Questar Pipeline Co.

Mainline 104 Extension

to Fidlar Project

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Description

In 2011, Questar Pipeline Company installed a 24-inch-diameter high pressure natural gas transmission pipeline in Uintah County, Utah. The nearly 25-mile pipeline project, entitled Mainline 104 Extension to Fidlar, extended from an existing Questar block valve easterly to Questar's Fidlar Compressor Station. The route closely paralleled existing pipeline rights-of-way within a designated energy corridor along most of the route.

To greatly minimize visual impacts and to meet or exceed BLM visual resource requirements, Questar implemented a number of innovative mitigation measures throughout the construction process.

Purpose

A very sensitive section of the project was where the right-of-way crossed the Green River. Though this one mile portion of the pipeline alignment is within the energy corridor, it has been designated as an Area of Critical Environmental Concern and as an area suitable for listing as a Wild and Scenic River. As such, the Bureau of Land Management is managing activities to protect the scenic characteristics of the area. The BLM's objectives focus on retaining the existing character of the landscape.

Process

Before construction began Questar met onsite with BLM resource specialists, including a visual resource management specialist with the state office, to seek input and assistance. A visual assessment was developed based on 11 key observation points (KOPs) that represented likely positions of casual observers in the project area.

A viewshed analysis was completed from each KOP using ArcGIS's Spatial Analysis extension. Through the use of this tool, Questar was able to graphically represent a potential viewers perspective from each of the KOPs based on the potential viewer's elevation and relationship to the landforms and elevations within the viewshed. Each KOP was analyzed to determine potential impacts.

Questar floated the Green River to provide video documentation of the visual environment prior to construction. The video verified the viewshed analysis showing that the pipeline alignment on the west side of the Green River would not be visible from the crossing location due to dense riparian vegetation on the west bank and the location of the route was within a low spot on the landscape. The route on the east side of the Green River was also obscured in many locations by the vegetation topography.

Based upon this analysis a route was chosen to avoid areas where full restoration, due to large rock faces and sheer cliffs, would not be possible.

Questar maintained existing riparian vegetation along the river to provide a visual barrier between a casual observe from the river and construction activities. The pipeline was routed down the west side of the Green River valley in an existing draw and along a two-tracked/bladed road to reduce the potential visibility of the crossing. The road was reclaimed at the end of construction with agency approval to further improve the existing visible condition.

The Green River was crossed using a horizontal directional drill method and set up on equipment mats to minimize rutting and other disturbances on the river banks. Additionally, a recently disturbed staging area was used to construct up the main face of the steepest slope on the east side of the Green River, which reduced additional disturbance.

Disturbed areas were reseeded using native species, and in some rocky, non-fertile locations, reclamation was supplemented with mycorrhizal inoculums and slow release fertilizer to stimulate growth. Where boulders and rock ledges were re-established along the east hillside, a rock stain used to further match the weathered look of surrounding, non-disturbed rock ledges.

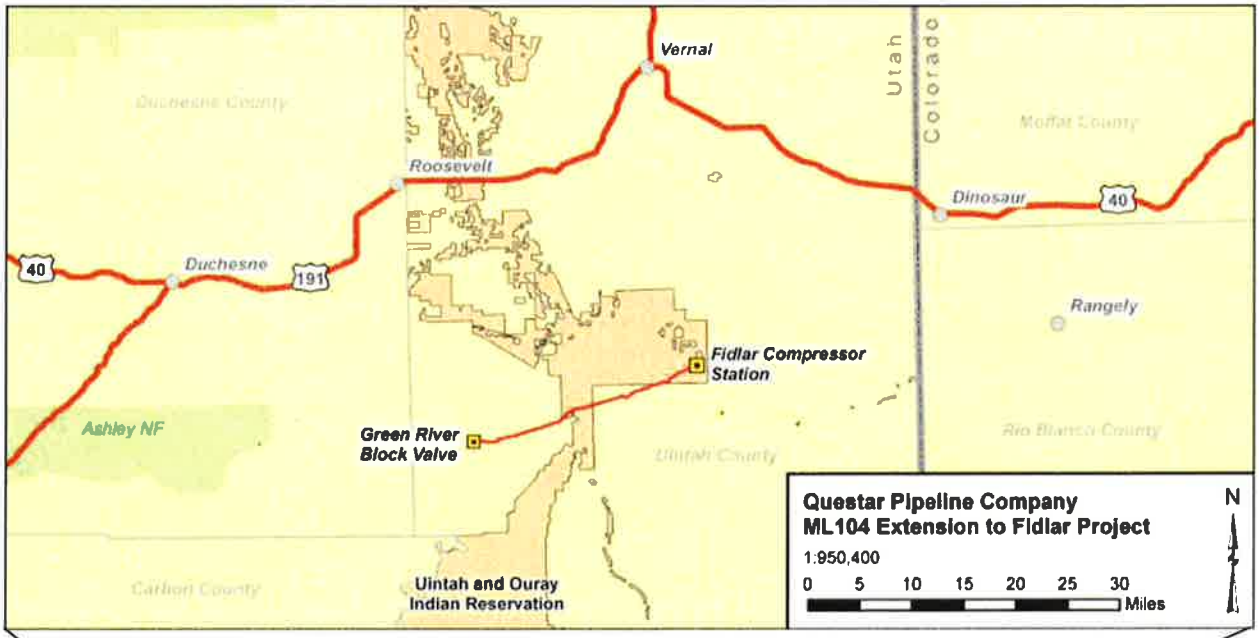
Contributions to Environment

The attention to detail and new and innovative approaches associated with the Green River crossing location produced exceptional visual results. As the project was completed and reseeded in the fall of 2011, vegetation growth had not yet been fully established. However, even without new vegetation, disturbed areas in the critical Lower Green River corridor are virtually unnoticeable.

Accomplishment

The Bureau of Land Management has included the ML104 as an exemplary example project as part of their 2012 resource management training program.

Mr. Rob Sweeten, visual resource management lead for the Utah State BLM Office, said, "...the ML104 Extension to Fidlar pipeline was some of the best work I have seen in my 19 years of working on visual issues."


Vernal
Utah
Colorado
Roosevelt
Dinosaur
40
Duchesne
191
40
Rangely
Fidlar Compressor Station
Green River Block Valve
Ashley NF
Uintah and Ouray Indian Reservation
Questar Pipeline Company
ML104 Extension to Fidlar Project
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IDAHO
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WYOMING
COLORADO
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Provo
Roosevelt
UTAH
Delta
Gunnison
Green River
Richfield
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Cedar City
St. George
Kanab
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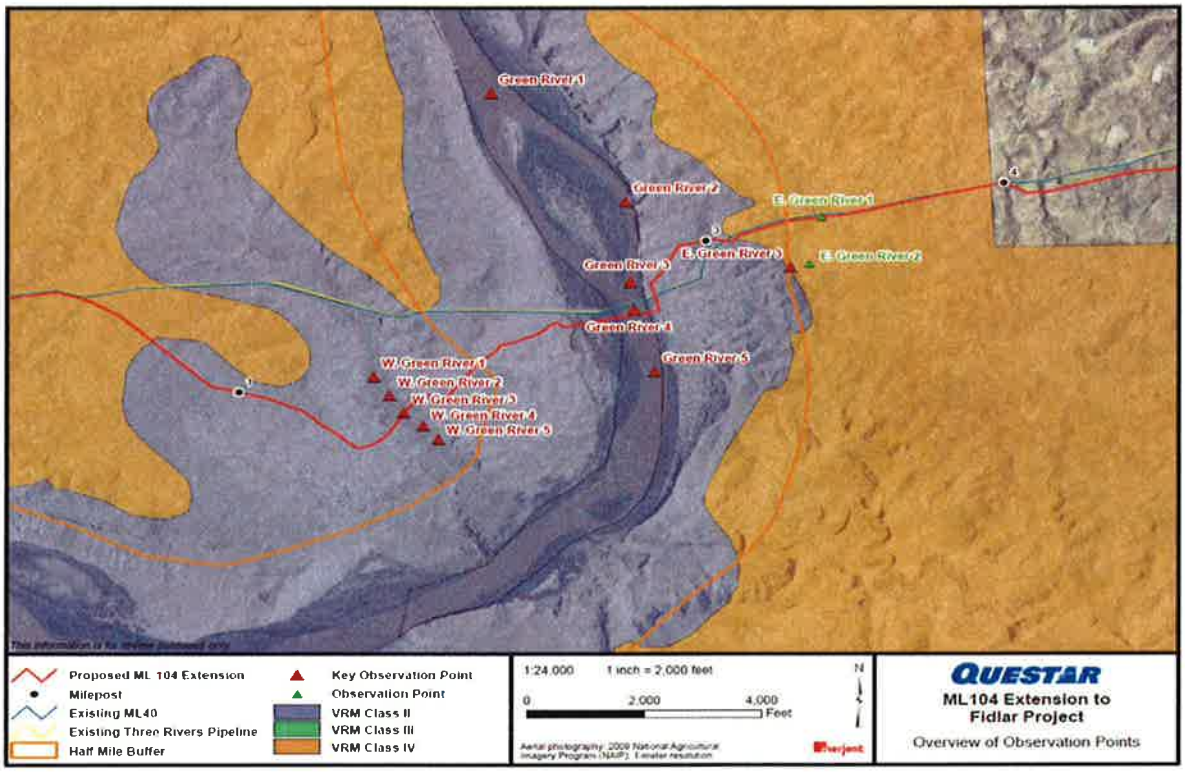
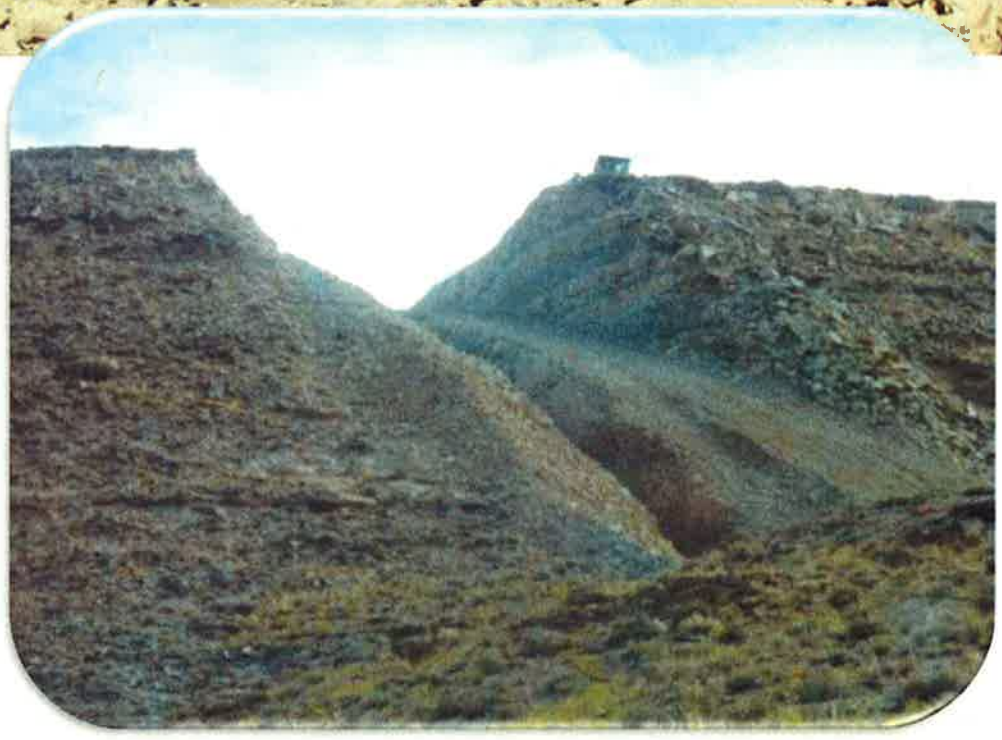
Sample Viewshed Analysis Document



Horizontal Drilling

East Side of River Prior to Construction

During Construction



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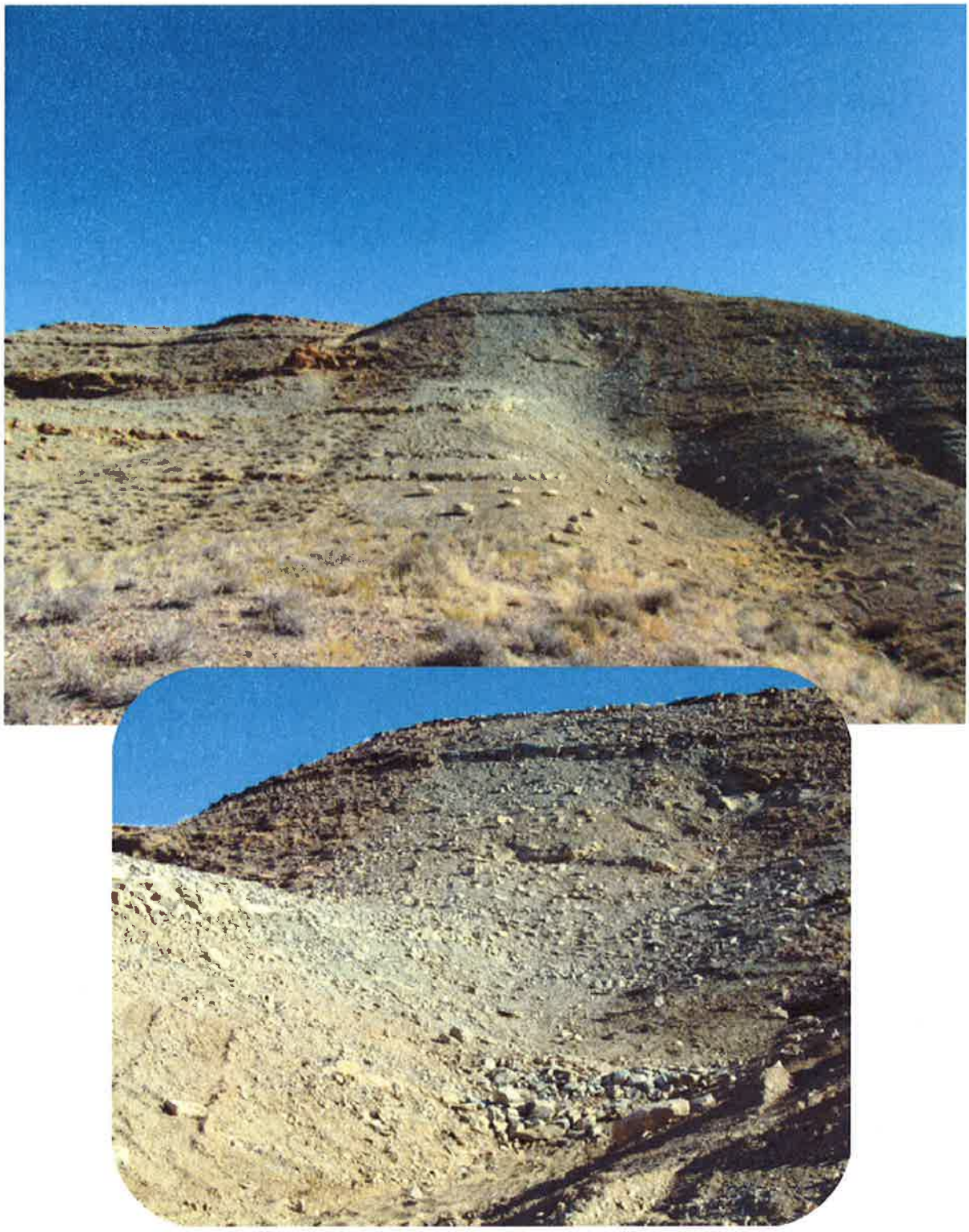
Post Construction



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West Side of River Prior to Construction

West Side of River Post Construction

Yellow line marks path of project. What appears to be disturbance on right is unrelated to Questar's project.