4.0 Environmental Effects

4.1 Analysis Assumptions and Guidelines

Assumptions

1. OPPC construction and operation methods and environmental protection measures are contained in the *Biological Resources Protection Plan*, the *Environmental Protection Plan*, and other plans provided in the draft POD (CH2MHill 2008). These measures would be implemented on federal lands, and similar procedures would be used on non-federal lands. Individual landowners may include specific construction and reclamation requirements in ROW agreements with OPPC. These requirements could result in similar or less environmental impacts than discussed in this chapter.

2. OPPC would acquire all necessary federal, state, and local permits and approvals to construct and operate the OPPC Piceance Basin NGL Lateral system (not including powerlines, which would be controlled and operated by power companies), regardless of whether the requirements for these permits and approvals are listed in this document.

Guidelines

1. Activities in the "construction phase" would include the surface-disturbing activities needed to construct the pipeline, lateral, pump station, meter stations, pigging facilities, valves, and permanent access roads so that the entire pipeline system can be placed into service. It also would include reclamation activities for areas where the surface has been disturbed.

2. Activities in the "operation phase" would include transportation of NGLs in the Overland Pass Pipeline system. This definition also includes normal operations, routine pipeline ground and aerial inspections, emergency response activities, future routine internal and external integrity inspections and repairs along short segments of the entire pipeline, and future remedial restoration activities such as reseeding and repair of erosion control structures.

3. OPPC committed environmental protection measures included in the draft POD were used to evaluate environmental impacts. The specific plans are not attached but are referenced in this document and can be found on the BLM website as technical reference reports http://www.blm.gov/co/st/en/BLM_Programs/land_use_planning/EA/overland_pipeline.html. The draft POD is currently a draft document that will be finalized by OPPC and submitted to BLM for review and approval after completion of a Final EA.

4.2 Air Quality

4.2.1 Proposed Action

Construction Phase

Issues

- Generation of fugitive dust from construction
- Combustion emissions from construction equipment

Analysis

Construction of the proposed Project would result in intermittent and short-term fugitive emissions. These emissions would include fugitive dust from soil disruption, and combustion emissions from construction equipment and construction worker commuter vehicles.

The quantity of fugitive dust emissions would depend on the moisture content and texture of the soils that would be disturbed, along with the frequency and duration of precipitation events. Fugitive dust emissions during construction would be restricted to the brief construction period along each segment of the proposed pipeline route, with construction impacts diminishing once construction activities end and after disturbed areas are reclaimed. Fugitive particulate emissions from roadways consist of heavier particles and tend to settle out of the atmosphere within a few hundred yards. Therefore, fugitive particulate emissions would be limited to the immediate vicinity of the proposed Project and the surrounding region would not be significantly impacted.

Combustion emissions from construction equipment would be minimized because the engines would meet the standards for mobile sources established by the USEPA mobile source emission regulations (40 CFR 85). In addition, the USEPA required that the maximum sulfur content of diesel fuel for on-road vehicles be reduced from 500 parts per million by weight (ppmw) to 15 ppmw as of mid-2006. The USEPA is requiring the sulfur content of non-road diesel to be reduced to 15 ppmw as well, reducing SO_2 and particulate emissions from diesel combustion. CO_2 is a naturally occurring gas whose presence in the atmosphere is necessary for all life. While areas near the construction of the pipeline may briefly experience slightly higher CO_2 concentrations as a result of construction vehicular traffic, these concentrations, if measureable, would not cause localized adverse human health or ecological impacts.

CDPHE air quality regulations for fugitive dust emissions applies to construction activities and clearing of land. Colorado Regulation No. 1 requires that a fugitive dust control plan be submitted by applicants whose source/activity results in fugitive dust emissions. The control plan must enable the source to minimize emissions of fugitive dust to a level that is technologically feasible and economically reasonable.

In addition, opacity from fugitive dust sources cannot equal or exceed 20 percent. During drier periods, dust suppression techniques such as the use of water or chemicals to control dust may be used in construction zones to minimize fugitive dust impacts, along with covering open-bodied trucks while transporting materials that would be likely to produce airborne dusts.

Colorado Air Pollution Control Division regulations identify certain activities that are exempt from the requirement to file an Air Pollutant Emission Notice (APEN) because by themselves, or cumulatively as a category, they are deemed to have a negligible impact on air quality. Included in the exempted categories is the disturbance of surface areas for purposes of land development that do not exceed 25 contiguous acres, and that do not exceed 6 months in duration. If these exemption thresholds are exceeded, an APEN must be submitted to the CDPHE. A land development APEN would be submitted for the pipeline construction if the exemption thresholds were exceeded. A fugitive dust control plan for land development activities would be included with the land development APEN.

OPPC also would implement dust control measures during certain construction activities such as blasting, trenching, and/or use of access roads. These dust control measures, as stated in the *Transportation Management Plan* and the *Fugitive Dust Control Plan* for the Project include the application of water or, if necessary, a non-toxic, biochemical dust suppressant, possibly in combination with mulches applied to the areas of disturbances. Other more long-term methods of controlling fugitive dust could include the use of wind fences, temporary seeding of spoil piles, gravel, and/or geotechnical matting.

If OPPC complies with Colorado and Wyoming regulations concerning the mitigation of fugitive dust emissions, the proposed Project would incorporate sufficient measures to ensure adequate levels of air quality during construction of the pipeline. Air pollutants from construction equipment internal combustion engines would be limited to the close proximity of the proposed Project area. Impacts would be short-term and long range transport would not occur, resulting in no significant impact on air quality.

Conclusion

The procedures proposed by OPPC would be sufficient to minimize impacts to air resources.

Operational Phase

Issues

- Operational Emissions

Analysis

Although the midpoint pump station is not currently proposed to be constructed, if it is installed in the future the only anticipated impacts to air quality would be from an emergency flare that may be located at the pump station and from blow downs of the pipeline. Emissions from a blow down of the pipeline would occur in emergency situations, and as part of periodic maintenance when pipeline pigging is conducted. Such a blow down would generate emissions of hydrocarbons and volatile organic compounds (VOCs). Due to the infrequent occurrence, there would be no significant air quality impacts from emergency flaring or blow downs from pipeline pigging activities.

If the pump station would be constructed, operational impacts would be mitigated, as needed, through the state permitting process. Air pollutant emissions would likely be below permitting threshold levels and, hence, there would be no significant adverse impacts on local or regional air quality.

Conclusion

Operational impacts to air quality resources are not expected.

4.2.2 No Action Alternative

Under the No Action Alternative, the proposed Project would not be constructed. As a result, the associated impacts to air quality would not occur.

4.2.3 GRP Land Re-route Alternative

The GRP Land Re-route Alternative would be approximately 1.3 miles longer than the Proposed Action. There would be no additional pumps or pump stations constructed along this alternative route. As a result of the additional length, there would be a slight increase in the emissions and fugitive dust associated with construction activities. However, the overall change in the length represents less than a 1 percent change for the entire route and therefore would not result in significant overall differences in impacts between the alternatives.

4.3 Geology, Minerals, and Paleontological Resources

4.3.1 Proposed Action

4.3.1.1 Physiography and Geology

Construction Phase

Issues

- Disturbances to topography resulting in disruption of drainage

Analysis

The effects of construction would include disturbances to the topography along the proposed ROW and at aboveground facilities due to grading and trenching activities. Upon completion of construction, OPPC would restore topographic contours and drainage patterns as closely as possible to the pre-construction condition.

Blasting potentially would adversely impact the geologic and physiographic environment. Limited blasting would be required in areas where shallow bedrock or boulders were encountered that could not be removed by conventional excavation with a trackhoe trencher, ripping with a bulldozer followed by trackhoe excavation, or hammering with a trackhoe-mounted hydraulic hammer followed by excavation. According to OPPC, blasting is not anticipated because the largely sandstone-composed formations can be disaggregated by using hydraulic hammers. However, in the event blasting is necessary, OPPC has prepared a *Blasting Plan* for the Project.

Conclusion

The construction techniques proposed by OPPC are sufficient to minimize impacts and restore surface contours.

Operation Phase

Issues

- No issues associated with geological resources were identified with operation

Analysis

Operation of the proposed pipeline and associated aboveground facilities would not materially alter the geologic and physiographic conditions or worsen existing unfavorable geologic conditions in the area.

Conclusion

No significant adverse impacts to geological resources would be anticipated due to operations.

4.3.1.2 Mineral Resources

Construction Phase

Issues

- Potential interference with existing mining or oil and gas operations

Analysis

As shown in **Table 3.2-2**, the proposed pipeline route crosses numerous oil and gas fields. In addition, the proposed route may cross aggregate resources in alluvial valleys and river terraces. Nevertheless, construction would have very minor and short-term impact on current mineral extraction activities due to the temporary and localized nature of pipeline construction activities.

Several oil and gas wells were identified within or close to the proposed pipeline construction ROW (**Table 3.2-3**). Construction activities potentially could damage wells, associated underground fluid lines and pipelines, and disrupt normal operations and routine maintenance. Also, damage to oil and gas facilities, if they should occur, could present severe health and safety and contamination hazards. Abandoned wells also could be impacted since construction potentially could remove existing abandoned well markers and damage near-surface cement plugs. Because oil and gas are produced from depths of more than 1,000 feet, construction of the pipeline would not be expected to affect the oil and natural gas producing formations. Rather, any construction-related impacts would be limited to surface or near-surface components of the wells and gathering systems, which would temporarily disrupt production until repairs are made. Prior to construction, OPPC would identify the exact locations of active, shut-in, and abandoned wells and any associated underground pipelines in the construction ROW and take appropriate precautions to protect the integrity of such facilities. OPPC also would abide by utility locate rules in the respective states and conduct due diligence to identify and contact all oil and gas well operators and pipeline gathering system owners prior to construction activities.

Conclusion

Potential impacts to surface mining operations, if any, would be limited to temporary short-term encumbrances during construction and would be minimized by OPPC working with the owners and/or operators of oil and gas facilities during ROW negotiations and facilities construction. Because construction of the pipeline would be limited to near-surface disturbance, the proposed Project would not impact oil and gas production.

Operation Phase

Issues

- Potential for reduced access to underlying minerals
- Potential interference with future mining operations
- Potential subsidence over underground mined-out voids leading to loss of ground support and damage or breakage of pipe

Analysis

Long-term operation of a pipeline has the potential to preclude access to mineral resources. The proposed route would be in an existing pipeline corridor and would not hinder access to mineral resources. The proposed ROW corridor does not pose a hindrance to access to oil and gas resources. Although the proposed route is in an area of potential exploitable minerals (coal and oil shale), no current plans to mine such resources were identified. No active or abandoned underground mine workings were identified along the proposed route, therefore, ground subsidence issues associated with underground mining are not a concern.

Conclusion

Operation of the proposed Project would not have a significant added impact on current or future mineral recovery operations in the area because most of the proposed pipeline route would follow existing ROWs that have already precluded mineral development through the corridor. Additionally, impacts on future mineral development would not constitute a significant loss of mineral resource or mineral availability because of the

narrow, linear nature of the pipeline ROW relative to the expanse of areas with mineral resource potential. It is anticipated that the pipeline trench would be backfilled with materials derived from the trench excavation, and it might be necessary to obtain some construction sand and gravel from local, existing commercial sources for use as pipe padding, road base, or surface facility pads. These demands for sand and gravel would not substantially affect the long-term availability of construction materials in the area.

4.3.1.3 Geological Hazards

Construction Phase

Issues

- Potential damage to the pipeline and the safety of the workers due to geologic hazards encountered during construction

Analysis

The hazard of concern during construction of the pipeline would be from unintentional undercutting of slopes or construction on steep slopes resulting in instability that would lead to landslides. When selecting the proposed pipeline route, OPPC attempted to minimize the amount of steep slopes crossed by the pipeline. Special pipeline construction practices described in the POD (CH2MHill 2008) would minimize slope stability concerns during construction. Implementation of the *Environmental Protection Plan* and *Blasting Plan* would reduce the potential for construction-related activities to trigger landslides or other slope failures.

Conclusion

Construction of the proposed Project facilities would not materially alter the geologic and physiographic conditions or worsen existing unfavorable geologic conditions in the area.

Operation Phase

Issues

- Potential damage to pipeline and ancillary facilities from earthquakes (ground shaking and subsidence) and fault displacement
- Potential damage to the pipeline from flood scour

Analysis

Seismicity

Seismic hazards to Project facilities would include strong ground shaking, surface faulting, or secondary ground deformation such as liquefaction and flow failure. Pipelines and aboveground facilities are capable of withstanding substantial ground motion. The proposed Project would be in an area where the probability of a strong earthquake is low. Since ground motion hazard probability is low, there would be a low risk of related hazards of earthquake induced landslides. The proposed Project does not cross identified active faults so ground displacement due to fault movement is not a concern.

To protect the proposed pipeline and facilities from seismic activity and its associated hazards, facilities would be constructed and tested to meet federal standards outlined in 49 CFR Part 195 and geotechnical studies would be conducted so that facilities would be designed and constructed to minimize any effects that shaking or faulting could have on the proposed Project facilities.

Flooding and Scour

Flooding hazards to Project facilities would include inundating surface facilities, causing debris flows, or scouring stream beds at the point of the pipeline crossing. Severe scouring often leaves unsupported spans of pipe exposed. In general, seasonal flooding hazards exist where the proposed pipeline route would cross major streams and rivers, and flash flooding hazards exist where the proposed pipeline would cross small watersheds. The proposed pipeline route would cross perennial and ephemeral streams as identified in **Appendix A**. All these crossings are potential seasonal or flash flooding locations. Though flooding in and of itself does not represent a significant risk to buried pipelines, stream scour and mud/debris flows often accompanying flooding can impact pipelines by exposing and leaving unsupported spans of pipe. To minimize these effects, the proposed pipeline would be buried at a sufficient depth to avoid possible scour at waterbody crossings. In addition, regular visual inspection of the proposed pipeline route would be used to identify areas that would be potentially exposed after flood events. The aboveground facilities are not located within areas susceptible to flooding.

Conclusion

Operation of the proposed pipeline and its associated facilities would not affect the geologic and physiographic conditions in the proposed Project area. Due to the proposed pipeline routing and design, it is unlikely that the proposed pipeline facilities would suffer significant damage from geologic hazards or other naturally occurring events during operation. Further, operation of the proposed Project and facilities would not worsen unfavorable geologic conditions in the area.

4.3.1.4 Paleontological Resources

Construction Phase

Issues

- Potential damage and loss of scientifically important fossils from ROW clearing, grading, trench excavation, and construction of other pipeline facilities

Analysis

Potential impacts to fossil localities during construction would be both direct and indirect. Direct impacts to or destruction of fossils would occur from trenching or facility construction activities conducted through significant fossil beds. Indirect impacts during construction would include erosion of fossil beds due to slope regrading and vegetation clearing or the unauthorized collection of scientifically important fossils by construction workers or the public due to increased access to fossil localities along the ROW.

To manage impacts to fossil localities, OPPC would implement the measures in the *Paleontological Resources Protection Plan* (*Paleo Plan*) to protect fossil resources on federal lands encountered during proposed Project construction, including the resources identified during the field survey. Paleontological resource monitoring would be conducted by Paleontological Monitors to ensure that fossils are preserved and to ascertain whether construction may continue after the unexpected discovery of any vertebrate fossils. Work conducted under the *Paleo Plan* would be performed by qualified paleontologists with trained assistants.

Paleontological Monitors would monitor construction as defined in the *Paleo Plan*. The construction contractor would be responsible for notifying a Project Environmental Inspector at least 72 hours in advance of construction in areas requiring monitoring, so that Paleontological Monitors can be deployed where required. The construction contractor would be responsible for all construction delays due to insufficient notification. Areas requiring paleontological monitoring also are included in Attachment 1 of the *Paleo Plan*.

The Paleontological Monitor would follow the trenching equipment at a cautionary distance, allowing time for construction dust to settle and for visible detection of fossils. Paleontological monitoring also would involve periodic spot-checking of the trench prior to backfill activities.

Paleontological Monitors would document daily monitoring activities on daily monitoring report forms that would be delivered to the Environmental Inspector on a daily basis. Paleontological monitoring results would be reported on a bi-weekly basis to the BLM Authorized Officer in a short letter report.

If fossils are discovered during construction, the Contractor would immediately stop all work near the discovery. The following steps would be implemented when fossils are discovered:

- Cease all earth disturbing activity within 100 feet of the discovery.
- Contact the BLM Authorized Officer, Environmental Inspector, and Paleontological Monitor immediately. The Paleontological Monitor would assess the nature of the discovery and determine the necessary course of action. If necessary, the Paleontological Monitor would mark the area and recommend procedures to be implemented to avoid further site damage. OPPC would protect the discovery until removed.

Under no circumstances would fossils be removed from private lands for any reason, including curation, without the written consent of the landowners.

Conclusion

Adherence to the *Paleo Plan* would minimize adverse impacts to scientifically important paleontological resources on federal lands. Important paleontological resources on non-federal lands may be recovered only with approval of the landowners, and therefore, may be unavailable for scientific curation.

Operation Phase

Issues

- Potential damage and loss of scientifically important fossils from maintenance activities

Analysis

Any potential effects to fossils from maintenance activities would be isolated due to the probable dispersed nature of maintenance activities. Also, potential impact during operations and maintenance would be minimal since activity would occur on previously disturbed ROW.

Conclusion

Normal operation of the proposed pipeline and its associated facilities would not disturb important paleontological resources. Maintenance activities would result in surface disturbance, but typically would occur within the ROW that was previously disturbed during construction. Since no new disturbances would be anticipated from routine maintenance activities (i.e., maintenance activities would occur within the ROW), impacts to paleontological resources would be negligible. However, it is possible that certain types of maintenance or repair may require a work space beyond the previously disturbed working ROW. In that case, the protection measures will be implemented on federal lands as outlined in the *Paleo Plan*.

4.3.2 No Action Alternative

Under the No Action Alternative, the proposed Project would not be constructed. As a result, none of the associated impacts to geologic or mineral resources would occur.

4.3.3 GRP Land Re-route Alternative

Potential impacts to geology, mineral resources, and paleontological resources along the GRP Land Re-route Alternative would be same as the Proposed Action except for the presence of 5 additional drainage crossings, which would somewhat increase the flood hazard potential beyond that of the Proposed Action. However, since the upgradient watersheds are small (generally less than one square mile) the overall difference in flood hazard between this alternative and the Proposed Action is not significant. Methods to reduce the potential effects of flood scour would be the same as for the proposed route. According to the Paleo Plan, monitoring for paleontologic resources in this area would consist of spot inspections after trenching but prior to the pipe being lowered into the trench.

4.4 Soils

4.4.1 Proposed Action

Construction Phase

Issues

- Potential topsoil losses from wind and water erosion on disturbed surfaces during and after construction
- Potential reduction in soil productivity and quality from topsoil losses, soil mixing, and compaction
- Pre-existing soil contamination or contamination from construction operations
- Potential for unsuccessful reclamation and establishment of vegetation similar to undisturbed adjacent lands

Analysis

Soils data were grouped and evaluated according to characteristics that would affect construction or increase the potential for soil impacts. These sensitive soil characteristics include: highly erodible soils; prime farmland and hydric soils; compaction-prone soils; stony/rocky soils and shallow bedrock; and droughty soils. Additional soil-related issues considered in the analysis include revegetation and soil contamination.

Acres of disturbed soils along the proposed pipeline route are summarized by state and according to the previously described soil characteristics that influence the magnitude of construction impacts (**Tables 4.4-1** and **4.4-2**).

Erosion by Water and Wind

Susceptibility to erosion is a complex function of characteristics such as soil texture and structure, topography, surface roughness, soil cover (made up of vegetation, duff/litter, rock, and woody debris), and climate. Erosion potential may also be influenced by increases in the length of time the soils are bare, and by disruption of drainage and erosion control structures. Erosion resulting from water occurs primarily on loose, non-cohesive soils on moderate to steep slopes, particularly during high intensity storm events. Wind-induced erosion often occurs on dry, fine sandy soils where vegetation cover is sparse and strong winds are prevalent.

The proposed pipeline route in Colorado would cross moderate to steeply sloping woodlands in Rio Blanco County. In Moffat County, the proposed route would cross river basins and dissected, moderately sloping hills in the south and gently rolling shrublands to the north.

The majority of the proposed pipeline route in Wyoming would cross shrublands on gently rolling to moderately steep slopes that are moderately to highly erodible if disturbed. Approximately half of the soils that would be affected by the proposed pipeline construction are considered highly erodible by wind and water. Approximately 167 acres of the soils along the proposed pipeline route in Colorado are highly erodible by wind while 46 acres are prone to wind erosion in Wyoming. Approximately 605 acres of soils highly susceptible to erosion by water would be crossed in Colorado and 202 acres would be crossed in Wyoming.

Soils subject to water erosion include steeply sloping land with shallow soils. Highly wind erodible soils along the proposed pipeline route are associated with sandy and silty textured, sparsely vegetated soils on a variety of parent materials. Although accelerated erosion due to construction-related soil disturbance would potentially

Table 4.4-1 Soil Characteristics Along Proposed Pipeline Route in Colorado (acres)

Proposed Action	County	Wind Erosion[1]	Water Erosion[2]	Compaction Prone[3]	Hydric[4]	Shallow Bedrock[5]	Prime Farmland	Stony Rocky[6]	Droughty[7]
Permanent Easement	Rio Blanco	7.1	115.2	117.4	0.4	78.2	37.6	58.0	7.1
Temporary Easement	Rio Blanco	3.6	58.2	58.6	0.2	39.2	18.5	29.1	3.6
TWAs	Rio Blanco	2.3	33.3	25.0	0.8	26.6	5.5	25.0	2.3
Permanent Easement	Moffat	90.1	230.6	216.9	0.1	14.0	84.6	88.7	214.7
Temporary Easement	Moffat	53.1	125.7	111.7	0.1	7.1	44.3	24.4	117.1
TWAs	Moffat	10.4	42.4	42.3	0.1	7.1	16.5	7.4	36.2
Total[8]		**166.6**	**605.4**	**571.9**	**1.7**	**172.2**	**207.0**	**232.6**	**381.0**

[1]Includes soils in wind erodibility groups 1 and 2.

[2]Includes soils with water erodibility factor for whole soil (kW) >0.22 and Slope Percentage > 8, also includes denuded slopes percentages >30.

[3]Includes soils that have clay loam or finer texture.

[4]As designated by the NRCS (2006b).

[5]Shallow bedrock includes soils with lithic bedrock 60 inches or less from the soil surface.

[6]Includes soils that have either: a cobbly, stony, bouldery, gravelly, channery, or flaggy modifier to the textural class.

[7]Includes coarse-textured soils (sandy loams and coarser) that are moderately well to excessively drained.

[8]Does not include 51.6 acres for off-ROW existing contractor/pipe yard or 5.5 acres for new and potentially widened access roads. Discrepancies in acreage totals are due to rounding.

Table 4.4-2 Soil Characteristics Along Proposed Pipeline Route in Wyoming (acres)

Proposed Action	County	Wind Erosion[1]	Water Erosion[2]	Compaction Prone[3]	Hydric[4]	Shallow Bedrock[5]	Prime Farmland	Stony Rocky[6]	Droughty[7]
Permanent Easement	Sweetwater	19.1	114.1	144.5	0.9	15.8	0.0	30.1	21.8
Temporary Easement	Sweetwater	9.4	57.1	72.2	0.4	7.9	0.0	14.9	10.7
TWAs	Sweetwater	3.7	28.7	27.5	0.4	4.0	0.0	5.9	3.8
Permanent Easement	Carbon	8.5	1.0	16.9	0.0	0.0	0.0	12.9	16.9
Temporary Easement	Carbon	4.2	0.5	8.5	0.0	0.0	0.0	6.4	8.5
TWAs	Carbon	1.4	0.2	2.8	0.0	0.0	0.0	2.1	2.8
Total[8]		**46.3**	**201.6**	**272.4**	**1.7**	**27.7**	**0.0**	**72.3**	**64.5**

[1]Includes soils in wind erodibility groups 1 and 2.

[2]Includes soils with a Kw >0.22 and Slope Percentage > 8, also includes denuded slopes percentages >30.

[3]Includes soils that have clay loam or finer texture.

[4]As designated by the NRCS (2006b).

[5]Shallow bedrock includes soils with lithic bedrock 60 inches or less from the soil surface.

[6]Includes soils that have either: a cobbly, stony, bouldery, gravelly, channery, or flaggy modifier to the textural class.

[7]Includes coarse-textured soils (sandy loams and coarser) that are moderately well to excessively drained.

[8]Does not include 0.8 acre for potential widening of existing access roads. Discrepancies in acreage totals are due to rounding.

occur at any stage of construction, the maximum potential for erosion within the construction ROW would be expected while soils are loose, on top of the soil surface in spoil piles. Erosion also would be of concern after final grading has occurred but before a vegetative cover had been reestablished. If the ground surface were left unvegetated or inadequately reclaimed, it would result in increased erosion.

Soil Productivity

The mixing of soil horizons during grading, trenching, and backfilling would lower soil productivity of agricultural and rangeland soils by diluting the physical, biological, and chemical properties of the topsoil with less productive subsoil, thus, impacting revegetation success. Segregation of topsoil helps to mitigate these effects. Reclamation would be difficult if topsoil were lost because it may take hundreds to thousands of years for a topsoil horizon to form naturally.

Approximately 52 percent of the soils affected by the proposed Project would have less than 6 inches of topsoil. Erosion, rutting, and the mixing of topsoil and subsoil horizons is of particular concern in areas with thin topsoil horizons because soil productivity can be drastically decreased if topsoil is mixed with subsoil or topsoil is lost to erosion. Approximately 14 percent of the proposed Project would affect soils with greater than 12 inches of topsoil. Summaries of acres of various topsoil depths along the proposed ROW are located in **Tables 3.3-1** and **3.3-2**.

On federal lands managed by the BLM, approximately 4 to 12 inches of topsoil would be salvaged from the trench line and the working side of the ROW. Prior to construction, OPPC, with the help of a Soil Scientist, would identify the depths of topsoil that would be salvaged. These areas would be identified on the construction alignment sheets. In areas where more than 6 inches of topsoil would be removed, TWAs may be required to stockpile the additional soil.

On private lands, topsoil would be stripped up to a depth of 6 inches from the trench line; however, at the private landowner's request, more than 6 inches of topsoil may be salvaged and/or topsoil would be salvaged across the full-width of the ROW or a portion thereof. Up to 12 inches of topsoil would be stripped across the trench line or construction ROW on irrigated agricultural lands. However, on any lands that would require grading, topsoil would be stripped from the entire portion of the ROW that requires grading. Topsoil would be stockpiled separately from subsoil and would not be used to pad the trench or construct trench breakers.

On private lands, OPPC would chip or shred any brush and other materials cleared from the ROW and incorporate into the topsoil. The temporary effects of wood chip additions (at a 3-inch depth) on the soil resource would include: increased soil temperature in the winter, moderate increase in soil moisture, and substantial decrease in soil nitrogen supply and understory vegetation. The increase in soil temperature and soil moisture would have relatively minor ecological effects. However, reductions in the soil nitrogen supply may temporarily reduce productivity of the soil and affect revegetation rates (Binkley et al. 2003). With increasing depth of mulch, these impacts would increase in magnitude and duration.

Prime Farmland

Soils along the proposed ROW are classified as prime farmland if irrigated, irrigated and drained, irrigated and reclaimed of excess salts and sodium, irrigated and protected from flooding, or not frequently flooded during growing season. Loss or mixing of the topsoil during construction activities would lead to a long-term loss of soil productivity on prime farmlands.

Overall site productivity is primarily a vegetation measure. Productivity varies with vegetation community, but more importantly, with land management objectives as they relate to which vegetation types are desirable or productive. In contrast, soil quality is an inherent soil resource characteristic involving aeration, permeability, texture, salinity and alkalinity, microbial populations, fertility, and other physical and chemical characteristics that are accepted as beneficial to overall plant growth and establishment. Based on this concept, there could

be impacts to the existing quality of native soils from proposed Project-related disturbance. Topsoil excavation and redistribution would modify existing soil structure, which would affect aeration and permeability. It is likely that some mixing of textural zones would occur, as well as mixing of saline and/or alkaline materials with relatively salt-free materials, which would impact soil quality for seedbeds.

Erosion of the topsoil spoil pile during construction would lead to a decreased amount of topsoil to be placed back on the surface, potentially affecting nutrient cycling and long-term soil productivity. The proposed Project would disturb approximately 207 acres of prime farmland or potential prime farmland in Colorado. Protecting topsoil spoil piles from wind and water erosion is essential in these areas. Prime farmland would not be affected in Wyoming.

Soil Compaction and Rutting

Soil compaction and rutting would result from the movement of heavy construction vehicles along the construction ROW and on temporary access roads. The degree of compaction would depend on the moisture content and texture of the soil at the time of construction. Compaction would be most severe where heavy equipment operates on moist to wet soils with high clay contents. Detrimental compaction also could occur on soils of various textures and moisture contents if multiple passes are made by high ground-weight equipment. Where trenchline only topsoil removal has occurred, moist or wet topsoil would adhere to tires and/or tracked vehicles and be carried away. Rutting would occur when the soil strength is not sufficient to support the applied load from vehicle traffic. Rutting would impact the surface hydrology of a site as well as the rooting environment by physically severing roots and reducing the aeration and infiltration of the soil. Rutting also would disrupt natural surface water hydrology by damming surface water flows, creating increased soil saturation upgradient from ruts, or by diverting and concentrating water flows creating accelerated erosion. In locations with thin topsoils, rutting could mix the topsoil with the subsoil, thereby reducing soil productivity. Rutting most likely would occur on moist or wet fine textured soils, such as the Bulkley or the Canburn Series, but also could occur on dry sandy soils due to low soil strength. Sandy soils commonly occur along the proposed route in Colorado and include soils such as Maybell sands that occur on old dunes, hills, and breaks. Soil rutting would be an important indication that other physical soil impacts could be occurring on a site. Rutting restrictions would help to mitigate these concerns.

Approximately 572 acres along the proposed pipeline route in Colorado and 272 acres in Wyoming contain soils that are compaction prone. Compaction would damage soil structure and reduce pore space, which would impede the movement of air and water to plant roots and could result in lower growth rates and hinder revegetation. Compaction would reduce infiltration resulting in excessive surface runoff, erosion, nutrient loss, and potential water-quality problems. To minimize such impacts, OPPC would rip all compacted areas to the depth of compaction prior to topsoil replacement.

Fragile and Low Reclamation Potential Soils

Approximately 0.5 acre of soils, near MP 34.9, are considered landslide prone. These soils may be prone to slumping and mass movement. OPPC has committed to not constructing surface structures within 0.5 mile of MP 34.9 without geotechnical determination of adequate stability at the site. Approximately 26 acres of fragile soils would occur along the proposed pipeline route on lands managed by the WRFO. The majority of these (24 acres) would be on slopes greater than 35 percent and the remaining 2 acres would be on saline soils. Approximately 27 acres of soils are considered fragile as identified by the LSFO. Temporary and permanent erosion control measures would be installed to control erosion and transport of sediment. Selection of appropriate erosion controls would be based on soil properties, steepness of the slope, and anticipated surface flow or runoff. Erosion control measures would include sediment barriers, waterbars, erosion control fabric, geotechnical matting, and vegetative and rock mulch.

Low reclamation potential soils have chemical or physical properties that limit revegetation following disturbance. Such chemical and physical properties include salinity, sodicity, highly acidic or alkaline soils,

heavy clays, and droughty sands. According to data provided by the BLM RFO, approximately 233 acres of soils in Wyoming have a poor topsoil rating due to high clay content or excess salt. Salts in the soil stress the vegetation by making water uptake more difficult, which would impact revegetation success in these areas. Reseeding with a salt-tolerant seed mix in these locations would minimize impacts associated with disturbance in these areas. Seed mixes are provided as an appendix to the *Environmental Protection Plan*. High clay content soils are prone to compaction and ripping to relieve compaction may be necessary for successful reclamation.

Stony/Rocky Soils and Shallow-to-Bedrock Soils

Grading, trenching, and backfilling would bring stones to the surface that could interfere with or damage agricultural equipment and hamper revegetation efforts by reducing soil moisture holding capacity. Ripping and blasting of shallow bedrock during construction would result in incorporation of bedrock fragments into topsoil.

Approximately 305 acres of the proposed pipeline route contain soils with substantial rocks and stones in the surface horizons. The majority of stony/rocky soils occur in steeper segments of the proposed route, with 233 acres located in Colorado and 72 acres in Wyoming. Summaries of acres in stony-rocky classes are provided in **Tables 4.4-1** and **4.4-2**.

Approximately 200 acres of soils that would be disturbed by the proposed Project contain shallow hard bedrock. The majority of soils containing shallow bedrock would be located in Colorado (172 acres), with an additional 28 acres in Wyoming. Approximately 144 acres of shallow-to-bedrock soils would be located in Rio Blanco County, Colorado. Summaries of acres in shallow bedrock classes are provided in **Tables 4.4-1** and **4.4-2**.

Sandy Soils

Revegetation success within the construction ROW would be a concern on sandy, droughty soils. Coarse-textured soils in moderately well drained or drier drainage classes would be particularly susceptible to drought. Revegetation success on droughty soils would be compromised if seeding and revegetation efforts were to occur during dry periods.

Approximately 446 acres of soils that would be disturbed by the proposed Project are inherently droughty. The majority of droughty soils would be located in Colorado (381 acres), with an additional 65 acres in Wyoming. Summaries of acres in droughty soil-classes are listed in **Tables 4.4-1** and **4.4-2**.

Where sandy soils would be encountered, ROW widths may be increased for safety concerns due to trench instability. This would result in additional disturbance in sandy soils along the proposed corridor, particularly between MP 52.1 and MP 59.1.

Drain Tiles and Irrigation Systems

Pipeline construction activities could disrupt or damage existing subsurface drainage systems. Hydric soils generally indicate areas that require drain tiles for crop production. The proposed Project would impact approximately 3.4 acres (less than 1 percent of total area) of hydric soils. This represents a small percentage of the total acreage that would be impacted, and few, if any, drain tiles would likely be encountered.

Grading, trenching, and backfilling could disrupt water flow to irrigation systems. OPPC has committed to maintain flow and repair irrigation systems to at least pre-construction conditions. Temporary measures would be provided, as agreed with the landowner or land management agency, for any facilities disrupted during the construction or reclamation process.

Soil Contamination

Material spills during construction and trench excavation through pre-existing contaminated areas would result in soil contamination along the proposed pipeline route. These impacts typically would be minor because of the low frequency and volumes of these occurrences. However, if large spills were to occur, they would result in the removal and disposal of large amounts of soil. Saturated soils, such as those near and through wetlands and waterbodies, have the potential to diffuse contaminants. OPPC would fuel and service construction vehicles and stationary equipment only in upland areas at least 100 feet from wetlands and waterbodies. Within the Rawlins Resource Area, the setback would be 500 feet from all permanent waters, wells, springs, wetlands, and riparian areas, as well as 100 feet from the inner gorge of ephemeral stream channels. All stationary equipment would be provided with secondary containment. These measures would avoid or minimize potential impacts to saturated soils.

Roads

Access to the Project would primarily be via existing public roads and dirt roads, such as BLM access roads and two-track trails. As described in the *Transportation Management Plan*, existing access roads could require upgrading to allow vehicle and equipment traffic during and after construction. Where grading or resurfacing would be required, there would be a short-term increase in erosion and sedimentation to connected waterways and the potential for soil mixing. Further upgrades could include straightening, widening, adding drainage controls, adding culverts, and constructing cuts-and-fills. These activities could result in an increase in compaction, runoff, erosion, and soil mixing, which increases the potential of long-term impacts to soil quality. Erosion and drainage controls would be implemented and maintained where such road improvements occur. Rutting restrictions on BLM lands would reduce the potential for soil mixing. A maximum of 4 inches of rutting for 50 feet would be allowed. No road maintenance or improvements would be conducted unless approved by the administering agency or landowner.

OPPC anticipates the construction of one new road and potential widening of existing roads that would impact a maximum of 6.3 acres of land. An increase in runoff, erosion, and sedimentation would occur as soils are disturbed and compacted. Indirect effects could include landslides, gullies, and the generation of loose side cast material.

Road embankments would be seeded and mulched as specified in the *Environmental Protection Plan*. Successful implementation and maintenance of erosion and drainage controls along access roads would reduce the potential for erosion and sedimentation. If revegetation efforts are delayed or are unsuccessful, additional runoff and accelerated erosion from upland sites would occur. Proposed revegetation and erosion control programs, as well as subsequent monitoring and maintenance, would minimize the potential for these impacts on soil resources. Further discussions of these issues are presented in Section 3.4, Vegetation, and Section 4.5.1, Surface Water.

Impacts associated with trespass by off-highway vehicles (OHV) could include compaction, runoff, erosion, and a reduction in reclamation potential, leading to long-term soil quality impacts. Measures would be provided to control the use of the proposed ROW and prevent unauthorized travel by OHV's. Measures would include leaving the ROW in a roughened state and scattering vegetative debris across the surface; placing dirt berms, rock, or vegetative barriers at intersections with existing roads; and randomly placing boulders, logs and stumps across the ROW to discourage OHV use.

Conclusion

The soils in the proposed Project area are diverse with a broad range of textures and depths. Much of the proposed pipeline route crosses soils that have shallow topsoil, are susceptible to erosion, have poor reclamation potential, and are prone to compaction and rutting. Pipeline construction activities may result in adverse impacts on the soil resources. However, these impacts would be minimized or avoided by the

implementation of applicant-committed environmental protection measures as stated in the POD (including the *Environmental Protection Plan*). Measures to minimize soil impacts include erosion control measures, topsoil separation, and handling procedures, as detailed in the previous paragraphs. Soils impact anticipated from pipeline construction include the possibility of reduction of soil quality by topsoil loss or mixing with subsoils, and compaction.

Operation Phase

Issues

- Potential topsoil losses from wind and water erosion on disturbed surfaces during and after maintenance activities
- Potential reduction in soil productivity and quality from topsoil losses, soil mixing and compaction
- Soil contamination from pipeline leaks, particularly in prime farmland

Analysis

Potential topsoil losses from wind and water erosion would occur during maintenance operations along the ROW. These activities would be dispersed along the length of the proposed pipeline route and would occur intermittently. There is a small probability of a pipeline leak, releasing NGL into the environment (Section 4.12). NGL primarily consist of gas that is liquefied by pressure (e.g., propane). Consequently, in the unlikely event of a pipeline release, NGL components would rapidly volatilize, thereby resulting in minimal impacts to soil resources.

Conclusion

Maintenance activities would result in localized impacts of short duration and these impacts would be dispersed along the entire route. Impacts such as soil mixing and compaction could result from vehicular traffic on the ROW. Increased compaction would result in decreased soil infiltration and an increase in runoff and erosion. Wind erosion could increase with travel along the corridor. If NGL were accidentally released into the environment, impacts to soil resources would be negligible.

4.4.2 No Action Alternative

Under the No Action Alternative, the proposed Project would not be constructed. As a result, the related impacts to soils would not occur.

4.4.3 GRP Land Re-route Alternative

Potential impacts to soils along the GRP Land Re-route Alternative would be similar to the Proposed Action except that approximately 11.9 additional acres would be disturbed (30.9 acres along the re-route versus 19.0 acres along the bypassed section of the Proposed Action). Soil types crossed by the alternative route would be similar to those along corresponding segments of the Proposed Action route. However, characteristics of those soils vary and due to the additional length, construction of the alternative would result in disturbance of 13.4 more acres of wind erodible soils (18.8 acres versus. 5.4 acres), 10.9 more acres of water erodible soils (23.6 acres versus 12.7 acres), and 13.1 more acres of droughty soils (23.5 acres versus 10.4 acres) relative to the Proposed Action.

Impacts to soils with topsoil depths greater than 12 inches along the GRP Land Re-route Alternative would be comparable to the corresponding segment of the proposed pipeline route. However, the re-route would affect approximately 11.9 additional acres of soils with topsoil depths less than 12 inches. The overall change in the

length represents less than a 1 percent change for the entire route and therefore would not result in significant overall differences in impacts between the alternatives.

4.5 Water Resources

4.5.1 Proposed Action

4.5.1.1 Surface Water

Construction Phase

Issues

- Increased turbidity and sediment transport in streams resulting from construction of waterbody crossings
- Channel and bank modifications that affect channel geomorphology
- Increased turbidity, sediment transport, or chemical contamination in streams resulting from runoff and erosion from upland sources, including access roads and ditches
- Risk of spills or leaks of fuel, solvents, wash water, or hazardous materials, or of storm water and trench dewatering discharges into waterbodies
- Flow reductions where withdrawals are pumped from surface water sources for pressure testing or dust control
- Accelerated erosion, turbidity, and sediment transport or other water quality degradation from discharges of pressure test water
- Potential transmittal of nuisance aquatic organisms in pressure test water discharges

Analysis

Waterbody Crossings

The *Environmental Protection Plan* describes the methods that would be used for crossing dry drainages and flowing stream channels. Typically, the smaller, dry channels would be crossed by open-cut techniques as used for upland construction. Except for the larger rivers, flowing or wet channels would be crossed with flumes or other open-cut techniques. All waterbodies that would be crossed and the proposed crossing methods for each are listed in **Appendix A**.

Where flowing streams are crossed by wet open-cut methods, temporary increases in flow turbidity and sediment transport would occur. Increased turbidity and sedimentation would create temporary adverse impacts to water quality from such sites. In some cases, modifications of stream geometry at open-cut crossings may change flow velocities or depths in ways that encourage further erosion and sedimentation over time. Such changes also may adversely affect the habitat and movement of aquatic species. Refer to Section 4.7.1.2 for potential impacts to aquatic species.

The sections describing erosion control measures and wetland and waterbody construction methods in the *Environmental Protection Plan* further identify procedures and practices that would be applied to avoid or minimize impacts to surface water resources. A number of BMPs are proposed in these sections that would control erosion and minimize the movement of sediment into waterbodies or dry stream channels. The potential for adverse impacts to surface water resources would be minimized by the successful implementation of these practices.

Proposed site stabilization practices that would reduce the potential for impacts to surface water resources include sediment barriers, waterbars, trench breakers, and the use of mulches and/or erosion control netting in combination with revegetation efforts. Sediment barriers typically would consist of anchored straw bales,

excelsior logs (“coir logs”), silt fences, or sandbags. Waterbars would be placed on slopes susceptible to erosion and near the base of slopes adjacent to wetlands, riparian areas, and watercourses. Berms would be made from disturbed soil materials within the construction ROW. Both temporary and permanent waterbars would be constructed in accordance with the phase of construction. Waterbar spacing would vary with slope; they would be spaced at closer intervals on steeper slopes.

Trench breakers made of polyurethane foam or sandbags would be installed around the pipe in the trench to restrict or slow groundwater flow along the trench. These installations would be completed before trench backfilling on steep slopes and on slopes adjacent to waterbodies and wetlands.

Any necessary trench dewatering would comply with applicable permit requirements. Dewatering discharges would be directed at a controlled rate onto a stable surface and would employ a section of geotextile fabric, a siltation bag, straw bale structure, or a similar erosion control practice to prevent scouring during discharge. Further descriptions of mulching, the use of erosion control fabrics, and revegetation practices are presented in the POD (CH2M Hill Trigon, Inc. 2008) and in the Soils and Vegetation sections of this EA (Sections 4.4 and 4.6, respectively).

Monitoring of erosion control practices would occur during construction through environmental inspections conducted by OPPC, agency staff, and third-party personnel. Post-construction monitoring and maintenance of erosion control practices are proposed as part of the *Environmental Protection Plan*.

As described in the POD (CH2M Hill Trigon, Inc. 2008), vehicles and equipment would cross waterbodies and wetlands as necessary on various types of equipment bridges or mats. Excavated spoil would be stored at least 10 feet from the water’s edge or above the ordinary high water mark, and would be isolated from the waterbody by sediment containment features. Streambanks would be returned to their original contour, or returned to a more stable configuration, and stabilized. In cases where over-steepened or undercut banks currently occur, beneficial effects would result from recontouring and stabilizing the crossing site.

Waterbody crossing impacts also would be limited by the implementation of proposed sediment control practices. Sediment barriers would be used at these crossings to minimize the transfer of sediment and excavated spoil. Bed materials would be replaced to restore the channel to pre-disturbance conditions. With successful controls, impacts would be minimized and would be limited to within several hundred feet of the crossing. Most crossing activities would be completed within 24 hours. As a result, both the extent and duration of impacts would be minimal. With proposed bank restoration, long-term adverse impacts from channel geometry modifications are not anticipated. Care must be taken with the use of rip-rap, timbers, or other “hard engineering” practices if pipeline crossings are located on stream bends or meander loops. Anchoring such a channel location would promote more pronounced changes in stream planform elsewhere in the vicinity. Adverse impacts, such as bank caving, potentially would result from such geomorphic responses.

These proposed practices also would limit the potential for adverse impacts on floodplains as delineated by FEMA in Rio Blanco County, and elsewhere at proposed waterbody crossings where floodplains may exist. Since the proposed pipeline would be buried and no buildings that could affect floodwater elevations or velocities are proposed in floodplains, no impacts from floodway constrictions would occur. The successful implementation of proposed topsoil and spoil handling, erosion control and backfill practices, trench dewatering guidelines, restoration of irrigation systems, and the application of revegetation practices would further mitigate potential impacts to floodplains.

Site-specific crossing plans would be provided as attachments to appendices of the final POD. HDD plans for the White, Yampa, and Little Snake rivers would be provided, as would plans for the crossings at Piceance Creek, Dry Fork, Willow Creek, and Sand Creek. These plans would be referenced from the general POD text. The larger waterbodies, specifically the White, Yampa, and Little Snake rivers, would be crossed by the HDD method. Assuming a successful HDD crossing is constructed at each of these rivers, only minor turbidity impacts would be anticipated from light disturbance associated with the preliminary crossing set-up. If it

occurred, an inadvertent release of drilling fluids (a “frac-out”) would degrade water quality during HDD activities where this water crossing method is proposed.

In the unlikely event of a frac-out of drilling fluids, drilling activities would cease and countermeasures would be implemented. In such cases, turbidity and sedimentation impacts, as well as minor amounts of chemical constituents, would adversely affect the waterbody for some distance downstream. Due to mud flocculation and settling, such effects would probably occur within 0.5-mile or so of the HDD site. Major factors in reducing the potential for drilling fluid releases at HDD crossings include the type of soil and rock material and the depth of cover material. Cohesive soils, such as clays, dense sands, and competent rock are preferred materials for horizontal drilling. The depth of these overburden materials also is a consideration. The overburden materials and profiles for the proposed crossings minimize the potential for releases of drilling fluids, by employing smooth and gradual vertical curves in favorable materials for successful HDD completion.

HDD activities constantly would be monitored on this Project. The *Drill Fluid Contingency Plan* describes monitoring measures that would be used to determine if an inadvertent release were to occur. This plan also describes notification, containment, and cleanup procedures and practices that would be used in the event of a drilling fluid release. Based on the measures presented in this plan, the potential for impacts to surface water quality and related habitats would be minimized.

Runoff and Water Quality Effects from Disturbed Upland Sources

Surface water quality impacts may result from increased runoff, erosion, and sediment yield from upland excavation and along access roads and ditches. As described in the *Transportation Management Plan*, existing access roads may require upgrading to allow vehicle and equipment traffic during and after construction. Where necessary, such upgrades may include grading, straightening, widening, adding drainage controls, adding culverts, constructing cuts-and-fills, and resurfacing. The potential for ongoing erosion and sedimentation from these activities presents the potential for long-term and extensive impacts to surface water quality, stream channel conditions, and associated aquatic habitats. Erosion and drainage controls would be implemented and maintained where such road improvements occur. No road maintenance or improvements would be conducted unless approved by the administering agency or landowner.

OPPC does not expect to construct new roads across lands managed by the BLM. However, if new road construction were to become necessary on lands managed by federal, state, or county agencies, OPPC would acquire all necessary permits, clearances, and authorizations. Waterbars, culverts, ditches, and drainage installations would be constructed of stable materials and maintained to agency and landowner standards. Road embankments would be seeded and mulched as specified in the *Environmental Protection Plan*. Successful implementation and maintenance of erosion and drainage controls along access roads would reduce the potential for site instabilities along streams and for impacts to surface water quality.

If large amounts of herbicides or pesticides entered stream courses during or after revegetation efforts, substantial water quality impacts would occur. In addition, if revegetation efforts are delayed or are unsuccessful, additional runoff and accelerated erosion from upland sites would contribute to increases in streamflow, turbidity, and sediment loading. These would be indirect effects on surface water from direct impacts related to vegetation and soils. Proposed revegetation and erosion control programs, as well as subsequent monitoring and maintenance, would minimize the potential for these indirect impacts on surface water resources. Further discussions of these issues are presented in Section 4.4, Soils, and Section 4.6, Vegetation.

Spills or Leaks

Other surface water quality impacts could result from spills of fuel, solvents, cleaning fluids, or hazardous materials. The risk or volume that could be involved in such an event have not been quantified, but are anticipated to be low. OPPC proposes to isolate hazardous materials in contractor yards with adequate

containment as required by material storage regulations. Further details of hazardous materials management and spill prevention, control, and countermeasures, are described in the *Hazardous Materials Management and Spill Prevention, Containment, and Countermeasures Plan* and in the *Environmental Protection Plan*. According to these plans, construction vehicles (e.g., trucks, bulldozers, etc.) and stationary equipment (e.g., pumps, generators, etc.) would be fueled and serviced in upland areas at least 100 feet from waterbodies and wetlands. Within the Rawlins Resource Area, the set back would be 500 feet from all permanent waters, wells, springs, wetlands, and riparian areas, as well as 100 feet from the inner gorge of ephemeral stream channels. All stationary equipment (such as pumps and generators) would be provided with secondary containment structures to prevent the spill or release of hazardous materials into waterways. Refueling areas generally would be flat to minimize the chance of any spilled substances reaching waterbodies. Based on implementation of these procedures, impacts to surface water quality from these activities would be avoided or minimized.

Storm Water and Trench Dewatering

The *Storm Water Management Plan* (attachment to the *Environmental Protection Plan*) identifies the methods of construction, site stabilization, trench dewatering, and erosion controls that would be used to avoid or minimize the potential for impacts to surface water quality from grading and excavation. Good housekeeping, site inspections, structural and nonstructural practices to control erosion, and avoidance of discharging silt-laden trench water into streams are set forth in this plan. Temporary and permanent stabilization measures are defined. With successful implementation of the *Storm Water Management Plan*, impacts to surface water quality from storm drainage and trench dewatering would be reduced.

Withdrawals and Discharges for Hydrostatic Testing and Dust Control

Plans and procedures set forth in the POD (CH2M Hill Trigon, Inc. 2008) describe the proposed approaches to water withdrawals, discharges, and related water quality considerations during construction and operation of the proposed Project. With respect to potential water quantity impacts, the *Hydrostatic Test Plan* specifies that:

- Test water would be withdrawn from approved/permitted sources.
- Water used for test purposes would be sampled and analyzed as required (during appropriation and discharge).
- Screens would be used on the intakes from surface water sources to prevent the entrainment of fish or other aquatic species.
- Withdrawal rates would be monitored to ensure that adequate downstream flow is maintained to support aquatic life.

The *Hydrostatic Test Plan* identifies the water sources and withdrawals that would be used for testing the integrity of the proposed pipeline during construction. Water sources for this purpose would be withdrawn from the White and Yampa rivers, and possibly from the Little Snake River. It is anticipated that additional water withdrawals for dust control and equipment washing also would occur from these same locations.

Existing surface water rights would be used for obtaining water needed for construction. Withdrawal volumes would be obtained and source locations identified in accordance with temporary appropriation procedures through the Colorado Division of Water Resources. As described in the *Hydrostatic Test Plan*, approximately 3.6 million gallons of water (about 11 acre-feet) would be needed for hydrostatic testing overall. Approximately 860,000 gallons (2.6 acre-feet) would be withdrawn from the White River, and approximately 1.15 million gallons (3.5 acre-feet) would be withdrawn from the Yampa River. An additional 1.6 million gallons (approximately 4.9 acre-feet) would be withdrawn from the Little Snake River, if supplies are available. If conditions in the Little Snake River do not allow for this amount of withdrawal, additional water would be used from the Yampa River. Under such circumstances, withdrawals from the Yampa River may be up to

approximately 2.75 million gallons (about 8.4 acre-feet). Water from each source would be used for approximately 8 to 10 days before being returned to the original source at the uptake location.

Currently, OPPC plans to withdraw at rates of approximately 500 to 1,000 gallons per minute (about 1.1 to 2.2 cfs) through screened intakes to prevent the entrapment of fish or other aquatic species. Based on historical gaging records, average monthly flows from July through March on the White River below Meeker (USGS Station 09304800) range from about 330 to 710 cfs. Average monthly flows from July through March on the Yampa River near Maybell (USGS Station 09251000) range from about 240 to 1,340 cfs. Average monthly flows from July through March on the Little Snake River near Slater (USGS Station 09251000) range from about 30 to 150 cfs. Flows in the Little Snake River at a withdrawal site near the proposed ROW may vary from these averages due to irrigation withdrawals and releases from High Savery Dam upstream. In any case, the proposed withdrawals for hydrostatic testing represent a minimal portion of the average monthly flows in these rivers. Since supplies would be obtained in accordance with existing water rights, impacts to surface water quantities are anticipated to be small. Effects from construction withdrawls would be similar to those from existing withdrawals made in accordance with existing water rights. Any impacts to water resources would be isolated and short-term. Refer to Section 4.7.1.2, Aquatic Resources, for a further discussion on potential impacts on aquatic species, particularly endangered fish, and related agency considerations.

After testing, water would be discharged in accordance with Project permits and other measures as needed. In addition, energy-dissipating devices and/or filter bags would be used to prevent scour, erosion, suspension of sediment, and damage to vegetation. Discharge rates would be monitored to ensure effectiveness of the energy-dissipating devices.

Potential impacts from test water discharges would include releases of small concentrations of solvents or particulates carried from the discharge to receiving streams; erosion and sedimentation from upland discharge sites or within nearby channels; and the potential for transfer of parasites or nuisance aquatic organisms from one waterbody to another. The severity of these impacts would vary according to the water source, the nature of the pipe, the discharge sites, and controls on the rate and migration of discharges.

If required in state discharge permits, OPPC would test the quality of the test water prior to discharge. Frequently, such permits call for testing of a grab sample for iron, total suspended solids, sheen from oil and grease, and pH. The construction contractor would use an energy-dissipation structure (such as a straw-bale barrier) to prevent scour, erosion, and vegetation damage during discharge. OPPC has committed to implementing good engineering judgment during discharges, so that all federal, state, and local environmental requirements would be met.

Potential impacts from discharges of test water directly into a stream or river include a decrease of the dissolved oxygen content within the zone of mixing between the discharge and the streamflow and erosion of the bed or banks resulting in increased turbidity and sedimentation downstream of the discharge. Both of these effects would create adverse impacts on water quality for unknown distances downstream. Discharges at upland sites near the source, if used, may accelerate erosion due to concentrated overland flow.

To reduce the potential for these impacts, OPPC has agreed to discharge water used for hydrostatic testing back to the locations where the water was initially withdrawn. OPPC would use controlled discharge rates into straw bale/silt fence dewatering structure near the source riverbank. Discharge velocity would be controlled so as to maintain the integrity of the discharge structure and avoid impacts from erosion. The BLM WRFO would be contacted at least 1 day prior to discharging back to the White River.

For purposes of this assessment, it is assumed that the water for dust control would be the same surface waterbody locations as those used for hydrostatic testing. Based on estimates from similar projects in the region, roughly 35 acre-feet of water may be needed for this purpose. Since water used for dust control would seep into the ground or evaporate, it would be entirely consumed. Such withdrawals, if assumed to originate from surface water resources, would represent depletions in surface water quantity. Dust control withdrawals

would be made intermittently, on an as-needed basis, and would likely use streams with larger flows. OPPC would implement precautions for avoiding entrainment of fish or other aquatic species, or causing detrimental flow reductions downstream during dust control withdrawals from surface waters. OPPC would comply with agency compensation requirements for depletions, as further described in Section 4.7.1.2, Aquatic Resources.

Conclusions

Potential adverse impacts to surface water resources, including both to water quality and water quantity, could occur during construction due to withdrawals from rivers and streams. Surface water withdrawals would be needed for hydrostatic testing of the pipeline, dust control, and equipment washing. Potential impacts to surface water quality would result from spills or leaks of fuel or hazardous materials into watercourses, from erosion and sedimentation of disturbed streambeds and banks, from trench dewatering, or from discharges of hydrostatic testing water. Water and cleaning fluids draining from equipment wash stations would transport contaminants into waterbodies if these facilities were not adequately located or contained. Implementation of the proposed procedures and practices set forth in the POD (CH2M Hill Trigon, Inc. 2008) would avoid or reduce the potential for such impacts.

Operations Phase

Issues

- Pipeline ruptures or leaks could spill liquid products into waterbodies, degrading water quality
- If revegetation, road and ditch stabilization, or other erosion control efforts were unsuccessful over the long term, adverse effects on channel morphology or surface water quantity and quality would result
- Potential impacts on the proposed pipeline from flooding or channel scour also may occur

Analysis

If pipeline ruptures or leaks occurred during the life of the Project, surface water quality would be adversely affected if such events happened in proximity to waterbodies or watercourses. Since the pipeline would be buried, constantly monitored, and periodically inspected and maintained, the potential for spills from pipeline failures is limited. In addition, shutoff and check valves would be located at larger stream crossings, including the White, Yampa, and Little Snake rivers. Other valves would be located along upper Strawberry Creek, the headwaters of Deception Creek, and near upper Spring Creek in Moffat County, as shown on **Figure 2.1-2**. Pipeline controls also would be located at the Willow Creek Gas Plant near Piceance Creek.

During operations, if a pipeline leak or rupture were to occur near a waterbody, or if runoff from contaminated soils were to enter a waterbody, short-term impacts on surface water quality would occur. Since NGL are liquified under pressure, they would rapidly volatilize and evaporate when released into the environment. NGL are minimally water-soluble, so impacts on water resources from a leak or rupture would be localized. The installation of valves near waterbody crossings and the nature of NGL would reduce the potential for impacts to surface water quality from any pipeline ruptures. Additional pipeline materials specifications, monitoring systems, and measures that would decrease the potential for surface water impacts from pipeline ruptures or leaks are described in Section 4.12, Public Health and Safety. As a result of these pipeline management procedures and practices, there is a very low risk of surface water impacts from a rupture or leak.

Potential impacts on surface water from delays or unsuccessful revegetation and erosion control efforts are discussed under the construction impacts. Other discussions of these issues are presented in the Soils and the Vegetation assessments in Sections 4.4 and 4.6, respectively. Potential impacts on the proposed pipeline from flooding or channel scour are discussed in the Geology assessment in Section 4.3.

Conclusion

Assuming that pipeline infrastructure and monitoring practices successfully manage the transport of liquid products, the risk of surface water quality impacts from pipeline ruptures or leaks would be small. In the highly unlikely event that a rupture or leak occurred, spill response and countermeasures combined with rapid volatilization of the product would minimize the impacts to surface water quality.

4.5.1.2 Groundwater

Construction Phase

Issues

- Contamination of near-surface groundwater as a result of spills during refueling or storage and handling of lubricants, solvents, or other materials
- Interference with existing groundwater movement and supply in areas of shallow groundwater or springs, as a result of trenching or blasting

Analysis

No public water supply wells or wellhead protection areas are known to be located within 400 feet of the proposed pipeline route. Only one private well, near MP 138, would be located within 150 feet of the proposed centerline. This well would be approximately 95 feet from the centerline.

OPPC has no plans to use groundwater during construction or operation; consequently, impacts to groundwater quantity would be limited to those caused by the physical disturbance of the overlying soils and runoff during grading, trenching, and blasting.

Impacts to groundwater resources would be minimized or avoided by the use of standard construction best practices. 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 wells that might be completed in a shallow aquifer. Nevertheless, construction activities such as trenching, blasting, dewatering, and backfilling could encounter shallow alluvial aquifers and cause minor fluctuations in shallow groundwater levels and/or increased turbidity within the aquifer immediately adjacent to the activity. Impacts to deeper aquifers would not be anticipated. Since most shallow alluvial aquifers exhibit rapid recharge and groundwater movement, shallow aquifers would likely quickly reestablish equilibrium if disturbed and turbidity levels would rapidly subside. Therefore, the effects of construction would be short-term.

A potential hazard of long-term groundwater contamination exists from vehicle refueling and maintenance, from hazardous material spills that occur during construction, or from the disturbance of contaminated soils. Spills or leaks of fuels or other hazardous liquids would affect groundwater quality, and dispersal of pollutants from affected soils potentially would be a continuing source of aquifer contamination. The deterioration of groundwater quality by such factors would adversely affect groundwater uses. These impacts would be avoided or minimized by restricting the locations of parking, refueling, and storage areas and by implementing procedures to prevent and respond to spills or leaks of hazardous materials.

In the event that contaminated soil and/or groundwater contamination would occur during construction, OPPC would notify the affected landowner and coordinate with the appropriate federal and state agencies as mandated by notification requirements. Pipeline construction may involve disposal of groundwater encountered during trench excavation. If the disposal structures are located outside the cleared disturbed area, prior approval from the landowner and federal and state agencies would be required. By law, OPPC is required to apply to the states for temporary groundwater disposal permits, and comply with permit stipulations

as well as erosion control/revegetation. It is expected that such regulatory compliance would avoid or minimize potential groundwater impacts from trench dewatering.

Procedures to address prevention of spills, as well as preparedness for rapid containment and prompt and effective cleanup of spills are described in the *Hazardous Materials Management and Spill Prevention, Containment, and Countermeasures Plan*. This plan:

- Identifies preventative measures to avoid hazardous material spills or leaks;
- Provides for vehicle and equipment inspection and maintenance;
- Defines proper storage and handling of fuels, lubricants, and hazardous materials;
- Identifies immediate spill response procedures for uplands, wetlands, or waterbodies; and
- Establishes reporting and notification protocols.

Conclusion

Implementation of the measures and the procedures contained in the *Hazardous Materials Management and Spill Prevention, Containment, and Countermeasures Plan* for the proposed Project 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 proposed Project.

Operation Phase

Issues

- Potential reductions in groundwater quality from pipeline spills, leaks, or ruptures on shallow aquifers used for rural residential, livestock, and municipal water supplies

Analysis

If a pipeline leak would occur, released NGL would vaporize. Limited NGL able to instantaneously soak into the soil would quickly evaporate, then percolate up through the soil and sediments, and dissipate into the atmosphere. Most, if not all, of the NGL components would evaporate on the land surface or within the vadose (unsaturated) zone above the water table. Only approximately 2 to 4 percent of the NGL components would not readily volatilize at atmospheric pressure. A small portion of these could enter shallow groundwater depending on the location of the rupture or leak after eventually migrating through unsaturated materials. Because of their slight solubility in water, contamination from NGL components would be limited to a few ppm. These concentrations would be further reduced by diffusion and natural attenuation, which would further reduce the risk to potential receptors (BLM 2005).

Conclusion

During future operation and maintenance activities, OPPC would continue to adhere to standards within the Project-specific plans as outlined in the POD (CH2M Hill Trigon, Inc. 2008) to prevent contamination of groundwater resources from potential spills of hazardous materials. In the event of a pipeline rupture or spill, groundwater impacts from pipeline operation would be unlikely because of the marginal solubility of NGL in water and their rapid volatilization once released from pressure. Overall, construction and operation of the proposed Project would not significantly impact groundwater resources.

4.5.1.3 Wetlands

Construction Phase

Issues

- Potential modifications in wetland productivity due to modifications in surface and subsurface flow patterns
- Modifications in wetland vegetation community composition and structure from construction clearing

Analysis

Construction in wetlands primarily would result in temporary effects including the temporary loss of wetland vegetation, soil disturbance, and temporary increases in turbidity and fluctuations in wetland hydrology. To minimize these impacts on wetlands, OPPC would overlap its construction ROW along previously disturbed corridors for approximately 95 percent of the proposed pipeline route. No aboveground facilities would be located within wetlands.

Based on wetland field survey data and a proposed 75-foot-wide construction ROW, the proposed pipeline route would temporarily affect 7.7 acres of wetlands.

To minimize environmental impacts to floodplains, wetlands, and riparian areas during the construction phase of the proposed Project, OPPC would implement the construction and environmental protection measures provided in the *Environmental Protection Plan*, which include topsoil salvage and replacement, grading the construction ROW to restore pre-construction contours and drainage patterns, and limiting human disturbance/access.

In dry wetlands, prior to trenching, topsoil up to 12 inches in depth would be stripped from over the trench line. For wetlands located on side hills, topsoil would be stripped from the entire area being graded. Topsoil would be stockpiled in a location where it would not be mixed with any upland soils or wetland subsoil. Care would be taken to ensure that the area stripped over the trench line is wide enough to include topsoil over trench sidewalls that may slough off due to high groundwater. For wetlands with standing water or saturated soils, every attempt would be made to remove and stockpile topsoil up to 12 inches in depth.

Topsoil would be stockpiled separate from subsoil and would not be used to pad the trench or construct trench breakers. Dry drainages or washes that cross the proposed ROW would not be blocked with topsoil or subsoil piles. Topsoil and subsoil would be placed on the banks of the drainage. Topsoil would be stripped from the stream banks along the trench line and stockpiled at least 10 feet from water's edge behind sediment barriers or other containment structures. Gaps would be left periodically in the topsoil and subsoil windrow to avoid ponding and excess diversion of natural runoff during storm events. Stockpiled topsoil would be contained within the proposed ROW or TWAs. On steeper side sloping situations requiring cutting into the slope to achieve a level trench area, topsoil would be placed upslope, above the cut.

Following these construction procedures and environmental protection measures would greatly increase the probability that palustrine emergent (PEM) wetland communities would revegetate rapidly (within 3 years) (Van Dyke 1994; FERC 2004). It is anticipated that shrub rootstocks would resprout. Wetland shrubs would likely require 5 years or more to recover to their former height and density. Pipeline construction in wetlands would temporarily alter wetland surface and subsurface water flow patterns through trenching activities. This hydrologic impact would be localized and temporary until permanent trench breakers were installed and the trench was backfilled.

Conclusion

Wetland herbaceous vegetation generally would begin to reestablish along the proposed ROW within 2 to 3 years post-construction. Impacts on wetland and riparian communities would depend on the individual vegetation community and site-specific soil conditions and moisture received post-construction. Wetland surface and subsurface water flow patterns would be temporarily impacted during trenching until permanent trench breakers were installed and the trench backfilled.

Operation Phase

Issues

- Modifications in wetland and riparian vegetation community composition and structure from operational maintenance
- Potential for spills to adversely impact wetlands

Analysis

Following construction, wetland and riparian vegetation would be allowed to regenerate to the original cover type. Wetland vegetation would be lost temporarily during construction; however, with the exception of scrub-shrub that would be maintained in an herbaceous state, all wetland vegetation would be reestablished within 3 years following construction. The success of wetland revegetation would be monitored for the first 5 years after construction (in July, during the first, third, and fifth growing seasons) or until wetland revegetation is successful. No aboveground facilities would be located in wetlands or floodplains. In the unlikely event of a pipeline release in a wetland or riparian area, NGL components would rapidly volatilize, thereby posing minimal impacts, if any.

Conclusion

Pipeline operational ROW maintenance activities in wetlands and riparian areas would result in localized, short-term impacts as a result of periodic clearing of woody vegetation over the pipeline centerline. If NGL were accidentally released into the environment, minimal impacts, if any, would be expected to wetland and riparian resources.

4.5.2 No Action Alternative

Under the No Action Alternative, the proposed Project would not be constructed. The impacts to surface water quantity, groundwater quality, and wetlands described for the Proposed Action would not occur. Impacts to water resources would continue at present levels as a result of natural conditions and existing development in the proposed Project area, including cumulative surface water quality impacts from past construction activities along or near the proposed Project ROW. Such impacts may include accelerated erosion and sediment transport, primarily resulting from previous ROW disturbance and unsuccessful site revegetation and stabilization efforts from other pipeline companies. As ongoing inspections and corrective actions occur, these impacts are likely to decrease.

4.5.3 GRP Land Re-route Alternative

Impacts to water resource along the GRP Land Re-route Alternative would be similar to those described for the Proposed Action. Six ephemeral stream channels would be crossed by the alternative route; 5 more than would be crossed by the corresponding portion of the Proposed Action route that would be avoided by this alternative. These six channels are all small headwater tributaries to Bighole Gulch, and flow only in response to snowmelt or heavy rainfall. Crossing techniques and site stabilization practices as described in the

Environmental Protection Plan would be the same as those described for the Proposed Action. Potential impacts to water resources for this alternative would be the same as those described for the Proposed Action.

The GRP Land Re-route Alternative would be approximately 1.3 miles longer than the Proposed Action and lies within approximately 1.1 miles of the Proposed Action. The overall change in the length and location of the ROW therefore would not result in significant overall differences between the alternatives or impacts to groundwater resources.

4.6 Vegetation

4.6.1 Proposed Action

4.6.1.1 Vegetation Communities

Construction Phase

Issues

- Vegetation removal for facility construction with consequent increased risk of soil erosion
- Permanent vegetation changes in the ROW and areas of aboveground facilities

Analysis

Construction activities would affect vegetation communities in a variety of ways, from temporary herbaceous trampling and partial removal of aboveground plant cover to permanent vegetation removal. Clearing, trenching, grubbing, blading, and herbaceous vegetation trampling would occur within the proposed Project areas. Temporary impacts to vegetative communities would occur within the 75-foot temporary ROW, which would be reclaimed immediately following construction and vegetation re-established within 3 to 5 years following construction. Long-term impacts (greater than 5 years) would be restricted to primarily shrubland and forestland vegetation communities.

Construction of the proposed Project would involve vegetation removal from approximately 82 acres of grasslands; 1,137 acres of shrublands; 111 acres of agricultural land; 248 acres of forested areas; and 21 acres of wetland vegetation. Following restoration of the 75-foot construction ROW and TWAs, OPPC would retain a 50-foot operational ROW that would recover to herbaceous and shrubland vegetation communities. The permanent 50-foot ROW would be located on approximately 716 acres of shrublands, and 136 acres of forestlands. These acreage estimates were calculated using GAP Land Cover descriptions (CDOW 1998; WY GAP 1996), which differ slightly in terms of wetland impacts from the NWI classifications and actual wetland survey data (WWE 2008) used for the wetlands analysis in Sections 3.4.3 and 4.5.3.

To minimize environmental impacts and ensure site stabilization and revegetation, OPPC would follow construction procedures detailed in the POD (CH2M Hill Trigon, Inc. 2008), particularly those included in the *Environmental Protection Plan*. The *Environmental Protection Plan* describes measures 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 ROW. Additionally, OPPC would follow the measures outlined in the *Environmental Protection Plan* to minimize potential impacts on wetlands.

Timely stabilization of the construction ROW and reseeding with an appropriate seed mix would minimize the duration of vegetation disturbance. The ROW would be monitored on federal lands for a minimum of 5 years to ensure compliance with revegetation standards established in the POD.

Long-term impacts would occur on the sagebrush steppe sub-community of the shrub-scrub vegetation cover type and other shrublands within the 75-foot construction ROW. Reclamation efforts would re-establish herbaceous vegetation within the construction ROW within 3 to 5 years, but full recovery of these habitats would take 20 to 30 years in sagebrush communities, due to poor soil and low moisture conditions. It is anticipated that native shrub species would re-sprout from intact roots, reestablish from reapplied topsoil, or establish from applied revegetation seed mixtures over the long term.

Clearing of woodland vegetation within the 50-foot permanent ROW would result in a long-term environmental change. Over time, natural establishment of woodland species through succession would restore the unmaintained portions of the temporary construction ROW back to a woodland community. The rate of forest reestablishment would depend upon the type of vegetation, the length of growing season, and the natural fertility of the soils. Regrowth to the sapling young tree stage would take 15 to 30 years, while regrowth of forests to mature conditions would likely take between 50 to 100+ years depending on the species (i.e., 200 to 500 years for piñon-juniper forests). No trees would be removed by ROW maintenance and operation unless the trees obscure the ground during aerial ROW inspections.

Impacts on agricultural vegetation communities would be temporary, as the vegetation would generally be reestablished within 2 years of restoration depending on climatic conditions. OPPC would not reseed cultivated agricultural areas unless requested by the landowner.

OPPC has committed to limiting construction within wetlands to that which is essential for ROW clearing, trench excavation, pipe fabrication and installation, backfilling, and ROW restoration. In areas where there is no reasonable access to the ROW except through wetlands, non-essential equipment would be allowed to travel through wetlands only if the ground is firm enough or has been stabilized to avoid creating ruts. Foreign material (upland soil, rock, tree stumps, etc.) would not be imported into the wetland to stabilize the working area. If standing water or saturated soils are present, equipment would work from and gain access across timber equipment mats. If the wetland is dry, equipment would use the ROW for access on an as-needed basis with as much traffic as possible routed around the wetland.

Clearing of vegetation in wetlands would be limited to trees and shrubs, which would be cut flush with the surface of the ground and removed from the wetland. To avoid excessive disruption of wetland soils and the native seed and rootstock within the wetland soils, stump removal, grading, topsoil segregation, and excavation would be limited to the area immediately over the trench line. A limited amount of stump removal and grading may be conducted in other areas if dictated by safety-related concerns.

Wetland vegetation would be removed during construction. Herbaceous wetland vegetation would be anticipated to be reestablished within 3 years following construction. It is anticipated that shrub rootstocks would resprout. Wetland shrubs would likely require 5 years or more to recover to their former height and density. Permanent vegetation removal would occur in areas where aboveground facilities are constructed. A pump station may be constructed in the future at MP 82.4 that would remove approximately 1.8 acres of scrub-shrub.

Direct spills of fuels, drilling fluids, or other hazardous materials would saturate soils and adversely affect vegetation resources. To minimize the potential for spills, OPPC would implement the *Hazardous Materials Management and Spill Prevention, Containment, and Countermeasures Plan.* This plan specifies preventive measures such as personnel training, equipment inspection, and refueling procedures to reduce the likelihood of spills, as well as environmental protection measures such as containment and cleanup to minimize potential impacts should a spill occur. This plan restricts the location of fuel storage, fueling activities, and construction equipment maintenance along the construction ROW and provides procedures for these activities. Training and lines of communication to facilitate the prevention, response, containment, and cleanup of spills during construction activities also are described in the *Hazardous Materials Management and Spill Prevention, Containment, and Countermeasures Plan*.

Conclusion

Herbaceous cover generally would begin to be reestablished along the ROW within 2 years post-construction. However, full recovery of shrubland and woodland communities would require 20 to 30 years and 50 to 100+ years, respectively, while recovery of agricultural and herbaceous wetland communities would be expected more quickly. Impacts on vegetation communities would depend on the individual vegetation community, site-specific soil conditions, and precipitation events following construction.

Operation Phase

Issues

- Maintenance operations along pipeline ROW may affect vegetation communities
- Potential for spills to adversely affect vegetation, particularly threatened and endangered plant species

Analysis

Impacts to vegetation from pipeline operations would be limited to vegetation communities located entirely within the 50-foot permanent ROW, which were previously disturbed during construction. Maintenance activities (e.g., pipeline repairs, soil stabilization, weed control) along the proposed pipeline route would result in localized impacts of short duration (less than 14 days in most cases) and these impacts would be dispersed along the entire proposed pipeline route.

Woody species would be allowed to reinvade the 50-foot-wide permanent ROW corridor in woodland and scrub-shrub areas. Woody plants would be removed only to facilitate aerial observation of the ROW.

In the unlikely event of a leak or rupture of the pipeline in upland areas during operations, NGL components would rapidly volatilize, thereby posing minimal impacts to vegetation. Accidental ignition of released pipeline products would cause wild fires that could spread over a large area, depending upon the seasonal conditions at the time of the release.

Conclusion

Operation impacts on vegetation would be limited to areas required for operation of aboveground facilities. Maintenance activities along the proposed pipeline route would result in localized impacts of short duration (less than 14 days in most cases) and these impacts would be dispersed along the entire proposed pipeline route.

4.6.1.2 Noxious Weeds and Invasive Plant Species

Construction Phase

Issues

- Potential expansion of noxious weeds and invasive plant populations within and adjacent to the proposed pipeline ROW

Analysis

The prevention of the spread of noxious weeds is a high priority throughout Wyoming and Colorado. Vegetation removal and soil disturbance during construction creates optimal conditions for the establishment of invasive, non-native species.

To control the spread of noxious and invasive weeds along the proposed pipeline route and access roads, weed control measures would be implemented in accordance with existing regulations, jurisdictional land management agency or landowner agreements, and the *Weed Management Plan*. Applicant-committed environmental protection measures discussed in the POD (CH2M Hill Trigon, Inc. 2008) include, but are not limited to, preconstruction surveys, pre-construction weed treatment, vehicle cleaning stations, use of certified weed-free straw bales, and the use of certified weed-free seed mixes for restoration.

In order to accomplish weed prevention and control in the most appropriate and effective manner, OPPC would monitor noxious weeds annually for the life of the proposed Project. Post-construction weed control measures may include the application of herbicide or mechanical, and/or alternative methods. Additionally, revegetation of the disturbed ROW with desirable plant species would serve to hinder the establishment of undesirable weed species. The weed control measure chosen would be the best method available for the time, place, and species of weed defined in the *Weed Management Plan*.

Landowners would be consulted regarding weed control status and implementation measures and encouraged to report concerns to OPPC. In the event noxious weed species become established in the ROW, OPPC would take appropriate actions to eradicate weeds in the ROW and to work with adjacent landowners to prevent the spread of the species to adjacent lands. OPPC would submit the appropriate Pesticide Use Proposals for herbicide application on federal lands managed by the BLM. Furthermore, OPPC would submit annual pesticide use reports to the BLM for any treatment of weeds on federal lands.

OPPC would continue to work with the adjacent pipeline companies to monitor the distribution and density of noxious weeds on the ROW for the life of the Project. Surveys would be conducted concurrently with reclamation monitoring and would occur as early in the year as feasible to identify and control noxious weeds before they produce seed. Monitoring data to be collected would include the noxious weed species, location, and extent of infestation. The data would be included in the Annual Monitoring Report, as well as the following information:

- A summary of the general vegetative state of the ROW including vegetative cover and diversity of plant species as compared to areas off ROW;
- Assessment of the general condition of the seeded areas;
- Photographs;
- Identification of areas where additional weed control is needed; and
- Monitoring forms.

At locations where new populations have been identified or pre-existing populations expanded, OPPC would take action to eradicate the population or control their spread. The selection of control methods would be based on the available technology and information of the weed species.

Noxious weed problems identified after meeting reclamation criteria as listed in the *Environmental Protection Plan* would be addressed in a joint endeavor between OPPC, the fee landowner, adjacent pipeline owner, BLM, and the local weed control district. Weed management coordination would commence following reclamation completion.

Conclusion

Despite efforts to prevent the spread of noxious weeds, it is possible that pipeline construction would increase the prevalence of noxious and invasive weeds along the proposed ROW or that weeds would be transported into areas that were relatively weed-free. Implementation of measures in the *Weed Management Plan* for the Project would minimize the spread of undesirable weed species.

Operation Phase

Issues

- Future maintenance activities may cause the same effects discussed for construction

Analysis

The potential impacts would be the same as discussed for construction, but would pertain only to the aboveground facility areas and the permanent ROW. OPPC would continue to monitor and control the spread of invasive plant species and noxious weeds along the proposed ROW for the life of the Project.

Conclusion

Despite efforts to prevent the spread of noxious weeds, it is possible that pipeline maintenance activities would increase the prevalence of noxious and invasive weeds along the proposed ROW or that weeds would be transported into areas that were relatively weed-free. Implementation of measures in the *Weed Management Plan* would minimize the spread of undesirable weed species from operational impacts.

4.6.1.3 Special Status Plant Species

Project development could result in direct and indirect impacts to sensitive plant species. Disturbances within or near habitats for sensitive plants could subject these species to: 1) introduction of plant species that would compete with desired species for available habitat; 2) accidental burial; and 3) destruction of individual plants or populations from herbicide applications.

Construction Phase

Issues

- Cutting, clearing, and/or removal of existing vegetation within the construction work area
- Direct disturbance and loss of individuals from construction activities along the proposed ROW and access roads

Analysis

Potential impacts on sensitive plant species from surface-disturbing activities would include the loss of individuals as a result of crushing from construction vehicles and equipment, as well as the incremental long-term disturbance of habitat for these species along portions of the proposed Project route and at ancillary facilities. **Appendix D** identifies 12 special status plant species as occurring within the proposed Project area. Species-specific impact summaries and applicant-committed environmental protection measures for the protection of these plants are presented below.

Federally Listed Plants

Dudley Bluffs Bladderpod, Dudley Bluffs Twinpod (also known as Piceance Twinpod), and Ute ladies'-tresses. The Dudley Bluffs bladderpod and Dudley Bluffs twinpod are found on the Thirteen Mile tongue portion of the Parachute Creek Member of the Green River Formation. The Green River Formation occupies approximately 94 acres along the proposed ROW, with the Parachute Creek Member occurring on approximately 33 acres of the proposed ROW. However, the Thirteen Mile Tongue of the Parachute Creek Member would not underlie the proposed ROW (see **Table 3.2-1**). Potential habitat within the Green River Formation was surveyed for Dudley Bluffs bladderpod and Dudley Bluffs twinpod within the proposed Project ROW. Ute ladies'-tresses are known to occur in moist soils near wetland meadows, springs, lakes, and perennial streams between 4,200 and 7,000 feet elevation. Potential habitat for Ute ladies'-tresses was observed at several locations along riparian and wetland areas in Colorado. None of these federally listed plant species were observed along the proposed pipeline ROW during surveys conducted by OPPC in 2007 and 2008 (WWE 2008). OPPC has committed to conducting pre-construction surveys for these plant species in potential habitat.

OPPC has committed to avoiding any TESS plants that occur along the outside edge of the proposed ROW and install exclusion fencing to prevent disturbance from construction activities. In conjunction with the BLM and other jurisdictional agencies as appropriate, the proposed route would be evaluated for realignment in areas where plants occur within or across the proposed ROW. The potential for a reroute would depend on constructability and site-specific conditions such as rugged terrain and slope steepness.

During the 2007 and 2008 survey effort (WWE 2008), OPPC identified 13 potential habitat locations for Dudley Bluffs bladderpod, Dudley Bluffs twinpod, and Ute ladies-tresses within four areas along the proposed route; PL Gulch, Dry Fork of Piceance Creek, Hay Gulch south of White River and the north side of the Little Snake River. These areas have habitat that could support these species; however, it is unlikely that Dudley Bluffs bladderpod would be found anywhere other than the Green River Formation in Rio Blanco County. To date this species have only been found within Rio Blanco County. OPPC observed only potential habitat for the Green River Formation TESS plants and did not observe any individuals of these species during the survey. Furthermore, OPPC did not observe any Ute ladies'-tresses along the proposed pipeline ROW.

BLM Sensitive Plant Species

OPPC identified potential sensitive plant habitats of BLM sensitive plant species within the proposed Project vicinity. Each location varies in size and proximity to the centerline. OPPC identified two populations of the Piceance bladderpod along the ROW on CDOW property in Hay gulch. A reroute avoiding these populations was evaluated and agreed on with BLM and CDOW consultation. The reroute moved the proposed centerline approximately 75 feet away from the original location avoiding impacts to the exposed shale outcropping that contains the populations. OPPC did not observe any Rollins cryptantha, many-stemmed spider-flower, persistent Sepal yellowcress, Owenby's thistle, Nelson milkvetch, Gibben's penstemon, or contracted Indian ricegrass (WWE 2008). The 2007 and 2008 summer surveys were conducted during the flowering period or soon enough after the flowering period for reasonably accurate field detection and identification. While no individuals of these plants were observed, field observations confirm that habitat for these plants exist within the proposed Project area in some of the riparian, semi-moist areas or sagebrush and pinyon-juniper plant communities.

OPPC would avoid any federally listed sensitive plants that are identified in the pre-construction surveys by the use of fencing or a reroute. The following protection measures would be included in the BLM Decision Record and ROW Grant for federal lands:

- OPPC shall coordinate with the BLM to determine if additional mitigation measures or other appropriate actions shall be required to reduce potential impacts to the population. OPPC shall not be authorized to proceed with construction until any BLM required mitigation has been implemented in accordance with the BLM ROW Grant.
- OPPC shall commit to the reclamation of any waterbody/wetland crossing to the original meanders, profiles, other contours of waterbodies, and 25 feet up each waterbody bank (as measured from water's edge). Any material that has accumulated in an intermittent/ephemeral stream shall be removed and the stream shall be returned to pre-construction form.

Conclusion

To complete ESA Section 7 obligations, if a federally listed plant species is found during the pre-construction surveys, OPPC would notify the BLM (for plants found on BLM-managed lands) before commencing any Project construction activity. This notification would contain an evaluation of whether or not the plant(s) could be avoided by fencing, reroute, or by the use of a horizontal bore. The BLM and USFWS would consult to determine the best approach for avoiding or reducing impacts to individual plants or populations.

Operation Phase

Issues

- The issues associated with operations would be similar to the issues described for wildlife, aquatic, and vegetation resources
- Potential noxious weed invasion into sensitive plant habitats

Analysis

All noxious weeds that become established within the areas of direct and indirect disturbance would be managed in close consultation with the field office threatened, endangered, and sensitive plant specialist and the USFWS. Methods and materials used in noxious weed management would be approved by and conducted with BLM and USFWS prior approval to ensure that weed management actions do not impact Dudley Bluffs bladderpod populations. To protect pollinator species foraging in the area of the proposed Project, herbicide application would be relegated to spot application only after the determination has been made that mechanical or manual means would not be effective for weed management and that weed establishment would threaten the integrity of occupied plant habitat.

Conclusion

Impacts to sensitive plant species from pipeline operations would not include any additional disturbance to sensitive plant habitats as all aboveground facilities would be located entirely within the 50-foot-wide permanent ROW. Losses of sensitive or listed plants from weed control measures during ROW maintenance would be avoided by consultation between the sensitive species specialist and the weed control teams.

4.6.2 No Action Alternative

Under the No Action Alternative, the proposed Project would not be constructed. As a result, none of the associated impacts to vegetation would occur.

4.6.3 GRP Land Re-route Alternative

Impacts to vegetation associated with the GRP Land Re-route Alternative would be generally similar to those described for the Proposed Action except that the approximately 1.3 miles of additional length would result in disturbance of an additional 11.9 acres of previously undisturbed shrubland vegetation during construction.

The Proposed Action would occur in a previous pipeline corridor that has already been subject to prior disturbance and revegetation efforts. Alternatively, the disturbance associated with the GRP Land Re-route Alternative would impact an area that has not been recently disturbed by prior construction activities.

No special status plant species were observed along the alternative route during the biological surveys conducted in 2008. The presence of sparse cheatgrass in the vicinity is common throughout the landscape and is likely to occur in the re-route area. This invasive annual plant can quickly dominate disturbed areas and if not already present, construction along the re-route alternative would open a new area for this species to gain a foothold, thus increasing the potential for spread by noxious weeds in the landscape associated with this pipeline corridor.

As discussed under the Proposed Action, long-term impacts could occur as a result of disturbance to shrubland communities. Reclamation efforts as described under the Proposed Action would re-establish vegetation along the ROW within 2 growing seasons, but full recovery of these habitats could take a minimum of 5 to 7 years, or as long as 20-30 years in sagebrush communities due to poor soils and low moisture conditions. Given that the overall change in the length and additional acres of impact associated with the GRP

Land Re-route Alternative represents less than a 1 percent change for the entire project, any additional impacts associated with this alternative would not result in significant overall differences in impacts when compared to the Proposed Action.

4.7 Wildlife, Aquatic Resources, and Special Status Species

4.7.1 Proposed Action

4.7.1.1 Wildlife

Construction Phase

Issues

- Habitat reductions and fragmentation from construction clearing
- Direct disturbance and loss of individuals from construction activities along the ROW and access roads
- Indirect effects consisting of displacement of individuals and loss of breeding success from exposure to construction noise and from higher levels of human activity

Analysis

Construction activities would result in the temporary disturbance of approximately 1,599 acres of wildlife habitat including 82 acres of grasslands; 1,137 acres of shrub-scrub; 111 acres of agricultural land; 248 acres of woodlands; and 21 acres of wetlands.

Potential impacts to terrestrial wildlife species from the proposed Project can be classified as short-term, long-term, and permanent. Short-term impacts consist of activities associated with Project construction and changes in wildlife habitats lasting less than 5 years. This would include impacts to species dependent on herbaceous habitats. Long-term impacts would consist of changes to wildlife habitats lasting 5 years or more and would include species dependent on habitats with woody species components. Permanent impacts would result from construction of aboveground facilities that convert natural habitat to an industrial site. The severity of both short- and long-term impacts would depend on factors such as the sensitivity of the species impacted, seasonal use patterns, type and timing of Project activities, and physical parameters (e.g., topography, cover, forage, and climate).

Less mobile or burrowing species may be killed as a result of crushing from construction vehicles and equipment. Other potential impacts include habitat loss or alteration, habitat fragmentation, and animal displacement. Individuals may be permanently displaced and perish due to increased competition or other effects of being forced into sub-optimal habitat. Indirect impacts from increased noise and additional human presence also could lead to displacement and lowered fitness. Although the habitat adjacent to the construction zone may support some displaced animals, any species that is at or near its carrying capacity could exhibit increased localized mortality.

Habitat fragmentation is frequently a concern when clearing ROWs. In general, fragmentation results 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. These effects would result in overall changes in habitat quality, habitat loss, increased animal displacement, reductions in local wildlife and migratory bird numbers, and changes in species composition. However, the severity of these effects on migratory birds depends on factors such as sensitivity of the species, seasonal use, type and timing of Project activities, and physical parameters (e.g., topography, cover, forage, and climate). Approximately 96 percent of the proposed pipeline ROW would parallel existing pipeline and powerline easements. The 4 percent where the proposed Project would not parallel existing ROW would consist primarily of shrubland and woodland habitats. Fragmentation disturbance to wildlife and wildlife habitats from the proposed Project is not expected to be significant because a majority of the construction would be adjacent to or overlap an existing cleared pipeline ROW. Thus, new edge habitat would replace existing edge habitat.

Trenching activities could hinder the movement of livestock, horses, and/or wildlife. As stated in the *Biological Resources Protection Plan*, OPPC has committed to placing earthen trench plugs, with ramps on either side, at a maximum of 1-mile intervals along the trench as well as at well-defined livestock and wildlife trails intersected by the trench to minimize potential impacts to wildlife, horses, and livestock. OPPC would consult with the BLM regarding specific placement of trench plugs and ramps on lands managed by the BLM.

To mitigate impacts to big game, greater sage-grouse, migratory birds, and white-tailed prairie dogs, OPPC has committed to the seasonal timing restrictions and buffers presented in **Table 4.7-1**. No construction activities would be allowed during the seasonal timing restriction within each buffer without approval from the BLM and CDOW or WGFD. Locations for big game and sage-grouse seasonal ranges were determined using data received from CDOW and WGFD. Locations for white-tailed prairie dog colonies were provided based on 2007 and 2008 field surveys conducted by OPPC (WWE 2008).

To mitigate vegetation/habitat loss, OPPC has committed to redistributing large, woody material salvaged during clearing operations on BLM-administered lands within the White River Resource Management Area in those areas where the proposed pipeline deviates from an existing ROW or corridor. Materials would be dispersed over the portion of the ROW from which the trees and brush were originally removed to meet fire management objectives and to provide wildlife habitat, seedling protection, and a deterrent to vehicular traffic. Woody materials dispersed across the ROW would not exceed 3 to 5 tons/acre.

Big Game

As presented in **Table 4.7-2**, construction impacts to big game species (elk, mule deer, and pronghorn) would include the incremental loss of potential forage and would result in an incremental increase in habitat fragmentation within the proposed surface disturbance areas. However, as noted above, this removal of vegetation would represent only a small percent of the overall available habitat within the broader Project region. The loss of shrubland vegetation would be long-term (greater than 5 years and, in some cases, more than 20 years). In the interim, herbaceous species may become established within 3 to 5 years, depending on future weather conditions and grazing management practices that would affect reclamation success in the Project region. 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 disturbance areas. Locations for big game seasonal ranges were determined using data received from CDOW and WGFD.

Indirect impacts would result from increased noise levels and human presence during surface disturbance activities. Big game animals (especially pronghorn and mule deer) would decrease their use within 0.5 mile of surface disturbance activities due to increased noise levels (Ward et al. 1980; Ward 1976). This displacement would be short term and animals would return to the disturbance area following construction activities. However, assuming the adjacent habitats are at or near carrying capacity, displacement of wildlife species (e.g., big game) as a result of construction would cause some unquantifiable reduction in wildlife numbers. OPPC would minimize potential human presence impacts on wildlife by adhering to sensitive big game habitat timing restrictions and coordinating with the appropriate agency (local BLM Field Offices, CDOW, and WGFD) prior to construction.

In accordance with BLM and CDOW recommendations, OPPC would avoid severe winter range for elk, mule deer, and pronghorn in Colorado between December 1 and April 30. OPPC would not be authorized to construct in a CDOW or BLM No Activity location during restricted dates without approval from the CDOW and BLM.

Table 4.7-1 Seasonal Timing Restrictions and Buffers for Big Game, Greater Sage-grouse, Migratory Birds, and White-tailed Prairie Dogs for the Project (Proposed Action Only)

Wildlife Species / Habitat Type	MP Locations	Buffer (miles)[1]	Seasonal Timing Restrictions[1]
Colorado			
Elk Severe Winter Range	49.0 – 78.4	NA	December 1 to April 30
Mule Deer Severe Winter Range	0.0 – 4.2	NA	December 1 to April 30
	12.3 – 14.0		
	19.6 – 20.0		
	20.1 – 27.4		
	55.3 – 64.6		
	93.6 – 94.7		
Pronghorn Severe Winter Range	51.6 – 53.3	NA	December 1 to April 30
	57.2 – 59.0		
	63.2 – 70.4		
	92.7 – 94.3		
Greater Sage-grouse Active Lek	66.5 – 67.8	0.60[2,4]	March 1 to May 15
	68.9 – 69.4		
Greater Sage-grouse Nesting Habitat (within 4 miles of an active lek)	1.8 – 9.8	4.0[2]	April 15 to July 7
	45.9 – 55.7	4.0[2]	March 1 to June 30
	62.9 – 91.1		
	91.1 – 94.7		
Migratory Birds (protected under the MBTA), excluding raptors (refer to **Table 4.7-3**, Seasonal Timing Restrictions and Buffers for Raptors for the Project)[3]	Entire ROW	As deemed appropriate by the applicable BLM FO and USFWS.	April 15 to July 15
White-tailed Prairie Dog (Active Colonies)	No active colonies on federal or state land in Colorado	NA	WRFO - April 1 to July 15 LSFO - April 1 to June 15
Wyoming			
Mule Deer Crucial Winter/Yearlong Range	94.8 – 98.3	NA	November 15 to April 30
Pronghorn Crucial Winter/Yearlong Range	94.8 – 99.3	NA	November 15 to April 30
Greater Sage-grouse Occupied Lek	No occupied leks within 0.25 mile of ROW	0.25	March 1 to May 20

Table 4.7-1 Seasonal Timing Restrictions and Buffers for Big Game, Greater Sage-grouse, Migratory Birds, and White-tailed Prairie Dogs for the Project (Proposed Action Only)

Wildlife Species / Habitat Type	MP Locations	Buffer (miles)[1]	Seasonal Timing Restrictions[1]
Greater Sage-grouse Nesting Habitat (within 2 miles of an occupied lek)	118.1 – 121.7 151.9 – 152.1	2.0	March 1 to July 15
Migratory Birds (protected under the MBTA), excluding raptors (refer to **Table 4.7-3**, Seasonal Timing Restrictions and Buffers for Raptors for the Project)[3]	Entire ROW	As deemed appropriate by the RFO and USFWS.	April 15 to July 15
White-tailed Prairie Dog (Active Colonies)	98.6 98.8 111.3 116.7 117.9 118.8 119.0 119.4 121.3 121.4 121.6 121.8 129.0 134.3 134.4 135.6 135.9 137.0 137.2	NA	Year-round[5]

[1]Sources: White River RMP (BLM 1997); Little Snake RMP Oil and Gas Amendment (BLM 1991); Rawlins RMP and Final EIS (BLM 2008a), unless indicated otherwise.

[2]Source: Colorado Greater Sage-grouse Conservation Plan (CDOW 2008c).

[3]Source: MBTA (FR 2001).

[4]For pipelines this includes no permanent above ground facilities (no surface occupancy) year-round and no surface disturbing activities.

[5]Timing restriction is year-round to avoid potential impacts to black-footed ferrets in non-block cleared areas; if construction were to occur in active white-tailed prairie dog colonies of suitable density (i.e., burrow density of 8 burrows or greater per acre) in non-block cleared black-footed ferret areas, ferret surveys may be required as determined by the USFWS (USFWS 1989).

Table 4.7-2 Crucial Big Game Ranges Potentially Affected by the Proposed Project

State / Habitat Type	MP Locations	Total Length Crossed (miles)	Acreage Affected During Construction
Colorado			
Elk Severe Winter Range	49.0 – 78.4	29.4	310.2
Mule Deer Severe Winter Range	0.0 – 4.2	4.2	272.4
	12.3 – 14.0	1.7	
	19.6 – 20.0	0.4	
	20.1 – 27.4	7.3	
	55.3 – 64.6	9.3	
	93.6 – 94.7	1.1	
Pronghorn Severe Winter Range	51.6 – 53.3	1.7	127.3
	57.2 – 59.0	1.8	
	63.2 – 70.4	7.2	
	92.7 – 94.3	1.6	
Wyoming			
Mule Deer Crucial Winter/Yearlong Range	94.8 – 98.3	3.5	41.8
Pronghorn Crucial Winter/Yearlong Range	94.8 – 99.3	4.5	53.2

In accordance with the recommendations of the BLM RFO and WGFD, OPPC would avoid crucial big game winter habitat in Wyoming between November 15 and April 30. OPPC would not be authorized to construct within the exclusion window in crucial winter habitat without approval from the WGFD and BLM.

Small Game Species

A variety of small game species (e.g., greater sage-grouse, mourning dove, white-tailed jackrabbit) have been identified as potentially occurring along the proposed Project route. Potential impacts on small game from the proposed Project would result in the direct loss of habitat and increased habitat fragmentation until reclamation has been completed and native vegetation is reestablished. Potential direct impacts on small game species would 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. Displacement of small game animals from disturbance areas would be short term and animals would be expected to return to the disturbance areas following construction activities. Potential impacts to greater sage-grouse are discussed under Special Status Wildlife Species (Section 4.7.1.3).

Nongame Species

Potential impacts to nongame species (e.g., small mammals, amphibians, reptiles) would parallel those described above for small game species. However, potential impacts to these species would be minimized through mitigation measures identified below. If necessary, additional site-specific mitigation for sensitive species would be developed before construction commences.

Raptors and Other Migratory Birds

General impacts to migratory birds and the OPPC proposed measures to minimize such impacts are discussed below. Federally listed and other sensitive bird species are discussed under Special Status Wildlife Species (Section 4.7.1.3).

Because a majority of the construction would be adjacent to or overlap an existing ROW, new edge habitat would replace existing edge habitat. In addition, most of the pipeline would cross relatively open habitat types (e.g., grassland, agriculture, and shrubland) rather than fragmenting dense woodland habitat. Therefore, impacts to migratory bird species including raptors associated with forest habitats would be minimal. Impacts to migratory bird species including raptors associated with relatively open habitats is expected to be minimal based on the likelihood that populations in the vicinity of existing ROWs occur at lower densities due to existing disturbance. Additionally, open habitats will recover to pre-disturbance conditions at a rate much faster than forest habitats. Forested habitats regrowth to the sapling-young tree stage would likely take 15 to 30 years, while regrowth of forests to mature conditions would likely take between 50 to 100+ years depending on the species (i.e., 200 to 500 years for piñon-juniper forests).

OPPC does not currently propose to construct the proposed Project within the buffer zones prescribed for raptors during the raptor nesting season (typically from mid-February through mid-August), so no direct effects to nesting raptors would be anticipated. Should construction extend into the raptor nesting season, OPPC has committed to conducting additional pre-construction raptor nest surveys in accordance with agency (BLM, state wildlife agency, and USFWS) approved protocols. Results of the raptor nest surveys would be reported to the appropriate BLM field office, state wildlife agency, and USFWS Western Colorado Field Office for review and reconsideration of appropriate protective buffers. OPPC has committed to the following protection measures for active raptor nests presented in **Table 4.7-3**. Construction activities would not occur within the appropriate timing restriction and applicable buffers around each active nest unless approved by the BLM and CDOW or WGFD. An active nest is one that has evidence of current breeding activities including nest building, fresh lining material, egg laying, incubating/brooding, or nestlings during the current breeding season (Cornell Lab of Ornithology 2008).

Likewise, any construction that would have extended into spring would overlap the start of the breeding season for other migratory birds (typically April 15 to July 15). Depending on the specific habitat, birds of several species (e.g., loggerhead shrike, sage thrasher, sage sparrow, pinyon jay, among others) could be directly affected by construction of the proposed Project. OPPC has committed to the following protection measures for migratory birds.

- Conduct pre-construction migratory bird surveys each spring prior to construction to identify nests occupied at the time of construction within the proposed Project area should construction occur during the nesting season. BLM-approved biologists would be required to meet with BLM biologists prior to initiating surveys and would conduct the surveys using BLM protocols.
- Develop nest avoidance, timing restrictions, and/or additional mitigation measures for nests located on or within 100 feet of the proposed ROW. USFWS would be consulted with if any special status species' nest were discovered on or adjacent to the proposed ROW.

The removal of suitable foraging and nesting habitat can be considered a type of direct impact on migratory birds. This type of impact cannot be avoided altogether during construction; however, OPPC has proposed measures that would minimize it to the extent practicable. This EA discusses several OPPC plans (e.g., *Biological Resources Protection Plan; Hazardous Materials Management and Spill Prevention, Containment, and Countermeasures Plan*) containing measures that would reduce the extent and duration of

Table 4.7-3 Seasonal Timing Restrictions and Buffers for Raptor Nests

BLM Field Office	Raptor Species	Timing Restriction[1]	Buffer (miles)[1]
White River	Bald eagle	November 15 to July 15	0.5
	Golden eagle	February 1 to August 15	0.5
	Ferruginous hawk	February 1 to August 15	1.0
	Northern goshawk	February 1 to August 15	0.25
	All other species	February 1 to August 15	0.125
Little Snake	Bald eagle	November 15 to July 31	0.5
	Golden eagle	February 1 to August 15	0.5
	Ferruginous hawk	February 1 to August 15	1.0
	All other species	February 1 to August 15	0.25
Rawlins	Bald eagle	February 1 to July 31	Up to 2.5 [2]
	Golden eagle	February 1 to July 31	1.0
	Ferruginous hawk	February 1 to July 31	1.0
	All other species	February 1 to July 31	0.75

[1]Sources: BLM 2008a,c 1997, 1991.

[2]Buffer is site-specific based on topography, line of sight, and current disturbance levels in the vicinity of the nest.

impacts on migratory bird habitat, actively and naturally allow a great majority of the construction ROW to return to pre-construction condition, and limit the potential effects from spills or environmental contamination. For example, OPPC has committed to restoring wetland and upland vegetation habitats (e.g., shrubland, woodland, grassland) in the construction ROW to preconstruction conditions.

EO 13186 requires federal agencies to avoid or minimize negative impact to migratory bird populations. The EO 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 ground-nesting birds (which do not have significantly reduced populations) would not result in long-term or significant population-level effects, given the stability of local populations and the abundance of available habitat outside of the proposed ROW, and the linear nature of the Project over a large geographic range.

Conclusion

Construction of the proposed Project would disturb wildlife habitat, displace individual animals, and contribute to habitat fragmentation by expanding approximately 152 miles of existing pipeline/transmission line corridors. Impacts to wildlife would be mitigated by implementation of applicant-committed environmental protection measures contained in the POD (CH2M Hill Trigon, Inc. 2008), including the *Biological Resources Protection Plan; Environmental Protection Plan; Hazardous Materials Management and Spill Prevention, Containment, and Countermeasures Plan; Transportation Management Plan;* and *Weed Management Plan*. Measures to minimize impacts to wildlife include co-location of the pipeline with existing utility corridors where possible, use of a minimum construction ROW width and work space areas to reduce impacts to wildlife habitat, the use of trench plugs on all lands at 1-mile maximum intervals and at game trail crossings, limiting the amount of time and distance of open trench, avoidance of construction activities in big game wintering areas during seasonal

closure periods, adherence to spatial and timing buffers for active raptor nests and other migratory birds, and reclamation of disturbed areas.

Operation Phase

Issues

- Habitat reductions and fragmentation from ROW maintenance during operations
- Indirect effects consisting of displacement of individuals, and loss of breeding success from exposure to higher levels of human activity related to maintenance activities
- Potential loss of individuals from exposures to spills
- Potential direct mortalities to amphibians from vehicle traffic

Analysis

Direct impacts to wildlife species from maintenance activities associated with the proposed Project would be the same as discussed above for construction, and those discussed for vegetation (Section 4.6).

Operation of the pipeline also would result in future surface disturbance activities due to maintenance of the pipe (e.g., pothole inspections, repair of pipe, replacement of rectifier beds). As a result, approximately 852 acres of wildlife habitat would experience incremental long-term reduction until the shrub and tree component recovers. OPPC would follow the plans contained in the POD (CH2M Hill Trigon, Inc. 2008) and implement measures referenced in this EA to minimize impacts to wildlife and their habitats during pipeline operation.

Operation of the proposed pipeline would allow recovery and reestablishment of shrubs and small trees across the construction ROW. Approximately 0.2 acre associated with proposed aboveground pipeline facilities (at the Willow Creek meter station) would be permanently converted for pipeline operations

Conclusion

Impacts to wildlife from pipeline operations would include a total of less than 1 acre of additional disturbance to wildlife habitats beyond the 50-foot permanent ROW. Maintenance and operation of the pipeline would result in localized and temporary impacts to wildlife related to an increase in human-wildlife interactions and associated noise.

4.7.1.2 Aquatic Resources

Construction Phase

Issues

- Direct loss of individuals or effects on habitat from short-term disturbance to stream channels from construction equipment and trench dewatering
- Direct loss of individuals or effects on habitat from short-term increases in sedimentation from open-cut pipeline crossings and erosion from adjacent disturbed lands
- Potential fuel spills from equipment and toxicity to aquatic biota if fuel reached a waterbody
- Local short-term reductions in habitat if surface water is affected by hydrostatic testing

- Potential loss of aquatic organisms during pumping for hydrostatic testing
- Potential loss of individuals from disease or invasive species if contaminated water or mud is transferred between watersheds

Analysis

Construction-related impacts on fisheries would be primarily dependent on season of construction, duration of in-stream activities, and stream crossing methods. Construction activities at coldwater fisheries that occur from April 1 to June 15, and at warmwater fisheries from June 1 to November 30, could result in impacts to spawning fish. However, potential impacts to coldwater and warmwater fisheries would be minimized based on the applicant-committed environmental protection measures discussed below.

OPPC would prohibit "in the water" construction activities at all coldwater fisheries (Piceance Creek, Dry Fork Piceance Creek, White River, and Little Snake River) from April 1 to June 15 and at all warmwater fisheries (Yampa River) from June 1 to November 30 unless approved by the CDOW and BLM. However, water withdrawals for HDD, dust control, and wash stations would be allowed during these time periods.

The Little Snake, White, and Yampa rivers would be crossed by HDD. If successful, an HDD crossing would result in no impact on fisheries. However, a potential leak or rupture under these rivers during drilling could accidentally release muds (called a "frac-out") or disturb bottom sediments in a localized area near the rupture site. The release of drilling muds (primarily bentonite and cellulose) could cause localized increases in sediment loads and could fill interstitial gaps in the streambed, smothering habitat for benthic invertebrates, larval fish, and eggs. The amount of area impacted by a release of drilling muds would be relatively small since the consistency of the drilling muds would limit widespread dispersal along the streambed. To reduce the impacts of a frac-out, OPPC prepared a *Drill Fluid Contingency Plan* that identifies detection and monitoring procedures, response equipment, notification procedures, and corrective actions.

The Dry Fork of Piceance Creek would be crossed using a dry crossing technique or flumed crossing technique in accordance with construction procedures in the POD (CH2M Hill Trigon, Inc. 2008). In addition, OPPC would store trench spoil at least 10 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, OPPC would immediately stabilize the construction site, including the streambanks. If circumstances required a construction delay, OPPC would employ adequate site stabilization measures in accordance with its Procedures and permit conditions.

Clearing and grading of vegetation within the construction ROW and additional TWAs 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. As stated in the POD (CH2M Hill Trigon, Inc. 2008), clearing of vegetation between extra work areas and the edge of waterbodies would be limited to the certificated ROW, and tree stump removal and grading activities would be limited to the trenchline only. Alteration of the 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 due to 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 per waterbody.

To minimize impacts associated with streambank erosion during construction, OPPC would use equipment bridges, mats, and pads to support equipment across the waterbody or in saturated soils adjacent to the

waterbody. In accordance with its Procedures and where topography allows, OPPC would locate additional TWAs at least 10 feet from the edge of flowing waterbodies, except where site-specific approval has been granted, and limit clearing of vegetation between additional TWAs and the edge of the waterbody to the certificated construction ROW. OPPC 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. OPPC anticipates completing in-stream construction activities for waterbody crossings within 48 hours, further minimizing sedimentation and channel instability impacts to fishes and their habitats.

As discussed in Section 4.5, Water Resources, as much as 46 acre-feet of water potentially would be withdrawn from the Upper Colorado River Basin for hydrostatic testing, dust control, HDD use, and equipment washing. Approximately 11 acre-feet of this would be temporary withdrawals for hydrostatic testing that would be discharged back to the original withdrawal locations once testing was complete. The remaining 35 acre-feet potentially needed for other construction activities would be considered consumptive use. OPPC has identified the Yampa River (MP 59.53), White River (MP 19.3), and Little Snake River (MP 93.6) as the sources for these withdrawals. The approximate water volumes that would be required for hydrostatic testing, the rate of withdrawal, and the duration of the use are summarized in **Table 4.7-4**. The remaining withdrawal volumes for construction activities also would be distributed between these three locations. Procedures to minimize impacts such as using screens on intakes to avoid uptake of organic debris or entrainment of aquatic species during water withdrawals and monitoring withdrawal rates to ensure adequate downstream flow to support aquatic life, are discussed in the *Hydrostatic Test Plan*. OPPC would not use chemical additives during hydrostatic testing and proposes to return hydrostatic test water to the withdrawal point for discharge. Further discussion of hydrostatic test water withdrawals and associated impacts on special status species is included under Section 4.7.1.3.

Table 4.7-4 Water Withdrawals for Hydrostatic Testing

Waterbody	Volume (gallons)	Volume (acre-feet)	Fill Rate (gpm)	Fill Time (hours)
White River	858,000	2.63	1,000	12
Yampa River	1,147,000	3.52	1,000	17
Little Snake River[1]	1,594,000	4.91	500	47

[1]If water is not available from the Little Snake River then water will be withdrawn from the Yampa River.

Direct spills of fuel, drilling fluids, or other hazardous materials into a waterbody would adversely affect aquatic resources. To minimize the potential for spills, OPPC would implement measures in the *Hazardous Materials Management and Spill Prevention, Containment, and Countermeasures Plan*, which specifies preventive measures such as personnel training, equipment inspection, and refueling procedures to reduce the likelihood of spills, as well as environmental protection measures, such as containment and cleanup, to minimize potential impacts should a spill occur. This plan restricts the location of fuel storage, fueling activities, and construction equipment maintenance along the construction ROW and provides procedures for these activities. It also describes training and lines of communication to facilitate the prevention, response, containment, and cleanup of spills during construction activities.

Adherence to the *Hazardous Materials Management and Spill Prevention, Containment, and Counter-measures Plan* would prevent spills from occurring near surface waters because construction vehicles (e.g., trucks, bulldozers, etc.) and stationary equipment (e.g., pumps, generators, etc.) would be fueled and serviced in upland areas at least 100 feet from waterbodies and wetlands. Within the Rawlins Resource Area, the set back would be 500 feet from all permanent waters, wells, springs, wetlands, and riparian areas, as well as 100 feet from the inner gorge of ephemeral stream channels. All stationary equipment (such as pumps and generators) would be provided with secondary containment structures to prevent the spill or release of

hazardous materials into waterways. Refueling areas generally would be flat to minimize the chance of any spilled substances reaching waterbodies. Based on implementation of these procedures, impacts to surface water quality from these activities would be avoided or minimized.

Conclusion

Aquatic resource impacts anticipated from pipeline construction at most stream crossings include a temporary increase in sedimentation to waterbodies crossed by the flumed crossing method; short-term disturbance to stream channels, aquatic habitat, bank cover, and spawning sites; potential short-term reductions in habitat from water withdrawals for hydrostatic testing and dust control; potential loss of aquatic organisms during pumping for hydrostatic testing; potential loss of individuals from invasive species or disease if contaminated water is transferred between watersheds; and potential fuel spills from construction equipment and toxicity to aquatic organisms if the fuel spill reached a waterbody. These impacts would be minimized or avoided by the implementation of measures in the *Environmental Protection Plan, Hazardous Materials Management and Spill Prevention, Containment, and Countermeasures Plan*, various site-specific waterbody crossing plans (designated for environmentally sensitive waterbody crossings), and other aspects of the POD (CH2M Hill Trigon, Inc. 2008). Measures to minimize aquatic resource impacts include erosion control and streambank stabilization measures, reducing the amount of time conducting instream construction activities, and workspace and refueling setbacks from waterbodies. OPPC would avoid bank and channel disturbance to the White, Yampa, and Little Snake rivers by using the HDD crossing method. The remaining streams would be crossed using the flumed crossing method in accordance with the procedures outlined in the POD (CH2M Hill Trigon, Inc. 2008). OPPC has committed to avoiding construction at crossings during state agency designated coldwater and warmwater fisheries spawning periods (April 1 to June 15) and (June 1 to November 30), respectively, unless approved by the CDOW and BLM. However, this does not include water withdrawals for HDD, dust control, and wash stations. Flumed crossings would cause short-term and temporary (usually 2 days or less) suspended sediment increases in stream and river channels.

Operation Phase

Issues

- Potential localized sedimentation and disturbance to habitat if maintenance activities were required at a stream crossing (i.e., excavating pipe located under the stream)

Analysis

Vegetation removal adjacent to waterbodies would be limited to a 25-foot-wide riparian strip, as measured from the waterbody's mean high water mark. As a result, maintenance activities would not affect aquatic biota or their habitat.

Information on the fate of the NGL and potential toxicity is provided in Section 4.5, Surface Water. Further information can be found in the risk assessment conducted for the Overland Pass Pipeline EIS completed in 2007 (BLM 2007a), entitled "Environmental Fate and Effects of Natural Gas Liquid Releases." If a rupture were to occur at a stream crossing, impacts would include the mortalities of fish species and macroinvertebrates present instream at the rupture point only due to the rapid dissipation of NGL. However, fish are expected to move away from the rupture area and potential impacts would generally be low in magnitude due to the localized extent of the affected area.

Conclusion

Routine operation and maintenance activities would have minor effects on aquatic resources. Minimal impacts, if any, would be expected to aquatic biota if NGL were accidentally released into waterbodies as aquatic

species are expected to move away from the rupture point and contamination would be localized and rapidly dissipated.

4.7.1.3 Special Status Species

Construction Phase

Issues

- The construction issues for special status wildlife species are the same as listed for wildlife resources
- The construction issues for special status fish species are the same as listed for aquatic resources. Hydrostatic testing is an issue for federally listed species that occur in downstream portions of the Colorado River basin. The USFWS requires consultation for any water withdrawals in these basins that could affect surface water quantity and the resulting impacts on listed species.

Analysis

The construction impact analysis for special status wildlife species focuses on those species that were identified as potentially occurring along the proposed Project route only. All special status wildlife species originally considered for the proposed Project are presented in **Appendix D**. It was determined that some of these species are highly unlikely to occur along the proposed Project route and would otherwise not be affected by the Proposed Action. Comments on these species are included in **Appendix D** and are not discussed further. Species which are likely to occur along the proposed Project route are discussed below.

Applicant-committed protection measures that have been developed for the proposed Project to prevent or minimize direct impacts on special status species are included in the *Biological Resources Protection Plan*. The *Biological Resources Protection Plan* contains the proposed measures that would be implemented if federally listed species or species of concern were identified along the proposed pipeline route during Project-specific or species-specific surveys. These measures would reduce Project-related impacts on special status species. Additional recommendations are presented below, where necessary, to ensure that impacts on special status species are minimized to the greatest extent practicable.

Terrestrial Wildlife Species

Potential impacts to special status species from surface disturbance activities would include the loss (short-term, long-term, or permanent), alteration, or fragmentation of potential breeding and/or foraging habitats, mortalities of less mobile or burrowing species as a result of crushing by vehicles and equipment, abandonment of a nest site or territory, and the loss of eggs or young. Other impacts would include short-term displacement of some of the more mobile species from the disturbance areas as a result of increased noise and human presence.

Mammals

Spotted Bat, Townsend's Big-eared Bat, Fringed Myotis, Yuma Myotis, Long-eared Myotis. No historic communal bat roost sites (e.g., hibernacula, nursery colonies, bachelor roosts) have been recorded along the proposed Project route. Much of the proposed Project route would occur adjacent to or within previously disturbed ROW, thus direct impacts to communal roosts are not anticipated. Potential direct impacts to individual bats could occur as a result of crushing by vehicles and equipment during ROW clearing and other Project-related construction. Impacts also would result from the incremental long-term reduction of potential foraging habitat (approximately 248 acres) including habitat fragmentation until reclamation is completed and native vegetation has become reestablished. Indirect impacts could result from increased noise levels and human presence. The proposed Project may impact individuals but is not likely to cause a trend to federal listing or loss of viability of these bat species.

Black-footed Ferret. According to surveys conducted in the summer of 2007 and spring of 2008, approximately 29 white-tailed prairie dog colonies that meet the burrow density set forth in the 1989 Black-footed Ferret Survey Guidelines (USFWS 1989) occur along the proposed Project ROW (WWE 2008). If ferrets were present in prairie dog colonies along the proposed Project route, direct impacts would include increased habitat loss and fragmentation from the disturbance of prairie dog colonies or complexes along the proposed Project route. Impacts also could result in direct mortalities of black-footed ferrets as a result of crushing from surface disturbance, vehicles, and heavy equipment. Indirect impacts to black-footed ferrets would include increased habitat fragmentation effects as a result of increased noise levels and human presence, dispersal of noxious and invasive weed species, and dust effects from unpaved road traffic. Indirect effects also could result in a reduction in habitat quality from the spread of infectious diseases (e.g., plague) within otherwise healthy prairie dog colony complexes.

In Wyoming, black-footed ferret surveys are no longer recommended in black-tailed prairie dog towns or in white-tailed prairie dog towns except those noted in a February 2, 2004, letter from the USFWS (USFWS 2004). It is assumed that areas that do not require surveys do not have the potential to support black-footed ferrets. The white-tailed prairie dog towns found in T13N to T20N, R94W in Sweetwater and Carbon counties, Wyoming, have not been cleared and would have to be surveyed. Some prairie dog towns along the front range of Colorado and eastern Colorado have been block cleared and surveys for ferrets are no longer recommended. No block clearances of white-tailed prairie dogs are in place in western Colorado. However, the USFWS has designated prairie dog towns in Moffat County, Colorado, and Rio Blanco County, Colorado, west of highway 13 as experimental populations. Ferrets have been released at one location (Wolf Creek) on federal lands approximately 20 miles west of the Project route. These populations are considered low probability of ferret occurrence and are designated as potential ferret introduction sites. These areas do not require ferret searches. The USFWS encourages Project applicants to protect all prairie dog towns for their value to the prairie ecosystem and the myriad of species that rely on them. Based on 1) the implementation of measures listed in the *Biological Resources Protection Plan* (including conducting surveys); 2) the USFWS determination of Moffat and Rio Blance counties as experimental population areas for black-footed ferret; and 3) the low probability of occurrence in the vicinity of the proposed Project route, it is anticipated that the proposed Project would have a low impact on black-footed ferrets

White-tailed Prairie Dog. As discussed above, white-tailed prairie dogs occur along the proposed Project route. The potential effects of construction through a prairie dog colony include 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. 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 reproductive season (late May to early June), most prairie dogs would be mobile and able to avoid construction traffic; however, some individual prairie dogs may be injured or killed during construction. In addition, there is a potential for destroying active dens with young if construction occurs during the reproductive season. If OPPC proposes construction in an active prairie dog colony during the white-tailed prairie dog's reproductive season, there would be a construction timing restriction on federal land within the WRFO from April 1 to July 15, and within the LSFO from April 1 to June 15. The RFO does not impose a timing restriction for white-tailed prairie dogs but rather encourages limited disturbance within active colonies. Following construction and restoration, the revegetated ROW would provide foraging habitat for prairie dogs, and the unconsolidated soils along the trench would likely provide a good substrate for burrowing. The proposed Project may impact individuals but would not likely to cause a trend to federal listing or loss of viability to white-tailed prairie dogs.

Wyoming Pocket Gopher. Potential impacts on the Wyoming pocket gopher from construction of the proposed Project would be minimal because its range is limited to the southeastern corner of Sweetwater County; however, a small amount of potentially suitable habitat could occur along the proposed Project route. The highest possibility for direct impact would occur during clearing if heavy equipment collapses dens and tunnels while navigating the ROW, or during the trenching process. Once operational, the pipeline corridor would provide loose soil for dens and rodent burrows, plus forbs, grasses and seeds for rodent forage. During

reclamation, the proposed pipeline ROW would be reseeded with BLM- and NRCS-approved seed mixes appropriate to soil and range conditions for the area. The proposed Project may impact individual pocket gophers but would not likely cause a trend to federal listing or loss of viability to this species.

Pygmy Rabbit. The USFWS received a petition (April 21, 2003) to list the pygmy rabbit under the ESA. A 90-day finding on the petition was published on May 20, 2005, in which the USFWS determined that the petition does not provide substantial information indicating the listing may be warranted. This finding was recently remanded by the Court to another 90-day review to be completed by December 31, 2007. Field surveys conducted in 2007 found no evidence of pygmy rabbits in the Colorado or Wyoming portion of the proposed Project route (WWE 2008). However, since suitable habitat (i.e., dense stands of big sagebrush) is present along the proposed Project route, potential impacts could occur as a result of the proposed Project and would be similar to those discussed for small non-game species.

Because a majority of the construction would be adjacent to or overlap an existing ROW, impacts to large tracts of undisturbed pygmy rabbit habitat would be minimized. As part of the proposed Project planning measures, approximately 96 percent of the proposed pipeline ROW parallels existing pipeline and powerline easements. As such, habitat fragmentation and loss of sagebrush habitat would be minimized and would not pose a significant impact on pygmy rabbits. The proposed Project may impact individual pygmy rabbits but would not likely cause a trend to federal listing or loss of viability of this species.

Birds

White-faced Ibis, Barrow's Goldeneye, Black Tern, Long-billed Curlew. Potential impacts to these migratory bird species would be the same as discussed for other migratory bird species in the Raptors and Other Migratory Birds section.

Northern Goshawk. No northern goshawk nests have been identified along the proposed pipeline route; however, suitable foraging habitat and marginal nesting habitat (i.e., pinyon-juniper woodlands) does occur along the proposed Project route. Direct impacts would include the long-term reduction of approximately 248 acres of potential foraging habitat and 248 acres of potential breeding habitat, until reclamation has been completed and vegetation reestablished. However, this impact would be considered negligible based on the low probability of nesting birds along the proposed route. Indirect impacts would result from construction-related noise and human presence. With the implementation of biological protection measures outlined in the POD (CH2M Hill Trigon, Inc. 2008) such as conducting preconstruction surveys for active nests, and implementation of seasonal timing restrictions and buffers as listed in **Table 4.7-3**, potential impacts to this species as a result of the proposed Project would be low.

Bald Eagle. Two bald eagle nest sites and winter roost areas occur within 1-mile of the proposed Project route along the White, Yampa, and Little Snake rivers. Impacts would include the long-term reduction of approximately 1,599 acres of potential foraging habitat and 269 acres of potential breeding habitat, until reclamation has been completed and vegetation reestablished. Indirect impacts associated with construction-related noise and human presence would increase and therefore, could impact breeding/wintering birds. With the implementation of biological protection measures outlined in the POD (CH2M Hill Trigon, Inc. 2008), conducting preconstruction surveys for active nests, and implementation of seasonal timing restrictions and buffers as listed in **Table 4.7-3**, potential impacts to this species as a result of the proposed Project would be low.

Swainson's Hawk. One active Swainson's hawk nest has been identified along the proposed Project route and suitable nesting habitat (i.e., trees, large shrubs, cliffs) occurs along the proposed Project route. Direct impacts would include the long-term reduction of approximately 1,599 acres of potential foraging habitat and 1,517 acres of potential breeding habitat, until reclamation has been completed and vegetation reestablished. However, this impact would be considered negligible based on the overall availability of suitable foraging habitat in the vicinity of the Project route. Indirect impacts would result from construction-related noise and

human presence. With the implementation of biological protection measures outlined in the POD (CH2M Hill Trigon, Inc. 2008), conducting preconstruction surveys for active nests, and implementation of seasonal timing restrictions and buffers as listed in **Table 4.7-3**, potential impacts to this species as a result of the proposed Project would be low.

Ferruginous Hawk. No active ferruginous hawk nests have been identified along the proposed Project route; however, several inactive nest sites occur in Wyoming and suitable nesting and foraging habitat is found along the entire proposed Project route. Direct impacts would include the long-term reduction of approximately 1,467 acres of potential foraging habitat and 1,219 acres of potential breeding habitat, until reclamation has been completed and vegetation reestablished. However, this impact would be considered negligible based on the overall availability of suitable foraging habitat in the vicinity of the proposed Project route. Indirect impacts would be the same as described above for northern goshawk. With the implementation of biological protection measures outlined in the POD (CH2M Hill Trigon, Inc. 2008), conducting preconstruction surveys for active nests, and implementation of seasonal timing restrictions and buffers as listed in **Table 4.7-3**, potential impacts to this species as a result of the proposed Project would be low.

Golden Eagle. Two active golden eagle nests have been identified along the proposed Project route: one located on a high voltage tower in Moffat County, Colorado, and the other in a tree in Sweetwater County, Wyoming. Direct impacts would include the long-term reduction of approximately 1,599 acres of potential foraging habitat and 1,467 acres of potential breeding habitat, until reclamation has been completed and vegetation reestablished. However, this impact would be considered negligible based on the overall availability of suitable foraging habitat in the vicinity of the proposed Project route. Indirect impacts would be the same as discussed above for northern goshawk. With the implementation of biological protection measures outlined in the POD (CH2M Hill Trigon, Inc. 2008), conducting preconstruction surveys for active nests, and implementation of seasonal timing restrictions and buffers as listed in **Table 4.7-3**, potential impacts to this species as a result of the proposed Project would be low.

Prairie Falcon. A single prairie falcon nest site has been documented along the proposed Project route in Sweetwater County, Wyoming. However, this nest was found to be inactive in 2007 and 2008. Direct impacts would include the long-term reduction of approximately 1,599 acres of potential foraging habitat and 1,467 acres of potential breeding habitat, until reclamation has been completed and vegetation reestablished. However, this impact would be considered negligible based on the overall availability of suitable foraging habitat in the vicinity of the proposed Project. Indirect impacts would be the same as discussed above for northern goshawk. With the implementation of biological protection measures outlined in the POD (CH2M Hill Trigon, Inc. 2008), conducting preconstruction surveys for active nests, and implementation of seasonal timing restrictions and buffers as listed on **Table 4.7-3**, potential impacts to this species as a result of the proposed Project would be low.

Greater Sage-Grouse. The greater sage-grouse is designated as a sensitive species by the states of Colorado and Wyoming as well as the BLM and has been petitioned for federal listing consideration. In April 2004, the USFWS determined that listing the sage-grouse under the ESA may be warranted and initiated a status review. However, based on a 12-month finding for petitions to list the greater sage-grouse as threatened or endangered, the USFWS has subsequently determined that the listing is not warranted (70 FR 2244). Recently, the USFWS has reopened a 90-day status review to determine whether or not listing under the ESA is warranted.

In Colorado, the BLM WRFO and LSFO are implementing their respective RMPs seasonal training restriction dates for greater sage-grouse. The BLM WRFO and LSFO have adopted the Colorado Greater Sage-grouse Conservation Plan's (CDOW 2008c) guidelines and recommendations for implementing buffers. This conservation plan was signed in January 2008 by the CDOW, BLM, USFS, USFWS, and NRCS to facilitate the conservation of greater sage-grouse and their habitats in Colorado. This plan establishes that:

- There should be no surface occupancy (NSO) within a 0.6-mile radius of an active lek; and
- Surface disturbing activities should be avoided, to the extent possible, within suitable nesting habitat within a 4-mile radius of an active lek.

Potential direct impacts of construction on sage-grouse may include the loss of lekking grounds and other sage-grouse habitat (e.g., winter range, brooding habitat). Acres of sage-grouse habitat that would be impacted by the proposed Project are presented in **Table 4.7-5**.

Table 4.7-5 Greater Sage-grouse Habitat Impacted by the Proposed Project

BLM Field Office	Habitat Type	Acres Impacted During Construction[1]
White River[2]	Brooding Areas	39.0
	Production Areas	29.9
	Winter Range	39.0
	Severe Winter Range	0.00
Little Snake[2]	Brooding Areas	108.5
	Production Areas	303.8
	Winter Range	424.8
	Severe Winter Range	32.4
Rawlins[3]	Overall Range	598.2
	Nesting Habitat	78.1

[1]Some habitats may overlap (e.g., winter range includes severe winter range, overall range include nesting habitat).

[2]From BLM WRFO and LSFO have adopted CDOW greater sage-grouse habitat mapping data.

[3]From BLM RFO has adopted WGFD greater sage-grouse habitat mapping data. The WGFD designates greater sage-grouse habitat into two categories and does not classify brooding areas, production areas, winter range, or severe winter range.

Although the proposed Project would not result in a permanent loss of habitat along the pipeline ROW, the regeneration of sagebrush would likely be slow. A 30-year interval represents the approximate recovery period for a stand of Wyoming big sagebrush. A 20-year interval represents the approximate recovery time for a stand of mountain sagebrush (Connelly et al. 2000). However, potential impacts on sage-grouse habitat would be minimized by locating the proposed ROW within previously disturbed areas (i.e., adjacent to existing pipelines and/or roads) to the extent possible. 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 ROW would affect sage-grouse populations in the vicinity of the proposed Project.

Depending on the timing of construction, the proposed Project could potentially 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 evening in the vicinity of lekking grounds could disrupt and potentially displace sage-grouse that have gathered for breeding activities. In addition, once breeding activities have concluded, sage-grouse hens create

their nests on the ground underneath sagebrush plants in proximity to the lekking grounds. The proposed Project could potentially impact nesting sage-grouse by destroying nests, causing nest abandonment, or causing injury or direct mortality to the young.

Based on CDOW and WGFD breeding season surveys and historic data, a total of 6 active sage-grouse lek sites have been identified as occurring within 4 miles of the proposed Project in Colorado, and 2 active leks as occur within 2 miles of the proposed Project in Wyoming.

Table 4.7-6 summarizes the following sage-grouse protection measures OPPC has committed to in order to limit impacts to greater sage-grouse.

- Conduct sage-grouse presence surveys, habitat assessment, and review of historical lek sites each spring prior to construction. Biologists would meet with the BLM prior to initiating surveys and would conduct the surveys using BLM-approved protocols.
- Prohibit permanent aboveground facilities within a 0.6-mile radius of all active leks on lands administered by the BLM WRFO, BLM LSFO, and CDOW, and within a 0.25-mile radius of all occupied leks on land administered by the BLM RFO unless approved by the BLM and CDOW or WGFD. The RFO has adopted the WGFD definitions of an occupied versus unoccupied lek: a lek is deemed occupied until it is inactive 6 out of 10 years.
- Prohibit surface disturbing activities within 0.6 mile of an active lek on lands administered by the BLM WRFO, BLM LSFO, and CDOW from March 1 to May 15 and within 0.25 mile of an occupied lek on lands administered by the BLM RFO from March 1 to May 20 unless approved by the BLM and CDOW or WGFD.
- Prohibit surface disturbing activities within a 4-mile radius of an active lek (within suitable nesting habitat) at the time of construction between April 15 and July 7 on land administered by the BLM WRFO and between March 1 and June 30 on land administered by the BLM LSFO in Colorado unless approved by the CDOW and BLM. Some allowances may be made based upon site-specific consultations with the jurisdicting agency.
- Prohibit surface disturbing activities within a 2-mile radius of an occupied lek (within suitable nesting habitat) at the time of construction from March 1 to July 15 on land administered by the BLM RFO unless approved by the WGFD and BLM. Some allowances may be made based upon site-specific consultations with the jurisdicting agency.

To minimize impacts on sage-grouse habitat, OPPC has committed to restricting broadcast spraying of herbicides for noxious weed control in sage-grouse habitat unless approved by the BLM Authorized Officer or field representative. All weed control programs in sage-grouse habitat would use integrated weed management techniques to reduce the area of treatment and minimize adverse side effects. Additionally, OPPC would seed all disturbed areas with a mix designed to reestablish sagebrush and forb species. Seed mixes are provided as appendices to the *Environmental Protection Plan*. Sagebrush seed used for reseeding would be from local species and varieties. Distribution of sagebrush would be dependent upon range site (i.e., *Artemesia tridentata vaseyana* and *A. tridentata wyomingensis*). Reclamation on these sites would use seed mixes and seeding methods that include and promote successful establishment of the full compliment of grasses and desirable native forbs.

Table 4.7-6 Seasonal Timing Restrictions and Buffers for Greater Sage-grouse

State/Habitat Type	Milepost Locations	Buffer (miles)[1]	Seasonal Timing Restriction[2]
Colorado			
Greater Sage-grouse Active Lek	66.5 to 67.8	0.60[3]	March 1 to May 15
	68.9 to 69.4		
Greater Sage-grouse Nesting Habitat (within 4 miles of an active lek)	1.8 to 9.8	4.0	April 15 to July 7
	45.9 to 55.7	4.0	March 1 to June 30
	62.9 to 91.1		
	91.1 to 96.5		
Wyoming			
Greater Sage-grouse Occupied Lek	No occupied leks within 0.25 mile of ROW	0.25[3]	March 1 to May 20
Greater Sage-grouse Nesting Habitat (within 2 miles of an occupied lek)	118.1 to 121.7	2.0	March 1 to July 15
	151.9 to 152.1		

[1]Sources: Colorado Greater Sage-grouse Conservation Plan (CDOW 2008b) and Rawlins FEIS and RMP 2008 (BLM 2008a).

[2]Sources: White River RMP (BLM 1997), Little Snake RMP Oil and Gas Amendment (BLM 1991), and Rawlins FEIS and RMP 2008 (BLM 2008a).

[3]For pipelines this includes no permanent aboveground facilities (no surface occupancy) year-round and no surface disturbing activities.

Columbian Sharp-tailed Grouse. Potential impacts on the Columbian sharp-tailed grouse from construction of the proposed Project would be minimal because its range is limited in southern Moffat County; however, a small amount of potentially suitable habitat could occur along the proposed Project route. Potential direct impacts of construction on this species include the temporary loss of habitat (e.g., winter range, brooding habitat). Although the proposed Project would not result in a permanent loss of habitat along the proposed pipeline route, the regeneration of shrubs would likely be slow. Potential impacts on Columbian sharp-tailed grouse habitat would be minimized by locating the proposed ROW within previously disturbed areas (i.e., adjacent to existing pipelines and/or roads) to the extent possible. Given the abundant suitable habitat in the general area, it is not likely that the minor, yet long-term loss of habitat along the proposed pipeline ROW would affect Columbian sharp-tailed grouse populations in the vicinity of the proposed Project. Therefore, the proposed Project may impact individual Columbian sharp-tailed grouse but would not likely cause a trend to federal listing or loss of viability to this species.

Mountain Plover. The primary mountain plover nesting period along the proposed Project route is from May 1 through June 15. Young chicks commonly stay on the nest or freeze in place to avoid detection from about June 15 through July 10, resulting in a higher potential for losses from excavation equipment traversing over nest sites during this time period. After July 10, the chicks are usually sufficiently mobile to move away from construction equipment.

The proposed Project route crosses approximately 11.7 miles of mountain plover habitat in Wyoming (BLM 2008a). Additional habitat for mountain plover is found within white-tailed prairie dog colonies along the proposed Project route. If construction were to begin in or extend into the breeding season (mid-April through

early July), direct (e.g., ground disturbance) or indirect (e.g., noise, human presence) impacts to nesting mountain plover could result in abandonment of breeding territory or a nest site, or the loss of eggs or young. OPPC has committed to avoiding construction activities in suitable mountain plover habitat between April 10 and July 10. Based on proposed construction outside the nesting season, the proposed Project may impact individuals but would not likely cause a trend to federal listing or loss of viability.

Western Burrowing Owl. Burrowing owls typically use burrows made by prairie dogs and other small mammals. 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. Displacement, injury, or direct mortality could result if active burrows are occupied at the time of destruction.

Surveys conducted during the summer of 2007 found 2 active burrowing owl nests (WWE 2008). To avoid impacts on nesting owls, OPPC proposes to construct the pipeline outside the burrowing owl breeding season (February 1 to August 15 in Colorado). Should construction extend into the breeding season, OPPC would adhere to seasonal and spatial buffers for burrowing owls on federal land unless approved by the BLM and CDOW or WGFD. For example, the BLM RFO would typically require a 0.75-mile protection zone around an active nest between February 1 and July 31. To minimize potential impacts to the burrowing owl, OPPC has committed to adhering to the BLM requirements established for burrowing owls for the entire proposed Project, regardless of land ownership. Thus, the proposed Project may impact individual burrowing owls but would not likely cause a trend to federal listing or loss of viability to this species.

Loggerhead Shrike, Sage Thrasher, Sage Sparrow, and Brewer's Sparrow. Potential impacts to these migratory bird species would be the same as discussed for other migratory bird species under the Raptors and Other Migratory Birds section.

Amphibians and Reptiles

Great Basin Spadefoot, Northern Leopard Frog, and Midget Faded Rattlesnake. Potential impacts to amphibian and reptile species include direct mortalities of individuals from construction activities, ground compaction, and vehicle traffic within suitable habitat. Impacts also would result from the incremental long-term reduction of potential habitat until reclamation is completed and vegetation reestablished.

The potential for these species to occur within the proposed Project area is considered low. No further preconstruction surveys are proposed. The proposed Project may impact individual amphibians and reptiles but would not likely cause a trend to federal listing or loss of viability. These species have a broad geographic area and impacts would be considered negligible based on suitable habitat present in the proposed Project vicinity.

Fish Species

The federally listed bonytail, humpback chub, and razorback sucker do not occur in the proposed Project area but are included in our detailed analysis based on the potential water depletion activities (i.e., hydrostatic testing) for the proposed Project in the Colorado River Drainage. The closest occupied or critical habitat for these three species is located at the following approximate distances downstream of the proposed crossings: 30 to 40 river miles downstream of the Yampa River crossing (razorback sucker, humpback chub, and bonytail); 70 river miles downstream of the White River crossing (razorback sucker); and at least 30 river miles downstream of the Little Snake River crossing (razorback sucker) (USFWS 2004a). Consequently, proposed Project impacts to these fish species would be limited to potential water depletions from hydrostatic testing within the Colorado River drainage.

The federally listed Colorado pikeminnow occurs approximately 10 river miles downstream of the proposed White River crossing and could be affected by water depletions (USFWS 2004a). This species also could

occur at the location of the proposed Yampa River crossing (which also is designated as critical habitat for this species) (USFWS 2004a). Direct impacts to this species and its critical habitat are discussed below.

The remaining five fishes (bluehead sucker, flannelmouth sucker, mountain sucker, Colorado River cutthroat trout, and roundtail chub) are either state sensitive species or BLM sensitive species that occur in the White River, Little Snake River, Yampa River, and Piceance Creek.

An accidental release of drilling mud (called "frac-out") and potential impacts of this release during the HDD crossings at the White, Little Snake, and Yampa rivers is discussed in Section 4.5, Surface Water.

Bonytail, Humpback Chub, Razorback Sucker, Colorado Pikeminnow (impacts from water depletions). The USFWS has expressed concern about the potential downstream impacts on federally listed species resulting from hydrostatic test water withdrawals from the Upper Colorado River Basin. The federally endangered bonytail, humpback chub, razorback sucker, and Colorado pikeminnow are known to occur in downstream portions of the White, Yampa, and Little Snake rivers, which are part of the Upper Colorado River Basin.

Water depletion impacts resulting from the withdrawal of up to 35 acre-feet of water for dust control, HDD use, and equipment washing and an additional 11 acre-feet for hydrostatic testing could include a slight temporary reduction of potential spawning and rearing habitat in the Upper Colorado River Basin due to changes in downstream water flow. No changes in water temperature or dissolved oxygen would be anticipated as a result of the relatively small water volume used for proposed Project activity. Potential impacts would be greatest during the spawning periods for these species in spring and early summer, which would be avoided based on OPPC proposed schedule. The USFWS defines "depletion" as consumptive loss plus evaporative loss of surface or groundwater within the affected basin. According to the USFWS, any water depletion would represent an adverse impact on the Colorado pikeminnow, razorback sucker, humpback chub, and bonytail, and would need to be considered under a programmatic biological opinion (BO).

If water is returned to the source waterbody within a certain amount of time after withdrawal, the threshold for "depletion" and formal consultation would not be reached. Factors to consider in determining downstream impacts to listed fish species include the time of the year water is withdrawn, whether the water has been treated, other water uses at the time of withdrawal (cumulative impact), and how close to the withdrawal source the water is returned (i.e., a source location return versus a "basin return").

The *Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin* (*Recovery Plan*) (USFWS 2008) was established in 1988 to mitigate for water depletion impacts to Colorado River federally endangered fish species. To ensure the survival and recovery of the listed species, water users are required to make a one-time payment to the Recovery Program. In 1995, an intra-USFWS Opinion determined that the fee for depletions less than 100 acre-feet (annual average) would no longer be required (USFWS 2004a).

Water withdrawals for the proposed Project would include up to an estimated 35 acre-feet of water for consumptive water use (i.e., dust control, HDD use, and equipment washing) and an additional 11 acre-feet for hydrostatic testing. As presented in **Table 4.7-4**, the 11 acre-feet for hydrostatic testing would be comprised of approximately 3.5 acre-feet from one location along the Yampa River (MP 59.5), 2.6 acre-feet from one location along the White River (MP 19.3), and 4.9 acre-feet from one location along the Little Snake River (MP 93.6). Hydrostatic testing for the various test sections would occur over a multiple-day period. The actual duration of hydrostatic testing for a given test section would be dependent on the rate of withdrawal and the section of pipe that would be tested, but would not exceed 5 to 7 days.

Hydrostatic test water withdrawn from surface waters would be discharged back to the uptake location after use. Discharges would be completed as quickly as possible, but would be governed by the volume of water in a test section and the discharge rate. The potential for bank erosion would be minimized by using energy-

dissipating devices and appropriate dewatering structures that would disperse and slow the velocity of any discharges. The introduction of contaminants would not be anticipated because OPPC would test only new pipe and would not chemically treat the water. Due to this, water depletions from the Upper Colorado River Basin, according to the USFWS, the proposed Project may affect and is likely to adversely affect the four Colorado River endangered fish.

Colorado Pikeminnow (impacts from waterbody crossings). Due to the location of drilling pad, drilling equipment, and pipe strings associated with the Yampa River HDD, surface disturbing activities would occur within the 100-year floodplain of the Yampa River. However, the HDD work areas would be located outside of the water level of the river, and thus would avoid instream impacts. Construction techniques and reclamation would be designed to minimize potential increased sedimentation during future high water events. Refueling and lubrication of drilling equipment would occur at the drilling site (inside of the 100-year floodplain); therefore, any fuel spills or leaks could affect the Colorado pikeminnow's critical habitat at this location.

Impacts to designated critical habitat for the Colorado pikeminnow in the White River, which is about 10 miles downstream from the proposed crossing location, is not anticipated.

The proposed HDD crossings of the White and Yampa rivers would avoid instream impacts assuming a successful HDD crossing would be constructed at each of these locations; thus, there would be little to no effect on the Colorado pikeminnow or its designated critical habitat. Only minor turbidity impacts would be anticipated from light disturbance associated with the preliminary crossing set-up. In the unlikely event of an inadvertent release of drilling fluids (a "frac-out"), water quality would be degraded in the immediate vicinity of the crossing during HDD activities. If this were to occur, drilling activities would cease and countermeasures would be implemented according to the *Drill Fluid Contingency Plan*. In such a case, turbidity and sedimentation impacts, as well as minor amounts of chemical constituents, would adversely affect the waterbody for some distance downstream due to mud flocculation and settling. Such effects would probably occur within 0.5 mile or so of the HDD site.

Successful implementation of the measures in the *Drill Fluid Contingency Plan* would minimize potential impacts to the Colorado pikeminnow and its critical habitat and would reduce them to short-term in duration.

Bluehead Sucker, Flannelmouth Sucker, Mountain Sucker, Colorado River Cutthroat Trout, and Roundtail Chub. Since these species occur at and downstream of the proposed crossings, impacts of water withdrawal and stream crossing construction would be the same as described for the Colorado pikeminnow. The proposed Project may impact individual fish but would not likely cause a trend toward federal listing or loss of viability for these species.

Conclusion

Impacts to special status wildlife species would be avoided or minimized through implementation of applicant-committed environmental protection measures in the *Environmental Protection Plan* and *Biological Resources Protection Plan*, as well as the proposed construction schedule, which avoids critical nesting and spawning times of the year. These protective measures would prevent or minimize potential impacts to special status wildlife species such that the proposed Project would not be likely to result in a loss of viability, nor cause a trend toward federal listing or a loss of species viability rangewide.

Impacts to special status fish species in five streams (Piceance Creek, Dry Fork Piceance Creek, White River, Yampa River, and Little Snake River) would be minimized through implementation of protection measures outlined in the *Biological Resources Protection Plan; Environmental Protection Plans; Hazardous Materials Management and Spill Prevention, Containment, and Countermeasures Plan; Drill Fluid Contingency Plan;* and other POD-related plans, as discussed by species under analysis above. Implementation of practices in these plans would minimize effects on habitat for special status fish species through such measures as controlling sediment from disturbed areas, requiring bridges at all flowing stream crossings and establishing a

setback distance from riparian vegetation, and reclaiming streambanks. Additional protection measures would include avoiding spawning periods for coldwater and warmwater fish. Collectively, these protection measures would minimize potential impacts to special status fish species such that the proposed Project likely would not result in a loss of viability, nor cause a trend toward federal listing or loss of species viability rangewide.

Construction activity within the proposed ROW could directly affect special status amphibian species in flooded areas, wetlands, streams, or ponds in Wyoming and Colorado. Vehicles could cause mortalities or alter aquatic habitat used by these species. The proposed Project likely would not result in a loss of viability, nor cause a trend toward federal listing or loss of species viability rangewide.

Operation Phase

Issues

- The issues associated with operations would be similar to the issues described for wildlife, aquatic, and vegetation resources
- Potential localized sedimentation and disturbance to habitat if maintenance activities were required at a stream crossing

Analysis

Both normal and abnormal (e.g., spill event and clean up) operations would have minimal effects on special status wildlife resources. Impacts to special status wildlife species from maintenance activities would be the same as those discussed during construction for general wildlife. Potential direct impacts include long-term habitat loss or alteration of potential breeding and/or foraging habitats until vegetation has been reestablished. Potential impacts also could result in mortalities of less mobile or burrowing species as a result of crushing by vehicles and equipment, and the potential abandonment of a nest site or territory, and the loss of eggs or young. Other potential impacts include short-term displacement of some of the more mobile species from the disturbance areas as a result of increased noise and human presence. If applicable, appropriate environmental protection measures identified for construction also would be implemented to minimize potential impacts to special status wildlife resources.

Both normal and abnormal (e.g., spill event and clean up) operations would have minimal effects on special status aquatic resources. Impacts to special status aquatic species from maintenance activities would be the same as those discussed during construction for aquatic species. As a result, maintenance activities would not affect aquatic biota or their habitat.

Information on the fate of the NGL and potential toxicity is provided in Section 4.5, Surface Water. Further information can be found in the risk assessment conducted for the Overland Pass Pipeline EIS completed in 2007 (BLM 2007a), entitled “Environmental Fate and Effects of Natural Gas Liquid Releases.” If a rupture were to occur at a stream crossing, impacts could include the mortality of fish and macroinvertebrates in the stream at the rupture point. However, fish are expected to move away from the rupture area and potential impacts generally would be low in magnitude due to the localized extent of the affected area.

Conclusion

Routine maintenance and operation of the pipeline would result in minimal impact, if any, to special status species. Maintenance activities along the proposed Project route would result in localized, dispersed impacts of short duration. If NGL were accidentally released into uplands or waterbodies due to a pipeline leak, minimal impacts, if any, would be expected to special status species.

4.7.2 No Action Alternative

Under the No Action Alternative, the proposed Project would not be constructed. As a result, the associated impacts to wildlife, aquatic resources, and special status species would not occur.

4.7.3 GRP Land Re-route Alternative

Impacts to wildlife species (e.g., big game, small game, nongame), aquatic resources, and special status species would generally be the same as described under the Proposed Action, except for the disturbance of an additional 11.9 acres of previously undisturbed wildlife habitat and greater sage-grouse overall range, production area, and winter range. No additional waterbodies containing aquatic resources would be crossed by the GRP Land Re-route Alternative.

For big game, small game, and nongame species, the loss of an additional 11.8 acres of habitat (approximately 62 percent greater than the area of the Proposed Action that would be avoided) would represent less than 1 percent of the overall available habitat within the broader Project region. 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 disturbance areas. Additional edge habitat would be created as a result of the disturbance of the re-route area.

The total area of two CDOW-designated sage-grouse core habitats that would be crossed in the proposed Project vicinity is approximately 647,900 acres. The Proposed Action construction would impact a total of approximately 421 acres (less than 0.07 percent) of that core habitat. The proposed re-route would impact an additional 11.8 acres of that core habitat.

If construction activities were to take place during sage-grouse breeding or nesting season (March 1 to June 30), impacts to sage-grouse would include, but are not limited to, displacement into less suitable habitat, nest abandonment, destruction of nests and loss of habitat.

Other impacts, such as habitat fragmentation and the spread of exotic plants can degrade sage-grouse habitat. Noise and increased human-related activity such as construction and maintenance of the pipeline can also disrupt breeding and nesting. Due to the close proximity of an active greater sage-grouse lek, it can be expected that male lek attendance would decline. This would likely result in decreased breeding success and an overall reduction in population over time (Connelly et al. 2004).

If reclamation efforts are unsuccessful, the spread of exotic plants such as cheat grass in the area would reduce nesting habitat quality. This would likely impact nesting sage-grouse or nest success of nearby sage-grouse due to female site fidelity. This would create an “island” of intact habitat that may be deemed less effective of even avoided by future generations of sage-grouse due to surrounding disturbances. This island of avoided habitat would be approximately 900 acres.

An active greater sage-grouse lek occurs within 0.6 mile of the alternative route between MP ALT-2.1 and ALT-3.0. As discussed under the Proposed Action, OPPC has committed to multiple protection measures for greater sage-grouse (**Table 4.7-6**), including:

- No permanent aboveground facilities within a 0.6-mile radius of all active leks on lands administered by the BLM LSFO.
- No surface disturbing activities within 0.6 mile of an active lek on lands administered by the BLM LSFO from March 1 to May 15.
- No surface disturbing activities within a 4-mile radius of an active lek (within suitable nesting habitat) at the time of construction between March 1 and June 30 on land administered by the BLM LSFO in Colorado. Some allowances may be made based upon site-specific consultations with the jurisdictional agency.

The above mitigation measures may be effective at protecting breeding and nesting activities during the planned project construction and maintenance. However, if emergency maintenance of the pipeline is needed during the life of the project, it is possible that disturbance of the lek site, breeding and nesting activities would be unavoidable. Additional minimization and/or mitigation measures that could be employed and may be effective include, but are not limited to, the following:

- Use of enhanced seed mixtures,
- Additional sagebrush plug plantings,
- Reduced ROW width for construction, and
- Topsoil segregation.

Impacts to special status fish species would be the same as described under the Proposed Action, as no additional waterbodies containing aquatic resources would be crossed by the GRP Land Re-route Alternative.

4.8 Land Use, Recreation, and Visual Resources

4.8.1 Proposed Action

The proposed Project would require land for the construction ROW, permanent ROW, additional TWAs, access roads, and construction and operation of ancillary facilities. The construction ROW would have a nominal width of 75 feet and the permanent ROW for operations would be 50 feet wide. The permanent ROW would be maintained in an open condition (i.e., generally free of trees and aboveground structures) for the life of the pipeline facilities.

To mitigate impacts to land use, recreation and visual resources during construction, OPPC would implement environmental protection measures described in the POD (CH2M Hill Trigon, Inc. 2008). Relevant plans attached as appendices include the *Environmental Compliance Management Plan*, *Fugitive Dust Control Plan*, *Weed Management Plan*, *Transportation Management Plan*, and *Environmental Protection Plan*. Environmental protection measures to be implemented include:

- Hiring a third-party environmental inspector to observe and document environmental compliance, as well as actively identify and anticipate potential environmental compliance concerns ahead of construction.
- Minimizing erosion through the implementation of erosion control measures in accordance with the *Environmental Protection Plan*, including limiting the number of cuts and fills, and keeping the period between construction and reclamation activities as short as possible.
- Minimizing interference and damage to crop and rangelands and minimizing activities during construction and maintenance. This would include limiting disturbance during construction to the minimum necessary to efficiently complete construction activities, bracing and securing fences and gates, coordinating with landowners to install temporary fencing and/or cattle guards as needed, maintaining access through ROW for livestock and landowners, and maintaining access to water sources for livestock.
- Keeping grazing allotment permittees on federal lands managed by the BLM and fee-land ranchers informed regarding schedules to allow them ample opportunity to move livestock away from the ROW.
- Mitigating damage to agricultural lands and facilities from construction as soon as practical. This would include eliminating ruts; restoring ditches, cattle guards, fences, gates and artificial and natural livestock water sources to their original condition or better; and mitigating damage to pasture and grazing lands, including paying special attention to irrigated agricultural lands.
- Minimizing and/or mitigating soil compaction within the construction area and along the ROW. Areas of soil compaction would be returned to approximate pre-construction conditions during reclamation.
- Monitoring and controlling the spread of invasive plant species and noxious weeds along the ROW for the life of the Project.

4.8.1.1 Land Use

Construction Phase

Issues

- Construction interference with planting and harvesting annual crop
- Construction activities interfering with livestock management, such as blocking access to pasture and water
- Temporary reduction in the carrying capacity of the federal and private grazing areas

- Reduced crop productivity because of soil mixing and compaction (Section 4.4)
- Clearing of forested lands/timber production areas during construction activities (Section 4.6)

Analysis

Rangeland areas would be the most predominant land use affected by the proposed Project (**Table 4.8-1**). In areas where rangeland is used for grazing, surface disturbances from construction activities would temporarily reduce the carrying capacity of BLM grazing allotment and privately held pastures, and temporarily would hinder the movement of livestock, horses, and/or wildlife across those allotments. To mitigate impacts to grazing management activities during construction, OPPC would implement environmental protection measures summarized above and described in the POD and associated appendices (CH2M Hill Trigon, Inc. 2008).

Table 4.8-1 Acres of Land Use Affected by Construction and Operation of the Proposed Project

		Forest	Rangeland	Agricultural	Wetlands	Total[1]
Colorado						
Rio Blanco	Permanent Easement	96.9	78.9	49.2	0.0	225.0
	Temporary Easement	48.6	39.8	24.4	0.0	112.8
	TWAs	34.3	13.2	14.6	0.0	62.1
Moffat	Permanent Easement	30.7	297.7	13.8	9.0	351.2
	Temporary Easement	15.3	163.1	5.3	4.5	188.2
	TWAs	8.4	48.2	3.9	7.4	67.9
Subtotal[1]		*234.2*	*640.9*	*111.2*	*20.9*	*1,007.2*
Wyoming						
Sweetwater	Permanent Easement	8.7	306.0	0.0	0.0	314.7
	Temporary Easement	4.1	153.3	0.0	0.0	157.4
	TWAs	1.2	62.4	0.0	0.0	63.6
Carbon	Permanent Easement	0.0	33.9	0.0	0.0	33.9
	Temporary Easement	0.0	16.8	0.0	0.0	16.8
	TWAs	0.0	5.7	0.0	0.0	5.7
Subtotal[1]		*14.0*	*578.1*	*0.0*	*0.0*	*592.1*
Project Total[1]		**248.2**	**1,219.0**	**111.2**	**20.9**	**1,599.3**

[1]Discrepancies in acreage totals are due to rounding; totals represent temporary impacts to ROW only and do not include 51.6 acres for use of existing off-ROW contractor/pipe yard, 0.7 acre for construction of one new access road, or 5.6 acres for potential widening of existing access roads.

Surface disturbances associated with construction activities would reduce available forage for livestock in the proposed Project ROW. Given the narrow, linear nature of the ROW, livestock forage reductions would be minor in comparison to the total forage available on the large BLM allotments and private ranches crossed by the proposed route. In addition, any loss of forage would be temporary and BLM would not reduce the grazing preference or AUM on any BLM grazing permit because of the pipeline Project. OPPC would implement

measures outlined in the *Environmental Protection Plan* to ensure timely and appropriate revegetation. Herbaceous communities would reestablish within 3 to 5 years after construction.

Construction activities would interfere with grazing management patterns and timing. To allow grazing allotment permittees on federal lands and fee-land ranchers the time to move livestock away from the ROW before construction begins, permittees and landowners would be kept informed of the construction schedule. Temporary gates and fences would be installed as necessary.

Construction would block access to water and pasture sites. To maintain access to water and pasture sites for livestock and allow livestock to cross the ROW during construction hard or soft plugs would be left or installed at maximum 1-mile intervals. Additionally, ramps would be installed to allow for the escape of livestock should they fall into the trench. Once construction is complete any livestock facilities such as corrals, water sources, gates, and fences would be repaired or replaced if damaged during construction. These facilities would be left in as good or better condition than the pre-construction condition. Riparian areas on federal lands would be fenced until reclamation is successful. Fencing would be installed around the incised banks and channel with a sufficient gap to allow for passage of wildlife or livestock up or down the channel. These measures would reduce or eliminate potential impacts to livestock during pipeline construction.

Agriculture lands only occur in the Colorado portion of the proposed pipeline route. The primary impacts on agriculture lands during construction would include the loss of crops within the work area and the potential for reduced yield of future crops. In the construction area, croplands would generally be taken out of production for one growing season. On irrigated agricultural lands, re-contouring and ripping to relieve compaction would be conducted to return fields to pre-construction conditions. If any irrigation systems are encountered along the proposed pipeline route, OPPC would replace/repair any irrigation systems damaged by construction activities.

To prevent the introduction and/or establishment of noxious weeds, pre- and post-construction weed management programs would be implemented as described in the *Weed Management Plan*. Reseeding of disturbed areas would be conducted using mixtures approved by the BLM and state agencies.

The construction techniques proposed by OPPC are largely sufficient to minimize impacts and restore surface contours. The majority of agricultural lands are on private land. While the BLM has no regulatory authority to require additional mitigation on private land, private landowners can request mitigation as part of their easement negotiations.

The primary effect of construction on forested land would be the temporary removal of trees and shrubs from the construction ROW and TWAs, where required. The rate of forest reestablishment would vary depending on species and weather conditions. Regrowth to the sapling young tree stage would take 15 to 30 years, while regrowth of forests to mature conditions would likely take between 50 to 100 years depending on the species.

Conclusion

OPPC would implement measures described in the POD (CH2M Hill Trigon, Inc. 2008) to minimize and mitigate for impacts on rangeland and agricultural land affected by construction activities. Specific applicant-committed environmental protection measures to rangeland and agriculture are identified in the *Environmental Compliance Management Plan*, *Weed Management Plan*, and *Environmental Protection Plan*.

Pre-construction activities would include measures to reduce or eliminate impacts to livestock exposed to open trenches and the introduction or spread of noxious weeds. Post-construction activities would include measures to re-contour agriculture lands, for revegetation of herbaceous and shrubland communities, and for continued control of noxious weeds.

OPPC would be responsible for ensuring successful revegetation of soils disturbed by Project-related activities. Successful revegetation would be determined by evaluating the: 1) percent total adjacent

herbaceous cover; 2) new or expanded populations of noxious weeds; and 3) species composition as compared to adjacent, off-ROW vegetation. Follow-up inspections would consist of intensive surveys the first growing season after construction and reclamation to assess revegetation success and determine the need for further reclamation. Routine monitoring throughout the life of the Project would take place to monitor long-term revegetation success. Revegetation would be considered successful when total herbaceous cover is at least 70 percent of that on adjacent land, and species composition is comprised of a mix of seeded species and desirable volunteers from adjacent communities. In agricultural areas, revegetation would be considered successful if crop yields are similar to adjacent undisturbed portions of the same field.

Operation Phase

Issues

- Potential interference with farm field cultivation and harvest
- Same issues identified for construction, but on a smaller scale
- Permanent loss of forested areas on pipeline ROW for maintenance activities

Analysis

Following construction, rangeland uses would be allowed to continue within the permanent ROW. Temporary fences would be removed, the ROW restored to its pre-construction condition, and livestock would be able to graze and roam freely over the permanent ROW. No long-term impacts to rangeland are expected. Once construction was completed, the majority of agricultural land uses would be able to continue within the permanent, operational ROW. However, if aboveground facilities were sited on agricultural land, the land use would be permanently changed from agricultural to developed land. Some activities within the permanent ROW, such as planting of trees and shrubs would be prohibited.

Following cleanup and reseeding of the construction ROW in agricultural areas, the affected areas would typically regenerate quickly. Herbaceous vegetation would generally be reestablished within 3 to 5 years of restoration, depending on climatic conditions.

Following construction, trees and shrubs would be allowed to regenerate within the areas that would not be retained as part of the 50-foot-wide permanently maintained ROW. The permanent ROW would be maintained to support primarily herbaceous- or shrub-dominated communities. The rate of forest reestablishment would vary depending on species and weather conditions. Regrowth to the sapling young tree stage would take 15 to 30 years, while regrowth of forests to mature conditions would likely take between 50 to 100 years depending on the species.

Conclusion

During operations, the ROW would revegetate and largely revert to former uses. Most agricultural crops would be permitted to grow in the ROW. With the exception of forest land removed from the permanent ROW and placement of aboveground facilities, the majority of previous land uses would continue unencumbered.

4.8.1.2 Access Roads

Construction Phase

Issues

- Construction of temporary and permanent access roads in areas designated as Existing Roads and Trails

Analysis

During construction, temporary access roads would be located on existing state, county, private, and BLM roads to gain access to the ROW. The existing roads were used on the recently constructed Entrega and WIC Piceance pipelines. The locations of all identified access roads and proposed modifications are listed in the *Transportation Management Plan*. **Figures 2.1-2** and **2.1-3** show the access roads to be used in Colorado and Wyoming, respectively. State requirements would be followed when hauling equipment and materials on all of the access roads.

One new 15-foot-wide by 0.4-mile-long access road is proposed to be built on fee land. Based on landowner request it would be located on the south side of the White River crossing.

Some of the existing roads might require modifications, including grading, to make them usable for pipeline construction. OPPC would maintain the roads, which would include blading and widening throughout the construction period to keep roads level and not rutted. **Table 2.1-2** shows all roads potentially needing widening; a maximum of 5.6 acres potentially would be impacted due to the widening of existing access roads. For those areas where improvements occurred outside of the pre-construction roadway, following the completion of construction, all areas of new impact would be reclaimed and reseeded using the reclamation techniques and seeding mixes proposed in the *Environmental Protection Plan*.

Conclusion

OPPC would implement the measures in the *Transportation Management Plan* to minimize impacts from temporary access road improvements and maintenance activities. With the exception of one new 0.4-mile-long access road to be built on private land, temporary access roads would consist of a combination of existing roadways including areas designated as Existing Roads and Trails.

Operation Phase

Issues

- Same issues as construction, but on a smaller scale

Analysis

During the life of the Project, operation and maintenance activities would require year-round access to the ROW. Surface travel would be limited to the ROW and would include activities such as surveys, inspections, maintenance and repairs. Impacts are expected to be minor and temporary.

Conclusion

OPPC would implement measures in the *Transportation Management Plan* to minimize impacts from ROW travel for operation and maintenance activities.

4.8.1.3 Utilities

Construction Phase

Issues

- Buried utility crossings – water lines, fiber optic lines, natural gas and product lines
- Offsets from other utilities (overhead electric transmission lines, other pipelines)

Analysis

The Proposed Action has been routed and designed to maximize co-location with existing utility ROWs and to minimize impacts to the environment, area residents, and local businesses. Where OPPC facilities would be co-located with an existing pipeline or powerline ROW, the proposed pipeline centerline generally would be located 50 feet from the existing utility centerline. In most cases, the proposed 75-foot-wide construction ROW would overlap an area recently disturbed by the previous construction of these existing pipelines. Co-locating the proposed pipeline ROW with existing ROWs would reduce the amount of new disturbance associated with the proposed Project.

While co-location of utility ROWs reduces the amount of new disturbance, there are safety considerations that limit how close they may be constructed to one another. Depending on a number of factors, transmission pipelines generally are constructed between 25 to 60 feet apart. The proposed pipeline generally would be offset 50 feet from existing pipelines. To minimize potential hazards posed to existing utilities by outside forces such as bulldozers and backhoes during construction and maintenance, OPPC would participate in the "one call" system and follow the Project's *Emergency Response Plan*, which is provided as an appendix to the POD.

Conclusion

The proposed pipeline centerline generally would be located 50 feet from existing pipeline centerlines, where possible. Potential impacts would be limited to construction and would be temporary and short-term.

Operation Phase

Issues

- Same issues as construction, but on a smaller scale

Analysis

Following construction, OPPC would maintain a 50-foot-wide permanent ROW for operation of the pipeline facilities. OPPC would participate in state one-call programs to ensure maintenance activities do not harm other underground utilities.

Conclusion

Co-location with existing pipeline ROWs would help consolidate and minimize impacts associated with utilities.

4.8.1.4 Special Land Uses and Recreation Areas

Construction Phase

Issues

- Temporary impacts on recreational traffic and use patterns
- Soil and vegetative disturbances in protected areas
- Potential conflicts between recreation uses and construction

Analysis

The Natural Heritage Program (NHP) has identified three PCAs in the vicinity of the proposed Project containing sensitive plant and wildlife species. In 2007 and 2008, OPPC conducted surveys to identify

potential sensitive plant habitats and wildlife species identified by the BLM and the NHP within the proposed Project vicinity. Environmental protection measures that have been identified for these species are discussed in more detail in this EA under Special Status Plant Species in Section 4.6 and Special Status Wildlife Species in Section 4.7.

The proposed pipeline route would cross 0.8 mile of GRP land at a location where it would parallel the existing pipeline corridor containing three other pipelines. OPPC and NRCS are currently working on a resolution in an attempt to allow the pipeline route to remain as proposed; parallel to the existing corridor. This would minimize impacts to resources associated with disturbing new greenfields, including visual impacts, soil destabilization, and habitat fragmentation.

In addition, lease agreements between OPPC, the BLM, and state land managers would include measures to avoid and/or mitigate impacts to these areas, and ensure that the ecological functions of these areas are maintained.

Pipeline construction would have temporary impacts on recreational traffic and use patterns. Sightseers, hikers, wildlife viewers, hunters, off-highway vehicle users, and mountain bikers would be displaced from the immediate area during construction. Issues in common to all these recreational and special interest areas include soil disturbance and revegetation, repair and maintenance of public access roads, and coordination with the agency managers to minimize conflicts between construction activities and the recreational uses for which these special areas were established. Lease agreements between OPPC and the BLM and state land managers would include measures that would avoid or minimize conflicts with recreational use.

Conclusion

By coordinating with agency managers, following lease agreements and implementing the environmental protection measures outlined in the POD (CH2M Hill Trigon, Inc. 2008), impacts to special land use and recreation areas would be minimized during construction activities. Following construction, cleanup and revegetation of the ROW would be conducted. In the disturbed areas, vegetation would generally regenerate quickly, with herbaceous vegetation reestablishing within 3 to 5 years of restoration, depending on climatic conditions.

Operation Phase

Issues

- Same issues identified for construction, but on a smaller scale
- Permanent loss of forested areas on pipeline ROW for maintenance activities

Analysis

Operation and maintenance activities would be minimal and temporary in recreation and special land use areas. Implementation of environmental protection measures outlined in the POD (CH2M Hill Trigon, Inc. 2008), including ripping of soils to relieve compaction, revegetation, and control of noxious weed species would minimize impacts from pipeline construction. Areas in the permanent ROW would revegetate quickly, except for forested areas. Forested areas would generally take 50 to 100 years to reestablish to mature forest conditions, depending on species. Within the 50-foot-wide permanent ROW, trees would be removed as part of maintenance activities.

Conclusion

After completion of construction, recreational use would be allowed to continue within the permanent ROW. Reclamation of special land use areas would be conducted to minimize impacts to vegetation communities and soils.

4.8.1.5 Visual Resources

Construction Phase

Issues

- Modification of existing natural and cultural landscapes viewed from special management areas, trails, roads, recreation areas and other public locations
- Views from nearby residences

Analysis

Public lands that would be affected by the proposed Project consist predominantly of federal lands managed by the BLM, with some small areas of Colorado and Wyoming state-owned lands. As discussed in Section 3.7.1.4, the BLM has a VRM standard for each resource area that would be crossed by the proposed pipeline route. These lands are managed to ensure protection and maintenance of the quality of scenic and visual resources. OPPC would adhere to these BLM management requirements. The proposed Project would be constructed within 1.0 mile of VRM Class I lands and would cross 0.1 mile of VRM Class II lands (**Figure 3.7-3**). At these locations, the proposed Project would parallel and expand by 50 feet the existing WIC Piceance pipeline ROW disturbance and would be largely unnoticeable to the casual viewer. The proposed Project also would cross 87.2 miles of VRM Class III, and 35.8 miles of VRM Class IV lands. The remaining length of the proposed centerline would be situated on private or state lands.

The proposed Project would cross the Cherokee Trail on VRM Class IV lands in southern Wyoming. Although the visual impact where the proposed pipeline would cross the trail is minimal, as there is an extensive visual footprint remaining from the previous pipeline construction, a section of the trail to the east of the crossing would suffer a moderate visual impact to the site setting due to the removal of patchy pinyon-juniper woodland that covers the short hills to the west of the trail. This would temporarily create a swath of leveled land through the rolling hills and cause a moderate to severe contrast with the current setting. To minimize the anticipated visual impacts at the Cherokee Trail crossing, OPPC has committed to the following protection measures in the vicinity of the trail as part of the *Cultural Resources Protection Plan*:

- Blading and all ground disturbance would be reduced to the minimum width necessary to safely complete construction.
- Grading and restructuring of the surface, where construction would alter small, low hills, would follow contours to minimize the land disturbance.
- Protective matting would be installed along the working side of the construction corridor to minimize ground surface disturbance.
- “Brush hogging” would be used for clearing vegetation to minimize ground disturbance.
- Edges of tree clearings would be feathered and uneven to reduce the linear nature of the contrast.
- Natural topsoils would be stockpiled and reused in ground surface restoration.
- Ground surface would be recontoured following construction to match the original natural contours.
- The area would be mulched and revegetated or reseeded in a manor that would approximate the current groundcover.

The landscape along the proposed pipeline route ranges from gently rolling landforms with vegetation limited to shrubs or grasses, to diverse riparian landscape, to steeply sided landforms with shrubs and coniferous vegetation. View distances range from foreground to middleground and background (more than 5 miles).

Visual impacts caused by the construction ROW and additional TWAs would result from the removal of existing vegetation and the exposure of bare soils, as well as earthwork and grading impacts associated with heavy equipment tracks, trenching, blasting, rock formation alteration or removal, and machinery and tool storage. Other visual impacts would result from removal of the larger individual trees that have aesthetic value; the removal or alteration of vegetation that would otherwise provide a visual barrier; or landform changes that would introduce contrasts in visual scale, spatial characteristics, form, line, color, or texture.

Visual impacts would be greatest where the proposed pipeline ROW would be seen by passing motorists or recreationalists and where the proposed pipeline route paralleled or crossed roads, trails, recreation areas, or prominent off-site observation points. The duration of visual impacts would depend on the type of vegetation or land formation that was cleared or altered. The duration of 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 3 to 5 years). The duration of impact would be greater on shrub rangeland, which could take at least 5 years to regenerate, and could take up to 20 to 30 years to mature. The highest potential visual impact would result from the removal of large trees, which would take longer than other vegetation types to regenerate and would be prevented from reestablishing on the permanently maintained 50-foot-wide ROW. Topographic alterations such as sidehill cuts, if necessary to construct the pipeline, would be restored to original grade during ROW restoration. The visibility of such alterations would diminish over time as the affected areas aged and blended with the surrounding landscape.

To minimize construction impacts on visual resources, the proposed pipeline route would be aligned adjacent to existing pipeline ROWs or other transportation corridors where feasible. In areas where ROW co-location is not possible for engineering and/or construction reasons, the proposed pipeline route would be aligned to avoid aesthetic features to the extent possible. Visual impacts from the construction of the aboveground and belowground facilities would be low to moderate and, as such, less-than-significant.

Conclusion

The proposed pipeline would be buried, the vegetation reclaimed, and the topographical contours returned to their pre-construction condition. Therefore, visual impacts associated with construction and operation of the proposed pipeline facilities would be within BLM VRM management objectives.

Operation Phase

Issues

- Modification of natural and cultural landscapes viewed from special management areas, trails, and public locations
- Same issues as for construction
- Operational views from nearby residences
- Proximity of the pipeline to public gathering places

Analysis

The proposed Project would include the construction of meter stations, one potential future pump station, valves, and pigging facilities at various locations along the proposed pipeline route. These aboveground structures would be permanent and would remain in operation throughout the life of the Project. The impacts on visual resources from each individual facility would depend on the pre-construction condition and the

visibility from the surrounding area. To the extent possible the pump station, if constructed, would be located adjacent to existing commercial/industrial facilities that already experience a visual impact, and the meter stations would be constructed in association with a pump station where applicable or placed within an area that minimizes visual impacts to the extent possible.

The landscape of the proposed pipeline route ranges from gently rolling landforms with vegetation limited to shrubs or grasses, to diverse riparian landscape, to steeply sided landforms with shrubs and coniferous vegetation. View distances range from foreground, to middleground, and background (more than 5 miles).

Long-term visual impacts as a result of aboveground facilities for the proposed Project would be caused by valves or pigging facilities. Successful revegetation would blend the belowground portions of the pipeline with its surroundings. Aboveground facilities would meet the operational requirements of the pipeline owners and operators and also would be compatible with the surrounding landscape. This would entail the selection of appropriate ground surfacing, building surfacing, fencing, signing, and color selection and finish. Visual impacts from the operation of the aboveground facilities would be low to moderate and, as such, less than significant.

Conclusion

Project design and applicant-committed environmental protection measures would minimize visual impacts by locating the proposed aboveground facilities in areas already used by other pipelines, minimizing unnecessary nighttime lighting, and by using agency-approved paint colors and materials.

4.8.2 No Action Alternative

Under the No Action Alternative, the proposed Project would not be constructed. As a result, the associated impacts to land use, special recreation, and aesthetic resources would not occur.

4.8.3 GRP Land Re-route Alternative

Should the GRP Land Re-route Alternative be constructed, the total project length would increase by 1.3 miles to 153.5 miles. This additional mileage equates to an additional 11.9 acres of disturbance during construction to rangeland and BLM grazing allotments. Two BLM grazing allotments would be impacted by the re-route: an additional 12.0 acres of land would be disturbed within the Piskwik grazing allotment and approximately 0.1 acre less would be disturbed within the Big Hole Gulch grazing allotment. As discussed under the Proposed Action, no long-term impacts to rangelands or BLM grazing allotments would be anticipated. The 11.9 acres of additional disturbance associated with the GRP Land Re-route Alternative represents a change of less than 1 percent to impacts associated with the overall Project.

No new access roads have been proposed along the GRP Land Re-route Alternative. If buried utilities are identified along the alternative route, impacts and mitigation would be similar as described in the Proposed Action.

As there are no special land uses or recreation areas along the GRP Land Re-route Alternative, no impacts to special land uses or recreation areas would be anticipated. The GRP Land Re-route Alternative would be routed through VRM Class III landscape and there would be no new pumps or pump stations along the alternative route. Visual impacts would be the same as those described for the Proposed Action.

4.9 Cultural Resources

4.9.1 Proposed Action

Construction Phase

Issues

- Potential impact on NRHP-eligible properties such as prehistoric or historic archaeological sites, districts, buildings, structures, and objects
- Potential discovery and adverse affects on previously undiscovered cultural resources, including burials and associated funerary objects
- Unauthorized artifact collection and vandalism
- Introduction of visual or auditory elements that diminish the integrity of the property's significant historic feature

Analysis

Section 106 of the NHPA requires that federal agencies take into account the effect of an undertaking on historic properties and provide the ACHP an opportunity to comment. Historic property, as defined by the regulations implementing Section 106, means "any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the NRHP maintained by the NPS." The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization that meet the National Register criteria. Potential impacts to historic properties are assessed using the "criteria of adverse effect" (36 CFR 800.5[a][1]), as defined in the implementing regulations for the NHPA. "An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association." The analysis of impacts using these criteria is limited to those resources that are listed on the NRHP or have been recommended as eligible.

Those areas in which impacts are planned or are likely to occur are referred to as the "area of potential effect" or APE. Specifically, the APE is defined as the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of NRHP-eligible cultural resources, if any such resources exist. Additionally, the APE is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking (36 CFR 800.16[d]).

The APE should include:

- All alternative locations for all elements of the Proposed Action;
- All locations where the Proposed Action may result in disturbance of the ground;
- All locations from which elements of the Proposed Action (e.g., pump stations or land disturbance) may be visible or audible;
- All locations where the Proposed Action may result in changes in traffic patterns, land use, public access, etc.; and
- All areas where there may be indirect as well as direct effects.

The APE for the proposed Project includes the 300-foot-wide survey corridor and, in some cases, an area extending up to 3 miles beyond the corridor to include any important historic sites within the viewshed of any

aboveground facilities. Only those historic properties located in the APE were reviewed to determine if any would be subject to impacts that could affect their eligibility for the NRHP based on NRHP criteria for evaluation.

Project effects include not only the physical disturbance of a historic property, but also may include the introduction, removal, or alteration of various visual or auditory elements, which could alter the traditional setting or ambience of the property. In consultation with Colorado and Wyoming SHPOs and Native American tribes, BLM would determine whether construction of the proposed Project would affect any properties listed on, or eligible for listing on, the NRHP.

If a property would be adversely affected, mitigation would be proposed. Mitigation may include, but would not be limited to, one or more of the following measures: 1) avoidance through the use of realignment of the proposed pipeline route, relocation of temporary extra workspace, or changes in the construction and/or operational design; 2) data recovery, which may include the systematic professional excavation of an archaeological site; or 3) Historic American Buildings Survey (HABS)/Historic American Engineering Record (HAER) or other agreed upon historic recordation process. Avoidance through Project redesign is the preferred method of mitigation. However, when avoidance is not feasible, data recovery, HABS/HAER documentation, or any other agreed upon mitigation measure would be implemented prior to construction. Based on the Class III inventories in Wyoming and Colorado, the BLM determined that there would be adverse effects to historic properties as a result of the Proposed Action.

In April 2008, the BLM visited the locations where the historic Overland and Cherokee trails would be crossed by the proposed pipeline. Based on the site visits, the BLM determined that visual impacts to the Overland Trail would not occur as a result of construction. Additionally, no traces of ruts or swales associated with the Trail were located within the proposed pipeline corridor. However, the BLM determined that visual impacts to the Cherokee Trail would occur as a result of construction and subsequently developed mitigation measures to reduce visual impacts to the Trail. Mitigation measures include site-specific construction techniques and methods and measures to be taken to minimize visual impacts at this proposed crossing. OPPC has committed to these measures as outlined in the *Cultural Resources Protection Plan*. Refer to Section 4.8.1.5 for further discussion of the visual impacts and associated protection measures at the Cherokee Trail.

Increases in both surface activities and the number of workers during construction could increase the potential for indirect impacts at archaeological sites. Indirect impacts are difficult to quantify and control; however, they can include the loss of surface artifacts due to illegal collection and inadvertent destruction. To minimize indirect impacts to cultural resources from increased numbers of people in the area, Project-related personnel would be trained on site avoidance and protection measures, including information on the statutes protecting cultural resources.

The potential for the discovery of unanticipated cultural resources during construction activities exists within the proposed disturbance areas and could result in adverse effects. Unanticipated discoveries would result in displacement or loss (either complete or partial) of the cultural resource involved. If any previously unknown cultural resources are discovered during construction, all construction activities would cease within 100 feet of the discovery and the BLM Authorized Officer would be notified of the find. Any discovered cultural resources would be handled in accordance with the discovery requirements detailed in the POD (CH2M Hill Trigon, Inc. 2008).

If construction or other Project personnel discover what may be human remains, funerary objects, or items of cultural patrimony on federal land, construction would cease within 100 feet of the discovery, and the BLM Authorized Officer would be notified of the find. Any discovered Native American human remains, funerary objects, or items of cultural patrimony found on federal land would be handled in accordance with the Native American grave Protection and Repatriation Act of 1990 and the procedures detailed in the POD (CH2M Hill Trigon, Inc. 2008). Non-Native American human remains would be handled in accordance with Colorado

and Wyoming law. Construction would not resume in the area of the discovery until the BLM Authorized Officer has issued a notice to proceed.

If human remains and associated funerary objects are discovered on private land during construction activities, construction would cease within 100 feet of the discovery and the county coroner or sheriff would be notified of the find. Treatment of any discovered human remains and associated funerary objects found on private land would be handled in accordance with the provisions of applicable Colorado and Wyoming law.

Conclusion

Based on the Class III inventories for Wyoming and Colorado, there would be adverse effects to historic properties as a result of the Proposed Action. Mitigation procedures would be conducted for all historic properties located along the proposed Project corridor; however, the type of mitigation would vary. Extensive data recovery would be conducted at historic properties with the highest research potential. These properties would be selected by the BLM in consultation with the Colorado and Wyoming SHPOs, and interested Tribes. Those historic properties not selected for extensive data recovery would be monitored during the clearing of the ROW and would be subjected to open trench inspection. Formal treatment plans for those properties selected for extensive data recovery would be prepared in consultation with the Colorado and Wyoming SHPOs, and interested Tribes. Unanticipated discovery of historic properties during construction would be handled in accordance with the *Unanticipated Discoveries Plan* developed for the Project and attached to the POD (CH2M Hill Trigon, Inc. 2008). Therefore, any adverse effects to known historic properties, and to those historic properties that may be discovered during construction, would be mitigated.

Operation Phase

Issues

- Issues would be similar to those identified for construction

Analysis

Maintenance activities would result in localized impacts that would be dispersed along the entire proposed pipeline route. Maintenance activities would occur within areas previously disturbed by construction.

Conclusion

Potential adverse effects to identified historic properties would be mitigated prior to pipeline construction. Unanticipated discoveries of historic properties would be protected as described in the POD (CH2M Hill Trigon, Inc. 2008); therefore, any adverse effects to historic properties would be mitigated.

4.9.2 No Action Alternative

Under the No Action Alternative, the proposed Project would not be constructed. As a result, none of the potential impacts to historic properties as identified for the Proposed Action would occur. However, additional knowledge of local or regional prehistory of the Project area that would have been obtained through data recovery would not be collected.

4.9.3 GRP Land Re-route Alternative (Cultural)

One prehistoric site and four isolated finds were located along the proposed GRP Land Re-route Alternative. The prehistoric site and all of the isolated finds are recommended as not eligible for the NRHP; no further work is recommended. As discussed under the Proposed Action, unanticipated discoveries would be protected as described in the POD.

4.10 Native American Traditional Values

4.10.1 Proposed Action

Construction Phase

Issues

- Protection of sites with cultural, traditional, or religious importance to the tribes

Analysis

Native American consultation regarding the identification of traditional cultural properties (TCPs) or places of cultural, traditional, or religious importance that may be located in the proposed Project area currently is taking place between the BLM and tribal representatives. Potential impacts to identified TCPs or places of cultural, traditional, or religious importance to the tribes as a result of the Proposed Action would be the same as those described in Section 4.9, Cultural Resources. No surface disturbance would occur within or immediately adjacent to the boundary of any identified TCP or place of tribal importance prior to completion of all consultation required by law. If data recovery or other form of mitigation is required at a TCP or place of tribal importance, a data recovery or mitigation plan would be reviewed and approved by the BLM and SHPO. Tribal representatives would be asked to participate in the development of any such data recovery or mitigation plan. At this time, no TCP or place of cultural, traditional, or religious importance has been identified by the Tribes currently participating in Native American consultation.

Conclusion

If any TCP or place of cultural, traditional, or religious importance is identified in the proposed Project area, measures to minimize potential impacts to these resources would be developed in consultation with the Tribes currently participating in Native American consultation. Protection measures would be implemented prior to Project construction.

The BLM intends to continue consultation throughout the environmental review and construction phase of the Proposed Action. Renewed contacts with some or all of the Tribes may result from unanticipated discoveries.

Operation Phase

Issues

- Issues would be related to maintenance activities and would be similar to those identified for construction

Analysis

Maintenance activities would result in localized impacts that would be dispersed along the entire proposed pipeline route. Maintenance activities would occur within areas previously disturbed by construction.

Conclusion

If any TCP or place of cultural, traditional, or religious importance is identified in the proposed Project area, measures to minimize potential impacts to these resources would be developed in consultation with the Tribes currently participating in Native American consultation. Protection measures would be implemented prior to Project construction.

4.10.2 No Action Alternative

Under the No Action Alternative, the proposed Project would not be constructed. As a result, no potential impacts to any identified TCPs, or places of traditional, cultural, or religious importance to the tribes would occur.

4.10.3 GRP Land Re-route Alternative

Should the GRP Land Re-route Alternative be chosen, Native American consultation would follow the same protocol as the Proposed Action. Potential impacts to an identified TCP or places of traditional, cultural, or religious importance to the tribes, and measures to avoid or mitigate potential impacts would be addressed as described for the Proposed Action.

4.11 Socioeconomics

4.11.1 Proposed Action

4.11.1.1 Population, Employment, and Economics

Issues

- Changes in local population and employment during construction

Analysis

Short-term impacts to the existing socioeconomic environment of the proposed Project area would result primarily from the temporary influx of a relatively high number of construction workers. OPPC anticipates adding only one permanent position to its existing workforce, therefore, the proposed Project would have no long-term impact on the population in the Project area.

OPPC has proposed to commence construction of the pipeline and metering stations in September 2008, and anticipates a peak of approximately 450 construction personnel employed on the Project during the latter months of 2008, potentially extending into 2009. The pipeline would be constructed in three spreads, constructed simultaneously with a maximum of 150 construction and inspection personnel associated with each spread (**Table 4.11-1**). Construction personnel would consist of OPPC employees, contractor employees, construction inspection staff, and environmental inspection staff.

Table 4.11-1 Estimated Construction Workforce by Spread

Spread Number	MP Range	Associated Aboveground Facilities	Counties/State	Estimated Workforce #
1	0-50	2 Meter Stations	Rio Blanco and Moffat County, Colorado	150
2	50-93	NA	Moffat County, Colorado	150
3	93-152	NA	Moffat County, Colorado and Sweetwater and Carbon County, Wyoming	150
Potential Future	82-83	1 Pump Station	Moffatt, Colorado	Unknown

OPPC, through its construction contractors and subcontractors, would attempt to hire temporary construction staff from the local population (i.e., currently residing in nearby areas of Colorado and Wyoming) to minimize additional demands on housing. OPPC anticipates an estimated 75 percent of the total construction workforce would be hired locally. The remaining workers would be non-local personnel. Note that the local/non-local status would change for some workers as the specific location changes. For example, residents of Rawlins employed on Spread 2 may temporarily relocate to Craig, but then resume residency in Rawlins as Project construction moves northward.

Environmental inspection staff would likely consist entirely of non-local employees based on the specialized skills and experience required for the job.

Population impacts from the influx of construction and inspection personnel would be temporary and dispersed along the population centers near the proposed route. Due to the temporary and transitory nature of the work, most non-local workers would not be accompanied by spouses, other family members, or non-family partners. Nevertheless, the temporary population impacts in the smaller communities would be moderate. Any specific operation and maintenance task that could not be completed by OPPC staff would be completed on a contractual and as-needed basis.

Given the small permanent workforce that would be needed for pipeline operation, secondary employment effects would be limited. Thus, the proposed Project would not have a significant long-term impact on the permanent population.

Conclusion

Construction of the proposed pipeline would temporarily increase the populations of the communities in the vicinity of the Project. Additionally, 75 percent of the construction workforce would be hired locally, providing jobs to the impacted communities.

4.11.1.2 Infrastructure

Issues

- Increased demands on local infrastructure (e.g., housing, emergency and fire protection services, hospitals, transportation) during construction

Analysis

Housing

The construction period would be relatively short and most non-local workers likely would be unaccompanied during their work tenure on the proposed Project. Consequently, it is expected that most Project workers would use temporary housing, such as hotels/motels, RV parks, and campgrounds. Some workers would likely resort to renting furnished apartments and homes due to availability constraints of other accommodations, though this is generally less preferable due to landlord and property management company preferences for extended term commitments. Most temporary workers would seek housing in the more populated, service-oriented towns located within a reasonable commuting distance to the work site. Furthermore, some individuals would relocate during the term of the proposed Project as the active area in each spread moves along the proposed pipeline route. As the more convenient options fill, workers would drive further, seeking alternatives in smaller communities, even using campgrounds in the national forest or at state parks or camping on public lands despite the fact that those locations have 14-day stay limits.

The net effect of these factors is that the temporary housing demand would be dynamic. Housing demand would be heaviest in Moffat and Rio Blanco counties, but only slightly lower in Carbon and Sweetwater counties. Availability constraints in the two former counties would likely result in commuting from nearby locations in Routt and Garfield counties. Consequently, for a relatively short duration, Craig, Meeker, and other communities potentially would experience tight market conditions for temporary housing.

The temporary housing demands associated with the proposed Project would compete with summer tourism and fall hunting demands across much of the region, resulting in higher nightly lodging rates, more limited availability, and displacement of demand to other locations when local motels and RV campgrounds are full. To the extent that such displacement occurs, it would diminish the economic benefits associated with construction worker spending.

Housing requirements for the continuing operation and maintenance of the pipeline would be negligible to nonexistent.

Public Services and Facilities

Construction of the pipeline would result in minor, temporary impacts on local facilities and services, including law enforcement, fire, and medical services. Lengthy emergency medical response times are of particular concern in the more remote stretches of the proposed pipeline route. To address these concerns, OPPC has drafted a *Safety Plan*. The *Safety Plan* would be provided to the BLM and Colorado and Wyoming Departments of Transportation.

Other construction-related impacts on local services may include increased demand for permits for vehicle load and width limits and local police assistance during construction at road crossings to facilitate traffic flow. OPPC would work with the local law enforcement, fire departments, and emergency medical services to coordinate for effective emergency response. The degree of impact would vary from community to community depending on the number of non-local workers and accompanying family members that temporarily reside in each community, the duration of their stay, and the size of the community. Although these factors are too indeterminate and variable to accurately predict the magnitude of impact, the effects would be short-term and, therefore, are not expected to be significant.

The limited number of permanent employees associated with the proposed Project would result in negligible long-term impacts on public services.

Transportation

Construction across roads and highways would result in short-term impacts on public travel while construction activities pass through the Project area. OPPC has developed a *Transportation Management Plan* to assist in mitigating potential impacts of Project-related road use and construction activity.

OPPC has stated that major paved roads and highways would generally be crossed by boring beneath the road. These crossings would require the approval and appropriate permits from state and local agencies. Boring typically requires TWAs on either side of the crossing for excavating bore pits to the depth of the pipeline while the roadway is allowed to remain open. There would be little or no disruption of traffic at road 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 may 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. OPPC would avoid closing roads during peak traffic hours.

To maintain safe conditions, OPPC would direct its construction contractors to ensure enforcement of local weight restrictions and limitations by their vehicles and to remove any soil 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 state primary and secondary highways, county roads, and private roads. Impacts on local traffic levels would be temporary given the linear and dispersed nature of the proposed Project as construction would move sequentially along the proposed pipeline route. Construction workers would commute to and from the proposed 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 one additional permanent worker would be required to operate the pipeline and ongoing contract maintenance would not generate substantial traffic on a consistent or long-term basis. Therefore, no impacts on transportation networks would be expected to occur during operation of the proposed pipeline.

Conclusion

There would be a temporary increase in local housing demand due to the construction of the proposed Project. Effects would be localized as construction crews moved along the length of each construction spread. A temporary increase in local traffic also would occur as construction commenced.

4.11.1.3 Fiscal Relationships

Issues

- Long-term fiscal benefits (ad-valorem taxes)
- Short-term fiscal benefits (local purchases and sales tax)
- Monetary compensation for easement and damages to land and property

Analysis

During operation of the pipeline, OPPC would pay property/ad valorem taxes to local governments crossed by the proposed pipeline. In Wyoming, those payments would include taxes associated with a mandatory statewide levy to help support public education. Transmission lines are centrally assessed by the state, with the total valuation then allocated among the local counties based on their respective shares of the installed pipelines and facilities. Initially, the cost of construction provides a reasonable proxy for the market valuation of pipeline transmission systems. Over time, the assessment focuses more on the respective facility's contribution to system-wide income and depreciated value, generally resulting in lower assessment. For this analysis, it is assumed that the long-term assessment would decline to 40 percent of the initial construction cost-based assessment. **Table 4.11-2** summarizes the estimated assessed valuation and corresponding annual property taxes, by county, directly associated with the proposed Project.

Estimated valuation for the proposed pipeline and additional pump station would be approximately $109.2 million. Of that sum, 38 percent would be in Wyoming and 62 percent in Colorado. Total annual property taxes levied on those assessments are estimated at approximately $2.36 million. Over time, the total assessed value is anticipated to decline to $43.7 million and annual property taxes paid would decline to $0.94 million. The ongoing revenues, given the relatively low demands on public services and facilities would represent a substantial economic benefit associated with the proposed Project.

Property 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.

Local businesses would benefit from demands for goods and services generated by the temporary construction workforce. Benefits in the form of higher business volume would accrue to many retail, lodging, eating and drinking, convenience stores/fueling stations, and other business establishments across the entire proposed route and in nearby communities. Estimated spending for such goods and services, based on OPPC workforce estimates and daily spending assumptions, would total approximately $8.0 million during the construction period.

Table 4.11-2 Estimated Assessed Value and Annual Taxes, by County

County	Assessed Valuation		Average Tax Mill Levy	Annual Property Tax	
	Initial Construction[1]	Long-term[2]		Initial Construction	Long-term
Rio Blanco, CO	$25,500,000	$10,200,000	36.465	$371,943	$148,777
Moffat, CO	$42,500,000	$17,000,000	54.040	$918,680	$367,472
Sweetwater, WY	$37,000,000	$14,800,000	65.081	$963,199	$385,280
Carbon, WY	$4,200,000	$1,680,000	63.228	$106,223	$42,489
Total	**$109,200,000**	**$43,680,000**		**$2,360,045**	**$944,018**

[1]Initial valuations based on 11.5 percent assessment rate in Wyoming and 29 percent in Colorado.

[2]Assumes assessed valuation at 40 percent of construction cost after the pipeline has been operational for several years and is centrally assessed based on its contribution to annual corporate income.

Source: Colorado Department of Local Affairs 2006; Wyoming Department of Revenue 2008.

In addition, local Project-specific purchases for materials would be made. OPPC estimates that local purchases made by personnel associated with the construction of the proposed Project would primarily include consumables, fuel, and miscellaneous construction-related materials (e.g., office supplies).

The economic stimulus provided by the proposed Project would result in temporary secondary impacts on employment as local establishments add staff or increase hours worked by existing staff to accommodate the increases in demand. Long-term construction projects typically generate between 0.7 and 1.1 additional jobs for each direct job associated with the proposed Project. However, given the temporary and rapidly moving pace of the proposed Project, the secondary impacts would be expected to be on the order of approximately 0.35 jobs.

Of greater significance to state and local revenues would be the sales or use taxes on pipe and other materials and installed equipment associated with the proposed Project. Such purchases are subject to sales tax if the items are manufactured in-state, or use tax when purchased outside the respective states and imported into the state. Typically, project owners and contractors are entitled to a credit for taxes paid in another jurisdiction (e.g., the point of purchase or manufacture), but generally have an option to specify the point of delivery as the location for purposes of taxation. Sweetwater and Carbon counties impose a use tax, as does Rio Blanco County. Moffat County does not impose a use tax. OPPC estimated sales/use tax obligation, based on current tax rates and assuming it exercises the option for local taxation, is $12.5 million in Wyoming and $20.6 million in Colorado. In Wyoming approximately 80 percent of the total would accrue to the state, the remainder distributed among the counties based on the value of installed materials and equipment. The distribution in Colorado would be approximately 75 percent to the state and 25 percent to Rio Blanco County.

OPPC estimates total labor costs of $54 million during construction (approximately one-third in Wyoming and two-thirds in Colorado). Individual workers who are Colorado residents, or who work in Colorado on a temporary basis would incur an income tax liability on those earnings. This would temporarily increase the tax revenue for the state, although the increase would be relatively small.

Long-term income associated with OPPC operations would be negligible due to the limited direct employment impact, although additional income may be realized by contractors servicing the pipeline.

Property Values

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 proposed pipeline would not change the general use of the land, but would preclude construction of aboveground structures on the permanent ROW and might interfere with other current uses (e.g., irrigation and raising crops) on a short-term or long-term basis, or the loss of non-renewable resources, or destruction of other improvements such as fences. Special permits would be obtained as needed for pipeline ROW through town, state, or federal lands.

Prior to initiating any construction activities on non-federal lands, OPPC would pursue an easement to convey ROW from the landowner to the pipeline company. The easement negotiations between OPPC and the landowner also would include compensation for loss of use during construction, loss of non-renewable or other resources, damage done to property during construction, and allowable uses of the ROW after construction.

If an easement could not be negotiated with the landowner, the property could be condemned. In this case, the property owner would still be compensated by OPPC, but the amount of compensation would be determined by the courts. OPPC has stated that they would make every effort to negotiate in good faith to avoid using this authority and would condemn only as a last resort. There are a number of options available, short of eminent domain, to secure the property:

- Negotiate to buy the land;
- Negotiate to lease the land; or
- Negotiate a “restrictive easement” arrangement with the landowner.

OPPC is currently working to obtain the necessary easements for the proposed facilities. Through negotiations with landowners, OPPC 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.

Conclusion

OPPC would be required to pay property and ad valorem taxes to the state governments of Wyoming and Colorado. The states would then distribute those payments to counties based upon the number of miles crossed by the proposed pipeline route in each county. Additionally, the proposed Project would provide monetary benefits to local governments by generating payroll and sales taxes.

4.11.1.4 Environmental Justice

Issues

- Potential for disproportionate impacts on low-income or minority populations

Analysis

The proposed pipeline route effectively bypasses all concentrations or clusters of residential and commercial development and, for the most part, is located on public lands and collocated with other utilities. Furthermore, no residential or commercial displacements are anticipated. Thus, the potential for adverse impacts on minorities or low-income populations, much less disproportionate impacts, is remote.

Conclusion

The proposed Project would be expected to create economic benefits for local communities, regardless of race, by generating employment opportunities and local expenditures by workers. Completion of the proposed Project also would result in an increase of state and local property tax revenues that would benefit local communities.

4.11.2 No Action Alternative

Under the No Action Alternative, the proposed Project would not be constructed. As a result, the associated socioeconomic impacts (including beneficial impacts) would not occur.

4.11.3 GRP Land Re-route Alternative

Impacts to socioeconomics associated with the GRP Land Re-route Alternative would be the same as those described for the Proposed Action. The alternative route would be approximately 1.1 miles to the west of the proposed route and would remain entirely within Moffat County, Colorado. There would be no additional access roads, pumps, or pump stations constructed along the alternative route. Therefore, no additional workforce would be needed for construction or operation of the pipeline, and there would be no additional impacts to access roads used during construction.

4.12 Public Health and Safety

4.12.1 Proposed Action

4.12.1.1 Hazardous Materials and Wastes

Construction Phase

Issues

- Storage and handling of hazardous materials
- Previously contaminated sites

Analysis

OPPC would dispose of construction wastes in accordance with the OPPC *Hazardous Materials Management and Spill Prevention, Containment, and Countermeasures Plan*. Construction debris would not be placed in or adjacent to waterways and construction trash would be removed from the ROW each day. OPPC would comply with applicable state and local waste disposal, sanitary sewer, or septic system regulations.

Soil contamination along the proposed pipeline route may result from at least two sources: material spills during construction and trench excavation through pre-existing contaminated areas. A variety of potentially hazardous chemicals associated with equipment operation, welding, and coating of pipe would be used during construction. Impacts from spills typically would be minor because of the low frequency and volumes of these occurrences.

Pipeline construction would necessitate the storage and use of vehicle and equipment fuels, lubricants, and hazardous materials. The *Hazardous Materials Management and Spill Prevention, Containment, and Countermeasures Plan* addresses procedures to ensure the proper handling and storage of these materials. The plan also addresses inadvertent spills resulting from construction of the pipeline and lists federal and state emergency notification personnel that would be contacted in the unlikely event the proposed Project encounters previously unidentified contamination. Should a spill occur, OPPC would clean it up in accordance with the *Hazardous Materials Management and Spill Prevention, Containment, and Countermeasures Plan*.

The proposed pipeline would not intercept any known areas of soil or groundwater contamination. A review of USEPA Region 8 Superfund Site Status Summaries for Wyoming and Colorado as well as the CERCLIS database shows no Superfund sites intersected by the proposed pipeline route (USEPA 2006). OPPC would cross waterbodies located in Wyoming and Colorado (**Appendix A**) using the conventional open-cut method and HDD, adhering to the measures contained in its *Environmental Protection Plan*. These measures include, but are not limited to, installing and maintaining sediment barriers to prevent silt-laden water from entering wetlands and waterbodies, restoring original contours, and revegetating disturbed areas. The proposed Project would cross the White River, Yampa River, and Little Snake River using the HDD method.

The proposed Project could cross areas where groundwater quality has been impacted, but which were not identified in the regulatory review or which are not otherwise known. Because excavations associated with the proposed Project would be generally less than 10 feet deep, the potential to encounter groundwater in the pipeline trench is low, except where the pipeline crosses or approaches surface water bodies. Therefore, the potential to encounter pre-existing contaminated groundwater is low.

If contaminated or suspect soils (e.g., hydrocarbon contamination) were identified during trenching operations, OPPC would suspend work in the area of the suspected contamination 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.

Conclusion

Contamination from spills or leaks of fuels, lubricants, coolants, and solvents from construction equipment could occur, but the impacts typically would be minor due to the low frequency and volumes of these occurrences. There are currently no known contaminated sites crossed by the proposed pipeline route or affected by aboveground facilities. If spills or unanticipated contaminated soils were encountered, OPPC would address the issue by adhering to the procedures identified in the *Hazardous Materials Management and Spill Prevention, Containment, and Countermeasures Plan*.

Operation Phase

Issues

- Potential for pipeline leak, fire, or explosion

Analysis

Potential for Leaks

The transportation of NGL by pipeline involves some risk to the public in the event of an accident and subsequent release of NGL. NGL consists primarily of ethane, butane, isobutene, and propane. These compounds are liquid when pressurized, but would immediately volatize if released from the pipeline. These compounds are relatively non-toxic, but are classified as simple asphyxiates, possessing a slight inhalation hazard. If inhaled in high concentrations, oxygen deficiency can result in serious injury or death. NGL are highly flammable but require an ignition source to ignite. NGL released into the environment would rapidly disperse in the air.

The USDOT classifies NGL as a hazardous liquid. The pipeline and aboveground facilities associated with the pipeline must be designed, constructed, operated, and maintained in accordance with the USDOT Minimum Federal Safety Standards in 49 CFR Part 195. The regulations are intended to ensure adequate protection for the public and to prevent pipeline and facility accidents and failures. Part 195 specifies material selection and qualification, minimum design requirements, and protection from internal, external, and atmospheric corrosion.

OPPC would design, construct, and operate the pipeline in accordance to federal regulations. Important features to ensure the safe operation of the pipeline include:

- Hydrostatic testing to verify the pipeline's integrity prior to operations;
- Corrosion protection by using high integrity FBE coating and cathodic protection;
- At least 1 pig launcher and receiver would be constructed for inspection of the pipe designed to detect irregularities on the internal and external surfaces of the pipe;
- A meter station located at the origination of the pipeline to continuously monitor the pipeline and the pressure of its contents;
- Participation in state "one call" programs; and
- Use of block valves at key locations as required and as needed for use in maintenance and emergency services.

Based on historical accident data gathered by the Office of Pipeline Safety (OPS) from 1987 to 2006, the leading causes of pipeline incidents are by outside forces, primarily the damage caused by mechanical

equipment, such as bulldozers and backhoes (Pipeline and Hazardous Material Safety Administration [PHMSA] 2008). To minimize the hazards posed by outside forces, the pipeline would be constructed in rural areas and OPPC would participate in the "one call" system. Although some localized areas of geological instability (e.g., landslides) occur along the proposed pipeline route, modern pipelines are fairly robust to these types of stressors and geological hazards are not expected to pose a major threat to the pipeline. The pipeline routinely would be inspected and if outside force damage were suspected (whether through outside force or ground movement), internal inspection tools (i.e., launcher pigs and receiver pigs) would be used to verify the pipeline integrity.

Corrosion is another major factor that contributes to pipeline leaks. To minimize corrosion, the pipeline would be constructed with FBE coated pipe and cathodic protection would be installed. As required by federal regulations, the pipeline ROW would be routinely inspected with internal inspection tools to identify anomalies such as dents and scrapes caused by outside forces, deformities caused by earth movement, and internal and external corrosion. OPPC would ensure pipeline integrity and public safety by repairing pipeline damage as required by federal regulations.

OPPC would use Supervisory Control and Data Acquisition and other monitoring systems to continuously monitor the pipeline for indications of abnormal events. In the unlikely event of a pipeline accident, OPPC would be able to remotely activate its motorized block valves, thereby isolating the affected segment within minutes of detection. OPPC would have local personnel available to respond immediately to an emergency and expects that these first responders would be on-site within a 1-hour timeframe.

Prior to operating the pipeline, OPPC would develop an *Emergency Response Plan* that identifies emergency personnel and the logical sequence of actions that would be taken in the event of an emergency involving the OPPC system facilities. The *Emergency Response Plan* would establish emergency shutdown procedures, communication coordination, and clean-up responsibility to minimize hazards that could result from a NGL pipeline emergency, such as liquid leaks, explosions, and fires. Key elements of the plan would 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 systems 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.

The *Emergency Response Plan* would include incident and emergency notification lists; emergency communication procedures; emergency preparedness, such as training topics; and emergency response procedures associated with natural and construction-related hazards.

OPPC has committed to enhance public safety at locations where existing cities and multiple homes are within 500 feet of the proposed pipeline. **Table 4.12-1** lists all structures currently identified within 500 feet of the proposed pipeline centerline. Upon obtaining the necessary permits for the proposed Project, finalizing the proposed pipeline route, and prior to construction, OPPC would determine if its proposed pipeline could affect these locations. If appropriate, these locations would be incorporated into an *Integrity Management Plan* specific to OPPC as required by the USDOT to ensure pipeline safety.

Table 4.12-1 Inhabited Residences and Commercial Buildings within 500 feet of the Proposed Pipeline

Location[1]	MP	Distance/Direction
Guardhouse	0.46	100 feet east
Compressor Station	5.45	400 feet west
Residence	19.51	400 feet west
Unidentified	26.84	450 feet west
Unidentified	27.41	500 feet east
Unidentified	28.05	500 feet east
3 cabins	34.46	300 – 400 feet east
Unidentified	38.96	100 feet east
Compressor Station	107.88	200 feet west
Compressor	110.41	200 feet west

[1]Structures called out as "unidentified" can be seen on aerial maps but do not exhibit the characteristics of regular habitation. Those locations would be ground verified for habitation following finalization of the proposed pipeline route.

Fire, Explosion, Injuries, and Fatalities

As discussed in the *Environmental Protection Plan*, release of NGL into the environment does not pose a major threat to water quality or soil contamination. While the probability of an accident is low, there would be the potential for a fire if an accident resulted in the release of NGL from the pipeline. Based on OPS historical data (PHMSA 2008), less than 20 percent of NGL pipeline accidents have resulted in fires and 7 percent have resulted in explosions. Fires and explosions could result in property damage, injuries, and fatalities. The OPS data show an overall decreasing trend in the total number of significant accidents related to hazardous liquid pipelines since the early 1990s (PHMSA 2008).

As part of its safety program, OPPC would consult with local responders regarding the potential hazards posed by the NGL pipeline; however, NGL do not pose a unique fire hazard and would not require specialized training. If a fire or explosion were to occur, OPPC local emergency responders and local fire departments likely would be among the first to respond. In many cases, firefighters may elect to allow the fire to extinguish itself, focusing on containment of the fire and protection of nearby property.

Conclusion

OPPC would comply with all federal pipeline safety regulations, including 49 CFR Part 195 and 43 CFR 2886.10. Compliance with federal pipeline safety regulations would ensure that the OPPC pipeline was designed, constructed, operated, and maintained in a safe manner.

The potential for a pipeline incident causing injuries, fires, and explosions along the pipeline would be low. The OPPC accident prevention program includes participation in one-call programs and corrosion protection measures. Use of monitoring systems would help to rapidly identify pipeline problems and minimize the potential for impacts. OPPC would finalize their *Emergency Response Plan* prior to operations. This *Emergency Response Plan* would define the steps to be taken in the event of a release, so that impacts to humans and the environment would be minimized. Additional mitigation at sensitive resource areas would not be necessary because of the rapid volatilization of NGL.

4.12.1.2 Emergency Response

Construction Phase

Issues

- Worker safety

Analysis

The hazards associated with pipeline construction would be typical of that on most construction sites where heavy equipment is operated. Hazards could include driving hazards (including winter conditions and big game collisions), explosives, fires, and natural disasters. Although accidents occasionally occur, most do not result in fatalities. As discussed earlier, third-party excavation damage is a leading cause of pipeline incidents. To prevent these types of accidents, pipeline operators participate in accident prevention programs, such as the one call programs, which identifies the location of underground utilities. To minimize risk to workers, OPPC would follow pipeline construction industry standard practices and BMPs to mitigate potential construction-related incidents.

Conclusion

Adherence to the environmental protection measures outlined in the POD (CH2M Hill Trigon, Inc. 2008), pipeline construction industry standard practices, and BMPs would minimize potential construction-related incidents.

Operation Phase

Issues

- Emergency response to a pipeline leak, fire, or explosion

Analysis

OPPC would meet or exceed federal pipeline safety requirements (49 CFR Part 195), and these procedures and programs would ensure public safety, maintain the integrity of the pipeline, and minimize the potential pipeline incidents related to third-party encroachments.

As discussed above, the OPPC *Emergency Response Plan* would establish initial written emergency shutdown procedures, communication coordination, and clean-up responsibility to minimize hazards, such as liquid leaks, explosions, and fires. OPPC would provide the appropriate training to local emergency service personnel before the pipeline were placed in service.

Once the pipeline was constructed and pipeline operations commence, OPPC would re-define its organizational management structure outlined in the *Emergency Response Plan* and amend the plan so that it would meet the minimum federal safety requirements.

Conclusion

OPPC anticipates a 1-hour response time in most instances with the assistance of local emergency response teams in the surrounding communities. Releases would be quickly contained by sectionalized block valves. NGL would quickly evaporate and dissipate into the atmosphere; however, any residual material would be cleaned up and the area remediated as soon as possible. The final *Emergency Response Plan* would identify the steps to be taken to protect health, property, and the environment.

4.12.2 No Action Alternative

Under the No Action Alternative, the proposed Project would not be constructed. Impacts to public safety would continue at current levels.

4.12.3 GRP Land Re-route Alternative

Impacts to public health and safety associated with the GRP Land Re-route Alternative would be the same as those described for the Proposed Action. The GRP Land Re-route Alternative would be approximately 1.3 miles longer than the Proposed Action but would not require additional pumps or pump stations to be constructed.