2.0 Alternatives Including the Proposed Action

2.1 Introduction

The BLM has identified a range of alternatives based on issues and concerns raised from public comments, through interdisciplinary interaction between resource professionals, and in collaboration with the cooperating state agencies and tribal governments. The alternatives considered and analyzed in detail include:

- The Proposed Action;
- The No Action Alternative; and
- The Southern Energy Corridor – Copper Ridge Bypass Alternative.

The BLM's preferred alternative is the Proposed Action.

All possible activities associated with each alternative including the No Action Alternative are assumed to apply to BLM-administered and NFS lands only. All activities associated with this project are consistent with the following land use plans from west to east:

- ANF Land and Resource Management Plan (LRMP), USFS (1986a);
- Flaming Gorge National Recreation Area Management Plan, USDA Forest Service (1986b);
- Kemmerer Resource Management Plan (RMP), BLM (1986);
- Green River RMP, BLM (1997);
- Great Divide (Rawlins) RMP, BLM (1990), under revision; and
- Revision of the LRMP, Arapaho and Roosevelt National Forests and PNG, USFS (1997).

Any future implementation activity associated with this project based on this EIS must conform to the applicable land use plan in effect.

2.2 Description of Alternatives

Numerous minor deviations and variations from the original proposed pipeline route described in the application submitted by Overland Pass were considered. Three alternatives, including the Proposed Action, were studied in detail. A description of alternatives considered but eliminated from detailed study may be found in Section 2.3.

2.2.1 The Proposed Action

Overland Pass proposes to construct and operate a 760-mile-long interstate NGL transmission system that would begin at existing NGL facilities in Opal, Wyoming, and end at existing storage and processing facilities in Bushton and Conway, Kansas. In addition to the pipeline, Overland Pass would construct 3 pump stations (including 1 future pump station), 7 meter stations, 11 pigging facilities, 144 mainline valves (MLVs) at 92 sites (17 remotely activated block valves, 58 manual block valves, 62 check valves, and 7 valves at the meter stations), and related ancillary facilities. An overview map of the project location and facilities is provided in **Figure 2.2-1**. State maps showing the pipeline route and aboveground facilities are provided in **Figures 2.2-2** to **2.2-4**. Site-specific maps for major aboveground facilities (pump stations, meter stations, pigging facilities, pipe storage, and contractor yards) are provided in **Appendix A**.

Overland Pass proposes to begin construction of the pipeline and associated facilities (e.g., pump stations, valves) in July of 2007. The project would take approximately 6 months to complete. The in-service date for these facilities would be November 30, 2007. BLM anticipates that a final decision for the project would be made no earlier than August 2007 which could delay the in-service date by an unspecified amount of time.

2.2.1.1 Proposed Facilities

Pipeline Facilities

Between Opal Meter Station (Reference Point [RP][1] 0.0) and the Echo Springs Pump Station (RP 146.5), the Overland Pass pipeline would consist of 14-inch-diameter pipe; between Echo Springs Pump Station and Conway Meter Station (RP 749.4), the proposed pipeline would consist of 16-inch-diameter pipe. The maximum operating pressure (MOP) of the system would be 1,440 psig.

The pipeline would be constructed in accordance with applicable USDOT regulations (49 CFR Part 195). For normal mainline construction, the 14-inch pipe would have a wall thickness of 0.219 inch, while the 16-inch-diameter pipe would have a wall thickness of 0.250 inch. Slightly thicker walled pipe would be used at aboveground facilities, under road and rail crossings, within HCAs and as required by federal regulation. The pipeline would be constructed of high-strength steel pipe (grade 5L X70) with factory applied fusion bond epoxy (FBE) external coating. Cathodic protection would be provided by an impressed current system. All pipe would be manufactured, constructed, and operated in accordance with applicable local, state, and federal regulations.

Pump Stations and Ancillary Facilities

Aboveground facilities associated with the Proposed Action would include 3 pump stations (2 proposed, 1 future), 7 meter stations, 144 MLVs at 92 sites, and 11 pigging facilities (**Table 2.2-1**). The new pump stations would enable Overland Pass to maintain the required pressure for firm NGL deliveries and to restore the drop in pressure that would otherwise occur as the NGL flows through the pipeline. Overland Pass would construct the meter stations at interconnections with other pipelines.

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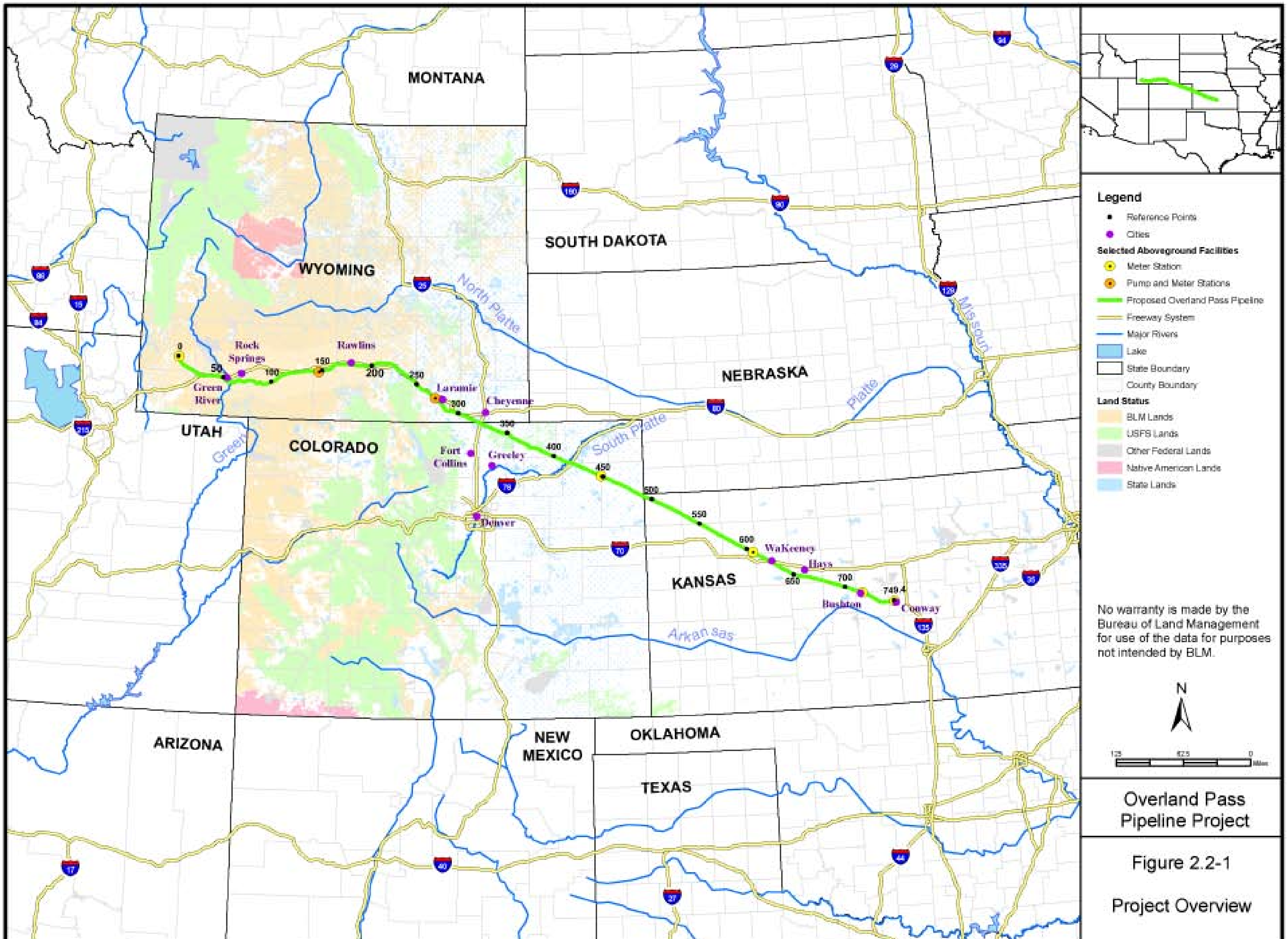
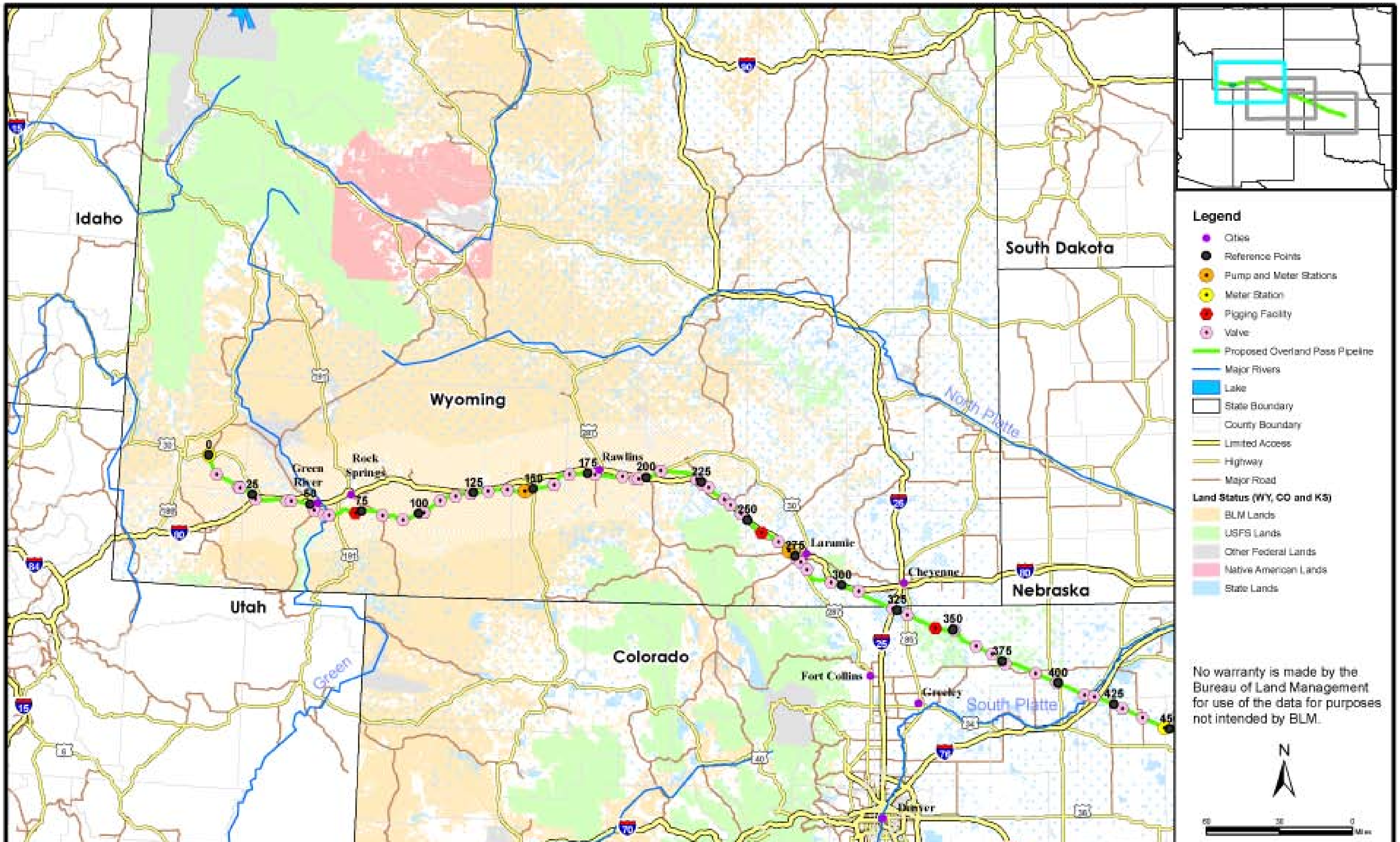
[1] RPs refer to fixed locations along the proposed pipeline route that are used as markers to identify resources and features along the route. The spacing interval between any two adjacent RPs is typically 1 mile; however, the distance may be as little as 1,425 feet or as great as 7,200 feet due to localized adjustments that have occurred in the proposed route alignment since the original route was proposed.



Overland Pass Pipeline Project

Figure 2.2-1

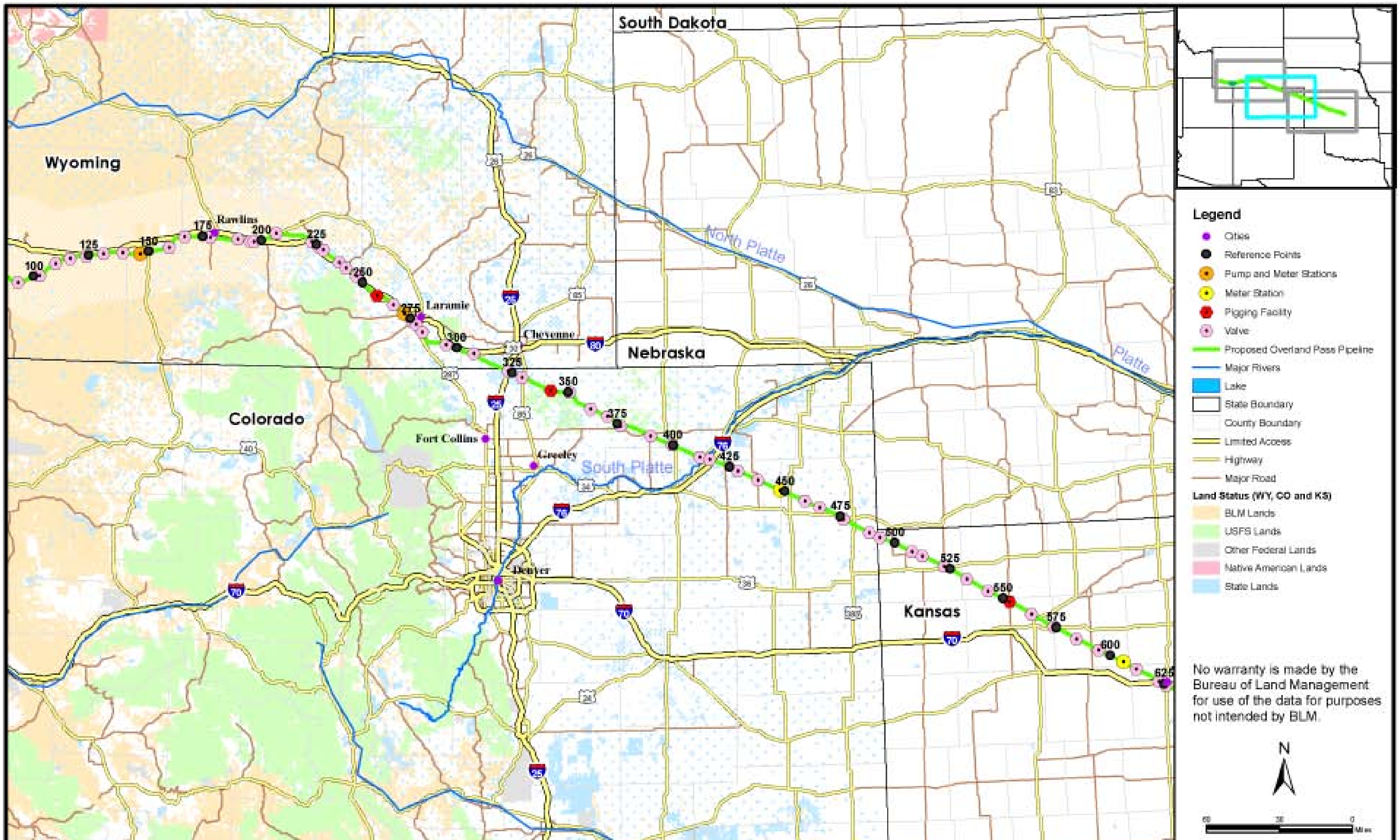
Project Overview



Overland Pass Pipeline Project

Figure 2.2-2

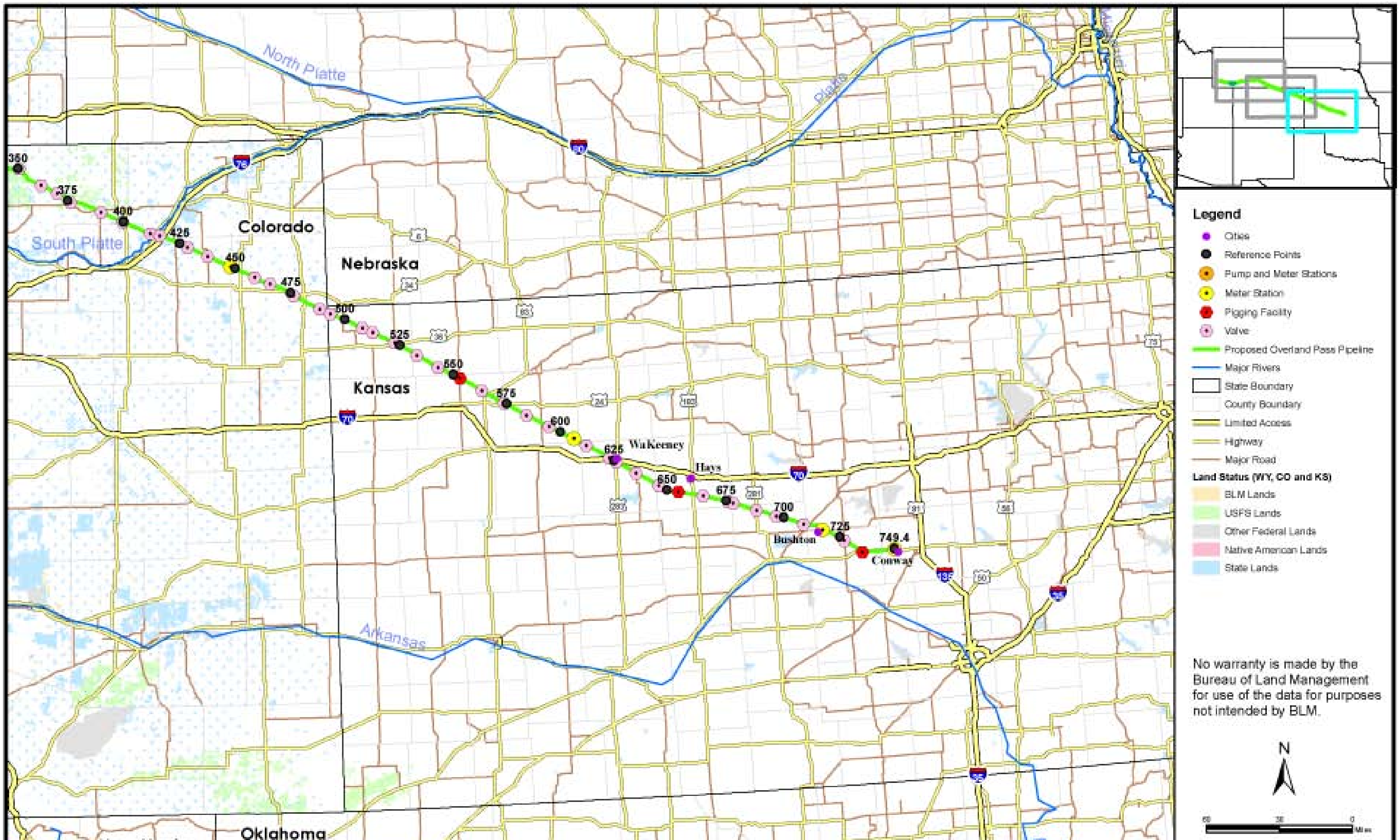
Project Overview Wyoming



Overland Pass Pipeline Project

Figure 2.2-3

Project Overview Colorado



Overland Pass Pipeline Project

Figure 2.2-4

Project Overview Kansas

Table 2.2-1 Proposed Facilities Associated with the Project

Facility Name[1]	RP[2]	County, State
PIPELINE		
Opal, Wyoming to Echo Springs Pump Station (14 inches in diameter)	0.0 – 146.5	Lincoln, Sweetwater, and Carbon counties, Wyoming;
		Sweetwater, Carbon, Albany, and Laramie counties, Wyoming; Weld, Morgan, Logan, Washington, Yuma counties, Colorado;
Echo Springs Pump Station to Conway, Kansas (16 inches in diameter)	146.5 – 749.4	Cheyenne, Rawlins, Thomas, Sheridan, Graham, Grove, Trego, Ellis, Russell, Barton, Ellsworth, Rice, McPherson counties, Kansas
PUMP STATIONS		
Echo Springs Pump Station (Two 1,250 International Organization of Standardization [ISO] horsepower [hp] pumps, one is a backup unit)	146.5	Carbon County, Wyoming
Laramie Pump Station (Two 2,000 ISO hp pumps, one is a backup unit)	271.7	Albany County, Wyoming
WaKeeney Pump Station (future) (estimate total of 3,000 ISO hp)	606.0	Sheridan County, Kansas
METER STATIONS		
Opal Meter Station (Receipt – Williams) (interconnect facility sized for receipt of 80,000 bpd of NGL)	0.0	Lincoln County, Wyoming
Echo Springs Meter Station (Receipt – Williams) (interconnect sized for delivery of up to 40,000 bpd of NGL)	146.5	Carbon County, Wyoming
Laramie Meter Station	271.7	Albany County, Wyoming
Washington County Meter Station	447.8	Washington County, Colorado
WaKeeney Meter Station	606.0	Sheridan County, Kansas
Bushton Meter Station (Delivery – ONEOK) (interconnect sized for delivery of up to 109,000 bpd of NGL)	717.5	Ellsworth County, Kansas
Conway Meter Station (Delivery – Williams) (interconnect sized for delivery of up to 109,000 bpd of NGL)	749.4	McPherson County, Kansas
MAINLINE VALVES (MLV)		
MLV #1 to MLV #63	0.0 – 307.4	Lincoln, Sweetwater, Carbon, Albany and Laramie counties, Wyoming
MLV #64 to MLV #92	322.7 – 488.7	Weld, Morgan, Logan, Washington, Yuma counties, Colorado
MLV #93 to MLV #136	493.5 – 749.4	Cheyenne, Rawlins, Thomas, Sheridan, Graham, Grove, Trego, Ellis, Russell, Barton, Ellsworth, Rice, McPherson counties, Kansas
PIGGING FACILITIES		
Opal Plant – Launcher	0.0	Lincoln County, Wyoming
Sweetwater Pigging Facility – Launcher and Receiver	72.1	Sweetwater County, Wyoming
Echo Springs Pump Facility – Launcher and Receiver	146.5	Carbon County, Wyoming
Albany Pigging Facility – Launcher and Receiver	257.9	Albany County, Wyoming
Weld Pigging Facility – Launcher and Receiver	342.7	Weld County, Colorado
Washington County Pigging Facility – Launcher and Receiver	447.8	Washington County, Colorado
Thomas Pigging Facility – Launcher and Receiver	552.9	Thomas County, Kansas

Table 2.2-1 Proposed Facilities Associated with the Project

Facility Name[1]	RP[2]	County, State
Ellis Pigging Facility – Launcher and Receiver	654.7	Ellis County, Kansas
Bushton Plant (adjacent) – Launcher and Receiver	717.5	Ellsworth County, Kansas
Williams Plant – Launcher and Receiver	736.2	Rice County, Kansas
Conway Plant – Receiver	749.4	McPherson County, Kansas

[1]Aboveground facilities are illustrated in Appendix A.

[2]All reference points are based on Overland Pass' reference system and are approximate.

The two proposed pump stations are capable of delivering up to 109,000 bpd. In the future, Overland Pass could increase its delivery volume to 150,000 bpd with the construction of a pump station at WaKeeney, Kansas. Because the construction of the WaKeeney Pump Station is likely within the foreseeable future, it is included in the Proposed Action for this EIS analysis.

Meter stations consist of custody transfer meter stations and system check meter stations. Three meter stations (Opal, Bushton, and Conway) would occur within existing previously disturbed commercial/industrial areas. The Echo Springs Pump and Meter Station, Laramie Pump Station and Meter Station, Washington County Meter Station, and WaKeeney Meter Station would each disturb new areas.

The Proposed Action would include construction of four custody transfer meter stations (Opal, Echo Springs, Bushton, and Conway). The Opal Meter Station would be adjacent to the Williams Opal Plant (RP 0.0) and would require a 930-foot 12-inch-diameter lateral on Williams' property to interconnect the Opal Plant mainline piping with the Overland Pass mainline. The Echo Springs Meter Station would be at Williams' Echo Springs Plant (RP 146.5) and would require approximately 1,260-foot 12-inch-diameter lateral from the Echo Springs Plant to Overland Pass. Bushton's Meter Station would be located on ONEOK's Bushton Plant property (RP 717.5) and would require a 340-foot 12-inch-diameter lateral to deliver to the Bushton Plant. Finally, the Conway Meter Station would be located in Williams' Conway Plant property (RP 749.4) and would require a short 12-inch-diameter lateral to deliver to the Williams' Conway Plant piping adjacent to the meter station site. The exact tie-in point has not yet been determined. The systems to which Overland Pass would interconnect and the proposed lateral lengths and diameters are summarized in **Table 2.2-2**.

Table 2.2-2 Proposed Receipt and Delivery Laterals for the Project

Station/Interconnection With	Lateral Length[1] (feet)	Lateral diameter (inches)
Opal Custody Transfer Meter Station Delivery from Williams	930	12
Echo Springs Custody Transfer Meter Station Delivery from Williams	1,260	12
Bushton Custody Transfer Meter Station Receipt by Oneok	340	12
Conway Custody Transfer Meter Station Receipt by Williams	Not determined	12

[1]Lateral lengths are approximate.

2.2.1.2 Land Requirements

Table 2.2-3 summarizes the land requirements for the Proposed Action. Overland Pass proposes to use a 75-foot-wide construction ROW for the majority of the proposed pipeline route and for all receipt and delivery laterals. **Figure 2.2-5** illustrates the typical construction ROW and equipment work locations where the proposed pipeline route would not be located near an existing pipeline; **Figure 2.2-6** illustrates the proposed construction ROW where the pipeline would be located parallel to an existing pipeline. Overland Pass also has requested that 50 feet of the construction ROW (centered on the proposed pipeline) be retained as part of Overland Pass' permanent easement, which would be permanently maintained (e.g., by periodic clearing) during operation of the new facilities. At steep slopes or sideslope areas, an additional 25 feet could be needed and additional temporary workspace would be required at roads, railroad, pipeline, powerline, waterline, and waterbody crossings.

Table 2.2-3 Summary of Land Requirements Associated with the Proposed Action

State/Facility	RP	Land Affected During Construction (acres)				Land Affected During Operation (acres)			
		Federal		Other		Federal		Other	
		BLM	USFS	State	Private	BLM	USFS	State	Private
Wyoming									
Pipeline Facilities									
Pipeline ROW [1]	0.0 to 321.1	898.3	17.8	228.2	1,829.6	598.9	11.9	152.1	1,219.8
Additional TWAs	Various	185.2	1.7	68.0	345.2	0.0	0.0	0.0	0.0
Laterals	0.0, 146.5	0.0	0.0	0.0	3.8	0.0	0.0	0.0	2.6
Aboveground Facilities[2]									
Pump Stations	146.5, 271.7	0.0	0.0	0.0	7.4	0.0	0.0	0.0	3.6
Meter Stations	0.0	0.0	0.0	0.0	4.2	0.0	0.0	0.0	0.4
MLVs		0.0	0.0	0.0	0.0	1.1	0.0	0.1	0.2
Launcher/Receivers		0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.8
Yards	0, 18, 84, 146 (2), 178, 281 (2)	0.0	0.0	0.0	66.7	0.0	0.0	0.0	0.0
Permanent Access Roads	Various	0.0	0.0	0.0	0.0	14.9	0.0	0.0	67.3
Wyoming Subtotal		*1,083.5*	*19.5*	*296.2*	*2,258.4*	*614.9*	*11.9*	*152.2*	*1,294.7*
Colorado									
Pipeline Facilities									
Pipeline ROW [1]	321.1 to 492.3	0.0	204.1	106.4	1,252.2	0.0	136.1	70.9	834.8
Additional TWAs	Various	0.0	14.1	19.2	141.5	0.0	0.0	0.0	0.0
Laterals	None	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Aboveground Facilities[2]									
Pump Station	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meter Stations	447.8	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.2
MLVs		0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.1
Launcher/Receivers		0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.4
Yards	330, 437, 438 (2), 439	0.0	0.0	0.0	39.3	0.0	0.0	0.0	0.0
Permanent Access Roads		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Colorado Subtotal		*0.0*	*218.3*	*125.6*	*1,435.2*	*0.0*	*136.6*	*70.9*	*835.5*
Kansas									
Pipeline Facilities									
Pipeline ROW [1]	492.3 to 749.4	0.0	0.0	0.0	2,371.6	0.0	0.0	0.0	1,581.1
Additional TWAs	Various	0.0	0.0	0.0	445.3	0.0	0.0	0.0	0.0
Laterals	717	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.5
Aboveground Facilities[2]									
Pump Stations	606.0	0.0	0.0	0.0	0.0[3]	0.0	0.0	0.0	0.0[3]

Table 2.2-3 Summary of Land Requirements Associated with the Proposed Action

State/Facility	RP	Land Affected During Construction (acres)				Land Affected During Operation (acres)			
		Federal		Other		Federal		Other	
		BLM	USFS	State	Private	BLM	USFS	State	Private
Meter Stations	606.0, 717.5, 749.4	0.0	0.0	0.0	3.9	0.0	0.0	0.0	0.6
MLVs		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9
Launcher/Receivers		0.0	0.0	0.0	3.0	0.0	0.0	0.0	1.0
Yards	524, 562, 566, 590 (2), 591 (2), 692, 749	0.0	0.0	0.0	55.9	0.0	0.0	0.0	0.0
Permanent Access Roads		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kansas Subtotal		*0.0*	*0.0*	*0.0*	*2,880.5*	*0.0*	*0.0*	*0.0*	*1,584.2*
Project Total [4]		**1,083.5**	**237.8**	**421.8**	**6,574.0**	**614.0**	**148.1**	**223.1**	**3,715.4**

[1]Assumes a 75-foot-wide construction ROW and 50-foot-wide operational ROW in all locations.

[2]Construction and operational land use impacts for several aboveground facilities (e.g., MLVs) would occur entirely within the ROW and therefore are included with the pipeline ROW totals.

[3]Does not include a potential disturbance of 3.6 acres (construction) and 1.9 acres (operation) for the future WaKeeney Pump Station.

[4]Slight discrepancies in total values are due to rounding.

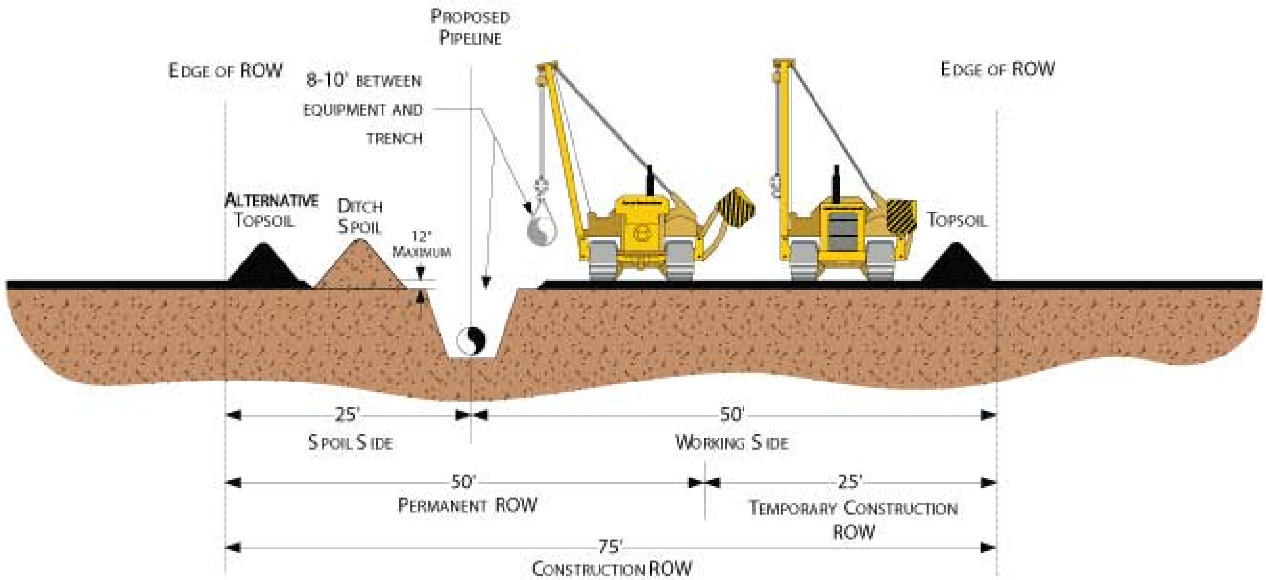
Construction of the Proposed Action would disturb approximately 8,317 acres of land, including the pipeline construction ROW, additional temporary workspace areas, pump stations, and other aboveground facilities. Of this total, about 6,908 acres would be disturbed by the pipeline construction ROW, about 1,220 acres would be disturbed by additional TWAs, and 24 acres would be disturbed for aboveground facilities. Overland Pass also would require 24 pipe storage and contractor yards, resulting in a total of 160 acres of additional disturbance. Disturbance due to construction of powerlines is quantified separately (Chapter 9.0).

These totals do not include the short-term use of about 582 access and haul roads totaling 2,577 miles in length to access the ROW, many of which would require upgrading or maintenance.

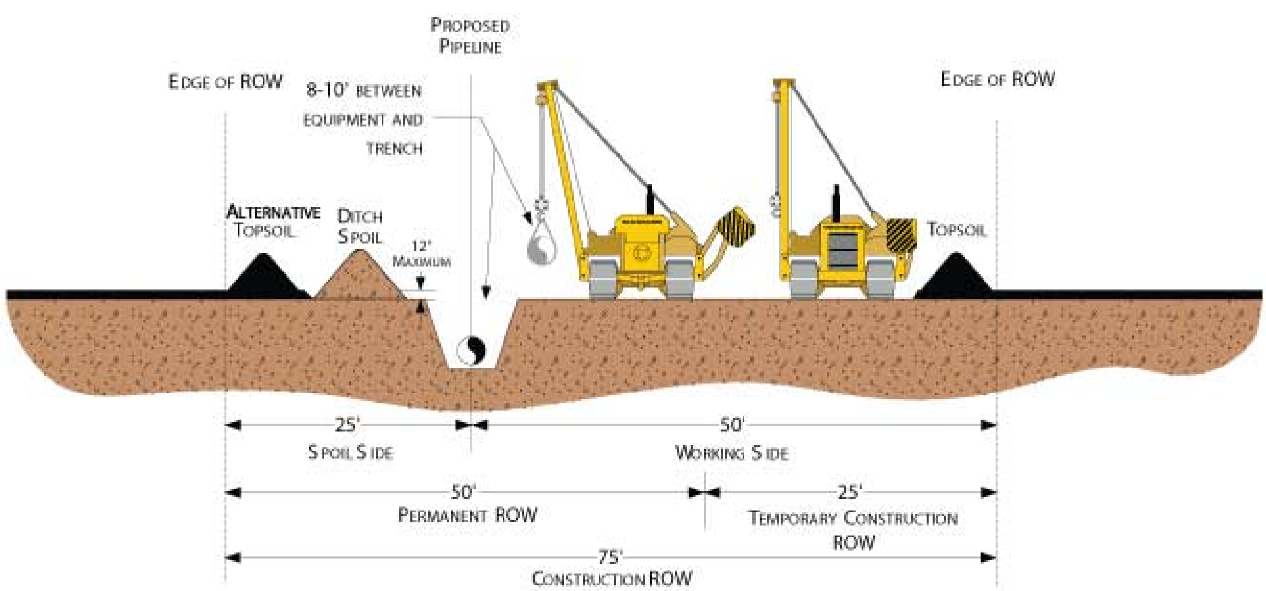
Approximately 4,619 acres of the 8,317 acres used for construction would be required for operation of the project. Of this total, about 4,606 acres would be for the pipeline permanent ROW, 3 acres for lateral permanent ROW, an additional 10 acres would be utilized for the aboveground facilities. Disturbed lands would be restored and allowed to revert to former use.

Approximately 13 percent of the land affected by construction and operation of the project would be BLM-managed lands and about 3 percent are administered by the USFS. Approximately 3 percent of the land affected by construction and operation of the Proposed Action would be on State of Wyoming and Wyoming local government lands, less than 2 percent on State of Colorado lands. There is no federally managed or state owned land traversed by the proposed pipeline in Kansas. The remainder of the land that would be affected (79 percent) is privately owned. A detailed description of land ownership is presented in Section 3.8.

Trench and Spoil Side Stripping



Full ROW Topsoil Stripping



PROFILE

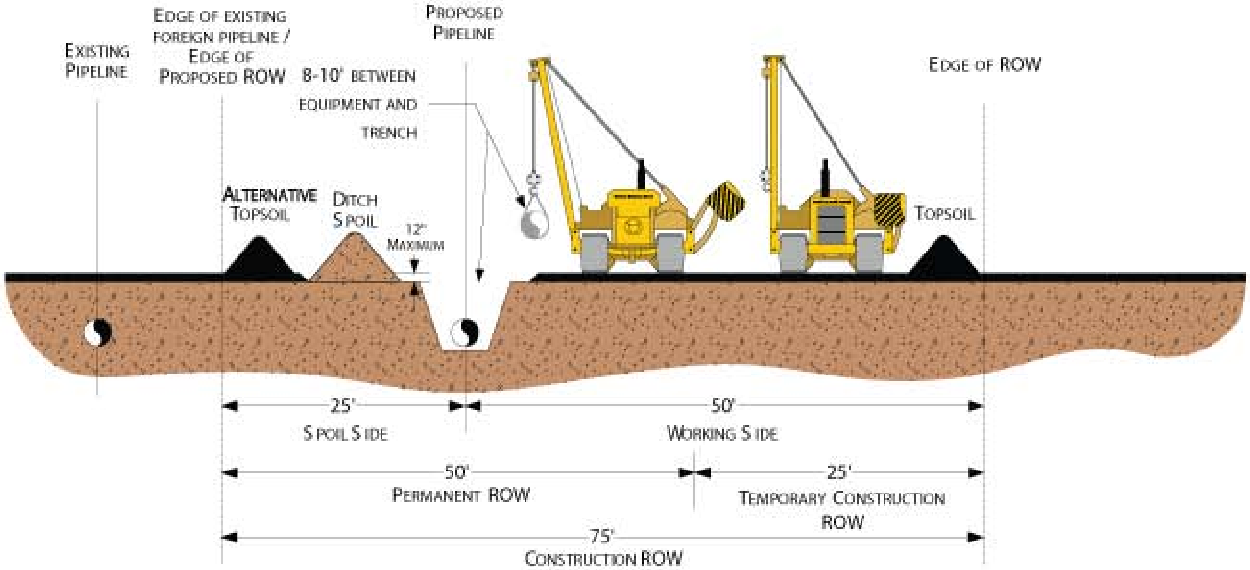
Notes:

1. Construction right-of-way will typically be 75' wide. The permanent right-of-way will be 50' wide. Additional temporary workspace will be necessary at major road, rail, and river crossings; sideslopes; and other special circumstances as required.
2. Stockpile topsoil separately from ditch spoil as shown or in any configuration approved by the Inspector.
3. 2' setback from spoil to edge of trench.

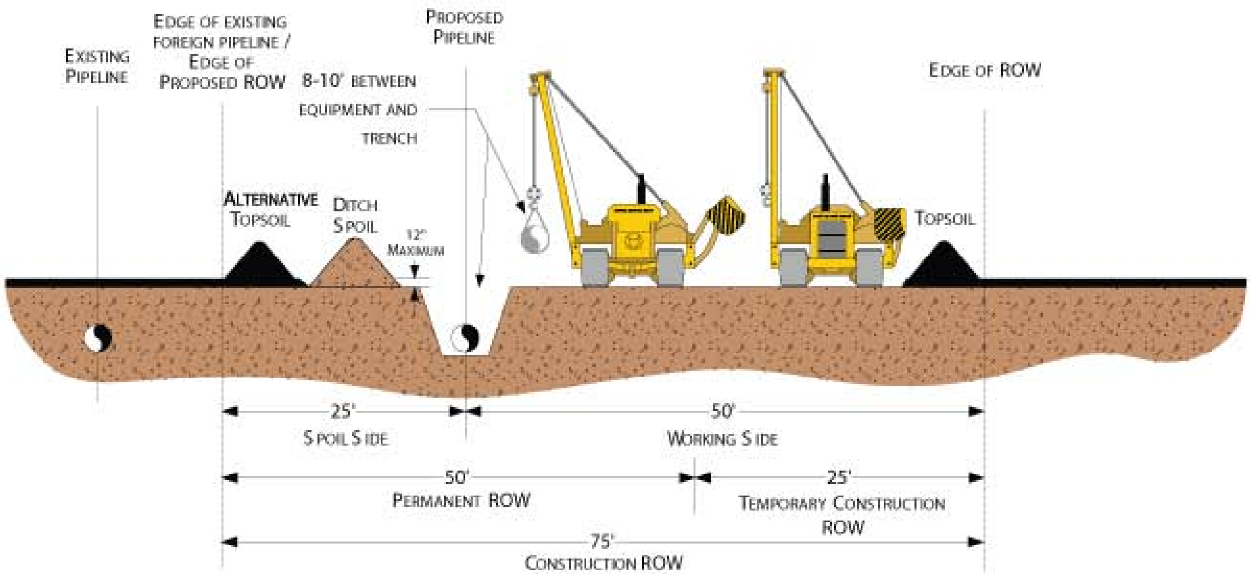
Overland Pass Pipeline Project

Figure 2.2-5 Typical Construction ROW

TRENCH AND SPOIL SIDE STRIPPING



FULL ROW TOPSOIL STRIPPING



NOTES:

1. CONSTRUCTION RIGHT-OF-WAY WILL TYPICALLY BE 75' WIDE. THE PERMANENT RIGHT-OF-WAY WILL BE 50' WIDE. ADDITIONAL TEMPORARY WORKSPACE WILL BE NECESSARY AT MAJOR ROAD, RAIL, AND RIVER CROSSINGS; SIDESLOPES; AND OTHER SPECIAL CIRCUMSTANCES AS REQUIRED.
2. STOCKPILE TOPSOIL SEPARATELY FROM DITCH SPOIL AS SHOWN OR IN ANY CONFIGURATION APPROVED BY THE INSPECTOR.
3. THE OFFSET FROM ACTIVE PIPELINE, WHERE APPLICABLE, WILL BE 50' (CENTERLINE TO CENTERLINE) FOR MOST LOCATIONS BUT MAY BE INCREASED OR DECREASED DEPENDING ON THE SITE-SPECIFIC CONSTRUCTION REQUIREMENTS.
4. 2' SETBACK FROM SPOIL TO EDGE OF TRENCH.

Overland Pass Pipeline Project

Figure 2.2-6
Typical Construction ROW - Adjacent to Existing Pipeline

Pipeline ROW

Approximately 623.7 miles of the 759.9 miles of pipeline (83 percent) would be co-located[2] with existing pipeline, utility, or road ROWs. Approximately 136.1 miles (17 percent) of the route proposed for construction would be newly created ROW (**Table 2.2-4**). Where the proposed pipeline route would parallel existing utilities, Overland Pass' new permanent ROW would be adjacent to the existing permanent ROWs. As proposed, the new pipeline generally would be installed with a 50-foot offset from the nearest existing pipeline centerline.

Table 2.2-4 Overland Pass Pipeline Segments of ROW that are Not Co-located with other Utilities[1]

Begin RP	End RP	Length (miles)
0.0	0.6	0.6
62.0	67.7	5.8
75.5	103.0	27.5
107.9	108.4	0.4
116.6	118.5	1.9
120.1	137.2	17.1
145.9	147.1	1.2
147.7	153.6	5.9
180.3	181.3	1.0
194.8	195.8	1.0
199.7	200.4	0.7
227.0	228.4	1.5
243.5	244.8	1.3
292.4	292.6	0.2
293.3	293.5	0.1
306.5	308.8	2.3
315.5	315.8	0.3
323.4	324.0	0.6
337.2	337.6	0.4
340.5	340.6	0.1
342.1	342.4	0.3
362.4	362.6	0.2
363.2	363.3	0.1
379.2	379.4	0.2
380.1	380.4	0.2
382.8	382.9	0.1
386.0	386.1	0.1
388.2	388.5	0.4
410.2	413.6	3.4
416.4	416.6	0.2
430.6	431.1	0.5
434.9	436.0	1.1
452.9	454.9	2.0
455.6	456.1	0.5

[2] Overland Pass considers its proposed pipeline to be "co-located" with existing ROWs where its proposed construction ROW abuts an existing pipeline, utility, or road ROW; or its proposed pipeline route is located generally parallel to a pipeline, utility, or road ROW and does not stray from this general alignment. Deviations from existing ROWs are limited to areas where site-specific environmental or engineering constraints justify routing away from the existing ROW or where it is necessary to proceed cross-country from one ROW to another to maintain the general direction of the pipeline.

Table 2.2-4 Overland Pass Pipeline Segments of ROW that are Not Co-located with other Utilities[1]

Begin RP	End RP	Length (miles)
458.5	464.2	5.7
475.5	478.0	2.5
480.1	480.5	0.4
482.8	483.1	0.3
487.5	487.8	0.3
488.5	488.8	0.3
494.4	494.7	0.3
498.7	499.1	0.4
503.1	503.2	0.1
504.6	504.7	0.0
509.9	510.3	0.4
514.4	515.0	0.6
538.7	538.8	0.1
542.7	544.3	1.6
549.5	550.4	0.9
560.9	562.5	1.6
564.0	564.1	0.1
566.4	567.7	1.3
572.2	572.7	0.5
575.2	575.4	0.2
582.3	582.5	0.2
586.8	587.2	0.4
588.7	589.0	0.3
595.3	595.5	0.2
608.3	609.0	0.7
610.7	610.8	0.1
612.4	613.4	1.0
614.9	615.1	0.2
615.3	615.4	0.1
621.4	622.1	0.7
623.6	624.2	0.6
635.1	635.4	0.3
645.2	645.8	0.6
650.5	650.7	0.2
656.4	657.0	0.6
659.7	660.2	0.5
662.4	662.9	0.5
668.9	669.7	0.8
696.6	697.0	0.4
700.8	701.3	0.5
703.3	703.6	0.3
705.5	706.1	0.6
707.8	709.8	2.0
715.5	736.1	20.6
748.5	749.4	0.9
	New ROW total	**130.1**

[1]Co-located ROWs are considered to be any ROW (e.g., utility) that is adjacent to the proposed pipeline route. Minor pipeline deviations from an adjacent facility to avoid and accommodate feature crossings still are considered to be co-located.

Additional Temporary Workspace Areas

In addition to the construction ROW, Overland Pass has identified the types of additional TWAs that would be required and where these sites would be located. Dimensions and acreages of typical TWAs are identified in **Table 2.2-5**. These additional TWAs would be needed for areas requiring special construction techniques (e.g., river, wetland, and road crossings; horizontal directional drill entry and exit points; steep slopes; rocky soils) and construction staging areas. Prior to construction, Overland Pass would be required to file a complete and updated list of TWAs with the BLM for review and approval prior to use. Additional TWAs on federal land would require authorization from the BLM.

Table 2.2-5 Dimensions and Acreage of Typical Additional Temporary Workspace Areas

Feature	Dimensions [1] (length by width in feet at each side of crossing)	Acreage [1]
Steep hill or side slopes	Length of area x 25, dependent upon hill and/or side slope grade	Varies
Spread mobilization/demobilization and staging	300 x 300	2.1
Foreign pipeline crossovers	L-shaped	Varies
Foreign pipeline/utility/other buried feature[2]	150 x 25	0.1
Stringing truck turnarounds	100 x 150	0.3
Two-lane roads/single railroad[2]	200 x 75	0.3
Four-lane roads/multiple railroads/Interstate[2]	Length of feature + 50 feet x 50 to 75	Varies
Open-cut waterbodies <25 feet wide[2]	200 x 50 + 200 x 100	0.2 + 0.5
Open-cut waterbodies 25 to 50 feet wide[2]	200 x 75 + 200 x 125	0.3
Open-cut waterbodies 50 to 100 feet wide[2]	250 x 75 + 250 x 125	0.4
Directionally drilled waterbodies[2]	300 x 25 to 100 + the length of the drill	+0.7

[1]Dimensions and acreage are for each workspace; some crossings require workspace on both sides of the feature.

[2]Multiple TWAs could be required at a single feature. Dimensions presented are the minimum required; actual dimensions would depend upon site-specific conditions.

Pipe Storage and Contractor Yards

Off-ROW extra workspace areas that would be used during the construction phase of the project include pipe storage yards and contractor yards. Pipe storage yards are where pipe would be delivered, inventoried, and stored prior to stringing it on the ROW. Contractor yards would be used to stage construction, store materials, park equipment, and set up temporary construction offices. Pipe storage and contractor yards range in size, depending upon the amount of material proposed to be stored at each location.

Overland Pass currently intends to use 24 pipe storage and contractor yards during construction (6 yards would be shared between two different spreads). Each yard is located on non-federal land. Overland Pass has selected, to the extent practical, existing commercial/industrial sites or sites that previously were used for construction. Existing public or private roads would be used to access each yard. Where yards would not be located on previously used sites, Overland Pass selected sites on the best available terrain to minimize the need for grading or filling. Generally, yard preparation would be limited to a small amount of grading and leveling, and possibly importing some fill. Both pipe storage yards and contractor yards would be used on a temporary basis and would be restored upon completion of construction. **Table 2.2-6** lists the locations for each pipe storage and contractor yard.

Table 2.2-6 Proposed Pipe Storage and Contractor Yards Associated with the Proposed Action

Spread and Name[1]	Approximate Reference Point	Acres	County, State	Land Use
Opal (3)	0	0.9	Lincoln County, Wyoming	Developed
Black's Fork	18	8.0	Lincoln County, Wyoming	Rangeland
Thayer Junction	84	18.9	Sweetwater County, Wyoming	Developed
Echo Springs	146	4.3	Carbon County, Wyoming	Rangeland
Echo Springs	146	3.0	Carbon County, Wyoming	Rangeland
Rawlins	178	10.8	Carbon County, Wyoming	Developed
Laramie	281	12.5	Albany County, Wyoming	Developed
Laramie	281	6.8	Albany County, Wyoming	Developed
Carr	330	12.4	Weld County, Colorado	Rangeland
Unnamed #1	437.1	1.3	Washington County, Colorado	Agricultural
Otis (2)	438	23.8	Washington County, Colorado	Developed
Unnamed #2	438.9	1.7	Washington, Colorado	Agricultural
Bird City	524	8.2	Cheyenne County, Kansas	Agricultural/ Developed
Gem	562	12.2	Thomas County, Kansas	Agricultural
Rexford	566	4.1	Thomas County, Kansas	Agricultural
Hoxie (2)	590	10.0	Sheridan County, Kansas	Agricultural
Unnamed Hoxie #1	591.3	3.1	Sheridan County, Kansas	Agricultural
Unnamed Hoxie #2	591.3	3.1	Sheridan County, Kansas	Agricultural
Hoisington	692	13.0	Barton County, Kansas	Developed
Conway	749.2	2.1	McPherson County, Kansas	Agricultural

[1]Maps available in Appendix A.

Access Roads

Overland Pass plans to use 582 existing access roads on a temporary basis to transport personnel, equipment, vehicles including high clearance vehicles and heavy trucks, and materials to the work areas. Approximately 139 access roads would be used in Wyoming, 107 roads would be used in Colorado, and 336 roads would be used in Kansas. These access roads include federal and state highways, and numerous county, BLM, USFS, and private roads. Most paved and many gravel roads may not require improvement or maintenance prior to or during construction unless the road base deteriorated or became unsafe or impassable. “Improvement” is defined for this project as, “grading, blading, or straightening activities that would result in changing the roads’ current condition, prior to use.”

Overland Pass has indicated that it would need to improve and maintain approximately 95 existing roads in order to provide a safe and level transportation surface for construction vehicles (37 in roads in Wyoming, 11 roads in Colorado, and 47 roads in Kansas). These existing roads consist mostly of dirt roads, such as farm, ranch, BLM, or USFS access roads and two-track trails. These roads would probably require some level of improvement to support construction equipment, vehicles and ongoing maintenance during the construction period, especially when rain occurs and travel over the roads degrades their condition. Road improvements such as blading and filling would be restricted to the existing road footprint (i.e., the road may not be widened) wherever possible where there is evidence that the road was previously graded. Overland Pass also has proposed that where there is no evidence of previous grading or if the road required widening, road maintenance only would be allowed after completing biological and cultural resources surveys, and completing appropriate consultations with the SHPO and USFWS. In all cases, roads would be used and maintained only with permission of the landowner or land management agency.

As a part of its permanent aboveground facilities, Overland Pass also would construct short, permanent access roads from public roads to the proposed pump stations, meter stations, and MLVs. The estimated acres of disturbance associated with proposed permanent access roads are included in the Aboveground Facilities discussion. Prior to construction, Overland Pass would finalize proposed permanent access roads along with any additional temporary access roads and submit them to the BLM for review and approval. At a minimum, construction of new access roads would require completion of cultural resources and biological surveys, along with the appropriate SHPO and USFWS consultations and approvals. Other state and local permits also may be required prior to construction. In the future, maintenance of newly created access roads would be the responsibility of Overland Pass, with jurisdiction over the road remaining with the affected land management agency or private landowner. Any permanent access roads on federal land would be considered an ancillary facility to the ROW and added to any grant or special use permit from the BLM or USFS, respectively.

Aboveground Facilities

Overland Pass would use a total of approximately 24 acres of land for construction of aboveground facilities, including pump stations, meter stations, MLVs, pigging facilities, and permanent access roads. Of these 24 acres, 10 acres would be retained and used during operation. The remaining acres of land would be restored and would revert to its previous use.

Overland Pass would construct three new electrical pump stations: Echo Springs, Laramie, and in the future, WaKeeney (**Table 2.2-1**). Each station would consist of a pump building, utility building, and parking area for station personnel. Stations would operate on locally purchased power for electricity for pumps, lights, and heating in the buildings and would be fully automated for unmanned operation. Remote start/stop, set point controls, unit monitoring equipment, and station information would be installed at each location. Pipeline entering and exiting the pump facilities would be below grade as practicable, but would come above ground prior to entering and exiting the pump buildings.

Overland Pass would install seven meter stations along the proposed pipeline route, including four custody transfer meter stations and three system check meter stations. The Opal, Bushton, and Conway Custody Transfer meter stations would occur within existing, previously disturbed commercial/industrial areas, while the Echo Springs, Laramie, Washington County, and WaKeeney System Check meter stations would each disturb new areas (**Table 2.2-1**).

Overland Pass would construct 137 MLVs along the proposed route (**Table 2.2-1**). Valves were located along existing access points where possible. Seventeen of the MLVs would be equipped with electric actuators. These valve facilities would have the capability to be quickly and remotely closed by the master control center's Supervisory Control and Data Acquisition (SCADA) system. Fifty-eight of the MLVs would be block valves that would be manually operated by Overland Pass to shut down the NGL flow in both directions. Sixty-two MLVs would be check valves that are designed to prevent backflow of NGL. Seven valves are associated with meter stations. Check valves operate automatically each time the pipeline is shut down or when flow stops. Block valves and check valves typically are co-located due to their different methods of operation. MLVs would be constructed within the 75-foot construction ROW. The block and check valves would be operated within a 25-foot-wide by 25-foot-long site, while remotely activated valves would operate within a 100-foot by 25-foot site. In either situation, all MLVs would be located within the permanent 50-foot-wide ROW. The MLVs would be located based on engineering hydraulic considerations and in accordance with current USDOT regulations.

A total of 11 pigging facilities would be constructed and operated along the pipeline route (**Table 2.2-1**). Nine of these pigging facilities would have both launcher and receiver capabilities, one would have launcher capabilities only, and one would have receiver capabilities only. Launchers and receivers would allow the pipeline to accommodate a high-resolution internal line inspection tool known as a smart pig. Smart pigs and cleaning pigs would periodically move through the pipeline to inspect and clean it.

The aboveground facilities would be painted a color that would be compatible with the existing character of the surrounding landscape based on consultation with the land management agency or landowner.

2.2.1.3 Construction Processes Common to All Action Alternatives

This section describes the design, layout, and general sequence of actions required to construct a pipeline project. The descriptions in this section would be the same for the Proposed Action and for the Southern Corridor – Copper Ridge Bypass Alternative.

Construction Planning

At a minimum, the proposed facilities would be designed, constructed, tested, and operated in accordance with all applicable requirements included in the USDOT regulations in 49 CFR 192, *Transportation of Natural Gas and Other Gas by Pipeline: Minimum Federal Safety Standards*, and other applicable federal and state regulations. These regulations are intended to ensure adequate protection for the public and to prevent natural gas pipeline accidents and failures. Among other design standards, Part 192 specifies pipeline material and qualification, minimum design requirements, and protection from internal, external, and atmospheric corrosion.

Overland Pass has prepared a draft POD that outlines federal-specific construction procedures, environmental requirements, project plans, and mitigation measures that would be implemented by Overland Pass during construction of the Proposed Action on federally managed land. This document describes routine construction and reclamation procedures in upland areas as well construction methods for crossing wetlands and waterbodies. Applicant-proposed mitigation measures also are contained in Overland Pass' POD. Overland Pass has submitted a draft POD that is available for viewing on the BLM website at: www.blm.gov/wy/st/en/info/NEPA/rfodocs/overland_pipeline.html. Overland Pass will prepare a final POD that includes mitigation measures that are described in this EIS. In addition, site-specific stipulations not included in the POD but determined to be necessary on federal lands would be included in any ROW grant issued by the BLM. The site-specific measures included in the POD would not contradict the mitigation measures of this EIS.

Included in its draft POD, Overland Pass has prepared several specific plans that include measures to mitigate for potential impacts. These plans are intended to serve as overall best management practices (BMPs) for construction and operation of the entire project, on both federally managed and non-federally managed lands. The mitigation plans include:

- *Construction, Reclamation, and Revegetation Plan* (**Appendix B**)*;*
- *Site-specific Waterbody Crossing Plans*;
- *Traffic and Transportation Management Plan;*
- *Emergency Response Plan;*
- *Fire Prevention and Suppression Plan;*
- *Conservation Measure Plan;*
- Spill Prevention, Control, and Countermeasures (SPCC) Plan;
- *Storm Water Protection Plan;*
- *Blasting Plan;*
- *Hydrostatic Test Plan* (**Appendix C**)*;*
- *Horizontal Directional Drilling Inadvertent Release Control Plan;*
- *Weed Management Plan* (**Appendix D**)*;* and
- *Winter Construction Plan*.

For example, Overland Pass' *Weed Management Plan* includes site-specific measures that would be implemented to control noxious weeds and invasive plant species, including the use of cleaned, weed-free equipment; the use of high-pressure water to remove seeds and other propagules from equipment prior to transport from a site (except during freezing conditions when compressed air and mechanical means would be used for cleaning equipment); and the use of certified weed-free straw bales to control erosion. Details of the *Weed Management Plan* including important committed mitigation measures are discussed in Section 4.6.

General Pipeline Construction Procedures

Before starting construction, Overland Pass would finalize engineering surveys of the ROW centerline and extra workspaces, and complete land or easement acquisition on private and state land. On federal land, Overland Pass would need to obtain a ROW grant from the BLM. Overland pipeline construction generally proceeds as a moving assembly line as shown in **Figure 2.2-7**. Construction of the main pipeline is planned for five simultaneous construction areas, called spreads, averaging about 150 miles each (**Table 2.2-7**). The pump stations each would be constructed by separate construction crews. Overland Pass plans to initiate construction in the third quarter of 2007, and construction would be completed by the end of the year. This schedule is contingent on Overland Pass receiving approvals to construct the pipeline.

Table 2.2-7 Construction Spreads for the Project

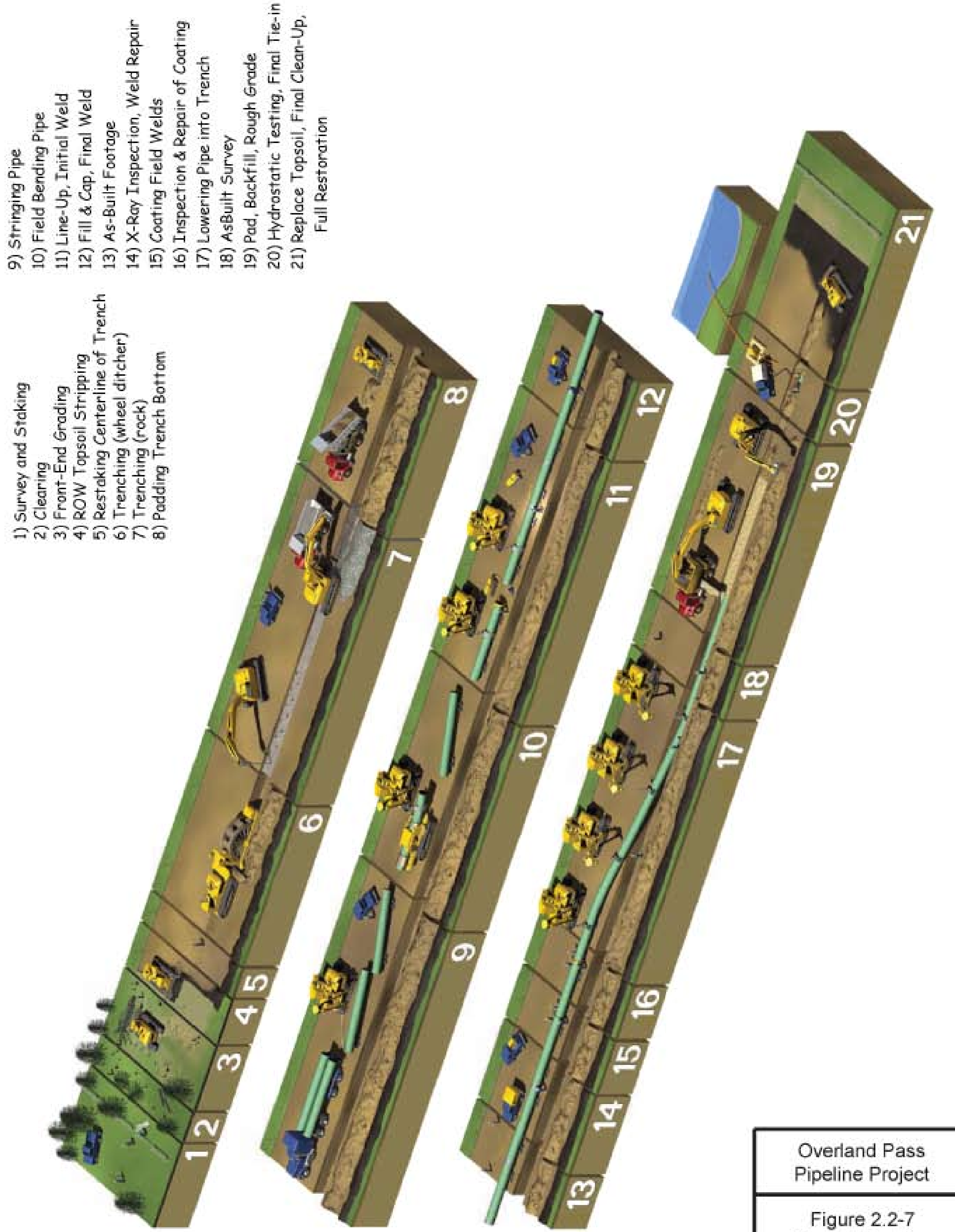
Spread Name	Reference Points	State
Spread 1	0.0 to 147.0	Wyoming
Spread 2	147.0 to 281.0	Wyoming
Spread 3	281.0 to 438.0	Wyoming/Colorado
Spread 4	438.0 to 591.0	Colorado/Kansas
Spread 5	591.0 to 749.4	Kansas

Standard pipeline construction is composed of specific activities including survey and staking of the ROW, clearing and grading, trenching, pipe stringing, bending, welding, lowering-in, backfilling, hydrostatic testing, and cleanup. In addition to standard pipeline construction methods, Overland Pass would use special construction techniques where warranted by site-specific conditions. These special techniques would be used when constructing across rugged terrain, waterbodies, wetlands, paved roads, highways, and railroads (see Special Construction Procedures subsection below).

Survey and Staking. The first step of construction would involve marking the limits of the approved work area (i.e., the construction ROW boundaries, additional temporary workspace areas) and flagging the location of approved access roads and foreign utility lines. Wetland boundaries and other environmentally-sensitive areas also would be marked or fenced for protection at this time. Before the pipeline trench is excavated, a survey crew would stake the centerline of the proposed trench.

Clearing and Grading. Before clearing and grading activities were conducted, landowner fences would be braced and cut, and temporary gates and fences would be installed to contain livestock, if present. A clearing crew would follow the fence crew and would clear the work area of vegetation and obstacles (e.g., trees, logs, brush, rocks). Temporary erosion control measures such as silt fences or straw bales would be installed prior to vegetation removal along wetlands and riparian areas. Grading would be conducted where necessary to provide a reasonably level work surface. Where the ground is relatively flat and does not require grading, rootstock would be left in the ground. More extensive grading would be required in steep side-slopes or vertical areas and where necessary to prevent excessive bending of the pipeline. Temporary erosion controls (e.g., silt fencing or straw bales) would be installed prior to vegetation removal adjacent to wetlands and riparian areas.

Trenching. The trench would be excavated to a depth that provides sufficient cover over the pipeline after backfilling. Typically, the trench will be about 4.5 to 5 feet deep (to allow for about 3 feet of cover) and about 3.5 to 4 feet wide in stable soils. Additional cover would be provided at road and waterbody crossings. Less cover is required in rocky areas (18 inches) in open areas; additional cover (30 inches) would be required in rocky areas in commercial and residential areas, roads, and residential ditches. In sandy, unstable soils, the trench could be considerably wider because the walls could cave or slough during trenching.



Overland Pass Pipeline Project

Figure 2.2-7
Typical Pipeline Construction Sequence

When rock or rocky formations were encountered, tractor-mounted mechanical rippers or rock trenchers would be used for fracturing the rock prior to excavation. In areas where mechanical equipment could not break up or loosen the bedrock, blasting would be required (see Blasting subsection below). Excavated rock would be used to backfill the trench to the top of the existing bedrock profile.

Unless otherwise requested by the landowner, topsoil generally would be separated from subsoil only over the trench itself. Separated topsoil would be stored on the working side of the trench and in a pile separate from subsoil (which would be stored on the spoil side of the trench) to allow for proper restoration of the soil during the backfilling process (**Figure 2.2-5**). In areas where the ROW would be graded to provide a level working surface and where there was a need to separate topsoil from subsoil, the ROW would be graded to collect topsoil before any subsoil was disturbed. Again, topsoil would be piled such that the mixing of subsoil and topsoil would not occur. Gaps would be left between the spoil piles to prevent storm water runoff from backing up or flooding. Topsoil would be returned to its original horizon after subsoil was backfilled in the trench.

In areas where rangeland is used for grazing and livestock could not be temporarily relocated by the landowner, construction activities could potentially hinder the movement of livestock across those allotments. Wildlife accustomed to freely moving through the area in search of food and water also could be hindered by construction activities. To minimize impact on livestock and wildlife movements during construction, Overland Pass would install trench plugs (areas where the trench is excavated and replaced with minimal compaction) to allow livestock and wildlife to safely cross the open trench. Trench plugs would be constructed with a ramp on each side to enable animals that fall into the trench an avenue of escape. To allow for safe passage, trench plugs would be constructed at 0.5-mile intervals and where the trench is intersected by visible livestock or wildlife trails or as directed by the Environmental Inspectors (EI).

Pipe Stringing, Bending, and Welding. Prior to or following trenching, sections of externally coated pipe up to 80 feet long (also referred to as “joints”) would be transported by truck over public road networks and along authorized private access roads to the ROW and placed or “strung” along the trench in a continuous line.

After the pipe sections were strung along the trench and before joints were welded together, individual sections of the pipe would be bent where necessary to allow for uniform fit of the pipeline with the varying contours of the bottom of the trench. A track-mounted, hydraulic pipe-bending machine would shape the pipe to conform to the contours of the terrain. Where multiple or complex bends were required in a section of pipe, that section of the pipeline would be bent at the factory.

After the pipe sections were bent, the joints would be welded together into long strings and placed on temporary supports. The pipeline joints would be lined up and held in position until securely joined by welding. Welds would be inspected by quality control personnel and non-destructive examination to determine the quality of the weld. Federal regulations require nondestructive testing of all welds in areas such as inside railroad or public road ROWs and in certain other areas. Overland Pass has agreed to nondestructively test 100 percent of the girth welds using radio graphic examination or other USDOT-approved method prior to hydrostatic testing. Radiographic examination is one example of a nondestructive method of inspecting the inner structure of welds and determining the presence of defects. Welds that do not meet established specifications would be repaired or removed. Once the welds were approved, a protective epoxy coating would be applied to the welded joints. The pipeline would then be electronically inspected or “jeeped” for faults or voids in the epoxy coating, and visually inspected for any faults, scratches, or other coating defects. Damage to the coating would be repaired before the pipeline was lowered into the trench.

Twenty-foot-wide gaps in the strung pipe string and topsoil piles would be left at least every 0.5 mile and at major game crossing trails or livestock watering trails that intersect the trench line. A corresponding soft plug that would be at least 5 feet wide would be installed to allow passage to livestock and wildlife. Prior to lowering-in of the pipe into the trench, multiple sections of pipeline may be welded together above the ditch to create welded lengths of pipe. These sections of pipeline would be lowered into the ditch after they were joined.

Lowering-in and Backfilling. Before the pipeline is lowered in, the trench would be inspected to be sure it is free of livestock or wildlife, as well as rocks and other debris that could damage the pipe or protective coating. In areas where water accumulated, dewatering could be necessary to inspect the bottom of the trench. The pipeline then would be lowered into the trench. On sloped terrain, trench breakers (stacked sand bags or foam) would be installed in the trench at specified intervals to prevent subsurface water movement along the pipeline. The trench would then be backfilled using the excavated material. In rocky areas, the pipeline would be protected with a rock shield (fabric or screen that is wrapped around the pipe to protect the pipe and its coating from damage by rocks, stones, and roots). Alternatively, the trench bottom would be filled with padding material (e.g., finer grain sand, soil, or gravel) to protect the pipeline. No topsoil would be used as padding material.

Overland Pass estimates that reasonable construction progress will leave 10 to 12 miles of trench open at a time. Overland Pass does not propose to limit the length of trench open at any one time due to practical concerns regarding the rate of construction, estimated to move at a rate of approximately 2 miles per day.

Hydrostatic Testing. The pipeline would be hydrostatically tested in 40 sections to ensure the system was capable of withstanding the operating pressure for which it was designed. This process involves isolating the pipe segment with test manifolds, filling the line with water, pressurizing the section to a pressure commensurate with the MOP and class location, and then maintaining that pressure for a period of 8 hours. The hydrostatic test would be conducted in accordance with Title 49 CFR Part 192. Overland Pass proposes to obtain water for hydrostatic testing from a combination of groundwater and surface water sources through specific agreements with landowners and in accordance with federal, state, and local regulations. The pipeline would be hydrostatically tested after backfilling and all construction work that would directly affect the pipe has been completed. If leaks are found, they would be repaired and the section of pipe retested until specifications were met. Water used for the testing would then be transferred to another pipe section for subsequent hydrostatic testing or the water would be tested to ensure compliance with the NPDES discharge permit requirements, treated if necessary, and discharged. Hydrostatic testing is discussed further in Section 4.5.

Final Tie-in. Following successful hydrostatic testing, test manifolds would be removed and the final pipeline tie-ins would be made and inspected.

Commissioning. After final tie-ins are complete and inspected, the pipeline would be cleaned and dried using mechanical tools (pigs) that are moved through the pipeline with pressurized, dry air. The pipeline would be dried to minimize the potential for internal corrosion. Once the pipe has dried sufficiently, pipeline commissioning would commence. Commissioning involves activities to verify that equipment has been properly installed and is working, the controls and communications systems are functional, and that the pipeline is ready for service. In the final step, the pipeline is prepared for service by purging the line of air and loading the line with natural gas liquids.

Cleanup and Restoration. During cleanup, construction debris on the ROW would be disposed of and work areas would be final graded. Preconstruction contours would be restored. Segregated topsoil would be spread over the surface of the ROW and permanent erosion controls would be installed. After backfilling, final cleanup would begin as soon as weather and site conditions permit. Every reasonable effort would be made to complete final cleanup (including final grading and installation of erosion control devices) within 20 days after backfilling the trench (10 days in residential areas). Construction debris would be cleaned up and taken to a state-approved disposal facility.

After permanent erosion control devices are installed and final grading has occurred, all disturbed work areas would be seeded as soon as possible. Seeding is intended to stabilize the soil, revegetate areas disturbed by construction, and, depending upon land use, restore native flora. Timing of the reseeding efforts would depend upon weather and soil conditions and would be subject to the prescribed dates and seed mixes specified by the landowner, land-managing agency, or NRCS recommendations.

Pipeline markers would be installed at fence, road, and railroad crossings and other locations (as required by 49 CFR 192) to show the location of the pipeline. Markers would identify the owner of the pipeline and convey emergency information. Special markers providing information and guidance to aerial patrol pilots also would be installed.

Special Construction Procedures

In addition to standard pipeline construction methods, Overland Pass would use special construction techniques where warranted by site-specific conditions. These special techniques would be used when constructing across paved roads, highways, railroads, steep terrain, waterbodies, wetlands, and when blasting through rock. These are described below.

Road, Highway, and Railroad Crossings. Construction across paved roads, highways, and railroads would be in accordance with the requirements of Overland Pass' road and railroad crossing permits and approvals obtained by Overland Pass. In general, major paved roads, highways, and railroads would be crossed by boring beneath the road or railroad. Boring requires the excavation of a pit on each side of the feature, the placement of boring equipment in the pit, then boring a hole under the road at least equal to the diameter of the pipe. Once the hole was bored, a prefabricated pipe section would be pushed through the borehole. For long crossings, sections could be welded onto the pipe string just before being pushed through the borehole. Boring would result in minimal or no disruption to traffic at road, highway, or railroad crossings. Each boring would be expected to take 2 to 10 days.

Most smaller, unpaved roads and driveways would be crossed using the open-cut method where permitted by local authorities or private owners. The open-cut method would require temporary closure of the road to traffic and establishment of detours. If no reasonable detour is feasible, at least one lane of traffic would be kept open, except during brief periods when it is essential to close the road to install the pipeline. Most open-cut road crossings would be completed and the road resurfaced within a few days. Overland Pass would take measures, such as posting signs at open-cut road crossings, to ensure safety and minimize traffic disruptions.

Steep Terrain. Additional grading may be required in areas where the proposed pipeline route would cross steep slopes. Steep slopes often need to be graded down to a gentler slope to accommodate pipe-bending limitations. In such areas, the slopes would be cut away, and, after the pipeline is installed, reconstructed to their original contours during restoration.

In areas where the proposed pipeline route crosses laterally along the side of a slope, cut and fill grading may be required to obtain a safe, flat work terrace. Topsoil would be stripped from the entire ROW and stockpiled prior to cut and fill grading on steep terrain. Generally, on steep side-slopes, soil from the high side of the ROW would be excavated and moved to the low side of the ROW to create a safe and level work terrace. After the pipeline is installed, the soil from the low side of the ROW would be returned to the high side, and the slope's original contours would be restored. Topsoil from the stockpile would be spread over the surface, erosion control features installed, and seeding implemented.

In steep terrain, temporary sediment barriers such as silt fence and certified weed-free straw bales would be installed during clearing to prevent the movement of disturbed soil off the ROW. Temporary slope breakers consisting of mounded and compacted soil would be installed across the ROW during grading, and permanent slope breakers would be installed during cleanup. Following construction, seed would be applied to steep slopes, and the ROW would be mulched with certified weed-free straw or covered with erosion-control fabric. Fabric would be installed on all slopes leading to waterbodies, immediately after the bank was recontoured. Overland Pass would use mulching materials approved by the BLM or the USFS, as appropriate on the portion of the route that is under their jurisdictions. Sediment barriers would be maintained across the ROW until permanent vegetation is established.

Waterbody Crossings. Perennial waterbodies would be crossed using one of four techniques: the open-cut method (Overland Pass' preferred method), horizontal directional drill (HDD) method, flume method, or dam-and-pump method as described below.

If a waterbody was flowing at the time of construction, Overland Pass' preferred crossing method would be to use an open-cut. The open-cut method involves trenching through the waterbody while water continues to flow through the construction work area. Pipe segments for the crossing would be fabricated adjacent to the waterbody. Backhoes generally operating from one or both banks would excavate the trench within the streambed. In wider rivers, in-stream operation of equipment may be necessary. Trench plugs (stacked, compacted sand bags) would be placed to prevent the flow of water into the upland portions of the trench. Trench spoil excavated from the streambed generally would be placed at least 10 feet away from the water's edge. Sediment barriers would be installed where necessary to control sediment and to prevent excavated spoil from entering the water. After the trench is dug, the prefabricated pipeline segment would be carried, pushed, or pulled across the waterbody and positioned in the trench. The trench would then be backfilled with native material or with imported material if required by applicable permits. Following backfilling, the banks would be restored and stabilized.

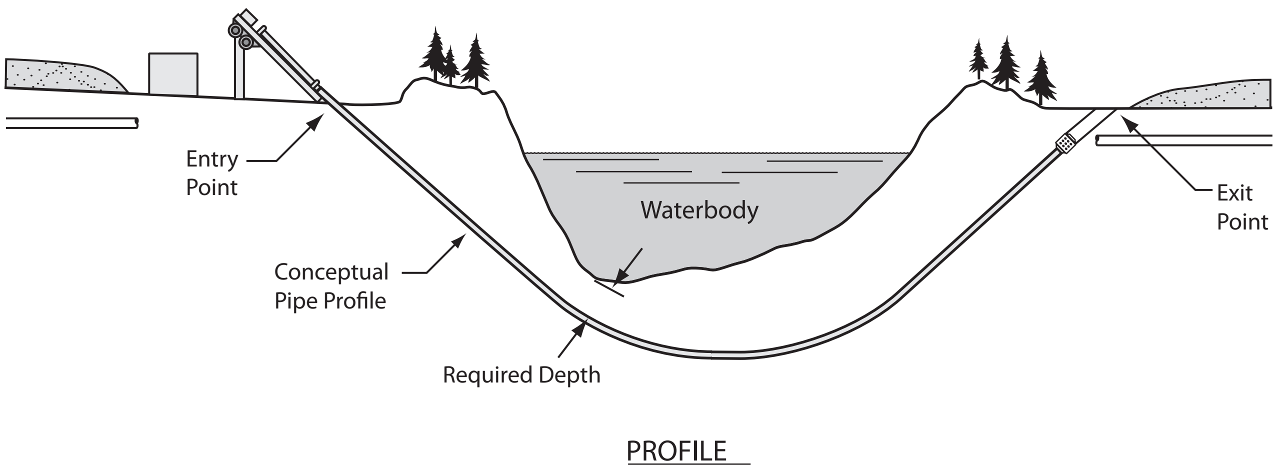
If requested by agencies for specific river crossings, Overland Pass may be required to use the HDD method of construction to reduce overall environmental impacts at these crossings. The HDD method involves drilling a pilot hole under the waterbody and banks, then enlarging the hole through successive reamings until the hole is large enough to accommodate a prefabricated segment of pipe. Throughout the process of drilling and enlarging the hole, a slurry made of non-toxic fluids, such as naturally occurring bentonite and water, would be circulated through the drilling tools to lubricate the drill bit, remove drill cuttings, and hold the hole open. This slurry is referred to as drilling mud. Pipe sections long enough to span the entire crossing would be staged and welded along the construction work area on the opposite side of the waterbody and then pulled through the drilled hole. Ideally, use of the HDD method results in no impact on the banks, bed, or water quality of the waterbody being crossed. **Figure 2.2-8** shows a conceptual HDD waterbody crossing.

Flume and dam-and-pump methods also could be considered as alternative crossing methods. The flume crossing method involves diverting the flow of water across the trenching area through one or more flume pipes placed in the waterbody. The dam-and-pump method is similar to the flume method except that pumps and hoses would be used instead of flumes to move water around the construction work area. In both methods, trenching, pipe installation, and backfilling are done with the streambed in a relatively dry condition while water flow is maintained for all but a short reach of the waterbody at the actual crossing. Once backfilling is completed, the flume or pump hoses are removed and the streambanks restored and stabilized.

The project also would cross intermittent waterbodies. Many of these intermittent waterbodies are dry washes. If these intermittent waterbodies are dry at the time of crossing, Overland Pass proposes to use conventional upland cross-country construction techniques. If an intermittent waterbody is flowing when crossed, Overland Pass may install the pipeline using one of the waterbody crossing methods discussed above or wait until water is not flowing. At ditches lined with concrete and aqueducts made out of pipe, Overland Pass would use the bore crossing method described above. When crossing waterbodies, Overland Pass would adhere to the guidelines outlined in Overland Pass' POD and the requirements of its waterbody crossing permits. For major waterbodies (greater than 100 feet wide measured from bank-to-bank) and sensitive waterbodies, Overland Pass would prepare site-specific crossing plans (Overland Pass 2006).

Additional TWAs would be required on both sides of all waterbodies to stage construction, fabricate the pipeline, and store materials. On federal lands, these workspaces would be located at least 50 feet away from the water's edge. Before construction, temporary bridges (e.g., clean rock fill over culverts, timber mats supported by flumes, railcar flatbeds, flexi-float apparatus) would be installed across all perennial waterbodies to allow construction equipment to cross. Construction equipment would be required to use the bridges, except the clearing crew who would be allowed one pass through the waterbodies before the bridges were installed.

Clearing adjacent to waterbodies would involve the removal of vegetation from the construction ROW and additional TWAs. If no herbaceous strip existed, sediment barriers would be installed at the top of the streambank. Initial grading of the herbaceous strip would be limited to the extent needed to create a safe approach to the waterbody and to install bridges.



Overland Pass
Pipeline Project

Figure 2.2-8
Conceptual Horizontal
Directionally
Drilled Waterbody

During clearing, sediment barriers would be installed and maintained across the ROW adjacent to waterbodies and within additional temporary workspace areas to minimize the potential for sediment runoff. Silt fence and/or certified weed-free straw bales located across the working side of the ROW would be removed during the day when vehicle traffic is present and would be replaced each night. Alternatively, drivable berms could be installed and maintained across the ROW in lieu of silt fence and/or straw bales.

In general, equipment refueling and lubricating at waterbodies would take place in upland areas that are 500 feet or more from the edges of the water on federal lands. When circumstances dictate that equipment refueling and lubricating would be necessary in or near waterbodies, Overland Pass would follow its SPCC Plan to address the handling of fuel and other hazardous materials.

After the pipeline is installed beneath the waterbody using one of the methods described above, restoration would begin. Waterbody banks would be restored to preconstruction contours or to a stable angle of repose. Erosion-control fabrics would be installed immediately after the bank is recontoured. Rock riprap or gabion baskets (rock enclosed in wire bins) would be installed as necessary on steep waterbody banks in accordance with permit requirements. Waterbody banks temporarily would be stabilized within 24 hours of completing in-stream construction. Sediment barriers, such as silt fence and/or certified weed-free straw bales or drivable berms would be maintained across the ROW at all waterbody approaches until permanent vegetation was established. Temporary equipment bridges would be removed following construction.

Wetland Crossings. Pipeline construction across wetlands would be similar to typical conventional upland cross-country construction procedures, with several modifications and limitations to reduce the potential for pipeline construction to affect wetland hydrology and soil structure. To minimize impacts to the environment, Overland Pass would cross wetlands using the procedures outlined in Overland Pass' POD. To precisely identify the wetlands that would be affected by the proposed project, Overland Pass conducted field delineation of wetlands. Prior to construction, Overland Pass would provide final wetland delineation reports to the USACE.

Overland Pass proposes to use a 75-foot-wide construction ROW through wetlands. Additional TWAs would be required on both sides of wetlands to stage construction, fabricate the pipeline, and store materials. These additional TWAs would be located in upland areas a minimum of 50 feet from the wetland edge on federal lands, and a minimum of 10 feet on private land.

Construction equipment working in wetlands would be limited to that essential for ROW clearing, excavating the trench, fabricating and installing the pipeline, backfilling the trench, and restoring the ROW. 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 was firm enough or had been stabilized to avoid rutting. Otherwise, non-essential equipment would be allowed to travel through wetlands only once.

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 trenchline. A limited amount of stump removal and grading could be conducted in other areas if dictated by safety-related concerns.

During clearing, sediment barriers, such as silt fence and certified weed-free staked straw bales, would be installed and maintained adjacent to wetlands and within additional TWAs as necessary to minimize the potential for sediment runoff. Sediment barriers would be installed across the full width of the construction ROW at the base of slopes adjacent to wetland boundaries. Silt fence and/or certified weed-free straw bales installed across the working side of the ROW would be removed during the day when vehicle traffic was present and would be replaced each night. Alternatively, drivable berms could be installed and maintained across the ROW in lieu of silt fence or certified weed-free straw bales. Sediment barriers also would be installed within wetlands along the edge of the ROW, where necessary, to minimize the potential for sediment to run off the construction ROW and into wetland areas outside the work area.

The method of pipeline construction used in wetlands would depend largely on the stability of the soils at the time of construction. If wetland soils are not excessively saturated at the time of construction and can support construction equipment on equipment mats, timber riprap, or straw mats, construction would occur in a manner similar to conventional upland cross-country construction techniques. In unsaturated wetlands, topsoil from the trenchline would be stripped and stored separately from subsoil. Topsoil segregation generally would not be possible in saturated soils.

Where wetland soils were saturated and/or inundated, the pipeline could be installed using the push-pull technique. The push-pull technique would involve stringing and welding the pipeline outside of the wetland and excavating and backfilling the trench using a backhoe supported by equipment mats or timber riprap. The prefabricated pipeline would be installed in the wetland by equipping it with buoys and pushing or pulling it across the water-filled trench. After the pipeline is floated into place, the floats would be removed and the pipeline would sink into place. Most pipe installed in saturated wetlands would be coated with concrete or equipped with set-on weights to provide negative buoyancy.

Because little or no grading would occur in wetlands, restoration of contours would be accomplished during backfilling. Prior to backfilling, trench breakers would be installed where necessary to prevent the subsurface drainage of water from wetlands. Where topsoil has been segregated from subsoil, the subsoil would be backfilled first, followed by the topsoil. Topsoil would be replaced to the original ground level leaving no crown over the trenchline. In some areas where wetlands overlie rocky soils, the pipe would be padded with rock-free soil or sand before backfilling with native bedrock and soil. Equipment mats, timber riprap, gravel fill, geotextile fabric, and/or certified weed-free straw mats would be removed from wetlands following backfilling.

Where wetlands are located at the base of slopes, permanent slope breakers would be constructed across the ROW in upland areas adjacent to the wetland boundary. Temporary sediment barriers would be installed where necessary until revegetation of adjacent upland areas was successful. Once revegetation is successful, sediment barriers would be removed from the ROW and disposed of properly.

In wetlands where no standing water is present, the construction ROW would be seeded in accordance with the recommendations of the local soil conservation authorities or land management agency. Lime, mulch, and fertilizer would not be used in wetlands.

Blasting. Overland Pass has stated that blasting might be required in areas where competent shallow bedrock or boulders were encountered that could not be removed by conventional excavation methods. If blasting were required to clear the ROW and to fracture the ditch, strict safety precautions would be followed. Overland Pass would exercise extreme care to avoid damage to underground structures, cables, conduits, pipelines, and underground watercourses or springs. To protect property or livestock, Overland Pass would provide adequate notice to adjacent landowners or tenants in advance of blasting. Blasting activity would be performed during daylight hours and in compliance with federal, state, and local codes and ordinances and manufacturers' prescribed safety procedures and industry practices. Overland Pass currently is developing a *Blasting Plan* for inclusion in the POD.

Residential Construction. Based on aerial alignment sheets, no residences would be located within 50 feet of the Proposed Action area. Additionally, no commercial buildings were identified within 50 feet of the proposed construction work area. Should reroutes be required that would place the pipeline within 50 feet of an occupied home or building, Overland Pass would develop site-specific construction plans to mitigate the impacts of construction on residential and commercial structures located within 50 feet of the proposed project area.

Fences and Grazing. Fences would be crossed or paralleled by the construction ROW. Overland Pass would contact grazing lessees prior to crossing any fence on public lands or any fence between public and private land, and would offer the lessee the opportunity to be present when the fence is cut so that the lessees can be satisfied that the fence is adequately braced and secured. The grazing permitees would be contacted prior to the start of construction and reclamation on their allotments. Before cutting the wires for pipeline construction, each fence crossed by the ROW would be braced and secured to prevent the slacking of the wire. To prevent the passage of livestock, the opening in the fenceline would be temporarily closed when construction crews left the area. If gaps in natural barriers used for livestock control were created by the pipeline construction, the gaps would be fenced according to the landowners or land management agency requirements.

All existing improvements, such as fences, gates, irrigation ditches, cattle guards, and reservoirs would be maintained during construction and repaired to pre-construction conditions or better. If pipelines transporting water for livestock and wildlife were damaged by construction activities, Overland Pass would repair the pipelines to the landowner or land management agency specifications. If needed, Overland Pass has committed to providing an emergency source of agricultural-use water.

Aboveground Facility Construction Procedures

Construction activities at each of the three pump stations would follow a standard sequence of activities: clearing and grading, installing foundations for the pump and control buildings, and erecting the structures to house the pumps and associated facilities. A MLV would be required at each station. In addition, a pipeline pig launcher and/or pig receiver facility would be installed at each of the pump stations. Construction activities and the storage of building materials would be confined to the pump station construction sites.

The sites for the pump stations would be cleared of vegetation and graded as necessary to create a level surface for the movement of construction vehicles and to prepare the area for the building foundations. Foundations would be constructed for the buildings, and soil would be stripped from the area of the building foundations.

Each pump station would include two buildings: one utility building and one pump building. The utility building would include control equipment to filter, measure, and regulate fuel gas. The pump building at each station would house the pumps. The natural gas piping, both aboveground and belowground, would be installed and pressure-tested using methods similar to those used for the main pipeline. After testing is successfully completed, the piping would be tied in to the main pipeline. Piping installed below grade would be coated for corrosion protection prior to backfilling. In addition, all below-grade facilities would be protected by a cathodic protection system. Before being put into service, pumps, controls, and safety devices would be checked and tested to ensure proper system operation and activation of safety mechanisms.

Electrical power would be required at each of the major aboveground facilities (pump stations and meter stations) and at each of the remotely operated valves. Currently, Overland Pass anticipates that a 4,160-volt (V) powerline would be extended from a nearby high voltage transmission powerline into the Echo Springs Pump Station and Meter Station site, within the proposed ROW. Additionally, a 480-V powerline would be extended from a nearby high voltage transmission powerline into the proposed Opal Meter Station site, within the proposed pipeline ROW. The remaining pump stations and meter stations would be located at sites in close proximity to high voltage transmission powerlines to operate the proposed facilities. The details of the powerlines that would be extended currently are being determined and will be provided at a later date. **Table 2.2-8** summarizes electrical power and distribution lines requirements.

After the completion of startup and testing, the pump station sites would be graded and landscaped. A permanent security fence would be installed around each pump station site. Because each of the pump station sites would be located in remote, undeveloped areas and/or adjacent to existing commercial/industrial facilities, the station buildings would be designed to be as consistent as possible with the character of the surrounding land uses. The pump stations would be painted a color to enable the structures to blend into the surrounding landscape, native vegetation would be used for landscaping, and the minimum lighting necessary for safe operation of the facilities would be installed. Overland Pass proposes to construct the stations in 2007; any landscaping would occur in the spring or early summer of 2008.

Table 2.2-8 Summary of Electrical Power Supply Requirements for Valves, Pump Stations, and Meter Stations

Facility	Reference Point	Utility Company	Length of Connection	Line Voltage
Opal Meter Station with Remote Valve	0.0	Power to be provided by Williams at the Opal Plant power to be run underground	<0.25 mile	480 V
Remote Valve and Sweetwater Pigging Facility	72.1	Pacific Power and Light (Rocky Mountain Power)	100 feet	12,240 V
Echo Springs Pump Station and Meter Station with Remote Valve	146.5	Power to be provided by Williams at the Echo Springs Plant	<0.25 mile	34.5 kilovolt (kV)
Remote Valve	207.0	Carbon Power and Light	2.9 miles	13.2 kV
Laramie Pump Station and Meter Station with Remote Valve	271.7	Laramie Pump Station, power to be provided by Carbon Power and Light as part of the entire station	2.4 miles	34.5 kV
Remote Valve	307.4	High West Energy	0.2 mile	12,470 V
Remote Valve	323.0	Poudre Valley REA	Powerline crosses valve site	15 kV
Remote Valve	342.7	High West Energy	<1 mile (within 0.5)	12,470 V
Remote Valve	389.8	Xcel Energy	1 to 1.5 miles	13.2 kV
Washington County Meter Station with Remote Valve	447.8	YW Electric	1 to 1.5 miles	12,470 V
Remote Valve	507.9	Prairieland Electric	1 to 1.5 miles	13.2 kV
Remote Valve and Thomas Pigging Facility	552.9	Midwest Energy	<0.5 mile (within 0.25)	13.2 kV
WaKeeney Meter Station with Remote Valve	606.0	Western COOP	0.5 mile	13.2 kV
Remote Valve and Ellis Pigging Facility	654.7	Western COOP	<0.5 mile (within 0.25)	13.2 kV
Bushton Meter Station with Remote Valve	717.5	Power to be provided by ONEOK at the Bushton Plant	<0.25 mile	480 V
Remote Valve	736.2	Power to be provided by Williams at the Mitchell Plant	0.1 mile	480 V
Conway Meter Station with Remote Valve	749.4	Power to be provided by Williams at the Conway Plant	0.1 mile	480 V

Construction activities would include clearing, grading, trenching, installing piping, erecting buildings, fencing the facilities, cleanup, and restoration. The meter stations would operate on locally provided power.

Mainline valve construction would be concurrent with the construction of the pipeline with valves installed at spacings as required by the USDOT (49 CFR 192). Where practical, mainline valves typically would be located near public roads to allow year-round access. Permanent access roads or approaches may be constructed within the permanent ROW to some mainline valve sites.

The construction of pig launchers and receivers would be concurrent with the construction of the meter stations and mainline valves. Activities such as clearing, grading, trenching, and clean-up and restoration would occur simultaneously with construction activities associated with the pipeline and pump stations.

Corrosion Protection

An external coating would be applied to the pipeline and all buried facilities to protect against corrosion. Cathodic protection would be provided by an impressed current.

Construction Workforce and Schedule

Overland Pass proposes to begin construction in July 2007; construction would last 6 months. Overland Pass proposes to complete construction and begin service by the fourth quarter of 2007. Overland Pass anticipates a peak workforce of approximately 600 construction personnel. Construction personnel would consist of Overland Pass employees, contractor employees, construction inspection staff, and environmental inspection staff. Overland Pass is planning to build the pipeline in five spreads, with construction activity occurring simultaneously in each spread. Overland Pass anticipates 50 to 75 construction and inspection personnel associated with each spread, plus an additional 20 persons for activities such as pipe unloading. The construction of the aboveground facilities would require an additional 50 to 75 workers. During construction, personnel would work during daylight hours, 6 to 7 days per week depending on schedule constraints. **Table 2.2-9** outlines Overland Pass' proposed construction schedule and workforce requirements by spread for the proposed project.

Table 2.2-9 Pipeline Construction Workforce and Proposed Schedule

Spread	Associated Aboveground Facilities (RP)	Begin RP	End RP	Estimated Workforce	County and State
1	Echo Springs Pump Station (147.5) Opal and Echo Springs Meter Stations (0.0 and 146.5)	0.0	147.0	75 to 150	Lincoln, Sweetwater and Carbon counties, Wyoming
2	Laramie Pump Station (271.7) Laramie Meter Station (271.7)	147.0	281.0	75 to 150	Sweetwater, Carbon and Albany counties, Wyoming
3	No pump or meter stations	281.0	438.0	50 to 100	Albany and Laramie counties, Wyoming; Weld, Morgan, Logan, and Washington counties, Colorado
4	Washington County Meter Station (RP 447.8)	438.0	591.0	50 to 100	Washington and Yuma counties, Colorado; Cheyenne, Rawlins, Thomas, and Sheridan counties, Kansas
5	WaKeeney Meter Station (606.0) Bushton and Conway Meter Stations (717.5 and 749.4)	591.0	749.4	75 to 150	Sheridan, Graham, Gove, Trego, Ellis, Russell, Barton, Ellsworth, Rice, and McPherson counties, Kansas

Overland Pass, through its construction contractors and subcontractors, would attempt to hire temporary construction staff from the local population, if the local population offers skilled workers in fields related to pipeline construction. At peak workforce, Overland Pass anticipates that up to about 20 percent of the total construction workforce could be hired locally (currently residing in Kansas, Colorado, or Wyoming). The remaining portion of the workforce (80 percent or more) would include non-local personnel. Based on the specialized nature of the position, environmental inspection staff most likely would consist entirely of non-local employees.

Overland Pass estimates that 5 to 20 permanent employees would be required to oversee the operation and maintenance of the pipeline, including the pumping stations. These employees most likely would be non-local, as they would have specialized responsibilities or have current employment with Overland Pass. No additional personnel would be hired to operate and maintain the pumping stations as these facilities would be constructed to operate automatically. Any specific operation and maintenance task which could not be completed by the existing staff would be completed on a contractual and as-need basis.

Only work vehicles would be allowed on the construction ROW or additional temporary workspace areas during construction. Equipment operators would drive a company-owned or personal pick-up truck to the construction site. Parking would be limited to the construction ROW, additional temporary workspace areas, or along existing authorized access roads. Adjacent ROWs would not be used for parking. Construction workers would not be permitted to travel cross-country during construction of the project.

Environmental Inspection, Compliance Monitoring, and Post-approval Variances

Environmental Inspection. The environmental inspection and compliance monitoring programs for the project would address requirements placed on the project by the federal and other agencies.

Overland Pass proposes to assign EIs to each construction spread. The EIs would likely be hired from a qualified third-party contractor. The responsibilities of the EIs are outlined in Overland Pass' POD and would include ensuring that the ROW Grant and environmental conditions attached to other permits and authorizations are met. During the construction phase, Overland Pass' EIs would inspect all construction and mitigation activities to ensure compliance with the requirements of environmental plans, permits, and conditions. EIs also may oversee cultural resource monitors and/or biological monitors that may be required to monitor and evaluate construction impacts on resources as specified in this EIS.

Inspectors from the BLM and USFS, as appropriate, also would conduct field inspections during construction. Other federal and state agencies also may conduct oversight of inspection to the extent determined necessary by the individual agency.

After construction is completed, the BLM and USFS, as appropriate, would continue to conduct oversight inspection and monitoring. If it is determined that any of the proposed monitoring timeframes are not adequate to assess the success of restoration, Overland Pass would be required to extend its post-construction monitoring programs. The BLM would retain Overland Pass' bond or other security until the BLM is satisfied with Overland Pass' reclamation efforts.

Compliance Monitoring. In addition to the EI program, Overland Pass would provide funding to implement a third-party compliance monitoring program during construction of the project. The compliance monitoring program would be implemented under the direction of the BLM and USFS.

The overall objective of the compliance monitoring program is to monitor and document Overland Pass' compliance and/or noncompliance with environmental requirements during construction of the Project. The environmental requirements to be monitored would be limited to those requirements and conditions that are either located on federal land (BLM and NFS) or those conditions that result from a federal permit requirement including:

- The environmental mitigation measures that were proposed by Overland Pass throughout the permitting phase of the project;
- The Overland Pass POD, which would be appended to the BLM ROW Grant;
- The conditions contained in the BLM ROD and the BLM ROW Grant and Temporary Use Permits;
- The USFWS BO concerning listed endangered or threatened federal species or their habitat;
- The approved treatment plan(s) and MOA for the treatment and protection of cultural resources; and

- Additional stipulations included in permits from other authorizing federal agencies.

During construction, full-time Compliance Monitors would conduct daily ongoing inspections of construction activities and mitigation measures and provide regular feedback on compliance issues to the BLM, Overland Pass, and Overland Pass' EI team. Construction progress and environmental compliance would be tracked and documented by the preparation and submittal of daily and weekly reports. The Compliance Monitors would report directly to a Compliance Manager. The Compliance Manager would report directly to the designated BLM Project Manager and USFS Project Manager.

Other objectives of the compliance monitoring program are to:

- Facilitate the timely resolution of compliance-related issues in the field;
- Provide continuous information to the BLM and USFS regarding noncompliance issues and their resolution; and
- Review, process, and track construction-related variance requests in a timely manner.

Compliance Monitors would assist with implementation of the variance process in accordance with a predetermined level of decision-making authority granted by the BLM and USFS.

Post-approval Variance Process. Surface disturbance locations and acreages identified in this EIS are anticipated to be sufficient for the construction and operation (including maintenance) of the project and all ancillary improvements. However, route realignments and other project refinements often continue past the project review phase and into the construction phase. As a result, work area locations and disturbed acreages documented in the EIS often change after project approval. These changes frequently involve minor route realignments or moving approved temporary workspace, adding new temporary workspace, and adding access routes to work areas and associated temporary use areas. This section describes the procedure used for assessing impact on workspace areas outside those specifically listed in this EIS and for approving their use.

Subsequent to project approval, when work areas outside those evaluated in this EIS are found to be needed, additional inventory and evaluation would be performed to ensure that the impact on biological, cultural, and other resources would be avoided or minimized to the maximum extent practicable. New workspace location and survey results would be documented and forwarded to the BLM and USFS, as applicable, in the form of a "variance request;" one of the two federal agencies would take the lead on reviewing the request, depending on the ownership status of the subject land. Appropriate agency consultations/approvals would be conducted/obtained prior to approval of the variance. At the conclusion of the project, as-built drawings would be provided to the BLM and the USFS.

Operation and Maintenance

Overland Pass would operate and maintain the project facilities in accordance with the USDOT regulations in 49 CFR 195 and other applicable federal and state regulations. Operation and maintenance of the pipeline system would, in most cases, be accomplished by Overland Pass personnel. Overland Pass estimates that operation of the pipeline would require up to 20 additional employees. Operation of the pipeline would require access along the pipeline ROW by Overland Pass personnel. While Overland Pass would make an effort to notify landowners prior to entering private property, landowner notification is not required for entry along the ROW, particularly in emergency situations.

ROW Monitoring and Maintenance. In order to maintain accessibility of the ROW and to accommodate pipeline integrity surveys, woody vegetation that might affect the integrity of the pipeline would periodically be cleared over the pipeline. In most areas, the ROW would be maintained in an herbaceous state. Large trees would be removed from the permanent ROW. Overland Pass would use only mechanical mowing or cutting along its ROW for normal vegetation maintenance.

Noxious weeds and invasive plant monitoring and control activities would occur during routine ROW monitoring and maintenance activities. Noxious weeds and invasive plants discovered within the ROW would be controlled according to the measures specified in Overland Pass' *Weed Management Plan* (**Appendix D**).

In the future, pipeline integrity surveys and vegetation maintenance could identify areas on the ROW where permanent erosion control devices need to be repaired or additional erosion control devices may be needed. If problem areas were evident, erosion control devices would be repaired or installed as necessary and the ROW would be stabilized to prevent future degradation.

In the vicinity of waterbodies, wetlands, and upland areas, Overland Pass would adhere to the operation and maintenance procedures described in Overland Pass' POD and its appendices. Operation and maintenance procedures, including record keeping, would be performed in accordance with the USDOT requirements.

Pipeline Integrity

Overland Pass's pipeline facilities would be operated and maintained in accordance with the federal safety standards (49 CFR 195). Operation and maintenance of project facilities would be performed by or at the direction of Overland Pass. The pipeline would be inspected periodically from the air and on foot as operating conditions permit, but no less frequently than as required by 49 CFR 195. These surveillance activities would provide information on possible encroachments and nearby construction activities, erosion, exposed pipe, and other potential concerns that may affect the safety and operation of the pipeline. Evidence of population changes would be monitored and class locations changed as necessary. MLVs also would be inspected annually and the results documented.

Future Plans and Abandonment

Overland Pass has no plans to expand the system or increase its capacity at the present time. If, in Overland Pass' judgment, future market demands warrant expansion of the project, Overland Pass would file an appropriate application with the BLM at that time.

Properly maintained, the proposed pipeline is expected to operate for 50 or more years. If and when Overland Pass abandons any of the proposed facilities, the abandonment would be subject to separate approvals by the BLM, USFS, and other land management agencies. On federal lands, the BLM would require Overland Pass to submit an abandonment plan at least 90 days prior to anticipated abandonment. Overland Pass has no plans for abandonment of the pipeline system.

Upon abandonment of the pipeline, in part or in whole, the ROWs associated with the abandoned facilities normally would be returned to the landowners/land management agencies according to the specific easement agreements between the landowners/land managing agencies. However, on federal lands, the pipeline ROW could be used for other utility ROW (e.g., fiber optic lines) depending upon future decisions made by the BLM.

2.2.2 The No Action Alternative

Under the No Action Alternative, the BLM would reject the project as proposed. The BLM would not issue a ROW grant for the project. Without a ROW grant across federal lands, the Overland Pass pipeline could not be constructed due to the federal land ownership patterns in the region.

Since it is not possible to construct an interstate pipeline without crossing BLM-administered land as proposed, the Overland Pass pipeline could not be constructed. There is an existing pipeline system (Enterprise NGL Pipeline) that is currently operating near its capacity (225,000 bpd). The Enterprise Pipeline system (Enterprise) transports NGL to Mont Belvieu, Texas. The recently approved Western Expansion Project (MAPL 2005) could expand the capacity of Enterprise by accommodating up to 50,000 bpd of additional capacity. Despite these expansions, regional gas development is expected to outpace the pipeline capacity in the near future. Consequently, Enterprise, including the Western Expansion Project, was evaluated as a System

Alternative, but was eliminated from detailed evaluation because it did not meet the purpose and need (Section 2.3.1.2).

Despite the lack of sufficient transportation capacity, the extraction of natural gas (and associated NGLs) would continue unabated due to the nationwide demand for these products. Since the amount of NGLs being produced in the region is expected to exceed the existing pipeline transportation capacity and given the market values of NGL, alternative proposals to transport or store the NGL likely would be developed.

If the project were not approved, other pipeline projects may be proposed in the future. Given the market value of the volumes of natural gas liquids being produced in the region, ONEOK, Williams, Overland Pass, or other companies could submit a new ROW grant application to the BLM for a different pipeline route. This would initiate a new and separate NEPA process. To date, the BLM has not received any other NGL transmission pipeline applications in this region.

As a consequence of the No Action Alternative, pipeline transportation alternatives for regional natural gas liquid producers would not exist in the forseeable future. The No Action Alternative would eliminate pipeline-to-pipeline shipping competition between Enterprise and Overland Pass pipeline systems for the Rocky Mountain NGL markets. In addition, the No Action Alternative would not increase the regional NGL pipeline system diversity, which can help stabilize national supplies.

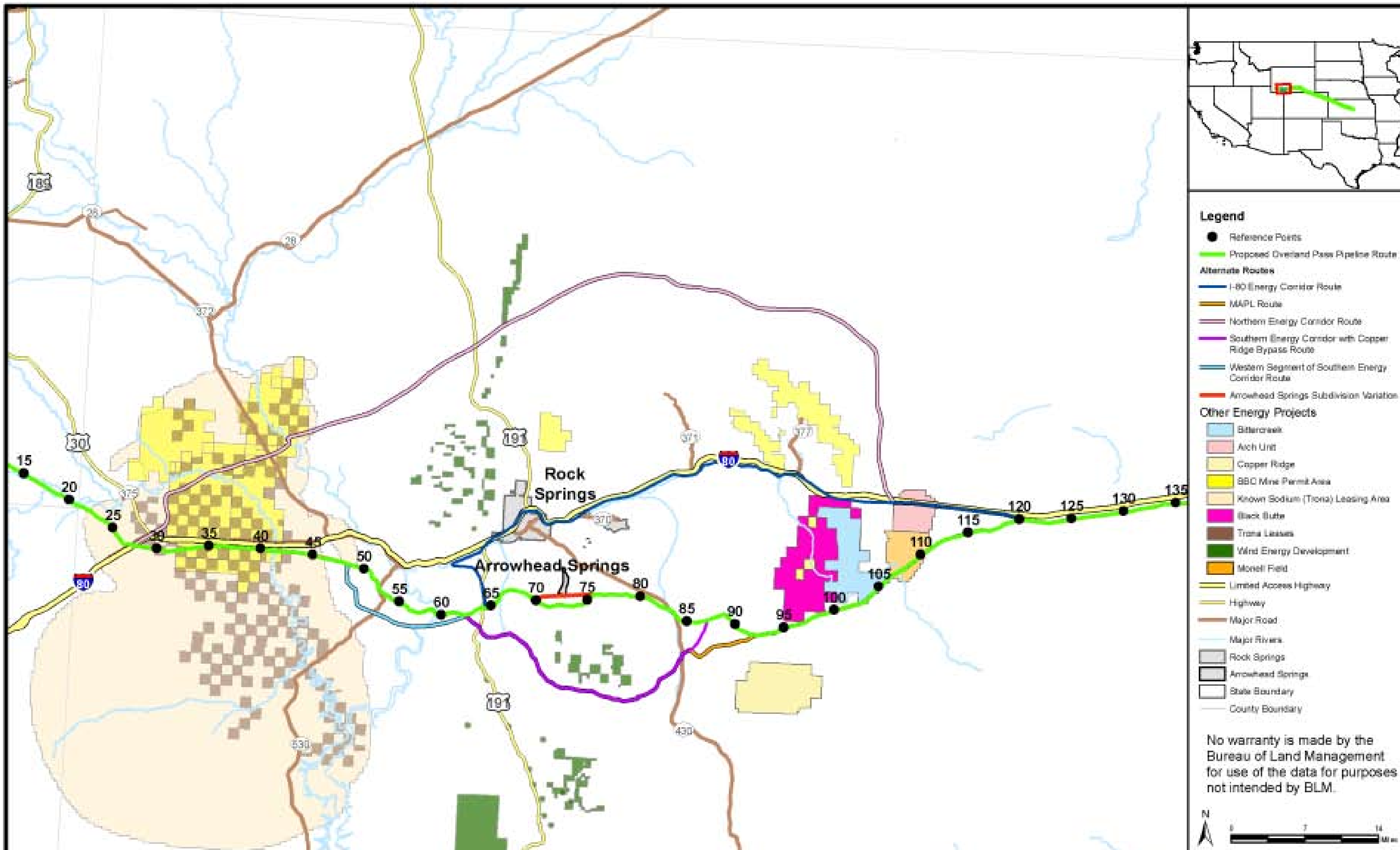
2.2.3 Southern Energy Corridor – Copper Ridge Bypass Alternative

The Southern Energy Corridor – Copper Ridge Bypass Alternative is a ROW window identified in the Green River RMP. The BLM encourages, but does not require, new linear projects (e.g., pipelines, electrical transmission powerlines, communication cables) to construct within these windows. Based on a number of issues, including physical constraints and constructability issues, this route alternative would follow a portion of the Southern Energy Corridor as described below.

The Southern Energy Corridor diverges from the Proposed Action at approximately RP 62 to avoid potential future development of the City of Green River and eventually follows the Mid-America Pipeline System (MAPL System) from approximately RP 92 to RP 120. In contrast to the Proposed Action, the Southern Energy Corridor – Copper Ridge Bypass Alternative generally follows the MAPL pipeline southeast until it intersects with County Road 430 where the corridor then begins to head back northeast toward Interstate 80 (I-80) (**Figure 2.2-9**). The Southern Energy Corridor – Copper Ridge Bypass Alternative would diverge from the MAPL route and rejoin the Proposed Action at approximately RP 87, thereby skirting around the north edge of Copper Ridge in a relatively flat valley (Cutthroat Draw). This would avoid extremely steep terrain associated with Copper Ridge. The Southern Energy Corridor – Copper Ridge Bypass is approximately 4.8 miles longer than the corresponding segment of the Proposed Action.

2.2.3.1 Proposed Facilities

The proposed facilities for this alternative would not change substantially from the Proposed Action. Overland Pass would still construct a 14-inch diameter pipeline. The pump station configuration would not be changed and meter station locations would not change. The Sweetwater pigging facility at RP 72.1 would be shifted to an accessible location along the alternative route.



Overland Pass Pipeline Project

Figure 2.2-9

Route Alternatives Rock Springs Area

2.3 Alternatives Considered but Eliminated from Detailed Study

The NEPA process requires that the lead federal agency evaluate reasonable alternatives to the Proposed Action, including the No Action Alternative. With the exception of the No Action Alternative, alternatives would need to meet the project objective of delivering NGL volumes of 150,000 bpd from the project origins at Opal and Echo Springs to midstream delivery points at Bushton and Conway. Key issues identified in the scoping process are used to identify alternatives that could potentially reduce environmental impacts. Alternatives evaluated in detail within the EIS must be reasonable, feasible, and result in similar or reduced impacts compared to the Proposed Action.

Based on these considerations, the BLM considered but eliminated many variations to the original proposed route including:

- System Alternatives
  - Trucking or Railroad Transport;
  - Enterprise Pipeline System;
  - Alternative pipeline configurations;
- Route Alternatives
  - I-80 Energy Corridor Route Alternative;
  - Northern Energy Corridor Route Alternative;
  - Western Segment of the Southern Energy Corridor Route Alternative;
  - MAPL Route Alternative; and
- Local Route Variations.

2.3.1 System Alternatives

System alternatives are alternatives to the Proposed Action that would make use of other existing, modified, or proposed transmission systems to meet the stated objectives of the project. A system alternative would make it unnecessary to construct all or part of the proposed project, although some modifications or additions to one or more pipeline systems may be required to increase existing capacity, or another entirely new system may need to be constructed. Such modifications or additions would result in environmental impacts; however, the impacts could be less than, similar to, or greater than that associated with construction of the Proposed Action.

2.3.1.1 Trucking or Railroad Transport

While NGLs potentially could be transported via trucking or by rail transport, both alternative forms of transport would be more costly than shipping by pipeline. Moreover, statistics indicate that pipelines tend to be safer modes of transport.

Pipelines operate more safely than other transportation modes as indicated in **Table 2.3-1**. These statistics indicate that trucking is 87 times more likely to result in human fatalities than by pipeline. Similarly, trucking results in 35 times more fires and explosions than pipelines (Associations of Pipe Lines [AOPL] 2006).

Assuming one truck could load and unload every 2 minutes, it is estimated that a fleet of over 2,500 trucks would be necessary to transport a volume of NGLs similar to the Overland Pass Pipeline (Allegro Energy Group 2001). Because trucks shared the same highways and roads as the general public, this large number of trucks transporting NGLs poses a greater safety hazard than pipelines and railroads that utilize a different set of ROWs. In addition to the potential hazards to public safety, this large number of trucks also would increase the cost of transportation; increase fuel consumption; increase emissions; increase local traffic congestion (particularly in rural areas such as Opal, Bushton, and Conway); and increase the number of animal-vehicle collisions when compared to transport by pipeline.

Table 2.3-1 Relative Risk[1] of Pipelines Compared to Other Transportation Methods

	Fatalities	Injuries	Fire/Explosion
Truck	87	2	35
Rail	3	0.1	9
Barge	0.2	4	4
Tank Ship	4	3	1
Pipeline	1	1	1

[1]Relative risk is calculated on incidents per ton*mile for each transportation mode (AOPL 2006).

Similarly, replacement of the Overland Pass pipeline would require the daily arrival and departure of 75 pressurized railcars (assuming 2,000 barrel capacity)[3]. While substantially safer than trucking, rail transport is not as safe as pipeline transport in terms of fatalities and fires and explosions. Moreover, the significant increase in railcars would increase the cost of NGL transportation, increase fuel consumption; increase emissions; increase local rail traffic (particularly in rural areas such as Opal, Echo Springs, Bushton, and Conway); and increase animal-railcar collisions when compared to transport by pipeline.

Given the increased number of trucks or pressurized railcars that would be required to transport similar volumes of NGLs and the associated increased public safety risk and environmental impacts, truck and rail transport were not considered viable alternatives to the Proposed Action.

2.3.1.2 Enterprise Pipeline System

Enterprise, an existing pipeline system was evaluated as a system alternative to the proposed Overland Pass Pipeline route. Enterprise is the only pipeline system that currently moves NGL from southwestern Wyoming. Enterprise operates the MAPL System and the Seminole Pipeline System (Federal Energy Regulatory Commission [FERC] 2005; MAPL 2005a) (**Figure 2.3-1**). The MAPL system includes the Rocky Mountain Pipeline and the Conway South Pipeline (MAPL 2005a). The Rocky Mountain Pipeline is approximately 2,548 miles long and transports NGL from points in Wyoming to Hobbs-Gains, Texas. The Conway South Pipeline is a bi-directional pipeline approximately 1,938 miles long that extends between Hobbs-Gains, Texas, and Conway, Kansas.

Enterprise currently does not transport NGL from the Rocky Mountains to the Conway Hub. Instead, it transports mixed NGL via the Rocky Mountain Pipeline from the Rocky Mountain Overthrust and San Juan basins to the Hobbs Hub located on the Texas-New Mexico border. It also connects the Conway Hub to the Hobbs Hub via the Conway South Pipeline. Under normal operations, the Conway South pipeline moves NGL from Kansas refineries toward Hobbs Hub, and does not move mixed NGL toward Conway (MAPL 2005a). NGL in the Enterprise system is shipped from Hobbs via the Seminole Pipeline to Mont Belvieu, where it is fractionated into its constituents for commercial and residential uses.

Enterprise reports that because of strong drilling activity and increasing production of rich natural gas and associated NGL in the Upper Green River, Piceance, and San Juan basins, the Rocky Mountain Pipeline is operating near full capacity and that NGL dedicated to the Enterprise-affiliated Mont Belvieu NGL fractionator continue to exceed the capacity of the fractionator (MAPL 2005b). As a result, Enterprise has begun two expansion projects to increase NGL capacity, one of which is the Western Expansion Project, the other is expansion of the Mont Belvieu fractionator facility.

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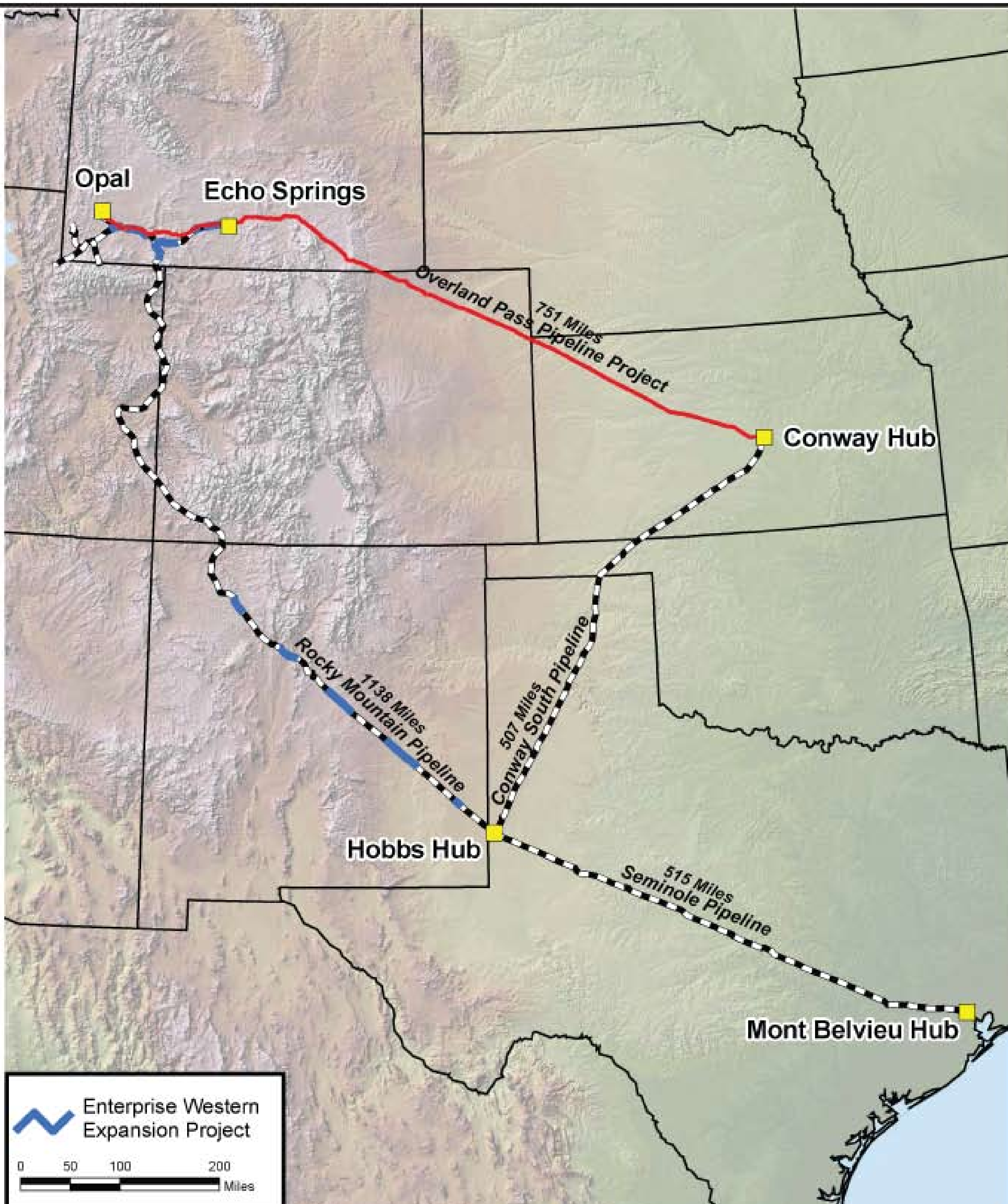
[3] Estimate based on 10,000 barrel capacity per railcar, traveling 500 miles per day of travel, and transporting 150,000 bpd.



Overland Pass Pipeline Project

Figure 2.3-1
Enterprise Pipeline System Alternative

The proposed Western Expansion Project would increase the capacity of the Rocky Mountain segment of the Enterprise Alternative from its current capacity of 225,000 bpd to 275,000 bpd. Because of the Western Expansion Project and increasing NGL production, the Enterprise-affiliated Mont Belvieu complex is considering the construction of a new NGL fractionator that could increase the facility's fractionation capacity by an additional 60,000 bpd.

Currently, the Rocky Mountain region produces approximately 25 percent of the natural gas in the U.S., and experts predict that gas production in the Rocky Mountain region could increase from 3.3 tcfy in 2002 to 6.3 tcfy in 2025 (USDOE 2004). Given this relatively significant increase in natural gas production, NGL available for transport also would increase. Despite the added 50,000 bpd capacity brought by the proposed Western Expansion Project, further expansion would be needed to accommodate the forecast NGL production from the Rocky Mountain area.

In order to transport additional volumes of NGL proposed by the project, the Enterprise system would require further expansion through construction of pipeline loops on the Rocky Mountain Pipeline. In addition to a new loop pipeline, its pumping capacity would have to be increased by constructing new pumping stations or upgrading the many existing pumping stations.

The Rocky Mountain Western Expansion Project is compared to the Proposed Action in **Table 2.3-2**. Because the Enterprise Alternative would not meet Overland Pass' capacity, infrastructure diversity, schedule, or delivery to Conway Hub goals, it was eliminated as a viable alternative to the Proposed Action.

Table 2.3-2 Comparison of the Western Expansion Project to the Proposed Action

Comparison Factor	Enterprise Western Expansion Project	Proposed Action
Proposal	About 202 miles of pipeline broken into 12 loops connected to existing MAPL System, between Wamsutter, Wyoming and Hobbs, New Mexico	About 760 miles of new, contiguous pipeline between Opal, Wyoming and Conway, Kansas
Services Echo Springs and Opal?	Yes	Yes
Takes advantage of existing fractionation facilities near the Conway Hub?	No	Yes
Adds alternative means to transport NGL from Rockies?	No	Yes
Proposed in-service date	December 2006	December 2007
Additional capacity offered	50,000 bpd	150,000 bpd
Federal lands crossed	53.4 miles	123.2 miles
Co-location with other transportation or energy facilities	100 percent	83 percent

2.3.1.3 Alternative Pipeline Configurations

Alternative pipeline configurations were considered that included a pipeline diameter configuration of 16 to 18 to 20 inches in diameter, changing the diameter from 16 to 18 inches at Echo Springs and from 18 to 20 inches at Laramie. The larger diameter pipeline would require less pump capacity to move the 150,000 bpd of NGL proposed by Overland Pass. However, increasing pipe diameter and wall thickness would increase capital costs that eventually become economically infeasible. Conversely, utilizing small diameter pipe for the project would require more pumping capacity due to hydraulic friction to move the 150,000 bpd of NGL through a smaller pipe. Overland Pass conducted an analysis and determined that the 14-inch- and 16-inch-diameter pipeline would balance efficiency and cost in moving 150,000 bpd along this pipeline route.

The amount of surface disturbance would be comparable for all pipe diameters considered since the construction ROWs for 12- to 20-inch-diameter pipe would be the same (i.e., 75 feet wide).

2.3.2 Route Alternatives

Due to the concerns expressed during scoping by agency personnel and by the public in the Green River and Rock Springs area, route alternatives were examined for this portion of the pipeline. Major route alternatives are substantially different route alignments that still fulfill the project's purpose. Across the Green River area, the Proposed Action currently follows portions of Enterprise's existing east-west MAPL pipeline and I-80 (**Figure 2.2-9**).

Appendix E provides a summary table that compares the various route alternatives in terms of length of pipeline, amount of side-slope construction, additional surface disturbance, waterbody crossings, the number of occupied structures within 500 feet, and other relevant factors.

2.3.2.1 I-80 Energy Corridor

To minimize surface disturbance, the most direct west-to-east pipeline route was evaluated. This route would follow the I-80 Energy Corridor through the Green River area. Overland Pass provided a preliminary route that would utilize the I-80 Energy Corridor to the extent practical. This route alternative would avoid the City of Green River by initially following the Proposed Action until it intersects U.S. Highway 191. The I-80 Energy Corridor route alternative then heads north primarily along U.S. Highway 191 in a designated corridor, and then reconnects with the I-80 Energy Corridor (**Figure 2.2-9**).

The I-80 Energy Corridor passes through portions of the cities of Green River and Rock Springs and is highly congested with existing pipelines. There are two areas in particular that are physically constrained from further corridor expansion. The first is located around the City of Green River. In this area, the I-80 Energy Corridor is constrained to the north by difficult terrain and by residential development to the south. Due to the recognized lack of space within this corridor, the Green River RMP recommends that any remaining space within the corridor be used for local pipelines dedicated to local transportation of natural gas. The second severely constrained portion of the I-80 Energy Corridor is located further east near Black Butte and BBC Mine Permit areas. In this area, the I-80 Energy Corridor already is heavily congested and is constrained from expansion to the north and south by these coal leases.

This I-80 Energy Corridor route alternative is approximately 8.2 miles longer than the Proposed Action, including 0.4 mile of land with greater than 30 percent slope. The route would cross or closely approach areas with documented subsidence near the town of Rock Springs and near Point of Rocks. The I-80 Energy Corridor already is close to carrying capacity with 8 to 22 existing utility lines in place depending on location along the corridor. Finally, the route would be located in 9.4 more miles of populated areas than compared with the Proposed Action route.

In the Green River RMP, the BLM states that the I-80 corridor is "an avoidance area for major utility lines" between Green River and Point of Rocks and suggests that the area be restricted to local distribution service lines. This decision was based on the congestion in the area as well as surface mining. In order to avoid the over-congestion and physical constraints of the I-80 Energy Corridor, a pipeline potentially could be routed further north along the Northern Energy Corridor or south along the Southern Energy Corridor.

As a result of the utility line congestion, the 8.2 miles of additional pipeline required (and greater land disturbance), and the two physical constraints along the I-80 Energy Corridor, this route alternative was considered but eliminated from more detailed consideration (**Appendix E**).

2.3.2.2 Northern Energy Corridor

The Northern Energy Corridor primarily follows a pipeline and the electrical transmission powerline associated with the Jim Bridger power plant located north of Rock Springs. This route heads northeast from approximately

RP 28, just west of the U.S. Highway 30 interchange, crossing approximately 20 miles of mineable trona deposits, including FMC Corporation's (FMC's) Westvaco trona mine. The route reaches the Table Mountains, then heads southeast back toward I-80, reconnecting with the I-80 corridor near the Bitter Creek Road interchange. This route bypasses the congestion and geographic constraints associated with the I-80 corridor. However, the route is approximately 14.4 miles longer than the Proposed Action, would intersect 0.1 mile of slopes greater than 30 percent, and bisects 20 miles of trona mine leases.

This route was eliminated as a reasonable alternative due to its overall length, amount of surface disturbance, construction difficulty and cost (i.e., amount of side-slope and steep slopes), number of perennial waterbodies crossed, conflicts with trona mine leases, and increased proximity to populated areas and occupied structures (**Appendix E**).

2.3.2.3 Western Segment of the Southern Energy Corridor

At about RP 62, the Southern Energy Corridor diverges south of the Proposed Action, avoiding the southern portion of the City of Green River Development Area, an area identified for potential future development by the City of Green River. Within this western portion of the Southern Energy Corridor, the route alternative would not be co-located with other existing utilities. Construction access and existing slopes at this alternative's Green River crossing would pose a serious construction issue. It also would require the construction of a separate roadway. This alternative would cost an additional $3 million and would require an additional work crew. Additionally, the length (7.4 miles) of the Western Segment would be more than twice the length of the Proposed Action through this area (3.2 miles), causing greater surface disturbance. This alternative was eliminated due to poor construction feasibility, increased surface disturbance, increased need for reclamation, and increased potential for future maintenance issues.

2.3.2.4 MAPL Route

Preliminary routing efforts along the Southern Energy Corridor attempted to co-located the new Overland Pass Pipeline ROW with existing utilities to the maximum extent practical. The MAPL route would diverge from the Proposed Action at RP 62.3, follow the Southern Energy Corridor, and rejoin the Proposed Action at RP 92.2. Similarly, the MAPL route would diverge from the Southern Energy Corridor – Copper Ridge Bypass Alternative near County Road 430. The MAPL route would follow the existing MAPL pipeline up a steep slope that crosses Copper Ridge (**Figure 2.2-9**). The MAPL Route Alternative generally lies within the Southern Energy Corridor and would be approximately 4.8 miles longer than the Proposed Action. It would cross 4 perennial streams and be located within 500 feet of 14 buildings.

The Southern Energy Corridor, including the MAPL route, is broadly characterized by rocky and rough terrain and would require substantial portions to be constructed using steep and side slope construction techniques. In particular, Copper Ridge, with slopes in excess of 50 degrees, would pose extreme challenges for pipeline construction, operations, and maintenance. Because of the severity of the steep slopes in areas such as Copper Ridge, large earth-moving equipment would need to be suspended from cables and winches in order to construct the pipeline, posing an elevated risk to the construction workers and equipment. Along this alternative, 7 miles of rocky soils may require blasting to construct the pipeline.

When compared to other routes, the MAPL route has an elevated potential for landslide activity because it closely approaches small landslide deposits in Circle Creek Canyon (Township 16 North [T16N] Range 105 West [R105W]). In 1981, a landslide on Copper Ridge caused the complete rupture of the existing MAPL pipeline. Slope instability may have been partially attributable to the difficulty of maintaining the pipeline ROW in extreme slopes with unstable soils and poor reclamation potential. Consequently, this alternative was eliminated from more detailed analysis.

2.3.3 Local Route Variations

2.3.3.1 Arrowhead Springs Subdivision Variation

During scoping, comments were received from residents of the Arrowhead Springs subdivision. Many comments focused on issues related to the proximity of the pipeline to the residential area and concerns about impacts to water quality, particularly in a nearby spring that flows north towards the subdivision. Based on these scoping comments, Overland Pass evaluated whether the pipeline could be routed approximately 1 mile south of the Arrowhead Springs subdivision (**Figure 2.2-9**). After conducting field reconnaissance and based on BLM's recommendation, Overland Pass revised their proposed route to address concerns of the Arrowhead Springs Subdivision.

The Arrowhead Springs Subdivision Variation represents Overland Pass' original route through this area. Because the potential impacts associated with the revised Proposed Action are less than those associated with the original route through the area, the Arrowhead Springs Subdivision Variation was eliminated from further analysis.

2.3.3.2 Green River Crossing Variation

Concerns were initially expressed regarding the Proposed Action's Green River crossing, located at the upper end of the Flaming Gorge reservoir. Preliminary evaluations raised the possibility of the Proposed Action being located within an area subject to potential scour due to the fluxuations in the full pool of Flaming Gorge Reservior. A route variation was suggested that would be further north of the Proposed Action location, but would be closer to residential areas near the City of Green River.

The USFS conducted a site visit and concluded that the proposed Green River crossing location minimized potential environmental impacts and was preferable to the location of the proposed variation because access to the proposed site was better, it was further from residential development and the town of Green River and that scour potentials were likely comparable at both locations. In addition, the variation does not parallel existing pipeline facilities and would create a second potential corridor and crossing for any future projects. Consequently, the Green River Crossing Location Variation was eliminated from further consideration.

2.3.3.3 Trona Mines Variations

Mineable trona deposits are located to the west of the City of Green River. The original proposed pipeline route would bisect trona mine leases in this area, including General Chemical and FMC leases. During scoping, concerns were raised about the pipeline's route through this area, potential conflicts with use in the future, and potential mine-induced subsidence issues. FMC plans to mine these deposits in 2009 and General Chemical mining activity is schedule for 2020. As a result of these issues, Overland Pass evaluated an alternative route that would bypass these areas approximately 1 mile to the north to eliminate conflicts with future mining activities. Overland Pass incorporated this reroute into their Proposed Action that added 1.1 miles to the entire project length between RP 33.5 and RP 36.2.

After Overland Pass developed a reroute for this area, it was determined that the reroute would interfere with a planned ventilation shaft associated with mining activities near Little America. Based on this additional issue, Overland Pass subsequently revised their proposed route to avoid this area.

The Trona Mines Variation represents the original routes through the mine lease areas. Because the potential impacts associated with the revised Proposed Action are less than those associated with the original routes through the area, the Trona Mines Variations was eliminated from further analysis.

2.3.4 Aboveground Facility Location Alternatives

Review of the proposed aboveground facility locations did not identify any significant issues. Consequently, no alternative facility locations were identified.

2.4 Comparison of Alternatives

2.4.1 Summary and Comparison of Action Alternatives

Land requirements and aboveground facilities required for the construction and operation of the Proposed Action are described in Section 2.2.1.

The Southern Energy Corridor – Copper Ridge Bypass Alternative (Section 2.2.3) would have the similar facility requirements as the Proposed Action, with the number and location of pump stations, meter stations, pigging facilities, valves, and pipe storage and contractor yards remaining the same. While many impacts to environmental resources from the Southern Energy Corridor – Copper Ridge Bypass Alternative would be similar in magnitude and duration compared to the Proposed Action, the alternative would cause greater surface disturbance, be more difficult to construct and reclaim, be in close proximity to a greater number of buildings, and be more costly to construct. The Proposed Action would cross more miles of OPS-designated High Consequence Areas (HCAs) due to its proximity to the Rock Springs area. The primary differences between the Proposed Action and the Southern Energy Corridor – Copper Ridge Bypass Alternative are identified in **Table 2.4-1**.

Under the No Action Alternative, the proposed project would not be constructed and the resources discussed in **Table 2.4-1** would not be affected. Because natural gas development would continue in the region, regardless of whether this project was constructed or not, the supply of natural gas liquids would exceed the existing, regional NGL transportation capacity. As a result, other NGL transportation projects likely would be proposed in the foreseeable future.

Table 2.4-1 Comparison of Differences Between Action Alternatives for Segment RP 62.3 to RP 87.1

	Proposed Action	Southern Energy Corridor— Copper Ridge Bypass	Additional Discussion
Construction Impacts			
Length of Route (miles)	26.0	30.8	Chapter 2
Co-located ROW (estimated miles)	7.8	26.4	**Table 2.2-4**
Surface Disturbance:			**Table 4.8-1**
Temporary (acres)	236	280	
Permanent (acres)	158	181	
Additional surface disturbance associated with side-slope construction (acres)	Base case	Base case + 18 acres	Sections 3.4 and 4.4
TWAs (acres)	73.7	87.3	Sections 3.8 and 4.8
Access Roads (#)	11	23	Sections 3.8 and 4.8
Road crossings:			Sections 3.8 and 4.8
Paved (#)	1	1	
Gravel/Dirt (#)	20	19	
Installation Costs ($millions)	Base Case	Base Case + $4.4 M	
Major Constraints for Construction	None	More steep and difficult terrain	Sections 4.3 or 4.4
Water Resources			
Waterbody Crossings:			Sections 3.5 and 4.5, **Appendix F**
Intermittent (#)	46	47	
Perennial (#)	2	4	
Total (#)	48	51	
Water Depletions:			Sections 4.5 and 4.7, **Appendix C**
Hydrostatic Test Water (estimated gallons)	Base Case	Base Case + 300,000	
Dust Control Water (estimated gallons)	764,263	905,359	
Vegetation			
Wetland Habitat (estimated acres)	<0.01	0.2	Sections 3.5, 3.6, 4.5, and 4.6

Table 2.4-1 Comparison of Differences Between Action Alternatives for Segment RP 62.3 to RP 87.1

	Proposed Action	Southern Energy Corridor— Copper Ridge Bypass	Additional Discussion
Wildlife, Fisheries, and Special Status Species			
Big Game Crucial Habitat (acres)	0	5.4	Sections 3.7 and 4.7
Threatened and Endangered Species Habitat (acres)	Base Case	No substantial difference from Base Case with exception of cliff-associated species (e.g., golden eagles)	Sections 3.7 and 4.7
Land Use			
Federal Land Ownership (miles)	10.9	18.5	Sections 3.8 and 4.8
Cultural Resources			
Eligible Sites (Unevaluated Sites) (#)	0 (0)	1 (6)	Sections 3.9 and 4.9
Public Health and Safety			
OPS-designated HCAs:			Sections 3.12 and 4.12
Drinking water (miles)	6.4	0	
Ecological Areas (miles)	0	0	
Populated Areas (miles)	3.5	0	
Buildings within 500 feet of the ROW (#)	3	14	Sections 3.12 and 4.12

Note: Distance between Reference Points may not equal 1 mile.