetland hydrology and water quality. During construction, failure to segregate topsoil over the trenchline in non-saturated wetlands could result in the mixing of the topsoil with the subsoil. This disturbance could result in altered biological activities and chemical conditions in wetland soils and could affect the reestablishment and natural recruitment of native wetland vegetation after restoration. In addition, inadvertent compaction and rutting of soils during construction could result from the movement of heavy machinery and the transport of pipe sections. The resulting alteration of the natural hydrologic patterns of the wetlands could inhibit seed germination or increase the potential for siltation. Clearing activities and disturbance of wetland vegetation could also temporarily affect the wetland's capacity to buffer flood flows and/or control erosion.

No wetlands would be permanently filled or drained as a result of the project. In addition, the aboveground facilities proposed for the REX-West Project would not be located within wetlands. The measures that Rockies Express would implement to avoid or minimize these impacts are discussed below.

TABLE 4.3.1-7

Wetland Impact Summary – REX-West Project

State	Wetland Classification <u>a/</u>	Length of Wetland Crossed (miles)	Wetland Area Affected during Construction (acres) <u>b/</u>	Wetland Area Affected by Operations (permanent acres) <u>c/</u>
COLORADO	PEM	1.0	12.1	0.0
	PSS	0.0	0.0	0.0
	PFO	0.0	0.0	0.0
	CO subtotal:	1.0	12.1	
WYOMING (ES Lateral)	No Wetlands Crossed	0.0	0.0	0.0
	WY subtotal:	0.0	0.0	0.0
NEBRASKA	PEM	1.6	19.1	0.0
	PSS	0.1	0.6	0.1
	PFO	<0.1	0.3	0.1
	NE subtotal:	1.7	20.0	0.2
KANSAS	PEM	0.9	10.9	0.0
	PSS	<0.1	0.5	0.1
	PFO	0.6	6.8	2.0
	KS subtotal:	1.5	18.2	2.1
MISSOURI	PEM	3.5	41.9	0.0
	PSS	0.2	2.1	0.2
	PFO	1.7	21.2	6.4
	POW	0.1	0.9	0.0
	MO subtotal:	5.5	66.1	6.6
TOTALS	PEM	7.0	84.0	0.0
	PSS	0.4	3.2	0.4
	PFO	2.4	28.3	8.5
	POW	0.1	0.9	0.0
	Project Totals:	9.9	116.4	8.9

a/ Wetland Types

PEM – Palustrine Emergent
PSS – Palustrine Scrub-shrub
PFO – Palustrine Forested
POW – Palustrine Open Water

b/ Area affected by construction (temporary) is based upon a 100-foot-wide construction right-of-way to reflect the maximum potential impact to the wetlands.

c/ Area affected by operation (permanent) is based upon a 30-foot-wide corridor (centered over the pipeline) where maintenance in the right-of-way is required through forested wetlands, and a 10-foot-wide corridor (centered over the pipeline) where maintenance would be required through scrub-shrub wetlands.

Rockies Express' Procedures (appendix D) contain wetland mitigation measures that are designed to minimize the overall area of wetland disturbance, minimize the duration of wetland disturbance, reduce the amount of wetland soil disturbance, and enhance wetland restoration following construction. Examples of some of the wetland impact minimization measures specified in Rockies Express' Procedures are:

- reducing the width of the nominal construction right-of-way;
- limiting the operation of construction equipment within wetlands to that equipment essential for clearing, excavation, pipe installation, backfilling, and restoration;
- minimizing the time the trench is open in wetlands;
- using the push-pull crossing method in wetlands, where possible;

- installing trench breakers at the boundaries of wetlands as needed to prevent draining of a wetland and to maintain original wetland hydrology;
- prohibiting storage of hazardous materials, chemicals, fuels, and lubricating oils within a wetland or within 100 feet of a wetland boundary; and
- restricting annual maintenance of vegetation to a 10-foot-wide strip of grasses centered over the pipeline and trees less than 15 feet in height within 15 feet of the pipeline centerline.

On January 17, 2007, Rockies Express submitted supplemental comments on the draft EIS regarding wetland construction methods. Our response is presented in section 2.3.2, where we have recommended that Rockies Express revise its Procedures to use a 100-foot-wide right-of-way for non-saturated emergent and scrub-shrub wetlands and a 75-foot-wide right-of-way for forested and saturated wetlands.

Rockies Express would use a wetland revegetation technique where traffic areas through wetlands would not be grubbed, leaving root masses intact over most of the right-of-way. This would encourage regrowth and revegetation of those areas. In areas to be excavated, Rockies Express would salvage topsoil and use that material, when replaced, as a source of native seeds and propagules. These methods would constitute a passive approach to wetland revegetation in the trench and traffic areas. Further, Rockies Express' Procedures include the commitment to ensure that all disturbed areas successfully revegetate with wetland herbaceous and/or woody plant species. Proposed post-construction maintenance defines this as being at least 80 percent of the type, density, and distribution of vegetation in adjacent undisturbed wetland areas. If revegetation is not successful at the end of three years, Rockies Express would develop and implement (in consultation with a professional wetland ecologist) a remedial plan to actively revegetate the wetlands. The resulting program would be implemented and would continue until wetland revegetation is successful.

In its scoping comments, the FWS recommended that avoidance be the first step in planning any project that may adversely impact wetlands. If avoidance is not feasible, the FWS recommends that any impacts be minimized and any wetland losses be mitigated (*e.g.*, by offsite wetland restoration or by contributions to a wetland mitigation bank). We also received a number of comments from state agencies including the Colorado Division of Wildlife (CDOW), Nebraska Game and Parks Commission (NGPC), and Missouri Department of Conservation (MDC) requesting that wetlands disturbed by the project be properly restored to pre-construction conditions.

Rockies Express would coordinate with the FWS, COE, and state agencies regarding measures to minimize and mitigate potential impacts to wetlands. In addition to the measures in its Procedures, Rockies Express would comply with the COE's Section 404 permit conditions and state-issued Section 401 water quality certifications or waivers. We do not believe the REX-West Project would cause any significant impacts on wetlands or any wetland loss; however, the final decision regarding wetland mitigation would be a part of the COE and state permitting process.

Wetlands of Special Concern or Value

Eastern Colorado and Wyoming, and western Nebraska contain wetlands that are part of the Southwest Playas (or Playa Lakes) wetland complex. Playas are shallow, depressional wetlands associated with highly diverse plant communities that produce large quantities of nutritious seeds, which are essential for waterfowl, shorebirds and other migratory species that winter in the region. The Southwest Playas would be crossed by the REX-West Project between about MPs 40 and 350.

Another FWS-protected wetland system in Nebraska is the Rainwater Basin Complex (RWBC). The RWBC is 4,200 square miles of wetlands scattered throughout a 17-county area of south central

Nebraska. The wetlands are shallow, ephemeral basins that provide resting and feeding areas for over 250 species of migratory birds, including 5 to 7 million ducks and 200,000 to 300,000 migratory shore birds. The RWBC is host to a diverse assemblage of native plant species, which provide spring and autumn habitat for migrating birds. The general vegetative growth pattern is a period of growth for annual plants during dry summer months and droughts. Historically, bison and wildfire kept the wetlands open; however, with bison gone and wildfires controlled, management practices are required to keep these wetlands in a condition favored by ducks, geese, and other water birds. The proposed REX-West route crosses the RWBC in Frontier, Gosper, Phelps, Kearney, Franklin, and Webster Counties between about MP 250 and MP 350.

The Frerichs Waterfowl Production Area (WPA) is part of the RWBC and is associated with the FWS' National Wildlife Refuge System (NWR). This WPA would be crossed by the pipeline for about 691 feet at MP 310.4 in Kearney County. This WPA is used as a viewing area for migratory waterfowl, shore birds, and sandhill cranes, and is managed by the FWS's Rainwater Basin Wetland Management District Office (RWBWMD) (see section 4.8.1.5).

Based on review of aerial photographs and topographic maps, Rockies Express identified a total of 14 areas within the proposed construction work areas between MPs 40 and 350 that may meet, or may once have met, the definition of a playa. However, based on the field delineations conducted along the project route, only five of these areas were designated as wetlands (table 4.3.1-8).

TABLE 4.3.1-8			
Potential Rainwater Basin Complex Wetlands and Playa Lake Wetlands			
MP	NE County	Type	Acres affected
Playa Lakes Region (MPs 40-350)			
52.8	Kimball	PEM	1.25
181.1	Perkins	PEM	0.28
181.9	Perkins	PEM	0.19
182.4	Perkins	PEM/PSS	0.27
271.7	Gosper	PEM/PAB	0.35

The Southwest Playas and RWBC are clearly important wetland habitats with high migratory bird and other wildlife habitat value. Rockies Express has initiated consultation with the NGPC regarding the Southwest Playas and RWBC. The NGPC recommended that if playa wetlands are crossed, Rockies Express should identify the location of the clay layer within the soil profile and determine if the clay layer would be affected by construction. To mitigate impacts to the clay layer in playa wetlands, the NGPC suggested that the HDD method be used to avoid the clay layer or, if the open trench method is used then the clay layer should be removed and stockpiled during construction and replaced and restored to pre-construction conditions. The NGPC indicated that additional off-site, clay material could be used to restore the clay layer and ensuring that playa wetlands drainage patterns are restored.

We note that Rockies Express' Procedures detail measures to be implemented to mitigate for potential impacts resulting from excavation and removal of vegetation within construction areas, and require the construction area to be restored to pre-construction conditions.

In its data response to the FERC's August 31, 2006 *Environmental Information Request for the REX-West Project*, Rockies Express indicated that the FWS and NGPC agreed that the measures described in the Procedures were sufficient for the protection of the Frerichs WPA.

Wetland Reserve Program (WRP) lands also are present throughout the REX-West project area in Missouri and Nebraska. The WRP is a voluntary program offering landowners the opportunity to protect, restore, and enhance wetlands on their property. The USDA's NRCS provides technical and financial support to help landowners with their wetland restoration efforts. The NRCS' goal is to achieve the greatest wetland functions and values, along with optimum wildlife habitat, on every acre enrolled in the program. This program offers landowners an opportunity to establish long-term conservation and wildlife practices and protection.

Temporary and permanent impacts on WRP land would be the same as described previously for wetlands in general. To minimize environmental impacts and ensure restoration of WRP lands, Rockies Express would implement its Procedures. Rockies Express would also reseed disturbed areas with a seed mix recommended by the NRCS or landowners specifically for WRP lands. As such, we conclude that impacts to WRP land would be minimized.

4.3.2 TransColorado

4.3.2.1 Groundwater Resources

One major aquifer, the Uinta-Animas Aquifer, underlies most of the Blanco to Meeker Project area (including the Blanco Compressor Station site in San Juan County, New Mexico and the proposed Conn Creek Compressor Station site in Garfield County, Colorado). The Uinta-Animas Aquifer is the shallowest of the Colorado Plateaus aquifers and consists of three basins: the Uinta Basin, located in northeastern Utah; the Piceance Basin, located in northeastern Colorado; and the San Juan Basin, located in northwestern New Mexico. Of these, only the Piceance and San Juan Basins are in the Blanco to Meeker Project area. Thickness of the basins within the project area range from 0-2,000 feet (Piceance Basin) and 0-3,500 feet (San Juan Basin) and increase toward the center of each basin. Groundwater within the Uinta-Animas Aquifer is typically found at 0-500 feet below ground surface, and the water tends to be of good quality. Flow rates of wells in the aquifer are generally about 20 gpm, with some as high as 100 gpm.

The existing Greasewood Compressor Station is situated over an area with no defined aquifer but contains small surficial aquifers associated with the major drainages of the area, especially the White River.

No EPA or state designated sole-source aquifers underlay the proposed compressor stations. No construction locations lie within protected watershed areas associated with a supply well.

General impacts on groundwater that could result from construction of TransColorado's compressor stations would be similar in nature to the impacts previously discussed for the REX-West portion of the Rockies Western Phase Project. Blasting is not anticipated to be required during construction of the TransColorado facilities. However, should blasting be necessary, it would be conducted in accordance with all appropriate federal, state, and local requirements.

Upon completion of construction, TransColorado would restore the ground surface as closely as practicable to pre-construction contours and revegetate the right of way to ensure restoration of preconstruction overland flow and recharge patterns. Soil compaction would be alleviated by implementation of the FERC Plan.

Another potential use of groundwater for the project would be to control dust generated during construction. However, TransColorado has not specified the source of water to be used for dust control

measures for the project. This information would be provided in the hydrostatic testing plan that would be filed prior to construction.

TransColorado has developed a SPR Plan to address preventative and mitigative measures that would be used to avoid or minimize the potential impacts of hazardous material spills during construction. The SPR Plan specifies preventative measures such as spill training for construction personnel, regular inspection of construction equipment for leaks, and construction of containment systems around hazardous liquids storage facilities. The SPR Plan also restricts refueling or other liquid transfer areas within 100 feet of wetlands and waterbodies, prohibits refueling within 200 feet of any private water supply well or 400 feet of any municipal water supply well, and provides and provides additional precautions when specified setbacks cannot be maintained.

TransColorado's SPR Plan identifies emergency response procedures, equipment, and cleanup measures in the event of a spill, and requires the contractor to complete an inventory of all construction fuels, lubricants, and other hazardous materials that may be used or stored in designated project areas. We have reviewed TransColorado's SPR Plan and find that it adequately addresses the storage and transfer of hazardous materials and the response to be taken in the event of a spill. Therefore, we believe that the potential for the project to contaminate local aquifers would be minimal.

Water Supply Wells and Springs

No municipal water supply wells have been identified within 150 feet of any areas that would be disturbed by construction of the Blanco to Meeker Project. TransColorado would identify the location of all private wells within 200 feet of approved construction workspaces and the location of setback zones crossed by workspaces, prior to construction. The location of wells, the distance of wells from construction work areas, and the location of setback zones crossed by workspaces would be filed with the Secretary prior to the start of construction.

Potential impacts on wells and springs located within 150 feet of the construction right-of-way are similar in nature to those previously discussed for the REX-West portion of the Rockies Western Phase Project. TransColorado would prohibit the refueling and storage of hazardous materials within 200 feet of all private wells and springs. In the event that a well is damaged by construction activities, TransColorado would provide a temporary source of water and would restore the well to its original capacity or provide other mutually agreeable remedies. The implementation of these measures would minimize impacts to wells and springs.

4.3.2.2 Surface Water Resources

No perennial waterbodies would be crossed or impacted by the Blanco to Meeker Project. The closest waterbody to the project area is Conn Creek, which is located approximately 40 feet east of the boundary of the Conn Creek Compressor Station site in Garfield County, Colorado. Impacts to Conn Creek from construction activities at the Conn Creek Compressor Station site would be minimized through the implementation of erosion control and other measures in the FERC Plan.

4.3.2.3 Hydrostatic Testing

Hydrostatic testing of all pipes and valves including new pigging facilities would be conducted at each project site. TransColorado stated that test water would be withdrawn from municipal or irrigation sources but has not yet identified specific withdrawal and discharge sites. TransColorado would complete a hydrostatic test plan identifying source locations at least 2 months prior to beginning construction and would file this plan with Secretary for review and approval.

Test water volumes would range from 10,000 gallons for each compressor station location to 25,000 gallons for the receipt pipeline at the Blanco Compressor Station (total test water volume 55,000 gallons) (see table 4.3.2-1). Final test water discharge locations would be in accordance with TransColorado’s NPDES permit, state-issued hydrostatic test water discharge permits, and the FERC Procedures. All pipe and valves would be new material and test water discharge would be directed to upland areas. No discharge would impact any drainage.

Proposed Facility	Volume (gallons)	Municipal Withdrawal Location	Discharge Location
Blanco Hub Compressor Station	10,000	Bloomfield	On-site
Blanco Hub Receipt Pipeline	25,000	Bloomfield	Not Specified by TransColorado
Conn Creek Compressor Station	10,000	DeBeque	On-site
Greasewood Compressor Station	10,000	Meeker	On-site

TransColorado would not use groundwater for hydrostatic testing or for dust control measures.

4.3.2.4 Wetlands

No wetlands were identified within the construction sites for the Blanco or Conn Creek Compressor Stations or the expansion of the existing Greasewood Compressor Station. TransColorado would implement the FERC Plan to minimize erosion and to prevent sediment migration into any nearby wetlands. A Stormwater Management Plan (SWMP) in Colorado and a Stormwater Pollution Prevention Plan (SWPPP) in New Mexico would be implemented as appropriate for construction operations. We do not anticipate any impacts on wetlands from the Blanco to Meeker Project.

4.3.3 Overthrust

4.3.3.1 Groundwater Resources

The major near-surface aquifer system that underlies Overthrust’s Wamsutter Expansion Project is the Upper Colorado River Basin Aquifer. This aquifer includes shallow, unconsolidated deposits and consolidated bedrock formations. Depth to water typically ranges from 0 to 500 feet. Shallow groundwater is likely to be encountered during construction of the pipeline only at locations adjacent to waterbody crossings. The pipeline route would not cross any significant unconsolidated deposit aquifers.

Much of the shallow groundwater in project area has high total dissolved solids concentrations, making it poorly suited for domestic and irrigation uses. Groundwater quality tends to deteriorate with increasing distance from recharge areas and with increasing depth below land surface. Groundwater at depths of greater than a few thousand feet tends to be moderately saline to briny. Relative high concentrations (compared to EPA drinking water standards) of sulfate, fluoride, boron, iron, and manganese have been detected in several aquifers (USGS, 2005).

No EPA or state-designated sole-source aquifers underlay the Wamsutter Expansion Project area. The nearest designated sole-source aquifer is the Elk Mountain Aquifer, located about 150 miles east of the project area.

General impacts that could result from construction of Overthrust's Wamsutter Expansion Project would be similar in nature to the impacts previously discussed for the REX-West portion of the Rockies Western Phase Project.

Overthrust would avoid or minimize impacts on groundwater resources by using standard construction practices as outlined in the Plan and Procedures. Ground disturbance associated with typical pipeline construction primarily would be limited to 10 feet or less below the existing ground surface, which is above most surficial aquifers and shallow aquifer wells.

Overthrust reports that blasting would likely be required along segments of the pipeline route where bedrock is at or near the ground surface (see table 4.2.3-1). To minimize potential impacts on nearby structures including wells, buildings, and underground pipelines, Overthrust is developing a Blasting Plan that identifies blasting procedures including safety, use, storage, and transportation of explosives (see section 4.1.3.2).

In the event that contaminated soil and/or groundwater contamination is encountered during construction, Overthrust would notify the affected landowner and coordinate with the appropriate federal and/or Wyoming agencies as mandated by notification requirements. Pipeline construction may involve disposal of groundwater encountered during trench excavation. Because the disposal structures are likely to be located outside the cleared disturbed area, prior approval from the landowner and federal and state agencies would be required. Overthrust would be required to apply to the State of Wyoming for a temporary groundwater disposal permit, and comply with permit stipulations as well as erosion control/revegetation provisions of the Plan and the POD. We expect these measures would minimize any impacts from trench dewatering.

Overthrust's Procedures set forth measures that restrict locations for overnight parking and fueling of equipment, hazardous materials storage, and concrete coating activities. Additional measures address preparedness for rapid containment and prompt and effective cleanup of spills. In addition, because of potential contamination impacts to both groundwater and surface water resources, Overthrust has developed an SPCC Plan that addresses some of these issues. In combination with its SPCC Plan, and other construction guidelines, Overthrust would:

- identify preventative measures to avoid hazardous material spills or leaks;
- regulate locations for refueling, lubricating, and equipment washing activities;
- provide for vehicle and equipment inspection and maintenance;
- define proper storage and handling of fuels, lubricants, and hazardous materials;
- identify immediate spill response procedures for uplands, wetlands, or waterbodies; and
- establish reporting and notification protocols.

The refueling and lubrication of construction equipment would be restricted to upland areas at least 100 feet (500 feet on BLM land) from the edge of any streams, wetlands, ditches, and other waterbodies on private lands, 200 feet from private water supply wells, and 400 feet from public water supply wells. Storage sites for fuels, other petroleum products, chemicals, and hazardous materials (including wastes) would be located in upland areas. No hazardous substances would be stored within 100 feet of streams (500 feet on BLM land), 200 feet of private water supply wells, or 400 feet of public water supply wells. Overthrust would confirm the locations of areas where such activities are prohibited with the EI prior to site entry with construction equipment. If necessary due to space restrictions, contingency plans for refueling, materials storage, and handling would be verified with the EI before initiating activities in restricted areas that are exceptions to these criteria.

Overthrust would correspond with all landowners prior to construction to obtain the location(s) of known private water supply wells on their property.

Because permanent aboveground facilities would be located within the same aquifer system, and several of the facilities would be either on or adjacent to the construction right-of-way, groundwater resources in the vicinity of the aboveground facilities would be similar to those along the proposed pipeline route.

We believe that implementation of the measures and the procedures contained in Overthrust's SPCC Plan would avoid or minimize potential impacts associated with vehicle and equipment refueling and lubricating activities, hazardous material storage and handling, and responses to spills or leaks of hazardous materials during construction of the project. During future operation and maintenance activities, Overthrust would continue to adhere to standards within the Plan, Procedures, and POD to prevent contamination of groundwater resources from potential spills of hazardous materials. Future variances from these procedures would require the approval of the FERC and the affected land management agency or landowner. Given the low probability of a pipeline leak and the physical and chemical properties of processed natural gas, adverse impacts to groundwater resources would not be anticipated during operation and maintenance of the pipeline and its associated facilities. Overall, we believe that construction and operation of the Wamsutter Expansion Project would not significantly impact groundwater resources.

Water Supply Wells and Springs

Based on a review of USGS topographic maps, there are no springs within 150 feet of the proposed Wamsutter Expansion Project. Overthrust is currently verifying the presence or absence of springs or seeps, and would file the results with the Secretary prior to construction.

Many public and private water supply wells in Wyoming are in alluvial valleys (lowlands next to streams and rivers). These types of supply wells occur along the majority of the proposed pipeline route. These shallow wells can be very productive and yield high quality water; however, they are the most vulnerable to pollution from surface activities. The depth to groundwater in many shallow wells is directly influenced by water levels in nearby streams and can fluctuate several feet in response to seasonal stream changes. Overthrust has identified four private water supply wells that may be within 500 feet of the proposed pipeline route at MPs^{OT} 11.4, 52.2, 62.2, and 72.1. No known public water supply wells or wellhead protection areas are located within 400 feet of the pipeline centerline (WDEQ, 2006). Overthrust's proposed aboveground facilities would not affect any known private or public water supply wells.

4.3.3.2 Surface Water Resources

The Wamsutter Expansion Project would be located with the Upper Colorado River Basin. Within this major basin, the project area would be located within the Blacks Fork, Great Divide Closed Basin, and Bitter Creek sub-basins.

The Wamsutter Expansion Project would cross 1 perennial and 93 intermittent waterbodies (see table E-2 in appendix E). None of the waterbodies are considered major waterbody crossings. Where no perceptible flow is present, Overthrust would cross intermittent waterbodies using standard upland construction techniques; flowing waterbodies would be crossed using the open-cut method, with the exception of Deadman Wash, which would be crossed via HDD. In addition, Overthrust has modified its proposal for the crossing of Ten Mile Draw (MP 39.2) from HDD to the use of a flume or dam and pump method if this waterbody is flowing at the time of construction. The BLM raised concerns over

Overthrust's proposed open-cut crossing of Bitter Creek. See our discussion for the flannelmouth sucker in section 4.7.3.2. A more detailed discussion of waterbody crossings as related to general fisheries impacts can be found in section 4.6.3.

Overthrust would prepare a site-specific waterbody crossing plan for the proposed HDD crossing of Deadman Wash (MP 39.1). If HDD is unsuccessful, Overthrust would cross Deadman Wash using the dam-and-pump or flume method.

Overthrust has prepared an HDD Inadvertent Release Control Plan (Inadvertent Release Plan) that describes how the drilling operations would be conducted and monitored to minimize the potential for inadvertent drilling mud releases or failure of the drill. The Inadvertent Release Plan also discusses procedures for clean-up of drilling mud releases and for sealing the drill hole if a drill cannot be completed.

During construction, impacts on surface water resources would be minimized or avoided by the use of standard practices as outlined in the Plan, Procedures, and POD. To minimize sedimentation and turbidity impacts during open-cut, flume, or dam-and-pump waterbody crossings, Overthrust would adhere to its Procedures, which requires that trench spoil be stored at least 50 feet from streambanks, use sediment barriers such as silt fence to prevent or significantly reduce runoff into streams, and complete construction as quickly as possible to shorten the duration of sedimentation and turbidity. Following completion of construction, Overthrust would immediately stabilize the construction site, including the streambanks and also restore channel morphology and bed material. If circumstances required a construction delay, Overthrust would employ adequate site stabilization measures in accordance with its Procedures and permit conditions. Overthrust has stated it would attempt to avoid crossing waterbodies during high flow events, would not cross waterbodies during fish spawning periods, and would maintain adequate downstream flow during installation of the pipeline.

To minimize impacts associated with streambank erosion during construction, Overthrust would use equipment bridges, mats, and pads to support equipment that must cross the waterbody or work in saturated soils adjacent to the waterbody. Temporary extra workspaces would be required at waterbody crossings and these areas would be set back at least 50 feet from the edge of the waterbody. Deviations from this 50-foot setback would require approval of the FERC (and the BLM, on federal land, where a 50-foot setback would be required from wetlands and riparian vegetation) prior to construction. Overthrust would limit clearing of vegetation between additional temporary workspace areas and the edge of the waterbody to the certificated construction right-of-way. Overthrust would implement erosion and sediment control measures (*e.g.*, silt fence) to minimize erosion and prevent sediments from leaving the construction site and entering waterbodies. To minimize sedimentation and channel instability, Overthrust would complete instream construction activities for open-cut waterbody crossings within 24 hours for minor waterbodies (less than 10 feet wide) and within 48 hours for intermediate waterbodies (10 to 100 feet wide).

No public water supplies are within 3 miles downstream of any Wamsutter Expansion Project waterbody crossing. One waterbody crossed by the proposed pipeline, Bitter Creek within the Green River Basin, was identified on the 303(d) list of impairments. Surface waters would not be affected by construction or required for the operation of the aboveground facilities.

To minimize the potential for spills, Overthrust would implement its SPCC Plan, which specifies preventive measures such as personnel training, equipment inspection, and refueling procedures to reduce the likelihood of spills, as well as mitigation measures, such as containment and cleanup, to minimize potential impacts should a spill occur. Construction-related activities involving fuels and lubricants, such as vehicle refueling and equipment maintenance, would be conducted at a minimum of 100 feet from any

surface waters (500 feet on BLM lands). Adherence to the SPCC Plan would prevent a large spill from occurring near surface waters and would provide for protection of aquatic resources in the event a spill does occur. If a small spill were to occur, adherence to measures in the SPCC Plan would decrease the response time for control and cleanup of the spill, thus avoiding or minimizing the effects of a spill on aquatic resources. Training and lines of communication to facilitate the prevention, response, containment, and clean-up of spills during construction activities also are described in the SPCC Plan.

Overthrust would be required to adhere to construction and reclamation standards within the Plan, Procedures, and POD. Future variances from these plans and procedures would require the approval of the FERC, the affected land management agency, and affected landowner.

Overthrust would require water for dust control on roads during construction. Overthrust stated it would obtain water from existing holding ponds associated with the Jim Bridger Power Plant, located about 2.5 miles north of MP^{OT} 35.0, which would not impact surface waterbodies.

On the basis of Overthrust implementing its Plan, Procedures, POD, SPCC Plan, and Inadvertent Release Plan, as well as development of an HDD crossing plan, we believe overall impacts on surface water resources from construction would be short-term and minimal. Construction would cause temporary increases in sediment, but these impacts would be minimized by setbacks, sediment barriers, and streambank stabilization. Waterbody crossings would be completed within several days, minimizing the duration of the effects.

4.3.3.3 Hydrostatic Testing

To verify the integrity of the pipeline before placing it into service, Overthrust would conduct a series of hydrostatic tests. These tests would involve filling the pipeline with water, pressurizing it, and then checking for pressure losses due to pipeline leakage. See section 2.3.1 for further details on how hydrostatic testing is conducted.

Overthrust has identified eight pipeline segments for hydrostatic testing. Overthrust would obtain water from existing holding ponds associated with the Jim Bridger Power Plant, located about 0.5 mile north and 2.5 miles north of MP^{OT} 35.0, to test one segment and then transfer the water to test subsequent segments (“cascading”). Overthrust would also utilize water from municipal sources located near Rock Springs, Wamsutter, and Table Rock, Wyoming as necessary. Under the current plan, the first test segment would extend from MP^{OT} 77.2 to 66.9; the water then would be cascaded for subsequent testing as follows: from MP^{OT} 66.9 to 58.1, from MP^{OT} 58.1 to 48.1, from MP^{OT} 48.1 to 35.5, from MP^{OT} 35.5 to 26.3, from MP^{OT} 26.3 to 19.9, from MP^{OT} 19.9 to 9.1, and from MP^{OT} 9.1 to 0.0.

It is anticipated that the test water would be transported from the holding ponds to the construction right-of-way via a 6- to 8- inch-diameter aluminum pipeline that would be placed along the edge of existing, improved roadways that services the power plant. The total estimated volume of water to be used for testing is approximately 16.3 million gallons. Upon completion of testing the west portion of the pipeline, approximately 12.9 million gallons of hydrostatic test water would be discharged into a containment structure (*e.g.*, energy dissipation device such as haybales) placed in an upland area near the Rock Springs Compressor Station site at MP^{OT} 0.0. Approximately 3.4 million gallons of hydrostatic test water would be discharged into another containment structure placed in an upland area near MP^{OT} 66.9 upon completion of testing the east portion of the pipeline. Overthrust would regulate the timing, rate, and volume of all hydrostatic test water discharges. Prior to any discharge, hydrostatic test water may be sampled and tested, in accordance with any applicable permits, to ensure that discharges meet water quality standards. No chemical additives would be introduced to water used for hydrostatically testing and no chemicals would be used to dry the pipeline following the hydrostatic testing.

Because hydrostatic test water would be discharged into containment structures in upland areas, there would be no impacts on surface waters. Overthrust would be required to obtain permits from the appropriate agencies and adhere to the stipulations outlined in its NPDES permits when discharging hydrostatic test water.

4.3.3.4 Wetlands

During the summer of 2006, Overthrust conducted a survey of the proposed pipeline right-of-way, additional temporary workspaces, and aboveground facility locations to identify wetlands in the Wamsutter Expansion Project area. Based on results of the field survey, the pipeline route would cross two wetlands (table 4.3.3-2). Only one of the wetlands occurring along the proposed corridor would be affected by construction. The other wetland would be avoided by the HDD of Deadman Wash.

Construction in wetlands would primarily result in temporary effects including the temporary loss of wetland vegetation, soil disturbance, and short-term increases in turbidity and fluctuations in wetland hydrology. A more detailed discussion of general impacts on wetlands from pipeline construction is presented in the REX-West wetlands section, above. To minimize these impacts on wetlands, Overthrust would use a 75-foot-wide construction right-of-way through wetland areas and would follow the measures identified in its Procedures and the POD.

TABLE 4.3.3-2 Wetlands Crossed by the Wamsutter Expansion Project					
Wetland ID Number	MP ^{OT}	Type <u>a/</u>	Length Crossed (feet) <u>b/</u>	Area affected by construction activities (acres) <u>c/</u>	Area affected by operation activities (acres) <u>d/</u>
WL12	12.2	PEM	14	0.02	0.0
WL38 <u>e/</u>	38.5	PEM	54	0.0	0.0

a/ NWI Wetland Type: PEM = Palustrine emergent-temporarily flooded
b/ Crossing length data represent the length of centerline crossing within wetland.
c/ Assumes use of entire construction right-of-way width of 75 feet and includes temporary extra workspaces.
d/ Permanent operational impact areas consist of a 50-foot-wide strip centered over the pipeline. Because emergent wetlands are allowed to revegetate to their pre-construction state, no operational impacts would occur within the permanent right-of-way.
e/ Wetland WL 38 would be avoided by the HDD of Deadman Wash.

Temporary extra workspaces would be required at wetland crossings and, unless impractical due to topography or other constraint, these areas would be set back at least 50 feet from the edge of the wetland. Deviations from the standard 50-foot setback would require approval of the FERC (and BLM, on federal lands) prior to construction. Overthrust would implement erosion and sediment control measures (*i.e.*, silt fence, hay bales) to minimize erosion and prevent sediments from leaving the construction work area and entering wetlands.

None of the aboveground facilities would be located within NWI-mapped wetlands. No wetlands of special concern or value would be crossed by the Wamsutter Expansion Project.

4.4 VEGETATION

4.4.1 Rockies Express

The REX-West Project crosses six Level III Ecoregions of the United States--the Wyoming Basin, Western High Plains, Nebraska Sand Hills, Central Great Plains, Western Corn Belt Plains, and Central Irregular Plains (USGS 2006). The majority of the REX-West Project is within the Western High Plains and Central Great Plains ecoregions in eastern Colorado and central Nebraska. Table 4.4.1-1 describes the general vegetation characteristics of each ecoregion crossed by the project. Additional distinct vegetation communities occur within these ecological regions as described below.

Ecoregion	Location of Occurrence in Project Area	Description
Wyoming Basin	Wyoming	This ecoregion is a broad intermountain basin dominated by arid grasslands and shrublands and interrupted by high hills and low mountains. Nearly surrounded by forest covered mountains, the region is somewhat drier than the Northwestern Great Plains to the northeast and does not have the extensive cover of pinyon-juniper woodland found in the Colorado Plateaus to the south. Much of the region is used for livestock grazing, although many areas lack sufficient vegetation to support this activity. The region contains major producing natural gas and petroleum fields.
Western High Plains	Wyoming, Colorado, Nebraska	Higher and drier than the Central Great Plains to the east, and in contrast to the irregular, mostly grassland or grazing land of the Northwestern Great Plains to the north, much of the Western High Plains comprises smooth to slightly irregular plains having a high percentage of cropland. Grama-buffalo grass is the potential natural vegetation in this region as compared to mostly wheatgrass-needlegrass to the north, Trans-Pecos shrub savanna to the south, and taller grasses to the east. The northern boundary of this ecological region is also the approximate northern limit of winter wheat and sorghum and the southern limit of spring wheat.
Nebraska Sand Hills	Nebraska	The Nebraska Sand Hills comprise one of the most distinct and homogenous ecoregions in North America. One of the largest areas of grass stabilized sand dunes in the world, this region is generally devoid of cropland agriculture, and except for some riparian areas in the north and east, the region is treeless. Large portions of this ecoregion contain numerous lakes and wetlands and have a lack of streams.
Central Great Plains	Nebraska, Kansas	The Central Great Plains are slightly lower, receive more precipitation, and are somewhat more irregular than the Western High Plains to the west. Once a grassland, with scattered low trees and shrubs in the south, much of this ecological region is now cropland, the eastern boundary of the region marking the eastern limits of the major winter wheat growing area of the United States.
Western Corn Belt Plains	Kansas, Missouri	Once covered with tallgrass prairie, over 75 percent of the Western Corn Belt Plains is now used for cropland agriculture and much of the remainder is in forage for livestock. A combination of nearly level to gently rolling glaciated till plains and hilly loess plains, an average annual precipitation of 25-35 inches (which occurs mainly in the growing season), and fertile, warm, moist soils make this one of the most productive areas of corn and soybeans in the world.
Central Irregular Plains	Missouri	The Central Irregular Plains have a mix of land use and are topographically more irregular than the Western Corn Belt Plains to the north, where most of the land is in crops. The region, however, is less irregular and less forest covered than the ecoregions to the south and east. The potential natural vegetation of this ecological region is a grassland/forest mosaic with wider forested strips along the streams compared to the north.

4.4.1.1 General Vegetation Resources

Construction of the REX-West mainline and Echo Springs Lateral would disturb 8 vegetation types: agricultural land, pasture, short-grass prairie, mixed-grass prairie, upland deciduous forest, riparian forest, rangeland/shrubland, and previously developed land (see table 4.4.1-2). The majority of the pipeline route would cross agricultural land (417 miles) while the remaining portion crosses pasture (91 miles), short-grass prairie (13 miles), mixed-grass prairie (131 miles), upland deciduous forest (19 miles), and rangeland/shrubland (23 miles), and approximately 3.6 miles of previously developed land, such as roads, railroads, residential areas, commercial and industrial areas, and existing utility rights-of-way. In addition, about 20.4 miles of wetland cover types would be crossed by the pipeline routes (see section 4.3.1.4). Projected acreage impacts are presented in table 4.4.1-3.

TABLE 4.4.1-2 Vegetation Communities Occurring along the Proposed REX-West Project Route			
Vegetation Community Type	General Description and Notes	Representative Plant Species	Location of Occurrence (State/County)
Agricultural Land	<ul style="list-style-type: none"> - includes cultivated fields that support crop species (primarily grain) - fields may be actively farmed or left fallow - includes irrigated and non-irrigated fields - the most commonly encountered vegetation type along the pipeline route 	primary crops include alfalfa and winter wheat (Colorado and Wyoming) and corn and soybeans (Nebraska, Kansas and Missouri)	All states and counties in the project area except Carbon and Sweetwater Counties, Wyoming
Pasture	<ul style="list-style-type: none"> - includes areas dominated by herbaceous species, most of which have been planted - subject to livestock grazing 	smooth brome, western wheatgrass, red clover	All states and counties in the project area except Carbon and Sweetwater Counties, Wyoming
Short-grass Prairie	<ul style="list-style-type: none"> - characterized by a dominance of low-growing herbaceous forbs and grasses 	blue grama, buffalograss, side-oats grama, prairie coneflower, coppermallow, clover, Kentucky bluegrass, western wheatgrass, little barley, clustered field sedge	Colorado – Logan Nebraska – Lincoln, Kearney, Thayer, Jefferson Kansas – Doniphan Missouri – Randolph
Mixed-grass Prairie	<ul style="list-style-type: none"> - characterized by a canopy of short grass and tall grass prairie species 	western wheatgrass, crested wheatgrass, buffalograss, Kentucky bluegrass, cheatgrass, blue grama, switchgrass, six weeks fescue, needle-and-thread grass, squirreltail, and red three-awn, prairie clover	Wyoming – Laramie Colorado – Logan, Sedgwick Nebraska – Kimball, Perkins, Lincoln, Dawson, Frontier, Gosper, Franklin, Webster, Nuckolls, Thayer, Jefferson, Kansas – Nemaha, Brown Missouri – Clinton, Chariton, Randolph, Audrain
Upland Deciduous Forest	<ul style="list-style-type: none"> - occurs in patches throughout the region 	yellow poplar, oak, paper birch, downy service berry, common red raspberry, black raspberry, stinging nettle, buckthorn, common plantain, clover	Nebraska – Frontier, Gosper, Franklin, Thayer, Jefferson, Gage Kansas – Marshall, Nemaha, Brown, Doniphan Missouri – Buchanan, Clinton, Caldwell, Carroll, Chariton, Randolph, Audrain

TABLE 4.4.1-2 (Continued)

Vegetation Communities Occurring along the Proposed REX-West Project Route

Vegetation Community Type	General Description and Notes	Representative Plant Species	Location of Occurrence (State/County)
Riparian Forest	- dominated by an overstory of tree species requiring perennial sources of water	cottonwood, tree willow, green ash, elm, junipers, locust, Russian olive	Nebraska – Franklin, Thayer, Jefferson, Gage Kansas – Marshall, Nemaha, Brown, Doniphan Missouri – Buchanan, Clinton, Caldwell, Carroll, Chariton, Randolph, Audrain
Rangeland/ Shrubland	- occurs with or without an herbaceous layer of short and mixed grass prairie plant species	sand sagebrush, sand dropseed, prairie sandreed, sandbur, sand lovergrass, switchgrass, big sandreed, blowout grass, wild plum, rabbitbrush, salt cedar, cheatgrass, blue grama, prickly pear, pincushion cacti	Colorado – Weld Nebraska – Kimball, Perkins, Kansas – Brown Wyoming – Sweetwater, Carbon
Previously Developed Land	- includes utility rights-of-way, commercial and industrial land, roads, railroads, and residential areas	ruderal vegetation growing on commercial and industrial properties and manicured landscapes in residential and recreational areas; mixture of native and introduced early successional plant species on utility rights-of-way	Colorado – Weld, Logan Nebraska – Lincoln, Phelps, Kearney, Nuckolls, Thayer, Jefferson, Gage Kansas – Nemaha, Brown Missouri – Buchanan, Clinton, Caldwell, Carroll, Chariton, Randolph, Audrain
Wetlands	- inundated or saturated areas that support a prevalence of wetland vegetation that thrive in saturated soil conditions	cottonwood, willow, locust, elm, thinleaf alder, river birch, red-osier dogwood, Baltic rush, sedges, inland saltgrass, bluejoint reedgrass, bent grass	All states and counties in the project area

TABLE 4.4.1-3												
Estimated Impacts on Vegetation Communities – REX-West Project (acres) <u>a/</u>												
Project Component	Agricultural Land		Prairie Grassland		Deciduous Forest		Rangeland/ Shrubland		Developed Land		Total	
	Temp	Perm	Temp	Perm	Temp	Perm	Temp	Perm	Temp	Perm	Temp	Perm
REX-WEST MAINLINE AND ECHO SPRINGS LATERAL												
Colorado	1,222.5	489.0	669.9	268.0	0	0	6.1	2.4	4.6	1.8	1903.1	761.2
Wyoming	71.6	28.6	19.7	7.9	0	0	63.9	31.9	0	0	155.27	68.4
Nebraska	2,912.7	1,165.0	1,679.8	671.8	33.4	13.4	0	0	25.8	10.3	4,651.7	1,860.5
Kansas	1,072.8	429.0	291.0	116.4	101.6	40.7	7.6	3.0	3.0	1.2	1,476.0	590.3
Missouri	1,297.2	518.8	975.0	389.9	363.3	145.3	0	0	24.1	9.7	2,659.6	1,063.8
Subtotal <u>b/</u>	6,576.8	2,630.4	3,635.4	1,454.0	498.3	199.4	77.6	37.3	57.5	23.0	10,845.6	4,344.1
TEMPORARY EXTRA WORKSPACE												
	490.8	0	475.3	0	72.7	0	5.5	0	5.9	0	1,050.2	0
NEW/UPGRADED ACCESS ROADS												
	0.8	0.8	0.8	0.8	0	0	0.1	0.1	0	0	1.7	1.7
CONTRACTOR YARDS												
	401.0	0	0	0	0	0	0	0	240.0	0	641.0	0
ABOVEGROUND FACILITIES (Compressor Stations, Meter Stations, and Launcher/Receiver at MP 286.5)												
	45.0	45.0	38.0	38.0	0	0	7.2	7.2	0	0	90.2	90.2
REX-West Project Totals <u>b/</u>	7,514.4	2,676.2	4,149.5	1,492.8	571.0	199.4	90.4	44.6	303.4	23.0	12,628.7	4,436.0
<u>a/</u> Estimated impacts on wetlands and riparian habitats are discussed in section 4.3.1.4, 4.3.2.4, and 4.3.3.4.												
<u>b/</u> Does not include wetland impacts.												

We discuss impacts on agricultural land, wetlands, and previously disturbed areas in sections 4.8.1.2, 4.3.1.4, and 4.8.1.4, respectively. The remaining vegetation communities are discussed below.

Pipeline Facilities

Rockies Express' proposed construction right-of-way and temporary extra workspaces would disturb approximately 7,067.6 acres of agricultural land, 4,110.7 acres of prairie grassland (*i.e.*, pasture, short-grass prairie, and mixed-grass prairie), 571.0 acres of deciduous forest 83.1 acres of rangeland (including sagebrush shrubland), and 63.4 acres of developed land. These impact areas reflect the entire length of the 125-foot-wide construction right-of-way for the mainline and the 100-foot-wide construction right-of-way for the Echo Springs Lateral, as well as identified temporary extra workspaces. Actual acreage impacted during construction may differ somewhat, as Rockies Express would reduce its right-of-way width in non-cultivated wetlands and certain other locations and could request increased width in other locations for engineering or constructability reasons. Newly identified or revised temporary extra workspaces could also affect acreage totals.

The primary impact on vegetation from construction of the REX-West Project would be the cutting, clearing, and/or removal of existing vegetation within the construction work area. The degree of impact would depend on the type and amount of vegetation affected, the rate at which vegetation would regenerate after construction, and the frequency of vegetation maintenance conducted on the right-of-way during pipeline operation.

Short-grass prairie and mixed-grass prairie areas may take 5 or more years to become reestablished due to poor soil conditions and low moisture levels. Impacts on pasture land would generally be shorter term, with vegetation typically becoming reestablished within 2 years. Impacts on these communities during operation of the pipeline would be minimal because these areas would be allowed to recover following construction and would typically not require maintenance mowing.

Clearing of trees within upland forest communities, including riparian forest, would result in long term and permanent impacts to these vegetation communities given the length of time needed for the community to mature to pre-construction conditions. All trees within the 30-foot-wide permanent easement would be permanently removed and prevented from reestablishing through the periodic mowing and brush clearing required for pipeline operation.

Impacts on shrubland would be long term due to the time required to reestablish the woody vegetation characteristic of this community type. Permanent impacts on shrubland would result primarily from right-of-way maintenance activities. Rockies Express' maintenance activities would be conducted in accordance with Rockies Express' Plan and Procedures, including annual vegetation clearing over a 10-foot-wide corridor centered over the pipeline and vegetation clearing every 3 years within the 50-foot-wide permanent right-of-way in non-riparian areas. These clearing activities would prevent larger woody species from reverting to preconstruction form and size. Impacts related specifically to rangeland are discussed in section 4.8.1.3.

To reduce impacts on vegetation within the construction and permanent rights-of-way and to improve the probability of successful revegetation of disturbed areas, Rockies Express would implement the measures included in its Plan. These measures require Rockies Express to:

- provide temporary and permanent erosion control measures. Temporary measures include the application of mulch and the creation of temporary slope breakers. Permanent measures include trench breakers, permanent slope breakers, and right-of-way revegetation;

- test topsoil and subsoil for compaction at regular intervals in agricultural and residential areas disturbed by construction activities. Conduct tests on the same soil type under similar moisture conditions in undisturbed areas to approximate preconstruction conditions;
- restore pre-construction contours and natural drainage patterns within the construction right-of-way. This effort would reduce erosion and the resulting loss of topsoil from the right-of-way, thereby improving the potential for successful revegetation;
- fertilize and add soil pH modifiers in accordance with written recommendations obtained from the local soil conservation authority, land management agencies, or landowner. Incorporate recommended soil pH modifier and fertilizer into the top 2 inches of soil as soon as possible after application; and
- monitor the right-of-way for the first year following construction and again during the second growing season. In non-agricultural lands, revegetation would be considered successful, if upon visual survey, the density and cover are similar to adjacent undisturbed lands. Rockies Express would employ additional revegetation efforts, if necessary, until revegetation is deemed successful.

A number of federal and state agencies, including the FWS, NGPC, MDC, and the CDOW, have commented that Rockies Express should restore native prairie grasslands to pre-construction conditions using appropriate seed mixes. Rockies Express contacted the NRCS to develop seed mixes for the project appropriate for these native prairies. A list of NRCS recommended seed mixes is provided in appendix F. Rockies Express would use either the NRCS-recommended seed mixes, or those requested by the landowner during easement negotiations, to restore areas disturbed by construction of the REX-West Project. We conclude that impacts on prairie grasses vegetation would be minimized through the use of these restorative seed mixes and the implementation of Rockies Express' Plan.

Aboveground Facilities

Construction of Rockies Express's aboveground facilities, including compressor stations, meter stations, launcher/receivers, and access roads would affect agricultural land, prairie grassland, and rangeland. Construction would permanently remove vegetation at each site during the installation of buildings, equipment, and hardened surfaces such as paved or gravel access roads and parking areas. Construction of the aboveground facilities would permanently convert about 45.0 acres of agricultural land, 38.0 acres of prairie grassland, and 7.2 acres of rangeland to natural gas facility use (see table 4.4.1-3). We do not consider this to be a significant impact, as this represents a very small percentage of the total available land of similar type in the surrounding project area.

4.4.1.2 Vegetation Communities of Special Concern or Value

The REX-West pipeline route crosses nine vegetation communities of special concern or value that are considered unique, sensitive, or protected (see table 4.4.1-4) (CNHP 2006; NNHP 2006). Two of these communities are in Colorado and seven are in Nebraska. The aboveground facilities would not affect any vegetation communities of special concern or value.

As previously identified, we received comments from the NGPC regarding native plant communities. The NGPC has recently completed a comprehensive wildlife conservation strategy that identifies the conservation and restoration of natural communities as a primary means to conserving the vast majority of species in the state. The introduction of exotic species has been identified as a primary threat to natural communities in Nebraska.

TABLE 4.4.1-4

Vegetation Communities of Special Concern or Value Crossed by the REX-West Project

Vegetation Community	County/State	MP Crossing Range	Rank <u>a/</u>
Mixed foothills shrubland	Weld, CO	10.82 – 11.84	S2
Montane Grassland	Weld, CO	11.84 – 13.86	S2 S3
Sandsage prairie	Perkins, NE	165.5 – 167.2	S2 <u>b/</u>
Sandhills dune prairie	Lincoln, NE	205 – 210	S5
Dry-mesic sand prairie	Lincoln, NE	217.7 – 218.6	S4
Pond marsh	Kearney, NE	311.2 – 311.71	S3
Lowland Bur Oak Forest <u>c/</u>	Jefferson, NE	413.8	SNR
Eastern riparian forest	Jefferson, NE	414.2	SNR
Tallgrass prairie	Jefferson, NE	415.5 – 416.0	S2

a/ Rarity Ranking System

S2 – Imperiled in the state because of rarity or other factors making it very vulnerable to extirpation from the state (typically 6 to 20 occurrences or few remaining individuals or acres).

S3 – Rare and uncommon in the state (21 to 80 occurrences)

S4 – Widespread, abundant, and apparently secure in the state, with many occurrences, but the Element is of long-term concern (81 to 300 occurrences).

S5 – Demonstrably widespread, abundant, and secure in the state, and essentially ineradicable under present conditions (more than 300 occurrences).

SNR – Element not yet ranked.

b/ Qualifier is used with numeric ranks to denote uncertainty; more information may be needed to assign a rank with certainty.

Note: An S1 ranking refers to critically imperiled in the state because of extreme rarity or other factors making it especially vulnerable to extirpation from the state (typically 5 or fewer occurrences or very few remaining individuals or acres). There were no S1 communities identified that would be crossed by the REX-West Project.

c/ Located within the Rose Creek Wildlife Management Area.

The NGPC commented that impacts on native prairies should be minimized by the use of native seed mixes to help stabilize the soils within areas disturbed by the project and to prevent erosion. The NGPC also made a number of recommendations associated with the lowland bur oak forest crossed by the REX-West route in the vicinity of MP 413.8 within the Rose Creek Wildlife Management Area (WMA). Any remaining tracts of lowland bur oak forest are important because most presettlement tracts were cleared for timber and have been degraded by overgrazing. The NGPC recommended that Rockies Express implement the following measures to avoid impacts on the bur oak forest and the Rose Creek WMA:

- avoid, as much as possible, cutting large oak trees and disturbing the soil within the oak woodlands. If directional boring would be used for the pipeline crossing of Rose Creek, avoidance could be achieved by starting the boring outside of the oak zone, precluding the need to cut trees;
- use BMPs (*e.g.*, mesh, etc.) to prevent soil erosion in disturbed areas and at the stream crossing;
- compact the soil after the pipeline is buried and the disturbed soil is replaced in order to avoid and minimize the potential for future erosion along the pipeline; and
- not reseed disturbed areas with exotic plants or non-local plants.

Rockies Express has agreed in general to adhere to the NGPC's recommendations described above and would implement the measures in its Plan to further minimize impacts to native plant communities in Colorado and Nebraska. Rockies Express states it would coordinate with the NGPC and Rose Creek WMA staff to determine an appropriate seed mix to use for restoration of native prairie communities. Rockies Express has suggested additional potential minimization techniques, including

narrowing the construction corridor across sensitive areas, boring, plant relocation, or mitigation banking, but has not committed to implementing specific measures.

We believe that Rockies Express should identify which specific measures it would commit to in order to minimize impacts on the Rose Creek WMA and other vegetative communities of special concern identified in table 4.4.1-4. Rockies Express stated in its comments on the draft EIS that it would continue to consult with the NGPC and the Colorado Natural Heritage Program regarding site-specific crossing plans and/or measures to avoid, minimize, and mitigate impacts on each of the vegetation communities of special concern listed in table 4.4.1-4 of the EIS. These measures would include methods to avoid and minimize the introduction of non-native species, and would include site-specific restoration and reseeding measures. In order for us to ensure the adequacy of these plans and verify that agency concerns are being addressed, **we recommend that Rockies Express file any site-specific crossing plans and minimization measures regarding vegetation communities of special concern. This information should be filed for the review and written approval of the Director of OEP before the start of construction.**

4.4.1.3 Conservation Reserve Program

The REX-West pipeline route would cross approximately 36 miles of land in Colorado, Nebraska, Kansas, and Missouri that is enrolled in the CRP. The CRP land crossed by the proposed route is dominated by mixed-grass prairie grassland species as described in table 4.4.1-2. The CRP is managed and administered by the USDA, Farm Service Agency (FSA). The program provides eligible farmers and ranchers both technical and financial assistance to conserve and protect soil, water, and related natural resources on their land. It also provides these individuals guidance and assistance in complying with federal, state, and Tribal environmental laws and, therefore, helps enable environmental enhancement. The CRP encourages farmers to convert highly erodible cropland or other environmentally sensitive acreage to vegetative cover such as native grasses, wildlife plantings, trees, filter strips, or riparian buffers.

Construction of the REX-West pipeline would impact approximately 545 acres of CRP land, and operation would impact about 218 acres. Temporary and permanent impacts on CRP land would generally be the same as described previously for vegetation. To minimize environmental impacts and ensure site stabilization and revegetation, Rockies Express would implement its Plan and Procedures. To further minimize impacts on CRP land, we have noted in section 4.2.1.3 that Rockies Express would be required to implement either full right-of-way topsoil stripping or the ditch-plus-spoil-side topsoil segregation method in CRP land. Rockies Express would also reseed disturbed areas with a seed mix recommended by the NRCS or landowners specifically for CRP lands. We believe that impacts on CRP land would be minimized through the use of these restorative seed mixes and the implementation of the Plan and Procedures.

4.4.1.4 Noxious Weeds

Noxious weeds and other invasive plants are non-native, undesirable native, or introduced species that are able to exclude and outcompete desirable native species, thereby decreasing overall species diversity. The term “noxious weed” is legally defined under both federal and state laws. Under the Federal Plant Protection Act of 2000 (formerly the Noxious Weed Act of 1974 [7 USC SS 2801-2814]), a noxious weed is defined as “any plant or plant product that can directly or indirectly injure or cause damage to crops, livestock, poultry, or other interests of agriculture, irrigation, navigation, the natural resources of the United States, the public health, or the environment.” The Federal Plant Protection Act contains a list of 137 federally restricted and regulated federal noxious weeds, as per CFR Title 7, Chapter III, Part 360, including 19 aquatic and wetland weeds, 62 parasitic weeds, and 56 terrestrial weeds. Each

state is federally mandated to uphold the rules and regulations set forth by this Federal Plant Protection Act and manage its lands accordingly.

Noxious weeds are addressed by Executive Order 13112, which directs federal agencies to prevent the introduction of invasive species; provide for their control; and minimize the economic, ecological, and human health impacts that invasive species can cause. The executive order further specifies that federal agencies shall not authorize, fund, or carry out actions likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere unless it has been determined that the benefits of such actions outweigh the potential harm caused by invasive species and that all feasible and prudent measures to minimize the risk of harm will be taken in conjunction with the actions.

In addition to federal noxious weed lists, each state crossed by the proposed REX-West Project maintains a list of regulated and prohibited noxious and invasive weed species. County weed control boards or districts are present in most counties crossed by the pipeline route. These county weed control boards monitor local weed infestations and provide guidance on weed control.

After disturbances to the soil, vegetation communities can be susceptible to infestations of invasive or noxious weed species. Vegetation removal and soil disturbance during construction could create optimal conditions for the establishment of undesirable species. Construction equipment traveling from weed-infested areas into weed-free areas could disperse invasive or noxious weed seeds and propagates, resulting in the establishment of noxious weeds in previously weed-free areas.

A number of federal and state agencies submitted comments requesting that disturbed areas be revegetated with native plant species that are currently found in the project area. Rockies Express proposes to control the introduction and spread of noxious weeds by implementing the construction and restoration procedures detailed in its Plan, including the following:

- coordinating with the appropriate local, state, and federal agencies as outlined in the Plan to, 1) obtain written recommendations from local soil conservation authorities or land management agencies regarding permanent erosion control and revegetation specifications and 2) develop specific procedures in coordination with the appropriate agency to prevent the introduction or spread of noxious weeds resulting from construction and restoration activities;
- ensuring that the EI(s) verify that all soil imported for agricultural or residential use has been certified as weed-free, unless otherwise approved by the landowner;
- ensuring that the contractor will use only weed-free straw or hay for sediment control devices or mulch applications;
- cleaning all equipment and vehicles prior to the beginning of construction. All equipment would be inspected by the EI(s), who would require any necessary additional cleaning before allowing equipment to enter the right-of-way; and
- monitoring restoration for 3 years following construction in wetlands, and during the first and second growing seasons in uplands.

While these measures would contribute to the minimization of impacts from noxious weeds during construction, we believe that additional measures should be taken by Rockies Express to ensure that all federal, state, and local agency concerns regarding noxious weeds have been addressed. Rockies Express is in the process of developing a project-wide noxious weed control plan but has not identified or indicated whether there are any existing locations along the proposed REX-West route that are currently experiencing noxious weed infestations. We believe that Rockies Express should identify existing weed infestations and any other potential noxious weed problem on all lands, regardless of ownership, and should have a specific plan in place to address these locations. In its comments on the

draft EIS, Rockies Express stated that it is preparing a noxious weed control plan in consultation with land management agencies and local weed control experts. This plan will specifically identify locations along the proposed construction right-of-way that are currently experiencing noxious weed infestations and will include measures to address these infestations during construction. The plan will also address measures that would be used for any new weed infestations that present themselves following construction. These measures will specify the proposed weed control methods and the criteria used to determine which method would be employed. **We recommend that prior to construction, Rockies Express should file its noxious weed control plan, along with any applicable local agency documentation showing approval of the plan, for review and written approval of the Director of OEP.**

We believe that Rockies Express' proposed measures, including the use of its Plan, as well as our additional recommendations, would minimize the REX-West Project's impacts on vegetation communities and would minimize the spread of noxious weeds.

4.4.2 TransColorado

4.4.2.1 General Vegetation Resources

TransColorado conducted field surveys during April 2006 to document existing vegetation resources at its Blanco to Meeker project facility sites (see table 4.4.2-1). No vegetation communities of special concern or value were identified at the Blanco to Meeker Project sites.

Project Component	Shrubland	Sagebrush/ Shrubland	Sagebrush/ Grassland	Juniper Woodland	Industrial/ Commercial	Total
Blanco Compressor Station	0	0	4.0	1.7		5.7
Blanco Hub Meter Station	0	0	0	0	0.2	0.2
Blanco Discharge-Suction Line	0	0	0.8	0	0	0.8
Blanco Receipt Pipeline	0	0	1.0	0	1.0	2.0
Blanco Lateral Pipeline	0	0	0	0	0.1	0.1
Blanco Compressor Station Access Road	0	0	0.5	0	0	0.5
<i>Blanco Subtotal</i>	<i>0</i>	<i>0</i>	<i>6.3</i>	<i>1.7</i>	<i>1.3</i>	<i>9.3</i>
Conn Creek Compressor Station	0	3.1	3.0	0	0	6.1
Conn Creek Compressor Station Access	0	2.7	0	0	0	2.7
<i>Conn Creek Subtotal</i>	<i>0</i>	<i>5.8</i>	<i>3</i>	<i>0</i>	<i>0</i>	<i>8.8</i>
Greasewood Compressor Station	0.7	0	0	0	3.6 <u>a/</u>	4.3
<i>Greasewood Subtotal</i>	<i>0.7</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>3.6</i>	<i>4.3</i>
Blanco to Meeker Project Totals	0.7	5.8	9.3	1.7	4.9	22.4

a/ Existing Compressor Station facility.

Blanco Compressor Station

Vegetation at TransColorado's proposed Blanco Compressor Station site consists of two plant communities. The northern third of the project area is vegetated with a scattered piñon – Utah juniper woodland with minimal understory vegetation, while the southern two-thirds of the site is within a

sagebrush grassland. Dominant understory species in the woodland include big sagebrush, broom snakeweed, Mormon tea, and blue grama. Total vegetative cover on the project site was visually estimated by TransColorado at 20 percent.

Vegetation cover for the receipt pipeline north of County Road 4919 is similar to the sagebrush grassland community located in the southern portion of the compressor station site. The receipt line, lateral line, and meter station are located south of the county road in an industrial area with gravel/asphalt ground cover.

Construction of the proposed Blanco Compressor Station and the discharge-suction lines, receipt line, lateral line, and meter station would result in the temporary disturbance of approximately 5.5 acres of sagebrush grassland (of which 0.5 acre would be impacted by a new access road) and 1.7 acres of juniper woodland. Approximately 60-80 juniper trees would be removed during the construction.

TransColorado has contacted the BLM, Farmington Field Office, about recommended seed mixes for reseeded at the Blanco Compressor Station site. Table 4.4.2-2 lists the BLM-recommended seed mixes for this site. The NMDGF recommends the use of exclusively native species while acknowledging the BLM priority for specifying seed mixes on federal land.

Common Name	Variety	% for Mix	Pure Live Seed (PLS) Lbs/Acre
Western Wheatgrass	Arriba	23%	3.0
Indian Ricegrass	Paloma or Rimrock	23%	3.0
Slender Wheatgrass	San Luis	15%	2.0
Crested Wheatgrass	Hy-Crest	22%	3.0
Bottlebrush Squirreltail		15%	2.0
Four-wing Saltbush		2%	0.25

Notes: All rates shown are for PLS. All seed shall be certified noxious weed free prior to use. The amount of seed per acres is for a drilled rate. For broadcast applications the rate will be doubled. BLM forwarded recommended seed mix to NMDGF on 1/23/2007 for their records.

Conn Creek Compressor Station

Vegetation at TransColorado’s proposed Conn Creek Compressor Station site is composed of a disturbed plant community and a sagebrush-shrubland community. The disturbed community consists of open pastureland (dominated by crested wheat and alfalfa) and a previously seeded pipeline corridor (dominated by crested wheat and four-winged saltbush). The site is crossed by a TransColorado 22-inch-diameter natural gas pipeline and a Rocky Mountain Natural Gas 8-inch-diameter pipeline. The sagebrush shrubland community occurs on the western half of the site and is dominated by big sagebrush, greasewood, and skunkbrush. In addition, approximately 12 box elder and 10 junipers are within the proposed compressor station site.

Construction of the Conn Creek Compressor Station would result in the temporary disturbance of approximately 3.1 acres of sagebrush shrubland and 3.0 acres of sagebrush grassland. In addition, a new access road would impact 2.7 acres of sagebrush shrubland.

Greasewood Compressor Station

Vegetation at TransColorado's existing Greasewood Hub facility is dominated by shrubs such as big sagebrush, rabbitbrush, and serviceberry and by herbaceous species such as snakeweed, cheatgrass, curlycup gumweed, common mullein, blue mustard, and globemallow. This compressor station site is within a previously disturbed area but contains native vegetation.

Construction at the Greasewood site would result in the permanent disturbance of about 0.7 acres of shrubland. The specific area was previously used as temporary extra workspace for the construction of the Greasewood facility in 2004. The remainder of the site is an existing compressor station and is not vegetated.

4.4.2.2 Noxious Weeds

One noxious weed species (black henbane) was recorded by TransColorado during a biological field survey of the Greasewood Compressor Station site. Plants were found along the eastern boundary of the project area, adjacent to existing oil field road. Two noxious weed species (common burdock and common mullien) were identified at the Conn Creek Compressor Station site. These plants were scattered throughout the eastern portion of the proposed site. No noxious weeds were observed at the Blanco Compressor Station site.

The CDOW has commented that the continuous control and removal of non-native weeds on disturbed sites will help restore native vegetation with value to wildlife. TransColorado proposes to control the introduction and spread of noxious weeds by implementing the construction and restoration procedures detailed in the FERC Plan. In addition, to address agency concerns, TransColorado developed a noxious weed protection plan that identifies specific measures it would implement to prevent the spread of noxious weed during and following construction. TransColorado would:

- ensure that all construction equipment and vehicles arrive at the work site clean and weed free;
- grade, stockpile, and isolate vegetation and topsoil in areas with known infestation, as well as on the side of the right-of-way adjacent to where it was stripped to reduce the potential for transport along the right-of-way;
- immediately restore disturbed areas after construction;
- avoid the use of fertilizers on restored areas to minimize the potential for weeds to take root; and
- use certified weed-free straw bales for sediment barriers.

We believe that TransColorado's proposed measures, including the use of the FERC Plan, as well as its noxious weed protection plan, would minimize the Blanco to Meeker Project's impacts on vegetation communities and would minimize the spread of noxious weeds.

4.4.3 Overthrust

4.4.3.1 General Vegetation Resources

Seven general vegetation communities characterize the Wamsutter Expansion Project area: sagebrush steppe, desert shrubland, sagebrush scrub, greasewood, barren land, juniper, and salt desert scrub.

Sagebrush steppe is a semi-closed, treeless plain characterized by an overstory of sagebrush and understory of grasses, forbs, and smaller shrubs. Grass species comprise more than 50 percent of the species composition in this community; however, basin big sagebrush and Wyoming big sagebrush are the dominant shrub components throughout. Common grasses include Indian ricegrass, needle and thread grass, western wheatgrass, bluebunch wheatgrass, Sandberg bluegrass, and bottlebrush squirreltail. Black sagebrush occurs within this habitat and on areas with drier, coarser-textured, shallower soils such as on wind-swept ridges. Desert shrubland occurs in large, scattered patches within this area, forming a mixed shrubland mosaic.

Desert shrubland typically supports a greater percent cover and variety of vegetation than salt desert scrub, and occurs on less saline soils. Common shrub species include shadscale, rubber rabbitbrush, Gardner saltbush, greasewood, basin big sagebrush, Wyoming big sagebrush, and winterfat. Perennial grasses that commonly occur within desert shrubland include Indian ricegrass and needle and thread grass. Desert scrub communities occur as a mosaic within sagebrush steppe habitat in southwestern and south central Wyoming.

Sagebrush scrub occurs in semi-arid areas (10 to 14 inches annual precipitation) on gently sloping terrain and at elevations from about 5,700 to 7,500 feet. This vegetation type is characterized by an overstory of dense sagebrush with a sparse understory of grasses, forbs, and smaller shrubs (less than 50 percent cover). Big sagebrush is the dominant species.

Greasewood shrubland is dominated by greasewood and is typically found along the fringes of playas, desert lakes, ponds, rivers, and creeks. Saltgrass, alkali sacaton, and saltbush species commonly occur in habitat dominated by greasewood.

Barren areas typically occur on erosive slopes and cliffs, and support sparse vegetation cover composed of various grasses and low-growing shrub species.

Utah juniper is typically the dominant juniper species in this region. Juniper reach 15 to 25 feet at maturity. The tree crowns rarely touch in these open woodlands and form a canopy cover of 15 to 30 percent. Tree height and density are higher on more favorable sites. The understory varies greatly. Associated shrub species include big sagebrush, mountain mahogany, broom snakeweed, and rabbitbrush. Common grasses include Sandberg bluegrass, needlegrasses, Indian ricegrass, and western wheatgrass.

Salt desert scrub is characterized by relatively sparse plant cover consisting of low-growing shrub species, with perennial grasses intermixed at times. The dominant shrub species include two varieties of Gardner's saltbush.

Construction of the Wamsutter Expansion Project would disturb approximately 412.9 acres of sagebrush steppe, 332.8 acres of desert shrubland, 220.7 acres of sagebrush scrub, 71.0 acres of greasewood, 64.1 acres of barren land, 42.8 acres of juniper, and 18.9 acres of and salt desert scrub (see table 4.4.3-1). The primary impact of the proposed project on vegetation would be the cutting, clearing, and/or removal of existing vegetation within the construction work area. After construction, the

vegetation along the majority of the pipeline right-of-way would be allowed to revert to pre-construction conditions.

TABLE 4.4.3-1		
Estimated Impacts on Vegetation Communities – Wamsutter Expansion Project (acres)		
Project Component and Vegetation Community	Construction Right-of-Way <u>a/</u>	Permanent Right-of-Way <u>b/</u>
Pipeline		
Sagebrush Steppe	403.5	160.3
Desert Shrubland	322.6	134.3
Sagebrush Scrub	219.9	88.3
Greasewood	67.1	26.5
Barren	61.4	24.1
Juniper	42.8	14.5
Salt Desert Scrub	18.9	7.6
Developed	6.6	2.4
TL-90 Tie-in (Barren)	1.6	0.8
Total	1,144.48	458.8
Temporary Extra Workspaces		
Sagebrush Steppe	3.5	0.0
Desert Shrubland	1.2	0.0
Sagebrush Scrub	0.8	0.0
Greasewood	3.9	0.0
Barren	1.1	0.0
Developed	1.0	0.0
Total	11.5	0.0
Aboveground Facilities		
Opal Receipt Points (Developed)	0.0 <u>c/</u>	0.0 <u>c/</u>
Roberson Compressor Station (Desert Shrubland)	7.6	7.6
Rock Springs Compressor Station (Sagebrush Steppe)	5.9	5.9
Wamsutter Delivery Point (Desert Shrubland)	1.4	1.4
Wamsutter Expansion Project Total	14.9	14.9
<u>a/</u> Based on a 110-, 125-, to 150-foot-wide construction right-of-way for the pipeline.		
<u>b/</u> Based on a 50-foot-wide permanent right-of-way for the pipeline.		
<u>c/</u> To be constructed and maintained completely within fenced and graveled sites constructed for other projects; therefore, no additional vegetation impacts beyond that already experienced would occur.		

No unique, sensitive, or protected vegetation communities have been identified at locations crossed by the Wamsutter Expansion Project route.

To minimize environmental impacts and ensure site stabilization and revegetation, Overthrust would follow construction procedures detailed in its Plan, which describes methods that would be implemented to stabilize disturbed sites by reducing runoff and erosion; to reestablish a vegetation condition comparable to preconstruction conditions; to restore functional qualities of the area including wildlife habitat and livestock forage; and to prevent degradation of areas off the construction right-of-way. Section VII.A.2. of Overthrust’s Plan states that revegetation in non-agricultural areas would be considered successful if 1) upon visual survey the density and cover of non-nuisance vegetation are similar in density and cover to adjacent undisturbed lands; 2) plant vigor of desirable plants (measured as the height of dominant plants) and community diversity (measured as the number of desirable plants) are 50 percent or more of adjacent stands of the same community type; and 3) there is evidence of reproduction within reclaimed plant communities. Criterion 1 is consistent with the FERC Plan; however, we disagree with the addition of criteria 2 and 3 and do not approve of their use as a revegetation standard. In its comments on the draft EIS, Overthrust agreed to remove criteria 2 and 3 from its Plan.

Overthrust would also minimize impacts on vegetation by following the measures outlined in its SPCC Plan and its Storm Water Pollution Prevention Plan.

Upon completion of construction, disturbed areas would be revegetated in compliance with Overthrust's Plan, or in accordance with site-specific requirements from applicable federal, state, and local agencies. Timely stabilization of the construction right-of-way and reseeding with an appropriate seed mix would minimize the duration of vegetation disturbance.

Long-term impacts may occur on sagebrush steppe, as well as native shrublands. Recovery of these habitats may take a minimum of 5 to 7 years due to poor soil and low moisture conditions. Long-term construction impacts may occur on some shrublands, such as sagebrush scrub. Recovery of these habitats may take a minimum of 20 to 30 years. Clearing of woodland vegetation within the construction right-of-way would result in long-term and permanent environmental change. In this region, it is anticipated that regrowth of woodlands to mature conditions could take between 50 to 100 years, depending on the species (long-term impact). Permanent impacts on woodlands would be limited to the operational right-of-way, which Overthrust would maintain in an herbaceous state by occasional mowing or brush clearing.

Impacts resulting from construction of the Wamsutter Expansion Project would result in the long-term and permanent loss of non-herbaceous vegetation, and would cause a small incremental increase in fragmentation. However, the effects would generally be small relative to the available habitat in the region.

4.4.3.2 Noxious Weeds

The BLM maintains a list of invasive species, some of which may occur within the proposed Wamsutter Expansion Project area in Wyoming. These are species that the BLM attempts to manage in western states. Overthrust has consulted with the BLM, Sweetwater County Weed and Pest (Cotterman, 2006) and Lincoln County Weed and Pest (Lincoln County Weed and Pest, 2006) in order to identify noxious weeds that could occur within the proposed project area and known locations of noxious weed infestations crossed by the project route. Based on these consultations, Overthrust has identified the following noxious weeds as potentially occurring along the pipeline route: Canada thistle, black henbane, halogeton, hoary cress (whitetop), field pennycress, musk thistle, perennial pepperweed, and tamarisk.

To control the spread of noxious weeds, Overthrust has proposed the following measures:

- re-contour, stabilize, and revegetate the construction right-of-way immediately after pipeline construction;
- seed all disturbed soils within 6 working days of final grading (weather and soil conditions permitting);
- require that all equipment be free of soil, debris, and plant matter before traveling to the project area;
- only use certified weed free straw, hay, and mulch;
- only use seed mixtures free of Wyoming declared weeds; and
- use herbicides as necessary to control weeds following construction for a minimum of 2 years.

In addition to the measures listed above, on federal lands Overthrust would adopt BLM-recommended stipulations pertaining to the appropriate use of herbicides and pesticides along with

record-keeping requirements. Overthrust would implement the appropriate weed control measures (*e.g.*, spraying) along the right-of-way on BLM lands for the life of the project. The BLM would require that Overthrust prepare and submit for approval, a noxious weed and invasive species plan as part of its POD.

We believe that with Overthrust's implementation of these measures, the Wamsutter Expansion Project's impact on the spreading or establishment of noxious weeds would be minimized.

4.5 WILDLIFE

4.5.1 Rockies Express

The five-state REX-West Project area encompasses a diversity of animal taxa including large and small mammals, raptors, waterfowl, songbirds, snakes, lizards, turtles, and various amphibians. These wildlife species are discussed in the following sections.

4.5.1.1 General Wildlife Resources

The predominant wildlife habitats in the REX-West Project area consist of agricultural land, grasslands (short-grass prairie, mixed-grass prairie, and pasture), forest and woodland, wetland and riparian areas, and shrubland. These vegetation communities provide foraging, cover, and breeding habitat for a diversity of wildlife species (see also section 4.4.1). Table 4.5.1-1 contains a list of common wildlife species that could occur in the REX-West Project area.

Species	Colorado	Wyoming	Nebraska	Kansas	Missouri
MAMMALS					
Big Game					
white-tailed deer	X	X	X	X	X
mule deer	X	X	X	X	
elk	X	X			
pronghorn	X	X			
Small Game and Non-Game					
coyote	X	X	X	X	X
swift fox	X	X			
red fox	X	X	X	X	X
bobcat	X	X			
raccoon	X	X	X	X	X
mink	X	X	X	X	X
river otter	X	X	X	X	X
American badger	X	X	X	X	X
spotted skunk	X	X	X	X	X
striped skunk	X	X	X	X	X
opossum				X	X
keen myotis			X	X	X
little brown myotis	X	X	X	X	X
small-footed myotis	X	X	X	X	X
hoary bat	X	X	X	X	X
woodchuck					X
black-tailed prairie dog	X	X	X		
American beaver	X	X	X	X	X
thirteen-lined ground squirrel	X	X	X	X	X
spotted ground squirrel	X	X	X		
Franklin ground squirrel			X	X	X
eastern fox squirrel			X	X	X
plains pocket mouse	X		X	X	
plains harvest mouse	X	X	X	X	
white-footed mouse	X	X	X	X	X
deer mouse	X	X	X	X	X
prairie vole	X	X	X	X	X
short-tail shrew	X		X	X	X
least shrew	X		X	X	X
white-tailed jackrabbit	X	X	X	X	X
black-tailed jackrabbit	X	X	X	X	
eastern cottontail	X	X	X	X	X

TABLE 4.5.1-1 (Continued)

Representative Wildlife Species – REX-West Project Area

Species	Colorado	Wyoming	Nebraska	Kansas	Missouri
BIRDS					
Upland Game Birds					
northern bobwhite	X		X	X	X
ring-necked pheasant	X	X	X	X	X
sharp-tailed grouse		X	X		
greater prairie chicken			X	X	
wild turkey	X	X	X	X	X
sage grouse	X	X			
Wading Birds					
eared grebe	X	X	X		
pied-billed grebe	X	X	X	X	X
western grebe	X	X			
black-crowned night heron			X	X	X
great egret					X
great blue heron	X	X	X	X	X
killdeer	X	X	X	X	X
Waterfowl					
double crested cormorant	X	X			
Canada goose	X	X	X	X	X
northern shoveler	X	X	X	X	
mallard	X	X	X	X	X
green-winged teal	X	X	X	X	X
common goldeneye	X	X	X	X	X
common merganser	X	X	X	X	X
common snipe	X	X	X	X	X
Raptors					
turkey vulture	X	X	X	X	X
northern harrier	X	X	X	X	X
red-tailed hawk	X	X	X	X	X
ferruginous hawk	X	X	X	X	
rough-legged hawk	X	X	X	X	X
American kestrel	X	X	X	X	X
merlin	X	X	X	X	X
great horned owl	X	X	X	X	X
barn owl	X	X	X	X	X
Passerines					
western meadow lark	X	X	X	X	X
dark-eyed junco	X	X	X	X	X
white-crowned sparrow				X	X
American tree sparrow	X	X	X	X	X
house sparrow	X	X	X	X	X
song sparrow	X	X	X	X	X
common yellow-throat	X	X	X	X	X
horned lark	X	X	X	X	X
western kingbird	X	X	X	X	
mourning dove	X	X	X	X	X
lark bunting	X	X	X		
lark sparrow	X	X	X	X	X
Harris' sparrow			X	X	X

TABLE 4.5.1-1 (Continued)					
Representative Wildlife Species – REX-West Project Area					
Species	Colorado	Wyoming	Nebraska	Kansas	Missouri
REPTILES					
Turtles					
snapping turtle	X	X	X	X	X
western painted turtle	X	X	X	X	X
western spiny softshell turtle	X	X	X	X	X
ornate box turtle			X	X	X
Lizards					
northern prairie lizard			X	X	
eastern short-horned lizard	X	X			
Snakes					
northern water snake			X	X	X
red-sided garter snake			X	X	X
plains garter snake	X	X	X	X	X
eastern yellowbelly snake	X	X	X	X	X
bull snake	X	X	X	X	X
western rattlesnake	X	X	X		
AMPHIBIANS					
tiger salamander	X	X	X	X	X
American toad					X
plains spadefoot toad	X	X	X	X	
Woodhouse's toad	X	X	X	X	X
great plains toad	X		X	X	
bullfrog			X	X	X
chorus frog	X	X	X	X	X
X = Species may be present based on known geographic range and occurrence records.					

Construction of the REX-West pipeline, including temporary extra workspaces, would temporarily disturb about 12,110.6 acres of wildlife habitat during construction and would permanently disturb about 4,286.2 acres through pipeline right-of-way maintenance related to ongoing operation. Construction and operation of the aboveground facilities and access roads would permanently disturb about 88.9 acres of wildlife habitat.

The impact of the REX-West Project on wildlife species and their habitats would vary depending on the requirements of each species and the existing habitat present along the pipeline route. Direct impacts from construction would include the displacement of wildlife along the right-of-way and direct mortality of some individuals. Larger or more mobile wildlife, such as birds and large mammals, would leave the vicinity of the right-of-way as construction activities approach. Depending on the season, construction could also disrupt bird courting or nesting, and breeding behaviors of other wildlife on and adjacent to the right-of-way. Many of these animals would relocate into similar habitats nearby; however, if there were a lack of adequate territorial space, some individuals could be forced into suboptimal habitats. This could increase inter- and intra-specific competition and lower reproductive success and survival. The influx and increased density of animals in some undisturbed areas caused by these dislocations could also reduce the reproductive success of animals that are not displaced by construction. Additionally, some smaller, less mobile wildlife, such as small mammals, reptiles, and amphibians could be crushed by construction equipment or trapped in trenches. These effects, however, would cease after completion of construction, and wildlife could return to the newly disturbed areas and adjacent, undisturbed habitats after right-of-way restoration is completed.

The cutting, clearing, and/or removal of existing vegetation would also affect wildlife by reducing the amount of available habitat. The degree of impact would depend on the type of habitat affected and the rate at which vegetation regenerates after construction. The impact on species that commonly inhabit agricultural land would be relatively minor and temporary because these areas are regularly disturbed and would be replanted during the next growing season following installation of the pipeline. The effect on forest-dwelling wildlife species would be greater because forest habitat would take a comparatively longer time to regenerate and would be prevented from reestablishing on the permanent right-of-way during pipeline operation. The impacts on grassland and shrub-dwelling species would be less than that of forest-dwelling species, but regeneration of these habitats would still take a minimum of 3 to 5 years due to the arid conditions that prevail along much of the western portion of the pipeline route (where shrub habitat is most common). Sagebrush may take from 10 to 50 years to revegetate following construction and, if subjected to heavy grazing and drought, may not recover to preconstruction conditions for many additional years. Although the structural component of shrub-dominated habitats would recover slowly, successful restoration of non-woody vegetation may improve the values of forage for some wildlife within a relatively short time.

This habitat loss would not have a significant impact on wildlife in the area because of the linear nature of the disturbance and the abundance and availability of nearby and similar wildlife habitats over the expansive project area. Furthermore, Rockies Express' implementation of its Plan and basing seed mixes on those prescribed by the local NRCS offices would improve the potential for successful revegetation of the right-of-way after construction.

Habitat fragmentation is frequently a concern when clearing rights-of way. In general, fragmentation can result in an altered wildlife community as species more adaptable to edge habitats establish themselves, while species requiring undisturbed habitats are subject to more negative effects. However, fragmentation disturbance to wildlife and wildlife habitats is not expected to be significant for the REX-West Project because a majority of the construction would be adjacent to and overlap an existing right-of-way (either the Trailblazer Pipeline or the Platte Pipeline). Thus, new edge habitat would replace existing edge habitat. We do note that both the Trailblazer and Platte Pipelines have been in the ground for many years (about 20 and 50, respectively), so the existing corridor has had a chance to become re-established and is not an obvious open swath in many locations. Thus, the REX-West pipeline would represent more of an "opening" effect than if it were being built along a right-of-way that was cleared within the past few years. However, most of the REX-West route crosses naturally open habitat types (e.g., agriculture, grassland, and scrub), which further minimizes the anticipated extent of habitat fragmentation. Forested habitats account for less than 6 percent of the total land disturbance (760.0 of 12,646.0 acres) calculated for the project route.

Because Rockies Express would make use of existing rights-of-way as much as possible and would adhere to its Plan, Procedures, and other measures discussed in this EIS, we believe that the REX-West Project would not substantially alter local wildlife populations, and that the impact of habitat fragmentation on wildlife would be minimal.

4.5.1.2 Big Game Species

The primary big game species that occur in the REX-West Project area are white-tailed deer, mule deer, pronghorn antelope (pronghorn), and elk. Certain habitat ranges for these species are considered crucial for the success of big game populations over the long term.

White-tailed deer is the most common big game species in the five-state project area, inhabiting riparian and upland woodlands as well as meadows and agricultural fields with adjacent cover. White-tailed deer feed on cultivated crops and native browse, forbs, and grasses. Mule deer inhabit a variety of

habitats (*e.g.*, coniferous forests, desert shrub, chaparral, grasslands with shrubs, and cropland). Pronghorn inhabit grassland and shrubland on flat to rolling topography and browse on shrubby plants, especially sagebrush. Elk occur occasionally in the Wyoming and Colorado portions of the project area. Elk habitat varies depending upon seasonal migratory pattern. Elk generally occupy wooded hillsides in the summer and open grasslands in the winter.

Construction impacts on big game species would include an incremental increase in habitat fragmentation as well as a loss of potential forage within the area of disturbance. However, project-related loss or change in habitat/forage would represent only a small percent of the overall available habitat within the broader project area. Herbaceous forage species are expected to recolonize quickly, depending on weather conditions and grazing management practices that would affect revegetation success in the project area. In most instances, suitable habitat adjacent to the disturbed areas would be available for wildlife species until grasses and woody vegetation were reestablished within the areas disturbed by project construction.

Indirect impacts on big game species include those caused by increased human activity, augmented noise levels, dispersal of noxious and invasive weeds, and dust effects from unpaved road traffic. Big game species temporarily displaced by construction will likely return upon completion of the project. Indirect impacts resulting from increased noise levels and human presence during construction activities would likely cause big game animals (especially pronghorn and mule deer) to decrease their use within 0.5 mile of surface disturbance activities (Ward et al., 1980; Ward, 1976). This displacement would be short term and animals would return to the disturbed area following construction activities. However, assuming the adjacent habitats are at or near carrying capacity, and given the current drought conditions in the project region, displacement of or stress on big game species as a result of construction could cause some unquantifiable reduction in numbers if measures are not taken to minimize impacts during crucial migration periods.

The REX-West mainline route does not cross any crucial or severe wintering habitat for big game. However, a portion of the proposed Echo Springs Lateral north of Interstate 80 (between approximate MPs^{ES} 4.9 and 5.3) would be located within one crucial winter/yearlong range for pronghorn in Wyoming. Construction of the Echo Springs Lateral facilities would temporarily impact about 70.4 acres of crucial winter/yearlong habitat for pronghorn. This represents federal land (managed by the BLM) as well as non-federal land. Approximately 5.3 acres of this crucial winter/yearlong habitat would be permanently impacted due to the operation of the Echo Springs Compressor Station.

A crucial winter range can sustain a game population or a portion of a population over the long term, especially during extremely harsh winters. These ranges are primarily used during the winter and early spring. The seasonal restriction for this range is generally from November 15 through April 30; however, an applicant may petition the BLM and/or WGFD for a waiver, thus allowing construction to take place within the seasonal restriction window. The agencies would consider such factors as vegetation conditions, weather, and the overall condition of the pronghorn population before deciding whether or not to grant any waiver.

Rockies Express' projected in-service date is January 1, 2008. Even if construction were to be completed by this time, the possibility exists that construction could overlap the seasonal restriction, which begins November 15. We can not determine at this point whether construction of the Echo Springs Lateral facilities would be completed by this time or not. The BLM indicated that waivers of big game winter range stipulations on BLM land are the exception rather than the rule and would only be allowed based upon a site visit and evaluation by BLM biologists that demonstrated the lands were not being used or occupied prior to approval of any waiver. Rockies Express would not be authorized to construct on

federal land in areas designated as crucial winter range for the pronghorn between November 15 and April 30, unless it has received a waiver from the BLM.

Rockies Express' consultation with the WGFD reveals that the WGFD does not anticipate significant impacts to mule deer or sharp-tailed grouse. WGFD recommends that Rockies Express avoid surface disturbance or occupancy within 0.25 mile of the perimeter of any sharp-tailed grouse lek, and avoid human activity between 8:00 p.m. and 8:00 a.m. from March 15 to May 31 within 0.25 mile of the perimeter of occupied sharp-tailed grouse leks. The WGFD also stated they have no aquatic concerns pertaining to the pipeline project. Consultation with the BLM is ongoing. See additional discussion of mitigation for the sharp-tailed grouse in section 4.7.1.2.

4.5.1.3 Small Game Species

Small game species in the REX-West Project area include upland game birds, waterfowl, and various small mammals (*e.g.*, spotted ground squirrel, eastern fox squirrel, and eastern cottontail). Common furbearers within the project area include red fox, striped skunk, eastern spotted skunk, American beaver, and American badger.

A diverse population of upland game birds is associated with the short- and mixed-grass prairie, shrubland, and agricultural land that is present along the proposed REX-West route. These include ring-necked pheasant, wild turkey, northern bobwhite, greater prairie chicken, sharp-tailed grouse, and sage grouse. In Colorado, Nebraska, and Missouri, the greater prairie chicken is considered an upland game species. Greater prairie chicken habitat exists at MP 123, MPs 135-137.5, and MPs 142.8-145.7 along the Colorado portion of the route. Upland bird species that have been identified as special status species occurring in the REX-West Project area include the greater prairie chicken (in Missouri) and the plains sharp-tailed grouse, both of which are discussed in section 4.7.

Waterfowl species use various ponds, reservoirs, and rivers throughout the REX-West Project area. Regional waterfowl include northern pintail, mallard, northern shoveler, green-winged teal, and Canada goose. Potential migrants and winter residents include American widgeon, ruddy duck, bufflehead, and gadwall. Waterfowl presence along the pipeline route is primarily limited to larger waterbodies (*e.g.*, the South Platte and Missouri Rivers), as well as isolated open water areas and wetlands.

Potential impacts on small game from the REX-West Project would be similar to those discussed above for general wildlife species. Species would be subject to the incremental loss of habitat and increased habitat fragmentation until restoration has been completed and native vegetation is reestablished. Waterfowl could be temporarily disturbed during active construction across certain wetlands. Direct impacts to small game species could include nest or burrow abandonment or loss of eggs or young. Indirect impacts could include the temporary displacement of small game from the disturbance areas as a result of increased noise and human presence. We believe that such impacts would be short term, and that animals would return following completion of construction activities.

4.5.1.4 Raptors and Other Migratory Birds

Migratory birds are species that nest in the United States and Canada during the summer and migrate south to the tropical regions of Mexico, Central and South America, and the Caribbean for the non-breeding season. Migratory birds are protected under the Migratory Bird Treaty Act (MBTA) (16 USC 703-711) and Executive Order 13186 (66 FR 3853), which serve to protect migratory birds from adverse impacts. The executive order was enacted, in part, to ensure that environmental analyses of federal actions evaluate the impacts of actions and agency plans on migratory birds. It also states that

emphasis should be placed on species of concern, priority habitats, and key risk factor and it prohibits the take of any migratory bird without authorization from the FWS. The destruction or disturbance of a migratory bird nest that results in the loss of eggs or young is also a violation of the MBTA.

General impacts on migratory birds and Rockies Express' proposed measures to minimize these impacts are discussed below. Some species of migratory birds and their nests are protected under the Bald and Golden Eagle Protection Act and the ESA. Federally listed and other special status bird species are discussed in Section 4.7.

Migratory birds are considered integral to natural communities and act as environmental indicators based on their sensitivity to environmental changes caused by human activities. The FWS maintains a list of birds of conservation concern (BCC). This list was developed as a result of a 1988 amendment to the Fish and Wildlife Conservation Act which mandates that the FWS "identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act of 1973." The goal of the BCC list is to prevent or remove the need for additional ESA bird listings by implementing proactive management and conservation actions, and that these species would be consulted on in accordance with Executive Order 13136. Partners in Flight (PIF) is a organization with the goal of documenting and reversing population declines of neotropical migratory birds and their habitats.

A variety of migratory bird species, including both songbirds and raptors, are associated with the habitats identified along the REX-West Project route. Raptor species that are known to occur in the project area include bald eagle, golden eagle, red-tailed hawk, Swainson's hawk, ferruginous hawk, rough-legged hawk, broad-winged hawk, American kestrel, peregrine falcon, prairie falcon, Cooper's hawk, sharp-shinned hawk, western burrowing owl, barn owl, great horned owl, long-eared owl, short-eared owl, barred owl, barn owl, eastern screech owl, turkey vulture, and northern harrier. BCC and PIF Priority Bird Species that potentially occur in the project area and their associated habitat types are presented in table 4.5.1-2.

Rockies Express consulted with the FWS, CDOW, WFGD, NGPC, KDWP, and the MDC to obtain information on raptor species along the proposed REX-West route. Rockies Express identified 109 raptor nests during an aerial survey conducted along the pipeline route between March 28 and April 1, 2006. Of these, 42 were red-tailed hawk nests, 13 were great-horned owl nests, and 3 were golden eagle nests. The raptor species associated with the remaining 51 nests could not be identified at the time of Rockies Express' survey. One-hundred and two of the nests were built in trees while seven nests were on cliffs. Rockies Express identified 57 of the 109 nests as active.

Most of the pipeline would cross open agricultural fields and grasslands rather than fragmenting forest habitat. The impact of habitat loss and fragmentation on migratory birds depends on factors such as sensitivity of individual species, seasonal use, type and timing of project activities, and site characteristics (*e.g.*, topography, cover, forage, and local climate). Such habitat impacts would be reduced by Rockies Express' adherence to its Plan, which identifies the steps Rockies Express would take to minimize disturbance during construction and restore disturbed areas following construction.

The FWS recommended that Rockies Express avoid construction activities in grasslands, wetlands, streams, woodland habitats, and at bridges that would result in the taking of migratory birds, eggs, young, and/or active nests. Although most migratory bird nesting activity in the project area takes place from March through July, some species may begin or end nesting outside these months. For example, some raptors can be expected to nest from February 1 through July 15; and sedge wrens, which occur in wetland habitats, normally nest from July 15 to September 10.

TABLE 4.5.1-2

BCC and PIF Priority Bird Species Potentially Occurring in the REX-West Project Area

Species	Status <u>a/</u>	Habitat	Category of Residence <u>b/, c/</u>				
			CO	WY	NE	KS	MO
American white pelican	PIF	Rivers; lakes; reservoirs	N	N	M/N	M	M
little blue heron	BCC	Wetlands/riparian			M	N	N
northern harrier	BCC; PIF	Mixed-grass prairie	N	N	N	N	N
Mississippi kite	BCC	Mixed-grass prairie	N			N	N
ferruginous hawk	BCC; PIF	Cliff; piñon-juniper; shrub-steppe	N	N	N	N	
Swainson's hawk	BCC; PIF	Agriculture; riparian	N	N	N	N	N
prairie falcon	BCC; PIF	Cliff; high desert scrub	Y	Y	Y		
peregrine falcon	BCC; PIF	Cliff; riparian	N	N	N	N	N
greater prairie chicken	BCC; PIF	Tallgrass prairie; agriculture	Y		Y	Y	Y
lesser prairie chicken	BCC; PIF	Mixed-grass prairie	Y		Y	Y	
plains sharp-tailed grouse	PIF	Mosaic of dense grass and shrubs	Y				
black rail	BCC	Mixed-grass prairie			N	N	N
mountain plover	BCC; PIF	High desert scrub	N	N	N	N	
American golden plover	BCC	Shortgrass prairie	M		M	M	M
snowy plover	BCC; PIF	Mixed-grass prairie	N		N	N	
greater yellowlegs	BCC	Tallgrass prairie	M	M	M	M	M
upland sandpiper	BCC; PIF	Shortgrass prairie, agriculture	M	M/N	N	N	N
buff-breasted sandpiper	BCC	Grasslands; rain pools in agriculture			M	M	M
solitary sandpiper	BCC	Wetlands; grassland; agriculture	M	M	M	M	M
stilt sandpiper	BCC	Mudflats; flooded fields			M	M	M
long-billed curlew	BCC; PIF	Grassland; agriculture	N	N	N	N	
hudsonian godwit	BCC	Marshes; flooded fields			M	M	
marbled godwit	BCC	Marshes; flooded fields			M	M	M
short-billed dowitcher	BCC	Mudflats; marshes; pools; ponds			M	M	M
Wilson's phalarope	BCC	Lake shores; mudflats; marshes	M	M	M	M	M
common tern	BCC	Lakes; rivers; marshes			M	M	M
black-billed cuckoo	BCC; PIF	Tallgrass prairie	N	N	N	N	N
short-eared owl	BCC; PIF	Wetland; grassland	N	N	N	N	N
western burrowing owl	PIF	Open grassland; prairie dog towns	N	N	N	N	
Chuck-will's-widow	BCC; PIF	Dry or mesic forest				N	N
whip-poor-will	BCC; PIF	Forest; open woodland			N	N	N
red-headed woodpecker	BCC; PIF	Open woodland	N	N	N/Y	N/Y	Y
Lewis' woodpecker	BCC; PIF	Forest; woodland	Y	Y			
eastern wood-pewee	PIF	Woodland edge			M/N	M/N	N
Acadian flycatcher	BCC; PIF	Forested wetland; riparian			N	N	N
great crested flycatcher	PIF	Woodland	N		N	N	N
scissor-tailed flycatcher	BCC; PIF	Open country with scattered trees				N	N
loggerhead shrike	BCC; PIF	Open country with scattered trees	N	N	N	N	N
Bell's vireo	BCC; PIF	Dense brush, willow thickets	N		N	N	N
Bewick's wren	BCC; PIF	Open country thickets and scrub				N	N
wood thrush	BCC; PIF	Deciduous or mixed forest			M/N	M/N	N
Sprague's pipit	BCC	Grasslands/ agriculture (migrant)	N		N	N	
cerulean warbler	BCC; PIF	Hardwood forest					N
prothonotary warbler	BCC; PIF	Forested wetland; riparian				N	N
blue-winged warbler	BCC; PIF	Woodland edge; riparian			N	N	N
Kentucky warbler	BCC; PIF	Deciduous forest			N	N	N

TABLE 4.5.1-2 (Continued)

BCC and PIF Priority Bird Species Potentially Occurring in the REX-West Project Area

worm-eating warbler	BCC	Deciduous woods near streams						N
Louisiana waterthrush	BCC	Forested wetland			N	N	N	N
dickcissel	BBC; PIF	Grasslands; meadows; agriculture	N	N	N	N	N	N
Cassin's sparrow	BCC; PIF	Open grassland	N	N	N	N	N	
field sparrow	BCC; PIF	Tallgrass prairie; agriculture	N	N	N	N	N	N
Baird's sparrow	PIF	Tallgrass prairie						
Brewer's sparrow	PIF	Sagebrush; bitterbrush; bunchgrass	N	N	M	M		
grasshopper sparrow	BCC; PIF	Mixed-grass prairie	N	N	N	N	N	N
Le Conte's sparrow	BCC	Uplands; agricultural fields			N	N	N	N
Henslow's sparrow	BCC; PIF	Open fields; meadows					N	N
lark bunting	BCC; PIF	Plains, prairies, meadows and sagebrush	N	N	N	N	N	
Harris's sparrow	BCC	Riparian; woodlands edge	M/W	M	W	W	W	W/N
chestnut-collared longspur	BCC; PIF	Mixed-grass prairie	M/N	M/N	N	N	N	N
Smith's longspur	BCC; PIF	Tallgrass prairie			M	W	W	
McCown's longspur	BCC; PIF	Shortgrass prairie; bare agricultural fields	N	M	M			
bobolink	PIF	Grassy or weedy meadows	M/N	N	M/N	M	M/N	
rusty blackbird	BCC	Open woodland; scrub; agriculture	M	M	M/W	M/W	W	
orchard oriole	BCC	Riparian; agriculture; open woodlands	N	N	N	N	N	N

a/ BCC – FWS, BCC 2002 <http://migratorybirds.fws.gov/reports/BCC02/BCC2002.pdf>.

PIF - Partners in Flight Physiographic Area Plans Website <http://www.blm.gov/wildlife/pifplans.htm>.

b/ M = passage migrant; N = breeding (nesting) resident; W = winter resident

c/ Based on range mapping from Naturereserve.org.

Rockies Express' proposed construction start date of May 2007 would overlap the nesting season for many migratory bird species in the REX-West Project area. Thus, construction could cause direct and indirect impacts on raptors and other migratory birds. Indirect effects are associated with increased human presence and noise from construction activity near enough to active nests to disturb the birds. We do not believe that such effects would be significant for non-nesting birds, as individuals temporarily relocating to avoid construction activity is a minor impact of limited duration. However, construction activity near active nests during incubation or brood rearing could result in nest abandonment; overheating, chilling, or desiccation of unattended eggs or young causing nestling mortality; premature fledging; and ejection of eggs or young from the nest.

Rockies Express' consultation with the FWS and state wildlife agencies regarding survey protocol, buffer zone radius, and seasonal restrictions is ongoing. Although the typical seasonal restriction is from mid-February to mid-August, the exact dates and buffer zone radii differ by state and species. For example, in Wyoming the FWS requires a 1.0-mile avoidance buffer for ferruginous hawks and bald eagles and 0.5-mile avoidance buffer for all other raptors. Avoidance buffers in Colorado have been established as 0.5 mile for eagles, falcons, and ferruginous hawks, and 0.25 mile for all other raptors. (Buffer zones established by the CDOW are acceptable to the FWS in Colorado). The NGPC has suggested that Rockies Express follow the CDOW guidelines. Consultation regarding buffer zones in Kansas and Missouri is ongoing between Rockies Express and the KDWP and MDC.

Prior to construction, Rockies Express states it would conduct field surveys during the breeding season to determine the presence of active raptor nests within 0.5 mile of the project right-of-way and ground surveys within 0.25 mile of areas proposed for disturbance in prairie dog colonies to minimize potential impacts to nesting burrowing owls. If nests are located in these areas, Rockies Express stated

that it would coordinate with the FWS and other appropriate agencies to determine what protection measures would be required.

Although Rockies Express' proposed future consultations provide a mechanism to reduce impacts on nesting raptors, we believe it is more appropriate to establish specific impact avoidance measures based on available information. We note that individual states and FWS offices have long-standing and established guidelines for seasonal buffers (*i.e.*, no-construction zones of a specific radius) around active raptor nests. (Certain sensitive non-raptor bird species, such as mountain plover and sage grouse, also have seasonal and spatial considerations; see section 4.7). In its comments on the draft EIS, Rockies Express stated that it has continued, and will continue, to consult with appropriate federal and state wildlife agencies to finalize the appropriate survey protocols and seasonal buffer zones for nesting raptors. We believe that Rockies Express should adhere to prescribed buffer zones in order to minimize impacts on nesting raptors. Therefore, **we recommend that Rockies Express file the results of the most recent raptor nest surveys and the appropriate seasonal buffer zone for all active raptor nests in Wyoming within 1 mile of the construction right-of-way for ferruginous hawks and bald eagles and within 0.5 mile of the construction right-of-way for all other raptors. In Colorado and Nebraska, Rockies Express should file this information for areas within 0.5 mile of the construction right-of-way for eagles, falcons, and ferruginous hawks, and within 0.25 mile of the construction right-of-way for all other raptors, as well as any additional comments and recommendations resulting from the agency consultations. Seasonal buffer zones should be drawn on project maps and construction alignment sheets. Rockies Express should file this information with the Secretary for the review and written approval of the Director of OEP prior to construction.**

Rockies Express has also consulted with the BLM to determine if the BLM has any records of raptor nests occurring along the Echo Springs Lateral route. **We further recommend that Rockies Express not begin construction of the Echo Springs Lateral until this information has been filed with the Secretary for the review and written approval of the Director of OEP.**

Rockies Express has also committed to conducting breeding bird surveys in consultation with the FWS within 100 meters (330 feet) of proposed surface disturbance activities associated with the REX-West Project for construction between March 1 through July 31. Rockies Express would focus on important bird species including BCC species and PIF priority bird species (see table 4.5.1-2). Qualified biologists would document active nests, bird species, and other evidence of nesting (*e.g.*, mated pairs, birds carrying nesting material, transporting of food, territorial defense) to the appropriate agencies prior to surface-disturbing activities. If an active nest for an important migratory bird species is documented during these surveys, Rockies Express states it would coordinate with the FWS and other appropriate agencies to determine what protection measures would be required. Such protection measures could include the establishment of buffer areas around the nest sites and restricted construction windows. Rockies Express also identified an alternative protection measure in which it would clear vegetation outside of the breeding season prior to project-related surface disturbance activities within that year¹.

We note that Executive Order 13186 requires federal agencies to avoid or minimize negative impacts on migratory bird *populations*. The executive order also requires the federal agency to identify where unintentional "take" is likely to have a measurable negative effect on migratory bird populations. Effects to non-sensitive bird species (which do not have significantly reduced populations) would not result in long-term or significant population level effect, given the stability of local populations and the

¹ Rockies Express would not be authorized to conduct pre-construction clearing until it has received a FERC Certificate for the REX-West Project and a written notice to proceed with this mitigation measure from the Director of OEP. In addition, any pre-construction clearing operations to mitigate impacts on migratory birds on federal land would require a BLM-approved, written pre-construction clearing plan prior to a issuance of a Notice to Proceed from the BLM.

abundance of available habitat outside the proposed right-of-way and the linear nature of the project over a large geographic range. Potential impacts on tree-nesting species would be particularly minor, given the limited amount of forested land crossed by the REX-West Project (less than 5 percent of the project route). The FWS has commented that the MBTA applies to all migratory birds and nests. We believe that the REX-West Project would not result in population-level impacts on migratory bird species, but acknowledge that pipeline construction during the migratory bird breeding season could impact individual birds and/or nests. However, we also believe that Rockies Express' continuing coordination with the FWS to develop plans and procedures whereby pipeline construction could occur in the migratory bird nesting season represents a good-faith effort to avoid or minimize impacts on migratory birds.

4.5.2 TransColorado

4.5.2.1 General Wildlife Resources

The Blanco to Meeker Project would temporarily disturb 19.4 acres of wildlife habitat including shrubland, sagebrush/shrubland, sagebrush/grassland, and juniper woodland. Construction of the aboveground facilities would permanently convert about 7.5 acres of available habitat into natural gas use. Construction of the pipeline facilities and access roads would permanently convert about 3.1 acres of habitat into pipeline right-of-way. For a general description of impacts to wildlife and wildlife habitat from pipeline and aboveground facility construction and operation refer to section 4.5.1.2.

TransColorado would reduce the extent and duration of impacts on habitats along the project right-of-way. To further reduce potential impacts on wildlife from pipeline construction, TransColorado would implement the following measures:

- Earthen trench plugs, with ramps on either side, would be placed at 0.25-mile intervals, as recommended by the BLM. The trench plugs would be located along the trench or at well-defined livestock and wildlife trails intersected by the trench to allow wildlife a means to escape if they fall into the trench and also provide a bridge for other wildlife to cross the open trench.
- The open trench would be regularly inspected for trapped animals. Any injured or deceased animal(s) would be reported to the CDOW.
- If a wildlife species is found in the trench, it would be assisted in escaping on its own. Any injured or deceased animal(s) would be reported to the CDOW.
- Pipe that has been placed in the trench would be capped at the end of each workday to prevent animals from entering.

Blanco Compressor Station

The proposed Blanco Compressor Station site is an area of shrubland habitat adjacent to existing oil and gas facilities. The site is crossed by multiple pipelines and has been disturbed by past oil and gas activities as well cattle grazing. TransColorado conducted field surveys at the site and observed desert cottontail, black-tailed jackrabbit, horned lark, house finch, and lark sparrow. No prairie dog colonies or raptor nests or raptor whitewash were noted in the project area. The BLM, Farmington Field Office has no records of historic or currently active raptor nests within 2 miles of the site.

Construction of the Blanco Compressor Station would disturb about 5.7 acres of rangeland that consists of sagebrush/grassland and juniper woodland habitat. Of this amount, approximately 4.1 acres would be permanently impacted by the compressor station. TransColorado has minimized impacts to

wildlife habitat by collocating the 24-inch-diameter receipt pipeline and access road with the existing mainline right-of-way. Other project facilities (the meter station and lateral pipeline) would be located within existing industrial facilities resulting in no loss of wildlife habitat.

Conn Creek Compressor Station

The area surrounding the proposed Conn Creek Compressor Station site is comprised of grassland and sagebrush/shrubland habitat, which is used for livestock grazing and hay production. This area also provides habitat for a variety of wildlife species including mule deer, desert cottontail, and black-tailed jackrabbit. No prairie dog colonies were found in the project area; however, pocket gopher burrows were observed. Bird species observed at the site during field surveys included sage sparrow, American robin, and common raven. Two large empty stick nests were observed at the northern portion of the project site. TransColorado indicated these nests were most likely built by red-tailed hawk or common raven.

Construction of the Conn Creek Compressor Station would disturb 6.1 acres of wildlife habitat, with approximately 2.6 acres being permanently impacted by the compressor station itself. Most of the remaining 3.5 acres consists of existing pipeline right-of-way and unimproved roadway. No sensitive or critical habitat is present at the site. TransColorado would revegetate all disturbed areas outside of the permanent facility according to the FERC Plan.

Greasewood Compressor Station

The proposed Greasewood Compressor Station site is in an area of previously disturbed shrubland/grassland habitat. The area provides range for pronghorn and mule deer. During field surveys, TransColorado observed desert cottontail, mule deer, and individual prairie dogs, although no prairie dog colonies were noted. Bird species observed included sage sparrow, brewer's sparrow, American robin, and common raven. No raptors or evidence of raptor activity was observed at the site, which has limited foraging habitat.

Construction and operation of the proposed Greasewood Compressor Station expansion would impact 0.7 acre of wildlife habitat with the remainder of the work at this site occurring within the existing station. Given that the 0.7 acre of shrubland was used as temporary work area for the construction of the existing facility in 2004, we believe impacts on habitat and wildlife would be minimal.

The CDOW commented that the Greasewood location is in designated severe winter range for mule deer and elk and recommended that TransColorado avoid construction from December 1 through April 15 to avoid impacts to wintering mule deer and elk. We note that TransColorado's proposed construction schedule (May to October) would not overlap the identified severe winter range.

4.5.2.2 Raptors and Other Migratory Birds

Raptor species that are known to occur in the Blanco to Meeker Project area include bald eagle, golden eagle, red-tailed hawk, ferruginous hawk, peregrine falcon, and western burrowing owl. Several of these species have additional protective status and are discussed in section 4.7. TransColorado indicated that no active raptor nests were observed in the area of its proposed compressor stations; however, two empty stick nests were observed at the Conn Creek Compressor Station site, which were likely built by red-tailed hawk or common raven. The Blanco Compressor Station site contains suitable foraging and nesting habitat for the ferruginous hawk, although no hawks were observed during TransColorado's field surveys. In addition, the Greasewood Compressor Station is within 2.0 miles of sage grouse lek and nesting habitat.

General construction impacts on migratory birds are discussed in section 4.5.1.4, above. The Blanco to Meeker Project would result in permanent loss of some migratory bird habitat; however, this effect would be minimized by TransColorado's adherence to the FERC Plan, which identifies measures that TransColorado would take to restore disturbed areas following construction. Given that a majority of the construction activity would be located adjacent to existing, maintained utility rights-of-way, or other existing natural gas facilities, impacts to migratory birds should be minimal.

The FWS recommended that TransColorado avoid construction activities during the general migratory bird nesting season of March through August, or that areas proposed for construction during the nesting season be surveyed. If an occupied nest is discovered during this period it should be avoided until nesting is complete. TransColorado acknowledges that raptor surveys may be needed at the proposed project sites and states it would consult with the FWS and/or state wildlife offices to make a final determination. In its comments on the draft EIS, TransColorado agreed to conduct raptor nest surveys within 1 mile of the proposed project sites in consultation with appropriate FWS and/or state wildlife office if construction activities would take place during the nesting season (March through August). **We recommend that prior to construction TransColorado should file the results of any raptor surveys, along with any agency comments and recommendations, for the review and written approval of the Director of OEP.**

Based on the limited nature of the construction and our recommendation, we conclude that TransColorado's Blanco to Meeker Project would not have a significant impact on nesting raptors or other migratory birds.

4.5.3 Overthrust

The Wamsutter Expansion Project would temporarily disturb 1,170.8 acres of wildlife habitat, including sagebrush steppe, desert shrubland, and sagebrush scrub. Construction of the aboveground facilities would permanently convert about 15.0 acres of available habitat into natural gas use. For a general description of impacts to wildlife and wildlife habitat from pipeline and aboveground facility construction and operation refer to section 4.5.1.2.

4.5.3.1 General Wildlife Resources

A diverse number of nongame species (*e.g.*, small mammals, amphibians, and reptiles) occupy a variety of habitats along the Wamsutter Expansion pipeline right-of-way. Common small mammal species include bats, voles, squirrels, gophers, prairie dogs, woodrats, mice, and rabbits. These small mammals provide a substantial prey base for the area's predators including larger mammals (coyote, badger, bobcat); raptors (eagles, hawks, accipiters, owls); and reptiles.

Overthrust's POD, developed for the BLM, as well as the use of its Plan and the FERC Procedures would reduce the extent and duration of impacts on habitats along the project right-of-way. To further reduce potential impacts on wildlife from pipeline construction, Overthrust would implement the following measures:

- Earthen trench plugs, with ramps on either side, would be placed at 0.25-mile intervals, as recommended by the BLM. The trench plugs would be located along the trench or at well-defined livestock and wildlife trails intersected by the trench to allow wildlife a means to escape if they fall into the trench and also provide a bridge for other wildlife to cross the open trench.
- The open trench would be regularly inspected for trapped animals. Any injured or deceased animal(s) would be reported to the WGFD.

- If a wildlife species is found in the trench, it would be assisted in escaping on its own. Any injured or deceased animal(s) would be reported to the WGFD.
- Pipe that has been placed in the trench would be capped at the end of each workday to prevent animals from entering.

Habitat fragmentation disturbance to wildlife and wildlife habitats resulting from Overthrust's Wamsutter Expansion Project is not expected to be significant because a majority (82 percent) of construction would be adjacent to existing cleared pipeline rights-of-way. New edge habitat would replace existing edge habitat along the majority of the route. Most of the pipeline would cross relatively open habitat types (e.g., shrubland). Impacts on shrubland would be long term due to the time required to reestablish the woody vegetation characteristic of this community type. Permanent impacts on shrubland would result primarily from right-of-way maintenance activities. However, the effects would generally be small relative to the available habitat in the region.

Potential indirect impacts on wildlife (including big game, nesting birds, small game, etc.) could result from increased noise levels resulting from construction. However, the pipeline would be located adjacent to or bisecting other disturbed areas. The Wamsutter Expansion route is adjacent to several roads, including Interstate 80 (I-80). Operation of the compressor stations could also have an indirect impact on wildlife. The distance wildlife is displaced is strongly influenced by the level and timing of the human activity, topography, and the presence of vegetation (Lyon, 1979), presumably due to noise attenuation and visual cover. To minimize potential noise impacts on wildlife, Overthrust would operate the Rock Springs and Roberson Compressor Stations at a noise level no greater than 55 dBA day-night equivalent sound level (L_{dn}) at the nearest noise sensitive area. Overthrust also states it would consult with the FWS prior to any blasting in order to minimize blasting impacts on wildlife.

Operation of the pipeline would require a 50-foot-wide permanently maintained right-of-way, thereby affecting about 458 acres of wildlife habitat. In addition, 15.0 acres associated with aboveground pipeline facilities (e.g., compressor stations and receipt/delivery points) would be maintained during project operation. We believe this represents a minimal impact on wildlife and its habitat.

4.5.3.2 Big Game Species

The primary big game species that occur within the Wamsutter Expansion Project area are pronghorn and mule deer. The pipeline would cross about 60.4 miles of pronghorn habitat north of I-80 between MPs^{OT} 12.8 and 34.3, MPs^{OT} 36.2 and 74.2, and MPs^{OT} 76.3 and 77.2. About 3.5 miles of mule deer habitat would be crossed south of Superior between MPs^{OT} 29.0 and 32.5. No big game ranges would be directly affected by the Roberson Compressor Station, Rock Springs Compressor Station, Opal Receipt Points, Wamsutter Delivery Point, or TL-90 Tie-in.

General impacts on big game species that could result from construction of the Wamsutter Expansion Project would be similar in nature to the impacts previously discussed for the REX-West portion of the Rockies Western Phase Project (see section 4.5.1.2).

To reduce potential impacts to big game species, Overthrust has agreed to avoid construction activities in designated crucial winter/yearlong big game ranges between November 15 and April 30 in Wyoming. Should Overthrust believe it necessary to construct within this time period, it would seek written authorization from the BLM, WGFD, and FERC.

4.5.3.3 Small Game Species

Small game species that occur within the Wamsutter Expansion Project region include upland game birds, waterfowl, and furbearers and other various small mammals. Upland game birds known to inhabit portions of southwest Wyoming include partridge and sage grouse. General construction-related impacts on small game species and their habitats would be similar in nature to the impacts previously discussed for the REX-West portion of the Rockies Western Phase Project (see section 4.5.1.3).

4.5.3.4 Raptors and Other Migratory Birds

Raptor species identified as potentially occurring within the Wamsutter Expansion Project area include golden eagle, bald eagle, red-tailed hawk, ferruginous hawk, great horned owl, Swainson's hawk, northern harrier, prairie falcon, American kestrel, merlin, sharp-shinned hawk, Cooper's hawk, long-eared owl, and burrowing owl. Several BLM-listed sensitive bird species (*e.g.*, sage thrasher, loggerhead shrike, Brewer's sparrow, and sage sparrow) may also be present in the project area.

Potential impacts on raptors, game birds, and songbird species are expected to be minor and short-term since construction activities would be limited to a narrow corridor along an existing, disturbed right-of-way for the majority of its length. Substantial removal of habitat and fragmentation of previously undisturbed areas would not occur.

Overthrust's use of the Plan and Procedures, as well as additional mitigation plans (*e.g.*, the POD and SPCC Plan) would reduce the extent and duration of impacts on migratory bird habitat, actively and naturally allow a great majority of the construction right-of-way to return to pre-construction conditions, and avoid or limit the potential effects from spills or environmental contamination. Additionally, Overthrust would revegetate the right-of-way using a seed mix that contains native species. Therefore, we believe the effects of habitat fragmentation on migratory birds habitat would not be significant.

If blasting is required, Overthrust estimates that it could occur from MP_s^{OT} 3.1 to 9.2, MP_s^{OT} 22.3 to 33.1, and MP_s^{OT} 39.6 to 45.3. Based on consultations with the FWS, 1, 18, and 9 historical raptor nests could occur with these milepost ranges, respectively. If blasting is required in these areas, during the nesting season, the FWS recommended that Overthrust adhere to spatial buffers from active nest sites (0.5 mile for burrowing owls, golden eagles, northern harriers, peregrine falcons, great horned owls, or 1.0 mile from ferruginous hawks or bald eagles) and conduct blasting in the early morning or late afternoon to avoid disturbing nesting birds during the heat of the day. Overthrust has proposed to conduct pre-construction raptor surveys during spring 2007. The results of these surveys would indicate specific areas where construction may affect active nest sites and where buffer zones may be required. Survey results and buffer zone information would be filed with the FERC upon completion. Overthrust has agreed to adhere to spatial and timing buffers for active nests (see section 4.5.1-4), unless otherwise approved by the BLM. Overthrust would avoid blasting unless all other mechanical trenching methods are ineffective. Overthrust has consulted with the FWS and has agreed not to conduct blasting within restricted buffers around active raptor nests that are identified during preconstruction surveys. Once a nest is determined to be inactive through monitoring, blasting and other construction activities would be allowed to continue. The FWS has recommended, and Overthrust has agreed, that blasting would be scheduled to avoid mid-day periods where protection of the eggs from extreme heat is necessary. If Overthrust later determines that blasting is required and the location is within a buffer zone of an active raptor nest, Overthrust has agreed to consult with the FWS to develop additional protective measures to avoid impacts on nesting species. Because of these commitments, we believe the Wamsutter Expansion Project's impacts on raptors and other migratory birds would not be significant.

4.6 FISHERIES

4.6.1 Rockies Express

4.6.1.1 Fisheries Resources

The REX-West Project would cross 80 waterbodies that are known to support or are capable of supporting warmwater fisheries (table 4.6.1-1). Four of these waterbodies would be crossed multiple times bringing the total number of crossings to 87. The pipeline would cross 1 perennial stream in Colorado, 11 in Nebraska, 28 in Kansas, and 38 in Missouri. The pipeline would also cross two intermittent streams in Missouri that the MDC reports as supporting fisheries resources. No perennial streams would be crossed by the REX-West Project in Wyoming. No waterbodies supporting coldwater fisheries would be crossed by the project. Eleven of the 80 waterbodies are known to contain federal or state-listed special status species or are designated critical habitat for listed species. Special status fish species are discussed in section 4.7.

TABLE 4.6.1-1				
Fisheries Crossed by the Proposed REX-West Project				
Waterbody	Crossing Location (MP)	Intermittent/ Perennial	Proposed Crossing Method	Notes/Special Restrictions
Colorado				
South Platte River	120.4	P	Open cut	Brassy minnow and suckermouth minnow spawning in spring and summer
Nebraska				
Medicine Creek	209.7	P	Open cut	
Cut Canyon	228.4	P	Open cut	
Fox Creek	229.7	P	Open cut	
Little Blue River	329.6, 335.3	P	Open cut	NE Highest value fishery
Elk Creek	370.1	P	Open cut	
Spring Creek	392.2	P	Open cut	
Dry Creek	397.2	P	Open cut	
Buckley Creek	408.7	P	Open cut	
Rose Creek	413.8, 415.9, 417.1	P	Open cut	NE High priority fishery
Dry Branch	417.9	P	Open cut	
Little Blue River	424.2	P	Open cut	
Kansas				
Indian Creek	441.6	P	Open cut	
Deer Creek	444.8	P	Open cut	
Big Blue River	447.1	P	Open cut	
North Elm Creek	447.4, 450.8, 455.1	P	Open cut	Topeka shiner spawning period. No in-stream work May 15 to July 31
Robidoux Creek	460.2	P	Open cut	
North Fork Wildcat Creek	473.0	P	Open cut	
Wildcat Creek	474.3	P	Open cut	
South Fork Big Nemaha River	478.1	P	Open cut	Flathead chub spawning period July 1 to August 31. Western silvery minnow spawning period May 1 to June 15
Harris Creek	479.7, 482.4, 483.1	P	Open cut	
Cedar Creek	494.2	P	Open cut	
unnamed creek	495.2	P	Open cut	
unnamed creek	497.8	P	Open cut	
Walnut Creek	498.7	P	Open cut	
unnamed creek	499.3	P	Open cut	
Middle Fork Wolf River	508.9	P	Open cut	Western silvery minnow spawning period May 1 to June 30

TABLE 4.6.1-1 (Continued)

Fisheries Crossed by the Proposed REX-West Project

Waterbody	Crossing Location (MP)	Intermittent/ Perennial	Proposed Crossing Method	Notes/Special Restrictions
Kansas (Cont'd)				
Buttermilk Creek	511.1	P	Open cut	
South Fork Wolf River	513.5	P	Open cut	
Squaw Creek	516.1	P	Open cut	
unnamed creek	516.9	P	Open cut	
Halling Creek	518.2	P	Open cut	
unnamed creek	520.8	P	Open cut	
unnamed creek	524.6	P	Open cut	
unnamed creek	525.3	P	Open cut	
Rock Creek	529.1	P	Open cut	
Brush Creek	531.7	P	Open cut	
unnamed creek	533.6	P	Open cut	
unnamed creek	535.6	P	Open cut	
Kansas/Missouri				
Missouri River	537.0	P	HDD	Spawning periods for multiple species covers March 15 to August 31
Missouri				
Contrary Creek	542.4	P	Open cut	
Bee Creek	546.4	P	Open cut	
Pigeon Creek	548.8	P	Open cut	
Platte River	550.7	P	Open cut	
Malden Creek	555.2	P	Open cut	
Wolfpen Creek	557.1	P	Open cut	
Castile Creek	561.3	P	Open cut	MO Designated Spawning Stream Topeka shiner spawning period May 15 to July 31
Horse Fork	567.1	P	Open cut	
Little Platte River	569.3	P	Open cut	MO Designated Spawning Stream Topeka shiner spawning period May 15 to July 31
unnamed creek	570.4	P	Open cut	
Shoal Creek	574.1	P	Open cut	MO Designated Spawning Stream Topeka shiner spawning period May 15 to July 31
Little Shoal Creek	574.8	P	Open cut	
Log Creek	582.9	I	Open cut	MO Designated Spawning Stream Topeka shiner spawning period May 15 to July 31
unnamed creek	583.1	P	Open cut	
unnamed creek	583.9	P	Open cut	
Long Creek	586.9	P	Open cut	
Brush Creek (crossing 1)	589.7	P	Open Cut	MO Designated Spawning Stream Topeka shiner spawning period May 15 to July 31
Crabapple Creek	593.0	P	Open cut	MO Designated Spawning Stream Topeka shiner spawning period May 15 to July 31
Mud Creek	600.7	P	Open cut	
Big Creek	618.0	P	HDD	
Big Creek	620.1	P	Open Cut	
Bridge Creek	620.4	P	Open cut	
Grand River	629.1	P	Open cut	
Salt Creek	634.4	P	Open cut	
Brush Creek (crossing 2)	636.8	I	Open cut	MO Designated Spawning Stream Topeka shiner spawning period May 15 to July 31
Lake Creek	640.3	P	Open cut	
Palmer Creek	642.8	P	Open cut	
Mussel Fork Creek	646.0	P	Open cut	
Chariton River	650.9	P	Open cut	
Puzzle Creek	653.4	P	Open cut	
East Fork Little Chariton River	656.0	P	Open cut	

TABLE 4.6.1-1 (Continued)

Fisheries Crossed by the Proposed REX-West Project				
Waterbody	Crossing Location (MP)	Intermittent/ Perennial	Proposed Crossing Method	Notes/Special Restrictions
Missouri (Cont'd)				
Middle Fork Little Chariton River	656.3	P	Open cut	
Big Creek	682.5	P	Open cut	
Saling Creek	685.6	P	Open cut	
Long Branch	689.3	P	Open cut	
Goodwater Creek	692.4	P	Open cut	
unnamed creek	694.2	P	Open cut	
Youngs Creek	696.7	P	Open cut	
Skull Lick Creek	704.9	P	Open cut	
South Fork Salt River	706.8	P	Open cut	
<u>Note:</u> All fisheries crossed by the proposed route are designated as warmwater fisheries; no coldwater fisheries would be crossed.				

No waterbodies crossed by the REX-West Project route contain or have the potential to contain species managed by the National Marine Fisheries Service. As such, no essential fish habitat, as defined by the Magnuson-Stevens Fishery Conservation and Management Act, would be affected by the project.

Representative game fish that occur within the project area include catfish, crappie, bass, freshwater drum, carp, sunfish, saugar, walleye, and yellow perch. Typical non-game species include red shiner, river carpsucker, creek chub, shorthead redhorse, fathead minnow, and white sucker.

There are no surface waters within or immediately adjacent to the boundaries of the REX-West aboveground facility sites; therefore, no fishery resources would be affected by the construction or operation of these facilities.

Construction-related impacts at waterbody crossings could result from sedimentation and turbidity, streambank erosion, and contamination from fuel and chemical spills. Impacts could also result from hydrostatic testing and water withdrawals for dust control. The extent of impacts on fisheries would depend on the construction method used to cross the waterbody, the existing conditions at each crossing location, the duration of in-stream activity, the seasonal timing of in-stream construction, and mitigation measures employed. Rockies Express proposes to use the open-cut crossing method to cross all perennial waterbodies along the proposed pipeline route, with the exception of the Little Blue River (MP 424.2), the Missouri River (MP 537.0), and the Big Creek crossing at MP 618.0. These three waterbodies would be crossed by HDD.

Use of the open-cut crossing method would increase sediment loads and downstream turbidity to some extent, which could have an effect on fishery resources by altering a stream's substrate composition. Increased sediment loads can also degrade the existing aquatic habitat by reducing spawning habitat, available rearing habitat, and benthic invertebrate production (the primary food supply of many fish). Increased sediment loads also can adversely affect fish populations by suffocating eggs and newly hatched larvae living in gravels and by abrading sensitive gill membranes of both young and adult fish. However, an open-cut crossing is typically the quickest crossing method, with active construction activities in waterbodies less than 100 feet wide completed in 24 to 48 hours. Minimizing the time required for in-stream activities reduces construction-related increases in sediment load and limits corresponding impacts.

Flumed or dam-and-pump crossings generally produce less downstream sedimentation impacts than a traditional open-cut crossing. Sedimentation and turbidity resulting from construction would be short-term and generally limited to periods of active construction within a waterbody. Adverse effects to aquatic biota would tend to be localized. Crossing intermittent waterbodies would have little to no impact on fisheries. If successful, a HDD crossing would not impact fisheries.

Clearing and grading of vegetation within the construction right-of-way and temporary extra workspaces during construction could increase erosion along streambanks and turbidity levels in the waterbodies, as well as cause localized changes in water temperature and light penetration, which could affect aquatic habitat, primary and secondary production, and fish use patterns. Alteration of natural drainages or compaction of soils by heavy equipment near streambanks during construction could accelerate erosion of the banks, runoff, and the transportation of sediment into waterbodies. The degree of impact on aquatic organisms from erosion would depend on sediment loads, stream velocity, turbulence, streambank composition, and sediment particle size. Additionally, localized changes in water temperature and light penetration caused by the removal of boulders, woody debris, streambank vegetation, and undercut banks could temporarily displace fish that utilize these features for cover, nesting, and feeding. However, these impacts would be temporary and relatively minor due to the limited amount of total stream bank area affected at each waterbody.

Rockies Express' Procedures (appendix D) contain measures that would minimize construction impacts on fish and aquatic/streambank habitat. Rockies Express would install temporary erosion controls (*e.g.*, silt fencing or strawbales) immediately after vegetation removal, and rootstock would be left in the ground where possible. To minimize impacts associated with streambank erosion during construction, Rockies Express would use equipment bridges, mats, and pads to support equipment that must cross the waterbody or work in saturated soils adjacent to the waterbody. In accordance with its Procedures and where topography allows, Rockies Express would locate temporary extra workspaces at least 50 feet from the edge of flowing waterbodies, except where a site-specific variance has been granted, and would limit clearing of vegetation between temporary extra workspaces and the edge of the waterbody to the certificated construction right-of-way. Erosion and sediment control measures such as silt fencing would prevent sediment from leaving the construction site and entering waterbodies. To minimize sedimentation and channel instability impacts on fishes and their habitats, Rockies Express would complete in-stream construction activities for open-cut waterbody crossings within 24 hours for minor waterbodies (less than 10 feet wide), within 48 hours for intermediate waterbodies (10 to 100 feet wide), and within 7 days for those greater than 100 feet. Following completion of construction, Rockies Express would immediately stabilize the construction site, including stream banks. If circumstances required a construction delay, Rockies Express would employ adequate site stabilization measures in accordance with its Procedures and other permit conditions.

The withdrawal and discharge of hydrostatic test water could also affect fisheries. Rockies Express has identified 19 waterbodies as potential sources of hydrostatic test water for the REX-West Project (see sections 4.3.1.3 and 4.7.1.1). To avoid uptake of organic debris or entrainment of aquatic species during water withdrawals, Rockies Express would install test water intakes with filtering and screening devices, and would suspend the intakes above the stream bottom. Rockies Express would not use chemical additives during hydrostatic testing.

If discharge rates are not carefully controlled, the discharge of large volumes of hydrostatic test water into surface waters could temporarily affect the biological uses of the resource. Hydrostatic discharges could result in a change in water temperature and dissolved oxygen levels, cause an increase in downstream flows, and contribute to streambank and substrate scour. As described in section 4.3.1.3, Rockies Express would use energy dissipating devices and/or filter bags to prevent erosion, streambed scour, suspension of sediments, and excessive streamflow during test water discharges. Rockies Express

would discharge test water into upland areas adjacent to streams and rivers unless direct discharge is determined to be acceptable and permitted by the applicable federal and state agencies. Discharge of hydrostatic test water would be conducted at the same general location as the withdrawal point.

For any large construction project, there is the potential for spills of fuel or other hazardous liquids from storage containers, equipment working in or near streams, and fuel transfers. Any spill of fuel or other hazardous liquid that reaches a waterbody would be detrimental to water quality. The chemicals released during spills could have acute, direct effects on fish, or could have indirect effects such as altered behavior, changes in physiological processes, or changes in food sources. Fish could also be killed if a large volume of hazardous liquid is spilled into a waterbody. Ingestion of large numbers of contaminated fish could affect primary and secondary fish predators in the food chain.

To minimize the potential for spills, Rockies Express would implement its SPCC Plan, which specifies preventive measures such as personnel training, equipment inspection, and refueling procedures to reduce the likelihood of spills, as well as mitigation measures, such as containment and cleanup, to minimize potential impacts should a spill occur. Adherence to the SPCC Plan would prevent a large spill from occurring near surface waters because construction equipment fueling by mobile tankers would be prohibited within 100 feet of the waterbody bank and hazardous material storage would be prohibited within 500 feet of waterbodies. If a small spill were to occur, adherence to measures in the SPCC Plan would decrease the response time for control and cleanup, thus avoiding or minimizing the effects of a spill on aquatic resources. Training and lines of communication to facilitate the prevention, response, containment, and cleanup of spills during construction activities also are described in the SPCC Plan.

4.6.1.2 Fisheries of Special Concern

Fisheries of special concern include waterbodies that have exceptional recreational or commercial fishery value or provide habitat for special status fish species. Additional information on these waterbodies is provided below.

Colorado

The South Platte River in Colorado contains special status species (brassy minnow and suckermouth minnow), which are discussed in section 4.7.1.2. The South Platte River in the vicinity of the proposed pipeline crossing location is dominated by non-game, native fish species including creek chub, brook stickleback, fathead minnow, red shiner, central stoneroller, plains topminnow, river carpsucker, white sucker, plains killifish, bigmouth shiner, and sand shiner (CDOW 2006). Green sunfish, a game species, may be present (CDOW 2006).

Nebraska

The NGPC identified four waterbodies that would be crossed by the REX-West Project as significant fishery resources. The Little Blue River in Jefferson County (MP 424.2) is classified as a highest-valued fishery resource according to the 1978 Stream Evaluation Map for the State of Nebraska (NGPC 2006). This classification identifies the stream as providing habitat that maintains populations of fish species that are of high interest to the state. Rockies Express' proposed route crosses the Little Blue River six times. Additional information on the Little Blue River crossings can be found in table 4.6.1-2.

Rose Creek in Jefferson County is classified as a high priority fishery resource by the state. Nebraska defines a high priority fishery as providing several requirements for fish species of high interest to the state. Rose Creek itself would be crossed by the REX-West pipeline at MPs 413.5, 415.9, and 417.1, while tributaries would be crossed at eight other locations (table 4.6.1-2).

TABLE 4.6.1-2

Little Blue River and Rose Creek Proposed Pipeline Crossings and Habitat Description

MP	NE County	Stream Type	Rockies Express Field Survey Comments
Little Blue River and Tributaries			
328.9	Franklin	Intermittent	Water is pooled in places along crossing, the depth ranges from 0-3 inches, no aquatic organisms observed.
329.6	Franklin	Intermittent	Water is pooled in places along crossing, the depth ranges from 0-3 inches, no aquatic organisms observed.
330.8	Franklin	Intermittent	Crossing is dry with upland vegetation in stream bed.
335.4	Webster	Ephemeral	Small, dry, ephemeral stream between agricultural fields.
336.0	Webster	Ephemeral	Dry, ephemeral stream located in grazed pasture, fringing wetlands, trees on banks provide good wildlife habitat.
424.2	Jefferson	Perennial	Moderate stream flow with a depth of 3-6 inches and existing aquatic habitat, about 125-foot stream width at crossing location.
Rose Creek and Tributaries			
411.8	Jefferson	Intermittent	Tributary. No access – No surveys conducted at this crossing location.
412.6	Jefferson	Intermittent	Tributary. Width at crossing is about 4 feet with a depth of 0-3 inches, fringing wetlands and upland forests on the banks, no aquatic habitat.
413.3	Jefferson	Ephemeral	Tributary. Dry channel in agricultural field with fringing wetlands.
413.8	Jefferson	Perennial	Width at crossing is about 50 feet; fast flow with a depth of 6-12 inches, surrounded by a large mature forest in WMA; good fish and wildlife habitat.
413.8	Jefferson	Intermittent	Tributary. Width at crossing is about 10 feet, moderate flow with a depth of 0-3 inches, surrounded by a large mature forest in WMA; good fish and wildlife habitat.
413.9	Jefferson	Perennial	Tributary. Good flow (about 6 inches deep), surrounded by mature forest and agricultural field; good fish and wildlife habitat.
415.8	Jefferson	Ephemeral	Tributary. Dry channel surrounded by mature forest and agricultural field; no aquatic habitat.
415.9	Jefferson	Perennial	Crossing location is about 30 feet wide and about 3-4 feet deep, surrounded by mature forest and agricultural field; good fish and wildlife habitat.
416.1	Jefferson	Ephemeral	Tributary. Dry channel in agricultural field; no aquatic habitat.
417.1	Jefferson	Perennial	Crossing about 75 feet and fast flow, surrounded by mature forest; good fish and wildlife habitat--aquatic organisms observed.
418.5	Jefferson	Perennial	Tributary. Crossing location is about 50 feet wide and about 3-6 inches deep, surrounded by mature forest; good fish and wildlife habitat--aquatic organisms observed.

Spring Creek and Dry Creek in Thayer County are classified as substantial fishery resources by the State of Nebraska. These streams provide habitat that is occasionally used by species of interest to the state.

Kansas

Four waterbodies in Kansas (South Fork Nemaha River, North Elm Creek, Wolf River, and the Missouri River), are considered special concern fisheries because of the presence of special status species (discussed in section 4.7). The Missouri River (MP 537.0) supports a commercial fishery for shovelnose sturgeon at the proposed pipeline crossing location.

Missouri

In Missouri, the proposed REX-West route crosses six state-designated “Topeka shiner spawning streams” (table 4.6.1-3). These streams are used by Topeka shiners for spawning during specific times of the year. To prevent the disruption of fish spawning activities, the MDC recommends that instream construction activities that would alter, destabilize, or destroy stream bottoms or banks for these six streams be avoided between May 15 and July 31 (see the Missouri section of table 4.6.1-3).

The degree of impact associated with instream activities can be affected by the season of construction. Construction during periods of sensitive fish activity (*i.e.*, spawning and migration) can have a greater impact on fish than construction during other periods. Several agencies have recommended construction timing restrictions at fish-bearing waterbodies crossed by the pipeline (see tables 4.6.1-1 and 4.6.1-3). These timing restrictions are designed to prevent disturbance to fish spawning activities and limit destruction of instream habitat. As stated in Rockies Express’ Procedures, instream construction activities at warmwater fisheries must occur from June 1 to November 30, unless otherwise permitted or restricted by the applicable agency. As such, Rockies Express’ use of its Procedures would require it to adhere to the agency-identified timing restrictions shown in tables 4.6.1-1 and 4.6.1-3 for instream work.

A number of state agencies also requested that Rockies Express use alternative construction methods to cross sensitive streams and rivers. The CDOW has requested that Rockies Express use dry-ditch crossing methods at streams with flowing, “live” water, while the KDWP has requested that Rockies Express cross North Elm Creek using HDD if habitat for the federally listed Topeka shiner is present at the crossing location (see also section 4.7.1.1). In addition, the KDWP recommends that Rockies Express use HDD at all streams with water flow greater than 1 cubic foot per second (cfs) at the time of construction.

We acknowledge that crossing perennial waterbodies using an HDD would avoid many impacts to aquatic organisms and their habitat. However, we do not believe it necessary to require HDD or bored crossings, which normally entail longer crossing times and construction effort, for routine waterbodies (*i.e.*, those with no identified special circumstances such as sensitive species habitat, certain spawning periods, special use designation, or other qualitative designation). We believe that a properly implemented waterbody crossing using an open-cut method or a dry-ditch technique, including adherence to specific fishery timing window restrictions and other measures in the Procedures, would serve to adequately minimize impacts to most aquatic resources and their in-stream habitats.

In its comments on the draft EIS, Rockies Express provided additional information regarding alternate crossing methods (*i.e.*, HDD or dry-ditch crossing methods) that could be employed at sensitive or significant waterbody crossings. We note that Rockies Express’ Procedures require that fisheries that are designated by the state as “significant” must be crossed using a dry-ditch technique if the water-to-water width is 30 feet or less at the time of construction (unless otherwise permitted by the appropriate state agency). Dry-ditch techniques typically refer to the flume or dam-and-pump methods, but a bore or HDD may also be used. According to the stipulations in its Procedures, Rockies Express would be required to cross fisheries meeting the above description using a dry-ditch technique rather than a traditional open cut. Rockies Express is currently proposing to use dry construction methods (*i.e.*, open cut/dam-and-pump or HDD) at 12 of the 13 sensitive fishery streams crossed by the project (table 4.6.1-3). Rockies Express is proposing to cross the South Platte River as a “wet construction” open-cut crossing due to its size (approximately 1,029 feet wide at the crossing location). If a dam-and-pump proves infeasible at the time of construction at any of the 12 streams, Rockies Express would evaluate the possibility of using the flume method.

TABLE 4.6.1-3

Sensitive Fisheries Crossed by the Proposed REX-West Project

Waterbody	Crossing Location (MP)	Intermittent/ Perennial	Proposed Crossing Method	Notes/Special Restrictions
Colorado				
South Platte River	120.4	P	Open cut/	Brassy minnow and suckermouth minnow spawning in spring and summer
Nebraska				
Little Blue River	329.6, 335.3	P	Open cut/ Dam-and-pump	NE Highest value fishery
Rose Creek	413.8, 415.9, 417.1	P	Open cut/ Dam-and-pump	NE High priority fishery
Kansas				
North Elm Creek	447.4, 450.8, 455.1	P	Open cut/ Dam-and-pump	Topeka shiner spawning period. No in-stream work May 15 to July 31
South Fork Big Nemaha River	478.1	P	Open cut/ Dam-and-pump	Flathead chub spawning period July 1 to August 31. Western silvery minnow spawning period May 1 to June 15
Middle Fork Wolf River	508.9	P	Open cut/ Dam-and-pump	Western silvery minnow spawning period May 1 to June 30
Missouri River	537.0	P	HDD	Spawning periods for multiple species covers March 15 to August 31
Missouri				
Castile Creek	561.3	P	Open cut/ Dam-and-pump	MO Designated Spawning Stream Topeka shiner spawning period May 15 to July 31
Little Platte River	569.3	P	Open cut/ Dam-and-pump	MO Designated Spawning Stream Topeka shiner spawning period May 15 to July 31
Shoal Creek	574.1	P	Open cut/ Dam-and-pump	MO Designated Spawning Stream Topeka shiner spawning period May 15 to July 31
Log Creek	582.9	I	Open cut/ Dam-and-pump	MO Designated Spawning Stream Topeka shiner spawning period May 15 to July 31
Brush Creek	589.7, 636.8	P	Open cut/ Dam-and-pump	MO Designated Spawning Stream Topeka shiner spawning period May 15 to July 31
Crabapple Creek	593.0	P	Open cut/ Dam-and-pump	MO Designated Spawning Stream Topeka shiner spawning period May 15 to July 31

4.6.2 TransColorado

The construction and operation of the Blanco to Meeker Project would not affect any surface waterbodies. The nearest waterbody to the proposed project is Conn Creek, which is approximately 40 feet from the edge of the Conn Creek Compressor Station site. TransColorado would implement the FERC Plan during the construction of the proposed compressor station thereby minimizing any impacts on Conn Creek. As such, no fisheries resources would be affected by the project.

4.6.3 Overthrust

4.6.3.1 Fisheries Resources

According to the WGFD, the one perennial stream that would be crossed by the proposed pipeline, Deadman Wash, is not known to support fishery resources. Fishery resources potentially affected by the Wamsutter Expansion Project are confined to Bitter Creek. While Bitter Creek is classified as an intermittent stream based on USGS topographic maps, the WGFD and the BLM consider the creek perennial both upstream and downstream of the proposed crossing location because it supports a fishery, and perennial seeps and feeders supply flow. Bitter Creek supports non-game native species including the flannelmouth sucker, mountain sucker, and speckled dace. The flannelmouth sucker, a BLM sensitive species, is discussed in section 4.7.3.2.

Little Bitter Creek, an intermittent stream crossed by the proposed route is classified as supporting non-game fish species; however, it currently goes dry during the summer months at the pipeline crossing location due to the ongoing drought conditions in Wyoming and does not support fish populations at this point. This waterbody does have perennial flow further upstream.

No waterbodies affected by the project contain or have the potential to contain species managed by National Marine Fisheries Service, nor do they support designated essential fish habitat.

Overthrust proposes to cross the one perennial stream (Deadman Wash) with an HDD. Overthrust would use the open-cut crossing method to construct across all other intermittent or ephemeral waterbodies along the pipeline route. These waterbodies likely would have little to no flow during the summer to late fall construction period. Crossing such waterbodies would have little to no impact on fisheries. Overthrust would adopt several of the WGFD's recommendations for stream crossings, including:

- use of appropriate size riprap to stabilize ephemeral stream banks;
- constructing pipeline crossings at right angles to all riparian corridors and streams;
- using minimum practical right-of-way width through riparian areas and streams; and
- avoiding routing the pipeline through riparian areas other than for the purpose of crossing streams.

No waterbodies, and as such, no fishery resources, would be affected by construction of Overthrust's proposed compressor stations or other aboveground facilities.

4.7 SPECIAL STATUS SPECIES

Special status species are those species for which state or federal agencies afford an additional level of protection by law, regulation, or policy. For the purposes of this EIS, included in this category are species federally listed as endangered or threatened or are considered as candidates for such listing by the FWS, BLM sensitive species, and those species that are state-listed as threatened or endangered or designated as a state species of concern.

In accordance with Section 7 of the ESA, the lead agency (in this case, the FERC) in coordination with the FWS must ensure that any action authorized, funded, or carried out does not jeopardize the continued existence of a federally listed threatened or endangered species, or result in the adverse modification of the designated critical habitat of a federally listed species. For actions involving major construction activities with the potential to affect listed species or designated critical habitats, the federal agency must prepare a BA for those species that may be affected. The action agency must submit its BA to the FWS and, if it is determined that the action may adversely affect a listed species, the federal agency must submit a request for formal consultation to comply with Section 7 of the ESA. In response, the FWS would issue a biological opinion as to whether or not the federal action would likely jeopardize the continued existence of a listed species, or result in the destruction or adverse modification of designated critical habitat. In compliance with Section 7 of the ESA, we requested that the FWS consider the draft EIS, along with the various survey reports and other information prepared by the Applicants (submitted separately), as our BA for the proposed Rockies Western Phase Project.

The REX-West Project would cross FWS Regions 3 and 6; the Wamsutter Expansion Project is in FWS Region 6; and the Blanco to Meeker Project has components in FWS Regions 2 and 6. In cases of multiregional projects, the federal agency and the FWS typically decide on a FWS “lead office” for project review and ESA consultation. Because the majority of the Rockies Western Phase Project is in Region 6, the FWS has assigned Region 6 as the lead office for overall coordination and any necessary formal consultation. The FWS Grand Island, Nebraska, Field Office is serving as the main point of contact for the REX-West Project, and the Wyoming Ecological Services Office in Cheyenne is providing comments and informal consultation for the Wamsutter Expansion Project. Initial contacts for the Blanco to Meeker Project were made with the FWS Western Colorado Field Office and the New Mexico Ecological Services Field Office.

Our analysis of special status plant and wildlife species originally focused on those species that were identified as potentially occurring in the Project area (Tables 4.7-1, 4.7-2, and 4.7-3), as derived from species lists, agency consultations, and references. Our subsequent evaluation of potential impacts of the Rockies Western Phase Project indicated that some of these species are highly unlikely to occur in the Project area or would otherwise not be affected by the Applicants’ proposed actions. We provide our comments for such species in the above-referenced tables and do not discuss them further in this EIS.

Our recommendations would ensure that Rockies Express, TransColorado, or Overthrust would not be authorized to begin project work until any necessary comments, concurrence, or consultations are completed between the FERC and the FWS (or other applicable agency) regarding the respective proposed actions.

4.7.1 Rockies Express

Agency consultations initially resulted in the identification of 60 special status species that might occur in the REX-West Project area and could therefore require consideration in the NEPA analysis and BA (table 4.7-1). Of these, the Dudley Bluffs bladderpod, Dudley Bluffs twinpod, Graham beardtongue, White River beardtongue, snowy plover, yellow-billed cuckoo, Eskimo curlew, long-billed curlew, Preble’s meadow jumping mouse, gray bat, northern cricket frog, northern leopard frog, plains leopard frog, yellow mud turtle, smooth earth snake, and western fox snake were determined to not have suitable habitat in the project area, have no records of occurrence in locations crossed by the proposed project, or otherwise would not be affected by the REX-West Project. Thus, the REX-West Project *would not affect* these 16 species, and they have been eliminated from further consideration.

The following sections discuss federally listed and state-listed special status species potentially affected by the REX-West Project. Topics discussed include species habitat requirements, potential for occurrence in the construction area, Rockies Express’ proposed field verification surveys, agency recommendations, protective mitigation measures Rockies Express has committed to, and our species-specific recommendations.

Species	Federal Status <u>a/</u>	State Status <u>b/</u>					Comments
		CO	WY	NE	KS	MO	
BIRDS							
Bald eagle (<i>Haliaeetus leucocephalus</i>)	T	T	SoC	T	T	E	Potential roosting and wintering habitat occurs at the South Platte River in Colorado, Little Blue River in Nebraska, and Missouri River. State-designated critical habitat is present at the Missouri River and the Big Blue River in Kansas. Potential impacts downstream of water depletions related to hydrostatic testing.
Barn owl (<i>Tito Alba</i>)						E	Potential habitat may be near the project area.
Western burrowing owl (<i>Athene cunicularia</i>)	BLM-SS	T	SoC				Potential burrowing owl territories and/or nest sites could occur in both active and inactive black-tailed prairie dog colonies along the project route.
Eskimo curlew (<i>Numenius borealis</i>)	E				E		Due to the rarity of this species it is unlikely that it would be encountered. Known historic range nearest to the pipeline is in Riley County, Kansas, along the southern border of Washington and Marshall Counties. There have been no sightings of Eskimo curlew in Kansas since 1902 and there is no designated critical habitat. This species has been eliminated from further consideration.

TABLE 4.7-1 (Continued)

Special Status Species – REX-West Project

Species	Federal Status <u>a/</u>	State Status <u>b/</u>					Comments
		CO	WY	NE	KS	MO	
BIRDS (Cont'd)							
Ferruginous hawk (<i>Buteo regalis</i>)	BLM-SS	SoC	SoC				There is a low potential for occurrence of this species throughout the project area.
Greater prairie chicken (<i>Tympanuchus cupido</i>)		SoC				E	Occurrences have been documented near MP 709 in Audrain County, Missouri.
Greater sage-grouse (<i>Centrocercus urophasianus</i>)	BLM-SS		SoC				Likely potential for this breeding species to occur in Sweetwater County, Wyoming.
King rail (<i>Rallus elegans</i>)						E	Likely to be encountered in high quality wetlands in Buchanan, Carroll, and Chariton Counties, Missouri.
Least tern (<i>Sterna antillarum ssp. athalassos</i>)	E			E	E	E	The primary areas of potential use in the project area are the sandbars in and along the Missouri River. Potential impacts downstream of water depletions related to hydrostatic testing.
Long-billed curlew (<i>Numenius americanus</i>)	BLM-SS	SoC					There are no documented occurrences within the project area. This species has been eliminated from further consideration.
Mountain plover (<i>Charadrius montanus</i>)	BLM-SS	SoC	SoC	T			Occurrences of this species have been documented from Weld County, Colorado through Kimball County, Nebraska.
Northern harrier (<i>Circus cyaneus</i>)						E	This species has been documented in Carroll County, Missouri.
Peregrine falcon (<i>Falco peregrinus</i>)	BLM-SS			SoC	E		Possible foraging habitat does occur; however, there have been no documented sightings.
Piping plover (<i>Charadrius melodus</i>)	T			T	T		The primary areas of potential use in the project area are the sandbars in and along the Missouri River. Potential impacts downstream of water depletions related to hydrostatic testing.
Snowy plover (<i>Charadrius alexandrinus</i>)						T	There are no KNHI database records for the snowy plover in the project area. This species has been eliminated from further consideration.

TABLE 4.7-1 (Continued)

Special Status Species – REX-West Project

Species	Federal Status <u>a/</u>	State Status <u>b/</u>					Comments
		CO	WY	NE	KS	MO	
BIRDS (Cont'd)							
Plains sharp-tailed grouse (<i>Tympanuchus phasianellus jamesi</i>)		E					Distribution of plains sharp-tailed grouse in Colorado includes Weld County and Logan County along the Wyoming border.
Whooping crane (<i>Grus americana</i>)	E	E		E	E		Migrating whooping cranes could roost or feed in the project area in Nebraska from the Colorado border in Perkins County east through Thayer County. Potential impacts downstream of water depletions related to hydrostatic testing.
Yellow-billed cuckoo (<i>Coccyzus americanus</i>)	C BLM-SS						No suitable yellow-billed cuckoo habitat would be crossed by the project. This species has been eliminated from further consideration.
MAMMALS							
Black-footed ferret (<i>Mustela nigripes</i>)	E	E	SoC	E			Suitable habitat for this species does exist in counties crossed by the project area; however, recent surveys did not record any sightings or suitable habitat that would be crossed by the REX-West route.
Black-tailed prairie dog (<i>Cynomys ludovicianus</i>)	BLM-SS	SoC	SoC				Habitat is present in Laramie County, Wyoming and Logan, Sedgwick, and Weld Counties, Colorado.
White-tailed prairie dog (<i>Cynomys leucurus</i>)	BLM-SS						Habitat is present in Sweetwater County, Wyoming.
Eastern spotted skunk (<i>Spilogale putorius</i>)					T		There are no KNHI records or state-designated critical habitat along the pipeline route. However, eastern spotted skunks may occur in suitable habitat anywhere in Kansas.
Gray bat (<i>Myotis grisescens</i>)	E					E	No suitable gray bat habitat would be affected by the project. This species has been eliminated from further consideration.
Indiana bat (<i>Myotis sodalis</i>)	E					E	Potentially found year-round in all seven counties crossed by the route in Missouri.
Plains spotted skunk (<i>Spilogale putorius ssp. Interrupta</i>)						E	There are no natural heritage database records for the plains spotted skunk along the proposed route in Missouri; however, suitable habitat is present.

TABLE 4.7-1 (Continued)

Special Status Species – REX-West Project

Species	Federal Status <u>a/</u>	State Status <u>b/</u>					Comments
		CO	WY	NE	KS	MO	
MAMMALAS (Cont'd)							
Preble's meadow jumping mouse (<i>Zapus hudsonius preblei</i>)	T	T					Suitable habitat has been documented in Weld County, Colorado and Laramie County, Wyoming; however, the FWS has stated that the proposed route does not cross any suitable habitat in these areas and that no surveys are required (FWS 2006a). This species has been eliminated from further consideration.
Swift fox (<i>Vulpes velox</i>)	BLM-SS	SoC	SoC	E			The pipeline would cross potential swift fox habitat in Colorado, Laramie County, Wyoming, and in Kimball and Perkins Counties, Nebraska.
REPTILES/AMPHIBIANS							
Common garter snake (<i>Thamnophis sirtalis</i>)	SoC						Suitable habitat is present at the South Platte River crossing location.
Massasauga, Eastern subspecies (<i>Sistrurus catenatus catenatus</i>)	C					E	The FWS and MDC have identified known eastern massasauga habitat in Chariton, Carroll, and Buchanan Counties, Missouri.
Massasauga, Western subspecies (<i>Sistrurus catenatus tergeminus</i>)				T			Known to occur in Jefferson and Gage Counties, Nebraska. A database review identified one occurrence record for this species along the proposed route, near MP 423.0 in Jefferson County.
Northern cricket frog (<i>Acris crepitans</i>)		SoC					No occurrence records exist for this species along the project route. This species has been eliminated from further consideration.
Northern leopard frog (<i>Rana pipiens</i>)	BLM-SS	SoC					No occurrence records exist for this species along the project route. This species has been eliminated from further consideration.
Plains leopard frog (<i>Rana blairi</i>)		SoC					No occurrence records exist for this species along the project route. This species has been eliminated from further consideration.

TABLE 4.7-1 (Continued)

Special Status Species – REX-West Project

Species	Federal Status <u>a/</u>	State Status <u>b/</u>					Comments
		CO	WY	NE	KS	MO	
REPTILES/AMPHIBIANS (Cont'd)							
Smooth earth snake (<i>Virginia valeriae</i>)					T		No occurrence records exist for this species along the project route. Potential for occurrence is low. This species has been eliminated from further consideration.
Yellow mud turtle (<i>Kinosternon flavescens</i>)		SoC					Possible habitat exists in Logan and Sedgwick Counties, Colorado; however, there have been no documented sightings. This species has been eliminated from further consideration.
Western fox snake (<i>Elaphe vulpina vulpina</i>)						E	There are no MDC natural heritage database records for the western fox snake in the project area. Potential occurrence for this species is low. This species has been eliminated from further consideration.
FISH							
Brassy minnow (<i>Hybognathus hankinsoni</i>)		T					Species occurs at main channel of the South Platte River in Colorado.
Iowa darter (<i>Etheostoma exile</i>)		SoC					Potential habitat may exist at the South Platte River crossing location.
Plains topminnow (<i>Fundulus sciadicus</i>)		SoC					Potential habitat may exist at the South Platte River crossing location.
Stonecat (<i>Noturus flavus</i>)		SoC					Potential habitat may exist at the South Platte River crossing location.
Suckermouth minnow (<i>Phenacobius mirabilis</i>)		E					Species occurs at the main channel of the South Platte River in Colorado.
Chestnut lamprey (<i>Ichthyomyzon castaneus</i>)					T		State-designated critical habitat exists in the Missouri River in Kansas.
Flathead chub (<i>Platygobio gracilis</i>)					T	E	The proposed route crosses state-designated critical habitat at MP 478.1.

TABLE 4.7-1 (Continued)

Special Status Species – REX-West Project

Species	Federal Status <u>a/</u>	State Status <u>b/</u>					Comments
		CO	WY	NE	KS	MO	
FISH (Cont'd)							
Lake sturgeon (<i>Acipenser fulvescens</i>)				T		E	There is potential for occurrence in the Missouri River in the vicinity of the proposed crossing. Crossing would be via HDD, so no impacts are anticipated.
Pallid sturgeon (<i>Scaphirhynchus albus</i>)	E			E	E	E	The Missouri River crossing in Kansas is state-designated critical habitat. Potential impacts downstream of water depletions related to hydrostatic testing.
Sicklefin chub (<i>Macrhybopsis meeki</i>)						E	The Missouri River in Kansas is state-designated critical habitat for this species.
Silverband shiner (<i>Notropis shumardi</i>)						T	The Missouri River in Kansas is state-designated critical habitat for this species.
Sturgeon chub (<i>Macrhybopsis gelida</i>)						T SoC	The Missouri River in Kansas is state-designated critical habitat for this species.
Topeka shiner (<i>Notropis topeka</i>)	E			E	T	E	State-designated critical habitat is present at MPs 447.4, 450.8, and 455.1 in Kansas.
Western silvery minnow (<i>Hybognathus argyritis</i>)						T	State-designated critical habitat is present at MPs 478.1 and 501.4 in Kansas.
Northern red-bellied dace (<i>Phoxinus eos</i>)		E					Suitable habitat potentially occurs within the project area in Colorado.
Plains minnow (<i>Hybognathus placitus</i>)		E					Suitable habitat potentially occurs within the project area in Colorado.
INVERTEBRATES							
American burying beetle (<i>Nicrophorus americanus</i>)	E			E	E		There are documented occurrences at MPs 229, 238, 243, and 260 in Nebraska.
PLANTS							
Colorado butterfly plant (<i>Gaura neomexicana</i> ssp. <i>Coloradensis</i>)	T			E			This species is known to occur in several counties crossed by the project in Wyoming, Colorado, and Nebraska; however, no suitable habitat for this species exists in the immediate project area.

TABLE 4.7-1 (Continued)

Special Status Species – REX-West Project

Species	Federal Status <u>a/</u>	State Status <u>b/</u>					Comments
		CO	WY	NE	KS	MO	
PLANTS (Cont'd)							
Dudley Bluffs bladderpod (<i>Lesquerella congesta</i>)	T						Potential habitat exists in the vicinity of the existing Meeker Compressor Station. However, no impacts are anticipated given no expansion of the existing station footprint. This species has been eliminated from further consideration.
Dudley Bluffs twinpod (<i>Physaria obcordata</i>)	E						Potential habitat exists in the vicinity of the existing Meeker Compressor Station. However, no impacts are anticipated given no expansion of the existing station footprint. This species has been eliminated from further consideration.
Graham beardtongue (<i>Penstemon grahamii</i>)	C						Potential habitat exists in the vicinity of the existing Meeker Compressor Station. However, no impacts are anticipated given no expansion of the existing station footprint. This species has been eliminated from further consideration.
Ute ladies'-tresses (<i>Spiranthes diluvialis</i>)	T						This species is known to occur in Laramie County, Wyoming and Weld County, Colorado. However, no suitable habitat would be crossed by the project.
Western prairie fringed orchid (<i>Platanthera praeclara</i>)	T			T		E	No habitat would be crossed by the project. Potential impacts downstream of water depletions related to hydrostatic testing.
White River beardtongue (<i>Penstemon scariosus</i> var. <i>albifluvis</i>)	C						Potential habitat exists in the vicinity of the existing Meeker Compressor Station. However, no impacts are anticipated given no expansion of the existing station footprint. This species has been eliminated from further consideration.
<u>a/</u> Federal Status: E = endangered; T = threatened; C = Candidate; BLM-SS= BLM Wyoming Sensitive Species <u>b/</u> State Status: E = endangered; T = threatened; SoC = Species of Concern							

4.7.1.1 Federally Listed Threatened and Endangered Species

Platte River System Water Depletions

Six federally listed species (whooping crane, least tern, piping plover, bald eagle, pallid sturgeon, and western prairie fringed orchid) could be affected as a result of upstream water withdrawals from the Platte River system for the purposes of hydrostatic testing and dust control. The FWS is also concerned about water depletions² contributing to the destruction or adverse modification of designated critical habitat for the whooping crane. The FWS describes depletions as including evaporative losses and/or consumptive use, often characterized as diversions from the Platte River or its tributaries, less return flows. According to the FWS, components of the Platte River system include, but are not limited to, rivers, streams, tributaries, wetlands, ponds, lakes, and reservoirs.

The FWS has previously determined that any depletion to the Platte River is likely to adversely affect the six above-referenced federally listed species and would contribute to the destruction or adverse modification of designated critical habitat for the whooping crane. Thus any consumptive use of water from the Platte River Basin would be considered a depletion requiring formal consultation under Section 7.

Rockies Express proposes to withdraw an estimated 78 million gallons (240 acre-feet) of water from the South Platte River in order to hydrostatically test the pipeline (see sections 2.3.1 and 4.3.1.3). Water would be withdrawn from the South Platte River at the pipeline crossing location near MP 120.4. Rockies Express states that the rate of withdrawal would be restricted to levels that would not significantly affect downstream flows or aquatic species but it has not provided any minimum or maximum withdrawal estimates. Rockies Express would discharge the test water on upland areas within the construction right-of-way within the South Platte River watershed, using approved methods, unless direct discharge into surface waters is determined to be acceptable and permitted by the applicable agencies. However, Rockies Express has not identified specific discharge locations. Discharge rates would be monitored and energy dissipation devices and/or filter bags would be deployed to prevent soil erosion and scouring.

A major use of water during project construction is that of dust control. Rockies Express has not specified the source of water to be used for dust control, or whether groundwater would be used for this purpose. In section 4.3.1.1, we recommended that Rockies Express file documentation identifying the sources and estimated amount of water to be used for dust control.

Hydrostatic testing is often considered a temporary and non-consumptive use of water because the water is returned to the source basin shortly after withdrawal and use. The total volumes of water anticipated to be used are relatively low compared to the overall river flow, and over 99 percent of the withdrawn water would be returned to the South Platte River watershed after use. However, the BLM states that water used for hydrostatic testing and any other use that is not returned directly to the water body, its tributaries, or the adjacent alluvial floodplain within a very short period of time to a location close to the withdrawal point, is considered a depletion to surface water flows. The FWS indicated that it would consider hydrostatic water use to be a one-time major depletion.

Hydrostatic testing of the REX-West pipeline would deplete 240 acre-feet of water from the South Platte River and will require formal consultation as required under Section 7 of the ESA. As such, the determination for the REX-West Project in relation to water depletions is *may affect, likely to*

² The FWS defines a “depletion” as consumptive loss plus evaporative loss of surface or groundwater within the affected basin. A minor depletion occurs when the average annual consumptive use is 25 acre-feet or less; a major depletion is when the average annual consumptive use is greater than 25 acre-feet.

adversely affect for the whooping crane, least tern, piping plover, bald eagle, pallid sturgeon, and western prairie fringed orchid. Thus, we requested that the FWS consider the draft EIS as our initiation of formal consultation under Section 7 of the ESA for these six species. Rockies Express would not be authorized to begin construction of the REX-West Project until formal consultation is completed.

Bald Eagle

The bald eagle is federally listed as a threatened species and is listed as state-threatened in Colorado, Nebraska, and Kansas, and as state-endangered in Missouri. Wyoming lists the bald eagle as a species of concern. Historically, populations of bald eagles were drastically reduced principally due to low productivity as a result of the bioaccumulation of pesticides. Since the banning of organochlorine pesticides such as DDT, bald eagle numbers have been increasing, leading to the species being proposed for federal delisting on July 4, 1999, as “recovered.” The bald eagle, however, remains protected under the ESA until delisting is finalized. Bald eagles also are protected under the MBTA and the Bald and Golden Eagle Protection Act.

The bald eagle's diet consists mostly of fish and, as such, individuals tend to be found associated with mature, forested, riparian areas near rivers, streams, lakes, wetlands, and reservoirs. Eagles also may forage opportunistically, especially in winter, feeding on waterfowl, dead fish, jackrabbits, and big game carrion.

Bald eagles may be present in the REX-West Project area, where they typically nest during the spring and summer and roost during the winter. The bald eagle southward migration begins as early as October and the winter roost period generally extends from December through March, but can vary from state to state. The general nesting season in the project area is generally from early February through mid-August. Nests are usually large and conspicuous stick assemblages within large, stoutly limbed trees, snags, broken-topped trees or rock or cliff faces near water that provide easy access to hunting or feeding areas. Bald eagles roost communally, generally defined as six or more eagles spending the night within 100 meters of each other (Greater Yellowstone Bald Eagle Working Group 1996). Bald eagles often return to the same nest site or roosting site year after year.

The CNHP has identified historic and active communal roost sites and winter concentration areas for bald eagles in the vicinity of the South Platte River crossing in Colorado (MPs 119.8-122.8) and its associated floodplain. Additionally, state-designated critical habitat for the bald eagle would be crossed by the pipeline in Kansas along the Big Blue River at MP 447.1 in Marshall County and the Missouri River at MP 537 in Doniphan County. The KNHI identifies the Missouri River crossing location as a known wintering concentration area for bald eagles, with the potential for use as breeding and nesting habitat. The NGPC has documented one historic bald eagle nest site in the vicinity of the project area on the Little Blue River at MP 424.2 in Jefferson County. However, Rockies Express did not document any active bald eagle nest or roosting sites along the proposed REX-West pipeline route during its raptor surveys conducted between March 28 and April 1, 2006.

Bald eagles could return to or establish new breeding territories and/or nest sites within the project area prior to construction. If construction were to occur during the breeding season for the bald eagle, Rockies Express states it would conduct pre-construction nest surveys at known nest sites and within suitable nesting habitat during the appropriate period. If a bald eagle nest is found during the pre-construction surveys, Rockies Express would need to implement protective buffers to avoid disturbance during construction. In Wyoming, FWS protection measures require a 1-mile avoidance zone for bald eagle active nests and roosts. In Colorado, the CDOW has established a 0.5-mile avoidance zone for bald eagles, which has been approved for use by the FWS. The NGPC follows the FWS's protection measures for avoidance buffer for bald eagles in the state of Nebraska. Rockies Express indicated that it is still

consulting with Kansas and Missouri regarding appropriately sized avoidance zones for bald eagles in those states. The BLM is the agency responsible for including BLM-approved stipulations or conditions to mitigate impacts on nesting or roosting bald eagles on federal land.

Based on federal and state agency guidance, Rockies Express committed in its comments on the draft EIS that it would not construct within 1 mile of active bald eagle nests identified in preconstruction surveys along the entire route. In order for us to track the locations of bald eagle nests and fulfill our Section 7 obligations, **we recommend that Rockies Express file the results of these surveys prior to construction. Rockies Express should not begin construction until staff has reviewed the information, completed any necessary Section 7 consultation for the bald eagle with the FWS, and the Director of OEP notifies Rockies Express in writing that construction may proceed.** It is also possible that active construction could encounter bald eagle nesting activity undiscovered during preconstruction surveys. **Therefore, we further recommend that if a previously unidentified active bald eagle nest is encountered within 1 mile of the construction right-of-way, Rockies Express should concurrently notify the Commission staff, the BLM (if on federal land), and the FWS, and file the notification. Rockies Express should not continue with construction within 1 mile of the nest until staff has reviewed the information, completed any necessary Section 7 consultation on the bald eagle with the FWS, and the Director of OEP notifies Rockies Express in writing that construction may proceed or use of mitigation may begin.**

The proposed project could affect aerial foraging and predatory activities if construction occurs along waterbodies when roosting eagles are present. Project disturbance could change foraging patterns or remove preferred roosting trees. Given the linear nature of the clearing associated with the project and the short time frame in which waterbody construction would be occurring, it is unlikely these impacts would result in more than a temporary disruption to foraging individuals. Non-nesting individuals may be temporarily displaced, but this is not usually considered a significant impact. Individual eagles could find other suitable roosts in the general area until construction activity has passed. However, the FWS often recommends measures to minimize the amount and extent of such displacement. Examples of such measures include a spatial buffer zone around roosting eagles, timing construction to certain portions of the day, or having a waiting interval to see if eagles will leave the area on their own accord. Typically, if construction is ongoing and an eagle enters the project activity area, construction would not have to stop. To minimize impacts on roosting eagles, Rockies Express would coordinate with the FWS to conduct winter roost surveys along areas of potentially suitable habitat, if construction occurs between November 15 and March 15. If a winter roost site is found during these surveys, Rockies Express would consult with the FWS to determine whether additional protection measures are warranted. In its comments on the draft EIS, Rockies Express stated that, prior to any construction between November 15 and March 15, it would file the results of its winter surveys for bald eagle roost sites, as well as the results of any FWS coordination. **We recommend that Rockies Express not begin or continue with construction within 0.5 mile of any bald eagle communal roost site (1 mile in Wyoming) until the Commission staff has reviewed the information, completed any necessary Section 7 consultation for the bald eagle with the FWS, and the Director of OEP notified Rockies Express in writing that construction or use of mitigation may begin.**

Although we do not expect the potential decreases in foraging habitat associated with the REX-West Project to have significant long-term effects on eagles or local populations, we believe Rockies Express should avoid removing roosting or nesting trees to the extent possible. Eagles often return to the same tree to roost or nest year after year. In its comments on the draft EIS, Rockies Express committed to consult with the FWS and any applicable state agency to identify locations where bald eagles are known to roost or nest, and within such areas identify known or potential bald eagle roosting/nesting trees on or immediately adjacent to the proposed construction right-of-way. Rockies Express states it would assess measures to avoid such trees that could be damaged by construction. **We recommend that prior to**

construction, Rockies Express should file its bald eagle roosting/nesting tree assessment along with any agency comments. For any potential roost/nest tree that Rockies Express believes must be removed (*i.e.*, can not be avoided by use of HDD or by routing), Rockies Express should file a detailed justification as to why the tree must be removed, including measures considered before determining removal was necessary. Rockies Express should not remove any potential bald eagle roosting or nesting tree until the Commission staff receives comments from the FWS regarding the proposed action, completes any necessary Section 7 consultation for the bald eagle with the FWS, and the Director of OEP notifies Rockies Express in writing that construction or use of mitigation can begin.

Because of Rockies Express' commitment to conduct nest surveys prior to construction in suitable habitat areas crossed by the pipeline route, and its additional commitments to protect this species, as well as our recommendations, we conclude that the project *may affect, but is not likely to adversely affect* the bald eagle.

Least Tern and Piping Plover

The least tern is listed as a federally endangered species, and a state-endangered species in Nebraska, Kansas, and Missouri. Least terns are known to nest on the major river systems in Nebraska and can also be found in Colorado. The birds nest on unvegetated or sparsely vegetated sandbars in river channels and forage in shallow waters where small fish are present. The nesting season for the least tern is from April 15 through September 15.

The piping plover is listed as a federally threatened species, and a state-threatened species in Nebraska and Kansas. Like the least tern, the piping plover nests on the major river systems in Nebraska on unvegetated or sparsely vegetated sandbars. Piping plovers forage for invertebrates on exposed beach substrates. The nesting season for the piping plover is from April 15 through September 15.

The primary areas of potential use by the least tern and piping plover in the REX-West Project area are the sandbars in and along the Missouri River. Construction of the REX-West Project is currently anticipated to begin in the spring or summer 2007, which overlaps the least tern and piping plover nesting seasons. Rockies Express' use of an HDD at the Missouri River would avoid disturbing least tern and piping plover habitat at this location. In its comments on the draft EIS, Rockies Express provided documentation of consultation with FWS, NGPC, and KDWP indicating that no surveys would be required and that there were no specific issues remaining related to these species.

Based on Rockies Express' proposed HDD crossing of the Missouri River and comments by the FWS, NGPC, and KDWP, we conclude the REX-West Project *is not likely to adversely affect* the least tern and piping plover.

Whooping Crane

The whooping crane is listed as a federally endangered species, and a state-endangered species in Colorado, Nebraska, and Kansas. The REX-West Project would not affect whooping crane nesting habitat or breeding rookeries. However, this species is considered to be a rare migrant in eastern Colorado, western Kansas, and western Nebraska, where it travels in small, family groups. Whooping cranes migrate through the REX-West Project area in the spring (approximately March 23 through May 10) and in the fall (approximately September 16 through November 16). They use shallow, sparsely vegetated streams and wetlands to feed and roost during migration through the area. Migrating whooping cranes could be roosting or feeding in the project area in Nebraska from the Colorado border in Perkins County east through Thayer County.

Rockies Express currently anticipates a construction schedule that overlaps the whooping crane spring and fall migration periods. Rockies Express states it would conduct pre-construction surveys for whooping cranes in consultation with the FWS. In its comments on the draft EIS, Rockies Express stated that it would cease construction and contact the FWS if a whooping crane is found within 1 mile of construction. In order for us to fulfill our Section 7 obligations concerning the whooping crane, **we recommend that Rockies Express not continue construction activities within 1 mile of a whooping crane until the Commission staff receives comments from the FWS regarding the whooping crane, completes any necessary Section 7 consultation with the FWS, and the Director of OEP notifies Rockies Express in writing that construction or use of mitigation can begin.**

The REX-West Project would not affect whooping crane nesting habitat or breeding rookeries. Individual cranes typically spend only a few days at most at a given site during migration before moving on. As such, we believe any individual migrants would leave the construction area with minimal disruption. Because of these factors, Rockies Express' additional commitment to avoid impacts on migrating cranes, and our recommendation, we conclude that the REX-West Project *may affect, but is not likely to adversely affect* the whooping crane.

Black-footed Ferret

The black-footed ferret is listed as a federally endangered species, a state-endangered species in Colorado and Nebraska, and a species of concern in Wyoming. The black-footed ferret was once distributed throughout the high plains of the Rocky Mountains and western Great Plains regions, but is now thought to be the rarest mammal in the United States. The primary reasons for the ferret's decline have been disease and the decline of prairie dog populations.

Black-footed ferrets are secretive, primarily nocturnal, and rarely observed. They are found in association with prairie dog colonies in grasslands and shrublands, and are highly dependent on prairie dog colonies for both food and shelter. All active prairie dog colonies or complexes of towns large enough to support ferrets are considered to be potential habitat. Although the REX-West Project area crosses the historic range of the species, there have been no recent sightings of wild black-footed ferrets within the project area.

The FWS has block-cleared all black-tailed prairie dog colonies in the Laramie County, Wyoming and Colorado portions of the REX-West Project area. In Weld County, Colorado, black-tailed prairie dog colonies are block-cleared on a colony-by-colony basis. The FWS indicated that since a small portion (about 5 percent) of the prairie dog town in Weld County would be affected by the project, no further surveys would be required in this area (Lorenz, 2006). The black-tailed prairie dog colonies in the Nebraska counties of Dawson, Franklin, Frontier, Gosper, Kearney, Kimball, Lincoln, Nuckolls, Perkins, Phelps, and Webster have not been block cleared.

Rockies Express is continuing its consultation with the BLM and FWS regarding the white-tailed prairie dog towns identified in Sweetwater County, Wyoming.

Rockies Express' preliminary reports based on aerial surveys indicate that seven black-tailed prairie dog colonies of sufficient size and density to require black-footed ferret surveys are present in the REX-West Project area. In Colorado, one colony was identified between MPs 113.5 and 118.3 that would incur about 38 acres of construction-related impact. This colony has since been block-cleared. In Nebraska, six colonies were identified at MPs 178, 181, 222, 246, 264, and 346 totaling approximately 39.6 acres of potential impact.

Potential impacts on black-footed ferrets from the REX-West Project could result from abandonment of underground nursery dens and the loss of adults and young from the compaction of prairie dog burrows during construction. Indirect impacts could occur from the increase in noise levels and other disturbances related to construction and human presence.

In its comments on the draft EIS, Rockies Express stated that it has conducted the requisite habitat surveys and has confirmed through consultations with the FWS, BLM, and NGPC that no black-footed ferret surveys are required for the project. We concur.

Based on Rockies Express' agency consultation and the low potential of encountering black-footed ferrets in the project area we conclude that the REX-West Project *may affect, but is not likely to adversely affect* the black-footed ferret.

Indiana Bat

The Indiana bat is listed as a federally endangered species, and a state-endangered species in Missouri. It can be found year-round in all seven counties crossed by the REX-West route in Missouri. The Indiana bat winters in caves and mines, and hibernates in large, tight clusters that may contain thousands of individuals. However, very few caves exist that provide the stable, low-temperature conditions that are necessary for hibernating bats to reduce their metabolic rate and conserve fat reserves.

In spring, Indiana bats emerge from hibernation and migrate to their summer homes. Females form maternity colonies of up to 100 bats during the summer. These colonies are usually located behind the loose bark of trees, often near tree-lined streams and rivers. Indiana bats give birth to one young in midsummer. Young bats are capable of flight in about a month. Indiana bats feed entirely on night-flying insects, and a colony of bats can consume thousands of insects each summer and fall night, thus accumulating fat reserves that allow the bat to sustain itself during its winter hibernation.

While Indiana bats are subject to natural hazards (such as cave flooding) during hibernation, humans have been the major cause of declining bat populations. The clusters of hibernating bats are very susceptible to disturbance and vandalism. People touring caves can disturb bats and cause them to awaken. When a bat is aroused, it uses energy at a higher rate, which decreases the energy supply available for the rest of the winter. The clearing of forests has decreased the amount of summer habitat available to the Indiana bat. In addition, the increased use of pesticides has contributed to the decline of this insectivore species.

The MDC recommended that Rockies Express leave tree snags standing where possible and preserve mature forest canopy. If large trees must be removed, the MDC recommends that Rockies Express avoid cutting them during the summer months.

Rockies Express completed an Indiana bat habitat assessment on September 5, 2006, in coordination with the FWS and MDC to determine if there are any maternity roosts in the REX-West Project area. Rockies Express' habitat assessment concluded that the proposed route would cross about 100 acres of forest that represents suitable habitat for Indiana bat maternity roosting. Within these tracts, Rockies Express identified 205 trees that have the characteristics suitable for bat roosting (*i.e.*, snags or trees with exfoliating bark).

Rockies Express has continued to coordinate with the FWS regarding potential impacts on the Indiana bat. Rockies Express has agreed to mitigate for indirect impacts by implementing "appropriate conservation measures" developed in coordination with the FWS, MDC, and other applicable entities.

The FWS has reviewed Rockies Express' habitat assessment and has provided guidance on measures that would minimize impacts on this species. These are summarized below.

Re-route Option

Re-routing a project to completely avoid Indiana bat roosting habitat would avoid impacts on the species. Rockies Express states that this option is not under its consideration.

Seasonal Avoidance Option

The season for Indiana bat maternity roosting is between April 1 and September 30. Construction in Indiana bat habitat any time during this 6 month period could disturb or kill roosting bats. The FWS regularly recommends that construction activity in Indiana bat habitat occur outside of this seasonal window. The removal of suitable roosting trees outside of the roosting season would represent an indirect impact; however, the FWS has indicated that avoiding construction across the identified woodlots during the roosting period would minimize impact and not require formal Section 7 consultation. To account for the removal of habitat, the FWS further suggests that conservation measures be developed to ensure that Indiana bat roost habitat will exist near the project area into the future. As stated above, Rockies Express has agreed to implement conservation measures developed in agreement with the FWS and other agencies.

Pre-clearing Option

This option requires that only the specific trees deemed suitable for roosting be cleared during the seasonal avoidance window described above. The FWS regularly recommends this option to applicants who wish to construct during the roosting season. For the REX-West Project, this would involve selective removal of the 205 trees determined to be suitable Indiana bat roosting habitat *prior to April 1* of this year. The FWS has agreed that this would avoid adverse impacts on the Indiana bat, thus eliminating the need for formal Section 7 consultation.

Targeted Survey Option

In the event Rockies Express is not able to conduct its tree clearing during the October 1 through March 31 window, the FWS has established a survey protocol that can be used during the summer maternity season to determine whether or not Indiana bats are present. These surveys involve mist netting, which captures bats so that they can be identified. The protocol requires specific equipment, net placement, spacing, and level of effort. Weather conditions and moon phase must be considered as well. Surveys must be conducted between May 15 and August 30, and within 3 days prior to cutting the trees in the survey area. If, using the protocol, no Indiana bats are caught at a particular location, construction could proceed. However, if an Indiana bat were identified, Rockies Express would have to delay construction until after September 30 or until we have entered and concluded formal Section 7 consultation with the FWS. Rockies Express has not proposed to conduct targeted surveys.

Formal Consultation Option

If none of the above options are agreed to by Rockies Express, and construction must take place in suitable Indiana bat maternity roost habitat from April 1 through September 30, the FWS would consider this an adverse impact necessitating formal Section 7 consultation.

At this time, Rockies Express has not agreed to delay construction until after the summer roosting season (*i.e.*, adopt the seasonal avoidance option), nor has it proposed to conduct protocol surveys or

reroute the pipeline to avoid the roosting habitat. Because the pre-clearing option would require a FERC certificate and authorization to construct before April 1, implementation of this option is highly unlikely. Therefore, in order for impacts on the Indiana bat to be minimized and avoid the need for formal Section 7 consultation on the Indiana bat, **we recommend that Rockies Express not construct in the 42 tracts identified in its habitat assessment as containing suitable Indiana bat maternity roost habitat between April 1 and September 30.**

We note that this recommendation could be satisfied by either the seasonal avoidance or pre-clearing options described above. We also note that Rockies Express could propose either the formal consultation or targeted survey option prior to construction, which may provide an opportunity for summer construction, depending on the results of the surveys and/or the outcome of any formal consultation.

Based on our recommendation to avoid the Indiana bat maternity roosting season, we conclude that the REX-West *Project may affect but is not likely to adversely affect* this species.

Pallid Sturgeon

The pallid sturgeon is a federally listed endangered species, and a state-listed endangered species in Nebraska, Kansas, and Missouri. In Nebraska, the pallid sturgeon is found in the Missouri and lower Platte Rivers, while in Kansas and Missouri it is found in the Missouri River. The pallid sturgeon inhabits diverse aquatic habitats, including backwaters, chutes, sloughs, and main channel waters in large-river systems. These habitats historically were dynamic and in a constant state of change due to influences from the natural hydrograph and sediment and runoff inputs from an enormous watershed spanning portions of ten states and Canada.

Navigation, channelization, and bank stabilization, as well as hydropower generation projects have resulted in the widespread loss habitat for the pallid sturgeon in the Missouri River, resulting in a decline of the population. The proposed REX-West crossing location at the Missouri River has been designated as critical habitat for the pallid sturgeon by the state of Kansas.

Rockies Express' proposed HDD crossing of the Missouri River would avoid instream impacts and thus would have no effect on the pallid sturgeon. If a frac-out (the escape of drilling fluid) were to occur, short-term sediment transport, water quality impacts, and bottom disturbance would likely be present at or near the crossing location. However, Rockies Express would implement its HDD Contingency Plan to address potential impacts to aquatic environments from the inadvertent release of drilling fluid during the HDD process. The HDD Contingency Plan discusses preventative measures, response equipment, release detection, corrective actions, monitoring, and agency notification procedures. By implementing the measures in the HDD Contingency Plan, potential impacts on pallid sturgeon would be minimized and short-term in duration.

However, if an HDD crossing could not be completed at the Missouri River, Rockies Express would likely request to cross using an open-cut technique. A non-HDD crossing would have the potential for greater impact on the pallid sturgeon. Our current determination of effect for the pallid sturgeon is dependent on the Missouri River crossing being completed by HDD. If at any point Rockies Express proposes a non-HDD crossing of the Missouri River, we would need to consult further with the FWS in order to comply with Section 7 of the ESA.

In its comments on the draft EIS, Rockies Express provided a draft site-specific alternative crossing plan for the Missouri River to account for the possibility of HDD failure. This plan is also being provided to the KDWP, MDC, and the FWS for input. Rockies Express indicates that the finalized plan

will include a description of the mitigation measures it would implement to minimize the extent and duration of construction-related impacts that could affect pallid sturgeon. **We recommend that Rockies Express file its final alternative/contingency crossing plan for the Missouri River. Rockies Express should not begin a non-HDD crossing of the Missouri River until the Commission staff evaluates the potential impact of a non-HDD crossing of the Missouri River on the pallid sturgeon, the staff and the FWS determine that the alternative crossing and/or mitigation plan is acceptable, the staff completes any required Section 7 consultation for the pallid sturgeon with the FWS, and the Director of OEP notifies Rockies Express in writing that it may proceed with the alternative river crossing method.**

Because of these considerations and our recommendation, we conclude that Rockies Express' proposed HDD crossing of the Missouri River *may affect but is not likely to adversely affect* the pallid sturgeon or its critical habitat.

Topeka Shiner

The Topeka shiner is a federally listed endangered species, a state-listed endangered species in Nebraska and Missouri, and a state-threatened species in Kansas. Preferred habitat is small prairie (or former prairie) streams in pools containing clear, clean water, generally with clean gravel, rock, or sand bottoms. Most Topeka shiner habitat streams are perennial, but some are small enough to stop flowing during dry summer months. In these circumstances, water levels must be maintained by groundwater seepage for the fish to survive. The proposed REX-West crossing locations of North Elm Creek in Marshall County, Kansas (MPs 447.4, 450.8, and 455.1) are state-designated as critical habitat for the Topeka shiner.

Stream modifications, sediment deposition, pollution, overgrazing, and predation by introduced fish are thought to have led to the decline of the Topeka shiner across its Midwestern range. The Topeka shiner is susceptible to water quality changes within its habitat, and has disappeared from several sites because of increased sedimentation resulting from accelerated soil runoff. Any activity (including agriculture, urban development, and highway construction) that removes the natural protective vegetative covering within a stream's watershed may contribute to water quality changes, thus affecting this species. Additionally, construction of stock watering ponds and watershed impoundments on streams containing Topeka shiners has been shown to eliminate this species from those stream reaches. Such practices are common in much of the Topeka shiner's range.

Rockies Express conducted Topeka shiner surveys during mid-September 2006 to assess streams that are considered *historic* Topeka shiner habitat in Missouri. No Topeka shiners were captured. Because this survey of historic habitat in Missouri was negative, no additional surveys at these locations are planned for 2007.

Rockies Express did not survey *critical/occupied habitat* streams in Kansas such as North Elm Creek or streams containing core populations of Topeka shiner during 2006, indicating that it would conduct these surveys in 2007 prior to construction. However, in its comments on the draft EIS, Rockies Express indicated that all streams in Kansas, with the exception of North Elm Creek at MPs 447.4, 450.8, and 455.1, have been cleared for construction. Our discussions with the FWS have confirmed that the FWS's concerns were specific to the North Elm Creek crossings.

Rockies Express proposes to use the open-cut technique to cross the occupied habitat identified at the three North Elm Creek locations. Impacts on the Topeka shiner from pipeline construction in North Elm Creek could include channel degradation or water quality impacts from increased sedimentation and turbidity, which can also result from the removal of riparian vegetation. Increased sediment loads can

alter a stream's substrate composition and fill inter-gravel spaces and pool habitats, reducing spawning habitat, available rearing habitat, and benthic invertebrate production (the primary food supply of many fish). Increased sediment loads can also adversely affect fish populations by suffocating eggs and newly hatched larvae living in gravels and by abrading sensitive gill membranes of both young and adult fish.

The KDWP recommended that North Elm Creek be crossed using HDD if suitable habitat for the Topeka shiner is present at the proposed crossing locations. The KDWP also requested a joint site visit at the crossing locations if a HDD crossing is not proposed. In its comments on the draft EIS, Rockies Express indicated that it still proposes an open-cut crossing, but that it would adhere to the seasonal timing restriction (no construction between May 15 and July 31) related to the shiner spawning period and would continue to consult with the FWS and KDWP for additional protective measures.

On February 27, 2007, Rockies Express personnel met with the FWS to discuss the North Elm Creek crossings. It was agreed that open-cut crossings of North Elm Creek would be acceptable, subject to certain conditions. If these conditions are met, the FWS has stated that the crossings would not result in an adverse impact on the Topeka shiner and that formal Section 7 consultation would not be necessary. Rockies Express has also consulted with the KDWP and reached agreement regarding mitigation for impacts on the Topeka shiner. Some of the measures necessary to minimize impacts on the Topeka shiner are:

- adhering to a work exclusion period from May 15 through July 31 in North Elm Creek to avoid in-stream disturbances during the primary Topeka shiner spawning period;
- attempting to remove Topeka shiners in the stream using a seining technique in accordance with a KDWP Project Action Permit;
- constructing the crossings during a period of low flow and using a dam-and-pump technique;
- layering and sorting the spoil, and using clean rock, so that backfilling the trench maintains the original stream profile and substrate layering;
- utilizing a seed-impregnated bank stabilization mat after the crossings are completed; and
- restoring native riparian vegetation following the completion of pipeline construction activities to minimize impacts on water quality in North Elm Creek from sedimentation and erosion.

In order for us to conclude that the REX-West Project is not likely to adversely affect the Topeka shiner, we would need to verify that the construction and mitigation measures put forth by the FWS were met by Rockies Express prior to construction. Therefore, **we recommend that Rockies Express file site-specific survey, mitigation, and crossing plans for each of the three North Elm Creek crossing locations (MPs 447.4, 450.8, and 455.1) with regard to the Topeka shiner. Rockies Express should also file comments from the FWS and KDWP regarding the proposed seining, construction, and restoration measures. These plans and comments should be filed prior to construction of the North Elm Creek crossings for the review and written approval of the Director of OEP.**

American Burying Beetle

The American burying beetle is a federally listed endangered species, and a state-listed endangered species in Nebraska and Kansas. The American burying beetle feeds on carrion, which is an essential component in a complex reproductive cycle for the species. This species is found in the Nebraska portion of the project and is typically observed from April 1 to October 29, with peak periods of activity extending from June through August. Beetles overwinter as adults.

The American burying beetle inhabits roadsides in mesic areas such as wet meadows, riparian areas, and wetlands associated with relatively undisturbed semi-arid, sand hill and loam grasslands. Such areas have been observed to have a thick stand of grassland vegetation with some woody vegetation. According to the NGPC, this species is most likely to occur between MP 200 and MP 270 within the REX-West Project area. Several occurrence records have been documented in Nebraska within 1 mile of the proposed REX-West right-of-way near MPs 229, 238, 243, and 260 in Lincoln, Dawson, Frontier, and Gosper counties.

Impacts on the American burying beetle from the REX-West Project could include habitat disturbance and potential mortalities caused by construction activities such as clearing, grading, trenching and backfilling.

Based on Rockies Express' proposed construction schedule, project activities could occur within suitable American burying beetle habitat between April and October, which could potentially result in adverse impacts on the species. Rockies Express contracted with Dr. Wyatt Hoback, entomologist at the University of Nebraska-Kearney, to conduct burying beetle surveys during 2006. Rockies Express reported that the 2006 surveys are complete and Dr. Hoback cleared the following counties in Nebraska for construction in 2007: Perkins, Lincoln (western portion), Phelps, Kearney, Franklin, Thayer, and Gage. Dr. Hoback would survey the following counties in Nebraska during 2007: Lincoln (eastern portion), Gosper, Frontier, Dawson, Nuckolls, Webster, and Jefferson. These counties have been identified by the FWS as counties of known occurrences or suitable burying beetle habitat.

The FWS recommended that if Rockies Express finds an American burying beetle during surveys or Rockies Express decides not to complete surveys and assumes the species is present, Rockies Express should remove beetles by trapping and relocating any individuals to a suitable relocation site. We note that, based on recent information, the FWS no longer recommends that American burying beetles be removed from the project area using the "baiting away" technique (FWS 2006b). This is based on recent research being conducted by Dr. Hoback who has found up to 25 percent beetle mortality (from entrapment, heat, competition, and other factors) for projects using the baiting away technique in an effort to avoid adverse impacts. The FWS determined that this level of mortality would constitute a "take" under Section 9 of the ESA. Instead, according to the FWS, trapping and relocating must be implemented using an "on-site" method in known habitat during the American burying beetle active period between April and October³. If such trapping/relocation is conducted, no Section 7 consultation would be necessary for the American burying beetle. Trapping and relocating any American burying beetles must be conducted under the authority of a Section 10 permit from the FWS and any applicable state of Nebraska requirements.

If construction is scheduled to proceed outside of the recommended period, and Rockies Express does not complete the trapping requirements as per FWS protocol, formal Section 7 consultation would be required.

In its comments on the draft EIS, Rockies Express stated that it will continue to consult with the FWS and NGPC regarding the need for surveys and will employ trap-and-relocate methods in areas of suitable habitat during the summer beetle activity period. **We recommend that if the 2007 surveys confirm the presence of the American burying beetle and Rockies Express proposes to construct in occupied American beetle habitat prior to October 30, 2007, Rockies Express should trap and relocate beetles according to FWS protocol. Prior to beetle trapping, Rockies Express should file its**

³ The "on-site" trapping method consists of digging a hole on site, placing a bucket in the hole with rotten meat inside. Any beetles caught in the traps are relocated.

trapping/relocating plan with the Secretary for the review and approval of the Director of OEP. The plan should contain the following:

- **description of specific FWS protocols and any additional methods to be followed;**
- **name(s) and qualifications of the person(s) expected to conduct the trapping;**
- **date(s) the trapping is expected to take place;**
- **specific areas (by milepost) where beetles would be trapped;**
- **an analysis of potential impacts that could result from the construction of the proposed project;**
- **confirmation that the FWS has approved the plan, including trapping and relocating methods, qualifications of the trappers, and the need for any permits; and**
- **any additional comments from the FWS and/or state agency.**

Once the trapping and relocating plan is approved, Rockies Express could proceed with the procedure. Adhering to these protocols would allow the FERC to assess impacts to the American burying beetle via informal Section 7 consultation (rather than formal consultation). Based on our recommendation above, we conclude that the proposed REX-West Project *may affect but is not likely to adversely affect* the American burying beetle. Rockies Express would not be authorized to construct across suitable habitat for the American burying beetle until the FERC has completed any necessary Section 7 consultation with the FWS.

Colorado Butterfly Plant and Ute Ladies'-tresses

The federally threatened Colorado butterfly plant is known to occur in Laramie County, Wyoming, Weld County, Colorado, and Kimball County, Nebraska. This species inhabits native sub-irrigated meadows on floodplains and lower, periodically disturbed stream terraces with relatively open vegetation on alluvial soils.

The Ute ladies'-tresses is a federally threatened orchid known to occur in Laramie County, Wyoming and Weld County, Colorado in seasonally moist soils and wet meadows near springs, lakes, or perennial streams and associated floodplains below 6,500 feet. Typical sites include old stream channels, alluvial terraces, sub-irrigated meadows, and locations where soils are saturated within 18 inches of the surface during the growing season.

Potential impacts on these two federally listed plant species could include the loss of individuals or local populations as a result of crushing from construction activities. Impacts also could result from the incremental long-term disturbance of habitat until restoration is completed and native vegetation has become reestablished. Indirect impacts could include invasion of the habitat by noxious weeds.

Rockies Express originally stated that it would conduct surveys during the appropriate survey periods for the Ute ladies'-tresses and Colorado butterfly plant in order to determine presence or absence in the direct project area. Rockies Express conducted a habitat assessment survey of its pipeline route (where survey permission was granted by the landowner) between March and September 2006 and determined that no suitable habitat for these species exists in the project area. Rockies Express submitted its habitat assessment survey reports to the FERC as part of its comments on the draft EIS and to the FWS.

Although our review of the habitat assessment survey report confirms that no habitat for these plants would be crossed by the project along portions of the route where survey permission was granted by the landowner, we cannot eliminate the possibility that additional surveys may be required along

portions of the route where survey permission was not granted. In addition, in order to meet our Section 7 obligations we must recommend additional measures to protect plants that may be in the project area, yet not be discovered until construction is underway. Rockies Express has stated that in the event a federally listed plant is found in the construction right-of-way, it would consider measures (*e.g.*, exclusion fencing, re-routes, alternate right-of-way configurations, and/or transplanting) to avoid or minimize impacts on the Ute ladies'-tresses and Colorado butterfly plant. However, any measures except total avoidance would have to be conducted in the context of a Section 7 consultation; most likely with a formal biological opinion from the FWS. Therefore, **we recommend that if suitable habitat for the Ute ladies'-tresses or Colorado butterfly plant would be crossed by the project, Rockies Express should not construct in those locations until it has completed species-specific surveys to determine whether or not the plant(s) are present. If plants are present, Rockies Express should avoid the populations by either a bore or reroute, unless otherwise permitted by the FWS. Route modifications should be filed with the Secretary for the review and written approval of the Director of OEP.** With this recommendation, we conclude that the REX-West Project *may affect but is not likely to adversely affect* the Ute ladies-tresses and the Colorado butterfly plant.

Massasauga

The massasauga rattlesnake is separated into three recognized subspecies: the eastern massasauga, the western massasauga, and the desert massasauga. Preliminary genetic data indicate that the eastern populations (*i.e.*, those north and east of the Missouri River) are distinctive and may warrant recognition as a species separate from the species represented by populations farther west. The REX-West Project would not cross the geographic range or habitat for the desert massasauga; however, the other two subspecies could be encountered.

The eastern massasauga is a federal candidate species, and a state-listed endangered species in Missouri. It inhabits marshy areas, wet prairies, sloughs, vegetation around marshes and lakes, and floodplains of major rivers. This species prefers areas with cattails, sedge, bluegrass, dogwood, and hawthorn. The FWS considers all massasauga populations found north and east of the Missouri River to be the eastern subspecies.

The FWS and MDC have identified known eastern massasauga habitat in Chariton, Carroll, and Buchanan Counties, Missouri; however, according to the FWS the nearest occurrence record is approximately 15 miles north of the proposed REX-West route in Chariton County. The FWS stated that a species-specific survey is not warranted, but did request that if Rockies Express finds a massasauga that it report the finding to the FWS and discuss potential conservation measures. Rockies Express has agreed to this.

The western massasauga is listed as state-threatened in Nebraska and a species of concern in Colorado. This subspecies utilizes a variety of habitats depending upon the season. In October through March, the western subspecies resides in crayfish burrows in wet meadows and marshy areas of cattail, prairie cordgrass, and reed canarygrass. In late March, individuals emerge from dens and travel to upland grassland habitats where they reside from about April to September. The western massasauga is known to occur in Jefferson and Gage Counties, Nebraska. A database review identified one occurrence record for this species along the proposed REX-West route, near MP 423.0 in Jefferson County.

Given the nearby occurrence record for the western massasauga, the NGPC recommended that Rockies Express have a qualified herpetologist conduct drift fence surveys during late October and early November 2006 in appropriate winter denning habitat within 1 mile of the proposed right-of-way. Rockies Express conducted these surveys and is in the process of analyzing the survey results. Additionally, the NGPC recommended mowing before the snakes emerge from their dens (in order to

discourage right-of-way use), and having a biological monitor relocate snakes found in the right-of-way. Rockies Express has committed to implementing these mitigation measures⁴, which would avoid or minimize potential impacts to the western massasauga.

We believe that the REX-West Project may impact individual eastern and western massasauga rattlesnakes, but would not cause population-level impacts or reduced species viability, nor cause a trend toward federal listing.

4.7.1.2 State-listed Threatened and Endangered Species and Species of Concern⁵

Suckermouth Minnow, Brassy Minnow, Iowa Darter, Plains Topminnow, and Stonecat

The Colorado state-endangered suckermouth minnow and state-threatened brassy minnow are native to the South Platte Basin and may occur in tributaries or habitats associated with the main channel of the South Platte River in Colorado. The suckermouth minnow inhabits clear shallow water riffle areas with sand and gravel and year-round flow. This minnow feeds on insect larvae and invertebrates, and spawns in the late spring to early summer. Habitats used by brassy minnow include cooler, flowing waters or pools with sand to gravel substrate and aquatic vegetation most often found in smaller tributary streams.

In addition, three Colorado state species of concern may also occur in the South Platte River. They include the Iowa darter, plains topminnow, and stonecat. The Iowa darter inhabits clear sluggish vegetated headwaters, creeks, and small to medium rivers; weedy portions of glacial lakes, marshes, ponds; over substrates of sand, peat, and/or organic debris. The plains topminnow inhabits clear, sandy to rocky, spring-fed streams, creeks, and small to medium rivers with moderate to rapid current, and the stonecat is often found under rocks in runs, riffles, and rapids in warm creeks and small to large rivers.

Rockies Express proposes to cross the South Platte River using the open-cut technique. We believe that a properly implemented open-cut waterbody crossing in accordance with the Procedures and an approved site-specific crossing plan, and that adheres to specific fishery timing windows (either from the Procedures or from agency recommendations), generally serves to adequately minimize impacts to most aquatic resources and their in-stream habitats. In addition, Rockies Express has continued its coordination with the CDOW. We also note in section 4.6.1.2 regarding sensitive waterbodies that Rockies Express would cross the South Platte River as a “wet construction” open-cut crossing due to its size (approximately 1,029 feet wide at the crossing location). Rockies Express indicated in its comments on the draft EIS that the CDOW stated that no further mitigation would be required for the South Platte River crossing if in-stream construction activity were delayed until after July 31.

Sicklefin Chub, Chestnut Lamprey, Silverband Shiner, and Sturgeon Chub

In Kansas, the Missouri River is designated as critical habitat for the state-endangered sicklefin chub and the state-threatened chestnut lamprey, silverband shiner, and sturgeon chub. The sicklefin chub requires continuously and heavily turbid waters of large rivers where it frequents areas of strong current flowing over sand or gravel substrate. Its spawning period occurs in the spring.

⁴ Rockies Express would not be authorized to conduct pre-construction mowing until it has received a FERC Certificate for the REX-West Project and a written notice to proceed with this mitigation measure from the Director of OEP.

⁵ State-listed species in the REX-West Project area that are also federally listed are discussed in section 4.7.1.1 and not repeated here.

The chestnut lamprey is found in moderate-sized rivers and large creeks. Spawning occurs during the spring and summer in smaller tributary streams in swift shallow riffles where the gravel is clean. Eggs are laid in a nest in the river bottom.

The silverband shiner is found in slow-flowing pools of large, turbid rivers. It prefers moderately deep, flowing water along sand or gravel bars. The spawning period is thought to occur during the late spring or summer.

The sturgeon chub prefers large turbid sandy rivers over substrate of small gravel and coarse sand. It is often found in areas swept by currents especially at heads of islands or exposed sandbars. The sturgeon chub spawning period is from late spring to mid-summer.

Rockies Express' proposed HDD crossing of the Missouri River would avoid instream impacts and thus would have little to no effect on the sicklefin chub, chestnut lamprey, silverband shiner, and sturgeon chub or any designated critical habitat. Refer to the discussion of the pallid sturgeon in section 4.7.1.1 for additional information on potential impacts to fisheries in the Missouri River.

Flathead Chub and Western Silvery Minnow

The flathead chub is a state-listed threatened species in Kansas and a state-listed endangered species in Missouri. This species occurs in small creeks and rivers that have turbid fluctuating water levels and unstable sand bottoms. The flathead chub relies on flood flows to spawn successfully. Spawning occurs from March 15 through June 15 after water levels have subsided after peak flows, when water temperatures are warmer and substrate is more stable.

The western silvery minnow is a state-listed threatened species in Kansas. This species prefers relatively deep water where flow is sluggish and bottoms are silted, but it may be found in strong current locations as well. It is a big river minnow adapted to turbid water and probably scatters eggs on silt substrate in quiet water.

The South Fork Big Nemaha River in Nemaha County, Kansas is state-designated as critical habitat for both the flathead chub and western silvery minnow. This river is crossed by the pipeline route at MP 478.1.

Rockies Express proposes to cross the South Fork Big Nemaha using the open-cut method. Construction in this waterbody could impact habitat or individuals of the flathead chub and western silvery minnow, including disruption of spawning and foraging behavior, injury or direct mortality of individuals from construction equipment, and injury or direct mortality of individuals from sedimentation. The KDWP has recommended that Rockies Express directionally bore all streams that have water flows greater than 1 cubic foot per second at the time of construction.

In section 4.6.1.2, we note that Rockies Express is currently proposing to use the dam-and-pump method at 12 of the 13 sensitive fishery streams unless a dam-and-pump proves infeasible at the time of construction in which case Rockies Express would evaluate the possibility of using the flume method. Of the 13 sensitive fishery streams, only the South Platte River is still being proposed as a "wet construction" open-cut crossing due to its size. We also note that Rockies Express would have to obtain a permit under the Kansas Obstruction in Streams Act issued by the Kansas Division of Water Resources. This agency indicated that it would require a spawning restriction date from June 1 to August 15, and may require additional mitigation measures related to the crossing of the South Fork Big Nemaha River and Wolf River.

Lake Sturgeon

The lake sturgeon is a state-listed endangered species in Missouri and a state-threatened species in Nebraska. Lake sturgeon are generally bottom-dwelling and found in large rivers and shallow areas of large lakes. They are most often associated with silt-free deep run and pool habitats of rivers, and generally avoid aquatic vegetation. Gravelly tributary streams of rivers and lakes serve as spawning habitat, although rocky, wave-swept areas near lake shores and islands serve as spawning habitat when preferred habitats are unavailable. The lake sturgeon spawning period occurs during the late spring.

Lake sturgeon are known to occur in the Missouri River in the vicinity of the proposed pipeline crossing location. Rockies Express' proposed HDD crossing of the Missouri River would avoid instream impacts and thus would have little to no effect on the lake sturgeon. Refer to the discussion of the pallid sturgeon in section 4.7.1.1 for additional information on potential impacts to fisheries in the Missouri River.

Peregrine Falcon

The peregrine falcon is a state-listed endangered species in Kansas, a species of concern in Wyoming and Nebraska, and is a BLM sensitive species. It is also protected under the MBTA (see also our discussion of raptors in section 4.5.1.4.) Peregrine falcons are uncommon transients and occasional winter residents in the REX-West Project area. They typically prefer to nest and forage near marshes, lakes, and rivers where concentrations of waterfowl or other birdlife provide ample prey. Nests typically are built on tall steep-walled cliffs, bridges, or buildings. The breeding season occurs from April 15 to July 15.

State natural heritage databases did not identify any records for this species in the REX-West Project area; however, suitable foraging habitat would be crossed by the pipeline in Kansas and Nebraska.

Direct impacts on the peregrine falcon could include abandonment of a breeding territory or nest site or the potential loss of eggs or young if construction were to occur in the vicinity of an active nest during the breeding season (April 15 through July 15). These losses, if they were to occur, would reduce productivity for that breeding season. Indirect impacts would include the incremental, temporary loss of nesting and foraging habitat until the project area has been fully restored.

Rockies Express conducted a preliminary aerial raptor nest survey from March 28 to April 1, 2006. If construction would occur during the peregrine falcon breeding season in areas of suitable habitat, Rockies Express has committed to conduct raptor nest surveys prior to construction to identify active nest sites within 0.5 mile of the pipeline route. Our recommendation in section 4.5.1.4 would ensure that the appropriate surveys are conducted and site-specific recommendations and buffer zones are established and reviewed by FERC staff and the Director of OEP. Therefore, we believe that impacts on the peregrine falcon would be minimized.

Ferruginous Hawk

The ferruginous hawk is a species of concern in both Colorado and Wyoming, a species in need of conservation in Kansas, as well as a BLM sensitive species. It is also protected under the MBTA (see also our discussion of raptors in section 4.5.1.4). This species is a breeding resident of Wyoming, a year-round resident of Colorado, and a wintering resident in Nebraska and Kansas. Ferruginous hawks inhabit open country, primarily prairies, plains, and badlands; sagebrush, saltbush-greasewood shrubland, periphery of pinyon-juniper and other woodland, and desert. Nesting begins as early as mid-March in Colorado and Kansas, but in most other prairie states nesting does not start until May. Young leave the

nest during late June and July. The potential for ferruginous hawks to occur in the project area is relatively low given its habitat preferences. No ferruginous hawk nests were observed during the raptor nest surveys conducted by Rockies Express during March-April 2006. Our recommendation in section 4.5.1.4 would ensure that the appropriate surveys for ferruginous hawks are conducted and site-specific recommendations and buffer zones are established and reviewed by FERC staff and the Director of OEP. Therefore, we believe that impacts on the ferruginous hawks would be minimized.

Western Burrowing Owl

The western burrowing owl is a state-threatened species in Colorado, a Wyoming species of concern, and a BLM sensitive species. This species is also protected under the MBTA (see also our discussion of raptors in section 4.5.1.4). Burrowing owls inhabit open, dry grasslands, deserts, and scrublands characterized by low-growing vegetation. They are subterranean nesters that typically use burrows made by small mammals, such as prairie dogs. The western burrowing owl's breeding season in the REX-West Project area extends from March through October.

The potential impacts of the REX-West Project on burrowing owls include disturbance of habitat and destruction of active burrows. Destruction of burrows could result in displacement of owls into less suitable habitats, potentially increasing susceptibility to predation, reducing cover of foraging habitat, or reducing reproductive success. Direct mortality of individual owls could also result if active burrows are occupied at the time of destruction.

The CNHP did not identify any known western burrowing owl activity within 5 miles of the REX-West Project area. The WHNP identified western burrowing owl activity along the Echo Springs Lateral. In addition, potential burrowing owl territories and/or nest sites could occur in both active and inactive black-tailed prairie dog colonies along the project route. Rockies Express identified 19 prairie dog colonies that would be disturbed by pipeline construction. This equates to approximately 9.7 miles or 146.82 acres of disturbance to potential burrowing owl nesting and foraging habitat.

Rockies Express states it would conduct surveys in areas of potential nesting habitat prior to construction during the breeding season to avoid and minimize adverse impacts on nesting owls within the REX-West Project area. If an occupied territory or active nest site are located within the construction workspace, Rockies Express states that agency established seasonal and distance restrictions during breeding season would apply to the timing of construction for the proposed route. This would include a 0.25-mile avoidance zone in Colorado and a 0.5-mile avoidance zone in Wyoming. Therefore, we believe that impacts on the burrowing owl would be minimized.

Northern Harrier

The northern harrier is a state-listed endangered species in Missouri. It is also protected under the MBTA (see also our discussion of raptors in section 4.5.1.4.). This species inhabits open fields, native and non-native grasslands, agricultural lands, and marshes. Nest sites occur on the dry or elevated ground in a variety of habitats from grasslands to marshes, with abundant ground cover such as tall reeds, cattails, shrubs, and grasses. For breeding and hunting in these habitats, the birds select areas with dense cover (*e.g.*, swales, draws, fencerows, and canal banks). The breeding season for northern harriers is from March through July.

Northern harriers have been documented in Carroll County, Missouri. Direct impacts on the northern harrier may include abandonment of a breeding territory or nest site or the potential loss of eggs or young if construction were to occur during the breeding season. These losses, if they were to occur, would reduce productivity for that breeding season. Indirect impacts would include the incremental,

temporary loss of nesting and foraging habitat until final restoration has been completed and plant communities have become re-established.

Impacts to wintering northern harriers along the project route would be limited to the short-term effects of construction activities (*i.e.*, human presence, vehicles, heavy equipment) and the incremental temporary loss of potential foraging habitat. Because of the large amount of suitable foraging habitat in the project region, we believe that northern harriers would be able to avoid active construction and be able to forage in adjacent habitats.

Rockies Express states it would conduct raptor nest surveys for the northern harrier prior to construction to identify active nest sites within 0.5 mile of the pipeline route. Given that Rockies Express' proposed construction start date is May of 2007, it is highly probable that construction activities would take place in suitable habitats for northern harriers, and nest surveys would be required and buffer zones may need to be established. Our recommendation in section 4.5.1.4 would ensure that the appropriate surveys are conducted and site-specific recommendations and buffer zones are established and reviewed by FERC staff and the Director of OEP. Therefore, we believe that impacts on the northern harrier would be minimized.

Plains Sharp-tailed Grouse

The plains sharp-tailed grouse is a state-listed endangered species in Colorado. This species is typically found in areas of rolling hills with scrub oak thickets and grassy glades and may also be found in scrub oaks, serviceberries, and willows. These brushy sites provide critical winter shelter and food sources. Typically, the plains sharp-tailed grouse occupies medium to tall grasslands for courtship and nesting.

The present distribution of plains sharp-tailed grouse populations in Colorado includes Weld, Logan, and Sedgwick Counties, which are crossed by the proposed REX-West route. The route crosses a winter range from MPs 120.0-122.9 (Sedgwick County); however, according to the WNDD and CNHP, there are no records of this species where the route crosses Wyoming and Colorado. Rockies Express identified an additional six locations of potential grouse summer and winter habitat in the vicinity of the project from about MPs 27-67 (summer-winter habitat and brooding area is present within 1 mile of the route from MPs 32-38), including sites in Weld County, Colorado; Laramie County, Wyoming; and Kimball County, Nebraska.

During the breeding season in March to June, male sharp-tailed grouse congregate on specific areas known as leks in the early morning to impress nearby female grouse. Leks are located in wet meadows, ridges, and knolls, or recently burned areas. Rockies Express reports at least nine lek sites within 1 to 2 miles of the proposed REX-West route between MPs 23.5-44.0.

Based on the potential habitat in the REX-West Project area and the likelihood of construction activities occurring during the breeding season, Rockies Express states it would conduct pre-construction surveys prior to clearing and grading to identify plains sharp-tailed grouse lek sites within the project area. If active lek sites are identified during surveys, Rockies Express states it would notify the CDOW to discuss potential protection measures. However, we note that protective measures for grouse leks are well-known and that commitments to avoid impacts can be established. For example, the WGFD recommended that Rockies Express avoid surface disturbance within 0.25-mile of any sharp-tailed grouse lek and avoid human activity between 8:00 p.m. and 8:00 a.m. from March 15 to May 31 within 0.25 mile of the perimeter of occupied sharp-tailed grouse leks. Rockies Express is still consulting with the CDOW and WGFD for specific protection zones and survey protocols for the plains sharp-tailed grouse. **We recommend that prior to construction, Rockies Express submit the results of any consultations with**

the WGFD and CDOW regarding the plains sharp-tailed grouse. The results of any surveys, conservation measures, and state agency correspondence (including recommendations) should be filed with the Secretary.

Based on Rockies Express commitment to conduct surveys, and our recommendation, we believe the REX-West Project would not cause significant impacts on the plains sharp-tailed grouse.

Mountain Plover

The mountain plover is a state-listed threatened species in Nebraska, a species of concern in Colorado and Wyoming, and a BLM sensitive species. It is also protected by the MBTA. Mountain plovers are typically found in areas of short-grass plains, low rolling grassy fields, freshly plowed fields, newly sprouting grain fields, and sod farms. Mountain plover breeding sites are well-documented in the vicinity of the proposed REX-West pipeline route in Weld County, Colorado; Laramie County, Wyoming; and Kimball County, Nebraska. This species has been documented in the specific route location from about MPs 0.0 to 67.1. Mountain plover habitat may also be present at the Cheyenne, Wamsutter, and Echo Springs Compressor Station sites.

Nesting and brood rearing in Colorado and Wyoming generally occur between May and July, and broods may move over 1 mile from the nest within 2 or 3 days of hatching. Nesting in Nebraska typically occurs from April 1 through June 15. Young chicks commonly stay on a nest or freeze in place to avoid detection soon after hatching, resulting in higher potential for losses from construction equipment. Toward the end of the breeding season, the young are sufficiently mobile to move away from construction equipment. If construction were to cross active mountain plover breeding habitat, impacts could include abandonment of a breeding territory or nest site or the loss of eggs or young.

Rockies Express states it would conduct pre-construction surveys for mountain plovers using FWS survey guidelines. However, Rockies Express has not provided any details on the conservation measures it would implement if nesting sites are present within the proposed construction workspace. Avoidance measures and timing windows are well-established for this species. Rockies Express stated that it would file its mountain plover survey results prior to construction, along with any agency comments and recommended mitigation measures. Rockies Express is still consulting with the FWS regarding the appropriate protection zones and survey protocols for mountain plover.

Based on Rockies Express' commitment to conduct surveys and file appropriate reports prior to construction, we believe the REX-West Project would not cause significant impacts on the mountain plover.

Greater Prairie Chicken

The greater prairie chicken is a state-listed endangered species in Missouri and is a species of concern in Colorado. Prime habitat for this species includes mid-grass and tall-grass prairies bordered by open oak woodlands, oak forests, and cropland. In Missouri, nesting habitat is limited to cropland and nearby prairies mainly on the Osage Plains. In northeastern Colorado, prairie chickens nest in sand-sage prairie and forage in corn and wheat fields. The greater prairie chicken breeding season is from March through July.

No active lek sites or prairie chicken populations are known to occur along the REX-West route. The MDC identified one historic greater prairie chicken population near MP 709 in Audrain County, Missouri. Rockies Express is currently conducting surveys along the pipeline route on private lands in Audrain County that potentially have suitable habitat for the greater prairie chicken. If construction

occurs during the breeding season, Rockies Express states it would consult with the MDC on the need for presence/absence surveys of potentially suitable habitat within 1 mile of the project route. If Rockies Express locates active lek sites or populations during the surveys, it would notify and consult with the MDC regarding appropriate conservation measures.

Based on the limited amount of suitable habitat in the project area, the lack of known lek sites and populations, and Rockies Express' commitment above, we believe there would be minimal impact on the greater prairie chicken from the REX-West Project.

Swift Fox

The swift fox is listed as a state-endangered species in Nebraska and a species of concern in Wyoming and Colorado. The swift fox utilizes a variety of habitats but has its burrows and den sites in fairly level upland grasslands, as well as roadsides. Dens are typically in sandy soils on open prairies, along fences, or in plowed fields, often in locations with expansive views of the surrounding area. Areas of vegetation that exceed the height of the fox are avoided. The breeding season is from March through July in the REX-West Project area. Pups are born in late March or early April and within about 4 weeks of birth begin emerging from their natal den.

The pipeline would cross potential swift fox habitat in Colorado, Laramie County, Wyoming, and in Kimball and Perkins Counties, Nebraska. No field surveys for swift fox burrow and den sites have been conducted by Rockies Express to date. However, Rockies Express has committed to conducting swift fox den surveys in 2007.

Impacts on the swift fox from pipeline construction could include temporary loss of potential habitat, short-term disruption of foraging activity, and permanent loss of dens. The area within the construction right-of-way, including temporary extra workspaces, would not be available for burrow excavation or foraging during construction. Dens within the right-of-way, particularly along the trenchline, would likely be permanently lost. Because construction is proposed to begin in May, juveniles may still be in their natal dens when construction is proposed to begin. Construction could also displace rodents, which may affect the foraging success of individual foxes. The loosening of the soil associated with trenching and backfilling would likely provide favorable substrate for foxes to excavate new dens.

Rockies Express states it would conduct preconstruction surveys in 2007 if project activity would occur in suitable habitat in Nebraska, Wyoming, and Colorado during the breeding season. Rockies Express is still consulting with the NGPC, WGFD, and CDOW regarding the appropriate protection zones and survey protocols for the swift fox. In its comments on the draft EIS, Rockies Express stated that it would submit the results of any consultations with the NGPC, WGFD, and CDOW regarding the swift fox. The results of any surveys, conservation measures, and state agency correspondence (including recommendations) would be filed with the Secretary prior to construction.

Although construction could disturb individual swift foxes, implementation of agency-approved conservation measures would limit the extent of potential impacts.

Eastern Spotted Skunk and Plains Spotted Skunk

The eastern spotted skunk is a state-listed threatened species in Kansas. This species prefers forest edge and upland grassland prairie, especially if rock outcrops and shrubs are present. Typical den sites are located below ground in grassy banks, rocky crevices, or along fence rows, as well as above ground in hay stacks, woodpiles, brushy heaps, hollow logs, and abandoned buildings or outbuildings.

This primarily nocturnal species breeds in March and April and its young are born in May or June. Young disperse from natal dens between 14 and 16 weeks of age.

Although no KNHI records for the species were identified along the REX-West Project route and no state-designated critical habitat occurs along the pipeline route, eastern spotted skunks may occur in suitable habitat anywhere in Kansas. Both Nehama and Brown Counties, which are crossed by the proposed route, are part of the eastern spotted skunk's historic range.

The plains spotted skunk is a subspecies of the eastern spotted skunk. This subspecies is a state-listed endangered species in Missouri. Plains spotted skunks inhabit upland grassland prairie, brushy areas, cultivated land, and forests. Their dens are located below ground in grassy banks, rocky crevices, or along fence rows, as well as above ground in hay stacks, woodpiles, hollow logs, trees, or on brushy heaps. Young are born from April to July.

There were no natural heritage database records for the plains spotted skunk along the proposed REX-West route in Missouri. However, suitable habitat is present.

Construction through occupied areas of suitable eastern or plains spotted skunk habitat could result in temporary loss of potential habitat, short-term disruption of foraging activity, permanent loss of dens, or injury or direct mortality of individuals. Temporary losses of potential habitat and short-term disruptions of foraging behavior would not be likely to result in adverse impacts on eastern and plains spotted skunks. Injury or direct mortality would likely be confined to denning individuals and young, as adults and mobile young would likely leave the construction work area as heavy equipment approached. We believe such impacts would be minor, short-term, and limited to a few individuals, and would not affect local populations.

4.7.1.3 BLM Sensitive Species

The REX-West Echo Springs Lateral route crosses approximately 2.2 miles of BLM land in Sweetwater County, Wyoming. The BLM has not identified any specific sensitive species concerns; however, Rockies Express acknowledges the potential for at least three BLM sensitive species (greater sage grouse and white-tailed and black-tailed prairie dogs) to occur in the vicinity of the Echo Springs Lateral and Wamsutter Compressor Station. If the BLM determines that the project could affect these or any other BLM sensitive species, the BLM would likely include specific mitigation measures as a part of its Right-of-Way Grant.

We note that eight additional species listed in table 4.7-1 are considered sensitive by the BLM; however, these are highly unlikely to occur on the small amount of the REX-West Project that crosses BLM land. Three of these species (long-billed curlew, yellow-billed cuckoo, and northern leopard frog) have been eliminated from further consideration, as described in the table, and our evaluation of the remaining five (western burrowing owl, ferruginous hawk, mountain plover, peregrine falcon, and swift fox) is included in our discussion of state-sensitive species. The greater sage grouse and white-tailed and black-tailed prairie dogs are discussed below.

Greater Sage Grouse

The greater sage-grouse is listed as a BLM sensitive species in Wyoming and Colorado. This species was petitioned as an endangered species under the ESA, but the FWS recently found that the listing was "not warranted." Greater sage grouse inhabit sagebrush plains, foothills, and mountain valleys where sagebrush is the predominant plant in higher quality habitat. Breeding habitats include sagebrush-dominated rangelands with an herbaceous understory. Sagebrush is the essential component of winter

habitat. Sage grouse select winter-use sites based on snow depth and topography, and snowfall can affect the amount and height of sagebrush available to grouse. This species could occur within suitable habitats near the Wamsutter Compressor Station, Echo Springs Compressor Station, and the Echo Springs Lateral.

Potential direct impacts of construction on sage grouse may include the loss of lekking grounds and other sage grouse habitat. Although the REX-West Project would not result in a permanent loss of habitat along the pipeline right-of-way, we expect that the regeneration of sagebrush would be slow, taking up to several decades. However, potential impacts on sage grouse habitat would be minimized through the collocation of the proposed right-of-way with existing Wyoming Interstate Company and two Colorado Interstate Gas pipeline corridors. Given the suitable habitat in the general area, it is not likely that the minor, yet long-term loss of habitat along the pipeline right-of-way would affect sage grouse populations in the vicinity of the proposed project.

Depending on the timing of construction, the REX-West Project could impact sage grouse during lekking activities or brood rearing, and could cause displacement, injury, or direct mortality of individuals. Sage grouse are particularly sensitive to disturbances while they gather on lekking grounds each morning and evening from early March to early May. Construction activities and associated noise occurring in early morning and late afternoon or early evening in the vicinity of lekking grounds could disrupt and potentially displace sage grouse that have gathered for breeding activities. Once breeding activities have concluded, sage grouse hens create their nests on the ground underneath sagebrush in proximity to the lekking grounds. Project-related sagebrush clearing could impact nesting sage grouse by destroying nests, causing nest abandonment, or causing injury or direct mortality to the young.

Sage grouse also could be indirectly impacted as individuals are flushed due to construction activities, thus making them more susceptible to predation. However, these factors are not anticipated to result in high levels of mortality as disturbance and movements would be temporary and habitat adjacent to the construction corridor would remain intact.

Rockies Express stated that it would conduct field surveys during the spring of 2007 in accordance with standard agency protocols to determine the status and proximity of lek sites from the Echo Springs and Wamsutter Project facilities. Rockies Express has also identified possible mitigation measures if an active lek was documented within 0.25 mile of the construction right-of-way including (1) beginning construction after June 30, or as otherwise permitted by the appropriate resource agency; and (2) reducing the width of the right-of-way through the lek and avoiding permanent surface development within the lek. Following construction, Rockies Express proposes to restore areas of suitable habitat by grading the areas to pre-construction contours and seeding disturbed habitats with a seed mix that includes native species and is acceptable to the landowner, local NRCS office, and the BLM (if on federal land).

Black-tailed Prairie Dog and White-tailed Prairie Dog

The black-tailed prairie dog is a BLM species of concern in Wyoming, as well as a state species of concern in Colorado and Wyoming. The white-tailed prairie dog is a BLM species of concern in Wyoming. Prairie dogs live in colonies and inhabit dry, flat, open grasslands with low, relatively sparse vegetation, including areas overgrazed by cattle. This species prefers fine to medium textured soils to build and maintain burrow shape and strength. Colonies commonly are found on silty clay loams and sandy clay loams. White-tailed prairie dogs typically live at higher elevations and in meadows with more diverse grass and herb cover than do black-tailed prairie dogs.

Rockies Express observed 19 black-tailed prairie dog towns/colonies in Colorado, Wyoming, and Nebraska between MPs 20.9 and 346.4 during aerial surveys conducted from March 28 to April 1, 2006.

Rockies Express also identified two moderate density white-tailed prairie dog towns in Sweetwater County, Wyoming along the Echo Springs Lateral at MPs 3.6 and 4.8.

The potential effects of construction through a prairie dog colony may include temporary loss of forage and shelter due to vegetation clearing, collapsing of burrows, and temporary disruption of foraging and nesting activities due to disturbance associated with construction equipment. Direct mortality of prairie dogs could result if active burrows are occupied at the time of construction. If construction occurs later in the prairie dog’s reproductive season, in late May to early June, most prairie dogs are expected to be mobile and able to avoid construction traffic; however, some individual prairie dogs may be injured or killed during construction. Following construction and restoration, the revegetated right-of-way would provide foraging habitat for prairie dogs, and the unconsolidated soils along the trench would likely provide a good substrate for burrowing.

The CDOW recommended that prairie dogs either be relocated or humanely killed prior to earth moving activities within colonies. Rockies Express is still consulting with the BLM and FWS regarding the white-tailed prairie dog towns identified in Sweetwater County, Wyoming.

4.7.2 TransColorado

TransColorado contacted the FWS’s Western Colorado Field Office and New Mexico Ecological Services Field Office on April 5, 2006, regarding federally listed species with the potential to be affected by the proposed Blanco to Meeker Project. In response, the FWS identified 14 federally listed endangered, threatened, or candidate species that could occur in the general project area (table 4.7-2). An additional nine species considered sensitive by the BLM, the State of Colorado, or the State of New Mexico were also considered during early project planning. Of these, the black-footed ferret, Columbian sharp-tailed grouse, sandhill crane, yellow-billed cuckoo, bonytail, Colorado pikeminnow, humpback chub, razorback sucker, Dudley Bluffs bladderpod, Dudley Bluffs twinpod, Knowlton’s cactus, Mancos milk-vetch, and Parachute beardtongue were eliminated from further analysis. The Blanco to Meeker Project *would not affect* these 13 species. Thus, they have been eliminated from further consideration.

4.7.2.1 Federally Listed Threatened and Endangered Species

TransColorado conducted field surveys on April 25, 2006, to document existing habitat at the proposed project sites and identify whether any federally listed species could occur in the Blanco to Meeker Project area. Based on this field evaluation, only one federally listed animal species (bald eagle) and two plant species (Uinta Basin Hookless cactus and Mesa Verde Cactus) have the potential to occur.

Species	Federal Status <u>a/</u>	State Status <u>b/</u>		Comments
		CO	NM	
MAMMALS				
Black-footed ferret (<i>Mustela nigripes</i>)	E	E	SoC	No prairie dog burrows were observed at project sites during field surveys. This species has been eliminated from further consideration.
Townsend’s big-eared bat (<i>Corynorhinus townsendii pallascens</i>)		SoC	SoC	Occasional individuals may be present in the general project area, and could use aboveground facilities for temporary day roosting.

TABLE 4.7-2 (Continued)

Special Status Species – Blanco to Meeker Project

Species	Federal Status <u>a/</u>	State Status b/		Comments
		CO	NM	
BIRDS				
Bald eagle (<i>Haliaeetus leucocephalus</i>)	T	T	T	Potential forage habitat is present at project sites.
Columbian sharp-tailed grouse (<i>Tympanuchus phasianellus columbianus</i>)		SoC		No suitable habitat would be affected. This species has been eliminated from further consideration.
Ferruginous hawk (<i>Buteo regalis</i>)		SoC		Potential forage habitat is present at project sites.
Greater sage grouse (<i>Centrocercus urophasianus</i>)	BLM-SS	SoC		An historic lek is known within 1.25 miles of the Greasewood Compressor Station.
Gray Vireo (<i>Vireo vicinior</i>)			T	Potential suitable habitat is present within the proposed Blanco Compressor Station site.
Peregrine falcon (<i>Falco peregrinus anatum</i>)		SoC	T	Potential forage habitat is present at project sites.
Sandhill crane (<i>Grus canadensis tabida</i>)		SoC		No suitable habitat would be affected by the project. This species has been eliminated from further consideration.
Yellow-billed cuckoo (<i>Coccyzus americanus</i>)	C		S	No suitable habitat would be affected by the project. This species has been eliminated from further consideration.
FISH				
Bonytail (<i>Gila elegans</i>)	E	E		No suitable habitat would be crossed. This species has been eliminated from further consideration.
Colorado pikeminnow (<i>Ptychocheilus lucius</i>)	E	T	E	No suitable habitat would be crossed. This species has been eliminated from further consideration.
Humpback chub (<i>Gila cypha</i>)	E	T		No suitable habitat would be crossed. This species has been eliminated from further consideration.
Razorback sucker (<i>Xyrauchen texanus</i>)	E	E	SoC	No suitable habitat would be crossed. This species has been eliminated from further consideration.
REPTILES				
Common garter snake (<i>Thamnophis sirtalis</i>)		SoC		Suitable habitat is present, but species was not observed during field survey.

TABLE 4.7-2 (Continued)

Special Status Species – Blanco to Meeker Project

Species	Federal Status <u>a/</u>	State Status <u>b/</u>		Comments
		CO	NM	
PLANTS				
Beautiful Gilia (<i>Gilia Formosa</i>)	BLM-SS		SoC	Two plants were observed 70 feet east of the proposed Blanco Compressor Station site boundary.
Brack's fishhook cactus (<i>Sclerocactus cloveriae</i> ssp. <i>Brackii</i>)	BLM-SS		SoC	Eighteen plants were observed during survey of the Blanco Compressor Station site.
Dudley Bluffs bladderpod (<i>Lesquerella congesta</i>)	T			No suitable habitat would be crossed. This species has been eliminated from further consideration.
Dudley Bluffs twinpod (<i>Physaria obcordata</i>)	T			No suitable habitat would be crossed. This species has been eliminated from further consideration.
Knowlton's cactus (<i>Pediocactus knowltonii</i>)	E			No suitable habitat would be crossed. This species has been eliminated from further consideration.
Mancos milk-vetch (<i>Astragalus humillimus</i>)	E			No suitable habitat would be crossed. This species has been eliminated from further consideration.
Mesa Verde cactus (<i>Sclerocactus mesae verdae</i>)	T			Suitable habitat is present but species was not observed during field survey.
Parachute beardtongue (<i>Penstemon debilis</i>)	C			No suitable habitat would be crossed. This species has been eliminated from further consideration.
Uinta Basin hookless cactus (<i>Sclerocactus glaucus</i>)	T			Suitable habitat is present but species was not observed during field survey.
<u>a/</u> Federal Status: E = Endangered; T = Threatened; C = Candidate; BLM-SS = BLM Sensitive Species				
<u>b/</u> State Status: E = Endangered; T = threatened; SoC = Species of Concern; S = Sensitive Species				

Bald Eagle

All three proposed project sites could serve as occasional foraging habitat for the federally threatened bald eagle (see discussion in section 4.7.1.1 for life history information and general impacts of construction activity). Construction and operation of the Blanco to Meeker Project could affect aerial foraging and predatory activities by changing foraging patterns. However, given the relatively small disturbance areas, the lack of nesting or roosting trees in the project area, and the temporary duration of construction activities, it is unlikely these impacts would result in more than a temporary disruption to foraging individuals. TransColorado indicated that no raptor nests were observed in the area of its proposed compressor stations and no trees suitable for nesting or roosting habitat would be removed during construction. Potential decreases in foraging habitat would not be expected to have long-term or direct effects on eagles or influence eagle populations. Based on this, we conclude that the project *may affect, but is not likely to adversely affect* the bald eagle.

Uinta Basin Hookless Cactus

The Uinta Basin hookless cactus is a federally threatened species found on rocky hills, mesa slopes, and alluvial benches in desert shrub communities. Given its typical habitat association, this species may occur in the vicinity of the Conn Creek Compressor Station. However, no Uinta Basin hookless cactus plants were observed by TransColorado during its April 2006 field survey of the site. As such, we conclude that the Blanco to Meeker Project *would not affect* the Uinta Basin hookless cactus.

Mesa Verde Cactus

The Mesa Verde cactus is a federally threatened species found on low hills and mesas in full sun. The Blanco Compressor Station is located on low sandy hills that represents potential habitat for the Mesa Verde cactus. However, this species was not observed by TransColorado during its April 2006 field survey of the site. As such, we conclude that the Blanco to Meeker Project *would not affect* the Mesa Verde cactus.

4.7.2.2 State-listed Threatened and Endangered Species and BLM Sensitive Species

The proposed Blanco Compressor Station site and the existing Greasewood Compressor Station site are located on land managed by the BLM. The BLM identified two BLM sensitive plant species that could occur at the Blanco Compressor Station site (Brack's fishhook cactus and beautiful gilia) and one BLM sensitive animal species (greater sage grouse) that could occur at the Greasewood Compressor Station site. These species, as well as those considered sensitive by either the State of Colorado or New Mexico, are discussed below.

Common Garter Snake

The common garter snake is a species of special concern in Colorado and may occur in the roadside ditches in the vicinity of the Greasewood Compressor Station site. Given the relatively small disturbance area and the mobility of snakes, little to no impacts on garter snakes are anticipated. As such, we conclude that this species would not be significantly impacted by the Blanco to Meeker Project.

Ferruginous Hawk and Peregrine Falcon

Ferruginous hawks are a Colorado species of concern and peregrine falcons are a species of concern in Colorado and a threatened species in New Mexico. (See also our discussion in section 4.7.1.2 for life history information and general impacts of construction activity on these two species, and section 4.5.1.4 for raptors in general). Ferruginous hawks and peregrine falcons may occasionally fly over project sites, foraging opportunistically in the area. However, neither the Greasewood nor Conn Creek Compressor Station sites contain potential nesting habitat for these species. TransColorado did not document any raptor nests at the sites during a ground-based inventory of each site in April 2006. As such, we conclude that these species would not be affected by the project.

Gray Vireo

Gray vireos are state-threatened in New Mexico. While this species has not been documented at the Blanco Compressor station site, the BLM has stated that potential suitable habitat may exist within the site boundary. The recovery plan for this species has not yet been finalized and at this time there are no stipulations or mitigation measures required for this species. However, the NMDGF and BLM recommend that pre-construction surveys be conducted using qualified personnel and appropriate survey protocol. TransColorado has agreed to conduct pre-construction surveys as recommended.

Greater Sage Grouse

The greater sage grouse is a Colorado species of concern and a BLM sensitive species. (See also our discussion in section 4.7.1.3 for life history information and general impacts of construction activity on sage grouse). One greater sage-grouse lek was documented in 2004 approximately 1.25 miles from the Greasewood Compressor Station site. The Piceance population of greater sage grouse possesses limited habitat and a low number of remnant grouse, and, as such, is particularly sensitive to disturbance and habitat loss. Greater sage grouse leks in the Piceance area are most active from March 1 to June 1. Nesting occurs in close proximity to leks through approximately July 15 in the Piceance population.

The BLM has expressed concern that the Blanco to Meeker Project could affect this greater sage-grouse lek as it may (1) further constrict the amount of habitat that is available for southwest-to-northeast movements, (2) impact nearby grouse due to compressor station noise, and (3) create additional perches from which raptors could prey on grouse. In addition, the CDOW has recommended: (1) that no construction activity should occur within 2 miles of greater sage grouse leks between March 1 and July 15; (2) that greater sage grouse habitat should be restored with the planting of an appropriate subspecies of big sagebrush and a high amount and diversity of forbs; (3) weed control should be limited to spot spraying to avoid killing desirable shrubs and forbs; and (4) rock produced by construction should be buried on-site or removed from habitat areas.

Direct impacts of construction on sage grouse may include the loss of 0.75 acre of sage grouse habitat. However, impacts on sage grouse habitat would be minimized by siting the proposed facility at a location already in natural gas industrial use (*i.e.*, adjacent to the existing Greasewood Compressor Station). Given other suitable habitat in the general area, it is not likely that the minor, yet permanent loss of habitat from the new facility would affect sage grouse populations in the vicinity of the proposed project.

Depending on the timing of construction, the Blanco to Meeker Project could disturb sage grouse during lekking activities or brood rearing. Sage grouse are particularly sensitive to disturbances while they gather on lekking grounds on mornings and evenings from early March to early May. Construction activities and associated noise occurring in early morning and late afternoon or early evening in the vicinity of lekking grounds could disrupt and potentially displace sage grouse that have gathered for breeding activities.

The proposed Greasewood facilities would be constructed within the existing approximately 3.56-acre facility plus an additional proposed 0.75 acre to be used for both construction and as part of the new permanent facility. Because the proposed site is immediately adjacent to existing development and because the proposed disturbance footprint is relatively small (0.75 acre), we believe that construction at the Greasewood facility should not significantly constrict greater sage-grouse movements. Based on the small size of the vegetated area, previous disturbance and level of industrial activity adjacent to this site, we believe any impacts would be minor.

The expansion of the Greasewood Compressor Station would slightly increase the cumulative noise attributable to the Greasewood Hub. We received a comment from the DOI suggesting that this could pose an adverse noise impact on the known sage grouse lek located about 1.5 miles from the Greasewood Compressor Station. A post-construction noise study conducted on April 27, 2006, after the installation of the Greasewood Compressor Station, showed that the noise level at the nearest noise-sensitive area (NSA), located about 1,900 feet away, was an Leq of 45.3 decibels on the A-weighted scale (dBA). Most of the facilities at the Greasewood Hub were operating at the time of the survey.

Noise attenuates 6 dBA with every doubling of distance due to spreading of the sound waves. Additional reductions, which are significant over long distances, will occur as sound waves are absorbed by the atmosphere. The FERC noise standard at the nearest NSA is 48.6 dBA as an Leq for facilities with the potential to operate 24 hours per day. We understand that future expansions at the Greasewood Hub may not fall under FERC's jurisdiction. Under these circumstances, the noise limit would default to the State of Colorado noise standard that limits the noise from any facility to no greater than a nighttime level of 50 dBA at any residence (NSA). Under the unlikely scenario that all five of the facilities at the Greasewood Hub were to expand outside of FERC's jurisdiction and consume their entire allowable noise contribution under the State of Colorado noise standard, the L_{eq} noise level at the nearest NSA 1,900 feet away would be 57 dBA (five sources at 50 dBA each equals 57 dBA).

The sage-grouse lek area, located 1.5 miles (7,920 feet) away from the compressor station, would experience significantly lower sound levels due to the aforementioned effects of distance and atmospheric absorption. At a distance of 7,920 feet, the sound level attributable to the Greasewood Hub, under the unlikely scenario that all five facilities consume their entire noise budget outside of FERC's jurisdiction, would be only 42 dBA. This level is well below studies that suggest a noise level of approximately 47 dBA to be the threshold effect for bird species in grassland and woodland habitat (LaGory et al. 2001; Reijnen et al. 1997, 1996) and that reducing continuous noise levels to 49 dBA or less would minimize indirect effects to songbirds and raptors during the breeding season (WGFD 2004). Accordingly, we do not believe that this species would be affected by the project.

Townsend's big-eared bat

Townsend's big-eared bat is a Colorado species of special concern. The bats hibernate and day-roost in caves and mines, and will use buildings as a day roost. Typical habitat includes desert shrublands, pinyon-juniper woodlands, and dry conifer forests, generally near riparian or wetland areas. The buildings at the Greasewood Compressor Station site are large industrial facilities and would not make ideal roost sites. Given the lack of suitable roosting habitat we believe this species would not be affected by the project.

Brack's Fishhook Cactus and Beautiful Gilia

Brack's fishhook cactus is nearly always found in broken terrain on gravelly or rocky ground, particularly on the slopes of river deposited gravels. Beautiful gilia is associated with salt desert scrub communities in soils of the Nacimiento Formation.

TransColorado's April 2006 field survey identified 18 Brack's fishhook cactus plants and 2 beautiful gilia plants at the proposed Blanco Compressor Station site. The fishhook cactus plants were located in the northeastern portion of the site and the two gilia were located about 70 feet beyond the northeastern boundary of the site. TransColorado documented approximately 4 acres of high quality fishhook cactus habitat and marginal beautiful gilia habitat at the site. TransColorado has excluded any use of the area where these species were found and will prevent any disturbance to the plants and/or their habitat in that area by TransColorado personnel or its contractors. Given this avoidance measure, we conclude that the observed individuals would not be impacted by the Blanco to Meeker Project, although there would be a minor disturbance of available habitat.

4.7.3 Overthrust

Special status species were identified through consultation with the FWS Wyoming Field Office and the BLM's Kemmerer, Rock Springs, and Rawlins Field Offices. Special status species with the potential to occur in the proposed Wamsutter Expansion Project area are identified in table 4.7-3. Of the

69 species listed as potentially occurring in the project vicinity, 39 were eliminated due to a lack of suitable habitat in the specific project area or through follow-up consultations with the BLM. The potential for the Wamsutter Expansion Project to affect the remaining 30 special status species is based on our review of the project work areas, proposed construction methods, construction timing, operation impacts, Overthrust's field survey reports and proposed mitigation measures, and agency consultation and correspondence.

Wyoming does not have an endangered species law for plants or animals; however, the WGFD uses a 1 through 4 Native Species Status (NSS) score to rank the status of vertebrate species. A score of 1 or 2 is considered to be a higher priority for conservation and only species with these rankings are listed in table 4.7-3. We note that all species listed in the table with NSS designation are also either federally listed or designated as sensitive by the BLM. Thus, our discussion of impacts on these species is contained in sections 4.7.3-1 and 4.7.3-2. No separate state discussion is therefore necessary.

4.7.3.1 Federally Listed Threatened and Endangered Species

Because Section 7 consultation is completed for the Wamsutter Expansion Project, our discussion on federally listed species below is brief and focuses on Overthrust's surveys and committed conservation measures if a listed species happens to be found in the project area.

TABLE 4.7-3 Special Status Species -- Wamsutter Expansion Project			
Species	Federal Status <u>a/</u>	State of Wyoming Status	Comments
MAMMALS			
Black-footed ferret (<i>Mustela nigripes</i>)	E	NSS1	Prairie dog town mapping within pipeline corridor in 2006 is complete. Ferret surveys were conducted during September 2006, with none found.
Fringed myotis (<i>Myotis thysanodes</i>)	BLM-SS	NSS2	No suitable habitat is present within the project area. This species is unlikely to occur and has been eliminated from further consideration.
Idaho pocket gopher (<i>Thomomys idahoensis</i>)	BLM-SS		No suitable habitat is present within the project area. This species has been eliminated from further consideration.
Long-eared myotis (<i>Myotis evotis</i>)	BLM-SS	NSS2	No suitable habitat is present within the project area. This species is unlikely to occur and has been eliminated from further consideration.
Pygmy rabbit (<i>Brachylagus idahoensis</i>)	BLM-SS		Suitable habitat (tall sagebrush) is present within the proposed pipeline corridor; species documented as present in project area during spring 2006 surveys.
Spotted bat (<i>Euderma maculatum</i>)	BLM-SS	NSS2	Not expected to occur in the project area. This species has been eliminated from further consideration.
Swift fox (<i>Vulpes velox</i>)	BLM-SS		Potential to occur in the project area.

TABLE 4.7-3 (Continued)

Special Status Species -- Wamsutter Expansion Project

Species	Federal Status <u>a/</u>	State of Wyoming Status	Comments
Townsend's big-eared bat (<i>Corynorhinus townsendii</i>)	BLM-SS	NSS2	Not expected to occur in the project area. This species has been eliminated from further consideration.
White-tailed prairie dog (<i>Cynomys leucurus</i>)	BLM-SS		Potential to occur in the project area. Species documented as present in project area during spring 2006 surveys.
Wyoming pocket gopher (<i>Thomomys clusius</i>)	BLM-SS		Potential to occur in the project area.
BIRDS			
Baird's sparrow (<i>Ammodramus bairdii</i>)	BLM-SS		No suitable habitat is present within the project area. This species has been eliminated from further consideration.
Bald eagle (<i>Haliaeetus leucocephalus</i>)	T	NSS2	No suitable nesting habitat is present, although individuals could forage in the project area. Spring 2007 surveys are planned to confirm nesting/roosting status.
Brewer's sparrow (<i>Spizella breweri</i>)	BLM-SS		Potential to occur in the project area.
Burrowing owl (<i>Athene cunicularia</i>)	BLM-SS		Potential to occur in the project area. Burrowing owls were observed during black-footed ferret surveys conducted in 2006. Spring 2007 surveys are planned to confirm presence and/or nesting status.
Columbian sharp-tailed grouse (<i>Tympanuchus phasianellus columbianus</i>)	BLM-SS		No suitable habitat is present within the project area. This species is unlikely to occur and has been eliminated from further consideration.
Ferruginous hawk (<i>Buteo regalis</i>)	BLM-SS		Potential to occur in the project area. Ferruginous hawks were observed during black-footed ferret surveys conducted in 2006. Spring 2007 surveys are planned to confirm presence and/or nesting status.
Greater sage grouse (<i>Centrocercus urophasianus</i>)	BLM-SS	NSS2	Potential to occur in the project area. Spring 2007 surveys are planned to confirm presence and/or lekking status.
Loggerhead shrike (<i>Lanius ludovicianus</i>)	BLM-SS		Potential to occur in the project area.
Long-billed curlew (<i>Numenius americanus</i>)	BLM-SS		Not expected to occur in the project area. This species has been eliminated from further consideration.
Mountain plover (<i>Charadrius montanus</i>)	BLM-SS		Potential to occur in the project area. Spring 2007 surveys are planned to confirm presence and/or nesting status.
Northern goshawk (<i>Accipiter gentiles</i>)	BLM-SS		No suitable habitat is present within the project area. This species has been eliminated from further consideration.

TABLE 4.7-3 (Continued)

Special Status Species -- Wamsutter Expansion Project

Species	Federal Status <u>a/</u>	State of Wyoming Status	Comments
Peregrine falcon (<i>Falco peregrinus</i>)	BLM-SS		Potential to occur in the project area. Spring 2007 surveys are planned to confirm presence and/or nesting status.
Sage sparrow (<i>Amphispiza belli</i>)	BLM-SS		Potential to occur in the project area.
Sage thrasher (<i>Oreoscoptes montanus</i>)	BLM-SS		Potential to occur in the project area.
Trumpeter swan (<i>Cygnus buccinator</i>)	BLM-SS	NSS2	No suitable habitat is present within the project area. This species has been eliminated from further consideration.
Western yellow-billed cuckoo (<i>Coccyzus americanus occidentalis</i>)	C BLM-SS	NSS2	No suitable habitat is present within the project area. This species has been eliminated from further consideration.
White-faced ibis (<i>Plegadis chihi</i>)	BLM-SS		Not expected to occur in the project area. This species has been eliminated from further consideration.
AMPHIBIANS			
Boreal toad (Northern Rocky Mountain population) (<i>Bufo boreas boreas</i>)	BLM-SS		Not expected to occur in the project area. This species has been eliminated from further consideration.
Great basin spadefoot toad (<i>Spea intermontana</i>)	BLM-SS		Possible habitat is present at Ten Mile Marsh.
Northern leopard frog (<i>Rana pipiens</i>)	BLM-SS		No suitable habitat is present within the project area. This species has been eliminated from further consideration.
Spotted frog (<i>Ranus pretiosa [lutiviventris]</i>)	BLM-SS		Not expected to occur in the project area; species range is farther north. This species has been eliminated from further consideration.
FISH			
Bluehead sucker (<i>Catostomus discobolus</i>)	BLM-SS	NSS1	Not expected to occur in the project area. This species has been eliminated from further consideration.
Bonneville cutthroat trout (<i>Oncorhynchus clarki utah</i>)	BLM-SS	NSS2	Not expected to occur in the project area. This species has been eliminated from further consideration.
Colorado River cutthroat trout (<i>Oncorhynchus clarki pleuriticus</i>)	BLM-SS	NSS2	Not expected to occur in the project area. This species has been eliminated from further consideration.
Bonytail (<i>Gila elegans</i>)	E		No Green River downstream impacts would occur due to species distance from project area; depletion impacts considered.
Colorado pikeminnow (<i>Ptychocheilus lucius</i>)	E		No Green River downstream impacts would occur due to species distance from project area; depletion impacts considered.

TABLE 4.7-3 (Continued)

Special Status Species -- Wamsutter Expansion Project

Species	Federal Status <u>a/</u>	State of Wyoming Status	Comments
Fine-spotted Snake River cutthroat trout (<i>Oncorhynchus clarki</i>)	BLM-SS		Not expected to occur in the project area. This species has been eliminated from further consideration.
Flannelmouth sucker (<i>Catostomus latipinnis</i>)	BLM-SS	NSS1	Potential to occur in the project area (Bitter Creek).
Humpback chub (<i>Gila cypha</i>)	E		No Green River downstream impacts would occur due to species distance from project area; depletion impacts considered.
Leatherside chub (<i>Snyderichthys copei</i>) <u>c/</u>	BLM-SS	NSS1	Not expected to occur in the project area. This species has been eliminated from further consideration.
Razorback sucker (<i>Xyrauchen texanus</i>)	E		No Green River downstream impacts would occur due to species distance from project area; depletion impacts considered.
Roundtail chub (<i>Gila robusta</i>)	BLM-SS	NSS1	Not expected to occur in the project area. This species has been eliminated from further consideration.
REPTILES			
Midget-faded rattlesnake (<i>Crotalus viridis concolor</i>)	BLM-SS		Potential to occur in the project area.
PLANTS			
Beaver Rim phlox (<i>Phlox pungens</i>)	BLM-SS		Not expected to occur in the project area. This species has been eliminated from further consideration.
Cedar Mountain Easter daisy (<i>Townsendia microcephala</i>)	BLM-SS		Not expected to occur in the project area. This species has been eliminated from further consideration.
Cedar Rim thistle (<i>Cirsium aridum</i>)	BLM-SS		Not expected to occur in the project area. This species has been eliminated from further consideration.
Dorn's twinpod (<i>Physaria dornii</i>)	BLM-SS		Not expected to occur in the project area. This species has been eliminated from further consideration.
Entire-leaved peppergrass (<i>Lepidium integrifolium</i>)	BLM-SS		Not expected to occur in the project area. This species has been eliminated from further consideration.
Gibbens' beardtongue (<i>Penstemon gibbensii</i>)	BLM-SS		Not expected to occur in the project area. This species has been eliminated from further consideration.
Green River greenthread (<i>Thelesperma caespitosum</i>)	BLM-SS		Not expected to occur in the project area. This species has been eliminated from further consideration.
Laramie columbine (<i>Aquilegia laramiensis</i>)	BLM-SS		Not expected to occur in the project area. This species has been eliminated from further consideration.

TABLE 4.7-3 (Continued)

Special Status Species -- Wamsutter Expansion Project

Species	Federal Status <u>a/</u>	State of Wyoming Status	Comments
Laramie false sagebrush (<i>Sphaeromeria simplex</i>)	BLM-SS		Not expected to occur in the project area. This species has been eliminated from further consideration.
Large-fruited bladderpod (<i>Lesquerella macrocarpa</i>)	BLM-SS		Special status plant surveys were completed by Overthrust in 2006. This special status plant was not found. A final survey report was provided in December 2006.
Meadow pussytoes (<i>Antennaria arcuata</i>)	BLM-SS		Not expected to occur in the project area. This species has been eliminated from further consideration.
Mystery wormwood (<i>Artemisia biennis</i> var. <i>diffusa</i>)	BLM-SS		Special status plant surveys were completed by Overthrust in 2006. This special status plant was not found. A final survey report was provided in December 2006.
Nelson's milk-vetch (<i>Astragalus nelsonianus</i>)	BLM-SS		Special status plant surveys were completed by Overthrust in 2006. This special status plant was not found. A final survey report was provided in December 2006.
Ownbey's thistle (<i>Cirsium ownbeyi</i>)	BLM-SS		Special status plant surveys were completed by Overthrust in 2006. This special status plant was not found. A final survey report was provided in December 2006..
Persistent sepal yellowcress (<i>Rorippa calycina</i>)	BLM-SS		Special status plant surveys were completed by Overthrust in 2006. This special status plant was not found. A final survey report was provided in December 2006.
Precocious milk-vetch (<i>Astragalus proimanthus</i>)	BLM-SS		Not expected to occur in the project area. This species has been eliminated from further consideration.
Prostrate bladderpod (<i>Lesquerella prostrate</i>)	BLM-SS		Not expected to occur in the project area. This species has been eliminated from further consideration.
Small rock cress (<i>Arabis pusilla</i>)	BLM-SS		Not expected to occur in the project area. This species has been eliminated from further consideration.
Stemless beardtongue (<i>Penstemon acaulis</i> var. <i>acaulis</i>)	BLM-SS		Not expected to occur in the project area. This species has been eliminated from further consideration.
Trelease's racemose milk-vetch (<i>Astragalus racemosus</i> var. <i>treleasei</i>)	BLM-SS		Special status plant surveys were completed by Overthrust in 2006. This special status plant was not found. A final survey report was provided in December 2006.

TABLE 4.7-3 (Continued)

Special Status Species -- Wamsutter Expansion Project

Species	Federal Status ^{a/}	State of Wyoming Status	Comments
Tufted twinpod (<i>Physaria condensata</i>)	BLM-SS		Special status plant surveys were completed by Overthrust in 2006. This special status plant was not found. A final survey report was provided in December 2006.
Uinta greenthread (<i>Thelesperma pubescens</i>)	BLM-SS		No suitable habitat is present in the project area. This species has been eliminated from further consideration.
Ute ladies'-tresses (<i>Spiranthes diluvialis</i>)	T		Special status plant surveys were completed by Overthrust in 2006. This special status plant was not found. A final survey report was provided in December 2006.
Weber's scarlet gilia (<i>Ipomopsis aggregate spp. Weberi</i>)	BLM-SS		No suitable habitat is present in the project area. This species has been eliminated from further consideration.
Western bladderpod (<i>Lesquerella multiceps</i>)	BLM-SS		No suitable habitat is present in the project area. This species has been eliminated from further consideration.
Wyoming tansymustard (<i>Descurainia torulosa</i>)	BLM-SS		No suitable habitat is present in the project area. This species has been eliminated from further consideration.

^{a/} Federal Status: E = Endangered; T = Threatened; C = Candidate; BLM-SS = BLM Sensitive Species
^{b/} State Status: NSS1 or NSS2 = WGFD Wyoming Native Species Status (1 and 2, with 1 having highest priority)
^{c/} Recent genetic analysis indicates that this species is now in the *Lepidomeda* genus.

Note: Species included in this table were identified through the Wyoming BLM state sensitive species list and consultations with the WYNDD, WGFD, BLM, and FWS.

Three federally listed species could occur in the counties crossed by the proposed Wamsutter Expansion Project: black-footed ferret, bald eagle, and Ute ladies'-tresses. The FWS also expressed concern about the potential downstream impacts on four federally endangered fish species (Colorado pikeminnow, razorback sucker, bonytail, and humpback chub) resulting from project-related consumptive water withdrawals ("depletion") from the Colorado River System. Based on Overthrust's preliminary review of habitat types, the black-footed ferret has potential habitat within the project area. Overthrust would also verify the presence of potential habitat for the bald eagle and Ute ladies'-tresses in future field efforts.

In a letter dated July 10, 2006, the FWS stated that the Wamsutter Expansion Project would have no effect on or is not likely to adversely affect any federally listed species. We agree with this finding. Overthrust acknowledges that the FERC would have to re-initiate consultation with the FWS if 1) new information revealed that the project may affect listed species or critical habitat in a manner or to an extent not considered in previous consultation; 2) the action is subsequently modified in a manner that causes an effect to a listed species or critical habitat that was not considered in previous consultation; and/or 3) a new species is listed or critical habitat is designated that may be affected by the project. In comments on the draft EIS, Overthrust stated that if a federally listed species is found, or there otherwise is a potential to affect a federally listed species in a way not yet considered, that it would not begin or continue with construction activities until the FERC staff receives comments from the FWS regarding the

proposed action; the FERC completes formal consultation with the FWS, if required; and Overthrust has received written notification from the Director of OEP that construction or use of mitigation may begin.

Endangered Colorado River System Fish

The federally endangered humpback chub, razorback sucker, Colorado pikeminnow, and bonytail are known to occur downstream of the proposed project area in the Green River below Flaming Gorge Reservoir. Overthrust has stated that it would obtain water for construction activities (*e.g.*, hydrostatic testing) from existing holding ponds associated with the Jim Bridger Power Plant, located about 2.5 miles north of MP^{OT} 35.0. The FWS indicated that on January 28, 2002, it issued a biological opinion for historic water use of the Green River by the Jim Bridger Power Plant. As a result of this biological opinion, the FWS indicated that water use proposed for the Wamsutter Expansion Project would be considered to have an adverse effect to the endangered Colorado River System fishes. However, this impact would be indirect since Overthrust is not directly appropriating the water from the Green River (FWS, 2006c). As such, formal Section 7 consultation for water depletions related to hydrostatic testing and dust control is complete, and no further consultation is necessary.

Black-footed Ferret

The black-footed ferret is a federally endangered species that depends on large prairie dog complexes (greater than 200 acres of white-tailed prairie dog towns) for habitat. The black-footed ferret was thought to be extinct until the last known wild population was captured and a captive breeding and reintroduction program was begun in the 1980s. (See also our discussion in section 4.7.1.1 for life history information and general impacts of construction activity on this species.)

The FWS has recommended that surveys for black-footed ferrets be completed using the FWS 1989 Guidelines for determining presence/absence in areas not block-cleared (FWS 2004). The Wamsutter Expansion route would cross prairie dog towns between MPs^{OT} 0.0 and 7.1 and MPs^{OT} 24.4 and 63.8 that have been block-cleared. Therefore, black-footed ferret surveys would not be conducted at these locations. The Roberson Compressor Station, Rock Springs Compressor Station, and Wamsutter Delivery Point would also be constructed in areas previously block-cleared (or, no prairie dog towns of sufficient size or density are present). Thus, ferret surveys are not required at these locations. However, Overthrust identified four areas of prairie dog towns between MPs^{OT} 71.9 and 77.2 and several other areas between MPs^{OT} 7.1 and 24.4 that have sufficient size and density to support black-footed ferrets and have not been block-cleared.

Although suitable habitat for the black-footed ferret is present within the proposed project area, the species is not expected to be present. The only known black-footed ferrets in existence today occur in captivity or at reintroduction sites. Therefore, the likelihood of ferrets occurring in the general project area is remote. Recent surveys for this species in the general project area, including many of the same prairie dog towns, have failed to identify ferrets or ferret sign. Nonetheless, Overthrust conducted surveys for ferrets during September of 2006 in accordance with FWS 1989 guidelines to confirm presence or absence. Overthrust prepared a survey report and filed it with the Secretary in December 2006. The results of the field surveys found no signs of black-footed ferrets. Overthrust has also committed, in the event a ferret is encountered, to stop construction and to notify the FERC and the FWS in order to modify the project to avoid impacting the species.

Bald Eagle

The bald eagle is a federally threatened species that could occur in the Wamsutter Expansion Project area. (See also our bald eagle discussion in section 4.7.1.1 for life history information and general impacts of construction activity on this species).

Although bald eagle habitat is known to occur in Lincoln, Uinta, and Sweetwater Counties, Wyoming, no known breeding or roosting sites occur within the proposed project area. Overthrust would conduct preconstruction surveys for eagle nests during other raptor surveys in spring 2007. Surveys would determine whether suitable nesting or roosting habitat occurs within 1 mile of any waterbodies crossed by the Wamsutter Expansion Project. If an active nest is identified near the project area, Overthrust would avoid construction within 1 mile of the nest between February 1 and August 15, or until young have fledged or the nest otherwise becomes inactive, in order to avoid disturbing nesting individuals. No communal roosts are known to occur within the project area according to BLM biologists. However, during construction, EIs would note the potential for communal roosts near the project area. If a communal roost is identified, Overthrust would avoid activity within 1 mile of the roost between November 1 and April 1, and within 0.5 mile of a communal roost the rest of the year.

Ute Ladies'-tresses

The federally threatened Ute ladies'-tresses is an orchid that occurs primarily in moist, sub-irrigated or seasonally flooded soils in valley bottoms, gravel bars, old oxbows, or floodplains bordering springs, lakes, rivers, or perennial streams. (See also our discussion in section 4.7.1.1 for life history information and general impacts of construction activity on this species). Potential impacts on the Ute ladies'-tresses could include the loss of individuals or local populations as a result of crushing from construction activities. Impacts also could result from the incremental long-term disturbance of habitat until reclamation is completed and native vegetation has become reestablished. Indirect impacts could include invasion of the habitat by invasive or noxious plant species.

In accordance with the BLM's recommendation, Overthrust evaluated the potential for the Ute ladies'-tresses to occur within orchid habitat at Ten Mile Marsh, and other wetlands and wet meadows, during its 2006 special status species survey. No Ute ladies'-tresses were observed. Although Ten Mile Marsh consists of a fairly extensive wetland complex, the Wamsutter Expansion route would only cross a single wetland, at about MP^{OT} 38.5. Overthrust intends to avoid the wetland by adopting the HDD method at this location for the crossing of Deadman Wash. As such, no impacts on the wetland or habitat for the Ute ladies'-tresses would occur.

Overthrust conducted a field survey for Ute ladies-tresses in the area in accordance with FWS survey guidelines during late summer 2006. This survey included the other wetland that would be crossed by the proposed route at MP^{OT} 12.2. The field survey failed to identify any Ute-ladies'-tresses within the project area.

4.7.3.2 BLM Sensitive Species

Based on a review of the BLM's Wyoming Sensitive Species Policy and List (2002) and Overthrust's continuing consultations with the BLM, 23 BLM sensitive species were identified that could occur in the Wamsutter Expansion Project area. These species are included in table 4.7-3 and discussed below.

Pygmy Rabbit

The sagebrush-obligate pygmy rabbit is generally limited to sand dunes, mima mounds, and riverbanks with deep soils and tall, dense sagebrush which is used for cover and food. The pygmy rabbit digs its own burrows and usually locates them on slopes at the base of sagebrush plants. Pygmy rabbits are generally crepuscular and usually rest near or inside their burrows during mid-day.

Overthrust conducted a BLM-recommended field survey for pygmy rabbits on BLM lands in spring 2006 using the current approved BLM survey protocol. Both dens and sign (*i.e.*, pellets and tracks) were identified within the project area. Due to the extent of rabbit distribution within the project area, avoidance of the occupied areas is not feasible for a linear project. Impacts on pygmy rabbit individuals and habitat could include loss of sagebrush used as cover and loss of dens, which if occurring within the proposed trench and if occupied during construction, could result in injury or death of individual rabbits. However, habitat impacts would be minimized by collocating the majority of the pipeline within previously disturbed existing rights-of-way, which has had much of the sagebrush habitat cleared for previous right-of-way construction and maintenance.

The BLM has approved Overthrust's proposed mitigation for pygmy rabbits or occupied pygmy rabbit habitat. Such measures include post-construction monitoring of known active areas to determine effects of oil and gas development on pygmy rabbits. A post-construction monitoring and mitigation plan would be submitted by Overthrust to the BLM for review and approval prior to being implemented. Overthrust would also file with the FERC a copy of the plan and related correspondence when completed.

We believe that although the Wamsutter Expansion Project may impact individual pygmy rabbits, the project is not likely to result in population-level impacts or reduced species viability, nor cause a trend toward federal listing.

Swift Fox

General information on the swift fox and potential impacts on this species from construction are provided in section 4.7.1.2.

Impacts on the swift fox from the Wamsutter Expansion Project could include temporary loss of potential habitat, short-term disruption of foraging activity, and permanent loss of dens. The project could potentially cause injury or direct mortality to young. If construction occurs after June 1, juveniles would likely have emerged from their natal dens and would also be expected to relocate away from dens located on the right-of-way. Overthrust states it would record incidental sightings of swift fox during other field efforts. If a fox or den is found, Overthrust would monitor activities to determine the presence of young. If an active den is identified within the construction right-of-way on BLM land that cannot be avoided, Overthrust would contact the BLM to identify necessary site-specific mitigation measures.

Much of the Wamsutter Expansion Project would be constructed adjacent to or within previously disturbed areas. Additionally, because vegetation cover and foraging habitats affected by construction are relatively abundant in the areas adjacent to the construction right-of-way, non-denning foxes displaced during construction could relocate, either temporarily or permanently, to suitable habitat nearby. Following construction, areas of potential foraging habitat would be restored to preconstruction conditions, although this could be a long-term effort.

We believe that although the Wamsutter Expansion Project may impact individual swift foxes, the project is not likely to result in population-level impacts or reduced species viability, nor cause a trend toward federal listing.

White-tailed Prairie Dog

The white-tailed prairie dog lives in colonies and inhabits dry, flat, open grasslands with low, relatively sparse vegetation, including areas overgrazed by cattle. Fine- to medium-textured soils are preferred, presumably because burrows tend to retain their shape and strength better than in coarse, loose soils.

According to field survey maps obtained from the BLM's Rawlins Field Office, prairie dog colonies occur along 0.7 mile of the proposed Wamsutter Expansion route, impacting about 17.7 acres. There are four colonies that occur at least partially within the 300-foot-wide survey corridor. Overthrust completed field surveys for prairie dogs in late summer 2006 and mapped 11 prairie dog towns. Overthrust is currently preparing the survey report and anticipates filing it with the Secretary in December 2006.

The potential effects of construction through a prairie dog colony may include injury or death of individuals, temporary loss of forage and shelter due to vegetation clearing, collapsing of burrows, and temporary disruption of foraging and resting activities due to disturbance associated with construction equipment. Following construction and restoration, the revegetated right-of-way would provide high quality foraging habitat for prairie dogs, and the unconsolidated soils along the trench would likely provide a good substrate for burrowing. Overthrust would limit disturbance to the 110-foot-wide temporary right-of-way and minimize overall surface disturbance within prairie dog towns. The BLM concurs with Overthrust's proposed measures.

Because Overthrust would adopt several mitigation measures, including avoiding placing staging areas, temporary workspaces, or pipe/contractor yards within active colonies, and would co-locate the pipeline within previously disturbed areas, we believe that although the Wamsutter Expansion Project may impact individual white-tailed prairie dogs, the project is not likely to result in population-level impacts or reduced species viability, nor cause a trend toward federal listing.

Wyoming Pocket Gopher

The Wyoming pocket gopher is the only mammal known to occur exclusively in Wyoming, and could be found in southeastern Sweetwater County. The Wyoming pocket gopher uses upland drier ridge tops, gravelly loose soils, and greasewood habitats. Little is known about the life history of this species, although its habits are probably similar to other species of intermountain pocket gophers.

Potential impacts of the proposed project on the Wyoming pocket gopher could include disturbance of habitat, compaction of soils, and destruction of active burrows. Other impacts could include injury or death of individuals, temporary loss of forage and shelter due to vegetation clearing, collapsing of burrows, and temporary disruption of foraging or resting activities due to disturbance associated with construction equipment. Following construction and restoration, the revegetated right-of-way would provide high quality foraging habitat for Wyoming pocket gopher and the unconsolidated soils along the trench would likely provide a good substrate for burrowing.

We believe that although the Wamsutter Expansion Project may impact individual Wyoming pocket gophers, the project is not likely to result in population-level impacts or reduced species viability, nor cause a trend toward federal listing.

Burrowing Owl

General information on the burrowing owl and potential impacts on this species from construction are provided in section 4.7.1.2. General impacts on raptors are discussed in section 4.5.1.4.

The potential impacts of the proposed Wamsutter Expansion Project on burrowing owls include disturbance of habitat and destruction of active burrows. Destruction of burrows could result in displacement of owls into less suitable habitats, potentially increasing susceptibility to predation, reducing cover or forage habitat, or reducing reproductive success. Direct mortality could result if active burrows are occupied at the time of destruction.

According to prairie dog town maps of the BLM Rawlins Field Office district, suitable burrowing owl habitat is present along approximately 0.7 mile of the proposed pipeline route. Overthrust conducted surveys for burrowing owls during prairie dog town surveys and other field efforts in summer 2006 along the proposed route. Overthrust indicated burrowing owls were observed during these surveys. If construction occurs during the nesting season (April through August) and nesting birds are observed along the pipeline route, construction would be restricted within 0.5 mile of the nest for the BLM's Kemmerer and Rock Springs Field Office district (*i.e.*, Roberson Compressor Station, and TL-90 Tie-in in Kemmerer; and between MPs^{OT} 0.0 and 60.1), or 0.75 mile of the nest for the BLM Rawlins Field Office district (*i.e.*, between MPs^{OT} 60.1 and 77.2), until the chicks have fledged.

By avoiding construction during the burrowing owl nesting season or adhering to nesting buffers if active nests are identified within the construction right-of-way, we believe that the Wamsutter Expansion Project would not cause population-level impacts or reduced species viability, nor cause a trend toward federal listing.

Greater Sage Grouse

The greater sage grouse inhabits sagebrush plains, foothills, and mountain valleys where sagebrush is the predominant plant in higher quality habitat (see our sage grouse discussion in section 4.7.1.3 for life history information and general impacts of construction activity on this species).

The WGFD and BLM noted that no leks or breeding or brood rearing habitat occurs within 2 miles of the proposed Wamsutter Expansion pipeline route, the Rock Springs Compressor Station, or the Wamsutter Delivery Point. Likewise, no leks or breeding or brood-rearing habitat occurs within 2 miles of the proposed Roberson Compressor Station, or TL-90 Tie-in according to WGFD lek data.

Overthrust has committed to several BLM-approved mitigation measures, which include conducting a one-pass aerial lek survey in spring 2007. If a lek is identified within the project area, Overthrust has agreed that no construction activities would occur within 2 miles of occupied leks or identified sage grouse nesting and early brood-rearing habitat during the breeding and nesting season (March 15 through July 15). We also note that no noise-emitting or tall surface facilities would be installed within 0.25 mile of the perimeter of leks, which helps minimize increased raptor presence and predation of sage grouse.

Given the abundant suitable habitat in the general area, it is not likely that the minor, yet long-term loss of habitat along the pipeline right-of-way would significantly affect sage grouse populations in the vicinity of the project. Because the pipeline would be co-located with existing pipeline rights-of-way and previously disturbed areas and no known leks or breeding habitat occur within the proposed project area, we conclude the Wamsutter Expansion Project would not cause population-level impacts or reduced species viability, nor cause a trend toward federal listing.

Mountain Plover

General information on the mountain plover and potential impacts on this species from construction are provided in section 4.7.1.2.

Overthrust conducted potential habitat surveys for the mountain plover during surveys conducted in summer 2006 along the proposed project route and at aboveground facility sites. The results of this survey identified suitable habitat along the proposed route. Overthrust would also conduct surveys for mountain plover nests in May 2007, prior to construction. Within the Rock Springs Field Office district, no mountain plover surveys would be required due to extensive previous surveys along rights-of-way parallel to the Wamsutter Expansion Project with negative results.

The BLM has suggested avoiding mountain plover active nests from April 10 to July 10. Overthrust currently plans to begin construction in May 2007, which would overlap the nesting period. If an active mountain plover nest is found during the 2007 surveys, Overthrust would record the nest location. If the nest is still active at the time of construction, construction equipment would be prohibited from working within 0.25 mile of the nest until the young have fledged (7 days post-hatching). If a plover family group is identified during surveys or immediately before construction, the group would be monitored by a biologist to determine its use pattern. The area being used by the family group would be marked with signs designating the area as sensitive if the group does not move at least 200 meters from the centerline.

If construction continues through the summer, impacts on mountain plovers after July 10 would be short term and primarily associated with habitat disturbance, including the reduction of available forage. However, the restored right-of-way would provide suitable habitat for mountain plover nesting and could improve habitat quality via the reduction of shrubs along the corridor.

Because Overthrust would avoid nests during the appropriate timing stipulation and habitat available to the mountain plover may be improved following construction, we believe that the Wamsutter Expansion Project would not cause population-level impacts or reduced species viability, nor cause a trend toward federal listing.

Brewer's Sparrow, Loggerhead Shrike, Sage Sparrow, and Sage Thrasher

These sagebrush-associated migratory bird species (see also our general discussion of migratory birds in section 4.5.3.4) require sagebrush for either nesting substrate or as nesting cover. Brewer's sparrows are closely associated with sagebrush shrublands that have abundant, scattered shrubs and short grass; but they can also be found in mountain mahogany, rabbitbrush, pinyon-juniper, or bunchgrass grasslands. Loggerhead shrike are typically associated with open vegetation types such as pasture, savannah, and open shrubland and nest in large sagebrush, greasewood, pinyon-juniper, or the interior of abandoned magpie nests. The sage sparrow and sage thrasher both inhabit prairie and foothills shrubland habitat where sagebrush is present. These species prefer shrublands with tall shrubs (3 to 6 feet) and low grass cover, where sagebrush is clumped in a patchy landscape (Cornell Lab of Ornithology, 2005).

Sagebrush habitats occur over the majority of the Wamsutter Expansion Project area, with 63.3 miles of the 77.2-mile-long pipeline mapped as desert shrubland, sagebrush scrub, or sagebrush steppe. Aboveground facilities also would be sited within sagebrush steppe or desert scrub vegetation communities. Overthrust would assess the quality of the habitat for nesting suitability and provide the results of that assessment to the BLM to determine if additional conservation measures are required. The Brewer's sparrow, loggerhead shrike, sage sparrow, and sage thrasher are all summer residents of

southwestern Wyoming and complete their breeding from mid- to late July. Although birds remain in their habitat for 1 to 2 months after the end of July, nesting is typically completed by August. Collocating the pipeline with previously disturbed existing rights-of-way would reduce the amount of shrub habitat that would need to be cleared. Sagebrush has likely not regenerated completely along the disturbed right-of-way and therefore, the existing nesting substrate available to birds is less than optimal.

The TL-90 Tie-in would be located in areas recently cleared, thus they would not require sagebrush clearing. The Rock Springs Compressor Station would be located adjacent to existing facilities; therefore, clearing of sagebrush would be minimal. The Roberson Compressor Station would be a new facility that would permanently affect 7.6 acres of land. The Wamsutter Delivery Point would also be a new facility permanently affecting 1.4 acres. There is sufficient sagebrush habitat surrounding this site; therefore, sage-associated bird species would be able to use adjacent habitat for nesting.

Because the majority of the pipeline route would be collocated within existing pipeline rights-of-way and previously disturbed areas containing minimal available nesting habitat, we believe that the Wamsutter Expansion Project would not cause significant impacts on Brewer's sparrow, loggerhead shrike, sage sparrow, and sage thrasher, nor would it cause population-level impacts or reduced species viability, nor cause a trend toward federal listing.

Peregrine Falcon and Ferruginous Hawk

The peregrine falcon and ferruginous hawk life history information and general impacts of construction activity are discussed in section 4.7.1.2. See also our discussion of raptors in section 4.5.3.4. Overthrust reported that ferruginous hawks were observed during prairie dog town surveys in summer 2006 surveys. Overthrust would adhere to the seasonal and spatial restrictions necessary to protect nesting raptors.

Midget-faded Rattlesnake

The midget-faded rattlesnake is found primarily on the ground, but occasionally climbs into trees and shrubs. When inactive during cold weather, individuals occupy mammal burrows, crevices, or caves where they sometimes congregate in large numbers. The midget-faded rattlesnake has been identified as having the potential to occur on BLM lands within sagebrush habitats in the very western portion of the proposed pipeline corridor.

Potential effects of construction on midget-faded rattlesnakes may include temporary loss of shelter due to vegetation clearing, displacement of individuals into adjacent habitats, and potential injury to or death of individuals unable to leave the area during construction. Additionally, the project could indirectly increase the susceptibility of individuals to predation due to a lack of vegetation cover and destruction of burrows along the construction right-of-way. Overthrust would record suitable habitat for the midget-faded rattlesnake, as well as incidental sightings, during other survey efforts. If this species is documented during surveys, qualified biologists would clear the construction right-of-way of midget-faded rattlesnakes prior to construction and install exclusion fencing to a depth of 4 inches into the ground in the area of suitable habitat containing the population to keep the rattlesnakes from entering the right-of-way during construction. Following construction, the right-of-way would be restored to preconstruction conditions. We believe that although the Wamsutter Expansion Project may impact individual midget-faded rattlesnakes, the project is not likely to result in population-level impacts or reduced species viability, nor cause a trend toward federal listing.

Great Basin Spadefoot Toad

The Great Basin spadefoot toad inhabits pinyon-juniper woodlands, sagebrush steppe and scrub communities, and semidesert shrublands. This species ranges from the bottoms of rocky canyons to broad dry basins and stream floodplains, where it digs burrows in loose soils or uses the burrows of other animals. The Great Basin spadefoot toad could occur on BLM lands along the pipeline route and at aboveground facility locations within the Wamsutter Expansion Project area.

The potential effects of construction on the Great Basin spadefoot toad may include temporary loss of shelter due to vegetation clearing, displacement of individuals into adjacent habitats, and potential injury to or death of individuals unable to leave the area during construction. Additionally, the project could indirectly increase the susceptibility of individuals to predation due to a lack of vegetation cover and could destroy burrows along the construction right-of-way. Overthrust would record suitable habitat for the Great Basin spadefoot toad, as well as incidental sightings, during other survey efforts. If this species is identified during construction, qualified biologists would clear the construction right-of-way of the toads prior to construction and install exclusion fencing to a depth of 4 inches into the ground in the area of suitable habitat containing the population to keep toads from entering the right-of-way during construction. Following construction, the right-of-way would be restored to preconstruction conditions. We conclude that although the Wamsutter Expansion Project may impact individual Great Basin spadefoot toad, the project is not likely to result in population-level impacts or reduced species viability, nor cause a trend toward federal listing.

Flannemouth Sucker

Native to the Colorado River drainage basin, flannemouth suckers in Wyoming are found in the Green and Little Snake River drainages. The Bitter Creek drainage flannemouth sucker population is the only known population of pure flannemouth suckers which are not sympatric with introduced white suckers (WGFD, 2006). Flannemouth suckers prefer large rivers with deep riffles and runs, but they can also be found in smaller streams and sometimes in lakes. In the spring, they leave the large rivers and ascend small tributary streams to spawn. The flannemouth sucker is mainly herbivorous, but also forages on aquatic insects, detritus, and trout eggs.

Potential impacts of the Wamsutter Expansion Project on flannemouth suckers include increased sedimentation and turbidity during in-stream construction, which could adversely affect fish eggs and juvenile fish survival in the immediate area by suffocating newly hatched larvae and preventing proper egg and larval development. In addition, aquatic resources could be affected by the filling of inter-gravel spaces and pool habitats. This reduces available aquatic habitat, thereby reducing spawning habitat, rearing habitat, and macroinvertebrate production (primary food supply of fisheries).

Although the proposed crossing location of Bitter Creek has not been sampled, fish species including the flannemouth sucker are known to occur in Bitter Creek near the City of Rock Springs and Town of Superior. It is possible that if the river contains sufficient flow at the time of construction, fish may move through the project area. The flannemouth sucker spawns in the spring, and if sufficient flows exist, the WGFD recommended a date restriction of May 15 through the end of June to avoid construction in the river to protect suckers. Overthrust intends to cross Bitter Creek during the low-flow period and likely outside of the May 15 through June 30 period; therefore, construction would not affect flannemouth suckers during the critical spring spawning period.

In comments on the project, the WGFD listed several practices and prescriptions that are based on a report prepared by the WGFD entitled *Recommendations for Development of Oil and Gas Resources*

within Crucial and Important Wildlife Habitats (WGFD, 2004). Overthrust would adopt several of the WGFD's recommendations, including:

- use of appropriate size riprap to stabilize ephemeral stream banks;
- constructing pipeline crossings at right angles to all riparian corridors and streams;
- using minimum practical right-of-way width through riparian areas and streams; and
- avoiding routing the pipeline through riparian areas other than for the purpose of crossing streams.

The WGFD also recommended that Overthrust bore any perennial waterbody. Overthrust has proposed to use the open-cut crossing method at Bitter Creek. However, as discussed in section 4.3.3.2, the project would cross Bitter Creek in an area where flow within the waterbody is intermittent. Discussions between Overthrust and the WGFD and BLM (Keith, 2006a and 2006b; Henderson, 2006) indicated that the waterbody is fed by perennial springs upstream of the proposed crossing location. If Bitter Creek is flowing at the time of crossing, Overthrust would be required to use the flume or dam-and-pump crossing method. If there is no flow at the time of construction, standard open-cut practices could apply.

Because of Overthrust's commitments and use of the Procedures, along with the fact that Bitter Creek is not expected to have flow at the time of crossing, we believe that the Wamsutter Expansion Project would not cause significant impacts on the flannelmouth sucker and is not likely to result in population-level impacts or reduced species viability, nor cause a trend toward federal listing.

Large-fruited Bladderpod, Mystery Wormwood, Nelson's Milk-vetch, Ownbey's Thistle, Persistent Sepal Yellowcress, Trelease's Racemose Milk-vetch, and Tufted Twinpod

Suitable habitats for all of these plant species, except for the tufted twinpod, may occur in areas identified by the BLM along the Wamsutter Expansion Project pipeline route. The tufted twinpod and the large-fruited bladderpod could occur in the vicinity of the Roberson Compressor Station, and TL-90 Tie-in. Direct construction-related impacts on these plant species could include injury to or destruction of the plants; seed displacement within areas of potential habitat during clearing, trenching, or general vehicle movement along the construction right-of-way; or permanent loss of habitat. Indirect impacts may include invasion of the habitat by weedy plant species, thus increasing competition for water, sunlight, or other resources. However, as described in section 4.4.3.3, we believe that implementation of Overthrust's measures to minimize the introduction and/or spread of invasive plant species would limit competition between native plants and invasive species and also allow for growth by native species.

Overthrust has conducted BLM sensitive plant surveys in appropriate habitats, and in accordance with BLM-approved protocols during late summer 2006. Overthrust indicated that Nelson's Milk-vetch was the only BLM sensitive plant species found in the Wamsutter Expansion Project area. Overthrust identified one population of Nelson's Milk-vetch on public land along 760 feet of the proposed pipeline corridor. Overthrust plans to mark specific plant locations in the early spring and adjust the route around individual plants to the extent possible. Overthrust could also reduce the width of the construction right-of-way through this area and could fence the edges of the right-of-way to further minimize potential disturbance to individual plants. Overthrust is continuing to consult with the BLM to determine the appropriate measures to avoid or minimize the impact of construction and operation on this species. Overthrust will file correspondence related to this issue with the Secretary as it becomes available.

If plants are later identified adjacent to the construction right-of-way, Overthrust would install exclusion fencing around the plants to avoid construction impacts. If plants are identified within the

construction right-of-way, Overthrust would evaluate the potential for a route realignment or change to the right-of-way configuration (*e.g.*, by reducing the width of the right-of-way). If avoidance of a known population of BLM sensitive plants is not possible, Overthrust would notify the BLM before commencing any project construction activity. By its implementation of these measures, we believe that Wamsutter Expansion Project would not cause significant impacts on the large-fruited bladderpod, mystery wormwood, Nelson's milk-vetch, Ownbey's thistle, persistent sepal yellowcress, Trelease's racemose milk-vetch, and tufted twinpod. The project is not likely to result in population-level impacts or reduced species viability, nor cause a trend toward federal listing.

4.8 LAND USE AND VISUAL RESOURCES

The Rockies Western Phase Project would include approximately 795.6 miles of natural gas pipeline in New Mexico, Colorado, Wyoming, Nebraska, Kansas, and Missouri. The pipeline facilities would impact a total of 13,407.1 acres of land, while the aboveground facilities would impact about 116.5 acres (tables 4.8-1 and 4.8-2). Construction and operation of these facilities would have temporary and permanent impacts on various types of land uses such as agriculture, rangeland, wetlands, waterbodies, industrial/commercial land, residential land, and recreational and other special interest areas (*e.g.*, public lands). Public lands crossed by the Rockies Western Phase Project are shown in table 4.8-3.

As shown in table 4.8-1, the largest amount of land that would be crossed by the Rockies Western Phase Project would be agricultural land (52.9 percent), followed by rangeland (38.9 percent). Impacts on these and other various land uses, as well as visual resources, are discussed below and separated by project (*i.e.*, the Rockies Express REX-West Project, the TransColorado Blanco to Meeker Project, and the Overthrust Wamsutter Expansion Project). Impacts on wetlands and forested areas are described in section 4.3.

An easement is used to convey both temporary (for construction) and permanent rights-of-way to a pipeline company. The easement gives the company the right to construct, operate, and maintain the pipeline and establish a permanent right-of-way. In return, the company compensates the landowner for use of the land. The easement agreement between the company and landowner typically specifies compensation for loss of use during construction, loss of nonrenewable or other resources, damage to property during construction, and allowable uses of the permanent right-of-way after construction.

If an easement cannot be negotiated with a private landowner and the projects have been certificated by the FERC, the Applicant (*i.e.*, either Rockies Express, TransColorado, or Overthrust) may use the right of eminent domain granted to it under Section 7(h) of the NGA and the procedures set forth under the Federal Rules of Civil Procedure (Rule 71A) to obtain the right-of-way and extra workspace areas. The Applicant would still be required to compensate the landowner for the right-of-way and damages incurred during construction. However, the level of compensation would be determined by a court according to applicable state or federal law once the Applicant has been issued a Certificate. In either case, the Applicant would compensate landowners for use of the land. Eminent domain does not apply to lands under federal ownership.

On federal land, Rockies Express, TransColorado, and Overthrust have applied for Right-of-Way Grants pursuant to the MLA, which provides for authorizations for the temporary construction use and the long-term use of federal land for pipeline purposes. A Right-of-Way Grant is issued for a 30-year term and contains a right of renewal if the project is still being used for its intended purpose. We note that the BLM's Wyoming Standards for Healthy Rangelands apply to all activities on federal lands and, when applied, have had a marked effect on successful reclamation. BLM's final approval of the reclamation of the right-of-way and subsequent release of performance bonds and reclamation obligations is dependent on the successful establishment of healthy rangeland vegetation.

Visual impacts associated with the construction right-of-way and additional temporary workspaces would include the removal of existing vegetation and the exposure of bare soils, as well as earthwork and grading scars associated with heavy equipment tracks, trenching, rock formation alteration or removal, and machinery and pipe storage. Other visual effects may result from the removal or alteration of vegetation that may currently provide a visual barrier; or landform changes that introduce contrasts in visual scale, spatial characteristics, form, line, color, or texture. Additional visual intrusions would result from the construction of permanent above ground facilities such as compressor stations, mainline valves, and meter stations.

The BLM assigns Visual Resource Management (VRM) classes to the various landscapes under its management. The BLM VRM classes range from Class I to Class IV, with Class I being the most restrictive and Class IV being the least restrictive. A Class II designation is intended to protect the resource from evident changes in any of the basic elements of the landscape. Contrasts may be seen, but they must not attract attention. A Class III designation allows for changes in the visual landscape caused by a management activity, but should remain an insignificant portion of the visual strength of the existing landscape. VRM Class IV lands may undergo management activities that significantly alter the characteristic landscape and dominate the view. A project-specific discussion of visual impacts is presented in sections 4.8.1.6, 4.8.2.3, and 4.8.3.4.

TABLE 4.8-1

Land Use Affected by Construction and Operation of the Rockies Western Phase Project (acres)

Project Component	Agricultural <i>a/</i>		Rangeland <i>b/</i>		Forest <i>c/</i>		Industrial/ Commercial <i>d/</i>		Residential/ Recreation <i>e/</i>		Total	
	Const	Oper	Const	Oper	Const	Oper	Const	Oper	Const	Oper	Const	Oper
ROCKIES EXPRESS												
REX-West Mainline	6586.4	2634.5	3463.6	1385.4	687.3	207.9	36.4	14.5	25.8	10.3	10799.5	4252.6
Echo Springs Lateral	0.0	0.0	79.3	31.9	0.0	0.0	0.0	0.0	0.0	0.0	79.3	31.9
Additional Temporary Workspace	490.8	0.0	480.8	0.0	72.7	0.0	4.9	0.0	1.0	0.0	1050.2	0.0
New/Upgraded Access Roads	0.8	0.8	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	1.7	1.7
Contractor Yards	25.0	0.0	0.0	0.0	0.0	0.0	66.0	0.0	0.0	0.0	91.0	0.0
Aboveground Facilities	45.0	45.0	43.9	43.9	0.0	0.0	0.0	0.0	0.0	0.0	88.9	88.9
REX-West Project Subtotal	7148.0	2680.3	4068.5	1462.1	760.0	207.9	107.3	14.5	26.8	10.3	12110.6	4375.1
TRANSCOLORADO												
Pipelines	0.0	0.0	1.8	1.2	0.0	0.0	1.2	0.9	0.0	0.0	3.0	2.1
Additional Temporary Workspace	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0
New/Upgraded Access Roads	0.0	0.0	3.1	3.1	0.0	0.0	0.0	0.0	0.0	0.0	3.1	3.1
Contractor Yards	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Aboveground Facilities	0.0	0.0	12.7	7.5	0.0	0.0	0.0	0.0	0.0	0.0	12.7	7.5
Blanco to Meeker Project Subtotal	0.0	0.0	18.2	11.8	0.0	0.0	1.2	0.9	0.0	0.0	19.4	12.7
OVERTHRUST												
Wamsutter Expansion Pipeline	0.0	0.0	1142.8	458.0	0.0	0.0	0.0	0.0	0.0	0.0	1142.8	458.0
TL-90 Tie-in	0.0	0.0	1.6	0.8	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.8
Additional Temporary Workspace	0.0	0.0	11.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.5	0.0
New/Upgraded Access Roads	0.0	0.0	0.0	0.0	0.0	0.0	222.8	0.0	0.0	0.0	222.8	0.0
Contractor Yards	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Aboveground Facilities	0.0	0.0	14.9	15.0	0.0	0.0	0.0	0.0	0.0	0.0	14.9	15.0
Wamsutter Expansion Project Subtotal	0.0	0.0	1170.8	473.8	0.0	0.0	222.8	0.0	0.0	0.0	1393.6	473.8
Overall Total for Rockies Western Phase Project	7148.0	2680.3	5257.5	1947.7	760.0	207.9	331.3	15.4	26.8	10.3	13523.6	4861.6

a/ Agricultural includes cultivated crops, flood- or pivot-irrigation crops, and fallow cropland.

b/ Rangeland includes herbaceous and mixed rangeland characterized by short-grass prairie, mixed-grass prairie, and lands that appear to be used for cattle or other livestock grazing – with or without a shrub component.

c/ Forest includes upland and wetland forested areas.

d/ Industrial/commercial includes electric power or gas utility stations, manufacturing or industrial plants, livestock feedlots, landfills, mines, quarries, commercial or retail facilities, and roads (improved and unimproved).

e/ Residential includes residential yards, subdivisions, and planned new residential developments.

Const = Construction

Oper = Operation

TABLE 4.8-2

Acres Affected By Construction and Operation of the Rockies Western Phase Project Aboveground Facilities

Facility	MP	Collocated Facility	County, State	Existing Land Use	Land Affected During Const.	Land Affected During Oper.
COMPRESSOR STATIONS						
Rockies Express						
Echo Springs	147.0 ^{EN}		Sweetwater, WY	Rangeland	5.7	5.7
Cheyenne	0.0	Rockies L1, Rockies MLV1	Weld, CO	Rangeland	25.0	25.0
Julesburg	143.8	Rockies LR2, Rockies MLV9	Sedgwick, CO	Agricultural	15.5	15.5
Steele	431.5	Rockies LR4, Rockies MLV25	Gage, NE	Agricultural	12.3	12.3
Turney	572.5	Rockies LR5, Rockies MLV33	Clinton, MO	Rangeland	13.0	13.0
Meeker	0.0 ^{EN}		Rio Blanco, CO	Industrial	0.0	0.0
Wamsutter	136.0 ^{EN}		Sweetwater, WY	Rangeland	0.0	0.0
	Subtotal				71.5	71.5
TransColorado						
Blanco	N/A		San Juan, NM	Undeveloped Rangeland	5.7	4.1
Conn Creek	N/A		Garfield, CO	Undeveloped Rangeland	6.1	2.6
Greasewood	N/A		Rio Blanco, CO	Previously-disturbed Rangeland	0.7	0.7
	Subtotal				12.5	7.4
Overthrust						
Roberson	N/A		Lincoln, WY	Rangeland	7.6	7.6
Rock Springs	N/A		Sweetwater, WY	Rangeland	5.9	5.9
	Subtotal				13.5	13.5
Total (Compressor Stations)					97.5	92.4
METER STATIONS; RECEIPT AND DELIVERY POINTS						
Rockies Express						
Overthrust Interconnect	0.0 ^{EN}		Rio Blanco, CO	Industrial	0.0	0.0
Echo Springs	0.0 ^{ES}		Carbon, WY	Rangeland	0.0	0.0
WIC Interconnect	0.0		Weld, CO	Agricultural	12.7	12.7
KMIGT Meter Station	332.0		Franklin, NE	Agricultural	0.6	0.6
NGPL Meter Station	423.1		Jefferson, NE	Agricultural	0.6	0.6
NNG Meter Station	430.6		Gage, NE	Agricultural	0.7	0.7
ANR Meter Station	497.8		Brown, KS	Agricultural	0.5	0.5
PEPL Meter Station	712.7	Rockies R6, MLV 41	Audrain, MO	Agricultural	0.2	0.2
	Subtotal				15.3	15.3

TABLE 4.8-2 (Continued)

Acres Affected By Construction and Operation of the Rockies Western Phase Project Aboveground Facilities

Facility	MP	Collocated Facility	County, State	Existing Land Use	Land Affected During Const.	Land Affected During Oper.
METER STATIONS; RECEIPT AND DELIVERY POINTS (Cont'd)						
TransColorado						
Blanco Hub Meter Station	N/A		San Juan, NM	Industrial / Commercial	0.2	0.1
Subtotal					0.2	0.1
Overthrust						
Wamsutter Delivery Point	77.2 ⁹¹		Sweetwater, WY	Rangeland	1.4	1.4
Subtotal					1.4	1.4
Total (Meter Stations / Delivery Points)					16.9	16.8
LAUNCHER/RECEIVERS						
Rockies Express						
L1	0.0	Rockies MLV1, Rockies Cheyenne CS	Weld, CO	Rangeland	0.0	0.0
LR2	143.8	Rockies MLV9, Rockies Julesburg CS	Sedgwick, CO	Agricultural	0.0	0.0
LR3	286.5	Rockies MLV17	Phelps, NE	Agricultural	1.0	1.0
LR4	431.5	Rockies MLV25, Rockies Steele CS	Gage, NE	Agricultural	0.0	0.0
LR5	572.5	Rockies MLV33, Rockies Turney CS	Clinton, MO	Rangeland	0.0	0.0
R6	712.7	Rockies MLV41, Rockies MS8	Audrain, MO	Agricultural	0.0	0.0
Total (Launchers / Receivers)					1.0	1.0
MAINLINE VALVES						
Rockies Express						
MLV1	0.0	Rockies L1, Rockies Cheyenne CS	Weld, CO	Rangeland	0.0	0.0
MLV2	18.2		Weld, CO	Rangeland	0.03	0.03
MLV3	36.7		Laramie, WY	Agricultural	0.03	0.03
MLV4	54.5		Kimball, NE	Agricultural	0.03	0.03
MLV5	71.7		Logan, CO	Agricultural	0.03	0.03
MLV6	89.7		Logan, CO	Agricultural	0.03	0.03
MLV7	107.8		Logan, CO	Agricultural	0.03	0.03

TABLE 4.8-2 (Continued)

Acres Affected By Construction and Operation of the Rockies Western Phase Project Aboveground Facilities

Facility	MP	Collocated Facility	County, State	Existing Land Use	Land Affected During Const.	Land Affected During Oper.
MAINLINE VALVES (Cont'd)						
MLV8	127.4		Sedgwick, CO	Rangeland	0.03	0.03
MLV9	143.8	Rockies LR2, Rockies Julesburg CS	Sedgwick, CO	Agricultural	0.0	0.0
MLV10	163.0		Perkins, NE	Agricultural	0.03	0.03
MLV11	182.6		Perkins, NE	Agricultural	0.03	0.03
MLV12	201.9		Lincoln, NE	Agricultural	0.03	0.03
MLV13	221.2		Lincoln, NE	Rangeland	0.03	0.03
MLV14	240.4		Lincoln, NE	Rangeland	0.03	0.03
MLV15	260.1		Frontier, NE	Agricultural	0.03	0.03
MLV16	278.8		Gosper, NE	Agricultural	0.03	0.03
MLV17	286.5	Rockies LR3	Phelps, NE	Agricultural	0.0	0.0
MLV18	304.6		Phelps, NE	Agricultural	0.03	0.03
MLV19	322.9		Franklin, NE	Agricultural	0.03	0.03
MLV20	341.3		Webster, NE	Agricultural	0.03	0.03
MLV21	359.6		Nuckolls, NE	Agricultural	0.03	0.03
MLV22	378.0		Nuckolls, NE	Rangeland	0.03	0.03
MLV23	396.4		Thayer, NE	Agricultural	0.03	0.03
MLV24	414.8		Jefferson, NE	Agricultural	0.03	0.03
MLV25	431.5	Rockies LR4, Rockies Steele CS	Gage, NE	Agricultural	0.0	0.0
MLV26	448.6		Marshall, KS	Agricultural	0.03	0.03
MLV27	466.3		Marshall, KS	Agricultural	0.03	0.03
MLV28	483.9		Nemaha, KS	Agricultural	0.03	0.03
MLV29	501.3		Brown, KS	Rangeland	0.03	0.03
MLV30	518.6		Doniphan, KS	Agricultural	0.03	0.03
MLV31	536.0		Doniphan, KS	Agricultural	0.03	0.03
MLV32	553.8		Buchanan, MO	Agricultural	0.03	0.03
MLV33	572.5	Rockies LR5, Rockies Turney CS	Clinton, MO	Rangeland	0.0	0.0
MLV34	589.3		Caldwell, MO	Agricultural	0.03	0.03
MLV35	606.1		Carroll, MO	Agricultural	0.03	0.03
MLV36	623.3		Carroll, MO	Agricultural	0.03	0.03
MLV37	640.1		Chariton, MO	Agricultural	0.03	0.03
MLV38	658.8		Chariton, MO	Agricultural	0.03	0.03
MLV39	677.8		Randolph, MO	Agricultural	0.03	0.03
MLV40	695.3		Audrain, MO	Agricultural	0.03	0.03
MLV41	712.7	Rockies MS8, Rockies R6	Audrain, MO	Agricultural	0.0	0.0
Subtotal					1.1	1.1

TABLE 4.8-3

Public Land Crossed by the Rockies Western Phase Project

State/County/Facility	MP (beginning)	Landowner or Management Agency	Crossing Length (feet)	Area Affected by Const. (acres)
ROCKIES EXPRESS <u>a/</u>				
FEDERAL LAND				
Wyoming				
<u>Sweetwater County</u>				
Echo Springs Lateral	1.1 ^{ES} , 2.9 ^{ES} , 4.0 ^{ES} , and 5.3 ^{ES}	BLM	11,805	27.9
Echo Springs Compressor Station	147.0 ^{EN}	BLM		5.7
Nebraska				
<u>Kearney County</u>				
REX-West Mainline	310.4	FWS	691	1.5
Federal Land Total (REX-West Project)			12,496 (2.4 miles)	35.2
STATE LAND				
Colorado				
<u>Weld County</u>				
REX-West Mainline	0.8	State of Colorado c/o True Ranches LLC "Toby"	1,346	3.9
	4.7	State of Colorado c/o True Ranches LLC "Toby"	5,209	15.0
	10.8	State of Colorado c/o True Ranches LLC "Toby"	5,304	15.2
	16.9	State of Colorado c/o True Ranches LLC "Toby"	5,297	15.2
<u>Logan County</u>				
REX-West Mainline	114.2	State of Colorado Board of Land Commissioners	5,451	15.6
<u>Sedgwick County</u>				
REX-West Mainline	115.4	State of Colorado c/o True Ranches LLC "Toby"	1,160	3.3
	117.1	State of Colorado c/o True Ranches LLC "Toby"	2,986	8.6
	118.1	State of Colorado c/o True Ranches LLC "Toby"	2,065	5.9
Colorado Subtotal			28,818 (5.5 miles)	82.7
Wyoming				
<u>Laramie County</u>				
REX-West Mainline	38.7	State of Wyoming State Lands (Pine Bluffs)	5,405 (1.0 mile)	15.5
Wyoming Subtotal			5,405 (1.0 mile)	15.5

TABLE 4.8-3 (Continued)

Public Land Crossed by the Rockies Western Phase Project

State/County/Facility	MP (beginning)	Landowner or Management Agency	Crossing Length (feet)	Area Affected by Const. (acres)
STATE LAND (Cont'd)				
Nebraska				
<u>Kimball County</u>				
REX-West Mainline	40.6	State of Nebraska Board of Education Lands & Funds	1,162	3.3
	46.6	State of Nebraska Board of Education Lands & Funds	5,310	15.2
	52.5	State of Nebraska Board of Education Lands & Funds	5,257	15.1
	58.5	State of Nebraska Board of Education Lands & Funds	5,241	15.0
	59.5	State of Nebraska Department of Roads	179	0.5
	64.5	State of Nebraska Board of Education Lands & Funds	5,213	15.0
<u>Perkins County</u>				
REX-West Mainline	165.0	State of Nebraska Department of Roads	75	0.2
	178.7	State of Nebraska Board of Education Lands & Funds	5,304	15.2
<u>Lincoln County</u>				
REX-West Mainline	212.0	State of Nebraska Board of Education Lands & Funds	5,302	15.2
	227.5	State of Nebraska Board of Education Lands & Funds	2,743	7.9
	237.5	State of Nebraska	1,188	3.4
<u>Gosper County</u>				
REX-West Mainline	267.5	Gruber Cattle Company (state managed WMA)	650	1.9
	268.5	State Of Nebraska (Elwood Reservoir WMA)	68	0.2
	272.1	Nebraska Kansas & Colorado Railnet State Assessed	53	0.2
<u>Thayer County</u>				
REX-West Mainline	405.2	State of Nebraska Board of Education Lands & Funds	1,354	3.9
<u>Jefferson County</u>				
REX-West Mainline	413.8	Nebraska Game and Park Commission (Rose Creek WMA)	2,747	7.9
Nebraska Subtotal			41,846 (7.9 miles)	120.1

TABLE 4.8-3 (Continued)

Public Land Crossed by the Rockies Western Phase Project

State/County/Facility	MP (beginning)	Landowner or Management Agency	Crossing Length (feet)	Area Affected by Const. (acres)
STATE LAND (Cont'd)				
Missouri				
<u>Buchanan County</u>				
REX-West Mainline	537.1	The Conservation Commission of the State of Missouri (Jentell Brees Access)	2,678	1.6
	547.0	The Conservation Commission of the State of Missouri (Pigeon Hill Conservation Area)	559	1.6
	547.6	The Conservation Commission of the State of Missouri (Pigeon Hill Conservation Area)	3,097	8.9
Missouri Subtotal			6,334 (1.2 miles)	12.1
State Land Total (REX-West Project)			82,403 (15.6 miles)	230.4
LOCAL LAND				
Nebraska				
<u>Gosper County</u>				
REX-West Mainline	269.0	Village of Elwood	992	2.9
<u>Phelps County</u>				
REX-West Mainline	281.6	Village of Bertrand (Golf Course)	1,562	4.5
Missouri				
<u>Buchanan County</u>				
REX-West Mainline	548.1	City of St. Joseph	1,265	3.6
	548.2	City of St. Joseph	557	1.6
<u>Chariton County</u>				
REX-West Mainline	656.1	Potts Memorial Park; City of Salisbury	2,448	7.0
Local Land Total (REX-West Project)			6,824 (1.3 miles)	19.6
REX-West Project All Public Lands Total			101,723 (19.2 mi)	285.2

TABLE 4.8-3 (Continued)

Public Land Crossed by the Rockies Western Phase Project

State/County/Facility	MP (beginning)	Landowner or Management Agency	Crossing Length (feet)	Area Affected by Const. (acres)
TRANSCOLORADO				
FEDERAL LAND				
Colorado				
<u>Rio Blanco County</u>				
Greasewood Compressor Station	N/A	BLM	N/A	0.7
New Mexico				
<u>San Juan County</u>				
Blanco Compressor Station		BLM	N/A	6.4
Federal Land Total (Blanco to Meeker Project)			N/A	7.1
Blanco to Meeker Project All Public Lands Total			N/A	7.1
OVERTHRUST				
FEDERAL LAND				
Wyoming				
<u>Sweetwater County</u>				
Wamsutter Expansion Mainline	0.0 ^{OT}	BLM	528	1.3
	1.3 ^{OT}	BLM	5280	13.3
	6.7 ^{OT}	BLM	2640	6.7
	8.4 ^{OT}	BLM	3168	8.0
	9.7 ^{OT}	BLM	2640	6.7
	11.3 ^{OT}	BLM	6336	16.0
	13.2 ^{OT}	BLM	1584	4.0
	14.6 ^{OT}	BLM	4752	12.0
	15.7 ^{OT}	BLM	5280	13.3
	17.8 ^{OT}	BLM	5280	13.3
	19.8 ^{OT}	BLM	3168	8.0
	20.8 ^{OT}	BLM	5808	14.7
	22.7 ^{OT}	BLM	2640	6.7
	24.4 ^{OT}	BLM	4224	10.7
	25.7 ^{OT}	BLM	5808	14.7
	29.0 ^{OT}	BLM	5808	14.7
	31.2 ^{OT}	BLM	6336	16.0
	35.7 ^{OT}	BLM	7392	18.7
	37.1 ^{OT}	BLM	6336	16.0
	39.2 ^{OT}	BLM	2640	6.7
	40.3 ^{OT}	BLM	5808	14.7
	42.5 ^{OT}	BLM	4224	10.7
	43.5 ^{OT}	BLM	5280	13.3
	44.8 ^{OT}	BLM	4224	10.7
	46.6 ^{OT}	BLM	3696	9.3
	47.7 ^{OT}	BLM	5280	13.3
	49.8 ^{OT}	BLM	5808	14.7

TABLE 4.8-3 (Continued)

Public Land Crossed by the Rockies Western Phase Project

State/County/Facility	MP (beginning)	Landowner or Management Agency	Crossing Length (feet)	Area Affected by Const. (acres)
OVERTHRUST				
FEDERAL LAND (Cont'd)				
Wyoming (Cont'd)				
	50.9 ^{OT}	BLM	5280	13.3
	52.8 ^{OT}	BLM	5280	13.3
	54.8 ^{OT}	BLM	5280	13.3
	56.8 ^{OT}	BLM	5280	13.3
	59.0 ^{OT}	BLM	5280	13.3
	61.0 ^{OT}	BLM	5280	13.3
	63.0 ^{OT}	BLM	4224	10.7
	64.8 ^{OT}	BLM	5280	13.3
	66.6 ^{OT}	BLM	2112	5.3
	67.7 ^{OT}	BLM	528	1.3
	72.1 ^{OT}	BLM	5280	13.3
	73.3 ^{OT}	BLM	4752	12.0
	75.2 ^{OT}	BLM	5280	13.3
Access Roads	Various ^{b/}	BLM	--	101.0
Federal Land Total (Wamsutter Expansion Project)			181,104 (34.3 miles)	558.2
STATE LAND				
Wyoming				
Sweetwater County				
Wamsutter Expansion Mainline	2.3 ^{OT}	State of Wyoming	6336	16.0
	27.1 ^{OT}	State of Wyoming	4752	12.0
	33.4 ^{OT}	State of Wyoming	6864	17.3
State Land Total (Wamsutter Expansion Project)			17,952 (3.4 miles)	45.3
Wamsutter Expansion Project All Public Lands Total			199,056 (37.7 miles)	603.5
Overall Total for the Three Components of the Rockies Western Phase Project			300,779 (57.0 miles)	895.1
^{a/} No federal, state, or locally managed land would be crossed in Kansas.				
^{b/} Access roads proposed by Overthrust are listed in table 2.2-3.				

4.8.1 Rockies Express

4.8.1.1 General Land Use

Rockies Express proposes to construct and operate 712.7 miles of 42-inch-diameter pipeline across Colorado, Wyoming, Nebraska, Kansas, and Missouri, and 5.3 miles of 24-inch-diameter lateral pipeline in Wyoming. More than 99 percent of these facilities would be collocated with existing rights-of-way. The construction of these facilities, including all related facilities and extra workspaces, would require approximately 12,110.6 acres of land, of which 4,375.1 acres would be retained as permanent right-of-way.

Rockies Express also proposes to construct 5 new compressor stations, 8 meter stations, and various related facilities such as 41 mainline valves, 5 pig launchers, and 1 pig receiver (see table 4.8-2). The only new access roads identified by Rockies Express would be to provide access to three new compressor stations (Cheyenne, Turney, and Echo Springs) and five meter stations (KMIGT, NGPL, NNG, ANR, and Echo Springs). These eight roads would require 1.7 acres of land.

The REX-West mainline would cross various federal, state, and locally managed lands as shown in table 4.8-3. Federal lands that would be crossed include about 2.2 miles of BLM land crossed by the Echo Springs Lateral at MPs 1.1, 2.9, 4.0, and 5.3 and about 0.1 mile of the Frerichs WPA crossed by the REX-West mainline at MP 310.4. About 27.9 and 1.5 acres would be affected during construction across BLM land and the Frerichs WPA, respectively. The BLM manages federal lands for multiple uses including recreation, wildlife, livestock grazing, and mineral resources and has developed Resource Management Plans (RMPs) which outline management strategies for all uses of managed federal areas. All public land and resource uses in these areas must conform with the decisions, terms, and conditions of use described in the RMP. The Frerichs WPA is part of the RWBC and is associated with the FWS' NWR System. This WPA is further discussed in section 4.8.1.5 of this EIS.

All of Rockies Express' proposed aboveground facilities would be located on private land acquired by the company for long-term use, with the exception of the Echo Springs Compressor Station which would be located on BLM land, affecting about 5.7 acres.

Rockies Express would continue to coordinate with the BLM to evaluate the relevant land management practices required on BLM lands. Rockies Express would not be authorized to cross federally managed lands without the appropriate Right-of-Way Grant and other necessary permits required by the BLM. Rockies Express filed its application for Right-of-way Grant and Temporary Use Permit with the BLM's Rawlins Field Office on June 1, 2006.

About 15.6 miles of state land would be crossed; 5.5 miles in Colorado, 1.0 mile in Wyoming, 7.9 miles in Nebraska, and 1.2 miles in Missouri. A total of 1.3 miles of local municipal land would be crossed in Nebraska and Missouri.

About 698.8 miles of the proposed REX-West route crosses privately owned land.

We received comments from the Legacy Land Trust regarding impacts on conservation easements held on land that would be crossed in Weld County, Colorado, between about MPs 1.0 and 15.0. Other properties crossed by the REX-West Project may have conservation easements or other easements as well. All existing easements would be identified during detailed right-of-way title investigations currently being conducted by Rockies Express.

4.8.1.2 Agricultural Land

Construction and operation of the REX-West facilities would affect about 7,148.0 acres of agricultural land. Rockies Express reviewed aerial photographs and conducted overflights on March 28 and April 1, 2006, and concluded that no specialty crops (*e.g.*, orchards, vineyards, hop fields) would be crossed by the proposed pipeline right-of-way.

Construction-related activities such as grading, trenching, stringing, welding, backfilling, and restoration could impact agricultural lands by leading to soil erosion; interference with and damage to agricultural surface and sub-surface drainage and irrigation systems; mixing or loss of fertile topsoil and subsoil; and soil compaction. All of these impacts could result in reduced productivity or direct crop loss.

During the scoping period for the REX-West Project, several commentors expressed concerns regarding impacts on agricultural activities that could result in crop losses, including:

- soil erosion/compaction and loss of topsoil;
- surface damage resulting from the use of heavy equipment during construction;
- construction schedule impacts on planting seasons;
- disruption of general farming activities (use of tractors, controlled burning, etc.);
- heat generated from pipeline compression station operations;
- disruption or damages to pivot irrigation/well systems;
- damage to drain tiles;
- inadequate depth of cover for pipeline; and
- disruption of erosion control structures such as terraces.

To address impacts on agricultural lands, Rockies Express has proposed a number of mitigation measures. Rockies Express proposes to restore all disturbed areas associated with the construction of the REX-West Project in accordance with its Plan and all other applicable federal, state, and local permit requirements. Rockies Express' Plan includes typical measures such as avoiding or minimizing topsoil/subsoil mixing and ensuring that compaction and other construction-related effects are rectified. See section 4.2.1.3 for our discussion of topsoil segregation. In addition, Rockies Express has developed specific mitigation measures to address the comments raised by landowners and other stakeholders crossed by the project. Rockies Express would:

- level the land following construction if uneven settling or surface drainage problems develop due to subsidence over the pipeline;
- repair damaged drainage tiles and other subsurface drainage systems;
- compensate landowners for crop losses due to construction activities for up to 5 years after the completion of construction, with personnel available to respond to ongoing restoration issues related to construction;
- schedule construction to coincide with dry periods as much as possible to minimize rutting and compaction;
- coordinate with individual landowners to reach mutually agreeable terms regarding exclusion of livestock from work areas;
- avoid and/or repair watering and feeding facilities (if damaged);
- remove wood lathes/stakes from each tract of land upon completion of the necessary surveys, if requested by the landowner; and
- restore flood control and pivot irrigation systems.

Rockies Express would compensate agricultural landowners for actual crop losses resulting from the removal of standing crops, disruption of planned seeding activity, disruption of general farming activities, or other losses resulting from construction of the pipeline as negotiated in individual easements with the landowners. Standard damage remedies included in Rockies Express' Easement Agreement stipulate that Rockies Express would agree to pay the landowner for any and all actual physical damages that arise from Rockies Express' use of the easement. In addition, any crop reductions related to the pipeline construction, whether on or off the easement areas, would be compensated to the landowner. Rockies Express would pay for all related losses based on farming records from the previous five year average. Rockies Express would conduct post-construction monitoring to monitor the revegetation within affected agricultural areas. Restoration would be considered successful in agricultural areas if crop yields are similar to adjacent undisturbed portions of the same field. The BLM would require that Rockies Express monitor the success of reclamation on federal lands for 5 years following construction or until satisfactory reclamation is achieved.

We note that Rockies Express originally proposed in sections VII.A.2. and VII.A.4. of its Plan to provide monetary compensation in lieu of successful agricultural land revegetation and/or drainage restoration as defined in the FERC Plan. However, compensation does not provide equal or better environmental protection. Monetary compensation may be used to pay for temporary crop losses; however, we did not agree with Rockies Express' proposal as it applies to long-term revegetation and crop yields. The requirements for successful revegetation, drainage restoration, and other efforts to bring the right-of-way back to pre-construction condition as much as possible should be met. In its comments on the draft EIS, Rockies Express agreed to revise its Plan by removing the option in sections VII.A.2. and VII.A.4. that indicated successful revegetation could be accomplished through landowner compensation. This change has been incorporated into Rockies Express' Plan contained in Appendix C.

Soil Heating

We received a comment regarding potential impacts on crop yields along the pipeline right-of-way in areas near compressor stations. The specific concern was that heated natural gas flowing through the pipeline could raise the temperature of the surrounding soil, in turn reducing crop yields over the right-of-way. Based on our experience in the field with construction of facilities in agricultural areas, we agree that such soil temperature elevations can occur on the downstream side of a compressor station, but that this effect tends to dissipate with distance. Such heating can lower the soil moisture content over the right-of-way, which could affect overlying crops. Gravelly, sandy soils would be most prone to these effects due to the deeper rooting depths required for root/soil moisture interaction.

Agricultural areas near the REX-West compressor stations would be monitored, as with all agricultural areas, to determine if restoration has been successful. Should crop yields be reduced over the pipeline due to soil heating in areas downstream of compressor station sites or for any other project-related reason, Rockies Express would be required to compensate landowners for this loss of revenue. See also our discussion regarding agricultural monitoring on page 4-173.

Pivot Irrigation Systems

Pivot irrigation systems typically involve an overhead irrigation mechanism consisting of several segments of pipe mounted on wheeled towers, with a row of sprinklers attached. The system moves in a circular pattern and is fed with water from the pivot point at the center, with crops planted in a circle to conform to the system geometry. Center pivot equipment can also be configured to move in a straight line, where the water is pulled from a central ditch.

The proposed REX-West Project crosses primarily agricultural lands, many of which utilize pivot irrigation systems. We received scoping comments regarding the potential for pipeline installation to disrupt current pivot irrigation and create barriers to future development of pivot irrigation systems.

Due to the widespread use of pivot irrigation in the region, some impacts on pivot-irrigated cropland would occur during the construction phase of the REX-West Project. While disruption of irrigation may occur during construction due to the location of trenching activity in relation to the pivot/tower system, these impacts would be temporary, and operations would return to normal following final restoration of the right-of-way. Depending on the final easement negotiated with an individual landowner, Rockies Express has agreed to develop site-specific mitigation measures, as required, in pivot irrigation areas to minimize impacts. Should installation of the pipeline result in disruption of irrigation systems such that agricultural production is restricted or adversely impacted, Rockies Express would be required to compensate landowners for construction-related losses. Because these impacts would be

temporary and/or mitigated for, we conclude that construction and operation of the proposed facilities would not adversely affect pivot irrigation systems.

Agricultural Diversion Terraces

The REX-West pipeline would cross agricultural lands that utilize diversion terraces. The general purpose of this type of agricultural practice is to divert excess water from one area for use or safe disposal in other areas. Terracing is most common in locations where:

- excessive runoff results in damages to cropland, grazing land, farmsteads, feedlots, or conservation practices (such as strip-cropping);
- surface flow and/or shallow subsurface flow caused by seepage are causing damage on sloping cropland;
- runoff is excessive and available for use on nearby sites;
- a diversion may be required as part of a pollution abatement system; or
- a diversion is required to control erosion and runoff on developing areas or construction or mining sites.

The shape of diversion channels can vary (parabolic, V-shaped, or trapezoidal), and channel grades may be uniform or variable as long as the velocity is non-erosive considering the soils and planned vegetation or channel lining. The location of a diversion is determined by outlet conditions, topography, land use, farming operations, and soil type. An outlet may be a grassed waterway, paved area, vegetated area, a grade stabilization structure, a stable watercourse, underground outlet, or a combination of these structures. A diversion outlet is able to convey the collected runoff to a point where outflow will not cause erosion.

During the scoping period, we received comments from landowners who have agricultural terracing on their properties in Nebraska and Kansas. The commentors requested an increase in the depth of cover for the pipeline to a minimum of 4 feet. In addition, commentors expressed concern regarding the impacts of pipeline construction on established terrace systems from the use of heavy equipment during construction.

The construction of pipeline facilities through agricultural diversion terraces would require special construction procedures to preserve the functionality of the system. Under the terrace system, there is a greater risk of exposure of the pipeline over time if there is inadequate depth of cover. Additional factors influencing exposure risk includes the angle of the pipeline crossing to the diversion contour (*i.e.*, oblique, transverse, or parallel), improper restoration of pre-construction diversion contours, and post-construction trench subsidence.

Special construction procedures/plans that could be implemented to minimize impacts to terraces include:

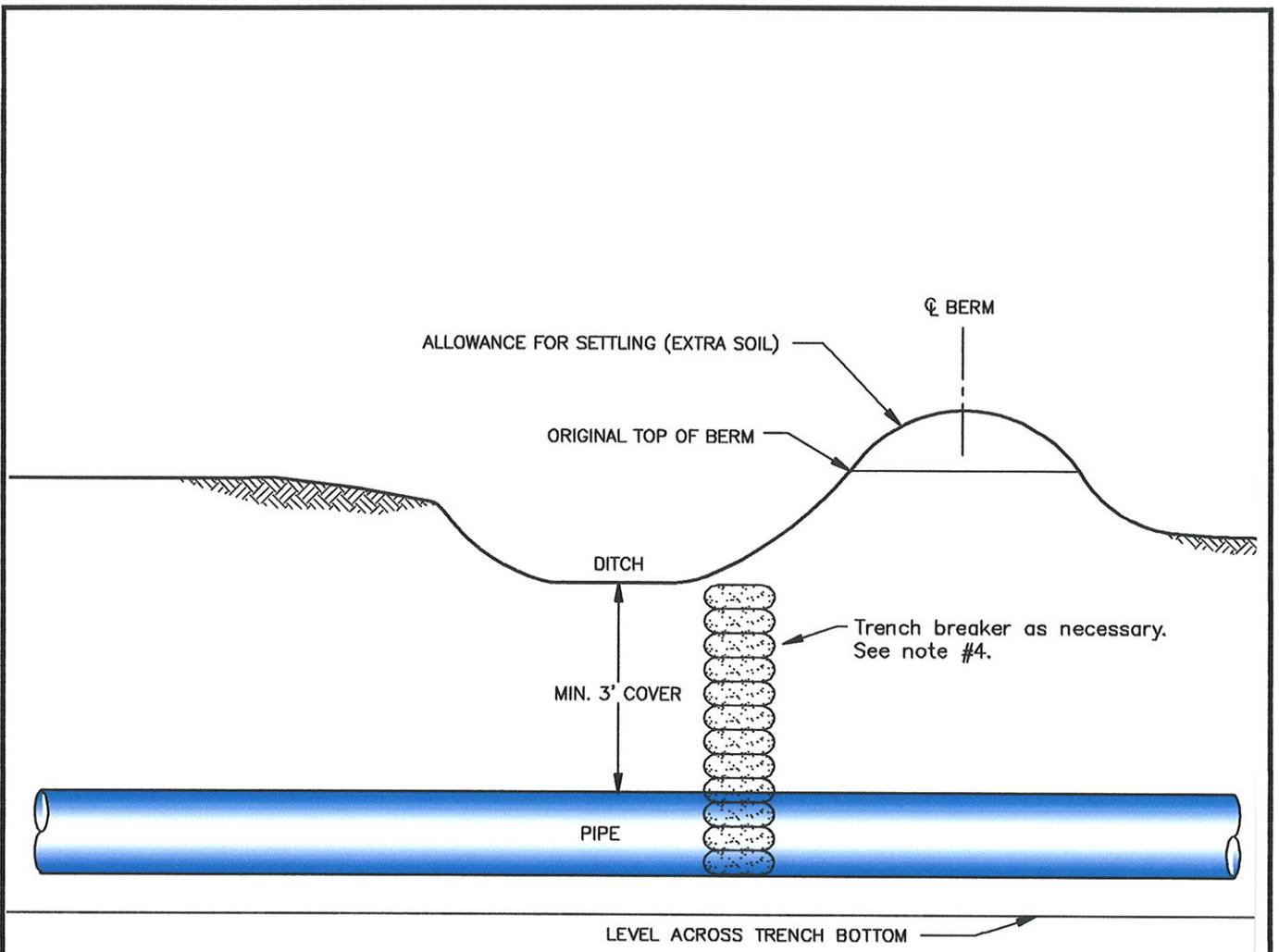
- a reduced construction right-of-way width to minimize impacts on terraces surrounding the pipeline centerline;
- positioning the pipeline at a perpendicular angle to terrace contours to minimize impacts on the area of concentrated water flow;
- installation of timber matting over the working side of the right-of-way and flow maintenance through the use of flume piping (*i.e.*, like that of a stream crossing);
- a minimum depth of cover of 4-5 feet measured from the terrace channel;

- installation of sand bag trench breakers in combination with mechanically compacting trench backfill in lifts to prevent future trench settling;
- restoration procedures (*e.g.*, critical area seeding and erosion control blanket) to accelerate re-vegetation and reduce the potential of soil erosion; and
- post-construction monitoring plans to ensure effectiveness of restoration efforts.

Rockies Express has proposed to restore agricultural terraces to their original profile and contours, as much as practicable, and ensure proper functioning of terraces after construction. In its supplemental data response (January 18, 2007), Rockies Express provided additional information regarding proposed restoration plans for terrace farming areas. Rockies Express indicates that preliminary landowner negotiations have identified site-specific issues, including construction practices and terrace restoration, that are being incorporated into draft easements for presentation to the landowners. In addition, Rockies Express has provided a typical terrace construction/repair plan (figure 4.8-1) that presents additional detail on construction and restoration measures in these areas.

Routing across terrace farming areas, along with general depth of cover issues, has been one of the primary concerns raised during the environmental review process for the REX-West Project. We do not take these concerns lightly. Based on several comments received during the environmental review process, we determined that site/property-specific construction and restoration plans should be developed in terrace farming areas rather than a “one size fits all” approach. Although we have received a copy of Rockies Express’ general terrace construction/repair plan, we have not received any site-specific plans and impact minimization measures. Rockies Express states that the features presented on the typical drawing would be modified as necessary during construction at any given location based on site-specific conditions. In order for us to verify that landowners’ terrace farm issues are being met, **we recommend that Rockies Express, in consultation with landowners who maintain agricultural terrace structures, develop site-specific construction and restoration procedures for all agricultural terrace lands crossed by the REX-West Project. These plans should include specific measures to minimize impacts on existing terrace structures. Rockies Express should file these plans with the Secretary prior to construction for the review and written approval of the Director of OEP.**

We conclude that the construction and restoration measures proposed and committed to by Rockies Express, in conjunction with landowner input regarding site-specific issues and our recommendation, would be adequate to minimize impacts on terrace farming structures along the proposed REX-West route. In addition, Rockies Express would have a full time AI on site during construction. This AI would be knowledgeable in central plains and midwestern agricultural practices and provide input and guidance during construction in these areas. Final easement negotiations between Rockies Express and individual landowners would contain site-specific restoration measures, as appropriate, to ensure restoration of pre-construction conditions. Rockies Express has filed a “Depth of Cover Plan” (see also appendix G and our discussion below) that contains Rockies Express’ commitment to monitoring the right-of-way and making any repairs necessary to return cultivated areas to pre-construction conditions. Further, Rockies Express would be required to compensate the landowner for loss of productivity resulting from construction of the REX-West Project.



NOTES:

1. Ensure that terrace profile survey information has been collected prior to construction through terrace area.
2. Construct through terrace using mainline construction techniques. Utilize temporary erosion control measures during active construction to maintain drainage patterns and prevent erosion.
3. Provide minimum of 3 feet of cover below upslope toe of terrace or as necessary to provide adequate clearance below any existing drain pipe.
4. When trench breaker is required per "Rex Plan", install trench breaker at upside toe of terrace and provide final repairs as necessary to any existing drain pipe prior to backfilling.
5. Re-establish terraces during rough grade. Use successive lifts during terrace restoration with adequate compaction for each lift.
6. Ensure pre-construction profiles are re-established during final cleanup. Reseed area using approved seed mix.
7. Closely inspect terrace area for any sign of erosion or excessive settling in all post construction restoration surveys and at regular intervals thereafter. Make any necessary repairs promptly and continue monitoring.

Figure 4.8-1
Typical Terrace Construction/Repair Plan

We also received comments regarding other project locations (*i.e.*, non-terraced areas) where erosion is a concern to farmers. Several commentors expressed concern that Rockies Express' proposed 3 feet of cover would not be adequate in areas of active agriculture where erosion may reduce the clearance over the pipeline and expose it to damage by farm equipment, or where certain farming practices, such as deep-tilling, are used.

To address this concern, Rockies Express has committed to monitoring the depth of cover over the pipeline in agricultural areas susceptible to erosion to ensure adequate clearance for farm machinery. In its comments on the draft EIS, Rockies Express provided additional information regarding procedures to minimize the potential for impacts associated with depth of cover in agricultural areas. Specifically, Rockies Express developed a Depth of Cover Plan (appendix G) for use in actively cultivated areas. This plan includes the following monitoring, restoration, and mitigation measures:

- Upon commissioning, Rockies Express would implement a surveillance plan which includes monthly aerial pipeline patrolling to inspect for excavation activities, ground movement, wash-outs, leakage, and/or other activities. Any observance of excavation activities, ground movement, wash-outs and/or other earth moving activities would cause the Rockies Express operating group to initiate a corresponding depth survey in the respective area.
- Within 1 year of installation of cathodic protection systems, a close interval survey would be performed on the REX-West pipeline, in which Rockies Express operations personnel and contractors would walk the REX-West right-of-way. Any signs of reduction or disturbance of the right-of-way, aside from typical farming practices (*e.g.* planting, discing, harvesting, etc.), during this survey would be followed up with a corresponding depth survey in the respective area.
- Rockies Express would utilize an outreach program that includes landowner and tenant communication to address pipeline location, operations, maintenance, and emergency reporting. This outreach program would include an introduction to the local Rockies Express representatives who would be contacted regarding erosion or other maintenance issues.
- Additional depths of cover may be realized at foreign line crossings such as utilities, drain tile, or existing permanent erosion control structures (*i.e.*, terraces) due to extra line separation requirements between foreign lines.
- Following construction, Rockies Express would determine appropriate and specific mitigation measures for locations with depth of cover concerns based upon site-specific conditions and in accordance with applicable OPS/PHMSA regulatory requirements, including but not limited to re-contouring, importing soil, and/or line lowering.

Rockies Express states it has identified locations where environmental conditions and farming practices may warrant deeper depths of cover (*e.g.*, highly erodible soils; deep-tilling farming areas; terraced fields; and other depth of cover concerns) based upon landowner contacts (98 tracts in total). Rockies Express states that its right-of-way agents have offered landowners additional depth of cover (4 feet) in these locations and that agents will continue to negotiate in good faith with landowners for easements, including depth of cover provisions. Rockies Express states that it is unaware of any location where additional depth of cover has not been offered where it has been identified as an issue or concern by the landowner. In order for us to verify that landowners' depth of cover concerns are being addressed and to facilitate compliance inspection, **we recommend that prior to construction, Rockies Express should file a final depth of cover table that contains each milepost stretch where Rockies Express has reached an agreement with a landowner to construct with at least 4 feet of cover. These locations should be clearly marked on the construction drawings.**

Locations with highly erodible soils are identified in section 4.2 of the EIS. Rockies Express believes that careful adherence to restoration provisions contained in its Plan would adequately prevent significant loss of topsoil in these areas. We agree. We further note that Rockies Express would place additional emphasis on restoration success on these areas during post-construction monitoring. Mitigation as described above would be performed as necessary should erosion cause impairment of normal agricultural practices in these areas.

Rockies Express' Plan (section VII.B.2) states that quarterly activity reports would be filed for at least 2 years following construction. We **further recommend that Rockies Express develop and implement a post-construction monitoring program to evaluate crop productivity and the success of right-of-way restoration in active cropland for a period of 5 years following construction. Rockies Express shall also evaluate the direct effects of compression-related soil heating (including, but not limited to, soil temperature, soil moisture, and crop yield) for a distance of 5 miles (or the extent of cultivated cropland, whichever is less) downstream of the REX-West compressor stations for a period of up to 5 years following construction. Rockies Express should also file with the Secretary quarterly reports for a period of 5 years following construction that document any problems identified by the company or landowner and describe any corrective action taken to remedy those problems. If any landowner and Rockies Express agree that crop productivity is acceptable prior to the 5-year requirement, Rockies Express should provide documentation in its quarterly reports indicating which landowners have agreed that monitoring is no longer necessary. This documentation should include the landowner's name, the identification number from the certified alignment sheets of the landowner's property, approximate milepost location, and the date of the agreement.**

Two compressor stations would be located on agricultural land, resulting in temporary and permanent impacts to approximately 27.8 acres of land. The construction and operation of new compressor stations would result in the permanent conversion of agricultural lands to industrial/commercial use. Agricultural lands impacted by the operation of the aboveground facilities would either be purchased or leased from the current landowners. Temporary extra workspaces impacted by construction of these aboveground facilities would be restored following construction.

4.8.1.3 Rangeland

Approximately 4,068.5 acres of rangeland would be disrupted by construction and operation of the REX-West pipeline facilities. Construction activities would displace or halt grazing activities, and result in surface disruption to livestock foraging areas. In addition, construction activities such as trenching could put livestock at risk of falling or being trapped in open trenches.

We received several comments regarding the exclusion of livestock from construction areas and trenches. To reduce overall risks to livestock grazing in rangelands, Rockies Express has proposed to work with the individual landowners to reach mutually agreeable terms regarding exclusion of livestock from construction work areas. These measures may include installation of fencing or the use of trench plugs at agreed-upon intervals for livestock to cross the trench. In addition, Rockies Express has agreed to install temporary gates for livestock fences that must be breached.

Many public lands are part of a federal grazing allotment, by which the land managing agency designates and manages areas for livestock grazing. For grazing allotments on BLM lands that would be crossed by the Echo Springs Lateral, the BLM has indicated that it may require the placement of trench plugs on federal at 0.5-mile intervals and at utilized livestock trails that may lead to water. All fences that cross the right-of-way would need to remain functional during construction, and no fence would be cut without it first being properly braced. At the conclusion of construction all fences would be rebuilt to

BLM standards. The BLM would require that Rockies Express contact any grazing allotment permittees in advance of construction and notify them of the upcoming construction activities on the allotment.

Rockies Express has proposed to restore disturbed areas according to its Plan, which requires grading and revegetation in rangelands to be conducted in consultation with landowners and land managing agencies. Given the proposed mitigation plans as discussed in section 4.8.1.1, we conclude that construction and operation of the proposed REX-West pipeline facilities would not result in significant impacts on rangeland.

Approximately 43.9 acres of rangeland would be impacted by the construction and operation of Rockies Express' proposed aboveground facilities. The construction and operation of new compressor stations would result in the permanent conversion of rangeland to industrial/commercial use. Rangeland impacted by the operation of the aboveground facilities would either be purchased or leased from the current landowners. Temporary extra workspaces would be restored following construction according to Rockies Express' Plan.

4.8.1.4 Residences and Planned Development

Based on the 2005 aerial photography and field observations made during civil surveys conducted in spring 2006, Rockies Express identified 115 residential structures within 200 feet of the proposed REX-West construction right-of-way, with 26 of these appearing to be within 50 feet (table 4.8.1-1). An additional 50 non-residential structures (*e.g.*, grain bins, silos, outbuildings, etc.) have been identified within 50 feet of the construction right-of-way. Rockies Express has provided site-specific construction plans for each of the 26 residential structures within 50 feet of the construction workspace (see appendix G). There are no schools within 0.25 mile of the proposed mainline or Echo Spring Lateral rights-of-way. One church near Agency, Missouri (MP 549.2) is within 0.25 mile of the proposed mainline right-of-way.

Construction of the pipeline and aboveground facilities may cause minor interference with the use of residential properties and other uses near the right-of-way, mainly from increased noise, heavy vehicle traffic, and dust. The adverse effects would be short-term in nature, lasting only a few weeks at any particular location. Equipment would be required to have effective mufflers installed to minimize construction noise. Access, including emergency access, to residences would be maintained at all times during construction.

We received comments from landowners expressing concerns regarding the impact of construction and operation of the proposed facilities on residential homes, including impacts on landscaping, property usage rights, general disruption/disturbances/damages, safety issues, and use of eminent domain. We have evaluated the impacts on residential properties in this section of the EIS, and provided information on safety issues and eminent domain in sections 4.12 and 4.9, respectively.

Rockies Express has proposed several mitigation measures for construction in residential areas. Rockies Express would:

- leave mature trees and landscaping intact unless it is necessary to remove them for the safe operation of construction equipment or permanent operation of the pipeline;
- restore all affected lawn areas and landscaped areas after backfilling;
- install temporary safety fence (as needed) along the edge of the construction work area adjacent to the residential structures for a distance of 100 feet on either side of the residential structures to ensure construction equipment and materials, including the spoil pile, remain within the construction work area;

- implement dust control measures as needed during construction;
- landowners would be notified prior to construction, and work hours would be arranged taking landowners' needs into consideration.
- maintain access to residences and driveways; and
- if the pipeline trench needs to be left open overnight or over a weekend near residential areas, the construction area would be surrounded with temporary safety fencing to prevent injuries.

Our review of Rockies Express' proposal indicates that it has committed to preserving mature landscaping to the extent possible, and restoring all affected residential areas following backfilling of the trench. These measures would compensate for impacts on plantings and other improvements or features damaged or removed during construction of the proposed facilities. With regard to use of property, most existing land uses on land crossed by the permanent right-of-way would be allowed to continue after construction. Permanent structures would not be allowed to be constructed on the permanent right-of-way, but things such as driveways, roads, and utility crossings would be allowed, although landowners should contact Rockies Express prior to construction to ensure activities are safely conducted. Based on our review of Rockies Express's site-specific residential construction mitigation plans and proposed mitigation measures, we conclude that impacts on residences from construction activities would be minimized.

TABLE 4.8.1-1					
Residences Within 50 Feet of Construction Workspace – REX-West Project					
Location (County, State)	Milepost	Structure	Distance and Direction from Proposed Centerline	Distance from Edge of Workspace	Side Proposed Centerline is on from Existing Pipeline
Phelps, NE	291.4	House	120 ft N	30 ft	N
Webster, NE	348.6	House	25 ft N	15 ft	N
Nemaha, KS	475.6	House	118 ft S	28 ft	S
Nemaha, KS	484.0	Mobile Home	84 ft N	49 ft	S
Buchanan, MO	538.2	House	127 ft N	47 ft	S
Buchanan, MO	542.9	House	56 ft S	16 ft	S
Buchanan, MO	543.0	House	130 ft S	30 ft	S
Buchanan, MO	543.1	House	70 ft N	45 ft	S
Buchanan, MO	544.3	House	115 ft S	25 ft	S
Buchanan, MO	553.8	Trailer House	76 ft N	41 ft	S
Buchanan, MO	556.4	House	96 ft S	15 ft	S
Clinton, MO	557.4	House	164 ft S	24 ft	S
Clinton, MO	560.3	House	85 ft S	15 ft	S
Clinton, MO	560.4	House	100 ft S	15 ft	S
Clinton, MO	573.4	House	100 ft S	15 ft	S
Caldwell, MO	582.5	House	130 ft S	15 ft	S
Caldwell, MO	587.8	House	118 ft S	28 ft	S
Carroll, MO	616.3	House	95 ft S	15 ft	S
Carroll, MO	619.3	House	60 ft S	15 ft	S
Chariton, MO	648.2	House	30 ft S	25 ft	S
Chariton, MO	655.8	House	45 ft S	15 ft	S
Randolph, MO	665.9	Mobile Home	70 ft S	15 ft	S
Audrain, MO	693.4	Mobile Home	55 ft N	15 ft	N
Audrain, MO	693.6	Mobile Home	47 ft N	15 ft	N
Audrain, MO	706.4	House	70 ft S	35 ft	N
Audrain, MO	707.8	House, barn, and mobile home	150 ft N, 88 ft N	15 ft, 15 ft	N

Rockies Express contacted Planning and Development offices in each of the 32 counties crossed by the proposed facilities to determine if any residential and/or commercial development is planned within 0.25 mile of the proposed construction right-of-way. Planned development projects would include those that are permitted and not yet constructed, or those with permit applications that have been filed but not yet approved. Rockies Express' consultations indicate that there are no known planned residential and/or commercial developments within 0.25 mile of the proposed REX-West facilities.

4.8.1.5 Recreation and Special Interest Areas

The proposed REX-West facilities would cross various recreational and special interest areas including NWR, WMA, CA and other recreation areas, resulting in temporary construction impacts and possible permanent impacts.

The proposed REX-West pipeline would cross three WMAs in Nebraska (table 4.8.1-2). No WMAs would be crossed by the REX-West Project in any other state.

TABLE 4.8.1-2

Nebraska Wildlife Management Areas Crossed by the REX-West Facilities

Conservation Area	MPs	County	Total Distance Crossed (feet)	Area Affected by Construction (acres)	Area Affected by Operation (acres)
Elwood Reservoir WMA	267.5-268.5	Gosper	650 and 68	1.9 and 0.2	0.8 and 0.1
Frerichs WPA	310.4	Kearney	691	1.5	0.6
Rose Creek Reservoir WMA	413.4-413.9	Jefferson	2,747	6.3	3.2

Elwood Reservoir WMA

The proposed REX-West pipeline would cross the Elwood Reservoir WMA in Gosper County between MPs 267.5 and 268.5 (south of the main reservoir). This WMA is a state-managed area known for its sport fishing opportunities. Waterfowl and deer hunting are also popular activities in the WMA.

The NGPC requested that disturbed areas within the Elwood Reservoir WMA be reseeded with native plant species appropriate for the area. Rockies Express' use of its Plan would minimize impacts on wildlife habitat within the Elwood Reservoir WMA. Rockies Express states it would coordinate with the appropriate agency (in this case, the NGPC) to determine an appropriate seed mix to use for restoration of native prairie communities. If vegetation disturbed during construction is properly restored, we believe impacts on wildlife species in the Elwood Reservoir WMA would likely be short term.

Frerichs Waterfowl Production Area

The Frerichs WPA is part of the RWBC and is associated with the FWS' NWR System. This WPA is a viewing area for migratory waterfowl, shore birds, and sandhill cranes and is managed by the FWS's RWBWMD. The Frerichs WPA would be crossed by the REX-West pipeline for about 691 feet at MP 310.4 in Kearney County.

Pursuant to the NWR Improvement Act of 1997, certain restrictions apply to compatible and non-compatible uses on NWRs. The FWS has recommended that Rockies Express contact the refuge manager for the RWBWMD as well as the FWS Division of Realty in the Denver Regional Office for specific requirements regarding the REX-West Project and NWRs.

Rockies Express conducted initial consultations with the FWS, applicable state agencies, and refuge managers and indicated that the FWS and NGPC agreed that the measures described in its Procedures were sufficient for the protection of Frerichs WPA. Impacts on this area would be sufficiently reduced through the implementation of our recommendation and Rockies Express' use of its Procedures.

Rose Creek WMA

The proposed REX-West route crosses the Rose Creek WMA between MPs 413.4 and 413.9 in Jefferson County. The Rose Creek WMA is approximately 358 acres and contains an assemblage of diverse habitat types, including native tall-grass prairies, savanna, and native oak woodlands. It also contains a stretch of Rose Creek. This diverse area provides habitat for many key game species including deer and ring-necked pheasant. This WMA supports a variety of water birds such as wood ducks, green herons, northern pintails, blue-winged teals, and mallards.

As discussed in section 4.4.1.3, the NGPC has recommended a number of measures to avoid, minimize, and mitigate impacts on the vegetation and wildlife habitat diversity in the Rose Creek WMA. In response to these agency recommendations, we have recommended that Rockies Express complete its consultation with the NGPC regarding measures to avoid, minimize, and mitigate impacts, as well as prepare a site specific construction plan that addresses agency concerns.

The NGPC utilizes prescribed burning as a vital tool for habitat management and maintaining a diversity of high-quality habitats in the Rose Creek WMA. The NGPC has requested that prescribed burning be allowed to continue at the WMA as necessary following pipeline installation. Rockies Express states that it would permit surface burning of vegetation over the pipeline, but requests that landowners or land managing agencies contact the company prior to any planned burns in proximity to the permanent right-of-way (including aboveground facilities).

Pigeon Hill CA and the Jentell Brees Access

The MDC identified several state-managed areas that would be crossed by the REX-West pipeline in Missouri, including the Pigeon Hill CA in Buchanan County (MP 547.0) and the Jentell Brees Access to the Missouri River (MP 537.2). The Pigeon Hill CA is a recreational area with a shooting range and is also used for hunting and fishing. The Jentell Brees Access is south of St. Joseph on the east bank of the Missouri River and was developed with Sport Fish Restoration (formerly Dingell-Johnson) federal funds. The Jentell Brees Access includes a boat ramp, two parking lots, and one privy/restroom. Activities in this area include canoeing, boating, fishing, and bird watching.

Construction of the REX-West Project would affect 1.6 acres in the Pigeon Hill CA; however, use of the HDD method to cross the Missouri River would result in no surface impacts at the Jentell Brees Access.

For an easement to be granted, the MDC requests that Rockies Express document existing conditions, delineate wetlands, develop a mitigation plan, and describe construction procedures and areas of impact within state managed lands. In addition, approval from the FWS would be sought by the MDC if an easement is granted.

Bluffwood Annex and Bosworth Access CAs

The MDC identified two other conservation areas near the proposed REX-West Project: the Bluffwood Annex CA and the Bosworth Access, both in Carroll County. The pipeline would cross about 0.9 mile north of the Bluffwood CA, and 1.4 miles north of the Bosworth Access CA near MP 629.9. No impacts from construction or operation of the REX-West facilities are expected at these locations.

Other Recreational Areas

The Gruber Cattle Company is a state-managed WMA that would be crossed by the REX-West Project at about MP 267.5 in Gosper County, Nebraska. One golf course, owned by the Village of Bertrand in Phelps County, Nebraska, would be crossed by the REX-West pipeline at about MP 281.6, slightly south of Bertrand. In addition, Potts Memorial Park in Chariton County, Missouri, would be crossed by the project at approximately MP 656.1, affecting about 7.0 acres of land. This park is owned by the City of Salisbury and features two playgrounds, two ball fields, picnic tables, and the Salisbury Golf Course. Pine Ridge Lake is also in this park and is used for fishing and trail-walking.

Rockies Express stated that it would coordinate construction activities with the land managers of these recreational areas to minimize construction-related impacts. In the draft EIS, we recommended that

Rockies Express consult with the appropriate local officials or managers of these areas and file the results with their comments on the draft EIS.

Village of Bertrand Golf Course - Phelps County, Nebraska: Rockies Express consulted with local officials and managers of the golf course on July 28, August 8, and October 18, 2006. Based on these consultations, Rockies Express has committed to the following site-specific construction and restoration measures:

- a. pre-assemble and stage for 500-ft pipe sections;
- b. minimize construction width at greens;
- c. complete trenching, lowering in, and backfill within an expedited timeframe; and
- d. compensate the Village for golf course greens restoration.

On October 31, 2006, the Village Chairman completed and signed an easement option with Rockies Express for construction across this recreation area. Based on the agreed-upon site-specific construction and restoration measures, we conclude that impacts would be minimized to this recreation area.

Potts Memorial Park – Chariton County, Missouri: Rockies Express consulted with representatives of the City of Salisbury on August 4, 10, and 16, 2006, regarding proposed construction through a portion of Potts Memorial Park. Of primary concern was maintaining public access to the golf course during construction. Based on these consultations, Rockies Express has committed to the following site-specific construction and restoration measures:

- a. bore public road to the city golf course to maintain access during construction; and
- b. utilize original fencing and provide upgrades to local playground equipment

On December 14, 2006, the City of Salisbury completed and signed an easement option with Rockies Express for construction across this recreation area. Based on the agreed-upon site-specific construction and restoration measures, we conclude that impacts would be minimized to this recreation area.

The REX-West Project would not affect any federal lands under wilderness designation or review; nor would it affect any wild or scenic rivers or areas of critical environmental concern.

4.8.1.6 Visual Resources

The federal land traversed by the Rockies Western Phase Project is in VRM classes III and IV. All surface disturbing actions, regardless of the VRM management class, are required to be mitigated to reduce visual impacts. This would be achieved by designing and locating the disturbances in a manner that most closely meets the minimum degree of contrast acceptable for the VRM class by recontouring and revegetating disturbed areas.

A majority of the proposed REX-West pipeline route would be located within or adjacent to existing pipeline rights-of-way and previously disturbed agricultural lands and herbaceous rangeland. Visual impacts associated with pipeline construction in rangeland and agricultural areas along the route would be temporary and would result from the presence of construction equipment and post-construction visual scarring. In cultivated croplands, visual scarring would last only until the right-of-way is replanted with new crops. Once crops are replanted, only minor visual impact from pipeline construction would be perceptible in cultivated croplands. Visual scarring in herbaceous rangeland and previously disturbed areas may last for 10 or more years in the project region. However, most rangeland areas would be

revegetated to a grass species cover within 5 years. Because of these considerations, we conclude that construction of the REX-West Project would not significantly alter the visual resources of the areas crossed.

The proposed aboveground facilities that are not adjacent to existing natural gas facilities have potential for visual impact, as they would be new permanent, industrial facilities located in relatively flat, open areas. However, these facilities would primarily be in rural herbaceous rangeland and agricultural areas that have not been designated as primary viewsheds or scenic corridors; therefore, visual impacts from the aboveground facilities are expected to be low. To further reduce visual impacts, Rockies Express has proposed siting meter stations and pigging facilities adjacent to or within other project facility rights-of-way, including compressor stations. In addition, aboveground components of the compressor stations would be painted with a non-reflective coating similar in color to the surrounding terrain and several shades darker to mitigate visual effects. The meter stations and pigging stations would be painted in a similar manner. Rockies Express states it would use downward-directional shielded lighting at all aboveground facility locations. Manual or motion detected switches may also be used.

Our review indicates that construction and operation of the proposed REX-West facilities would not result in significant adverse impacts on visual resources. Temporary impacts could result from the presence of construction equipment along the right-of-way, but the remote location and short duration of the construction sequence would minimize these impacts.

4.8.2 TransColorado

4.8.2.1 General Land Use

TransColorado's proposed aboveground facilities include two new compressor stations (the Blanco and Conn Creek Compressor Stations) and upgrades to the existing Greasewood Compressor Station. Tables 4.8.1 and 4.8-2 include the location, land use, and projected disturbance at each proposed Blanco to Meeker Project facility. The aboveground facilities would result in a construction impact of 12.7 acres of rangeland (both undeveloped and previously disturbed) and a permanent conversion of 7.5 acres of rangeland to industrial/commercial land use. Approximately 5.5 acres of rangeland would be affected during construction of the pipeline facilities. Temporary extra workspaces would be restored following construction according to the FERC Plan.

The Greasewood Compressor Station is located on BLM land, as would be the new Blanco Compressor Station. The proposed pipeline facilities (*i.e.*, the connector and receipt pipelines) are both associated with the Blanco Compressor Station and thus would be entirely on BLM land. TransColorado would restore these areas in accordance with the FERC Plan and the requirements of any authorization issued by the BLM.

The Conn Creek Compressor Station would be located on 6.1 acres of privately held, undeveloped rangeland, which would be acquired by TransColorado through purchase or long-term lease from current landowners.

The Blanco to Meeker Project would not cross any agricultural land or CRP lands. None of TransColorado's proposed facilities would be located within 0.25 mile of any designated public use area. No National Parks, National Forests, National Landmarks, State or Municipal Parks, or Wild and Scenic Rivers would be affected by the proposed project.

4.8.2.2 Residences and Planned Development

One residence is located approximately 0.25 mile northwest of the proposed Blanco Compressor Station site. There are no residential dwellings located within 0.25 mile of the Conn Creek or Greasewood Compressor Station sites. There are no schools, churches, parks, or any other sensitive land use areas within 0.25 mile of TransColorado's proposed facilities. We conclude that there would be no impact on residences from construction of the facilities. Operational impact (*i.e.*, from noise) on the identified residence is discussed in section 4.11.2.1.

TransColorado contacted the Planning and Development offices for each of the three counties potentially affected by the Blanco to Meeker Project to determine if any residential and/or commercial development is planned within 0.25 mile of the proposed facility sites. None were identified.

4.8.2.3 Visual Resources

The construction of TransColorado's proposed aboveground facilities has the potential to affect visual resources, as they would be new permanent, industrial facilities. The Conn Creek Compressor Station would be located in rural rangeland, while the Blanco Compressor Station would be in an industrial area. The proposed Greasewood facilities represent an expansion of an existing compressor station. None of these sites contain designated or unique visual resources, and see only nominal viewer traffic. All aboveground components of the compressor stations would be painted with a non-reflective coating similar in color to the surrounding terrain and several shades darker.

A formal Visual Resource Inventory using the BLM guidelines was not conducted for the Blanco to Meeker Project. However, the proposed facilities at the Greasewood and Blanco sites meet the BLM Class II Objective of retaining the existing character of the landscape. Both facilities, while located on BLM land, would be in primarily industrial areas with multiple oil and gas processing and compression facilities adjacent to the proposed sites. The expansion of the existing Greasewood Compressor Station would involve a relatively small area (less than 1 acre) and would not significantly change the existing visual landscape. The Blanco Compressor Station would be located in the immediate vicinity of an area of large gas processing facilities. The Blanco site is located away from primary travel corridors and would not significantly change the existing visual landscape.

The Conn Creek Compressor Station site is on private land adjacent to a small county road. The facility would be located in a relatively flat area at the base of a high steep slope. The primary uses in the area include ranching and oil and gas activity.

We conclude that there would be no adverse visual impacts resulting from the construction and operation of the TransColorado aboveground or pipeline facilities.

4.8.3 Overthrust

4.8.3.1 General Land Use

About 47 percent (36.6 miles) of the land crossed by the proposed Wamsutter Expansion pipeline route and aboveground facilities is managed or owned by public entities. Of the public land total, the majority (43 percent) is federally managed by the BLM, while a smaller portion (4 percent) is state-managed or owned by the Wyoming Office of State Lands and Investments. The remaining 53 percent (40.6 miles) of the pipeline route would cross privately owned land.

The Wamsutter Expansion Project would cross about 33.2 miles of land managed by three BLM field offices in Wyoming: the Kemmerer Field Office, the Rock Springs Field Office, and the Rawlins Field Office. In general, the BLM manages these lands for multiple uses, including recreation, wildlife management, livestock grazing, wild horses, and mineral resources under guidelines set forth in the three RMPs that BLM uses for management direction (BLM 1997, 1990, 1986).

Construction of the Wamsutter Expansion Project would be consistent with the existing BLM RMPs and would not preclude the management objectives set forth for BLM offices. Overthrust's POD is being developed in coordination with the BLM field offices. The POD is a construction plan that includes procedures for the use of BLM roads, soil and water protection measures, revegetation and weed control/management standards, biological and cultural resource protection measures, livestock and wild horse management measures, and post-construction monitoring requirements.

Lands owned or managed by the State of Wyoming that would be crossed by the proposed pipeline route are leased to private entities for livestock grazing and ranching, or managed for wildlife habitat and recreational uses. Overthrust would acquire the necessary permits and approvals for construction on state lands. Environmental protection measures attached to lease agreements would be similar to those described for the BLM above.

4.8.3.2 Rangeland

The principal land use that would be affected by the proposed pipeline route and its associated facilities is rangeland. Construction of the Wamsutter Expansion Project would temporarily disturb about 1,170.8 acres of rangeland, of which 1,155.9 acres would be for the pipeline and 14.9 acres would be for the aboveground facilities. Of that total, about 473.8 acres would be retained by Overthrust as permanently maintained pipeline right-of-way and for operation of the aboveground facilities (see tables 4.8-1 and 4.8-2).

In areas where rangeland is used for grazing, construction activities could reduce the carrying capacity of BLM grazing allotment and privately held pastures, and could hinder the movement of livestock across those allotments. To minimize impacts on grazing areas, Overthrust has agreed to implement the following mitigation measures:

- keep allotment and pasture fences intact during construction;
- cut fences crossed by the proposed pipeline route in a manner to prevent slack; gates would be installed across the opening to prevent livestock passage, if required, and fences would be repaired in a timely manner based on the grazing season;
- attempt to keep fences closed during construction to prevent livestock from entering the construction area;
- install trench plugs across the trench at major livestock trails to allow passage, and install ramps to allow for the escape of livestock should they fall into the trench; and
- repair or restore to pre-construction condition natural barriers removed during pipeline activities, or if repair is not feasible, install a fence in its place.

In addition, the BLM would require that Overthrust contact any grazing allotment permittees in advance of construction and notify them of the upcoming construction activities on the allotment.

Following construction, temporary fences would be removed, the right-of-way restored to its pre-construction condition, and livestock would be allowed to graze and roam freely over the permanent right-of-way. Given the narrow, linear nature of the Wamsutter Expansion Project, livestock forage

reductions would be minor in comparison to the forage available on large BLM allotments and large private ranches that would be crossed. Pre- and post-construction weed management programs, and reseeded with mixtures approved by the BLM and state agencies would be applied. Although easement agreements may vary among landowners, similar weed control and revegetation measures would likely be included in private landowner easement agreements. The BLM would require that Overthrust conduct annual monitoring to evaluate the success of reclamation on federal lands for 5 years following construction or until satisfactory reclamation is achieved. The BLM and the FERC would conduct post-construction monitoring to verify revegetation success, and to identify any areas along the post-construction right-of-way that require further stabilization.

Operation of aboveground facilities would require the permanent conversion of about 15.0 acres of rangeland to industrial use for two compressor stations, two receipt points, one delivery point, one tie-in, and three mainline valves located along the pipeline right-of-way.

4.8.3.3 Recreation and Special Interest Areas

The Wamsutter Expansion Project would cross the Salt Wells Wild Horse Herd Management Area between MPs 1.1 and 12.9, which is in the BLM Rock Springs Field Office District. Wild Horse Herd Management Areas have been designated by the BLM in an effort to protect, maintain, and control viable, healthy free-roaming herds of wild horses and their habitat.

Direct and indirect impacts on wild horses could occur during construction and operation of the Wamsutter Expansion Project and would vary depending on the type of activities being conducted and the seasonal sensitivity of the horses and their habitat. Pipeline construction through this management area would temporarily reduce the amount of habitat available to the horses and may cause displacement of wild horses in the project area into adjacent habitats. None of the proposed aboveground facilities would be located within this or any other wild horse herd management area.

Overthrust would limit impacts to the Salt Wells Wild Horse Herd Management Area by implementing measures such as collocating its pipeline along existing disturbed right-of-ways and providing at least one wildlife crossover (*e.g.*, unexcavated breaks or trench plugs) at 0.25-mile intervals along the trench or at well-defined livestock and wildlife trails. Therefore, we believe that the Wamsutter Expansion Project would not create a permanent barrier to wild horse herd movement.

The proposed pipeline route would not cross nor be located within 0.25 mile of any recreation and special interest areas; Areas of Critical Environmental Concern; Wilderness or Wilderness Study Areas; Wild and Scenic Rivers; or developed recreation areas (*e.g.*, campgrounds, picnic grounds, baseball fields, etc.). No agricultural or conservation reserve program lands would be affected by Overthrust's pipeline facilities. No residences or planned developments would be affected by Overthrust's pipeline or aboveground facilities.

4.8.3.4 Visual Resources

Visual impacts would be greatest where the pipeline route parallels or crosses roads, trails, or Key Observation Points, and where the pipeline right-of-way may be seen by passing motorists or other recreational users. The impact of vegetation clearing would be shortest on rangeland consisting of short grasses and hay fields, where the reestablishment of vegetation following construction would be relatively fast (generally less than 5 years). The impact would be greater on shrub rangeland, which may take more than 5 years to regenerate. The greatest potential visual impact would result from the removal of sagebrush steppe, desert shrubland, and sagebrush scrub vegetation communities, which would take longer than other vegetation types to regenerate and would be prevented from reestablishing on the

permanently maintained 50-foot-wide right-of-way. Topographic alterations such as sidehill cuts that may be necessary to construct the pipeline would be restored during right-of-way restoration. The visibility of such alterations would diminish over time as the affected areas age and begin to blend with the surrounding landscape.

In general, the Wamsutter Expansion pipeline would cross lands designated as VRM Class III or Class IV. The Class III and IV designation applies to the BLM-managed lands administered by the Rock Springs field office district (between approximate MPs 0.0 and 52.0) and the Rawlins field office district (between approximate MPs 52.0 and 77.2). There is no VRM Class associated with the proposed Roberson Compressor Station site. Private lands that would be crossed by the pipeline are not subject to federal or state visual management standards.

To minimize construction impacts on visual resources, Overthrust has aligned the proposed pipeline route, where feasible, adjacent to existing utility corridors (about 82 percent of the route). This alignment would minimize impacts on visual sightlines and contrasts with adjacent vegetation. In areas where collocation is not possible for engineering and/or construction reasons, Overthrust would align the pipeline to avoid aesthetic features to the extent possible. Following construction, topographical contours would be returned to their preconstruction condition. Therefore, construction and operation of the Overthrust pipeline facilities would be consistent with the objectives and definitions of VRM Class designations.

Aboveground facilities would be the most visible features constructed as part of the project and would result in a long-term change to the landscapes where they are located. Aboveground facilities associated with the Wamsutter Expansion Project include two compressor stations, a meter station, delivery and receipt points, and three block valves. With the exception of the compressor stations, these facilities are small and would have a minimal impact on the visual resources of the area. The Rock Springs Compressor Station would be constructed and operated adjacent to Questar's existing Coleman Compressor Station and the visual impacts of the additional station would be similar to that already experienced at this location. The Roberson Compressor Station would be located adjacent to the existing facilities and therefore new visual impacts would be minimal. While the two compressor stations would require lighting, they would be operated adjacent to existing facilities that already affect the visual characteristics of the area. Overthrust plans to install shielded/directional lights at all aboveground facility locations. The lights would be such that lights extend primarily downward, yet continues to allow for safe operation of the facility. Therefore, the impacts would be similar to that already experienced at these locations.

To mitigate their visual impacts on the surrounding landscape, all new aboveground facilities would be painted natural colors to match as closely as possible the existing landscape colors surrounding the facility sites.

We conclude that there would be no significant visual impacts resulting from the construction and operation of the Overthrust aboveground or pipeline facilities.

4.9 SOCIOECONOMICS

The Rockies Western Phase Project would cross 35 counties in 6 states. These areas are generally sparsely populated, with 22 of the 35 counties having a population density of less than 15 persons per square mile, and only 1 county (Buchanan County, Missouri) described as being part of a designated metropolitan area. The main industries in the Project region include education, health, and social services; agriculture, forestry, fishing, hunting, and mining; manufacturing; and local, state, and federal government.

The following sections discuss the existing socioeconomic conditions in the Rockies Western Phase Project area, the anticipated impacts resulting from the proposed Project, any proposed mitigation measures, and our analysis and recommendations. Table 4.9-1 provides selected socioeconomic and demographic statistics for the areas affected by the Project facilities.

The Applicants would acquire easements on both public and private lands for both the temporary (for construction) and permanent rights-of-way. The easement would provide the Applicants the right to construct, operate, and maintain the pipeline, and establish a permanent right-of-way. In return, the Applicants would compensate the landowner for use of the land and the temporary loss of crops or other land use. Where the pipeline route crosses federal land, the Applicants would acquire a Right-of-Way Grant from the BLM to construct and operate the proposed facilities. The Right-of-Way Grant essentially allows the Applicants to lease the land from the BLM.

The potential effect that a pipeline easement may have on private property values or property income is an issue that would be negotiated between the parties during the easement acquisition process. The easement acquisition process is designed to compensate a landowner for the right to use the property for pipeline construction and operation. The impact a pipeline may have on the value of a tract of land depends on many factors, including the size of the tract, the values of adjacent properties, the presence of other utilities, the current value of the land, and the current land use. Construction of the Rockies Western Phase Project would not change the general use of the land, but would preclude construction of aboveground structures on the permanent right-of-way and might interfere with other current uses on a short-term or long-term basis, or contribute to the loss of non-renewable resources or destruction of other improvements such as fences.

Prior to initiating any construction activities on non-federal lands, an easement would be pursued by the pipeline company to convey right-of-way from the landowner to the company. The easement negotiations between the company and the landowner would also include compensation for loss of use during construction, loss of nonrenewable or other resources, damage done to property during construction, and allowable uses of the right-of-way after construction. Because the easement acquisition process is conducted with the landowner, it is possible that tenants or lessees could be adversely impacted, though it is not known whether any instances of such impacts would occur in conjunction with the components of the Rockies Western Phase Project.

If an easement cannot be negotiated with the landowner and a project has been certificated by the Commission, the company may use the right of eminent domain granted to it under Section 7(h) of the NGA to obtain the right-of-way and extra workspaces identified in the Certificate. Section 7(h) implies that eminent domain is a remedy of last resort, to be used “when any holder of a certificate of public convenience and necessity cannot acquire by contract, or is unable to agree with the owner of property to

TABLE 4.9-1						
Existing Socioeconomic Conditions for States and Counties Crossed by the Rockies Western Phase Project						
State/County	Population	Population Density (persons/sq. mile)	Per Capita Income	Civilian Labor Force (persons)	Unemployment Rate (%)	Major Industries
Colorado	4,665,177	41.5	\$24,049	2,304,454	3.0	Education, health, and social services
Rio Blanco	5,973	1.9	\$17,344	4,137	3.4	Agriculture, forestry, fishing, hunting, mining
Weld	228,943	54.9	\$18,957	112,888	4.4	Education, health, and social services
Logan	20,719	11.4	\$16,721	10,472	3.7	Education, health, and social services
Sedgwick	2,529	4.6	\$16,125	1,657	3.0	Agriculture, forestry, fishing, hunting, mining
Garfield	49,810	14.9	\$21,341	32,112	3.4	Local, state, and federal government
Wyoming	509,294	5.1	\$19,134	254,508	4.0	Education, health, and social services
Sweetwater	37,975	3.6	\$19,575	20,364	3.1	Education, health, and social services
Carbon	15,331	2.0	\$18,375	7,744	4.6	Education, health, and social services
Laramie	85,163	31.8	\$19,634	42,691	4.1	Education, health, and social services
Lincoln	15,999	3.6	\$17,533	8,477	3.4	Education, health, and social services
Nebraska	1,758,787	22.3	\$19,613	909,524	2.5	Education, health, and social services
Kimball	3,782	4.0	\$17,525	2,210	2.3	Agriculture, forestry, fishing, hunting, mining
Lincoln	35,636	13.6	\$18,696	21,282	2.8	Education, health, and social services
Perkins	3,057	3.5	\$17,830	1,716	1.7	Agriculture, forestry, fishing, hunting, mining
Dawson	24,617	24.2	\$15,973	12,737	3.4	Manufacturing
Frontier	2,795	3.2	\$16,648	1,830	1.8	Agriculture, forestry, fishing, hunting, mining
Gosper	2,020	4.7	\$17,957	1,139	2.8	Agriculture, forestry, fishing, hunting, mining
Phelps	9,449	18.1	\$19,044	5,388	2.0	Education, health, and social services
Kearney	6,774	13.3	\$18,118	4,072	2.5	Education, health, and social services
Franklin	3,421	6.2	\$15,390	1,998	2.3	Education, health, and social services
Webster	3,762	7.1	\$16,802	2,027	2.7	Education, health, and social services
Nuckolls	4,739	8.8	\$15,608	2,449	2.5	Education, health, and social services
Thayer	5,436	10.5	\$17,043	3,060	2.4	Manufacturing
Jefferson	7,925	14.5	\$18,380	4,326	3.1	Education, health, and social services
Gage	23,306	26.9	\$17,190	12,969	3.6	Education, health, and social services

TABLE 4.9-1 (Continued)

Existing Socioeconomic Conditions for States and Counties Crossed by the Rockies Western Phase Project

State/County	Population	Population Density (persons/sq. mile)	Per Capita Income	Civilian Labor Force (persons)	Unemployment Rate (%)	Major Industries
Kansas	2,744,687	32.9	\$20,506	1,374,698	2.8	Education, health, and social services
Marshall	10,405	12.1	\$17,090	5,948	3.9	Education, health, and social services
Nemaha	10,443	14.9	\$17,121	5,346	3.8	Education, health, and social services
Brown	10,239	18.8	\$15,163	5,687	4.5	Education, health, and social services
Doniphan	7,816	21.0	\$14,849	4,494	4.8	Education, health, and social services
Missouri	5,800,310	81.2	\$19,936	2,806,718	3.4	Education, health, and social services
Buchanan	84,904	209.8	\$17,882	44,833	4.8	Education, health, and social services
Clinton	20,715	45.3	\$19,056	10,341	4.1	Education, health, and social services
Caldwell	9,307	20.9	\$15,343	4,468	4.3	Education, health, and social services
Carroll	10,193	14.8	\$15,522	4,798	4.0	Education, health, and social services
Chariton	8,124	11.2	\$15,515	4,096	5.0	Education, health, and social services
Randolph	25,336	51.2	\$15,010	12,738	4.0	Education, health, and social services
Audrain	25,759	37.3	\$16,441	10,864	4.9	Manufacturing
New Mexico	1,928,384	15.0	\$17,261	823,440	4.4	Education, health, and social services
San Juan	126,208	20.6	\$14,282	56,265	3.9	Local, state and federal government

Sources:

United States Bureau of the Census. 2000a. State and County Quick Facts, 2000. <http://quickfacts.census.gov/pfd/index.html>.

_____. 2000b. American Fact Finder. <http://factfinder.census.gov>. Reviewed January 2006, September 2006.

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Colorado Department of Labor & Employment. 2005. Labor Market Information. <http://www.coworkforce.com/lmi/ali/lpage.asp>. Reviewed January 2006.

Kansas Department of Labor. 2005. Kansas Labor Force Estimates. <http://laborstats.dol.ks.gov/lfe/lfecurrent.htm>. Reviewed January 2006.

Nebraska Workforce Development. 2005. Labor Market Information. <http://www.dol.state.ne.us/nwd/center.cfm?PRICAT=4&SUBCAT=4C&APP=4C6&action=lauslkup>. Reviewed January 2006.

Missouri Economic Research and Information Center. 2005. Missouri Local Area Unemployment Statistics. <http://www.missourieconomy.org/cgi-bin/meric/laus.pl?S=13>. Reviewed January 2006.

the compensation to be paid for, the necessary right-of-way...” There are a number of options available, short of eminent domain, to secure the property such as:

- negotiating to buy the land;
- negotiating to lease the land; or
- negotiating a “restrictive easement” arrangement with the landowner.

Under eminent domain, the company would still be required to compensate the landowner for the right-of-way and for any damages incurred during construction. However, the level of compensation would be determined by a court according to state law. Special permits would be obtained as needed for pipeline rights-of-way through town, state, or federal lands.

The Applicants are currently working to obtain the necessary easements for the proposed facilities. Through the negotiations with landowners, the Applicants would be able to make minor route adjustments to accommodate landowner needs and requirements as long as those changes would not affect any environmentally sensitive areas or affect other landowners without their approval. If easements are acquired through the use of eminent domain, it is more difficult to make adjustments to the route.

In accordance with Executive Order 12898 on Environmental Justice, all public documents, notices, and meetings were made readily available to the public throughout the Rockies Western Phase Project area. The mailing list for the Project has been continually updated during the EIS process. The public has been notified about all the official proceedings of the various Project components with the issuances of our NOIs and scoping meetings in the Project area. Section 1.3 of this EIS further describes the public participation and notification process. The proposed pipeline routes and compressor station sites effectively bypass densely populated residential areas. Most of the proposed routes are co-located with other existing utilities or transportation corridors. The Rockies Western Phase Project would not significantly impact urban or residential areas, and no disproportionately high and adverse human health or environmental effects on minority and/or low-income communities or Native American tribes have been identified. Furthermore, Project construction would provide short-term job opportunities. The only long-term socioeconomic effect of the Project is likely to be beneficial, based on the tax revenue that would accrue to the counties where the facilities are located.

4.9.1 Rockies Express

4.9.1.1 Employment

Given the overall scope and nature of the proposed REX-West Project, potential impacts could result from the temporary influx of construction workers and support personnel during the period of active construction. Existing employment in the counties that would be affected by the project has been recently stable, with unemployment rates generally comparable to their corresponding state averages.

Rockies Express proposes to construct the REX-West Project utilizing seven construction spreads throughout the five states crossed by its pipeline. Rockies Express anticipates that the peak pipeline workforce would be approximately 400 workers per spread, with an average estimated workforce of 340 workers per spread (see table 4.9.1-1). Rockies Express expects that project construction would commence in May 2007 and continue for approximately 8 months. Construction of the compressor stations is anticipated to begin at about the same time.

Rockies Express would commence work simultaneously on all of the pipeline construction spreads, requiring that the peak pipeline workforce of 2,800 workers be available at or near the start of construction. In addition, Rockies Express estimates that between 200 and 400 temporary workers would

be required to construct the Cheyenne, Julesburg, Steele City, and Turney compressor stations (approximately 50 to 100 workers per site). The Echo Springs Compressor Station would be constructed using workers from a nearby construction spread along the REX-West pipeline. Approximately 50 to 60 workers would be employed to construct the 8 meter stations (approximately 6 to 8 workers per site).

TABLE 4.9.1-1	
Estimated Construction Workforce for the REX-West Project	
	Number of Workers (Local and Non Local)
Pipeline Facilities	
Total construction workforce	2800
Average construction workforce	2400
Peak construction workforce per spread	400
Average construction workforce per spread	340
Aboveground Facilities	
Total construction workforce	200-400
Construction workforce per compressor station	50-100
Construction workforce per meter station	50-60
Total Construction Workforce	3,050 – 3,260

Rockies Express would utilize local construction workers who reside in the immediate project area supplemented, as required, by workers who would temporarily relocate to the project area. Pipeline industry labor agreements typically stipulate that local labor unions provide 50 percent of the workforce, allowing contractors to bring in the remaining 50 percent of the workers from outside the area. If non-union contractors construct the pipeline and/or the compressor stations, or if the local unions are unable to supply the required number of qualified workers, additional labor would need to be brought in from outside the project area. Due to the remote locations of the pipeline and associated facilities, Rockies Express does not anticipate that the local labor force will be adequate to fully meet the large temporary demand for construction personnel. Therefore, Rockies Express estimates that 80 to 90 percent of all workers involved in construction of the facilities could be from outside of the project area and would temporarily relocate to an area near the construction spreads.

Following construction, Rockies Express would hire 16 to 18 new permanent employees for operation and maintenance of the new REX-West facilities. Rockies Express anticipates that 8 to 10 new employees would be located in Wyoming/Colorado to staff the proposed Meeker, Echo Springs, Rockport, and Julesburg Compressor Stations, 4 new employees would be located in Steele City, Nebraska, and the remaining 4 new employees would be located in Turney, Missouri.

Based on available information, we believe that construction of the REX-West Project would benefit the local labor market by creating a number of temporary construction jobs. The anticipated need for non-local workers to construct the project would result in a temporary increase in area populations, but due to the short duration of construction (less than 1 year), project work would not be expected to result in any long-term impacts on area labor practices. Once construction activities are completed, we assume that most workers would leave the project area to pursue other opportunities. The small number of permanent staff required for operation of the new facilities would not adversely affect local employment levels in the project area.

4.9.1.2 Housing

The temporary influx of non-local construction workers would increase the demand for temporary housing and accommodations, resulting in increased revenues to homeowners and businesses with space for rent. In the REX-West Project area, temporary housing exists in the form of daily, weekly, and monthly rentals in motels, hotels, campgrounds, recreational vehicle (RV) parks, apartments, and houses. The availability of these accommodations may vary, particularly during any tourist seasons or local events.

Rockies Express anticipates that up to 80 to 90 percent of the REX-West Project workforce (about 2,560 to 2,880 workers, over 7 construction spreads) would consist of non-local labor and would temporarily relocate to the project area during the construction period. The construction workforce would remain in a particular construction area for approximately 8 to 12 weeks, and would subsequently relocate, as required, to the next construction area down the line. Given the vacancy rates in the project area, existing lodging opportunities in some localities may be insufficient to meet the demand for short-term housing required by this construction workforce (see table 4.9.1-2).

Especially during high-occupancy seasons, the combined demand for temporary housing from tourists, recreationists, and project construction crew might at times exceed the supply in some communities. While this would benefit the proprietors of the local motels, RV camps, and other rental units, it could result in the temporary displacement of some tourists and recreationists. If project demand for temporary housing units were to exceed the supply, project workers would be required to locate accommodations in communities further from the project area resulting in a longer daily driving distance.

4.9.1.3 Public Services

A wide range of public services and facilities exist in the REX-West Project area, including law enforcement, fire departments, medical facilities, and schools. The level of demand on local public services resulting from project construction would vary from community to community depending on the number of non-local workers temporarily residing in each location, the duration of their stay, and the size of the community.

The temporary increase in populations associated with construction of the REX-West Project could result in temporary impacts on public services such as the need for local police assistance and emergency medical services to treat injuries resulting from construction accidents. Rockies Express would implement community outreach programs that would engage local fire departments and law enforcement agencies to identify ways to minimize impacts on public services related to the REX-West Project. The degree of impact would vary from community to community depending upon the number of non-local workers (and any accompanying family members) that temporarily reside in each community, how long they stay, and the size of the community. Although these factors are too variable to accurately predict the severity of the impact, the effects would be short term and are not expected to be significant.

Due to the short duration of construction and the broad region affected, we do not anticipate adverse impacts on public services in any one community. Certain areas along the route may experience a rise in the need for some support services during construction, but ongoing use of services to support construction activities would not be required. Further, because of the short construction schedule, it is unlikely that workers would relocate families to the project area. Therefore, we do not anticipate significant contributions to local school enrollments. We conclude that implementation of the proposed community outreach would minimize impacts on public services in the communities affected by the REX-West Project.

TABLE 4.9.1-2

Existing Accommodations for Counties Crossed by the Proposed REX-West Project

State/County	Rental Vacancy Rate (percent)	Hotel/Motel Units	Estimated Available Units	Camp/RV Parks
Colorado				
Rio Blanco	15.8	143	23	5
Weld	4.0	340	14	2
Logan	12.0	255	31	1
Sedgwick	13.3	59	8	0
Wyoming				
Sweetwater	16.2	1,718	278	4
Carbon	a/	a/	a/	a/
Laramie	7.7	1,388	107	5
Nebraska				
Kimball	14.4	88	13	2
Perkins	9.4	0	0	1
Lincoln	8.2	942	77	6
Dawson	9.8	240	24	5
Frontier	9.6	6	1	1
Gosper	5.5	23	1	2
Phelps	8.6	97	8	1
Kearney	7.4	70	5	1
Franklin	5.5	15	1	1
Webster	15.9	31	5	2
Nuckolls	12.3	47	6	2
Thayer	7.7	69	5	4
Jefferson	9.4	47	4	4
Gage	8.7	332	29	3
Kansas				
Marshall	12.7	156	20	0
Nemaha	7.6	41	3	1
Brown	8.0	0	0	3
Doniphan	8.8	0	0	0
Missouri				
Buchanan	7.4	806	60	2
Clinton	7.4	224	17	2
Caldwell	6.3	0	0	1
Carroll	10.8	34	4	1
Chariton	17.7	0	0	0
Randolph	18.3	158	29	1
Audrain	10.5	150	16	1
Total		7,479	789	64
a/ Information not available.				
Sources: United States Bureau of the Census. 2000b. American Fact Finder. http://factfinder.census.gov .				
Reviewed January 2006; AAA 2005a,b,c,d; FERC 2005; Delorme 2003a,b,c,d,e.				

4.9.1.4 Transportation

Construction activities could also result in short-term impacts on transportation infrastructure. These impacts could include disruption to traffic flow due to the movement of construction equipment, materials, and crew members; construction of pipeline facilities across existing roads and railways; and damage to local roads from the movement of heavy construction equipment and materials. However, in general, impacts on local traffic levels are not expected to be significant because of the short duration of

activities within each construction spread and the generally rural location of the REX-West Project. Further, pipeline construction schedules typically begin and end work outside of peak commuting hours.

Because construction would move sequentially along the pipeline route, primarily in the rural areas of Colorado, Wyoming, Nebraska, Kansas, and Missouri, we expect that the transportation infrastructure would be minimally and temporarily impacted by the REX-West construction activities. Any temporary impacts would include damage to local unpaved roadways and disruption of traffic flow, particularly during initial staging which requires the transport of bulk construction equipment and materials to the respective spread areas, as well as disruption associated with roads open-cut for pipeline installation.

To minimize disruption to traffic flow due to construction activities taking place across major roadways, Rockies Express proposes to install the pipeline by horizontal boring underneath all paved roadway crossings, where possible. Where roads are crossed with an open cut, temporary travel measures, such as steel plates, would be available during active construction to allow passage of emergency vehicles.

In addition, Rockies Express states it would develop a Traffic and Transportation Management Plan to mitigate for potential impacts resulting from project-related road use and construction activity. Mitigation measures would include:

- use of major highways to the extent possible to transport slow-moving, heavy construction equipment to the spread areas;
- compliance with local roadway weight restrictions and limitations, and removal of any soil left on the road surface from construction equipment;
- compliance with all applicable local, state, and federal traffic control measures to ensure the safety of local and construction traffic;
- coordination of worker arrival and departure to avoid peak morning and evening commuting hours; and
- repair of any damage to roads to pre-existing conditions or better, following construction.

4.9.1.5 Economy and Tax Revenues

During construction, some portion of the construction payroll would be spent locally for the purchase of goods and services, such as housing, food, gasoline, entertainment, and luxury items. The amount would depend on the number of construction workers and the length of their stay. It is also likely that some portion of the construction materials would be purchased locally. These direct payroll and materials expenditures would have a positive impact on local economies and would stimulate indirect expenditures within the region as inventories are restocked or new workers are hired to meet demands. Sales taxes would be paid on all goods and services purchased with payroll monies or for construction materials. Rockies Express would pay applicable property taxes to each local government entity on the assessed value of the pipeline and aboveground facilities.

Construction of the REX-West Project would generate substantial tax revenues (property, sales, and income taxes) for the states crossed by the project. Rockies Express estimates that the total payroll during construction of the pipeline and compressor stations would be about \$189 million. Tax rates and revenues would vary by state, ranging from \$1.2 million in Wyoming to \$70.4 million in Nebraska. Of the total amount, Rockies Express estimates that 25 to 30 percent of workers' income, or approximately \$47.25 million for the REX-West Project, would be spent locally, generating state sales tax revenue of

about \$2.15 million (see table 4.9.1-3). Additional local sales tax revenue would be generated through taxes levied by governments where payroll monies are spent.

State	Total Estimated Construction Payroll <u>a/</u>	Total Estimated Consumables State Sales Tax Revenue <u>b/</u>	Total Estimated State Consumer Use Tax Revenue <u>c/</u>
Colorado	\$39,000,000	\$283,000	\$4,689,269
Wyoming	\$9,490,000	\$95,000	\$925,760
Nebraska	\$70,400,000	\$968,000	\$18,998,990
Kansas	\$22,400,000	\$297,000	\$5,196,885
Missouri	\$47,700,000	\$501,000	\$8,439,596
Total	\$188,990,000	\$2,144,000	\$38,250,500

a/ Pipeline construction payroll per state is calculated using the estimated payroll per construction spread and the miles of each spread in each state. Compressor station and meter station payroll per state is the estimated payroll for constructing each facility located in the state. These amounts are summed to determine the total construction payroll per state.

b/ Estimated consumables sales tax revenue is calculated based on effective tax rate of 2.9 percent for Colorado, 4 percent for Wyoming, 5.5 percent in Nebraska, 5.3 percent for Kansas, and 4.2 percent for Missouri, multiplied by 25 percent of construction payroll for a given state.

c/ Estimated consumer use tax revenues calculated based on effective tax rate of 2.9 percent for Colorado, 4 percent for Wyoming, 5.5 percent in Nebraska, 5.3 percent for Kansas, and 4.2 percent for Missouri, multiplied by anticipated non-local materials purchases.

The REX-West Project also would generate some sales tax and use tax revenues⁶ through construction material purchases, though most of the specialized materials and equipment would likely be purchased outside of the immediate project area. These non-local material purchases, however, would generate consumer use tax revenues in the particular state of use of approximately \$38,250,500 for the REX-West Project. Additionally, non-specialized construction materials, such as gasoline, diesel fuel, and other basic supplies, would be purchased in the project vicinity, generating further retail sales and sales tax revenues.

In addition, Rockies Express would be required to pay ad valorem taxes to each county where there are project facilities. It is estimated that the REX-West Project would contribute approximately \$473,781,000 in total ad valorem taxes to the various counties and states. Table 4.9.1-4 provides information on ad valorem taxes over a period of 20 years for each state within the REX-West Project area.

As mentioned in section 4.9.1.1, Rockies Express anticipates hiring 16 to 18 new permanent employees to operate the proposed pipeline and compressor station facilities, which would also generate additional state and local tax revenues.

⁶ State use taxes are paid on goods purchased in one state and used in another, when the seller did not collect the state sales tax for the state of use.

TABLE 4.9.1-4		
Estimated Ad Valorem Taxes for the REX-West Project		
State	Estimated Tax to Be Paid by Rockies Express	
Colorado		\$125,776,000
Wyoming		\$6,270,000
Nebraska		\$95,844,000
Kansas		\$140,400,000
Missouri		\$105,491,000
	Total	\$473,781,000
Counties (With Major Aboveground Facilities)		
Sweetwater, WY		\$4,405,000
Rio Blanco, CO		\$6,222,000
Weld, CO		\$44,494,000
Sedgwick, CO		\$42,291,000
Gage, NE		\$9,267,000
Clinton, MO		\$23,950,000
	Total	\$120,002,000
<small>a/ Ad valorem tax is based on the assessed value of real estate or personal property. Property ad valorem taxes are a major source of revenues for state and municipal governments. Total ad valorem taxes are over a 20-year period.</small>		

4.9.2 TransColorado

4.9.2.1 Employment

TransColorado's Blanco to Meeker Project would include construction or modification of three compressor stations in three counties, Rio Blanco and Garfield Counties in Colorado and San Juan County in New Mexico. The existing socioeconomic conditions for these counties are included in table 4.9-1.

TransColorado proposes to utilize three construction spreads, one at each of the three compressor station sites. TransColorado anticipates that construction of each of the one-unit stations would require a maximum of 50 workers and an average of about 41 workers over the construction period, for a total construction force of 123-150 workers. Construction is anticipated to take approximately 6 months, commencing in May 2007. Additionally, TransColorado estimates that two permanent employees would need to be hired to support the operation of the compressor stations.

TransColorado would attempt to hire local construction workers who possess the necessary skills for compressor station construction. However, TransColorado expects that the local workforce would not be able to meet all of the construction requirements and that specialized workers would be brought from outside the local areas.

Construction activities associated with the Blanco to Meeker Project would provide a small number of temporary jobs to the local community. Depending on labor agreements and local availability of qualified workers, it is likely that much of the project's workforce would be brought from outside the project area. This temporary increase in local population would last only through the construction period,

and is not expected to result in any long-term impacts on area labor practices. Once construction activities are completed, we assume that most workers would leave the project area to pursue other opportunities. The small number of permanent staff required for operation of the new facilities would not adversely affect local employment in the Blanco to Meeker Project area.

4.9.2.2 Housing

TransColorado estimates that approximately 50 percent of the construction workforce (about 75 workers) would be non-local and require housing for the duration of the approximate 8-month construction period. Temporary housing is available for much of the project area. Competition for hotels/motels and campsites could occur during peak tourist seasons; however, due to the short construction period, any such competition would be minor and temporary. Rental vacancy rates for Rio Blanco and Garfield Counties, Colorado are 15.8 and 3.7 percent, respectively and 9.3 percent for San Juan County, New Mexico. Hotel/motel units range between 143 (Rio Blanco County) and 884 (San Juan County), while camping and RV parks range between 7 (Garfield County) and 2 (San Juan County). Additional housing required for the anticipated two full time employees would not affect the availability of housing in the project area.

4.9.2.3 Public Services

Please refer to our discussion for the REX-West facilities in section 4.9.1.3, where we discuss the impacts that pipeline and aboveground facility construction and operation can have on public services. We do not anticipate significant contributions to local school enrollments in the Blanco to Meeker Project area. We conclude that implementation of appropriate community outreach would minimize impacts on public services in the communities affected by the Blanco to Meeker Project.

4.9.2.4 Transportation

Impacts on transportation infrastructure associated with the Blanco to Meeker Project would be similar in nature to those discussed above for the REX-West Project, though on a much smaller scale. The traffic generated by operational employees and any maintenance or repair crews required during operation of the facilities would be insignificant, and no impacts to traffic flow, traffic patterns, or traffic safety would be expected.

To mitigate potential impacts on the transportation system, TransColorado would coordinate with contractors to restrict travel on roads not suitable for heavy construction traffic and on any unpaved roads if they are excessively wet and muddy, until conditions improve.

4.9.2.5 Economy and Tax Revenues

Construction of the Blanco to Meeker Project would also generate tax revenues for the states of Colorado and New Mexico. TransColorado estimates that the total payroll during construction of the proposed facilities would be about \$9,079,650 million (\$5,470,050 million in Colorado and \$3,609,600 million in New Mexico). Of the total amount, TransColorado estimates that between 25 and 30 percent of workers' income, or approximately \$2.3 million for the Blanco to Meeker Project, would be spent locally, generating state sales tax revenue of about \$65,831 (table 4.9.2-1). Additional local sales tax revenue would be generated through taxes levied by governments where payroll monies are spent.

TABLE 4.9.2-1			
Estimated Payroll and Sales Tax Revenues for the Blanco to Meeker Project			
State	Estimated Construction Payroll <u>a/</u>	Estimated Consumables State Sales Tax Revenue <u>b/</u>	Estimated State Consumer Use Tax Revenue <u>c/</u>
TransColorado			
Colorado	\$5,470,050	\$39,661	\$1,367,785
New Mexico	\$3,609,600	\$26,170	Not Applicable
Total	\$9,079,650	\$65,831	\$1,367,785
<u>a/</u> Pipeline construction payroll per state is calculated using the estimated payroll per construction spread and the miles of each spread in each state. Compressor station and meter station payroll per state is the estimated payroll for constructing each facility located in the state. These amounts are summed to determine the total construction payroll per state. <u>b/</u> Estimated consumables sales tax revenue is calculated based on effective tax rate of 2.9 percent for Colorado and 5 percent for New Mexico, multiplied by 25 percent of construction payroll for a given state. <u>c/</u> Estimated consumer use tax revenues calculated based on effective tax rate of 2.9 percent for Colorado. New Mexico does not collect Consumer Use Tax.			

TransColorado would also pay ad valorem taxes to each county where its proposed facilities would be located, the amount which would vary from year to year. As indicated in table 4.9.2-2, TransColorado estimates that annual ad valorem taxes for each state, for the Blanco to Meeker Project would be about \$621,750.

Two new permanent employees would be hired to operate the planned compressor stations, which would also generate additional state and local tax revenues.

TABLE 4.9.2-2	
Estimated Ad Valorem Taxes for the Blanco to Meeker Project	
State, County	Estimated Tax to Be Paid by TransColorado
New Mexico, San Juan	\$171,750
Colorado, Garfield	\$450,000
Total	\$621,750
<u>a/</u> Ad valorem tax is based on the assessed value of real estate or personal property. Property ad valorem taxes are a major source of revenues for state and municipal governments. Total ad valorem taxes are annual.	

4.9.3 Overthrust

4.9.3.1 Employment

Overthrust’s Wamsutter Expansion Project would include construction of pipeline and compression facilities in Sweetwater and Lincoln Counties, Wyoming. The existing socioeconomic conditions for these counties are included in table 4.9-1.

Three counties that would be crossed by the Wamsutter Expansion Project account for approximately 17 percent of the statewide civilian labor force. Lincoln County has a relatively small-scale labor force, 8,477 persons, while Sweetwater County has a labor force of 22,676 persons (see table 4.9.3-1).

TABLE 4.9.3-1

Per Capital Income and Labor Force of the Wamsutter Expansion Project Area

State/County	Per Capita Income	Civilian Labor Force (persons)	Unemployment Rate (percent)
Wyoming	\$19,134	254,508 <u>a/</u>	4.0 <u>c/</u>
Lincoln	\$17,533	8,477 <u>b/</u>	3.4 <u>c/</u>
Sweetwater	\$19,575	22,676 <u>b/</u>	2.9 <u>c/</u>
Uinta	\$16,994	10,842 <u>c/</u>	4.0 <u>c/</u>

a/ Source: U.S. Department of Commerce, Bureau of the Census, Census 2000: Summary File 3 (SF 3) – Sample Data; DP-3 -Profile of selected economic characteristics.
b/ Source: U.S Dept. of Labor, Bureau of Labor Statistics, Local Area Unemployment Statistics (Aug. 2005).
c/ Source: State of Wyoming, Wyoming Department of Employment, 2004.

Overthrust proposes to utilize one construction spread for the pipeline and another for construction of the compressor stations and other aboveground facilities. Overthrust would attempt to hire local construction workers who possess the necessary skills for compressor station construction. Overthrust estimates a total of 275 to 350 personnel would be required for construction of all proposed facilities. Of the total workforce, 200 to 250 personnel would be needed for pipeline construction, and 75 to 100 would be needed for construction of the compressor stations and other aboveground facilities. Construction is anticipated to take approximately 6 months for each location, commencing in May 2007 and ending in October 2007. Additionally, Overthrust estimates that six to eight permanent employees would be required for operation and maintenance of the pipeline facilities, while two to three persons would be required to oversee the operation of the Roberson Compressor Station. These employees would most likely be non-local, as the positions would require specialized skills.

Construction activities associated with the Wamsutter Expansion Project would provide a number of temporary jobs to the local community. Depending on labor agreements and local availability of qualified workers, it is likely that much of the project's workforce would be brought from outside the project area. This temporary increase in local population would last only through the construction period, and would not be expected to result in any long term impacts to area labor practices. Once construction activities are completed, we assume that most workers would leave the project area to pursue other opportunities. The small number of permanent staff required for operation of the new facilities would not adversely affect local employment in the project area.

4.9.3.2 Housing

In 2000, the total housing supply ranged from 6,831 units in Lincoln County to 15,921 units in Sweetwater County (see table 4.9.3-2).

TABLE 4.9.3-2

Housing and Rental Conditions in the Wamsutter Expansion Project Area (Wyoming) a/

County	Total Housing Units	Occupied Housing Units	Unoccupied Units <u>b/</u>	Median Monthly Rent (\$)	Homeowner Vacancy Rate (percent) <u>c/</u>
Lincoln	6,831	5,266	1,565	464	2.8
Sweetwater	15,921	14,105	1,816	428	2.6
Uinta	8,011	6,823	1,188	433	3.6

a/ Sources: U.S. Department of Commerce, Bureau of the Census, Census 2000: Summary File 1 (SF 1) – 100-Percent Data; DP-1 -Profile of general demographic characteristics.

Source: U.S. Department of Commerce, Bureau of the Census, Census 2000: Summary File 3 (SF 3) – Sample Data; DP-4 - Profile of selected housing characteristics.

b/ Includes units for rent; for sale; rented or sold but not occupied; available for seasonal, recreational, or migratory use; or other vacant status.

c/ Homeowner Vacancy Rate = proportion of homeowner housing inventory which is vacant for sale (computed by dividing the number of vacant units for sale only by the sum of owner-occupied units and vacant units for sale only), and then multiplying by 100.

Among the counties in the project area the number of available rental units recorded in the 2000 Census ranged from 363 units in Uinta County to 681 units in Sweetwater County (most units are located in Rock Springs or Green River).

Short-term accommodations such as RV spaces, motel and hotel rooms, and seasonal housing for migratory workers may also be available. Short-term accommodations are relatively high, especially in the rapidly developing area of Rock Springs.

The project construction period would be relatively short, and we expect that most non-local workers would be unaccompanied during their work tenure on the project. We anticipate that most project workers would use short-term accommodations, while other workers would rent in the more populated, service-oriented towns located within a reasonable commuting distance to the work site.

Housing requirements for the operation and maintenance of the pipeline would be minimal. Sufficient permanent housing is available within or near the project area for the estimated six to eight full-time Overthrust employees.

4.9.3.3 Public Services

Law enforcement is provided by multiple providers including state patrols, county sheriffs and local police departments. In many instances, mutual aid/cooperative agreements among agencies allow members of one agency to provide support or backup to the other agencies in emergency situations. A network of fire departments and districts provide fire protection services across the region, with more than 17 fire departments in the general project area. Many of the fire districts across the region are staffed by volunteers and are housed in stations located in the larger communities. Federal land management agencies also maintain wildland and forest fire suppression capabilities in the region, though these capabilities are not generally staffed for quick response dispatch. At least one acute care hospital is operating in each county crossed by the Wamsutter Expansion Project, and higher level trauma centers are located in Rock Springs.

Construction of the pipeline could result in minor, temporary impacts on local facilities and services, including law enforcement, fire, and medical services. Overthrust would work with the local

law enforcement, fire departments, and emergency medical services to coordinate for effective emergency response. The limited number of permanent employees associated with the proposed project would result in negligible long-term impacts on public services. We do not anticipate significant contributions to local school enrollments. We conclude that implementation of the proposed mitigation measures, and our recommendation, would minimize impacts on public services in the communities affected by the Wamsutter Expansion Project.

4.9.3.4 Transportation

The major transportation route that would be utilized during construction of the Wamsutter Expansion Project would be I-80. Another significant transportation feature in the region is the Union Pacific mainline route across southern Wyoming. The railroad corridor and I-80 generally parallel each other, and the pipeline route, across much of the project area.

Construction across roads, highways, and railroads would result in short-term impacts on public transportation while construction activities pass through the project area. Overthrust has stated that major paved roads, highways, and railroads would generally be crossed by boring beneath the road or railroad. Railroad crossings would require the approval and appropriate permits from railroad companies, while road crossings would require the approval of applicable state and local agencies. Boring typically requires temporary extra workspaces on both sides of the crossing for excavating bore pits to the depth of the pipeline while the roadway or railroad is allowed to remain open. There would be little or no disruption of traffic at road or railroad crossings that are bored.

Smaller or unpaved roads would typically be open cut where permitted by local authorities or landowners. The open-cut crossing method could require temporary closure of a road and establishment of detours. If no reasonable detour is feasible, at least one lane of a road would be kept open to traffic, except for brief periods when it is essential to close the road to install the pipeline. Overthrust would avoid closing roads during peak traffic hours. Open-cut crossings would typically be completed and the road resurfaced in a few days.

To maintain safe conditions, Overthrust would direct its construction contractors to ensure enforcement of local weight restrictions and limitations by its vehicles and to remove any soil that is left on the road surface by the crossing of construction equipment. When it is necessary for equipment to cross roads, mats or other appropriate measures (*e.g.*, sweeping) would be used to reduce deposition of mud.

Movement of construction equipment, materials, and crew members would result in an additional short-term impact on the transportation network. Much of the proposed project area is readily accessible by U.S. Interstates, state highways, secondary state highways, and county roads. Impacts on local traffic levels would be temporary given the linear and dispersed nature of the project as construction would move sequentially along the proposed pipeline route. Construction workers would commute to and from the project area from temporary housing in local towns and cities, although this would typically begin before sunrise and end after sunset, times of the day when daily local traffic tends to be light. Consequently, short duration congestion is likely to occur in some locations, affecting residents and other travelers as well.

Minimal traffic is anticipated to be associated with operation and maintenance of the new pipeline as only six to eight permanent workers would be required to operate the pipeline. Therefore, no impacts on transportation networks would be expected to occur during pipeline operation.

4.9.3.5 Economy and Tax Revenues

Construction and operation of the project would have beneficial impacts on local sales and lodging tax revenue. Based on the estimated retail purchases by temporary workers and current sales tax rates, additional sales and lodging taxes would be about \$1.9 million. Additionally, Overthrust would pay sales tax for the lease and/or rental of various office and construction equipment and space for field offices and the storage of construction equipment, as well as sales or use taxes on pipe and other materials and installed equipment associated with the project.

During construction Overthrust anticipates that total payroll for the project would be about \$8.4 million. This would temporarily increase the tax revenue for the state, although the increase would be relatively small.

During the operation of the Wamsutter Expansion Project, Overthrust would be required to pay property and ad valorem taxes to the Wyoming state government. The state would then distribute those payments to counties based upon the number of miles crossed by the proposed pipeline route in each county. Tax revenues are typically used by local and state governments for infrastructure improvements such as roads, schools, and health facilities, and to meet other needs of the community. Based on the amounts reported by Overthrust, we estimate that about \$1.2 million would be generated in property and ad valorem local taxes annually.

4.10 CULTURAL RESOURCES

Section 106 of the NHPA, as amended, requires that federal agencies consider the effects of their undertakings (including the issuance of permits, licenses, or authorizations) on historic properties and provide the ACHP an opportunity to comment. The FERC, as the lead federal agency for the Rockies Western Phase Project, is responsible for consulting with the SHPOs, land managing agencies (including the BLM), Indian tribes, and other interested parties about the potential for this undertaking to affect historic properties. The Applicants (Rockies Express, TransColorado, and Overthrust) prepared information, analyses, and recommendations to assist the FERC in complying with Section 106, in accordance with the ACHP's regulations at 36 CFR 800.

4.10.1 Rockies Express

4.10.1.1 Results of Cultural Resource Surveys

Rockies Express and its cultural resources consultants initiated consultations with the SHPOs of Colorado, Wyoming, Nebraska, Kansas, and Missouri on December 2, December 6, December 14, November 29, and November 30, 2005, respectively (see tables 1.5-1, 1.5-2, and 1.5-3). Rockies Express submitted research designs to the SHPOs of each state crossed by the REX-West Project, outlining procedures it wanted to follow for the on-the-ground cultural resources investigations. In some states, selected sampling was allowed by the SHPO, while in other states the entire pipeline route was to be inspected. Aboveground facility locations, such as compressor stations and meter stations, were to be covered by block surveys over the entire area of potential effect (APE).

Colorado

Rockies Express' cultural resources contractor, Centennial Archaeology, Inc. (Centennial), submitted its research design to the Colorado SHPO on December 5, 2005. Rockies Express originally proposed to inspect a 250-foot-wide corridor where the REX-West pipeline was co-located with another pipeline; however, field surveys were conducted within a 300-foot-wide corridor for all areas in Colorado. Rockies Express' stratified sampling strategy called for survey of a total of 64.4 miles out of the 115.2 miles of proposed pipeline route in Colorado (Zier, 2005a). The Colorado SHPO accepted that sampling plan in a letter dated December 8, 2005.

Rockies Express included the cultural resources survey report for Colorado with its FERC application, and Centennial also provided a copy of the report to the Colorado SHPO on May 17, 2006. The report documented a stratified sample survey of about 61 total segment miles of the proposed route in Colorado. Access was denied for 8.8 miles of the route in Colorado that was supposed to have been surveyed as part of the sample.

Centennial surveyed a 97-acre block that covered a portion of the proposed Cheyenne Compressor Station location (MP 0.0, in Weld County). The remainder of the tract for the Cheyenne Compressor Station was examined by Alpine Archaeological Consultants, Inc. (Alpine) in 2005 for the Entrega Gas Pipeline Project. No cultural resources were identified at the proposed location for the Cheyenne Compressor Station. A 40-acre block was surveyed by Centennial at the location for the proposed Julesburg Compressor Station (MP 143.8, in Sedgwick County), and no cultural resources were identified within that parcel. Centennial also surveyed the location for the proposed WIC Interconnect Meter Station (MP 0.0, in Weld County) and found no cultural resources.

Rockies Express is proposing additional compression at the existing Meeker Compressor Station (MP^{EN} 0.0 on the Entrega pipeline in Rio Blanco County). The location of the Meeker Compressor

Station was inventoried by Alpine in 2004 as part of the Entrega Gas Pipeline Project. One site (5RB2759), which was previously determined eligible for the NRHP, is located along the Entrega pipeline route north of the compressor station, but should not be affected by the undertaking proposed by Rockies Express. The proposed Overthrust Interconnect Meter Station would be located within the 13-acre tract covered by the Entrega survey for the existing Meeker Compressor Station. Centennial's Colorado inventory report also indicated that two temporary extra workspace areas outside of the 300-foot-wide pipeline corridor were surveyed, covering a total of about 11.3 acres. Rockies Express has not yet documented a cultural resources inventory covering the proposed contractor yard location at Carr, in Weld County.

Centennial's stratified survey of portions of the REX-West pipeline route in Colorado identified 31 cultural resource sites and 36 isolated finds, including 9 previously recorded sites identified during site files searches. Three previously recorded sites could not be relocated and are presumed destroyed by past activities. The isolated finds and 24 of the sites are recommended or have been officially determined not eligible for listing on the NRHP. No additional investigation of these resources is recommended. Five prehistoric sites (5SW12, 5SW108, 5SW109, 5SW121, and 5WL571) are unevaluated and recommended for archaeological testing. Two sites (5LO572.1 and 5SW107.1), which are historic railroads, are recommended as eligible for the NRHP, but effects could be avoided by boring under them (Mueller et al., 2006).

Centennial also recommended that 31 discrete segments of the proposed pipeline route, totaling 32.3 miles, should be inspected by an archaeological monitor during trenching. Further, nine segments, totaling 15.3 miles, should be monitored for cultural resources during right-of-way preparation.

The Colorado SHPO reviewed Centennial's May 2006 inventory report and provided comments in correspondence dated June 20, 2006. The Colorado SHPO agreed with the report's recommendations with two exceptions. First, additional information is required for sites 5LO578, 5LO579, 5SW102.1, and 5SW106.1 before an eligibility determination can be made. Second, site 5LO582 should be considered eligible for listing on the NRHP and requires additional information on the effect of the undertaking before a determination of effect can be made.

We concur with the SHPO's opinions. In a data request dated June 28, 2006, we directed Rockies Express to revise the cultural resources report to address the Colorado SHPO's comments, and provide additional information, including the results of archival research or archaeological testing, for sites 5LO578, 5LO579, 5SW102.1, 5SW106.1, 5SW12, 5SW108, 5SW109, 5SW121, and 5WL571. We also requested that Rockies Express submit plans to avoid or mitigate effects at NRHP-eligible sites 5LO582, 5LO572.1, and 5SW107.1. In its comments on the draft EIS, Rockies Express indicated that the REX-West Project would not affect site 5LO582, as its boundary, at its nearest point, is 54 meters (approximately 176 feet) north of the proposed pipeline centerline.

In a letter dated October 3, 2006, Rockies Express provided the Colorado SHPO with a plan for conducting archaeological test excavations at sites 5SW12, 5SW109, 5SW121, 5WL571, 5WL680, and 5WL690 (Zier, 2006a). The Colorado SHPO accepted the testing plan in a letter to Centennial dated October 23, 2006. However, the SHPO suggested that for sites in floodplain or aeolian settings, more than two culturally-sterile 10 cm excavation levels may be necessary to confirm lack of deeply buried deposits. Rockies Express indicates that it would file a supplemental report that would incorporate the necessary archival research, test excavation results, and additional survey information in the first quarter of 2007.

Wyoming

Centennial submitted its research design to the Wyoming SHPO on December 6, 2005. In Wyoming, Centennial proposed to inspect a 300-foot-wide corridor for the entire length of the main REX-West pipeline route (Zier, 2005b). The Wyoming SHPO accepted Centennial's survey methodology in an e-mail dated December 23, 2005.

With its FERC application, Rockies Express included a copy of a report of the cultural resources survey by Centennial covering 5.8 miles of the pipeline route in Laramie County (Mueller et al., 2006). Rockies Express indicated it provided a copy of that report to the Wyoming SHPO on May 17, 2006. On August 11, 2006, Rockies Express filed a copy of a cultural resources survey report by Centennial for the proposed 5.3-mile-long Echo Springs Lateral in Sweetwater and Carbon Counties (Mueller and Zier, 2006). The later report documented a pedestrian inventory of a 200-foot-wide corridor for the proposed lateral, and block surveys of 10.4 acres at the proposed Echo Springs Compressor Station location (MP^{EN} 147 along the Entrega Pipeline, in Sweetwater County) and 3.9 acres at the proposed Echo Springs Meter Station location (MP^{ES} 0.0 along the Echo Springs Lateral in Carbon County). Centennial also conducted a survey along a possible 0.7-mile-long pipeline route variation (not adopted) to an alternate location for the Echo Springs Meter Station, but identified no cultural resources (Mueller, 2006).

The existing Wamsutter Compressor Station (MP^{EN} 136 along the Entrega Pipeline in Sweetwater County) was inventoried in 2005 as part of the Entrega Gas Pipeline Project. One site was found during this survey that was determined not eligible for listing on the NRHP.

No cultural resources were found during the surveys conducted in April 2006 by Centennial at the proposed Echo Springs Compressor Station and Echo Springs Meter Station locations. Along the Echo Springs Lateral route, six previously recorded sites were relocated and re-evaluated, and two sites and two isolated finds were newly recorded by Centennial. Another three previously recorded sites identified during the site file search were not relocated, and are assumed to have been destroyed by previous activities. Two sites (48SW6357 and 48SW15608) were recommended as eligible for nomination to the NRHP. Site 48SW6357 is a portion of a 1900 realignment of the transcontinental railroad which could be avoided by boring. Avoidance or data recovery excavations were recommended for prehistoric site 48SW15608. The other six sites and two isolated finds were recommended as not eligible for the NRHP, requiring no further work (Mueller and Zier, 2006).

The Echo Springs Lateral survey report was reviewed by the BLM Rawlins Field Office. In a letter addressed to the FERC, dated July 26, 2006, the BLM Rawlins Field Office indicated that while there are three eligible sites (48SW1834, 48SW6357, and 48SW15608) within the APE for the portion of the pipeline within the area managed by the Rawlins Field Office, the project should not have any adverse effects on them. In the case of 48SW1834, the historic Lincoln Highway, the pipeline would cross two non-contributing elements. In the case of 48SW6357, the historic Union Pacific Railroad, the pipeline would cross one non-contributing element, and could be bored under the contributing element. Lastly, the pipeline would avoid prehistoric site 48SW15608. The BLM Rawlins Field Office requested that construction be monitored in the vicinity of prehistoric isolated find CA-2503. We concur with the Rawlins Field Office.

Along the main REX-West pipeline route in Laramie County, Centennial relocated two previously recorded sites. One site was recommended as not eligible, while the other (48LA223) was recommended for evaluative testing (Mueller et al., 2006b). Centennial recommended that during construction of the REX-West pipeline in Laramie County, an archaeologist should monitor right-of-way

preparation at one 0.4-mile-long segment, and that trenching should be monitored at two segments totaling about 0.5 mile (Mueller et al., 2006).

In a letter dated September 28, 2006, we provided the Wyoming SHPO with our determinations of eligibility and effect for the REX-West Project. For the proposed Echo Springs Lateral, the Wyoming SHPO, in a letter dated November 8, 2006, concurred that sites 48CR1443, 48CR144, 48SW10553, 48SW16408, and 48SW16409 are not eligible for the NRHP. In the opinion of the SHPO, site SW15608 is ineligible, and while sites 48SW1834 (Lincoln Highway) and 48SW6357 (Union Pacific Railroad) are eligible they would not be adversely affected by the project. The SHPO also agreed with our finding that no historic properties would be affected at the proposed Echo Springs Compressor Station and associated meter station. With regards to the REX-West pipeline route in Laramie County, the Wyoming SHPO, in another letter to the FERC dated November 8, 2006, concurred that site 48LA224 is not eligible for the NRHP, requiring no further work, while site 48LA223 is currently unevaluated and needs to be tested.

Centennial provided a testing plan for site 48LA233 to the Wyoming SHPO on October 3, 2006. That plan indicated that a testing report would be submitted by the end of January 2007 (Zier, 2006b). Rockies Express has not yet filed the SHPO's review of the testing plan.

Nebraska

A research design for the Nebraska segment of the REX-West Project was submitted by the Archaeology Laboratory of Augusta College (Hannus, 2005) to the Nebraska SHPO on December 14, 2005. On January 6, 2006, the Nebraska SHPO indicated that the entire pipeline route in Nebraska should be inspected.

Centennial conducted an inventory of a 300-foot-wide corridor for 24 miles of the REX-West pipeline route in Kimball County, between MPs 40.4-67.4. Survey access was denied to Centennial for about 3 miles in Kimball County (Mueller et al., 2006). American Resources Group, Ltd. (ARG) surveyed 274.4 miles of the proposed route between MPs 148.0-438.5, in Perkins, Lincoln, Dawson, Gosper, Phelps, Kearney, Franklin, Webster, Nuckolls, Thayer, Jefferson, and Gage Counties. Access was denied to ARG for survey of about 19.1 miles total in Nebraska. The ARG survey corridor was 200 feet wide where the proposed route was adjacent to an existing right-of-way, and 300 feet wide where it diverged from the existing Trailblazer pipeline. ARG also inspected 94 locations where temporary extra workspace areas would be outside of the 200-foot-wide survey corridor, covering about 146 additional acres total (Schwegman et al., 2006). The Centennial survey report was submitted to the Nebraska SHPO on May 17, 2006, while the ARG report was submitted to the SHPO on May 15, 2006.

The ARG report indicated that a 40-acre block was inventoried to cover the proposed Steele City Compressor Station location (MP 431.5, in Gage County). In addition, ARG inspected the location for the proposed NGPL Meter Station (MP 423.1, in Jefferson County). No cultural resources were found at these locations. Rockies Express indicated that the locations of the proposed KMIGT Meter Station (MP 332, in Franklin County), and the proposed NNG Meter Station (MP 430.6, in Gage County), were covered by ARG's 200-foot-wide cultural resources survey corridor. However, a report documenting surveys of the proposed contractor yards at Sidney (Cheyenne County) and Hastings (Adams County) have not yet been filed.

The Centennial survey report identified one site and one isolated find along the pipeline route in Kimball County. Both resources were evaluated as not eligible for the NRHP. Archaeological monitoring of trenching was recommended for seven locations in Kimball County, and one location was recommended for monitoring of right-of-way preparation (Mueller et al., 2006). The Nebraska SHPO

accepted the report in a letter dated June 6, 2006, and agreed with its recommendations. We concur with the SHPO.

The ARG survey report identified 18 archaeological sites along the portion of the REX-West pipeline route it inspected in Nebraska. Only one prehistoric site (25LN53) was evaluated as potentially eligible for the NRHP. The other 17 sites were evaluated as not eligible for the NRHP, requiring no further work. Additionally, ARG conducted geomorphological investigations at 60 stream valley locations. ARG's report recommended that 35 stream crossing locations should be further investigated using backhoe trenching (Schwegman et al., 2006).

In a letter dated June 6, 2006, the Nebraska SHPO agreed with the recommendations contained in ARG's May 2006 survey report. We concur with the SHPO. In response to our June 28, 2006 data request, Rockies Express indicated it would conduct archaeological testing at site 25LN53 and additional deep backhoe trenching at 35 geomorphological study areas by December 2006.

ARG submitted an archaeological testing plan for site 25LN53 to the Nebraska SHPO on September 22, 2006 (Titus, 2006a). The SHPO accepted that plan in a letter dated September 28, 2006.

In a letter dated December 12, 2006, commenting on our draft EIS, the KANZA Chapter of the Oregon-California Trails Association noted that there are visible remnants of the Oregon-California Trail in the project vicinity in Jefferson and Gage Counties, Nebraska. In Jefferson County, the proposed pipeline route is about 0.5 mile north of the trail, while in Gage County the pipeline would be about 1.0 mile north of the trail. As currently designed, the project should have no impacts on known extant portions of the Oregon-California Trail in Nebraska.

Kansas

On November 29, 2005, ARG presented its research design to the Kansas SHPO. That design proposed a stratified survey strategy that would inventory about 36.5 miles in selected segments along the total of 98.5 miles of the REX-West pipeline route in Kansas (Titus, 2005a). The Kansas SHPO accepted that survey proposal in a letter dated December 14, 2005.

As part of its FERC application, Rockies Express included a copy of a cultural resources inventory conducted by ARG in Kansas. That report documented that ARG inspected a 200-foot-wide corridor at 48 pre-selected parcels in Marshall, Nemaha, Brown, and Doniphan Counties, covering a combined total of about 35.7 miles of the REX-West pipeline route. Three pre-selected sample survey parcels were not inventoried in Kansas because access was denied, totaling less than 1 mile. ARG also examined 31 spots where temporary extra workspaces would be outside of the 200-foot-wide survey corridor. In addition, ARG surveyed the proposed ANR Meter Station location (MP 497.8, in Brown County), but no cultural resources were found. Rockies Express has not yet documented cultural resources surveys that would cover the proposed contractor yards at Hiawatha (Brown County) and Marysville (Marshall County).

ARG identified 23 archaeological sites within the segments surveyed in Kansas. Three prehistoric sites (temporary numbers ARG-3, 10, and 12 [permanent site numbers 14NH160, 14MH107, and 14MH110]) appear to be potentially eligible for the NRHP, and ARG recommended that they be avoided or archaeologically tested. The remaining 20 sites were recommended as not eligible, and should require no additional work. Additionally, ARG conducted geomorphological investigations at 25 stream valley locations, and recommended that 12 stream crossing locations should be further investigated using backhoe trenching (Myers et al., 2006a). The ARG report was submitted to the Kansas SHPO on May 15, 2006.

The Kansas SHPO provided its comments on the ARG's May 2006 survey report in a letter dated June 12, 2006. While the SHPO agreed with the recommendations for eligibility and effect, it requested that ARG obtain permanent Smithsonian system numbers for all sites, and that additional data be provided if the survey recorded and evaluated historic standing structures within the APE. We concur with the SHPO.

In a July 5, 2006 filing, responding to our June 28, 2006 data request, Rockies Express indicated it would conduct deep backhoe trenching at 12 recommended geomorphological locations in Kansas by December 2006. On September 21, 2006, ARG provided the Kansas SHPO with a plan for archaeological testing at sites 14NH160, 14MH107, and 14MH110 (Titus, 2006b). The SHPO found the plan acceptable, in a letter dated October 4, 2006.

The KANZA Chapter of the Oregon-California Trails Association, in its December 12, 2006 letter, noted that remnants of the Oregon-California Trail are extant about 3 miles north of the proposed pipeline route in Nemaha County, Kansas. The project as currently designed would avoid the trail.

Missouri

ARG presented its research design to the Missouri SHPO on November 30, 2005. That design offered a stratified survey strategy, whereby about 71 miles would be inventoried out of a total of about 175.7 miles of the REX-West pipeline route in Missouri (Titus, 2005b). The Missouri SHPO accepted that strategy in a letter dated December 6, 2005.

Rockies Express included a survey report by ARG for Missouri with its FERC application. The ARG report indicated that a 200-foot-wide corridor was surveyed for a total of about 75 miles at 92 pre-selected segments along the proposed route in Buchanan, Clinton, Caldwell, Carroll, Chariton, Randolph, and Audrain Counties. Nineteen other pre-selected parcels in Missouri were not surveyed, totaling 7 miles, because access was denied. ARG also examined 37 places where temporary extra workspaces would be outside of the 200-foot-wide survey corridor, totaling about 64 acres. In addition, a 56-acre block was surveyed at the proposed Turney Compressor Station location (MP 572.7, in Clinton County), and a 50-acre block was surveyed at the proposed PEPL Meter Station location (MP 712.7, in Audrain County). Rockies Express has not yet documented cultural resources surveys for the Clark (Randolph County) and both Cameron contractor yards (DeKalb and Clinton Counties).

ARG identified 31 archaeological sites along selected portions of the REX-West pipeline route in Missouri. Four prehistoric sites (23CH343, 23CH348, 23CH344, and 23AU137) and one historic site (23CI88) were evaluated as potentially eligible for the NRHP, and it was recommended that those sites be avoided or archaeologically tested. Avoidance was also recommended for a historic cemetery (site 23AU139). The remaining 25 sites were evaluated as not eligible, and no further work was recommended. Additionally, ARG conducted geomorphological investigations at 38 stream valley locations, and recommended that 18 stream crossing locations be further investigated using backhoe trenching (Myers et al., 2006b). The ARG report was sent to the Missouri SHPO on May 15, 2006.

The Missouri SHPO commented on the ARG survey report in a letter dated May 31, 2006, and agreed with the report's recommendations. We concur with the SHPO. The SHPO also requested that Rockies Express document that it consulted with the Sac and Fox Nation of the Missouri in Kansas and Nebraska, the Sac and Fox Nation of Oklahoma, and the Sac and Fox Tribe of the Mississippi in Iowa. We address tribal consultations for the REX-West Project in section 4.10.1.2 below.

In a September 11, 2006 filing, responding to our August 31, 2006 data request, Rockies Express indicated that it would use a minor route realignment to avoid the historic cemetery (site 23AU139). ARG submitted a plan for archaeological testing at sites 23CI88, 23CH343, 23CH344, 23CH348, and 23AU137 to the Missouri SHPO on September 22, 2006 (Titus, 2006c). Rockies Express has not yet filed the Missouri SHPO review of that plan.

4.10.1.2 Native American Consultations

The FERC's Rockies Express NOI, issued January 9, 2006, was sent to Indian tribes and Native American groups who historically occupied the project area or may attach religious or cultural significance to sites in the region, so that we could comply with the Native American Religious Freedom Act and Section 101(d)(6) of the NHPA (table 4.10.1-1). Our mailing list included the American Indian Council of Kansas City, Missouri; Mid-America All-Indian Center in Wichita, Kansas; Southwest Missouri Indian Center of Springfield, Missouri; Lawrence Indian Center of Lawrence, Kansas; Wyoming Indian Affairs Council; Montana-Wyoming Tribal Leaders Council; Kansas Office of Native American Affairs; Eastern Shawnee Tribe of Missouri; Eastern Shawnee Tribe of Oklahoma; Sac and Fox Nation of the Missouri in Kansas and Nebraska; Sac and Fox Tribe of the Mississippi in Iowa; Sac and Fox Nation of Oklahoma; Delaware Tribe of Indians in Kansas; Delaware Nation of Oklahoma; Miami Tribe of Oklahoma; Ote-Missouria Tribe of Oklahoma; Pawnee Nation of Oklahoma; Prairie Band of Potawatomi Nation in Kansas; Ponca Tribe of Nebraska; Omaha Tribe of Nebraska and Iowa; Iowa Tribe of Oklahoma; Iowa Tribe of Kansas and Nebraska; Kickapoo Tribe of Kansas; Kickapoo Tribe of Oklahoma; Kickapoo Traditional Tribe of Texas; Winnebago Tribe of Nebraska; Southern Cheyenne and Arapaho Tribes of Oklahoma; Northern Arapaho Tribe of Wyoming; Northern Cheyenne Tribe of Montana; Comanche Tribe of Oklahoma; Choctaw Nation of Oklahoma; Kiowa Tribe of Oklahoma; Kaw Indian Tribe of Oklahoma; Cheyenne River Sioux Tribe of South Dakota; Oglala Sioux Tribe of Pine Ridge, South Dakota; Crow Creek Lakota Tribe at Fort Thompson, South Dakota; Rosebud Sioux Tribe of South Dakota; Yankton Sioux Tribe of South Dakota; Lower Brule Sioux Tribe of South Dakota; Standing Rock Sioux Tribe of North Dakota; Santee Sioux Tribe of Nebraska; Fort Peck Assiniboine and Sioux Tribes of Montana; Ute Mountain Ute Tribe of Colorado; Southern Ute Tribe of Colorado; Northern Ute Tribe of Utah; Fort Sill Apache Tribe of Oklahoma; Jicarilla Apache Tribe of New Mexico; and the Mescalero Apache Tribe of New Mexico.

The FERC received written comments from three Indian tribes in response to our Rockies Express NOI. In a letter to the Secretary of the Commission, dated January 17, 2006, the Historical Preservation Coordinator of the Sac and Fox Tribe of the Mississippi in Iowa indicated no objections to the Rex-West Project. However, if human remains are discovered during construction, the tribe would like to be contacted. In review of our draft EIS, the Sac and Fox Tribe of the Mississippi of Iowa filed, on December 6, 2006, a second letter to the FERC indicating no objections. In a January 30, 2006 letter to the Secretary, the Cultural Preservation Officer for the Miami Tribe of Oklahoma indicated no concerns and no objections to the REX-West Project. In a letter to the Secretary dated February 1, 2006, the Native American Graves Protection and Repatriation Act (NAGPRA) Representative of the Sac and Fox Nation of Missouri in Kansas and Nebraska indicated no objections to the project. However, if human remains are discovered during construction, the tribe would like to be contacted.

In its December 27, 2006 comments on our draft EIS, Rockies Express included a letter, dated October 2, 2006, from the Tribal Preservation Director of the Northern Arapahoe Tribe indicating that tribal representatives completed a survey around the land on the Eagle Rock Ranch near the Chalk Bluffs in Colorado (MPs 1.0 and 15.1). The tribe stated a preference for the proposed Rex-West pipeline route adjacent to an existing pipeline, where they would not be concerned about any sites being exposed.

Rockies Express, through its cultural resources contractors, sent consultation letters to 34 Indian tribes and Native American groups regarding the REX-West Project (table 4.10.1-1). Nine tribes responded to the Rockies Express contact program. Our June 28, 2006 data request asked Rockies Express to provide documentation of continuing consultations with Indian tribes and interested Native Americans. Rockies Express indicated that there have been no additional tribal consultations since it filed its FERC application.

4.10.1.3 Unanticipated Discovery Plans

In February 2006, Rockies Express, through its cultural resources contractor, provided a draft Unanticipated Discovery Plan to the Colorado SHPO. The Colorado SHPO responded back to Centennial with comments and suggestions for edits. A revised plan was attached as Appendix A in Centennial's Colorado survey report (Mueller et al., 2006) filed with the FERC on May 31, 2006. Because the Colorado SHPO accepted the survey report on June 20, 2006, we assume that the revised discovery plan was also acceptable.

In February 2006, Rockies Express, through its cultural resources contractor, provided a draft Unanticipated Discovery Plan to the Wyoming SHPO. The Wyoming SHPO responded to Centennial with comments and suggestions for edits. A revised plan was included in Appendix A of Centennial's Wyoming survey report (Mueller et al., 2006) filed with the FERC on May 31, 2006. Because the Wyoming SHPO accepted Centennial's survey report including the revised discovery plan on November 8, 2006, we also find the report and plan acceptable.

Rockies Express, through its cultural resources contractor, provided an Unanticipated Discovery Plan to the Nebraska SHPO on March 21, 2006. In a letter to ARG dated March 29, 2006, the Nebraska SHPO accepted that plan. We concur with the SHPO. A copy of the discovery plan was attached as Appendix G to ARG's survey report for Nebraska (Schwegman et al., 2006) filed with the FERC on May 31, 2006.

ARG, on behalf Rockies Express, provided an Unanticipated Discovery Plan to the Kansas SHPO on March 21, 2006. In a letter to ARG dated March 28, 2006, the Kansas SHPO commented on the plan. A revised discovery plan was attached as Appendix F of ARG's survey report for Kansas (Myers et al., 2006a) filed with the FERC on May 31, 2006. Because the Kansas SHPO accepted that report, in a letter dated June 12, 2006, we assume that the revised discovery plan was also acceptable.

ARG, on behalf Rockies Express, provided an Unanticipated Discovery Plan to the Missouri SHPO. In a letter to ARG dated April 5, 2006, the Missouri SHPO offered comments on the plan. A revised discovery plan was attached as Appendix G in ARG's survey report for Missouri (Myers et al., 2006b) filed with the FERC on May 31, 2006. Because the Missouri SHPO accepted that report, in a letter dated May 31, 2006, we assume that the revised discovery plan was also acceptable.

TABLE 4.10.1-1

Tribal Contact Program – Rockies Western Phase Project

Tribes Contacted	FERC NOI Issued	Rockies Express Contact	Overthrust Contact	TransColorado Contact	Tribal Response
Jicarilla Apache Nation of New Mexico	Rockies Express - 1/9/06	Letter from Centennial 12/5/05	No	Letter from ENSR 5/18/06	Letter to TransColorado, dated 7/26/06, indicated no concerns.
Southern Cheyenne and Arapaho Tribes of Oklahoma	Rockies Express - 1/9/06	Letter from Centennial 12/5/05; letters from Augustana College 12/6/06	No	Letters from ENSR 5/18/06	None
Comanche Nation of Oklahoma	Rockies Express - 1/9/06; Overthrust -4/3/06	Letter from Centennial 12/5/05	NRG sent copies of survey reports to Comanche Nation on 7/14/06	Letter from ENSR 5/18/06	Letter to Overthrust, dated 5/15/06, and letter to TransColorado, dated 6/19/06, indicated no concerns about the projects. However, the tribe requested copies of archaeological reports.
Kiowa Indian Tribe of Oklahoma	Rockies Express - 1/9/06	Letters from Centennial 12/5/05	No	Letter from ENSR 5/18/06	None
Northern Ute Tribe of Utah	Rockies Express - 1/9/06; TransColorado - 4/3/06	No	Letters from NRG 4/10/06	Letters from ENSR 5/18/06	None
Southern Ute Tribe of Colorado	Rockies Express- 1/9/06; TransColorado - 4/3/06	No	No	Letters from ENSR 5/18/06	None
Ute Mountain Ute Tribe of Colorado	Rockies Express - 1/9/06; TransColorado - 4/3/06	No	No	Letters from ENSR 5/18/06	None
Northern Arapaho Tribe of Wyoming	Rockies Express - 1/9/06; TransColorado -4/3/06	Letters from Centennial 12/5/05; letter from Augustana College 12/6/05	Letter from NRG 4/10/06	Letters from ENSR 5/18/06	None
Northern Cheyenne Tribe of Montana	Rockies Express - 1/9/06; Overthrust - 4/3/06; TransColorado -4/3/06	Letters from Centennial 12/5/05; letter from Augustana College 12/6/05	Letters from NRG 4/10/06	Letter from ENSR 5/18/06	Letter dated 10/2/06 stated preference for proposed pipeline route adjacent to existing pipeline across Eagle Rock Ranch near Chalk Buttes in Colorado.

TABLE 4.10.1-1 (Continued)					
Tribal Contact Program – Rockies Western Phase Project					
Tribes Contacted	FERC NOI Issued	Rockies Express Contact	Overthrust Contact	TransColorado Contact	Tribal Response
Eastern Shoshone Tribe of Wyoming	TransColorado - 4/3/06	No	Letters from NRG 4/10/06	Letters from ENSR 5/18/06	None
Omaha Tribe of Nebraska	Rockies Express - 1/9/06	Letter from Augustana College 12/6/05; letters from ARG 12/2/05	No	No	None
Pawnee Nation of Oklahoma	Rockies Express - 1/9/06	Letters from Centennial 12/5/05; letter from Augustana College 12/6/05	No	Letter from ENSR 5/18/06	None
Ponca Tribe of Nebraska	Rockies Express - 1/9/06	Letter from Augustana College 12/6/05	No	No	None
Crow Creek Sioux Tribe of South Dakota	Rockies Express - 1/9/06	Letter from Centennial 12/5/05	No	No	None
Lower Brule Sioux Tribe of South Dakota	Rockies Express - 1/9/06	Letter from Augustana College 12/6/05	No	No	None
Oglala Sioux Tribe of South Dakota	Rockies Express - 1/9/06; Overthrust - 4/3/06	Letter from Centennial 12/5/05; letter from Augustana College 12/6/05; letter from ARG 2/7/06	Letters from NRG 4/10/06	No	None
Rosebud Sioux Tribe of South Dakota	Rockies Express - 1/9/06; Overthrust - 4/3/06	Letter from Augustana College 12/6/05; letter from ARG 2/7/06	Letters from NRG 4/10/06	No	Letter to the FERC, dated 5/2/06, indicated no concerns
Santee Sioux Tribe of Nebraska	Rockies Express - 1/9/06	Letter from Augustana College 12/6/05	No	No	None
Yankton Sioux Tribe of South Dakota	Rockies Express - 1/9/06		No	No	None

TABLE 4.10.1-1 (Continued)					
Tribal Contact Program – Rockies Western Phase Project					
Tribes Contacted	FERC NOI Issued	Rockies Express Contact	Overthrust Contact	TransColorado Contact	Tribal Response
Winnebago Tribe of Nebraska	Rockies Express - 1/9/06	Letter from Augustana College 12/6/05; letter from ARG 2/15/06	No	No	None
Iowa Tribe of Kansas and Nebraska	Rockies Express - 1/9/06	Letter from Augustana College 12/6/05	No	No	Letter to Augustana College, dated 12/29/05, indicating no objections
Iowa Tribe of Oklahoma	Rockies Express - 1/9/06	Letters from ARG 12/2/05	No	No	None
Kaw Nation of Oklahoma	Rockies Express - 1/9/06	Letters from ARG 12/2/05	No	No	Telephone inquiry to the FERC. Also fax to ARG, dated 2/3/06
Kickapoo Tribe in Kansas	Rockies Express - 1/9/06	Letters from ARG 12/2/05	No	No	Form to ARG, dated 1/6 & 1/9/06, indicating desire to consult with ARG
Miami Tribe of Oklahoma	Rockies Express - 1/9/06	Letter from ARG 12/2/05	No	No	Letter to the FERC, dated 1/20/06, indicated no concerns. Also form indicating desire to consult with ARG
Otoe-Missouria Tribe of Oklahoma	Rockies Express - 1/9/06	Letters from ARG 12/2/05	No	No	Form to ARG, dated 12/8 & 12/10/05, indicating desire to consult with ARG
Prairie Band of Potawatomi Nation in Kansas	Rockies Express - 1/9/06	No	No	No	None
Sac and Fox Nation of the Missouri in Kansas and Nebraska	Rockies Express - 1/9/06	Letter from Augustana College 12/6/05	No	No	Letter to the FERC, dated 2/1/06, indicated no objections. Also, letter to Augustana College, dated 1/6/06
Sac and Fox Nation of Oklahoma	Rockies Express - 1/9/06	Letters from Augustana College 12/6/05; letter from ARG 2/7/06	No	No	None

TABLE 4.10.1-1 (Continued)

Tribal Contact Program – Rockies Western Phase Project

Tribes Contacted	FERC NOI Issued	Rockies Express Contact	Overthrust Contact	TransColorado Contact	Tribal Response
Sac & Fox Tribe of the Mississippi in Iowa	Rockies Express - 1/9/06	Letters from Augustana College 12/6/05; letters from ARG 12/2/05 & 2/7/06	No	No	Letter to the FERC, dated 1/16/06, indicated no objections. Also forms to ARG, dated 12/9 & 12/16/05, indicating desire to consult with ARG. Letter to the FERC, dated 11/28/06, indicated no objections.
Delaware Tribe of Indians in Kansas	Rockies Express - 1/9/06	No	No	No	None
Eastern Shawnee Tribe of Missouri	Rockies Express - 1/9/06	Letter from ARG 12/2/05	No	No	None
Osage Nation of Oklahoma	Rockies Express - 1/9/06	No	No	No	None
Mescalero Apache Tribe of New Mexico	Rockies Express - 1/9/06	Letters from Centennial 12/5/05	No	No	None
Fort Sill Apache Tribe of Oklahoma	Rockies Express - 1/9/06	Letter from Centennial 12/5/05	No	No	None
Cheyenne River Lakota Tribe of South Dakota	Rockies Express - 1/9/06; Overthrust -4/3/06	Letters from Centennial 12/5/05; letter from Augustana College 12/6/05	Letters from NRG 4/10/06	No	Letter to NRG, dated 5/23/06, indicating no comments
Fort Peck Assiniboine & Sioux Tribes of Montana	Rockies Express - 1/9/06	Letter from Augustana College 12/6/05	No	No	None
Standing Rock Sioux Tribe of North Dakota	Rockies Express - 1/9/06	Letter from Augustana College 12/6/05	No	No	None
Kickapoo Tribe of Oklahoma	Rockies Express - 1/9/06	Letters from ARG 12/2/05	No	No	None
Choctaw Nation of Oklahoma	Rockies Express - 1/9/06	Letters from ARG 12/2/05	No	No	Letter to ARG, dated 12/13/05, indicating that project is outside of tribe's area of interest

TABLE 4.10.1-1 (Continued)

Tribal Contact Program – Rockies Western Phase Project

Tribes Contacted	FERC NOI Issued	Rockies Express Contact	Overthrust Contact	TransColorado Contact	Tribal Response
Delaware Nation of Oklahoma	Rockies Express - 1/9/06	Letters from ARG 12/2/05	No	No	None
Kickapoo Traditional Tribe of Texas	Rockies Express - 1/9/06	Letter from ARG 12/2/05	No	No	None
Crow Tribe of Montana	Overthrust - 4/3/06	No	Letters from NRG 4/10/06	No	Telephone call with NRG indicated that the project may be outside of Crow traditional territory
Shoshone-Bannock Tribes of Fort Hall Reservation, Idaho	TransColorado -4/3/06	No	Letters from NRG 4/10/06	Letters from ENSR 5/18/06	None
Northwestern Band of Shoshone Nation in Utah	TransColorado - 4/3/06	No	No	Letter from ENSR 5/18/06	None
Navajo Nation of New Mexico & Arizona	TransColorado - 4/3/06	No	No	No	None
Apache Tribe of Oklahoma	No	No	No	Letter from ENSR 5/18/06	None

4.10.1.4 Compliance with the NHPA

Colorado

Cultural resources surveys still need to be conducted for about 9 miles of the REX-West pipeline route in Colorado. Also, contractor yards, access roads, and any temporary workspace areas outside of the pipeline survey corridor still need to be inspected. Once these locations have been finalized and/or survey permission has been obtained, these areas should be inventoried and the results submitted to the SHPO and the FERC for review and approval prior to construction. In addition, during construction, an archaeologist should monitor right-of-way preparation at nine segments, totaling about 15 miles, and the trench should be inspected at 31 segments totaling 32 miles.

To date, there are 19 sites and 36 isolated finds along the inventoried portions of the pipeline route in Colorado that have been officially determined not eligible for the NRHP, requiring no further work. Additional information is required for nine sites (5LO578, 5LO579, 5SW102.1, 5SW106.1, 5SW12, 5SW108, 5SW109, 5SW121, and 5WL571) before we can make official determinations of eligibility and effect, in consultation with the SHPO. Rockies Express should avoid adverse effects at two NRHP-eligible historic railroads (site numbers 5LO572.1 and 5SW107.1) by means of boring underneath the sites and utilizing established crossing points for vehicular traffic, and needs to file avoidance plans for these two historic properties. We and the Colorado SHPO agree that site 5LO582 is eligible for listing on the NRHP; however, in its comments on the draft EIS, Rockies Express indicated that this site would be avoided during construction.

Wyoming

Cultural resources surveys still need to be completed for any as-yet unidentified contractor yards, access roads, and temporary extra workspace areas outside of the survey corridor in Wyoming. Once these locations have been identified and survey permission has been obtained, these areas would need to be inventoried and the results submitted to the SHPO and the FERC for review and approval prior to construction. In addition, during construction, Rockies Express should have an archaeologist monitor right-of-way preparation at one 0.4-mile-long segment and should inspect trenching at two segments totaling about 0.5 mile along the REX-West pipeline route in Laramie County.

To date, for all the proposed REX-West Project facilities in Wyoming where cultural resources inventories have been completed, eight sites and two isolated finds have been recommended as not eligible for listing on the NRHP. Additional information, in the form of the results of archaeological evaluative testing, is required at one site (48LA223). Two sites (48SW6357 and 48SW1834) are eligible for the NRHP; but project effects can be avoided by boring under these historic linear sites (a road and railroad). Rockies Express needs to file site-specific avoidance plans for 48SW1834 and 48SW6357.

Nebraska

Cultural resources surveys still need to be completed for about 22 miles of the REX-West pipeline route in Nebraska. Rockies Express also needs to document inventories covering the proposed KMIGT Meter Station, NNG Meter Station, contractor yard locations, new or improved access roads, and temporary extra workspace areas outside of the survey corridor. One potentially eligible archaeological site (25LN53) must be subjected to evaluative testing. In addition, Rockies Express needs to conduct deep backhoe testing at 35 geomorphological locations in Nebraska. The results of these investigations would have to be submitted for review and approval to the FERC and the SHPO prior to construction. During construction, Rockies Express should have an archaeologist monitor right-of-way

preparation for about a 0.9-mile-long segment, and the trench should be inspected at eight locations totaling about 3 miles (Mueller et al., 2006).

To date, 18 sites and 1 isolated find have been officially determined not eligible for the NRHP in Nebraska, requiring no further work. We cannot make a final determination of eligibility and effect for one site (25LN53) until the results of the testing program are provided to the FERC and the SHPO.

Kansas

About 1 mile total of pre-selected sample survey segments along the REX-West pipeline route still needs to be inventoried in Kansas. Cultural resources surveys also need to be completed for any as-yet unidentified contractor yards, access roads, and temporary extra workspace areas. Once these locations have been identified and/or survey permission has been obtained, these areas need to be inventoried and the results submitted to the SHPO and the FERC for review and approval prior to construction. In addition, Rockies Express must provide the results of deep backhoe trenching at 12 geomorphological locations in Kansas. Rockies Express also needs to address the SHPO's request for additional data on impacts to standing structures that may qualify for the NRHP.

To date, 20 archaeological sites have been officially determined not eligible for the NRHP, and require no further work. Three sites (14NH160, 14MH107, and 14MH110) are potentially eligible and should be subjected to evaluative testing. The results of the testing program must be submitted to the FERC and the SHPO before we could make official determinations of eligibility and effect.

Missouri

Cultural resources surveys still need to be completed for about 7 miles of pre-selected sample survey tracts along the REX-West pipeline route in Missouri. Also, Rockies Express needs to inventory any contractor yards, access roads, and temporary extra workspace areas outside of the survey corridor. Once these locations have been identified and/or permission has been obtained, the results of these surveys need to be submitted to the SHPO and the FERC for review and approval prior to construction. In addition, Rockies Express must provide the results of deep backhoe trenching at 18 geomorphological locations.

To date, 26 archaeological sites along the surveyed portions of the pipeline route in Missouri have been officially determined not eligible for listing on the NRHP, requiring no further work. Rockies Express will use a minor route realignment to avoid site 23AU139 (historic cemetery). Five sites (23CH343, 23CH344, 23CH348, 23AU137, and 23CI88) were recommended to be potentially eligible and should be archaeologically tested. Rockies Express must provide the FERC and the SHPO with the results of the evaluative testing program, so that we can make official determinations of eligibility and effect.

4.10.1.5 Conclusion

The process of fully complying with Section 106 of the NHPA has not yet been completed for the REX-West Project. Additional surveys and evaluative testing have not been completed, and plans to avoid eligible sites have not been finalized. If any historic property would be adversely affected by any segment of the project, the FERC would consult with the appropriate parties, including the SHPOs and BLM, to resolve adverse effects, and would request if the ACHP would like to participate in accordance with 36 CFR 800.6(a)(1). Rockies Express would be required to produce site-specific treatment plans for the mitigation of adverse effects at historic properties that cannot be avoided, to be reviewed and approved by the appropriate parties. These treatment plans would then be included as part of a

Memorandum of Agreement (MOA) between the FERC, SHPO, BLM (if the historic property is on BLM land), and the ACHP (if it decides to participate). Once an MOA is executed, Rockies Express would implement the specified treatment measures, after the Commission issues an Order authorizing the project. The FERC would ensure that treatment is carried out according to the terms of the MOA before construction is allowed in any given area where an historic property would be affected.

For the REX-West Project, we have fulfilled our responsibilities with regards to Section 101(d)(6) of the NHPA, 36 CFR 800.2(c)(2), and the AIRFA. The FERC and Rockies Express have contacted Indian tribes that may have historically used or occupied the project area and may attach religious or cultural significance to historic properties in the region. None of the tribes contacted identified any traditional cultural properties that may be affected by the project. Nor were any Native American religious or sacred sites identified in the APE by cultural resources contractors working for Rockies Express, the BLM, or the SHPOs.

To ensure that the FERC's responsibilities under the NHPA and its implementing regulations are met, we recommend that:

- **Rockies Express defer construction and use of facilities, including staging, storage, and temporary work areas and new or to be improved access roads until:**
 - a. **Rockies Express files with the Secretary all additional required cultural resource inventory and evaluation reports, and necessary avoidance or treatment plans, as well as any additional information that SHPOs or the BLM has requested;**
 - b. **Rockies Express files with the Secretary copies of the appropriate SHPO and BLM comments on all reports and plans;**
 - c. **the ACHP has been provided an opportunity to comment if any historic properties would be adversely affected; and**
 - d. **the Director of OEP reviews and approves all reports and plans and notifies Rockies Express in writing that it may proceed with treatment or construction.**

All material filed with the Commission that contains location, character, and ownership information about cultural resources must have the cover and any relevant pages therein clearly labeled in bold lettering: “CONTAINS PRIVILEGED INFORMATION - DO NOT RELEASE.”

4.10.2 TransColorado

4.10.2.1 Results of Cultural Resource Surveys

TransColorado stated in the environmental report included with its FERC application that the area encompassing the proposed 1,300-foot-long pipeline between the existing Conoco Gas Plant and the proposed Blanco Compressor Station, in San Juan County, New Mexico, is in an area of heavy industrial activity that was apparently surveyed for cultural resources in 1997 for its mainline. Although the new pipeline would be on private land, the BLM archaeologist for the Farmington District Office provided TransColorado with an e-mail stating that this area did not need another cultural resources survey. The BLM noted the presence of a previously recorded site in this vicinity, which was evaluated as not eligible for the NRHP. In letters dated May 18 and 26, 2006, from TransColorado's consultant (ENSR) to the New Mexico SHPO, it was stated that the 24-inch-diameter receipt pipeline between the Conoco Gas Plant and the proposed Blanco Compressor Station would be within a previously surveyed corridor, and requested concurrence that additional cultural resources investigations would not be necessary.

The May 26, 2006 letter to the New Mexico SHPO also addressed a 75-foot-long lateral to connect to the Conoco receipt pipeline with the El Paso Natural Gas Company system. ENSR believes that part of this lateral was covered by cultural resources surveys for the existing TransColorado mainline, and partly by other surveys, and requested that the SHPO concur that no additional work is needed.

TransColorado's FERC application did not address cultural resources coverage of the reroute of the existing TransColorado mainline through the proposed Blanco Compressor Station, which would involve construction of about 392 feet of discharge line and 478 feet of suction line proposes, to be installed parallel, and would connect the proposed Blanco Compressor Station with a new MLV on TransColorado's existing pipeline system.

The proposed Blanco Compressor Station would be located on a tract of land administered by the BLM Farmington Field Office. In an April 18, 2006 e-mail, the BLM district archaeologist indicated that the new compressor station location did not require a cultural resources survey because the proposed site was likely already examined during past investigations.

The proposed Blanco Hub Meter Station was addressed in the May 18, 2006 letter to the SHPO. ENSR believes this location may have been subject to past cultural resources surveys, and requested that the SHPO concur that no additional work is necessary.

On May 16, 2006, TransColorado filed a copy of a letter report by Alpine providing the results of a site file search and Class I investigation for the proposed expansion of its existing Greasewood Compressor Station in Rio Blanco County, Colorado. That report indicated that the area encompassing the proposed expansion was inventoried in 1997. No cultural resources were found during the 1997 survey (Redman, 2006).

Also on May 16, 2006, TransColorado filed a copy of a cultural resources survey report prepared by Alpine that covered the proposed Conn Creek Compressor Station in Garfield County, Colorado. Two potential locations, one a block of 11 acres and the other a block of 12.6 acres, were inventoried. The survey identified one previously unrecorded historic feature (the Cissna Ditch No. 2, 5GF3829.1), that was evaluated as not eligible for the NRHP, and no further archaeological work was recommended (Greubel, 2006).

The Colorado SHPO accepted Alpine's recommendations in correspondence dated May 19, 2006. We concur with the SHPO, that construction of the proposed Conn Creek Compressor Station should have no effect on historic properties.

4.10.2.2 Native American Consultations

The FERC sent copies of its April 3, 2006 TransColorado NOI for the Blanco to Meeker Project to Indian tribes that historically used or occupied the project area, or may attach religious or cultural significance to historic properties in the region. Our mailing list included the U.S. Department of the Interior, Bureau of Indian Affairs office in Gallup, New Mexico; various BLM offices in New Mexico and Colorado; New Mexico SHPO; Navajo Nation; Southern Ute Tribe; Ute Mountain Ute Tribe; Northern Ute Tribe; Northern Cheyenne Tribe; Northern Arapaho Tribe; Eastern Shoshone Tribe; Northwestern Band of Shoshone Nation; and the Shoshone-Bannock Tribes. No responses from Indian tribes to our TransColorado NOI have been filed.

In its FERC application, TransColorado indicated that on May 18, 2006, it sent certified letters to initiate consultations with Native Americans residing in or having cultural ties to the project area. The list of Indian tribes contacted included the Southern Ute Tribe, Northern Ute Tribe, Ute Mountain Ute Tribe, Northern Cheyenne Tribe, Northern Arapaho Tribe, Cheyenne and Arapaho Tribes of Oklahoma, Shoshone-Bannock Tribes, Northwestern Band of Shoshone Nation, Eastern Shoshone Tribe, Jicarilla Apache Nation, Apache Tribe of Oklahoma, Comanche Nation of Oklahoma, and the Kiowa Tribe of Oklahoma (see table 4.10.1-1).

In letters dated September 1, 2006, to the New Mexico and Colorado SHPOs, TransColorado provided a list of the Indian tribes it contacted, and requested comments. No responses from the SHPOs have been filed yet.

In response to TransColorado's contact program, the NAGPRA Coordinator for the Comanche Tribe indicated, in a letter dated June 19, 2006, that the tribe has no concerns about the project. However, the Comanche Nation would like to receive copies of archaeological reports. In a letter dated July 26, 2006, the Director of the Jicarilla Apache Cultural Affairs office indicated that the Jicarilla Nation has no concerns about the project.

4.10.2.3 Unanticipated Discovery Plans

In letters dated September 1, 2006, to the New Mexico and Colorado SHPOs, TransColorado conveyed copies of its draft Unanticipated Historic Properties and Human Remains Discovery Plans. The SHPOs have not yet commented on the plans. The plans were filed with the FERC on September 8, 2006.

4.10.2.4 Compliance with the NHPA

TransColorado needs to file the comments of the New Mexico SHPO on the elements of the undertaking in that state. In particular, we need the New Mexico SHPO's opinion on whether or not additional cultural resources surveys are necessary for the reroute of the mainline at the proposed Blanco Compressor Station, the new pipeline connecting the existing Conoco Gas Plant to the proposed Blanco Compressor Station, the new pipeline connecting the receipt pipeline with the El Paso Meter Station, the new Blanco Compressor Station, and the Blanco Hub Meter Station. In addition, TransColorado needs to file the comments of the New Mexico and Colorado SHPOs on the contact program with Indian tribes, and its Unanticipated Discovery Plan. Two cultural resources were identified within the APE for the

proposed TransColorado facilities. We have determined these sites to be not eligible for the NRHP, requiring no further work.

We have not yet completed the process of complying with the NHPA because consultations with the SHPOs are incomplete. To ensure that the FERC's responsibilities under the NHPA and its implementing regulations are met, **we recommend that:**

- **TransColorado defer construction and use of facilities, including any staging, storage, and temporary work areas and new or to be improved access roads until:**
 - a. **TransColorado files with the Secretary the New Mexico SHPO's opinion on whether or not additional cultural resource surveys are required for the proposed facilities in New Mexico, files the New Mexico and Colorado SHPOs' comments on the contact program with Indian tribes, and files the SHPOs' comments on TransColorado's Unanticipated Discovery Plans;**
 - b. **TransColorado files any additional required cultural resource inventory and evaluation reports, and necessary avoidance or treatment plans, and the comments of the New Mexico and Colorado SHPOs on all reports and plans, not previously filed; and**
 - c. **the Director of OEP reviews and approves all reports and plans and notifies TransColorado in writing that it may proceed.**

All material filed with the Commission containing location, character, and ownership information about cultural resources must have the cover and any relevant pages therein clearly labeled in bold lettering: "CONTAINS PRIVILEGED INFORMATION -DO NOT RELEASE."

4.10.3 Overthrust

4.10.3.1 Results of Cultural Resource Surveys

Overthrust, through its consultant, Natural Resources Group, Inc. (NRG), initially contacted the Wyoming SHPO on March 14, 2006, and requested its participation in the FERC Pre-Filing Process for the Wamsutter Expansion Project. NRG also requested that the SHPO provide input on Native Americans that should be contacted by Overthrust about the proposed project. NRG initiated consultations with the Rock Springs and Rawlins BLM Field Offices on February 27, 2006, and with the Kemmerer Field Office on March 10, 2006 and requested their participation in the Pre-Filing Process. The BLM archaeologist at Kemmerer was informed that the proposed Roberson Compressor Station and Opal Receipt Meter Station would be within the jurisdiction of the Kemmerer Field Office, and recommendations for Native American contacts were requested. The BLM archaeologist at Rawlins was informed that a portion of the proposed pipeline would be within the jurisdiction of the Rawlins Field Office, and recommendations for Native American contacts were requested. The BLM archaeologist at Rock Springs was informed that most of the Wamsutter Expansion pipeline route and the proposed Rock Springs Compressor Station would be under the jurisdiction of the Rock Springs Field Office, and survey methods and Native American contacts were discussed. The BLM Rock Springs archaeologist indicated, in an April 5, 2006 telephone conversation with NRG, that the survey corridor for the pipeline route should be either 50 feet on each side of the permanent right-of-way or 25 feet on each side of the construction right-of-way.

A cultural resources survey was conducted by Metcalf Archaeological Consultants, Inc. (Metcalf) between April and July, 2006, for the proposed Wamsutter Expansion pipeline. Metcalf inventoried a 300-foot-wide corridor for about 84 miles, including alternative routes. The pipeline survey identified 79 sites, including 52 previously recorded sites and 27 newly discovered sites. Metcalf conducted evaluative archaeological testing at 30 sites. Metcalf's report indicated that 70 archaeological sites are within the pipeline construction right-of-way; however, 11 previously recorded sites were not relocated by Metcalf's survey; these were probably destroyed by other activities. Eighteen extant sites within the pipeline construction right-of-way were evaluated as either previously determined eligible or potentially eligible for the NRHP. All of the other sites, including all of the 28 isolated finds identified by Metcalf are either evaluated as not eligible for the NRHP or are outside of the construction right-of-way and would not be affected by the project. Metcalf indicated that no historic properties should be adversely affected, because the pipeline would either go through non-contribution portions of eligible sites, or the construction right-of-way would be narrowed to miss cultural remains which may contribute to site significance, or the pipeline would be rerouted to avoid eligible properties. Further, Metcalf recommended that during construction, an archaeologist should monitor trenching for the entire length of the pipeline (Scott et al., 2006).

Metcalf also conducted a block survey of 20 acres at the proposed Rock Springs Compressor Station location, in Sweetwater County, Wyoming. One previously recorded site, the Rock Springs-to-Vernal Freight Road (48SW4164), was identified within the southwestern portion of the survey block. This site was previously determined eligible for the NRHP (McKibbin, 2006). In Overthrust's revised cultural resource survey report, filed on October 19, 2006, Metcalf recommended that the segment of the road within the project area is a noncontributing element and no further work is necessary at site 48SW4164. The revised report was also provided to the Wyoming SHPO.

Metcalf's pipeline survey report also covered the proposed location of the Wamsutter Delivery Point. While several previously recorded sites were noted in the vicinity, no cultural resources were identified within the APE for this meter station.

NRG conveyed a copy of Metcalf's survey report to the BLM Rock Springs and Rawlins Field Offices on July 14, 2006. In a letter to the FERC dated August 14, 2006, the BLM provided a consolidated review by the Rock Springs and Rawlins Field Offices. The BLM agreed with Metcalf's findings of eligibility and effect, with one exception. The BLM disagreed with Metcalf's assessment that site 48SW1647 is not eligible, and requested additional archaeological testing to clarify its evaluation. Metcalf's report was subsequently revised to address the BLM's comments.

On December 27, 2006, Overthrust filed an addendum survey report by Metcalf covering 36 proposed access roads; 8 ancillary areas including yards, staging areas, and temporary extra workspaces; and a 1,500-foot-long reroute between MPs 29.2 and 29.5. The access roads combined totaled about 30 miles in length, and the ancillary areas combined totaled about 105 acres. The access road surveys identified 16 previously recorded archaeological sites and 4 newly recorded isolated finds, of which 5 extant sites (48SW6065, 6531, 6623, 6832, and 8431) were evaluated as eligible for the NRHP. Four archaeological sites and one isolated find were recorded within the ancillary areas combined; with one site (48SW8432) identified as eligible for the NRHP. One previously recorded archaeological site (48SW5024) was identified along the pipeline reroute, and recommended as eligible for the NRHP. Metcalf believed that, except for site 48SW5024, the portions of the eligible sites within the APE do not contribute to their significance. The report recommended fencing be installed along access roads near two eligible sites (48SW6531 and 48SW6832) to prevent potential impacts, and that construction of the pipeline reroute in the vicinity of site 48SW5024 should be monitored (Smith et al., 2006).

The Rock Springs Field Office of the BLM provided the FERC with consolidated comments on Metcalf's addendum report of surveys for access roads, ancillary areas, and pipeline reroute, in a letter dated January 3, 2007. The BLM agreed with the report's findings for eligibility and effect, and concurred with the recommendations for fencing and monitoring at specific sites.

On behalf of Overthrust, SWCA conducted cultural resources surveys of the proposed Roberson Compressor Station in Lincoln County, Wyoming. About 33 acres were inventoried at the compressor station location and extra work space areas, and one previously recorded site was identified and recommended as not eligible for the NRHP. Overthrust indicated that it provided the Wyoming SHPO with a copy of the SWCA survey report covering the proposed Roberson Compressor Station on April 14, 2006.

A copy of the SWCA survey report was sent to the BLM Kemmerer Field Office by NRG on May 18, 2006. The BLM provided its comments on the report in a letter to the Wyoming SHPO, dated June 18, 2006. In the opinion of the Kemmerer Field Office, the only resource at the proposed Roberson Compressor Station location was a prehistoric site, evaluated as not eligible for the NRHP and outside the APE.

The proposed TL-90 Tie-in was covered by SWCA's inventory for Overthrust's Expansion Project in Docket No. CP06-167-000. Two sites were identified in this vicinity; one (48LN2522) is unevaluated and the other (48LN533) was assessed as not eligible for the NRHP. Overthrust, in comments on our draft EIS, filed December 27, 2006, indicated that it has modified the Wamsutter Expansion Project to avoid site 48LN2522.

We provided our determinations for the Wamsutter Expansion Project to the Wyoming SHPO in a letter dated September 28, 2006. The Wyoming SHPO reviewed the revised Metcalf Wamsutter Expansion inventory report in a letter dated December 5, 2006, and indicated that while sites 48SW1962, 2018, 6068, 6546, 8607, 16460, 16464, 16472, 16479, and 16531 are eligible for the NRHP they would not be adversely affected by the project. In a letter to the FERC dated December 6, 2006, the Wyoming SHPO provided its review of Metcalf's addendum report and agreed with the report's findings that sites 48SW5024, 6531, 6623, 6832, 8431, and 8432 are eligible for the NRHP, but would not be adversely affected by the project. In addition, the SHPO agreed with Metcalf's recommendation for fencing the roads near sites 48SW6531 and 6532, and for monitoring pipeline construction in the vicinity of site 48SW5024. In a letter to the FERC dated December 5, 2006, the Wyoming SHPO reviewed the SWCA inventory report for the Roberson Compressor Station, and agreed that site 48LN3834 is not eligible for the NRHP. We concur with the SHPO's and BLM's reviews of all of those reports.

4.10.3.2 Native American Consultations

Indian tribes on the mailing list for the FERC's April 3, 2006 Overthrust NOI included the Comanche Nation, Northern Cheyenne Tribe, Oglala Lakota Nation, Rosebud Sioux Tribe, Cheyenne River Sioux Tribe, and Crow Tribe. In response to our NOI, the Rosebud Sioux Tribe wrote a letter to the Secretary of the Commission, dated May 2, 2006, indicating no concerns about the Wamsutter Expansion Project.

On March 28, 2006, Overthrust sent out letters announcing an informational open house to be held in Rock Springs on April 6, 2006. This letter was sent to landowners and interested parties, including Indian tribes. The Comanche Tribe of Oklahoma responded, in a letter dated May 15, 2006, indicating it had no immediate concerns. However, the Comanche Tribe would like copies of the cultural resources reports and would like to be notified if human remains are discovered during construction. Overthrust provided copies of survey reports to the Comanche Tribe on July 14, 2006 and December 1, 2006.

On April 10, 2006, Overthrust sent out letters to Indian tribes with an interest in the project area, informing them about the project and requesting comments. That letter was sent to the Eastern Shoshone Tribe of Wyoming, Northern Arapaho Tribe of Wyoming, Northern Ute Tribe of Utah, Shoshone-Bannock Tribes of Fort Hall in Idaho, Northern Cheyenne Tribe of Montana, Oglala Sioux Tribe of Pine Ridge in South Dakota, Rosebud Sioux Tribe of South Dakota, Cheyenne River Sioux Tribe of South Dakota, and the Crow Tribe of Montana (see table 4.10.1-1). In response to its contract program, Overthrust received a letter dated May 23, 2006, from the Cheyenne River Sioux Tribe indicating no comments about the Wamsutter Expansion Project.

4.10.3.3 Unanticipated Discovery Plans

A Plan for Unanticipated Historic Properties and Human Remains in Wyoming was attached as Appendix E to Metcalf's pipeline survey report (Scott et al., 2006), filed with Overthrust's FERC application on July 19, 2006. The report also included a Construction Monitoring Plan. The BLM reviewed this report in a letter dated August 14, 2006. The SHPO reviewed a revised version of Metcalf's report on December 5, 2006. Because the BLM and SHPO accepted the report, we believe that the discovery plan included with it was also found acceptable, and we concur.

4.10.3.4 Compliance with the NHPA

The cultural resources survey reports filed with the FERC by Overthrust covering its proposed facilities identified 85 archaeological sites and 33 isolated finds. Seventeen extant sites within the APE for the pipeline were determined eligible for the NRHP. We, the BLM, and SHPO agree with Metcalf's evaluations that the project would have no adverse effects on those historic properties because the pipeline would pass through portions of the sites that do not contribute to their significance. In the case of site 48SW16476, Metcalf's revised report documented additional testing, as required by the BLM, showing that the site is not eligible for the NRHP, and the SHPO accepted that report. Metcalf also identified six NRHP-eligible sites within the access roads, ancillary areas, and reroute covered by an addendum report, and we, the BLM, and SHPO agree that the project should have no adverse effect on them. Likewise, although a NRHP-eligible site was identified within the area surveyed for the Rock Springs Compressor Station, the portion of the site within the APE is considered non-contributing.

We provided our determinations of eligibility and effect to the Wyoming SHPO in a letter dated September 28, 2006. In letters dated December 5 and 6, 2006, the Wyoming SHPO accepted the inventory reports produced by Metcalf and SWCA covering Overthrust's proposed facilities and agreed with the findings that no historic properties would be adversely affected by the project. Metcalf committed Overthrust to having a professional archaeological contractor monitor construction of the Wamsutter Expansion Project pipeline. If any cultural resources are identified during construction monitoring, Overthrust must follow the procedure outlined in its project-specific Unanticipated Discovery and Construction Monitoring Plans.

The FERC and Overthrust contacted Indian tribes that may have historically used or occupied the project area and may attach religious or cultural significance to historic properties in the region, in accordance with Section 101(d)(6) of the NHPA, 36 CFR 800.2(c)(2), and the AIRFA. None of the tribes contacted have indicated that the project has the potential to adversely affect important Native American traditional cultural properties or religious or sacred sites.

4.11 AIR QUALITY AND NOISE

4.11.1 Air Quality

Impacts on air quality generally fall into two categories: temporary impacts resulting from emissions associated with the operation of construction equipment, and long-term or permanent impacts resulting from emissions generated by the operation of natural gas-fired compressor units. Construction-related emissions from heavy equipment would be of a similar nature regardless of the project. In addition, all three components of the Rockies Western Phase Project would involve the addition of new natural gas-fired compressor stations or individual compressor units that would fall under the same air permitting regulations. For these reasons and for clarity of presentation, we have grouped our air quality impacts analysis so that all three Project components are discussed together.

The Rockies Western Phase Project would consist of the installation of approximately 795.6 miles of new natural gas pipeline, the construction of nine new compressor stations, and the addition of additional compressor units at three existing or previously certificated stations. The Project facilities would extend over six states: Colorado, Wyoming, Nebraska, Kansas, Missouri, and New Mexico. However, potential air quality impacts would occur principally from the natural gas-fired compressor stations that would be constructed along the route. Table 4.11.1-1 provides an overview of each of the proposed compressor facilities.

Entity	Compressor Station	Location	Status	Proposed Units	ISO Rated HP ^{a/}	Fuel Type
Rockies Express	Meeker	Meeker, CO	Existing	2 Turbines, 3 Reciprocating Engines, and 1 Emergency Generator	25,515	Natural Gas
	Wamsutter	Wamsutter, WY	Existing	3 Turbines and 1 Emergency Generator	24,000	Natural Gas
	Echo Springs	Echo Springs, WY	New	2 Reciprocating Engines	7,100	Natural Gas
	Cheyenne	Weld County, CO	New	3 Compressors	35,500	Electric
	Julesburg	Julesburg, CO	New	2 Compressors	35,000	Electric
	Steele City	Steele City, NE	New	2 Turbines and 1 Emergency Generator	37,470	Natural Gas
TransColorado	Turney	Turney, MO	New	2 Compressors	35,000	Electric
	Blanco	San Juan County, NM	New	2 Reciprocating Engines and 1 Emergency Generator	4,855	Natural Gas
	Conn Creek	Garfield County, CO	New	2 Reciprocating Engines, 1 Main Generator, and 1 Emergency Generator	8,102	Natural Gas
Overthrust	Greasewood	Rio Blanco County, CO	Existing	1 Reciprocating Engine	3,550	Natural Gas
	Roberson	Lincoln County, WY	New	2 Reciprocating Engines and 1 Emergency Generator	31,045	Natural Gas
	Rock Springs	Rock Springs, WY	New ^{b/}	1 Reciprocating Engine and 1 Emergency Generator	16,045	Natural Gas

^{a/} ISO-rated horsepower is the total for the newly proposed units at each compressor station.

^{b/} The Rock Springs Compressor Station would be constructed adjacent to the existing Rock Springs Compressor Complex.

As shown in table 4.11.1-1, the proposed Rockies Express Cheyenne, Julesburg, and Turney Compressor Stations would have electric motor-driven compressors units. Thus, these stations would only have short-term construction-related air quality emissions, and subsequently, no long-term operational air quality impacts on the surrounding areas. The remaining stations would have natural gas-fired sources that would result in operational impacts on air quality; therefore, our analysis focuses on the nature and extent of these potential impacts.

All of the Applicants would file the necessary applications for air quality construction permits. Rockies Express conducted air dispersion modeling for the Meeker, Wamsutter, and Steele City Compressor Stations as required by air permit applications. TransColorado conducted Class II dispersion modeling for the Blanco and Conn Creek Compressor Stations. The Colorado Department of Public Health and Environment (CDPHE) conducted a cumulative air dispersion modeling analysis for the Greasewood Compressor Station due to the number of sources near the station in order to ensure compliance with the ambient air quality standards. Overthrust conducted Class II dispersion modeling for the Rock Springs and Roberson Compressor Stations. Each of the compressor stations would be required to comply with the federal, state, and local air quality permitting requirements.

4.11.1.1 Existing Air Quality

The regional climate in the Project area is predominantly classified as continental, with portions of Wyoming, Colorado, and New Mexico classified as semi-arid. The climate becomes warmer and more humid in Nebraska and Missouri as compared to the western portions of the Project area (*i.e.*, Wyoming, Colorado, and New Mexico). Representative annual average maximum temperature, minimum temperature, precipitation, snowfall, wind speed, and wind direction for each station are presented in table 4.11.1-2.

Station <u>a/</u>	Meteorological Monitor Location	Maximum Temperature (°F)	Minimum Temperature (°F)	Precipitation (inches) <u>b/</u>	Total Snowfall (inches) <u>c/</u>	Wind Speed (mph)	Wind Direction (degrees)
Meeker	Craig, CO	57.9	1.1	82.1	24.0	8.1 <u>d/</u>	ESE <u>d/</u>
Wamsutter	Wamsutter, WY	55.3	27.3	51.9	7.0	12.9 <u>e/</u>	WNW <u>e/</u>
Echo Springs	Rawlins, WY	55.2	0.8	51.9	7.0	12.9 <u>e/</u>	WNW <u>e/</u>
Steele City	Fairbury, NE	64.2	39.1	31.0	24.3	10.5 <u>f/</u>	SSE <u>f/</u>
Blanco	Bloomfield, NM	67.5	37.1	8.6	11.4	8.9 <u>g/</u>	SE <u>g/</u>
Conn Creek	Rifle, CO	64.3	31.2	11.6	38.6	8.1 <u>d/</u>	ESE <u>d/</u>
Greasewood	Meeker, CO	60.4	27.4	16.4	69.5	8.1 <u>d/</u>	ESE <u>d/</u>
Roberson	Wamsutter, WY	55.3	27.3	51.9	7.0	7.0 <u>h/</u>	WSW <u>h/</u>
Rock Springs	Wamsutter, WY	55.3	27.3	51.9	7.0	7.0 <u>h/</u>	WSW <u>h/</u>

a/ Only natural gas-fired compressor stations are listed, because electric motor-driven stations would not impact the air quality.
b/ Precipitation amounts are liquid equivalents (*i.e.*, amounts include rainfall as measured, and snowfall as a liquid equivalent [how much rain it would be equal to when the snow is melted]).
c/ Total snowfall is the measured snowfall depth.
d/ Based on 30 years (1961-1990) of data from Grand Junction, CO.
e/ Based on 38 years of data from Laramie, WY.
f/ Based on 63 years of data from Omaha, NE.
g/ Based on 30 years (1961-1990) of data from Albuquerque, NM.
h/ Based on data from Lander, WY.

Ambient air quality is regulated by federal, state, and local agencies. The EPA has established National Ambient Air Quality Standards (NAAQS) for seven criteria pollutants: carbon monoxide (CO), sulfur dioxide (SO₂), particulate matter based on a particle size of 10 microns or less (PM₁₀) and particle size of 2.5 microns or less (PM_{2.5}), nitrogen dioxide (NO₂), ozone (O₃), and lead (Pb). The NAAQS were developed to protect human health (primary standards) and public welfare (secondary standards). In addition to the NAAQS, individual state ambient air quality standards have been developed by Colorado, New Mexico, Wyoming, and Nebraska. Table 4.11.1-3 lists the NAAQS and state ambient air quality standards for the seven criteria pollutants.

TABLE 4.11.1-3

Federal and State Ambient Air Quality Standards

Pollutant	Averaging Period	NAAQS	CAAQS <u>a/</u>	NMAAQS <u>a/</u>	WAAQS <u>a/</u>	NDEQ AAQS <u>a/</u>
CO	1-Hour <u>b/</u>	35 ppm (40,000 µg/m ³)	40,000 µg/m ³	13.1 ppm	40,000 µg/m ³	40,000 µg/m ³
	8-Hour <u>b/</u>	15 ppm (10,000 µg/m ³)	10,000 µg/m ³	8.7 ppm	10,000 µg/m ³	10,000 µg/m ³
SO ₂	3-Hour <u>b/</u>	0.5 ppm (1,300 µg/m ³)	700 µg/m ³	Not Applicable	1,300 µg/m ³	1,300 µg/m ³
	24-Hour <u>b/</u>	0.14 ppm (365 µg/m ³)	365 µg/m ³	0.10 ppm	260 µg/m ³	365 µg/m ³
	Annual <u>c/</u>	0.03 ppm (80 µg/m ³)	80 µg/m ³	0.02 ppm	60 µg/m ³	80 µg/m ³
PM ₁₀	24-Hour <u>b/</u>	150 µg/m ³	150 µg/m ³	Not Applicable	150 µg/m ³	150 µg/m ³
	Annual <u>c/</u>	50 µg/m ³	50 µg/m ³	Not Applicable	50 µg/m ³	50 µg/m ³
PM _{2.5} <u>h/</u>	24-Hour <u>d/</u>	65 µg/m ³	Not Applicable	Not Applicable	65 µg/m ³	65 µg/m ³
	Annual <u>e/</u>	15 µg/m ³	Not Applicable	Not Applicable	15 µg/m ³	15 µg/m ³
NO ₂	24-Hour	Not Applicable	Not Applicable	0.10 ppm	Not Applicable	Not Applicable
	Annual <u>c/</u>	0.053 ppm (100 µg/m ³)	0.053 ppm (100 µg/m ³)	0.050 ppm	100 µg/m ³	100 µg/m ³
O ₃	1-Hour <u>f/</u>	0.12 ppm (235 µg/m ³)	0.12 ppm (235 µg/m ³)	Not Applicable	160 µg/m ³	0.12 ppm (235 µg/m ³)
	8-Hour <u>g/</u>	0.08 ppm (157 µg/m ³)	0.08 ppm (157 µg/m ³)	Not Applicable	Not Applicable	0.08 ppm (157 µg/m ³)
Pb	3-Month <u>c/</u>	1.5 µg/m ³	1.5 µg/m ³	Not Applicable	1.5 µg/m ³	1.5 µg/m ³

a/ CAAQS – Colorado Ambient Air Quality Standards
 NMAAQS – New Mexico Ambient Air Quality Standards
 WAAQS – Wyoming Ambient Air Quality Standards
 NDEQ AAQS – Nebraska Department of Environmental Quality Ambient Air Quality Standards

b/ Not to be exceeded more than once per year.

c/ Arithmetic mean not to exceed.

d/ The 3-year average of the 98th percentile of 24-hour concentrations must not exceed.

e/ The 3-year average of the annual arithmetic mean concentrations from a single or multiple local monitors must not exceed.

f/ The number of days with a maximum 1-hour average concentration greater than the standard must be <=1. EPA revoked the 1-hour standard on June 15, 2005.

g/ The 3-year average of the 4th highest daily maximum 8-hour average concentrations at each location over a year must not exceed.

h/ Values presented are existing NAAQS. On December 20, 2005, the EPA signed proposed revisions to the NAAQS for PM₁₀ and PM_{2.5} and introduced a new NAAQS for PM_{10-2.5} and plans to take final action on the proposed revision in September 2006.

ppm parts per million

µg/m³ micrograms per cubic meter

() parenthetical value is an approximate equivalent concentration

The EPA has characterized all areas of the United States as attainment, unclassifiable, maintenance, or non-attainment with respect to the NAAQS. Areas where a pollutant's ambient air concentration is less than the NAAQS are designated as attainment, while areas where no ambient air quality data are available are designated as unclassifiable. Unclassifiable areas are treated as attainment areas for the permitting of stationary sources. Non-attainment areas are where a pollutant's ambient air concentration is greater than its respective NAAQS. If an area that was designated non-attainment has

since demonstrated compliance with the NAAQS, it is considered a maintenance area. For permitting of stationary sources, maintenance areas are treated as attainment areas. However, the state's approved maintenance plan may contain specific provisions for the permitting of stationary sources to ensure that the air quality in the area would continue to comply with the NAAQS. All nine of the proposed natural gas-fired compressor stations would be located in areas designated by the EPA as attainment or unclassifiable for the seven regulated criteria pollutants.

A network of ambient air quality monitoring stations has been established by the EPA, as well as state and local agencies to measure and track the background concentrations of the criteria pollutants across the United States. To characterize the background air quality in the regions surrounding the proposed compressor stations, data from several existing air quality monitoring stations were obtained. These monitoring stations are located near to the proposed compressor station sites and provide information on regional ambient air quality conditions. For some criteria pollutants, ambient air quality monitoring data in the vicinity of the proposed compressor stations were not available; therefore, the best available data were used to represent the air quality at those stations. A summary of the regional background air quality concentrations for each natural gas-fired compressor station is presented in table 4.11.1-4.

Air Quality Regulatory Requirements

The Rockies Western Phase Project would generate air emissions through both short-term construction activities and long-term operation of the compressor stations. The proposed compressor stations would emit air pollutants as a result of natural gas combustion that powers the compressors. Each of the compressor stations would be subject to federal, state, and local air quality regulations that are driven by the Federal Clean Air Act of 1970 (CAA) and its amendments. The CAA, 42 United States Code 7401 et seq. as amended in 1977 and 1990 is the basic federal statute governing air pollution. The provisions of the CAA that are potentially relevant to the Project are listed below and discussed in the following subsections.

- New Source Review (NSR) / Prevention of Significant Deterioration (PSD);
- Federal Class I Area Protection;
- New Source Performance Standards (NSPS);
- Maximum Achievable Control Technology (MACT) / National Emission Standards for Hazardous Air Pollutants (NESHAP); and
- Title V Operating Permits.

New Source Review (NSR) / Prevention of Significant Deterioration (PSD)

NSR is required for major emission sources to be located or expanded in a non-attainment area, while PSD review is required for major emission sources to be located or expanded in an area designated as attainment. None of the proposed natural gas-fired compressor stations would be located in a non-attainment area; therefore, NSR would not apply to any of the proposed stations.

TABLE 4.11.1-4

Regional Background Air Quality Concentrations

Station <u>a/</u>	CO (ppm)		SO ₂ (ppm)			PM ₁₀ (µg/m ³)		PM _{2.5} (µg/m ³)		NO ₂ (ppm)	O ₃ (ppm)
	1-Hour	8-Hour	3-Hour	24-Hour	Annual	24-Hour	Annual	24-Hour	Annual	Annual	8-Hour
Meeker	4.8	2.8	0.028	0.011	0.002	64	25	21	7.6	0.027	0.078
Wamsutter	4.8	2.8	0.028	0.011	0.002	30	13	10	4.1	0.027	0.078
Echo Springs	4.8	2.8	0.028	0.011	0.002	30	13	10	4.1	0.027	0.078
Steele City	3.9	2.5	0.152	0.052	0.003	128	41	24	8.3	0.018	0.056
Blanco	1.9	1.3	0.074	0.013	0.002	34	16	11	5.5	0.13 (0.053) <u>b/</u>	0.075
Conn Creek	0.8	0.8	0.007	0.004	0.002	23	11	ND	ND	0.007	ND
Greasewood	0.8	0.8	0.007	0.004	0.002	23	11	ND	ND	0.007	ND
Roberson	4.8	2.8	0.028	0.011	0.002	30	13	10	4.1	0.027	0.078
Rock Springs	4.8	2.8	0.028	0.011	0.002	30	13	10	4.1	0.027	0.078

a/ Only natural gas-fired compressor stations are listed, because electric motor-driven stations would not impact the air quality.

b/ Ambient NO₂ concentration presented in the parentheses represents the maximum 1-hour recorded NO₂ concentration for a conservative comparison to the 24-hour NO₂ NMAAQS.

ND – No data

The PSD regulations, as codified in 40 CFR 52.21, define a major source or major modification as:

- a source with a potential-to-emit (PTE) of more than 100 tons per year (tpy) of any regulated NSR pollutant for a facility that is one of the 28 industrial source categories listed in 40 CFR 52.21 (b)(1)(i)(a);
- a source with a PTE of more than 250 tpy of any regulated NSR pollutant for a facility that is not one of the 28 industrial source categories listed in 40 CFR 52.21 (b)(1)(i)(a);
- a modification to an existing major source that results in a net emissions increase of a regulated NSR pollutant greater than the PSD significant emission rate specified in 40 CFR 52.21 (b)(23)(i) or in state/local regulations where state/local regulations are governing; or
- an existing minor source proposing a modification that is major by itself.

The PSD process evaluates existing ambient air quality, the potential impacts of the proposed source on ambient air quality and whether the source would contribute to a violation of the NAAQS, and a review of Best Available Control Technology (BACT). PSD limits the amount of ambient air deterioration that would be allowed in an attainment area by a proposed source. As part of PSD, the air quality deterioration within federal Class I areas (*i.e.*, federally protected wilderness areas and national parks) is also limited.

Natural gas compressor stations are not identified in the list of 28 source categories in section 169 of the CAA; and thus, the applicability threshold for PSD review for the proposed stations would be 250 tpy. Because new natural gas-fired units are proposed for three existing compressor stations (Meeker, Wamsutter, and Greasewood), these new units may have PSD applicability thresholds less than 250 tpy. To determine the appropriate PSD applicability threshold for these new units, the current PSD source classification of these existing stations must be known. If the existing station is considered a minor PSD source, then the PSD applicability threshold for the proposed station would be 250 tpy.

The existing Rockies Express Meeker and Wamsutter Compressor Stations are considered minor PSD sources; and therefore, the PSD applicability threshold for these proposed Stations would be 250 tpy. Because TransColorado's existing Greasewood Compressor Station and Overthrust's existing Rock Springs Compressor Complex (which consists of the Coleman, Kanda, and Nightingale Stations) are considered major PSD sources, the PSD applicability thresholds listed in 40 CFR 52.21(b)(23) include CO at 100 tpy, NO_x at 40 tpy, SO₂ at 40 tpy, volatile organic compounds (VOC) at 40 tpy, and PM/PM₁₀ at 25 tpy/15 tpy. Although the potential emissions from the proposed Greasewood and Rock Springs Compressor Stations are below these PSD applicability thresholds, air quality dispersion modeling would still be required according to the CDPHE and Wyoming Department of Environmental Quality (WDEQ) for the permitting review of these stations.

Based on the emissions data available for each proposed/modified station (presented in table 4.11.1-5), the estimated potential emission rates for each pollutant would be below the 250 tpy threshold, and none of the new or modified compressor stations would trigger PSD review.

TABLE 4.11.1-5

Estimated Operational Emission Rates for Proposed/Modified Compressor Stations

Compressor Station <u>a/</u>	Proposed Sources	CO		SO ₂		PM ₁₀ /PM _{2.5}		NO _x		VOC		HAPs	
		lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Meeker <u>b/</u>	Solar Taurus 60 (2)	21.02	27.40	1.62	6.74	0.72	2.96	15.50	27.02	6.02	15.70	0.12	0.51
	Caterpillar 3612	1.37	6.00	0.19	0.89	0.25	1.19	5.48	24.00	2.00	9.46	0.67	2.93
	Caterpillar 3616 (2)	3.64	16.00	0.50	2.40	0.66	3.18	14.62	64.02	5.30	25.06	1.79	7.82
	Caterpillar SR4B	2.00	0.50	0.003	0.0008	0.11	0.03	28.87	7.22	0.28	0.07	0.18	0.05
	<i>Meeker Total</i>	<i>28.03</i>	<i>49.9</i>	<i>2.31</i>	<i>10.03</i>	<i>1.74</i>	<i>7.36</i>	<i>64.47</i>	<i>122.26</i>	<i>13.6</i>	<i>50.29</i>	<i>2.76</i>	<i>11.31</i>
Wamsutter <u>c/</u>	Solar Taurus 70 (3)	41.61	64.17	3.27	13.71	1.44	6.02	28.71	59.55	11.91	33.20	0.39	0.52
	Caterpillar 3508	2.23	0.56	0.003	0.0007	0.05	0.01	2.79	0.70	2.93	0.73	0.36	0.09
	<i>Wamsutter Total</i>	<i>43.84</i>	<i>64.73</i>	<i>3.27</i>	<i>13.71</i>	<i>1.49</i>	<i>6.03</i>	<i>31.50</i>	<i>60.25</i>	<i>14.84</i>	<i>33.93</i>	<i>0.75</i>	<i>0.61</i>
Echo Springs <u>d/</u>	Caterpillar 3612 (2)	2.74	12.00	0.38	1.78	0.50	2.38	10.96	48.00	4.00	18.92	1.34	5.86
Steele City <u>e/</u>	Solar Titan 130 (2)	75.22	76.72	4.62	18.92	2.02	8.32	51.90	75.62	21.54	43.94	0.32	1.38
	Caterpillar SR4B	2.11	0.53	0.003	0.0007	0.05	0.01	2.22	0.55	0.90	0.22	0.38	0.10
	<i>Steele City Total</i>	<i>80.07</i>	<i>89.25</i>	<i>5.00</i>	<i>25.70</i>	<i>2.57</i>	<i>10.71</i>	<i>65.08</i>	<i>124.17</i>	<i>26.44</i>	<i>63.08</i>	<i>2.04</i>	<i>7.34</i>
Blanco <u>d/</u>	Caterpillar 3608LE & Ford WGS-1068	4.9	9.0	0.02 <u>e/</u>	0.09 <u>e/</u>	0.39 <u>e/</u>	1.6 <u>e/</u>	9.1	32.5	4.3	18.8	ND	3.49
Conn Creek <u>f/</u>	Caterpillar 3612LE & Waukesha H24GSID	3.4	14.7	0.03 <u>e/</u>	0.14 <u>e/</u>	0.54 <u>e/</u>	2.4 <u>e/</u>	12.0	52.6	6.6	28.7	0.144	5.16
Greasewood <u>f/</u>	Caterpillar 3612LE	1.4	6.0	0.02 <u>e/</u>	0.07 <u>e/</u>	0.27 <u>e/</u>	1.2 <u>e/</u>	5.5	24.0	3.2	14.2	ND	ND
Roberson <u>g/</u>	Solar Mars 100 (2) & APU	32.4	96.2	0.6	2.6	1.3	5.2	57.8	82.9	0.8	1.7	0.98	4.26
Rock Springs <u>g/</u>	Solar Mars 100 & APU	16.8	27.7	0.3	1.5	0.8	2.9	45.9	31.0	0.6	1.0	0.50	2.20

a/ Only natural gas-fired compressor stations listed because electric motor-driven stations would not impact the air quality.

b/ Reference June 2006 Air Permit application submitted to the CDPHE.

c/ Reference June 2006 Air Permit application submitted to the WDEQ.

d/ Reference Meeker Compressor Station June 2006 Air Permit application submitted to the CDPHE.

e/ Reference August 2006 Air Permit application submitted to the NDEQ. Emission rates based on vendor estimates for a Solar Titan 130 20502S turbine equipped with SoLoNOx.

d/ Emission rates presented reflect controlled rates. Caterpillar 3608LE emissions data for CO, NO_x, HAPs, and VOC are from Caterpillar 3608 spec sheet. Ford Model WGS-1068 annual emissions based on 500 hours per year of operation.

e/ Emission rates for SO₂ and PM₁₀/PM_{2.5} are based on EPA AP-42, Chapter 3.2, Table 3.2-2. PM₁₀/PM_{2.5} emission rates include contributions from filterable and condensable PM.

f/ Emission rates presented reflect controlled rates. Caterpillar 3612LE emissions data for CO, NO_x, HAPs, and VOC are from Caterpillar 3612 spec sheet.

g/ Auxiliary Power Unit (APU) potential emissions based on 250 hours per year of operation.

ND – No Data

Federal Class I Area Protection

In 1977, the U.S. Congress designated certain lands (*e.g.*, national parks or wilderness areas) as Mandatory federal Class I areas (federal Class I areas) because the air quality was considered a special feature of the given area. These federal Class I areas, and any other areas that have been re-designated federal Class I areas since 1977, are given special protection under the PSD program. The PSD program established air pollution increment increases that are allowed by new or modified air pollution sources. If the new source is required to comply with PSD program requirements and is near (within 100 km of) a federal Class I areas, the source is required to determine its impacts at the nearby federal Class I area(s). The source is also required to notify the appropriate federal land manager(s) for the nearby federal Class I area(s)

The nearest federal Class I area, the Flattops Wilderness area, is about 37 miles from the Meeker Compressor Station and 35 miles from the Greasewood Compressor Station. The Wamsutter Compressor Station is located about 70 miles, 100 miles, and 120 miles from the Mount Zirkel Wilderness area, Rawah Wilderness Area, and the Rocky Mountain National Park, respectively. The Blanco Compressor Station site is about 43 miles from the Mesa Verde National Park and 50 miles from the Weminuche Wilderness area. The Conn Creek Compressor Station site is about 62 miles from the Maroon Bells-Snowmass Wilderness Area. The Roberson and Rock Springs Compressor Station sites are approximately 75 miles south of the Bridger Wilderness Area and approximately 170 miles south of the Grand Teton National Park. The REX-West, Blanco to Meeker, and Wamsutter Expansion Projects would not be subject to PSD program requirements and therefore would not be required to assess impacts to these federal Class I areas.

New Source Performance Standards (NSPS)

The NSPS, codified in 40 CFR 60, apply to new, modified, or reconstructed stationary sources that meet or exceed specified applicability thresholds. The NSPS are divided into several subparts. Each subpart regulates a specific source type and size, and defines emission limitations and monitoring requirements that are applicable to a particular source group. Subpart KKK applies to VOC emissions from equipment leaks at onshore natural gas processing plants, while subpart LLL applies to sweetening units and sulfur recovery units at facilities that process natural gas. The compressor stations proposed as a part of the Rockies Western Phase Project do not meet these definitions and therefore are not subject to Subparts KKK and LLL. The potentially applicable subparts are addressed below.

On July 6, 2006, the EPA published the final NSPS Subpart KKKK (Standards of Performance for Stationary Gas Turbines) rule in the Federal Register. Subpart KKKK applies to new stationary combustion turbines that are larger than ten million British thermal units per hour (MMBtu/hr) and that commence construction, modification, or reconstruction after February 18, 2005. The NO_x emission standards for natural gas-fired combustion turbines in Subpart KKKK are listed in table 4.11.1-6.

Turbine Size Category (MMBtu/hr)	New Units	
	ppmv @ 15 percent O ₂	Lb / MW-hour
≥ 10 to ≤ 50	100	5.5
> 50 to ≤ 850	25	1.2
> 850	15	0.43

The SO₂ emission standard is 0.060 lb SO₂/MMBtu or 0.90 lb/MW-hour, with compliance being demonstrated by meeting the SO₂ emissions limit or by monitoring the sulfur content of the fuel itself to ensure the sulfur content is below 500 parts per million by weight (ppmw). An initial full-load performance test conducted by the Applicants would be required to demonstrate compliance with this standard and then subsequent annual tests would be required. However, if the tested NO_x emission rate is less than 75 percent of the applicable standard then the emission tests are required only every two years.

The Overthrust and Rockies Express turbine-driven compressor units would have a heat input rating between 50 and 850 MMBtu/hr and the regulatory limit would be 25 ppmw@15 percent O₂ (1.2 lb/MW-hr). Each unit would be installed with dry low-NO_x control technology to meet the NO_x requirements for Subpart KKKK. The pipeline-quality natural gas fuel for the units at the Rock Springs and Roberson Compressor Stations would contain less than 20 ppmw sulfur. Rockies Express would use a current valid purchase contract, tariff sheet, or transportation contract indicating the total sulfur in the natural gas to demonstrate compliance, with no additional sulfur monitoring required. Overthrust and Rockies Express would meet all applicable Subpart KKKK requirements for monitoring, recordkeeping, and reporting.

Maximum Achievable Control Technology (MACT) / National Emission Standards for Hazardous Air Pollutants (NESHAP)

The NESHAP was codified in 40 CFR Parts 61 and 63 to regulate the emissions of hazardous air pollutants (HAPs). The 1990 CAA established a list of 189 HAPs and technical criteria for establishing HAP emission limits for certain industries. Both combustion turbines and reciprocating engines are on the list of 174 categories of major and area sources that would be subject to the emission standards. The turbines would be subject to 40 CFR 63 Subpart YYYY that requires MACT to reduce emissions of HAPs through the installation of control equipment rather than through risk-based emission limits. Natural gas-fired combustion turbines inherently have low HAP emissions; thus additional control technologies may not be required for MACT compliance. Neither the Overthrust nor the Rockies Express proposed/modified compressor stations with combustion turbines are expected to be major sources, and therefore would not be required to demonstrate compliance with 40 CFR 63.

The reciprocating engines would be subject to the reciprocating internal combustion engine (RICE) MACT standard published in 40 CFR Part 62 Subpart ZZZZ if the station rating is greater than 500 hp and the station's potential HAP emissions exceed 10 tpy of an individual HAP or 25 tpy of HAPs collectively (*i.e.*, major source of HAPs). The TransColorado and Rockies Express compressor stations with RICEs would have a station rating greater than 500 hp.

Internal combustion engines are also required to control CO and formaldehyde emissions. CO emissions from four-stroke lean burn engines must be reduced by 93 percent or the formaldehyde concentration in the flue gases must be 14 ppmvd at 15 percent O₂. Demonstrating compliance with this emission requirement could be through monitoring of CO emissions as a surrogate for the formaldehyde emission reduction. However, no method for compliance has been determined yet, but one possibility is an oxidation catalyst on the engines.

Oxidation catalysts would be installed on the units at the Meeker, Blanco, Conn Creek, and Greasewood Compressor Stations to control CO and HAPs emissions. The Echo Springs Compressor Station is not expected to be a major source. As shown in table 4.11.1-5, the total potential HAPs emissions for these compressor stations would be below the major source thresholds and would be minor sources for HAPs, meeting compliance with Subpart ZZZZ.

Title V Operating Permits

Title V of the CAA Amendments of 1990 requires a federal operating permit for major sources of criteria pollutants and requires states to establish an air operating permit program. The requirements for Title V are outlined in 40 CFR 70 and the permits required by these regulations are often referred to as Part 70 permits.

If a facility's PTE exceeds the criteria pollutant or HAPs thresholds, the facility is considered a major source. The Title V major source threshold level is 100 tpy of a criteria pollutant. The facility-wide criteria pollutant emissions would exceed 100 tpy at the Meeker Compressor Station and would require a Title V operating permit. Rockies Express would submit a Title V Operating Permit to the CDPHE no later than 12 months after the commencement of operations. The Rock Springs Compressor Station would be located adjacent to Overthrust's existing Rock Springs Compressor Complex (Coleman, Kanda, and Nightingale Compressor Stations) and its emissions, with the exceptions of HAPs, would be aggregated with the Rock Springs Compressor Complex emissions. Therefore, the Rock Springs Compressor Station would be a Title V major source. If TransColorado determines that its proposed activities would trigger a major source for Title V permit requirements, it would submit the appropriate permit application to the respective state agency. Overthrust would submit a modification to its existing Title V permit to include the Rock Springs Compressor Station.

4.11.1.2 Construction Impacts

Construction impacts on air quality are mainly due to potential fugitive dust released during construction activities. Dust suppression techniques, such as watering or the application of surfactant chemicals may be used along with covering open-bodied trucks while in motion to reduce the impacts of fugitive dust during the construction period. The Nebraska Department of Environmental Quality (NDEQ) and Colorado have specific fugitive dust-related permitting requirements. Title 129, Chapter 32 of Nebraska's Air Quality Regulations specifies requirements for dust emissions control throughout construction. Colorado's air quality rule for fugitive dust emissions applies to construction and land clearing activities. Certain activities are exempt from filing an Air Pollution Emission Notice (APEN) because they are deemed to have a negligible impact on air quality. One such exempted category is surface area disturbances for land development that do not exceed 25 acres and do not exceed 6 months in duration. Colorado Regulation 1 also requires that a fugitive dust control plan be submitted by applicants whose activity results in fugitive dust emissions. The control plan must minimize fugitive dust emissions to a level that is economically feasible and economically reasonable. A fugitive dust control plan form for land development activities is included in the land development APEN. The other states affected by the proposed Project may also require the Applicants to apply some type of dust suppression technique, especially in residential and commercial areas.

The mitigation measures utilized by each Applicant could include proper maintenance of construction equipment, watering of the construction sites for fugitive dust control, if necessary, and minimizing soil disturbances to areas necessary for construction. Although the New Mexico Environmental Department, Air Quality Branch does not have regulations which require that a formalized dust control plan be developed, TransColorado would implement mitigation measures for construction activities.

The construction equipment and other mobile sources would be powered by diesel or gasoline fuels and would have intermittent and short-term emissions of CO, SO₂, NO_x, PM₁₀/PM_{2.5}, and VOCs. Emissions from gasoline and diesel engines would be minimal because the engines are built to comply with the EPA mobile source regulations (40 CFR Part 85). Furthermore, the EPA is requiring that the maximum sulfur content of diesel fuel for highway vehicles be reduced from 500 ppm by weight to 15

ppm by weight by mid-2006. Thus, the lower sulfur diesel fuel should be readily available during the construction of the Project. Because the construction equipment would only be operated on an as-needed basis and only during daylight hours, the emissions resulting from the operation of construction equipment should be further minimized.

Open burning during construction activities also has the potential to impact air quality. All of the states along the route of the proposed pipeline regulate open burning through local permitting processes. Generally, the local agencies require that open burning occur only during daylight hours, when forecast winds would be less than 20 mph, and that permittees have water trucks and/or heavy equipment available to suppress the fire if necessary. For example, the Nebraska Air Quality Regulations, Title 129, Chapter 30 provides the appropriate protocol for open burning for the disposal of trees, brush, vegetation, and untreated lumber. Any necessary local open burning permits would be obtained prior to conducting such activities and the local open burning ordinances would be followed during such activities.

Because pipeline construction moves through an area relatively quickly, air emissions are typically intermittent and short-term. Emissions from fugitive dust, construction activities, and open burning would be controlled to the extent required by state and local agencies. If the Applicants comply with the appropriate state regulations concerning the mitigation of fugitive dust emissions, we believe that the Rockies Western Phase Project would incorporate sufficient measures to ensure adequate levels of air quality during construction at the compressor stations. Thus, we conclude that emissions from construction-related activities would not significantly affect local or regional air quality and would not cause nor contribute to an exceedance of the ambient air quality standards.

4.11.1.3 Operational Impacts

Operational emissions resulting from the proposed Project would be associated with the operation of the nine natural gas-fired compressor stations proposed by the Applicants. These compressor stations would be used to compress natural gas for transportation through the pipeline. Combustion emissions from these stations would mainly consist of NO_x, CO, HAPs, and VOCs with small amounts of SO₂ and PM₁₀/PM_{2.5} (see table 4.11.1-5). As stated in Section 4.11.1.1, none of the proposed compressor stations would have potential emissions in quantities large enough to trigger PSD review. Therefore, the proposed compressor stations would be minor sources relative to the PSD permitting process and would require State-only construction and operating air permits.

The Applicants have identified all of the applicable federal, state, and local air quality regulations that would apply to each of their stations and would be required to comply with these regulations. Compliance with these regulations would minimize the air quality impacts of the proposed stations and construction activities. The respective state air quality permitting process for each station would dictate the level of mitigation that may be required for the potential emissions from each station. Following the permitting process, emissions compliance testing would be required to ensure that the stations would be operating within their federal, state, and local permit conditions.

The modifications to the Meeker Compressor Station and the new Rock Springs Compressor Station would have a potential to emit greater than 100 tpy of NO_x or CO; and thus, would be considered Title V major sources. The Applicants would be required to obtain all necessary air quality permits for construction and operation for the stations prior to commencing construction regardless of the station being a Title V major source. Through the permitting process, the potential emissions from the proposed compressor stations would be in compliance with federal, state, and local regulations.

Each Applicant modeled future air emissions in accordance with guidance from the appropriate state air permitting agencies, and demonstrated that the proposed compressor stations would not have a

significant impact on air quality and that the operation of the stations would not cause or contribute to a violation of the NAAQS and any state ambient air quality standards. Rockies Express conducted air quality dispersion modeling for the proposed Meeker, Wamsutter, and Steele City Compressor Stations as required by the Colorado, Wyoming, and Nebraska state agencies, respectively, for their construction and operating air permits. Colorado and Nebraska required that potential CO, SO₂, PM₁₀, and NO_x emissions be modeled from the proposed Meeker and Steele City Compressor Stations. Wyoming required the potential emissions of NO_x and formaldehyde be modeled from the proposed Wamsutter Compressor Station. The results of this modeling are presented in Table 4.11.1-7. The results presented in table 4.11.1-7 indicate that the compressor stations would not cause or contribute to a violation of the NAAQS or any other state or local ambient air quality standard or any state cancer risk value.

Pollutant	Averaging Period	SIL (µg/m ³) a/	Meeker		Steele City		Wamsutter	
			Total Air Quality Concentration (µg/m ³) b/	CAAQS (µg/m ³)	Total Air Quality Concentration (µg/m ³) b/	NDEQ AAQS (µg/m ³)	Total Air Quality Concentration (µg/m ³) b/	WAAQS (µg/m ³)
CO	1-Hour	2,000	537 c/	40,000	7,795	40,000	Not Applicable	Not Applicable
	8-Hour	500	346 c/	10,000	2,330	10,000	Not Applicable	Not Applicable
SO ₂	3-Hour	25	114	700	131	1,300	Not Applicable	Not Applicable
	24-Hour	5	26	365	55	365	Not Applicable	Not Applicable
	Annual	1	8	80	13	80	Not Applicable	Not Applicable
PM ₁₀	24-Hour	5	398 d/	150	63	150	Not Applicable	Not Applicable
	Annual	1	31	50	25	50	Not Applicable	Not Applicable
NO ₂	Annual	1	81	100	19	100	3	100
Formaldehyde	Annual	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	9.97x10 ⁻⁷ e/	1x10 ⁻⁶ f/

a/ SIL – significant impact level
b/ Total air quality concentration = maximum modeled proposed Project concentration plus the representative background concentration and the modeled off-site source inventory concentration, if applicable
c/ Project-only maximum modeled concentration. Because the Project-only maximum modeled concentration was less than the SIL, no further analyses were required.
d/ The total air quality concentration was due to an off-site source, not the proposed Meeker Compressor Station. Further review of the modeled concentration indicates that the proposed Meeker Compressor Station contributes only 0.1 µg/m³ to the total air quality concentration.
e/ This incremental cancer risk value represents the cumulative risk value (i.e., includes potential emissions from off-site sources). The proposed Wamutter Compressor Station contributes 6.68x10⁻⁷ to the cumulative incremental risk value.
f/ The Wyoming target cancer risk value for annual formaldehyde

TransColorado conducted air quality dispersion modeling for the proposed Blanco and Conn Creek Compressor Stations, while the CDPHE conducted a cumulative air quality dispersion modeling for the proposed TransColorado Greasewood Compressor Station including the nearby sources. Potential CO, SO₂, PM₁₀, and NO_x emissions were modeled from the proposed Blanco and Conn Creek Compressor Stations by TransColorado for comparison to the Colorado and New Mexico air quality standards, respectively. The CDPHE modeled only potential NO_x emissions from the proposed Greasewood Compressor Station as potential emissions of CO, SO₂, and PM₁₀ are below the CDPHE modeling emission threshold levels. Table 4.11-1-8 presents the results of these modeling analyses. Based on the results presented in table 4.11.1-8, the proposed compressor stations would not cause or contribute to a violation of the NAAQS or any other state or local ambient air quality standard.

TABLE 4.11.1-8								
TransColorado Air Quality Modeling Results								
Pollutant	Averaging Period	Blanco			Conn Creek		Greasewood	
		SIL (µg/m ³)	Total Air Quality Concentration (µg/m ³) b/	NMAAQS (µg/m ³) a/	Total Air Quality Concentration (µg/m ³) b/	CAAQS (µg/m ³)	Total Air Quality Concentration (µg/m ³) b/	CAAQS (µg/m ³) a/
CO	1-Hour	2,000	77 c/	12,356	841 c/	40,000	Not Applicable	40,000
	8-Hour	500	39 c/	8,206	350 c/	10,000	Not Applicable	10,000
SO ₂	3-Hour	25	9 c/	1,300	95	700	Not Applicable	700
	24-Hour	5	2 c/	216	31	365	Not Applicable	365
	Annual	1	0.2 c/	43	8	80	Not Applicable	80
PM ₁₀	24-Hour	5	3 c/	150	64	150	Not Applicable	150
	Annual	1	0.3 c/	50	14	50	Not Applicable	50
NO ₂	24-Hour	5 d/	190 e/	155	Not Applicable	Not Applicable	Not Applicable	Not Applicable
	Annual	1	45	78	53	100	117 f/	100

a/ NMAAQS (3-hour SO₂ and 24-hour and annual PM₁₀)

b/ Total air quality concentration = maximum modeled proposed Project concentration plus the representative background concentration and the modeled off-site source inventory concentration, if applicable.

c/ Project-only maximum modeled concentration. Because the Project-only maximum modeled concentration was less than the SIL, no further analyses were required.

d/ The 24-hour NO₂ SIL presented is a New Mexico-only SIL.

e/ The total air quality concentration was due to off-site sources, not the proposed Blanco Compressor Station. Further review of the modeled concentration indicates that the proposed Blanco Compressor Station contributes 0.0 µg/m³ to the total air quality concentration.

f/ The total air quality concentration was due to off-site sources, not the proposed Greasewood Compressor Station. Further review of the modeled concentration indicates that the proposed Greasewood Compressor Station contributes only 0.4 µg/m³ to the total air quality concentration.

For the proposed Rock Springs and Roberson Compressor Stations, Overthrust performed air quality dispersion modeling for potential NO_x and formaldehyde emissions as requested by the WDEQ. Results of the modeling analyses for these compressor stations are presented in table 4.11.1-9 and indicate that the compressor stations would not cause or contribute to a violation of the NAAQS or any other state or local ambient air quality standard or any state cancer risk value.

TABLE 4.11.1-9 Overthrust Air Quality Modeling Results						
Pollutant	Averaging Period	SIL ($\mu\text{g}/\text{m}^3$)	Rock Springs		Roberson	
			Total Air Quality Concentration ($\mu\text{g}/\text{m}^3$) <u>a/</u>	WAAQS ($\mu\text{g}/\text{m}^3$)	Total Air Quality Concentration ($\mu\text{g}/\text{m}^3$) <u>a/</u>	WAAQS ($\mu\text{g}/\text{m}^3$)
NO ₂	Annual	1	85	100	7	100
Formaldehyde	Annual	Not Applicable	9.19×10^{-9} <u>b/</u>	1×10^{-6} <u>c/</u>	1.10×10^{-9}	1×10^{-6} <u>c/</u>

a/ Total air quality concentration = maximum modeled proposed Project concentration plus the representative background concentration and the modeled off-site source inventory concentration, if applicable.
b/ This incremental cancer risk value represents the cumulative risk value (*i.e.*, includes potential emissions from off-site sources). The proposed Rock Springs Compressor Station contributes 9.35×10^{-10} to the cumulative incremental risk value.
c/ The Wyoming target cancer risk value for annual formaldehyde

Emissions from a blowdown of the pipeline or compressor station could occur on a very rare basis, associated with emergency or maintenance operations. Such a blowdown could generate emission of VOCs, consisting primarily of propane. Due to the infrequent occurrence, we conclude that there would be no significant air quality impacts from blowdowns.

Because the new facilities would be required to obtain all applicable permits and approvals prior to construction, we conclude that the Rockies Western Phase Project would not cause or contribute to a violation of the NAAQS or any other state or local ambient air quality standard.

4.11.2 NOISE

Noise impacts generally fall into two categories: temporary impacts resulting from operation of construction equipment, and long-term or permanent impacts resulting from operation of compressor units. Construction-related noise from heavy equipment would be of a similar nature regardless of the project. In addition, all three Applicants have proposed additional compression that would fall under the same noise level requirements. For these reasons and for clarity of presentation, we have grouped our noise impacts analysis so that all three Project components are discussed together.

Noise would affect the local environment during both the construction of the Rockies Western Phase Project facilities and operation of each of the proposed compressor stations associated with the Project. The ambient sound level of a region is defined by the total noise generated within the specific environment, and is usually comprised of sound emanating from natural and artificial sources. At any location, both the magnitude and frequency of environmental noise may vary considerably over the course of the day and throughout the week. This variation is caused in part by changing weather conditions and the effects of seasonal vegetative cover.

Two measures used by federal agencies to relate the time-varying quality of environmental noise to its known effect on people are the 24-hour equivalent sound level ($L_{\text{eq}(24)}$) and the day-night sound level (L_{dn}). The $L_{\text{eq}(24)}$ is the level of steady sound with the same total (equivalent) energy as the time-varying sound of interest, averaged over a 24-hour period. The L_{dn} takes into account the duration and time the noise is encountered. The L_{dn} is the $L_{\text{eq}(24)}$ with 10 decibels on the A-weighted scale (dBA) added to sound levels between the hours of 10 p.m. and 7 a.m., to account for people's greater sensitivity to sound during nighttime hours.

In 1974, the EPA published Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety. This publication evaluates the effects of environmental noise with respect to health and safety. The document provides information for state and local governments to use in developing their own ambient noise standards. The EPA has determined that to protect the public from activity interference and annoyance outdoors in residential areas, noise levels should not exceed an L_{dn} of 55 dBA. The FERC has adopted this criterion for new compression and associated facilities, and it is used here to evaluate the potential noise impact from operation of each of the proposed compressor stations. An L_{dn} of 55 dBA is equivalent to a continuous noise level of 48.6 dBA for facilities that operate at a constant level of noise.

Several of the compressor station sites are located in the state of Colorado, which has a noise standard that is applicable to those sites. The Colorado standard limits noise at a distance of 25 feet or more from the property line of the applicable land use category. These limits are shown in table 4.11.2-1.

Land Use Category	Daytime (7 am to 7 pm)	Nighttime (7 pm to 7 am)
Residential	55 dBA	50 dBA
Commercial	60 dBA	55 dBA
Light Industrial	70 dBA	65 dBA
Industrial	80 dBA	75 dBA

In addition, Rio Blanco County has a land use resolution that limits compressor station noise to no greater than 65 dBA at any adjoining property line. This would apply to the new facilities proposed by TransColorado at Greasewood. However, we note that the FERC standard (*i.e.*, limiting operational compressor station noise to an L_{dn} of no greater than 55 dBA) is the most restrictive standard for each compressor station site for nearby noise-sensitive areas (NSAs) in Colorado. Therefore, the FERC standard is what we are applying to the Rockies Western Phase Project.

There are no applicable state or local noise regulations in Wyoming, Nebraska, Missouri, or New Mexico.

Each Applicant evaluated potential noise impacts by conducting both a background noise monitoring program at the nearest NSA(s) and a noise impact evaluation. The noise impact evaluations included calculating expected increases in noise associated with construction and by calculating expected noise levels due to operation of each project. The expected noise levels were then compared to the FERC standard for permissible noise levels at NSAs.

Existing Noise Environment

Existing NSAs were identified in the vicinity of each of the compressor station sites. At most sites, each Applicant conducted ambient noise monitoring at each NSA, or, at a minimum, the closest NSA. Ambient noise levels were estimated for some sites. Measurements were conducted during daytime hours only. Nighttime noise levels were estimated and a calculated L_{dn} was determined. The NSAs, their distance and direction from each site, and the measured or estimated noise levels are summarized in table 4.11.2-2. (Note: There are no NSAs within 5 miles of the Roberson Compressor Station site; thus, Overthrust did not conduct ambient noise level measurements at this site.)

TABLE 4.11.2-2

Identified NSA Locations and Measured/Estimated Ambient Noise Levels

Entity	Compressor Station	NSA	Distance/Direction	L _{Day}	L _{Night} ^{a/}	L _{dn}
Rockies Express	Cheyenne	NSA#1	3,500 feet/ NNW	48.9	---	55.3
		NSA #2	9,900 feet / S	39.8	---	46.2
	Julesburg	NSA #1 ^{b/}	2,900 feet / WSW	42.5	---	48.9
		NSA #2	4,200 feet / WNW	42.5	---	48.9
		NSA #3 ^{b/}	4,400 feet / NNE	42.5	---	48.9
	Steele City	NSA #1	1,700 feet / S	41.9	40.0	46.7
		NSA #2	2,600 feet / ESE	44.1	40.0	47.3
		NSA #3	3,300 feet / N	43.3	40.0	47.0
	Turney	NSA #1	2,200 feet / ESE	38.3	38.3	44.7
		NSA #2	2,000 feet / NE	36.3	36.3	42.8
		NSA #3	3,100 feet / ESE	40.7	40.7	47.1
	Wamsutter	NSA #1	8,390 / NW	---	---	67.4 ^{c/}
	Echo Springs ^{d/}	NSA #1	>5,280 feet any direction	40.0	40.0	46.4
	Meeker	NSA #1	2,100 feet / SSE	---	---	59.5 ^{c/}
	TransColorado	Blanco	NSA #1	1,300 feet / WSW	48.6	48.6
NSA #2			1,600 feet / NW	48.6	48.6	55.0
Conn Creek		NSA#1	>5,280 feet any direction	40	40	46.4
Greasewood		NSA#1	1,900 feet / NNW	---	---	46.0 ^{e/}
Overthrust	Roberson ^{f/}	NSA#1	>5,280 feet any direction	---	---	---
	Rock Springs	NSA#1	6,336 feet / N	50.4	50.4	56.8

^{a/} L_{night} was not measured; it was either not provided, estimated based on area noise sources, or assumed to be equal to L_{day}.
^{b/} Existing ambient level estimated based on NSA #2 ambient data.
^{c/} Ambient level based on Rockies Express data request response #23. Data are from docket number CP04-413-000.
^{d/} Estimated ambient noise levels. No noise measurements were conducted at this NSA.
^{e/} Measured with existing Greasewood station under full load conditions. This level was calculated by extrapolating the measured sound level at a location approximately 150 feet from the Greasewood Hub, where Greasewood Hub noise was dominant, out to the distance to NSA1. The effects of distance and atmospheric absorption were considered in the calculation.
^{f/} The nearest NSA is 5 miles away. No noise measurements were conducted.

Construction Noise

Construction activity and associated noise levels would vary depending on the phase of construction in progress at any one time. These construction phases include site grading, clearing/grubbing, building construction, etc. The highest level of construction noise is assumed to occur during earth work.

Each Applicant calculated maximum estimated construction sound levels for some of the compressor station sites. These noise levels, calculated only for the nearest NSA locations, are presented in table 4.11.2-3. Overthrust and Rockies Express are not proposing any nighttime construction, so there would be no difference between the L_{eq} and L_{dn} sound levels. Rockies Express has not indicated if pile driving activities would be required at any of the compressor station sites, and did not include such in its noise analyses.

TABLE 4.11.2-3

Maximum Calculated Construction Noise Levels at the Nearest NSA Location at Each Compressor Station Site			
Entity	Compressor Station	NSA	Construction Noise Level (L_{eq} or L_{dn})
Rockies Express	Cheyenne	NSA#1	46
	Julesburg	NSA#1	48
	Steele City	NSA#1	53
	Turney	NSA#2	51
	Wamsutter	NSA#1	ND
	Echo Springs	NSA#1	ND
	Meeker	NSA#1	52
TransColorado	Blanco	NSA#1	55
	Conn Creek	NSA#1	ND
	Greasewood	NSA#1	v
Overthrust	Roberson	NSA#1	ND
	Rock Springs	NSA#1	ND
<hr style="width: 20%; margin-left: 0;"/> ND – No data.			

Based on the analyses conducted and the results presented above, we do not anticipate any noise impacts associated with construction of the Rockies Western Phase Project.

Operational Noise

Each Applicant performed noise analyses to calculate noise levels that would be attributable to operation of the proposed compressor stations. These levels were evaluated against the existing baseline L_{dn} noise levels and our impact criterion to determine potential impacts at the nearby NSAs.

The calculated noise levels for each compressor station operating under full load conditions, as well as the existing ambient sound level and future sound level for the nearest NSAs, are presented in table 4.11.2-4. The modeling analyses for each proposed new/modified compressor station incorporated specific mitigation measures to reduce noise impacts. The Applicants indicated that these measures were included in their noise analyses to achieve the noise levels presented. These mitigation measures included some or all of the following measures, depending on site location:

- using enclosures for the combustion turbines, engines or motors and associated compressors;
- installing a motor ventilation system inside the compressor buildings;
- incorporating silencers and/or sound level limits for the inlets, exhausts, supply fans, and other machinery;
- using silencers for gas venting blowdowns;
- installing outdoor piping underground soon after the pipes exit the buildings;
- adding acoustical pipe insulation for aboveground outdoor suction/discharge piping near the compressor buildings;
- covering the outdoor exposed metal pipe support guides with acoustical material; and
- various other noise-reducing measures.

TABLE 4.11.2-4

Calculated Operational Noise Levels Summary

Entity	Compressor Station	Location	Existing Measured L _{dn} (dBA)	Calculated Project L _{dn} Level (dBA)	Cumulative Future Noise Level (L _{dn}) <u>a/</u> (dBA)	Increase Over Existing (dB)
Rockies Express	Cheyenne	NSA#1	55.3	45.4	55.7	0.4
		Nearest Property Line	---	66.6	---	---
	Julesburg	NSA#1	48.9	48.1	51.5	2.6
		Nearest Property Line	---	57.5	---	---
	Steele City	NSA#1	46.7	52.0	53.1	6.4
		NSA#2	47.3	47.7	50.5	3.2
		NSA#3	47.0	44.7	49.0	2.0
	Turney	NSA#1	44.7	48.7	50.2	5.5
		NSA#2	42.8	50.0	50.8	8.0
		NSA#3	47.1	43.6	48.7	1.6
	Wamsutter	NSA#1	67.4	41.5	67.4	0.0
	Echo Springs	NSA#1 <u>b/</u>	46.4	40.0	47.3	0.9
	Meeker	NSA#1	59.5	50.4 <u>c/</u>	60.0	0.5
Nearest Property Line		---	61.0	---	---	
Trans Colorado	Blanco	NSA#1	55.0	49.5	56.1	1.1
		NSA#2	55.0	47.3	55.7	0.7
	Conn Creek	NSA#1	46.4	40.0	47.3	0.9
		Nearest Property Line	---	ND	---	---
	Greasewood	NSA#1	46.0	44.6	48.4	2.4
Nearest Property Line	---	69.8	---	---		
Overthrust	Roberson <u>d/</u>	---	---	---	---	
	Rock Springs	NSA#1	56.8	50.2	57.7	0.9

a/ L_{dn} of station plus ambient noise.
b/ Data calculated for a distance of 1 mile. The actual nearest NSA is 3 miles away.
c/ Previous licensed station plus proposed addition.
d/ The nearest NSA is 5 miles away. No analysis was conducted.

ND – No data.

The analyses for many of the sites indicated noise level increases would be less than 3 dBA. Industry standards consider increases of 3 dBA or less to be imperceptible. Conversely, we found that noise level increases at some of the sites would be higher, up to 8 dBA. However, the absolute noise level of these stations is relatively low (no greater than an L_{eq} of 45.6 dBA). Further, calculated Project noise levels would be below the FERC criterion at all sites. Based on the analyses conducted, and the data presented above, we conclude that no significant noise impacts would occur with Project operations.

We note that the calculated sound level of the Greasewood Compressor Station at the station property line is 69.8 dBA, which exceeds the Rio Blanco County land use resolution limit of 65 dBA. This exceedance does not affect the noise impact at the nearest NSA. However, TransColorado would be required to comply with the Rio Blanco County noise regulation. We also note that property line noise levels were not provided for the Conn Creek station. Trans Colorado would similarly be required to comply with the state of Colorado noise regulation at Conn Creek.

Rockies Express conducted analyses of gas venting blowdown noise for the Cheyenne, Julesburg, Steele City, Turney and TransColorado conducted analysis for the Blanco Compressor Stations. The respective Applicants indicated that blowdown noise occurs infrequently and for only a short time. The results of those analyses indicated that gas venting blowdown noise would be less than 55 dBA at the nearest NSA for all of the evaluated sites. Based on the analyses conducted we conclude that no significant noise impacts would occur with gas venting blowdown.

The calculated operational noise levels for all compressor stations were shown to be below the FERC criterion of 55 dBA L_{dn} for all nearby NSA locations. We note that the addition of the Cheyenne, Rock Springs, and Blanco Compressor Stations, where existing ambient noise levels are already at or above 55 dBA L_{dn} , results in an increase in the future noise levels. It is FERC's policy to prevent any increases to ambient noise when existing levels already exceed 55 dBA. However, the increases shown at these three locations are all approximately 1 dBA or less, and would not be significant. Project components located in the State of Colorado would be required to comply with the state standard, both for the nearest NSA locations and for the facility property line.

Based on the estimates presented in the acoustical analysis, we believe the noise levels would remain below an L_{dn} of 55 dBA or at existing noise levels at the NSAs. However, to ensure that the Rockies Western Phase Project operates in compliance with our criteria, **we recommend that Rockies Express, TransColorado, and Overthrust each file noise surveys, for each new or modified compressor station, with the Secretary no later than 60 days after placing the respective compressor stations into service. If the noise attributable to the operation of any of the new or modified compressor stations exceeds an L_{dn} of 55 dBA at any nearby NSA, the respective Applicant should file a report on what changes are needed and should install additional noise controls to meet that level within 1 year of the in-service date. The Applicant should confirm compliance with this requirement by filing a second noise survey with the Secretary no later than 60 days after it installs the additional noise controls.**

There are currently no NSAs within 1 mile of the Echo Springs and Roberson Compressor Stations. To ensure that the noise levels do not significantly impact the surrounding environment, **we recommend that Rockies Express and Overthrust each file the applicable noise survey (for the Echo Springs and Roberson Compressor Stations, respectively) no later than 60 days after placing the respective compressor stations into service. If the noise attributable to the operation of these compressor stations exceeds an L_{dn} of 55 dBA at a radius of 1 mile from the stations, the Applicant should file a report on what changes are needed and should install additional noise controls to meet that level within 1 year of the in-service date. The Applicant should confirm compliance with this requirement by filing a second noise survey with the Secretary no later than 60 days after it installs the additional noise controls.**

None of the Applicants identified the need for pile driving, and we do not anticipate any significant construction noise impacts associated with any of the Project sites. However, to ensure that construction-related noise impacts are minimized to the extent possible, **we recommend that if any of the Applicants propose weekend and/or 24-hour pile driving, that Applicant should develop a noise mitigation plan to reduce noise levels during the weekend and/or nighttime period and document that the noise mitigation plan effectively reduces noise from pile driving activities at any nearby NSAs. The noise mitigation plan should be filed with the Secretary, for review and written approval by the Director of OEP, prior to the initiation of any weekend or nighttime pile driving activities.**

4.12 RELIABILITY AND SAFETY

The transportation of natural gas by pipeline involves some risk to the public in the event of an accident and subsequent release of gas. The greatest hazard is a fire or explosion following a major pipeline rupture.

Methane, the primary component of natural gas, is colorless, odorless, and tasteless. It is not toxic, but is classified as a simple asphyxiate, possessing a slight inhalation hazard. If breathed in high concentration, oxygen deficiency can result in serious injury or death.

Methane has an ignition temperature of 1,000 degrees Fahrenheit and is flammable at concentrations between 5.0 percent and 15.0 percent in air. Unconfined mixtures of methane in air are not explosive. However, a flammable concentration within an enclosed space in the presence of an ignition source can explode. It is buoyant at atmospheric temperatures and disperses rapidly in air.

A discussion of pipeline reliability and safety is based on federal regulations that cover all FERC-regulated natural gas pipeline projects. For this reason, and for clarity of presentation, we have grouped our reliability and safety analysis so that all three Project components are discussed together.

4.12.1 Safety Standards

The DOT is mandated to provide pipeline safety under Title 49, U.S.C. Chapter 601. The Pipeline and Hazardous Materials Safety Administration's (PHMSA), Office of Pipeline Safety (OPS), administers the national regulatory program to ensure the safe transportation of natural gas and other hazardous materials by pipeline. It develops safety regulations and other approaches to risk management that ensure safety in the design, construction, testing, operation, maintenance, and emergency response of pipeline facilities. Many of the regulations are written as performance standards which set the level of safety to be attained and allow the pipeline operator to use various technologies to achieve safety. PHMSA ensures that people and the environment are protected from the risk of pipeline incidents. This work is shared with state agency partners and others at the Federal, state, and local level. Section 5(a) of the Natural Gas Pipeline Safety Act provides for a state agency to assume all aspects of the safety program for intrastate facilities by adopting and enforcing the Federal standards, while section 5(b) permits a state agency that does not qualify under section 5(a) to perform certain inspection and monitoring functions. A state may also act as DOT's agent to inspect interstate facilities within its boundaries; however, the DOT is responsible for enforcement action. The majority of the states have either 5(a) certifications or 5(b) agreements, while nine states act as interstate agents.

The DOT pipeline standards are published in Parts 190-199 of Title 49 of the CFR. Part 192 of 49 CFR specifically addresses natural gas pipeline safety issues.

Under a Memorandum of Understanding on Natural Gas Transportation Facilities (Memorandum) dated January 15, 1993 between the DOT and the FERC, the DOT has the exclusive authority to promulgate Federal safety standards used in the transportation of natural gas. Section 157.14(a)(9)(vi) of the FERC's regulations require that an applicant certify that it will design, install, inspect, test, construct, operate, replace, and maintain the facility for which a certificate is requested in accordance with Federal safety standards and plans for maintenance and inspection, or shall certify that it has been granted a waiver of the requirements of the safety standards by the DOT in accordance with section 3(e) of the Natural Gas Pipeline Safety Act. The FERC accepts this certification and does not impose additional safety standards other than the DOT standards. If the Commission becomes aware of an existing or potential safety problem, there is a provision in the Memorandum to promptly alert DOT. The

Memorandum also provides for referring complaints and inquiries made by state and local governments and the general public involving safety matters related to pipeline under the Commission's jurisdiction.

The FERC also participates as a member of the DOT's Technical Pipeline Safety Standards Committee which determines if proposed safety regulations are reasonable, feasible, and practicable.

The pipeline and aboveground facilities associated with the Rockies Western Phase Project must be designed, constructed, operated, and maintained in accordance with the DOT Minimum Federal Safety Standards in 49 CFR Part 192. The regulations are intended to ensure adequate protection for the public and to prevent natural gas facility accidents and failures. Part 192 specifies material selection and qualification, minimum design requirements, and protection from internal, external, and atmospheric corrosion. Per Rockies Express' request, PHMSA granted a waiver of compliance from the pipeline safety regulation that prescribes the design factor to be used in the design formula for steel pipe (Federal Register, July 11, 2006). This waiver allows Rockies Express to operate their pipeline at hoop stresses up to 80 percent of the specified minimum yield strength in Class 1 locations. The waiver also grants Rockies Express relief from equipment requirements for pressure relieving and limiting stations. The Grant of Waiver provides all of the required, conditional control and prevention measures (supplemental safety criteria) necessary to mitigate the increased risks associated with using a thinner wall pipe. Rockies Express would follow the measures set forth in the Grant of Waiver.

Part 192 also defines area classifications, based on population density in the vicinity of the pipeline, and specifies more rigorous safety requirements for populated areas. The class location unit is an area that extends 220 yards on either side of the centerline of any continuous 1 mile length of pipeline. The four area classifications are defined as follows:

- | | |
|---------|--|
| Class 1 | Location with 10 or fewer buildings intended for human occupancy. |
| Class 2 | Location with more than 10 but less than 46 buildings intended for human occupancy. |
| Class 3 | Location with 46 or more buildings intended for human occupancy or where the pipeline lies within 100 yards of any building, or small well-defined outside area occupied by 20 or more people on at least 5 days a week for 10 weeks in any 12-month period. |
| Class 4 | Location where buildings with four or more stories aboveground are prevalent. |

Class locations representing more populated areas require higher safety factors in pipeline design, testing, and operation. Pipelines constructed on land in Class 1 locations must be installed with a minimum depth of cover of 30 inches in normal soil and 18 inches in consolidated rock. Class 2, 3, and 4 locations, as well as drainage ditches of public roads and railroad crossings, require a minimum cover of 36 inches in normal soil and 24 inches in consolidated rock.

Class locations also specify the maximum distance to a sectionalizing block valve (*e.g.*, 10.0 miles in Class 1, 7.5 miles in Class 2, 4.0 miles in Class 3, and 2.5 miles in Class 4). Pipe wall thickness and pipeline design pressures, hydrostatic test pressures, MAOP, inspection and testing of welds, and frequency of pipeline patrols and leak surveys must also conform to higher standards in more populated areas. Class locations for the Rockies Western Phase Project have been developed based on the relationship of the pipeline centerline to other nearby structures and manmade features. The REX-West Project would consist of about 704 miles in Class 1, 7 miles in Class 2, 1 mile in Class 3, and 0 miles in

Class 4. The entire Wamsutter Expansion project would be considered a Class 1 location. The Blanco to Meeker Project would consist of only about 1,700 feet of pipe within enclosed compressor station sites. Thus, area classification would not apply. However, all of TransColorado's proposed facilities would comply with the DOT's federal safety standards.

If a subsequent increase in population density adjacent to the right-of-way indicates a change in class location for the pipeline, the pipeline operator would reduce the MAOP or replace the segment with pipe of sufficient grade and wall thickness, if required to comply with the DOT code of regulations for the new class location.

In compliance with Part 192, each pipeline operator would be required to implement several safety measures during the construction and operation of its compressor stations. The piping, fittings, and other components containing natural gas under pressure must be designed with a significant margin of safety factor above normal operating parameters. This means the piping can safely contain pressures significantly higher than those that are likely to occur at the station. To ensure that this maximum pressure is never exceeded, the system must be equipped with safety relief valves set to release gas which would maintain pressures well below the MAOP. The relief valves must be tested periodically for proper operation and set point, and repaired as required. Gas vented to the atmosphere must be directed away from any potential sources of ignition.

In 2002, Congress passed an act to strengthen the Nation's pipeline safety laws. The Pipeline Safety Improvement Act of 2002 (HR 3609) was passed by Congress on November 15, 2002, and signed into law by the President in December, 2002. No later than December 17, 2004, gas transmission operators must develop and follow a written integrity management program that contains all the elements described in §192.911 and addresses the risks on each covered transmission pipeline segment. Specifically, the law establishes an integrity management program which applies to all high consequence areas (HCAs). The DOT (68 Federal Register [FR] 69778, 69 FR 18228, and 69 FR 29903) defines HCAs as they relate to the different class zones, potential impact circles, or areas containing an identified site as defined in §192.903 of the DOT regulations.

OPS published a series of rules from August 6, 2002 to May 26, 2004 (69 FR 29903), that defines HCAs where a gas pipeline accident could do considerable harm to people and their property and requires an integrity management program to minimize the potential for an accident. This definition satisfies, in part, the Congressional mandate in 49 U.S.C. 60109 for OPS to prescribe standards that establish criteria for identifying each gas pipeline facility in a high-density population area.

The HCAs may be defined in one of two ways. In the first method an HCA includes

- current class 3 and 4 locations,
- any area in Class 1 or 2 where the potential impact radius⁷ is greater than 660 feet and there are 20 or more buildings intended for human occupancy within the potential impact circle⁸, or
- any area in Class 1 or 2 where the potential impact circle includes an identified site⁹.

⁷ The potential impact radius is calculated as the product of 0.69 and the square root of the MAOP of the pipeline in psi multiplied by the pipeline diameter in inches.

⁸ The potential impact circle is a circle of radius equal to the potential impact radius.

⁹ An identified site is an outside area or open structure that is occupied by 20 or more persons on at least 50 days in any 12-month period; a building that is occupied by 20 or more persons on at least 5 days a week for any 10 weeks in any 12-month period; or a facility that is occupied by persons who are confined, are of impaired mobility, or would be difficult to evacuate.

In the second method an HCA includes any area within a potential impact circle which contains

- 20 or more buildings intended for human occupancy, or
- an identified site.

Once a pipeline operator has determined the HCAs on its pipeline, it must apply the elements of its integrity management program to those segments of the pipeline within HCAs. The DOT regulations specify the requirements for the integrity management plan at § 192.911. Each Applicant made a preliminary determination of the HCAs along the proposed route based on the presence of Class 3 locations. Of the 712 miles of proposed pipeline route, Rockies Express identified approximately 1 mile that would be classified as an HCA. No HCAs were identified along the Overthrust's proposed pipeline route. There are also no HCAs associated with the Blanco to Meeker Project. The pipeline integrity management rule for HCAs requires inspection of the entire pipeline HCAs every 7 years.

Part 192 prescribes the minimum standards for operating and maintaining pipeline facilities, including the requirement to establish a written plan governing these activities. Under section 192.615, each pipeline operator must also establish an emergency plan that includes procedures to minimize the hazards in a natural gas pipeline emergency. Key elements of the plan include procedures for:

- receiving, identifying, and classifying emergency events, gas leakage, fires, explosions, and natural disasters;
- establishing and maintaining communications with local fire, police, and public officials, and coordinating emergency response;
- emergency shutdown of system and safe restoration of service;
- making personnel, equipment, tools, and materials available at the scene of an emergency; and
- protecting people first and then property, and making them safe from actual or potential hazards.

Part 192 requires that each operator must establish and maintain liaison with appropriate fire, police, and public officials to learn the resources and responsibilities of each organization that may respond to a natural gas pipeline emergency, and to coordinate mutual assistance. The operator must also establish a continuing education program to enable customers, the public, government officials, and those engaged in excavation activities to recognize a gas pipeline emergency and report it to appropriate public officials. Each Project Applicant would provide the appropriate training to local emergency service personnel before the pipeline is placed in service. Applicant personnel would consult with local fire departments and emergency response agencies to determine if additional equipment, training, and support would be needed and provide additional training and preparedness support where the needs are identified. Applicant representatives would meet with all local emergency units on an on-going basis.

The REX-West, TransColorado, and Overthrust facilities would be monitored by a Supervisory Control and Data Acquisition (SCADA) systems. Each compressor station location and meter station would have a telemetry system (SCADA) present to monitor safety systems remotely. Each mainline valve would be equipped with automotive actuators, which could be monitored and controlled remotely from the control center. In the event of emergency shutdown and/or alarm, the telemetry system would notify personnel locally and at the gas control headquarters of the activation of safety systems and alarms. Local personnel would be dispatched to the area of concern and maintenance personnel would be instructed to investigate and take proper corrective action.

4.12.2 Pipeline Accident Data

Since February 9, 1970, 49 CFR Part 191 has required all operators of transmission and gathering systems to notify the DOT of any reportable incident and to submit a report on form F7100.2 within 20 days. Reportable incidents are defined as any leaks that:

- caused a death or personal injury requiring hospitalization;
- required taking any segment of transmission line out of service;
- resulted in gas ignition;
- caused estimated damage to the property of the operator, or others, or both, of a total of \$5,000 or more;
- required immediate repair on a transmission line;
- occurred while testing with gas or another medium; or
- in the judgment of the operator was significant, even though it did not meet the above criteria.

The DOT changed reporting requirements after June 1984 to reduce the amount of data collected. Since that date, operators must only report incidents that involve property damage of more than \$50,000, injury, death, release of gas, or that are otherwise considered significant by the operator. Table 4.12-1 presents a summary of incident data for the 1970 to 1984 period, as well as more recent incident data for 1986 through 2005, recognizing the difference in reporting requirements. The 14.5-year period from 1970 through June 1984, which provides a larger universe of data and more basic report information than subsequent years, has been subject to detailed analysis, as discussed in the following sections.¹⁰

Cause	Incidents per 1,000 miles of Pipeline (percentage)	
	1970 – 1984	1986 – 2005
Outside force	0.70 (53.8)	0.10 (38.5)
Corrosion	0.22 (16.9)	0.06 (23.1)
Construction or material defect	0.27 (20.8)	0.04 (15.4)
Other	0.11 (8.5)	0.06 (23.1)
Total	1.30	0.26

During the 14.5-year period, 5,862 service incidents were reported over the more than 300,000 total miles of natural gas transmission and gathering systems nationwide. Service incidents, defined as failures that occur during pipeline operation, have remained fairly constant over this period with no clear upward or downward trend in annual totals. In addition, 2,013 test failures were reported. Correction of test failures removed defects from the pipeline before operation.

Additional insight into the nature of service incidents may be found by examining the primary factors that caused the failures. Table 4.12-1 provides a percentage distribution of the causal factors as well as the annual frequency of each factor per 1,000 miles of pipeline in service. The pipelines included in the data set in table 4.12-1 vary widely in terms of age, pipe diameter, and level of corrosion control. Each variable influences the incident frequency that may be expected for a specific segment of pipeline.

¹⁰ Jones, D.J., G.S. Kramer, D.N. Gideon, and R.J. Eiber, 1986. "An Analysis of Reportable Incidents for Natural Gas Transportation and Gathering Lines 1970 Through June 1984." NG-18 Report No. 158, Pipeline Research Committee of the American Gas Association.

The dominant incident cause is outside forces, constituting 53.8 percent of all service incidents. Outside forces incidents result from the encroachment of mechanical equipment such as bulldozers and backhoes; earth movements due to soil settlement, washouts, or geologic hazards; weather effects such as winds, storms, and thermal strains; and willful damage. Table 4.12-2 shows that human error in equipment usage was responsible for approximately 75 percent of outside forces incidents. Since April 1982, operators have been required to participate in “One Call” public utility programs in populated areas to minimize unauthorized excavation activities in the vicinity of pipelines. The “One Call” program is a service used by public utilities and some private sector companies (e.g., oil pipelines and cable television) to provide preconstruction information to contractors or other maintenance workers on the underground location of pipes, cables, and culverts. Each Applicant in the Rockies Western Phase Project would participate in existing “One Call” systems. The 1986 through 2005 data show that the portion of incidents caused by outside forces has decreased to 38.5 percent.

Cause	Percent
Equipment operated by outside party	67.1
Equipment operated by or for operator	7.3
Earth movement	13.3
Weather	10.8
Other	1.5

The frequency of service incidents is strongly dependent on pipeline age. While pipelines installed since 1950 exhibit a fairly constant level of service incident frequency, pipelines installed before that time have a significantly higher rate, partially due to corrosion. Older pipelines have a higher frequency of corrosion incidents, since corrosion is a time-dependent process. Further, new pipe generally uses more advanced coatings and cathodic protection to reduce corrosion potential.

Older pipelines have a higher frequency of outside forces incidents partly because their location may be less well known and less well marked than newer lines. In addition, the older pipelines contain a disproportionate number of smaller diameter pipelines, which have a greater rate of outside forces incidents. Small diameter pipelines are more easily crushed or broken by mechanical equipment or earth movements.

Table 4.12-3 clearly demonstrates the effectiveness of corrosion control in reducing the incidence of failures caused by external corrosion. The use of both an external protective coating and a cathodic protection system, required on all pipelines installed after July 1971, significantly reduces the rate of failure compared to unprotected or partially protected pipe. The data shows that bare, cathodically protected pipe actually has a higher corrosion rate than unprotected pipe. This anomaly reflects the retrofitting of cathodic protection to actively corroding spots on pipes.

Corrosion Control	Incidents per 1,000 miles per Year
None-bare pipe	0.42
Cathodic protection only	0.97
Coated only	0.40
Coated and cathodic protection	0.11

We received a comment that raised concerns about terrorism and collocating the REX-West pipeline with an existing oil pipeline. In the aftermath of the terrorist attacks that occurred on September 11, 2001, terrorism has become a very real issue for facilities under the FERC's jurisdiction. The FERC, like other federal agencies, is faced with a dilemma in how much information can be offered to the public while still providing a significant level of protection to energy facilities. The FERC has been involved with other federal agencies in developing a coordinated approach to protecting the energy facilities of the United States, and continues to coordinate with these agencies to address this issue. A Security Task Force has been created and is addressing ways to improve pipeline security practices, strengthen communication within the industry and the interface with government, and extend public outreach efforts. Consequently, the FERC has removed energy facility design plans and location information from its internet website to ensure that sensitive information is not readily available (Docket Nos. RM02-4-000 and PL02-1-000, issued February 20, 2003).

4.12.3 Impact on Public Safety

The service incident data summarized in table 4.12.-1 include pipeline failures of all magnitudes with widely varying consequences. Approximately two-thirds of the incidents were classified as leaks, and the remaining third classified as ruptures, implying a more serious failure.

Table 4.12-4 presents the average annual fatalities that occurred on natural gas transmission and gathering lines from 1970 to 2005. Fatalities between 1970 and June 1984 have been separated into employees and nonemployees, to better identify a fatality rate experienced by the general public. Of the total 5.0 nationwide average, fatalities among the public averaged 2.6 per year over this period. The simplified reporting requirements in effect after June 1984 do not differentiate between employees and nonemployees. However, the data show that the total annual average for the period 1984 through 2005 decreased to 3.6 fatalities per year. Subtracting two major offshore incidents in 1989, which do not reflect the risk to the onshore public, yields a total annual rate of 2.8 fatalities per year for this period.

Year	Employees	Nonempolyees	Total
1970 – June 1984	2.4	2.6	5.0
1984 – 2005 <u>c/</u>	-	-	3.6
1984 – 2005 <u>c/</u>	-	-	2.8 <u>d/</u>

a/ 1970 through June 1984 - American Gas Association, 1986.
b/ DOT Hazardous Materials Information System.
c/ Employee/nonemployee breakdown not available after June 1984.
d/ Without 18 offshore fatalities occurring in 1989 -- 11 fatalities resulted from a fishing vessel striking an offshore pipeline and 7 fatalities resulted from explosion on an offshore production platform.

The nationwide totals of accidental fatalities from various manmade and natural hazards are listed in table 4.12-5 in order to provide a relative measure of the industry-wide safety of natural gas pipelines. Direct comparisons between accident categories should be made cautiously, however, because individual exposures to hazards are not uniform among all categories. Nevertheless, the average 2.6 public fatalities per year is relatively small considering the more than 300,000 miles of transmission and gathering lines in service nationwide. Furthermore, the fatality rate is approximately two orders of magnitude (100 times) lower than the fatalities from natural hazards such as lightning, tornados, floods, earthquakes, etc.

TABLE 4.12-5

Nationwide Accidental Deaths ^{a/}

Type of Accidents	Fatalities
All accidents	90,523
Motor vehicles	43,649
Falls	14,985
Drowning	3,488
Poisoning	9,510
Fires and burns	3,791
Suffocation by ingested object	3,206
Tornado, flood, earthquake, etc. (1984-93 average) ^{b/}	181
All liquid and gas pipelines,	27
Gas transmission and gathering lines, Nonemployees only (1970-84 average) ^{c/}	2.6

^{a/} All data, unless otherwise noted, reflects 1996 statistics from the U.S. Department of Commerce, Bureau of the Census, "Statistical Abstract of the United States 118th Edition."
^{b/} U.S. Department of Transportation, "Annual Report on Pipeline Safety - Calendar Year 1987."
^{c/} American Gas Association, 1986.

The available data show that natural gas pipelines continue to be a safe, reliable means of energy transportation. Based on approximately 301,000 miles in service, the rate of public fatalities for the nationwide mix of transmission and gathering lines in service is 0.01 per year per 1,000 miles of pipeline. Using this rate, the Rockies Western Phase Project might result in a public fatality every 127 plus years. This would represent a slight increase in risk to the nearby public.

4.13 CUMULATIVE IMPACTS

NEPA requires federal agencies to consider the cumulative impacts of proposals under their review. Cumulative impacts are defined in the Council on Environmental Quality (CEQ) regulations 40 CFR 1508.7 as "...the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable actions regardless of what agency...or person undertakes such other actions." These actions include current and projected area development (*e.g.*, oil and gas); management activities and authorizations on public lands (*e.g.*, range conversion and forestry programs); and applicable industrial/infrastructure components (*e.g.*, utility corridors). Although the individual impacts of each separate project might not be significant, the additive effects of multiple projects could be.

Existing projects were determined from review of Rockies Western Phase Project photo-alignment sheets and topographic maps; field reconnaissance; information provided by Rockies Express, TransColorado, and Overthrust; and internet research. The proposed and reasonably foreseeable projects were based on right-of-way and well field development applications submitted to the BLM as well as information contained in the pre-filing materials submitted to the FERC by Rockies Express for its planned Eastern Phase Project. Construction timeframes for individual projects were compiled to estimate peak workforce numbers at various locations; however, the actual construction schedules for these projects will depend on factors such as economic conditions, the availability of financing, and the issuance of permits.

Projects and activities included in this analysis are generally those located within the same counties directly affected by construction of the Rockies Western Phase Project. Most effects of more distant projects are not assessed because their impact would generally be localized and not contribute significantly to cumulative impact in the proposed project area. However, the air quality study area consists of regional airsheds.

Table 4.13-1 lists current, proposed, or reasonably foreseeable future projects or activities that may cumulatively or additively impact resources that would be affected by the construction and operation of the Rockies Western Phase Project.

Keystone Oil Pipeline Project

On April 19, 2006, TransCanada Corporation filed an application for a Presidential Permit with the U.S. Department of State for authorization to construct, operate, and maintain the U.S.-Canadian cross-border facilities associated with the proposed Keystone Oil Pipeline Project (Keystone Project). On June 6, 2006, TransCanada PipeLines Limited and TransCanada Keystone Pipeline GP Ltd. (Keystone) filed an application with the Canadian National Energy Board (NEB) for approval to transfer a portion of TransCanada's Canadian Mainline natural gas transmission facilities to the Keystone Project for the purposes of transporting crude oil from Alberta to refining centers in the U.S. Midwest. This request was approved on February 12, 2007.

The Keystone Pipeline Project would be about 1,070 miles in length in the United States. It would be constructed in 3 states and 14 counties that would also be crossed by the REX-West portion of the Rockies Western Phase Project (see table 14.3-1). Keystone's pipeline would parallel the REX-West pipeline for about 287 miles between MPs 425.0 and 712.0. Keystone would use a 50-foot-wide right-of-way to construct and operate its pipeline. Landowners along this portion of the REX-West route could be (or may have already been) approached by Keystone regarding an additional easement on their land. If the Keystone Pipeline Project is constructed as presently envisioned, this would represent a cumulative land use effect along with the REX-West right-of-way.

TABLE 4.13-1

**Projects with Potential Cumulative Impacts on Resources Within the General Area
of the Rockies Western Phase Project**

Project / Activity	Project Location (States)	Counties Where Project Coincides with Rockies Western Phase Project	Description	Anticipated Date of Construction/Project Status
Keystone Oil Pipeline Project	Nebraska, Kansas, Missouri	Nebraska: Jefferson, Gage Kansas: Marshall, Nemaha, Brown, Doniphan Missouri: Buchanan, Clinton, Caldwell, Carroll, Chariton, Randolph, Audrain	1,015 miles of 30-inch-diameter oil pipeline and 55 miles of 24-inch-diameter oil pipeline	2008
Overland Pass Liquid Petroleum Pipeline Project	Wyoming, Colorado, Kansas	Wyoming: Lincoln, Sweetwater, Carbon, Laramie Colorado: Weld, Logan	750 miles of 14- and 18-inch-diameter natural gas liquid gas pipeline	Summer 2007; Completion December 2007
Rockies Express Eastern Phase Project – Bertrand Compressor Station (natural gas)	Nebraska	Phelps	Compressor station to be constructed at MP 287.0 of the Rockies Western Phase Project	March 2008
Ethanol Plants	Colorado	Weld	Front Range Energy LLC – 40 million gallons per year (mg/y)	Existing
		Logan	Sterling Ethanol, LLC – 42 mg/y	Existing
	Nebraska	Lincoln	Midwest Renewable Energy LLC – 25 mg/y	Existing
		Perkins	Mid America Agri Products/Wheatland – 44 mg/y	Proposed
		Dawson	Cornhusker Energy Lexington, LLC – 40 mg/y	Proposed
		Kearney	KAAPA Ethanol, LLC – 40 mg/y	Existing
	Missouri	Audrain	Missouri Ethanol – 45 mg/y	Proposed
Coal-fired Power Plants	Missouri	Carroll	Associated Electric Cooperative, Inc.- 660 megawatts	Proposed – 2013 anticipated completion date
Oil & Gas Development	Wyoming	Sweetwater	Vermillion Basin Area: up to 56 gas wells southwest of Bitter Creek	Drilling in progress
		Sweetwater	Pappy Draw Exploratory Coal Bed Methane (CBM) Project: drill 20 exploratory wells in BLM's Pappy Draw Unit Area	BLM environmental assessment in progress

TABLE 4.13-1 (Continued)

**Projects with Potential Cumulative Impacts on Resources Within the General Area
of the Rockies Western Phase Project**

Project / Activity	Project Location (States)	Counties Where Project Coincides with Rockies Western Phase Project	Description	Anticipated Date of Construction/Project Status
Oil & Gas Development (Cont'd)	Wyoming	Sweetwater, Uinta, and Lincoln	Moxa Arch Area Infill Gas Development Project: 1,860 gas wells drilled over a 10 year period on 476,300 acres of land	BLM draft EIS in progress
		Sweetwater and Carbon	Desolation Flats Natural Gas Field Development Area: 385 gas wells proposed on 5,220 acres south of Wamsutter	BLM final EIS issued May 2004
		Carbon	Seminole Road Gas Development Project: 1,240 CBM wells northeast of Rawlins on 137,000 acres of land	BLM draft EIS issued November 2005
		Carbon	Atlantic Rim Natural Gas Development Project: up to 3,880 CBM wells proposed on 270,000 acres of land south of Rawlins	BLM draft EIS in progress
	Colorado	Rio Blanco	Active Wells 2000: 2,024 Permits: 110	Oil Production Rank in State: 2nd Gas Production Rank in State: 5 th
		Weld	Active Wells 2000: 9,884 Permits: 589	Oil Production Rank in State: 1st Gas Production Rank in State: 2nd
		Logan	Active Wells 2000: 189 Permits: 5	Oil Production Rank in State: 8th Gas Production Rank in State: 26th
		Sedgwick	Active Wells 2000: 35 Permits: 2	Oil Production Rank in State: 29th Gas Production Rank in State: 0
		Garfield	Active Wells 2000: 1,233 Permits: 213	Oil Production Rank in State: 11th Gas Production Rank in State: 3rd

Seven pumping stations would be constructed along the Keystone pipeline route in Jefferson County, Nebraska; Nemaha and Doniphan Counties, Kansas; and Clinton, Carroll, Chariton, and Audrain Counties, Missouri. Of these stations, Keystone's Pumping Station 31 would be located in a county in which Rockies Express also proposes to construct and operate a large aboveground facility (the Turney Compressor Station, in Clinton County, Missouri). Public and stakeholder consultation, detailed

environmental assessments and field studies, and further engineering work are ongoing in both Canada and the United States and will continue into 2007. Construction is expected to begin in early 2008, with commercial operations scheduled to commence in the fourth quarter of 2009.

Overland Pass Liquid Petroleum Pipeline Project

During the spring of 2006, Williams Field Services Company (Williams) filed a Right-of-Way Grant application with the BLM's Rawlins Field Office for its Overland Pass Liquid Petroleum Pipeline Project (Overland Pass Project). The Overland Pass pipeline would transport liquid petroleum products (*i.e.*, natural gas liquids [NGL] such as ethane, propane, and butane) from an existing Williams' facility in Opal, Wyoming, to an existing processing and NGL storage facility in Conway, Kansas (McPherson County).

The Overland Pass Project pipeline would be about 750 miles in length and would be constructed in two states and six counties that would also be crossed by the Wamsutter Expansion and REX-West components of the Rockies Western Phase Project. Williams' pipeline would parallel the Wamsutter Expansion pipeline for its entire length, about 77.2 miles. Thus, landowners along the Wamsutter Expansion pipeline would likely be impacted cumulatively by these two pipeline rights-of-way. Williams would use a 75-foot-wide right-of-way for construction and a 50-foot-wide right-of-way for operation. Three pumping stations would be constructed along the Overland Pass pipeline route. One of these pumping stations and Overthrust's Roberson Compressor Station would both be in Sweetwater County.

Rockies Express' Eastern Phase Project – Bertrand Compressor Station

Compressor stations are often located at major interconnection points within the interstate natural gas pipeline system. A new 36,810-horsepower compression station (the Bertrand Compressor Station) could be sited near MP 287.0 on the proposed REX-West route in Phelps County, Nebraska. However, the Bertrand Compressor Station is part of the planned Eastern Phase Project, currently in the Pre-Filing Process at the FERC, and would be evaluated in an EIS prepared for that project. The Bertrand Compressor Station would require 10 to 15 acres of land for construction and operation.

Ethanol Plants

Ethanol, a clean-burning, high-octane fuel, is produced from renewable sources such as plant material. The majority of the ethanol in the United States is made from corn; however, grain sorghum, wheat, barley, or potatoes can also be used. There are four existing and three proposed ethanol plants in three states and seven counties that would be crossed by the REX-West Project.

Coal-fired Power Plants

Coal-fired power plants produce electricity by heating water in a boiler (fueled by coal) to produce steam which, under pressure, flows into a turbine and spins a generator to produce electricity. One coal-fired power plant proposed by Associated Electric Cooperative, Inc. (AECI) would be sited in Carroll County, Missouri, which is crossed by the REX-West pipeline route. Specifically, AECI proposes to construct and operate a 660-megawatt coal-based electric generating plant west of Norborne, Missouri, which is about 18 miles southwest of the REX-West pipeline route (at MP 620.0) and 0.4 mile southeast of the proposed Turney Compressor Station site in Clinton County, Missouri.

AECI's generating plant would also include transmission and substation upgrades in Missouri including an approximately 57-mile-long transmission line that would connect AECI's plant to an existing substation in Thomas Hill (Randolph County) and a 78-mile-long transmission line that would

pass through the City of Sedalia and then to a new substation in eastern Benton County. Randolph and Benton Counties are located about 35 and 50 miles east and south of Carroll County, respectively.

Oil and Gas Development

Active oil and gas development is on-going in the Rockies Western Phase Project area, especially in Wyoming and Colorado. In Wyoming, the BLM Rawlins Field Office addressed the cumulative effects of drilling and production operations in the Desolation Flats Natural Gas Field Development Area (Desolation Flats) in Sweetwater and Carbon Counties and addressed regional activity adjacent to the Seminole Road Gas Development Project (Seminole Road) in Carbon County. The cumulative effect discussions for the Desolation Flats EIS included information obtained from NEPA documents for natural gas and coal bed methane (CBM) development projects and natural gas pipeline projects. The regional activity discussion for Seminole Road included oil and gas activities, coal mining, hydroelectric power generation, electric transmission, transportation, recreation, and agricultural activities.

The BLM is also preparing draft and final environmental documents for the Pappy Draw Exploratory CBM Project, Moxa Arch Area Infill Gas Development Project, and Atlantic Rim Natural Gas Development Project. Because these NEPA documents are in preparation, the decisions made may positively or negatively influence the volume of gas that could be developed. Therefore, the oil and gas well and pipeline infrastructure that could result from future BLM decisions for these and other similar envisioned projects cannot be estimated at this time.

4.13.1 Geology

Mineral Resources

The Rockies Western Phase, Overland Pass, and Keystone Projects would cross oil and gas, coal, sand and gravel, and clay resources. The REX-West and Keystone pipelines could have a cumulative impact on clay pits in Audrain County, Missouri (MP 712.7) while the Wamsutter Expansion and Overland Pass pipelines could have a cumulative impact on the 5 sand and gravel pits and 15 abandoned and active oil and gas wells in Sweetwater County, Wyoming. Although the mineral resources within or near the corridor that would be occupied by the proposed pipelines would preclude extraction of gravel and other minerals, oil and gas production could be accomplished through well pad offsets and directional drilling. The majority of the Rockies Western Phase Project would be located adjacent to existing utility corridors that preclude mining, thus the Project is not likely to result in cumulative impacts that could affect future exploitation of mineral resources.

Paleontological Resources

The REX-West pipeline would cross about 100 miles of geologic formation that has the potential to contain fossils between MPs 0.0 and 100. Thirteen locations along the Wamsutter Expansion pipeline route contained fossil occurrences. Cumulative impacts on paleontological resources as a result of pipeline construction would not occur along the REX-West pipeline since neither the Keystone nor Overland Pass Projects would be constructed along the 100-mile-long stretch with a potential to contain fossils; however, the potential for such impacts could be present along the Wamsutter Expansion pipeline route. The Wamsutter Expansion and Overland Pass pipelines would result in about 1,029 and 702 acres, respectively, of surface and trench disturbance. Pre-construction paleontological surveys have been completed for the Wamsutter Expansion Project, such surveys have yet to be conducted for the Overland Pass Project. The respective companies would conduct trench monitoring in areas with high potential for important fossils. If fossil occurrences that are significantly scientific are found, a representative sample would be collected, assessed, and curated into the permanent collections of an established institution. The

Rockies Western Phase Project could contribute to the cumulative exposure and potential loss of scientifically valuable fossils; however, we note that construction of pipelines, roads, and other surface-disturbing activities in the Project area have previously removed surficial paleontological resources. In addition, construction monitoring would ensure that new scientific information would be collected and added to the existing body of knowledge. Thus, we do not believe there would be significant cumulative effects on paleontological resources from the described projects.

4.13.2 Soils

The REX-West pipeline would parallel about 708 miles of existing pipeline and roadway corridors (Trailblazer pipeline right-of-way for 259 miles, Platte pipeline right-of-way for 445 miles, Panhandle pipeline right-of-way for 3 miles, and Audrain County Road 424 for 0.5 mile). Assuming that a 125-foot-wide construction right-of-way is used to construct the pipelines and roadway, cumulative soil disturbance within the study area from existing projects is 10,727 acres. The ground disturbances associated with the proposed REX-West and Keystone pipelines within the cumulative pipeline study area would disturb about 6,087 acres of soil during construction.

The Wamsutter Expansion pipeline would parallel about 77 miles of existing utility corridors (existing utility corridor north of I-80 that contains up to 21 utilities for 61 miles and Questar's JL 85 right-of-way for 16 miles). Assuming that the average width of this corridor is about 0.5 mile, cumulative soil disturbance within the study area from existing projects is 24,640 acres. The ground disturbances associated with the proposed Wamsutter Expansion and Overland Pass pipelines within the cumulative pipeline study area would disturb about 1,845 acres of soil during construction.

Potential cumulative erosion could occur where construction disturbance areas overlap, or are located near each other between MPs 425 and 712 along the REX-West pipeline and the entire length of the Wamsutter Expansion pipeline. However, the existing pipeline, utility, and roadway projects have been installed for a number of years and the construction rights-of-way have been partially or completely restored to pre-existing conditions. Irrigated hayfields and pasturelands have returned to their prior uses. BMPs for soil management and protection would be applied across all ownerships for all pipeline projects. Revegetation mixtures would be applied that are appropriate to soil conditions and expected future uses (grazing, wildlife habitat). As a consequence, the potential for cumulative erosion increases caused by one or more of these projects is low because consistent erosion control practices would be applied, and structural erosion control measures (water bars) would be integrated between adjacent pipeline projects. Therefore, we do not expect the Rockies Western Phase Project to significantly contribute to the cumulative impact on soils.

4.13.3 Water Resources

Groundwater

Existing pipeline and other utility projects do not typically use much groundwater. Rockies Express and TransColorado indicated that their hydrostatic testing would include the use of groundwater. Another potential use of groundwater for the REX-West Project would be to control dust generated during construction. We have recommended that Rockies Express file additional information with the Secretary about potential groundwater use. TransColorado and Overthrust do not propose to use groundwater for construction or operation. Although we are not aware if the other projects identified in the cumulative impact study area would use groundwater during construction or operation, all projects would implement spill containment and control plans as required by federal and state agencies. No cumulative impacts on groundwater volume or quality from the Keystone or Overland Pass Projects are expected.

Surface Water

Pipeline waterbody crossing impacts are generally localized and short term. Cumulative effects would only occur if more than one project were working at the same location at the same time (which we do not anticipate), and even this would not contribute to long-term impacts. If construction of the pipelines follows a similar schedule, there could be a cumulative contribution to incremental sedimentation in the waterbodies.

Hydrostatic Testing

Rockies Express proposes to withdraw hydrostatic test water from surface waterbodies during the fall and early winter of 2007. It is possible that the Overland Pass and Keystone Projects may withdraw hydrostatic test water during this time. If hydrostatic test water withdrawals in the same watershed overlap, there could be a cumulative impact on the water source (either surface water or groundwater). However, we do not expect this to be a significant impact, as each withdrawal would be subject to applicable permitting requirements.

Wetlands

The locations where cumulative impacts on wetlands would occur are where any of the REX-West, Keystone, Overthrust, and Overland Pass pipelines would be collocated while crossing wetlands. The Keystone pipeline would parallel the REX-West pipeline for 287 miles between approximate MPs 425.0 and 712.0. The Overland Pass pipeline would parallel the Wamsutter Expansion pipeline for its entire length, about 77.5 miles. Within the Keystone pipeline collocation, the REX-West pipeline would disturb a total of 77.5 acres of wetlands (55.0 acres of forested wetland, 1.3 acres of scrub-shrub wetlands, and 21.2 acres wet meadow and marsh) and within the Overland Pass collocation, the Wamsutter Expansion pipeline would disturb less than 0.5 acre of wet meadow.

Should the Keystone and Overland Pass pipelines affect the same or similar wetland habitats along their respective construction rights-of-way, total wetland impacts within the cumulative impact study area could be 156.0 acres of wetlands. Rockies Express and Overthrust would apply the Procedures, and all applicants would be subject to conditions contained in the COE's Section 404 permits and state water quality permits. None of the wetlands crossed would be permanently filled or drained. Therefore, cumulative effects to wetlands would be minor.

4.13.4 Vegetation

The total amount of vegetation that may be affected by all of the proposed or anticipated projects is substantial but still relatively small compared to the abundance of similar habitat in the Project area. Impacts resulting from construction of the pipelines would result in the long-term and permanent loss of non-herbaceous vegetation and would cause a small incremental increase in fragmentation of forested areas. However, the effects would generally be small relative to the available habitat in the region. This effect would be further reduced by the collocation of many of the pipeline projects with existing and proposed rights-of-way. All of the projects would make use of mitigation measures designed to minimize the potential for erosion, revegetate disturbed areas, increase the stabilization of site conditions, and in many cases control the spread of noxious weeds, thereby minimizing the degree and duration of the cumulative impact on vegetation from these projects.

Permanent impacts on vegetation have and would result from the construction and operation of ethanol plants in the counties also crossed by the Rockies Western Phase Project in Colorado, Nebraska, and Missouri, as well as the proposed coal-fired power plants in Missouri. The construction and

operation of new compressor stations for the REX-West, Blanco to Meeker, and Wamsutter Expansion Projects and new pumping stations for the Keystone and Overland Pass pipelines would also have a permanent affect on vegetation. However, these impacts would be minimal as the amount of land required for these new facilities can range between 7.0 and 25.0 acres (we assume that the amount of land required for a pumping station is equivalent or less than that for a compressor station).

4.13.5 Wildlife, Fisheries, and Special Status Species

Wildlife Habitat

Construction and operation of the Rockies Western Phase Project along with other projects mentioned in table 4.13-1 would incrementally add to the width of habitat discontinuities (for collocated projects) or otherwise contribute to habitat disturbance. This would cause associated impacts on wildlife species as they adjust to the various projects' activities. Increased movement or displacement of species dependent on these habitats could reduce carrying capacities, reproductive effort, or survival. This potential is greater for species which have limited habitat in the project area or are otherwise more sensitive to disturbance. The removal of woodlands and shrublands would result in a long-term reduction of wildlife habitat because the regeneration of woody species is typically slow in the project region, especially in the westernmost part. However, we do not believe construction of the Rockies Western Phase Project would result in significant cumulative impacts on wildlife, given that most of the Project area is relatively open or in agricultural use, and habitat types crossed are widely available for wildlife use outside of the immediate area of Project disturbance. In addition, each Applicant's use of its Plan would minimize Project impacts on wildlife habitat.

Big Game

The Rockies Western Phase Project would cross mule deer and pronghorn crucial winter/yearlong habitats in Wyoming. The incremental surface disturbance contributed by the Overland Pass Project to the cumulative projects would represent a small fraction of the individual big game ranges crossed. Rockies Express' consultation with the WGFDD reveals that the WGFDD does not have any terrestrial wildlife concerns with the REX-West pipeline, specifically the Echo Springs Lateral. Consultation with the BLM is ongoing. Rockies Express would not be authorized to construct on federal land in areas designated as crucial winter range for the pronghorn between November 15 and April 30, unless it has received a waiver from the BLM. Thus, we do not believe construction of the Rockies Western Phase Project would result in significant cumulative impacts on big game.

Fisheries

Cumulative impacts on fisheries could occur from stream channel disturbance and hydrostatic test water withdrawals from waterbodies in Kansas and Missouri where the Keystone pipeline would parallel that REX-West pipeline, and in Wyoming (Bitter Creek) where the Overland Pass pipeline would parallel the Wamsutter Expansion pipeline. If these other projects have different construction schedules than the Rockies Western Phase Project, cumulative impacts on fisheries would not occur. However, if construction is concurrent, it could contribute to cumulative sedimentation impacts on fisheries. However, these impacts would be short-term and minor due to the each Applicant's use of its Procedures and other revegetation plans and requirements to minimize impacts while crossing waterbodies.

Special Status Species

Because the Keystone pipeline would parallel the REX-West pipeline between MPs 425 and 712, and the Overland Pass pipeline would parallel the Wamsutter Expansion pipeline for its entire length, we

believe that the species discussed in section 4.7.1 and 4.7.3 of this EIS have the potential to be affected by construction and operation of the Keystone and Overland Pass Projects. Keystone and Overland Pass would each be required to consult with federal, state, and local agencies to determine which species may occur within its project area, evaluate potential impacts on those species as a result of construction and operation, and implement measures to avoid, minimize, or mitigate impacts on special status species and their habitats. Since all applicants would be required to restore their respective construction rights-of-way and adhere to all applicable laws and regulations regarding special status species and habitats, we believe that the cumulative impacts on special status species and their habitats would not be significant. Depletion effects on federally listed species from hydrostatic test water withdrawals for the Keystone or Overland Pass Projects would be covered under separate consultations.

4.13.6 Land Use and Visual Resources

Land Use

New land requirements for the construction and operation of the Rockies Western Phase aboveground facilities would involve the acquisition of about 98.8 acres for the nine new compressor stations and the modifications at three existing compressor stations. Land requirements for all other aboveground facilities (MLVs, launcher/receiver facilities, and meter stations) total about 19.0 acres. Construction of the Keystone and Overland Pass Projects would cumulatively add to the acreage of aboveground oil and gas facilities in the Project area. The Bertrand Compressor Station (part of the planned Rockies Eastern Phase Project) would require up to 15 acres of land for construction and operation in Phelps County, Nebraska. Assuming the maximum acreage required for a pumping station is 25.0 acres; the Keystone and Overland Pass Projects could add another 200.0 acres of oil and gas aboveground facilities in counties that are also crossed by the Rockies Western Phase Project. In addition, the two new ethanol plants that would be constructed in Perkins and Dawson Counties, Nebraska and the ethanol and coal-fired power plants that would be constructed in Audrain and Carroll County Missouri, respectively, would further increase the amount of land that would be converted to industrial use.

If these aboveground facilities are located on active agricultural lands, any active farming practices would cease within the footprint of the facility. Construction of the REX-West aboveground facilities would affect about 29.9 acres of prime farmland soils and 13.5 acres of farmlands of statewide importance (see section 4.2.1.1). No such areas would be affected by the TransColorado or Overthrust projects. Although we are not aware to what extent the other projects identified in the cumulative impact study area would impact prime farmland soils, farmlands of statewide importance, active agricultural lands or rangeland, we assume that all projects would implement measures to avoid, minimize, or mitigate impacts to agricultural lands and rangeland in consultation with state and local officials. Although no cumulative impacts on agricultural land and farming practices are expected from the Overland Pass Project (because the Wamsutter Expansion Project does not cross agricultural lands), such impacts could occur from the Keystone Project.

While construction of new pipelines parallel to existing corridors would incrementally reduce the area available for future development, use of established utility corridors concentrates cumulative land use impacts.

Visual Resources

The various projects listed in table 4.14-1 would have varying impacts on visual resources. Pipeline projects would have similar impacts as those discussed for the pipeline components of the Rockies Western Phase Project (see section 4.8). We do not expect a significant cumulative impact on

visual resources from pipeline projects, for the reasons discussed previously (*e.g.*, collocation, restoration practices, and no sensitive visual resource areas crossed).

Cumulative impacts on visual resources could occur where a Project compressor station is constructed in close proximity to a pumping station, ethanol plant, coal-fired power plant, or other aboveground facility. No cumulative impacts on visual resources are expected from the coal-fired power plant since it would be about 18 miles southwest of the REX-West pipeline (at MP 620.0) and about 0.4 mile southeast of the Turney Compressor Station. We also note that visual impacts associated with aboveground facilities are dependent on facility type and size. Aboveground facilities associated with the Rockies Western Phase Project would be located in agricultural or rangeland areas or adjacent to existing industrial facilities. In addition, the new aboveground facilities associated with the Project would be limited in number and widely distributed. Thus, there would not be a concentration of facilities in one particular area that could lead to a significant impact at a given location.

4.13.7 Socioeconomics

Considering the timing and location of the Rockies Western Phase Project together with the Keystone and Overland Pass Projects, the estimated number of people who may relocate to the Project area temporarily during construction could experience a shortage in housing at certain locations during certain periods of the construction schedule. We recognize that workers would be dispersed over the entire length of the pipeline route and throughout the counties crossed by the pipelines; however, based on our review of the information regarding availability of local rental housing for the REX-West Project, the combined number of non-local workers may exceed the available housing in a given area.

Because the Rockies Western Phase Project would be constructed primarily in rural areas, we do not expect any significant cumulative impacts on traffic along the pipeline route. In addition, it is unlikely that the Project-related traffic volumes would reach peak conditions at the same time and in the same location as another project. However, to the extent other projects are being constructed at the same time as any given segment of the Rockies Western Phase Project, any cumulative traffic impacts would be for a short period of time and coordinated with local officials. During operations, the number of workers required to maintain pipeline facilities would be minimal, resulting in no additive impact on traffic levels. Therefore, we conclude that the Rockies Western Phase Project would not generate excessive traffic during construction or operations, and therefore would have little to no cumulative impact on traffic.

During construction of the Rockies Western Phase Project, the Applicants' expenditures for payroll, local purchases, and related tax revenues would provide a short-term beneficial impact to the affected counties. We expect that similar benefits would be associated with the Keystone and Overland Pass Projects, as well as ethanol, coal-fired power, and other oil and gas development. There may also be a positive long-term cumulative impact tax revenue paid to the state and local governments over the life of the projects.

Operation of the proposed facilities would require relatively few permanent employees; thus, we conclude that there would be no long-term cumulative or additive impacts on population, housing, and municipal services in the Project area.

4.13.8 Cultural Resources

To date, the REX-West surveys have identified 9 potential historic properties in Nebraska, Kansas, and Missouri. Overthrust identified 20 potential historic properties within the APE for the Wamsutter Expansion pipeline. It is possible that the proposed Keystone and Overland Pass Projects

could affect those historic properties, where they overlap the REX-West and Wamsutter Expansion Projects.

Federally regulated projects, such as the Keystone and Overland Pass Projects, would be required to conduct surveys and identify historic properties that may be affected by those projects. In accordance with 36 CFR 800, the ACHP's regulations for implementing Section 106 of the NHPA, the lead federal agencies for those projects would consult with the appropriate SHPOs, Indian tribes, and other consulting parties, and mitigate impacts on any historic properties that may be adversely affected. Non-federal actions would need to comply with any identification procedures and mitigation measures required by the state.

4.13.9 Air Quality and Noise

Air Quality

Construction of the proposed Rockies Western Phase Project, as well as past projects and reasonably foreseeable future projects listed in table 4.13-1, would involve the use of heavy equipment that would produce dust from soil disruption and air contaminants from the combustion emissions. Cumulative fugitive dust (particulate) increases may occur where the Rockies Western Phase, Keystone, and Overland Pass Projects use the same access road system to construct their respective projects. Operation of the proposed Project and some of the reasonably foreseeable and existing projects would also contribute cumulatively to ongoing air emissions. All projects would follow state and local requirements for dust control on roads and excavated surfaces.

On a local scale, cumulative increases in air pollutant emissions could occur where new compressor or pumping stations are sited at or near existing or proposed compressor stations. For example, a new 36,810-horsepower compressor station (the Bertrand Compressor Station) would be located near REX-West MP 287.0 in Phelps County, Nebraska and about the same distance between the Julesburg Compressor Station in Julesburg, Colorado and the Steele City Compressor Station in Steele City, Nebraska. Keystone's Pumping Station 31 and Rockies Express' proposed Turney Compressor Station would both be located in Clinton County, Missouri. One of Overland Pass' pumping station and Overthrust's proposed Roberson Compressor Station would both be in Sweetwater County, Wyoming. Each pumping and compressor station and gas plant is required to obtain state construction and operation permits, and potential interactions with nearby emission sources must be considered in these permit applications.

In its ROD for Desolation Flats, the BLM indicated that concerns regarding cumulative impacts on air quality (specifically, visibility in Class I airsheds and additional emissions that would contribute to regional haze as a result of the Desolation Flats oil and gas development project in Wyoming), were addressed through air quality near- and far- field modeling and analyses. The models predicted that the activities associated with Desolation Flats individually would not produce adverse direct visibility impacts; however, activities would contribute to the cumulative impacts when considered with other oil and gas projects in production or proposed nearby. Because of the lesser level of development and activities proposed for Desolation Flats, direct and cumulative impacts to air quality were slightly less than those estimated for an alternative action analyzed. The BLM stated that it would continue to monitor air quality impacts both locally and regionally in cooperation with other agencies.

In Nebraska, Rockies Express' Steele City Compressor Station would consist of two gas-fired turbines ISO rated at a total of 41,000 hp, and the Julesburg Compressor Station would consist of two electric-driven compressors ISO rated at a total of 35,000 hp. The proposed compressor stations would be required to meet federal and state regulatory standards. In addition, to minimize potential air quality

impacts, the compressor units at the Steele City Compressor Station would be equipped with LoNO_x control technology, and clean-burning natural gas would be utilized exclusively at each station. The Julesburg Compressor Station would only have short-term construction-related air quality emissions, and subsequently, no long-term operational air quality impacts on the surrounding areas. Emissions associated with the future Bertrand Compressor Station would be subject to air quality protection measures to ensure that air emissions remain at or below local, state, and federal emission standards for criteria air pollutants.

In Missouri, AECI's proposed gas-fired power plant and Rockies Express' Turney Compressor Station, located 43 miles northwest of the proposed power plant, would emit criteria pollutants and small quantities of hazardous air pollutants. To reduce emissions rates, AECI would use various equipment and methods to remove byproducts such as SO₂, NO_x, and mercury from flue gas before exiting its proposed 625-foot-tall stack. The power plant would be equipped with:

- selective catalytic reduction equipment to reduce NO_x emissions;
- flue gas desulfurization unit (scrubber) to remove SO₂, which are naturally lower in the western coal this unit will use;
- carbon injection, one of the more proven options for mercury removal, would most likely be the control technology for this plant;
- bag house to capture mercury and particulates; and
- continuous emissions monitoring system that measures and records the constituents of the flue gas to ensure they meet requirements of air permits and ensures accurate operation of the environmental equipment.

Regional air cumulative studies would be completed as part of AECI's proposed facility that addresses multiple pollutant emission sources within the same regional air sheds.

The majority of the construction and operational effects of the Rockies Western Phase Project would be mitigated by the large six-state geographical area over which the various projects presented in table 4.13-1 are located, and the fact that these projects would be constructed over different periods. Operation and construction related air emissions are not expected to have significant impact on air quality in the area. Because the projects listed in table 4.13-1 are located over a large area; have varying construction schedules; and must adhere to federal, state, and local regulations for the protection of ambient air quality, we do not expect significant cumulative impacts.

Noise

The Rockies Western Phase Project and those listed in table 4.13-1 may affect ambient noise levels during construction. Construction noise impacts would be temporary and occur only during the construction period for each facility. However, because construction proceeds as a moving assembly line along the pipelines, the duration of construction activities, and therefore noise impacts, at any one location would be limited and short-term.

No new major noise sources of noise are proposed for operation of the Rockies Western Phase Project. Noise levels resulting from operation of the meter and regulator facilities would be minimal or not noticeable as the proposed facilities would be located in areas of low population density, thus no cumulative impacts are expected. Based on the estimates presented in the acoustical analysis for the Rockies Western Phase Project (see section 4.11.2.1), noise levels would remain below an L_{dn} of 55 dBA at any NSAs; however, we have recommended that the Applicants file a noise survey for each new compressor station after placing it into service. Based on our review of available information, it appears

that the location of Keystone's Pumping Station 31 would be located several miles west of Rockies Express' proposed Turney Compressor Station in Clinton County, Missouri. Also, the NSAs are located 2,000 feet, 2,200 feet, and 3,100 feet northeast and east-southeast, respectively, from the Turney Compressor Station. As shown in table 4.11.2-2, the L_{dn} levels attributable to the Turney Compressor Station are predicted to be below 50 dBA at the nearest NSAs. Taking into account the geographical locations of the two stations, the noise data available, and preliminary calculations, we conclude that cumulative noise impacts associated with the operation of Rockies Express' Turney Compressor Station and Keystone's Pumping Station 31 would not be significant.

Since noise levels at the compressor stations would not be allowed to exceed an L_{dn} of 55 dBA at any nearby NSA and since these facilities are generally dispersed along the pipeline route we do not believe there would be a cumulative noise impact.

4.13.10 Reliability and Safety

We received several comments from landowners concerned about the safety of collocating multiple pipelines in a common corridor on their property. Overland Pass and Keystone would comply with federal, state, and local guidelines to ensure safe operations of their pipeline facilities. As discussed previously in this EIS, we conclude that no cumulative operational safety impacts are expected among pipelines and other facilities located in the same general utility corridor because of the spacing between pipelines, the depth of soil cover, and requirements to meet DOT Minimum Federal Safety Standards in Title 49 CFR Part 192, which are intended to protect the public and to prevent natural gas facility accidents and failures.

4.13.11 Conclusion

The majority of cumulative impacts discussed above would be temporary and minor. However, long-term cumulative impacts on vegetation and land uses could occur if the other reasonably foreseeable future projects listed in table 4.13-1 would be constructed and affect similar vegetation/land uses. Long-term cumulative benefits would be realized from a boost to the local economy associated with tax revenues. Short-term cumulative benefits would also be realized through jobs and wages and purchases of goods and materials.