

**United States Department of the Interior
Bureau of Land Management**

Colorado River Valley Field Office
2300 River Frontage Road
Silt, Colorado 81652
970-876-9000

Environmental Assessment

DOI-BLM-CO-G020-2021-0001-EA

***TEP Rocky Mountain LLC
WMC 24-17 Project***

**Federal Lease COC50944 (surface)
COC75070 (bottomholes)**

January 2021



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Conditions of Approval

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1. INTRODUCTION

BUREAU OF LAND MANAGEMENT (BLM) OFFICE: Colorado River Valley Field Office (CRVFO).

CASEFILE/PROJECT NUMBER: Federal leases COC50944 (surface land) and COC75070 (bottomholes), NEPA Number DOI-BLM-CO-G020-2021-0001-EA.

PROPOSED ACTION TITLE/TITLE: WMC 24-17 Project: Proposal to develop 17 Federal oil and gas wells from the proposed WMC 24-17 well pad on BLM-managed land in Garfield County, Colorado.

PROPOSER: TEP Rocky Mountain LLC. Contact – Adam Tankersley, 970-623-8994.

1.1 BACKGROUND

TEP Rocky Mountain LLC (“TEP”) proposes to drill, complete, and operate 17 Federal oil and gas wells from the proposed WMC 24-17 well pad on BLM-managed lands located approximately 7 miles south of Rifle, Colorado. The well bottomholes would underlie National Forest System (NFS) Lands administered by the White River National Forest (WRNF), Rifle Ranger District. To develop fluid minerals efficiently while avoiding impacts to the adjacent WRNF Mamm Peak Roadless Area, the Federal wells would be drilled directionally into Federal lease COC75070 beneath the Roadless Area from BLM land on Federal lease COC50944. Lease stipulations attached to Federal lease 50944 and protections derived from the current CRVFO land use plan would be applied to the protection of environmental resources and other resources on the BLM land. No surface disturbance or use would occur on NFS land.

In addition to the proposed well pad and associated access road and pipelines, the project would utilize existing surface facilities to support the well development. These existing support locations are mostly on private land, except for the RU 23-17 pad on BLM land, which would provide metering and/or connection points for natural gas and produced water pipelines.

The proposed WMC 24-17 well pad would be accessed east of the Garfield County Beaver Creek Road (CR 317) across existing private development roads and a proposed 0.86-mile extension on private and BLM lands (**Figure 1**). A security gate at the private road intersection with CR 317 precludes access into the project area by the general public.

1.2 LOCATION AND LEGAL DESCRIPTION

The proposed pad, road, pipelines, and ancillary facilities encompass all or parts of:

Sixth Principal Meridian, Colorado
Township 7 South (T. 7 S.), Range 93 West (R. 93 W.),
Section 7, Lot 1, E $\frac{1}{2}$ SE $\frac{1}{4}$;
Section 17, W $\frac{1}{2}$ NW $\frac{1}{4}$, SE $\frac{1}{4}$ NW $\frac{1}{4}$, NE $\frac{1}{4}$ SW $\frac{1}{4}$, S $\frac{1}{2}$ SW $\frac{1}{4}$;
Section 18, Lot 5, NE $\frac{1}{4}$ NE $\frac{1}{4}$, SW $\frac{1}{4}$ SE $\frac{1}{4}$.

As described in **Sections 2.3 and 3.4**, the project area is mapped as mule deer general winter range by Colorado Parks and Wildlife (CPW). This general winter range habitat is protected by a Timing Limitation (TL) stipulation that precludes construction, drilling, and completion activities from December 1 through April 15 of each year. The RU 44-7 frac pad, accessed by the Flatiron Mesa access road uses a BLM road right-of-way (ROW) with a TL from January 16 through April 29 to protect big game (elk and mule deer) winter habitats. These TLs are an issue for the WMC 24-17 project, because TEP’s current (preferred) development schedule includes mobilization and development activities at the pad from February 2022 through July 2022, beginning approximately 1 year after completion of this EA.

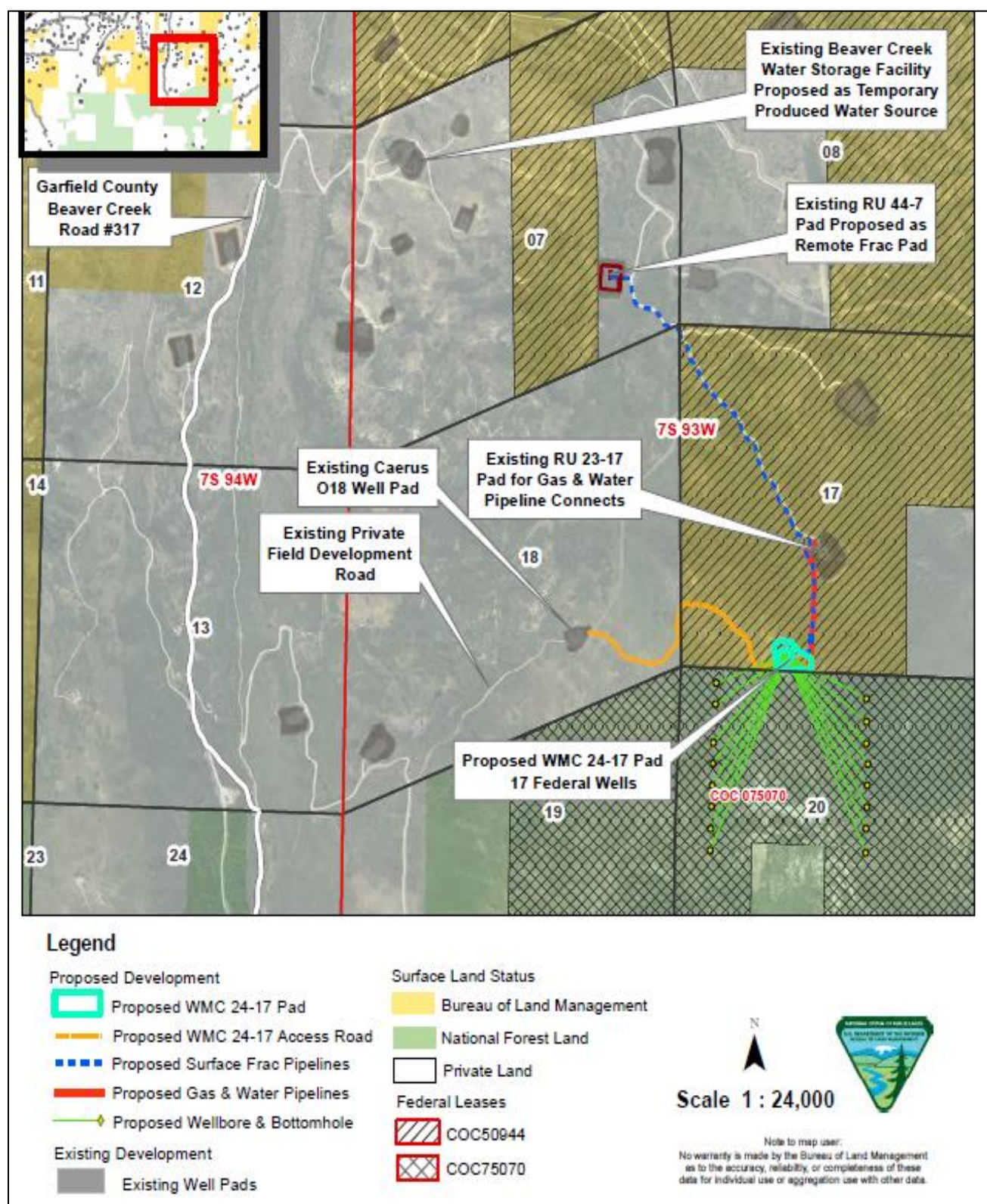


Figure 1. WMC 24-17 Project Area

TEP would not be allowed to implement its current winter schedule unless the BLM, in collaboration with CPW, were to approve a request for an exception to the TL for the February through April period. The collaborative process between BLM, CPW and the operator considers design features (e.g., siting of surface facilities, utilizing existing facilities, limiting noise on the pad, and limiting activities to daytime hours when feasible) and offsite habitat improvements (e.g., vegetation treatments, weed control, restoration of degraded areas, supplemental water sources, and removal of unnecessary fences) sufficient to avoid, reduce, or offset impacts from winter operations. Because the desired winter activity would not occur until the 2022 winter season—and because TEP's preferred schedule is subject to change for a variety of reasons—no formal request has been submitted. A formal request would consist of submitting a Sundry Notice specifying the initiation date, proposed activities and intensity, anticipated total duration, and design features and other measures agreed upon among TEP, BLM, and CPW.

The protocol followed by BLM and CPW would delay a determination regarding a TL exception request until fall 2021. Delaying the decision to closer in time to the preferred initiation date in February 2022 provides the BLM and CPW with a more accurate assessment of the potentially affected herd, anticipated climatic conditions (temperatures, snow depth), surrounding habitat conditions (forage quantity and quality), and the presence of unanticipated habitat stressors such as disease, drought, and wildland fires. As a result, approval or denial of a TL exception by BLM, with the concurrence by CPW, is not a component of this EA. However, **Section 3.4** (Big Game) describes the types of impacts to wintering deer and elk associated with winter development activities.

1.3 PURPOSE AND NEED FOR ACTION

The purpose of the action is to consider opportunities for TEP to develop Federal fluid mineral resources associated with Federal lease COC75070, consistent with Federal lease rights. The need for the action is to respond to applications by TEP to access its leased mineral rights, pursuant to the Mineral Leasing Act (MLA), as amended. Proposed projects are reviewed and processed under the National Environmental Policy Act of 1969 (NEPA) to ensure no undue degradation or impacts to public lands.

1.4 SCOPING

NEPA regulations (40 CFR §1500-1508) require a scoping process to identify potential significant issues in preparation for impact analysis. The principal goals of scoping are to allow public participation to identify issues, concerns, and potential impacts that require detailed analysis.

The BLM placed information regarding the WMC 24-17 project on its public ePlanning website on November 10, 2020, under BLM NEPA Number DOI-BLM-CO-G020-2021-0001-EA. The BLM did not receive written comments from the public during scoping. However, the WRNF District Ranger (Kelsha Anderson) commented regarding potential visual impacts of the project when viewed from NFS lands. The comment, communicated to the CRVFO by Jason Gross, WRNF oil and gas NRS, requested appropriate site selection such as not locating facilities on a ridgetop, use of screening such as by berming of topsoil stockpiles, and/or other measures to reduce visual impacts.

2. PROPOSED ACTION AND ALTERNATIVES

2.1 PROPOSED ACTION

As described in **Section 1.1** (Background), the 17 Federal wells would be drilled directionally from the new WMC 24-17 pad on BLM land overlying Federal lease COC50944 to develop fluid minerals within the adjacent Federal lease COC75070 beneath NFS lands administered by the WRNF. A proposed road segment 0.86 mile in length would extend from an existing field development road east of CR 317 to provide vehicle and equipment access to the well pad. Nearby existing facilities on Flatiron Mesa would

be used to support well completions and provide connections for new natural gas and produced water gathering pipelines. **Table 1** lists the new Federal wells proposed on the WMC 24-17 pad.

Table 1. Proposed Federal Wells on the WMC 24-17 Pad						
<i>Pad Name (Underlying Lease)</i>	<i>Bottomhole Lease</i>	<i>Communitization Agreement</i>	<i>Well Name (17 wells)</i>			
WMC 24-17 (COC50944)	COC75070	N/A	WMC 11-20	WMC 12-20	WMC 13-20	WMC 32-20
			WMC 33-20	WMC 311-20	WMC 312-20	WMC 331-20
			WMC 332-20	WMC 411-20	WMC 412-20	WMC 431-20
			WMC 432-20	WMC 511-20	WMC 512-20	WMC 531-20
			WMC 532-20	--	--	--

TEP's current schedule includes (1) commencing construction activities in summer 2021, (2) conducting drilling and completion operations from February 2022 through July 2022 (see discussion in **Section 1.2**, Location and Legal Description, and (3) completing interim reclamation in fall 2022 or the following growing season. This schedule could be accelerated or delayed based on market conditions, technical issues, or other factors. The discussion in **Section 1.2** at pages 1 and 3 describes the process and timing for consideration of an anticipated future request by TEP for a TL exception to allow winter development.

As **Figure 1** shows, ancillary facilities during well development would include the existing RU 23-17 pad on BLM land (for pipeline connections and metering), the existing RU 44-7 pad on private land (currently sized for remote hydraulic fracturing (fracing):and flowback support without new disturbance), and the existing Beaver Creek Water Storage Facility on private land (for produced water storage and water supply for well completions). Temporary surface steel frac lines, collocated within existing road and pipeline alignments, would deliver water for well completions (fracs) from the RU 44-7 pad to the WMC 24-17 pad. During long-term well production, the new 8-inch-diameter steel natural gas pipeline and new 4-inch-diameter FlexPipe produced water pipeline would gather products from the proposed wells. Condensate (oil) produced from the new wells would be stored in two tanks on-location.

BLM Right-of-Way (ROW) grants and temporary use permits (TUPs) would be required for the proposed off-lease Federal wells developed from the Federal WMC 24-17 well pad, the new access road, and new buried natural gas and produced water gathering lines. A TUP would also be required for the installation of temporary surface frac lines across BLM lands in Section 17, Township 7 South, Range 93 West, between the proposed WMC 24-17 well pad and the RU 44-7 remote frac pad. BLM ROWs were previously authorized for the use of the existing Flatiron Mesa Road, specifically serving the RU 44-7 pad, and Summit Midstream's natural gas gathering pipelines across BLM in Sections 6, 7, and 17, Township 7 South, Range 93 West, Sixth Principal Meridian.

2.1.1 Project Components

WMC 24-17 Pad with 17 Federal Wells. The proposed WMC 24-17 well pad would be located on a relatively smooth north-facing surface near the top of the unnamed mountain directly south of Flatiron Mesa. The site is dominated by mixed mountain shrubland featuring Gambel oak, serviceberry, snowberry, and mountain- mahogany, with sagebrush in small openings interspersed among the stands of mixed mountain shrub. Native grasses and forbs dominate the herbaceous understory. Elevation ranges from 8,000 feet to 8,880 feet above mean sea level (MSL) within the project area.

The well pad would support (1) 17 directional wells to be drilled, completed, and produced, (2) production equipment needed to separate and store liquids from the produced natural gas, and (3) storage of drill cuttings in a drilling pit in the southeastern corner (**Figure 2**). Production equipment would be staged on both sides of the road entrance to the pad, with 18 separators (4 quad separators, one single separator, and one low pressure separator) placed along the western edge of the road within a 90-foot by 30-foot envelope. Other production equipment along the road would include one emission control device (ECD) in the southwestern corner and a tank battery along the southern edge. Two 500-barrel (bbl) steel tanks for condensate storage and two 80-bbl steel tanks for well blowdown and water pipeline venting would be placed within the 40-foot by 40-foot footprint of the tank battery. The 2:1 (h:v) south-side cutslope planned for the initial construction would ensure that slopes suitable for interim reclamation would be created behind the tank battery. Vegetation clearing would utilize a hydroaxe or brush hog, depending on plant type and height. The new pad would initially disturb 4.89 acres of BLM land. Interim reclamation would reduce the pad footprint to 1.05 acres as a long-term working area (**Figure 3**).

The following paragraphs describe existing facilities to be used to support operations on the proposed well pad,

Existing RU 23-17 Pad for Pipeline Connections and Metering. A 30-foot by 30-foot area off the western side of the RU 23-17 pad and south of the access road entrance would be created to house the natural gas sales meter for the 17 wells, a buyback meter to gauge the gas dedicated to operating the drill rig, and a pig launcher for the natural gas pipeline. The small, flat area would avoid the outlet of the pad's French drain system. The entrance gate to the pad may require relocation to accommodate the pipeline equipment footprint; this would require 0.08 acre of surface disturbance.

The RU 23-17 support pad would also be the location where buried natural gas and produced water pipelines from the WMC 24-17 pad would daylight and connect with the existing relevant gathering system (Summit Midstream's natural gas pipeline and TEP's produced water collection pipeline).

Existing RU 44-7 Remote Frac Pad. Because of relatively confined space on the WMC 24-17 pad, well completion (fracing) stages would occur using SIMOPS (simultaneous operations) based at the existing RU 44-7 remote frac pad on private land approximately 1.25 miles northwest. Use of SIMOPS allows the operator to remotely support frac stages on recently drilled wells while simultaneously drilling the remaining wells on the location.

The existing RU 44-7 pad would be used without additional surface disturbance to support well completions. Equipment mobilized to the site would include 70 standard frac tanks, 8 pumping units, sand silos, and a blender unit interconnected with a series of manifold piping. The existing Flatiron Mesa Access Road would provide access from CR 317 to the RU 44-7 pad. During remote frac operations, recycled water would be pumped via existing buried lines from TEP's existing water treatment facilities near Anvil Points or the town of Parachute to the Beaver Creek Water Storage Facility and eventually to the RU 44-7 remote frac pad. Five welded steel surface lines would deliver pressurized water and frac constituents from the RU 44-7 pad to WMC 24-17 pad to support frac stages. During flowback operations, the same temporary steel water lines would collect and flowback fluids to frac tanks staged at the RU 44-7 pad and eventually to a TEP water treatment plant for recycling and/or disposal.

WMC 24-17 Access Road. A new 4,516-foot segment of field development road would be built from the existing Caerus O18 well pad in Section 18 eastward across a private parcel owned by the operator and approximately 2,149 feet of BLM land in S½SW¼ of Section 17. Vegetation clearing along the proposed alignment would be accomplished with hydroaxe or mowing equipment. The road would be built with a 25-foot-wide roadway, including a 20-foot graveled road surface and 5 feet for drainage ditching. A minimum 6 inches of gravel would be applied for all-weather road access.

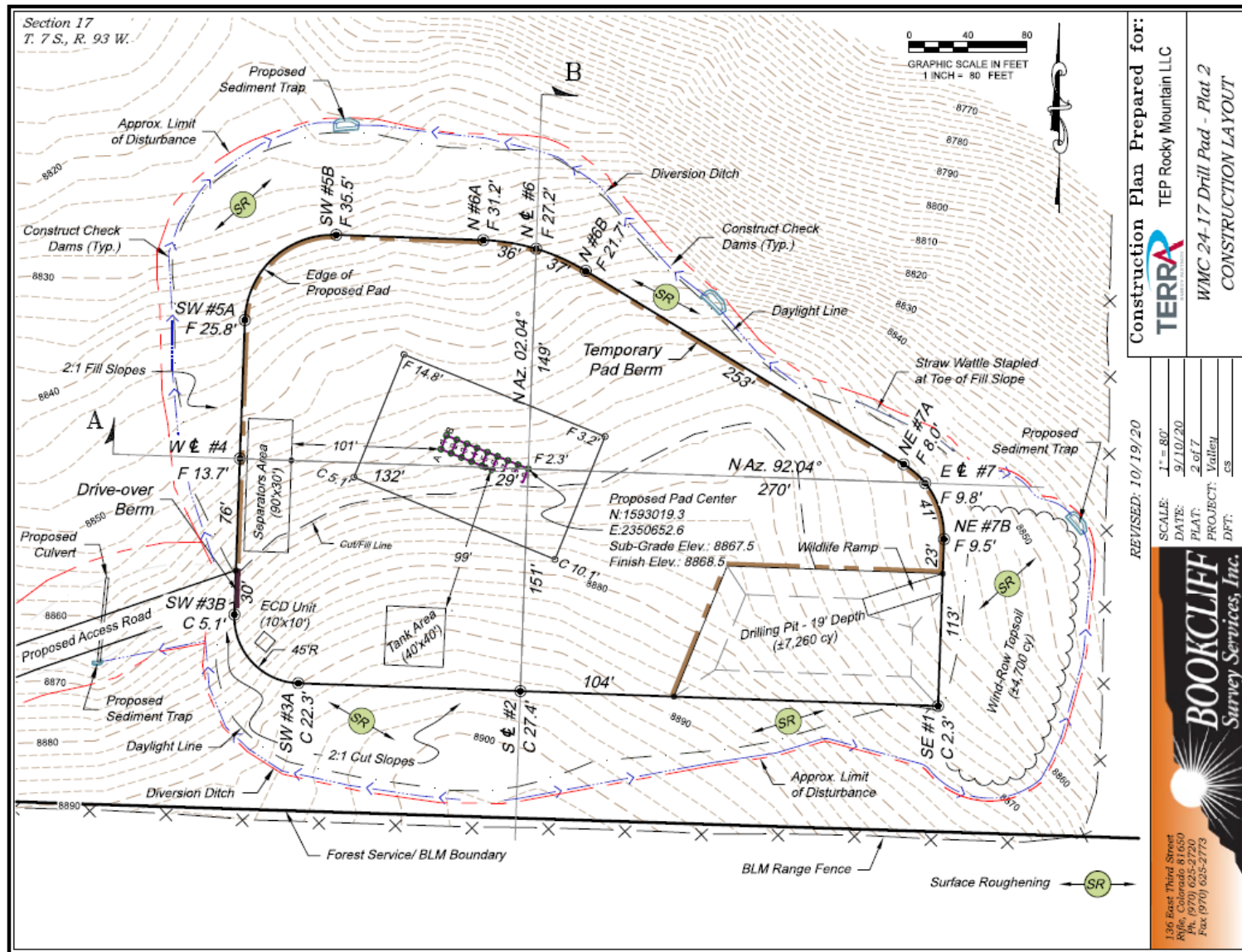


Figure 2. WMC 24-17 Construction Layout

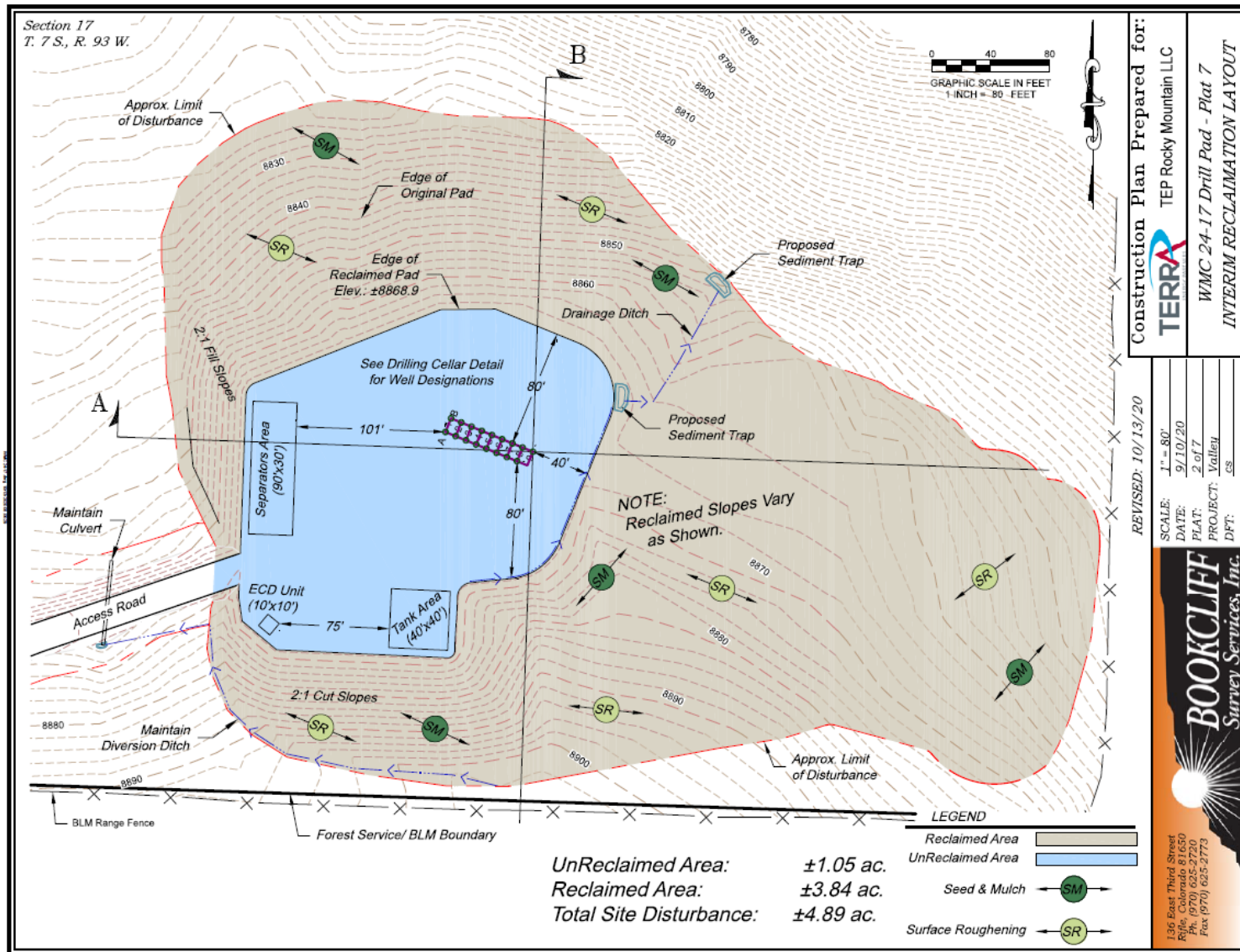


Figure 3. WMC 24-17 Interim Reclamation Layout

Drainage culverts and wing ditches with appropriate stormwater controls would be installed as needed based on review after road pioneering. The road would disturb 6.35 acres in the short-term (2.98 acres on BLM) resulting in 2.07 acres of long-term disturbance (0.98 acre on BLM) following interim reclamation.

WMC 24-17 Gathering Pipelines. Two buried pipelines would deliver natural gas and produced water in a collocated trench extending northward from the northeastern corner of the WMC 24-17 pad and downslope along an existing range fenceline to the western side of the RU 23-17 pad. An 8-inch welded steel pipeline 2,855 feet in length would carry natural gas developed from the 17 wells. A 4-inch flanged Flexpipe water line 2,892 feet in length would collect and deliver produced water from the wells into TEP's water collection and recycling system. All of this work would occur on BLM land. Connections with the existing gathering systems would be made near the road entrance at the northwestern corner of the RU 23-17 pad. Short-term disturbance related to the buried line installations would be 2.40 acres, which would be promptly revegetated when pipeline construction is completed.

Existing Beaver Creek Water Storage Facility. Water would be supplied to the RU 44-7 pad from the Beaver Creek Water Storage (Completions) Facility in Section 7. Recycled water would be pumped through TEP's existing buried water collection system from treatment plans to the storage pit, avoiding the use of truck traffic to deliver water for well completions.

Temporary Well Stimulation (Frac) Surface Pipelines. Five temporary 4.5-inch surface steel frac lines, collocated within existing road or pipeline alignments, would support remote frac and flowback operations between the RU 44-7 frac pad and the WMC 24-17 pad. These five water lines would deliver high pressure fluids to the wells during SIMOPS frac stages on the WMC 24-17 pad. Flowback fluids would be piped back to the RU 44-7 frac storage tanks for eventual delivery into TEP's water management system for reuse or recycling.

Existing Roads. Existing roads, including private lease roads and County roads, particularly Beaver Creek Road (CR 317), would be used during construction, drilling, completions, and production of the 17 proposed wells on the WMC 24-17 pad. Minor road maintenance would be performed along the existing access roads prior to construction. The existing roads would be continually inspected and maintained by TEP. Maintenance would include road surface grading and application of surfacing materials, as needed; relief ditch, culvert, and cattle guard cleaning; controlling erosion on cut and fill slopes and all other disturbed areas, closing roads during periods of excessive soil moisture to prevent rutting caused by vehicular traffic, and stabilizing roads and slopes, as required (USDI and USDA 2007).

2.1.2 Surface Disturbance

Total surface disturbance from the proposed WMC 24-17 development, including ancillary facilities, would be approximately 19.74 acres (10.35 acres or 53% on BLM-managed lands) in the short term and 4.07 acres (2.06 acres or 51% on BLM-managed lands) in the long-term following interim reclamation (**Table 2**). The proposed WMC 24-17 pad, access road, and buried pipelines would create new disturbance on BLM-managed and private lands. The existing Beaver Creek Water Storage Facility, RU 44-7 frac pad, and RU 23-17 would be used in their current condition with no new disturbance proposed.

2.1.3 Reclamation

After well development is completed, disturbed areas not needed for long-term operations would undergo interim reclamation. Disturbed areas surrounding the production pad would be recontoured to blend with the natural topography (**Figure 3**). Final grading of backfill and cut slopes would minimize erosion and encourage reestablishment of desirable vegetation. Existing drainages disturbed during pad construction would be reestablished where appropriate. Prior to seeding, topsoil would be spread to a uniform depth to promote the establishment of desirable vegetation.

Table 2. Proposed Disturbance for the WMC 24-17 Project							
<i>Well Pad</i>	<i>Surface Land Status</i>	<i>Length (feet) Fed/Private [Total]</i>	<i>Existing Disturbance (acres) Fed/Private [Total]</i>	<i>Redisturbance (acres) Fed/Private [Total]</i>	<i>New Disturbance (acres) Fed/Private [Total]</i>	<i>Total Short-Term Disturbance (acres) Fed/Private [Total]</i>	<i>Long-Term Disturbance (acres) Fed/Private [Total]</i>
Well Pad/Support Pads							
WMC 24-17 Pad	Federal	--	0/0 [0]	0/0 [0]	4.89/0 [4.89]	4.89/0 [4.89]	1.05/0 [1.05]
RU 23-17 Support Pad (Pipeline Metering)	Federal	--	0.01/0 [0.01]	0.07/0 [0.07]	0/0 [0]	0.08/0 [0.08]	0.03/0 [0.03]
RU 44-7 Frac Pad ¹ (Remote Frac)	Private	--	0/6.02 [6.02]	0/0 [0]	0/0 [0]	0/6.02 [6.02]	0/0.92 [0.92]
Subtotal		--	0.01/6.02 [6.03]	0.07/0 [0.07]	4.89/0 [4.89]	4.97/6.02 [10.99]	1.08/0.92 [2.01]
Access Road							
WMC 24-17 Access Road	Federal/Private	2,149/2,367 [4,516]	0/0.02 [0.02]	0/0.12 [0.12]	2.98/3.22 [6.20]	2.98/3.37[6.35]	0.98/1.09 [2.07]
Subtotal		2,149/2,367 [4,516]	0/0.02 [0.02]	0/0.12 [0.12]	2.98/3.22 [6.20]	2.98/3.37[6.35]	0.98/1.09 [2.07]
Pipelines ²							
WMC 24-17 (8-inch Gas Line)	Federal	2,855/0 [2,855]	0/0 [0]	0.22/0 [0.22]	2.18/0 [2.18]	2.40/0 [2.40]	0/0 [0]
WMC 24-17 (4-inch Water Line)		2,892/0 [2,892/0]					
Subtotal		2,892/0 [2,892/0] ³	0/0 [0]	0.22/0 [0.22]	2.18/0 [2.18]	2.40/0 [2.40]	0/0 [0]
Grand Total (Federal/Private) ⁴		--	0.01/6.04 [6.05]	0.29/0.12 [0.41]	10.05/3.22 [13.27]	10.35/9.38 [19.74]	2.06/2.01 [4.07]
¹ RU-44-7 Pad is an existing well pad on private land. No expansion or new construction activities are planned to use the location as a remote frac pad. ² Proposed pipelines would be collocated within the same trench. ³ Length represents the total length of the proposed pipeline corridor, not the total length of each individual pipeline planned for installation. ⁴ Approximately 33% of the proposed project disturbance would be on land previously disturbed by oil and gas operations.							

Prior to seeding, topsoil would be spread to a uniform depth to promote the establishment of desirable vegetation. Soil samples may be collected once recontouring and topsoil redistribution has occurred to determine if soil amendments are needed. Recommendations regarding seed mix and/or soil amendments on private lands associated with parts of the access road and existing support facilities would be reviewed with the surface owner.

All compacted portions of the pad, road, and pipeline route not required for long-term operations would be ripped when subsurface conditions permit. If the seedbed has formed crust, the seedbed would be prepared by disking or other mechanical means to allow adequate depth of seed placement into the soil. Broadcast seed would be covered using a harrow, drag bar, or chain. In general, slopes steeper than 2:1 would be hydroseeded, and slopes shallower than 2:1 would be drill seeded. Seeding would be timed to ensure the best possible results for plant growth. The seed mix would be certified as free of primary or secondary noxious weeds. On BLM-managed lands, TEP would apply BLM's approved mixed mountain shrubland seed mix and provide certification of the mix before seeding. The same mix is recommended for use on private land along the access road and existing facilities.

Final reclamation of all surface disturbances would occur following final abandonment of all wells drilled from the pad unless an agreement is made with the surface landowner to keep portions of the access road and support facilities unreclaimed. Upon completion of approved plugging and abandonment of the wells, per Onshore Oil and Gas Order No. 2, all casing would be cut off at the base of the cellar or 3 feet below the final reclaimed ground level, whichever is deeper. The well bore would then be covered with a metal plate at least 0.25-inch-thick and welded in place, or a 4-inch pipe, 10 feet in length, 4 feet above ground, and embedded in concrete as specified by the BLM. The well location and identity would be permanently inscribed. A weep hole would be left if a metal plate is welded in place.

Production equipment on location would be removed, and pipelines associated with the plugged wells would be decommissioned. If pipelines are abandoned in place, pipeline risers would be cut off and capped a minimum of 3 feet below final grade. Disturbed areas surrounding the well location, including the access roads would be recontoured to blend as nearly as possible with the natural topography. Final grading of cut-and-fill slopes would be done to minimize erosion and encourage establishment of desirable vegetation. Any existing drainages disturbed and not reestablished during interim reclamation would be reestablished during final reclamation. The long-term objective of final reclamation would be to reestablish a self-perpetuating plant community compatible with and capable of supporting the identified land use.

2.1.4 Noxious Weeds

On BLM-managed lands, noxious weeds that may be introduced due to soil disturbance and vehicle travel during well development and production would be treated using methods approved by the BLM. A Pesticide Use Permit (PUP) would be maintained with the BLM for treatment of noxious weeds. Reclamation monitoring would be conducted per Appendix K of the 2015 Colorado River Valley Field Office Record of Decision and Approved Resource Management Plan (CRVFO ROD/ARMP) (BLM 2015).

2.1.5 Water Sources and Use

Approximately 0.58 acre-feet of fresh water per well would be used for drilling operations (surface, intermediate, and production casing) and dust control. Fresh water would be transported by truck from two potential locations: the Giles Fresh Water outtake located on the Colorado River on TEP property off CR 320 near Spruce Creek, or the Airport Land Partners Limited Takeout located on the Last Chance

Ditch north of Garfield County Airport along CR 346. The intake on the water pumps at the source locations would be fitted with a 0.25-inch mesh screen to minimize impacts to adult or larval fishes.

Approximately 15.47 acre-feet of recycled water per well would be used for completions. The completions water would be recycled from produced water from other producing wells operated by TEP and delivered via existing and proposed pipeline infrastructure through the Beaver Creek Water Storage Facility.

2.1.6 Waste Handling and Disposal

Drilling Fluids. A closed-loop drilling system would be used to separate liquid and solids during drilling on the WMC 24-17 pad. Drilling fluids would be re-used throughout the drilling process. Once drilling operations are complete, drilling fluids would be stored in tanks and recycled for future drilling.

Drill Cuttings Management. Drill cuttings brought to the surface would be temporarily placed into a designated storage cell close to the rig shaker assembly. Once the temporary storage cell becomes full, a loader would be used to move the cuttings from the temporary storage cell to the drilling pit. The moisture content of the drill cuttings would be kept as low as practicable to prevent accumulation of liquids within the drilling pit. The drilling pit on the proposed WMC 24-17 pad would be contained within a 2.5-foot-high earthen berm until final placement of the cuttings. Each well would generate an estimated 325 cubic yards of cuttings. Any excess cuttings that could not be managed within the drilling pit, or in cases where weather conditions, safety concerns, or operational constraints warrant, drill cuttings may be transported by truck to an approved offsite commercial disposal facility.

Once all drill cuttings are placed into the drilling pit, samples would be taken to determine if the cuttings meet standards protective of human health and the environment. Additional treatment or amendment of the cuttings, followed by confirmation sampling, would be conducted as necessary to meet standards. Once standards are met, the cuttings would be covered with a minimum of 3 feet of clean fill material.

Flowback Fluids. Stimulation (completions) fluids returned during flowback operations would be processed through four-phase separators to separate gas, water, condensate, and sand. Water would be reused sequentially during ongoing completions on the WMC 24-17 pad or transported via pipelines. Frac sand would be managed within a 40-foot by 40-foot area with 2.5-foot-high earthen berms surrounding the management area. The frac sand management area would be located on pad within the pad perimeter berm. Once flowback operations are complete, returned frac sand would be mixed with drill cuttings and/or clean fill material and buried onsite within the cut slope of the pad. Once mixed with other material, samples would be taken to determine if the mixed material meets standards protective of human health and the environment. Any frac sand remaining onsite following reclamation would be hauled offsite to an approved commercial disposal facility. Spent filter socks generated during the completions flowback process would be collected and stored separately from garbage/trash and then sampled and profiled for disposal at an approved commercial facility.

Produced Water. Water produced from the operating wells would be transported through the proposed buried 4-inch Flexpipe water line to a connection point at the west end of the RU 23-17 pad. Water would then be transported via existing water lines to one of TEP's existing water treatment facilities.

Produced water would be treated with biocide at the water management facility and/or prior to disposal if necessary. Produced water may be disposed through (1) natural evaporation at ponds, (2) injection into one of TEP's underground injection control (UIC) facilities, (3) reuse in hydraulic fracturing operations, or (4) transport to an approved commercial disposal facility (Owl SWD Operating LLC, Harley Dome #1 SWD, Greenleaf Environmental Services, White River Dome, or PBR Disposal).

Sewage. Chemical toilets or an enclosed sewer system would be used during construction, drilling, and completions. The contents would be hauled for disposal at an approved commercial facility approximately once per week.

Garbage. During drilling and completions operations, garbage would be stored in enclosed bear-proof containers and disposed at an approved commercial disposal facility approximately once per week. The well pad and access road would be kept free of trash and debris during long-term production operations.

2.1.7 Right-of-Way Authorizations

Four BLM rights-of-way (ROWs) and four temporary use permits (TUPs) issued to TEP would be required for the proposed WMC 24-17 project. Because the proposed well pad would be occupied to drill 17 wells into a different Federal lease (COC75070) from the lease underlying the pad (COC50944), a BLM site ROW would be required (serial number COC80316). Separate linear ROW grants and associated TUPs for extra construction space would be required for the 0.40-mile pad access road (serial number COC80317), 4-inch buried produced water line (serial number COC80318) covering the entire BLM segment across Section 17, and 8-inch natural gas pipeline (serial number COC80319) to the connection point at RU 23-17 pad. TUPs would be required for the 4.5-inch temporary surface frac lines to be laid along the pipeline and existing road alignments in Section 17 (**Figure 1**).

TEP has an existing BLM ROW (COC74214) for the linear access road that serves both the RU 44-7 frac pad and RU 23-17 well pad. This ROW has a TL to protect big game use of winter range from January 16 through April 29. The existing Summit Midstream buried gas pipeline serving the RU 23-17 pad (the connection point for the WMC 24-17 gas produce) is authorized under ROW grant COC76417.

Issuance of ROWs or TUPs would not be required for use of the existing RU 44-7 pad or any associated pipelines or access roads on private surface. TEP would acquire surface use agreements or ROWs from the respective private landowners.

2.2 NO ACTION ALTERNATIVE

The Proposed Action involves development of Federal fluid minerals within a duly issued Federal oil and gas lease, which grants the lessee a right to explore and develop the lease. Although the BLM cannot deny the right to drill and develop the leasehold, individual Applications for Permit to Drill (APDs) can be denied. Selection of the No Action Alternative would constitute denial of the 17 Federal APDs and denial of the requested ROW grants and TUPs needed to access and support the WMC 24-17 project. The No Action Alternative would result in none of the surface-disturbing activities or other activities submitted as part of the Proposed Action being authorized or implemented.

2.3 SUMMARY OF APPLICABLE LEASE AND LAND USE PLAN STIPULATIONS

As shown in **Table 3**, proposed on-lease activities overlying Federal lease COC50944 would be subject to the stipulations attached to the lease at the time of its issuance in 1990. Broader in scope are oil and gas stipulations specified in the 2015 ROD/ARMPA. Although these stipulations cannot be added to the 1990 Federal lease, they would be applied to the project where appropriate in connection with the site ROW for the well pad and the linear ROWs/TUPs for off-lease portions of the access road and pipeline on BLM lands. Listed stipulations include:

Table 3. Protective Stipulations Applicable to the WMC 24-17 Proposed Action

<i>Authority</i>	<i>Stipulation Number and Summary</i>
Lease COC50944 ¹ (issued in 1990)	NSO for Critical Watershed Areas. No surface occupancy or use on the lands described (includes the City of Rifle municipal water intake on Beaver Creek). Note: This stipulation is no longer in effect because the City of Rifle is no longer using Beaver Creek as a municipal water supply. This change in status also applies to RMP stipulations CRV-NSO-3 and CRV-CSU-2 for the City of Rifle water supply (see Table 4).
	TL for Raptor Nesting Areas. No surface use is allowed during the following time period: January 16 through April 29. This stipulation does not apply to operation or maintenance of production facilities. Note: These TL dates have been superseded by the longer duration TL dates in the analogous RMP stipulation (see TL-5 below) through an agreement with TEP.
2015 ROD/ARMP ²	CRV-CSU-1: Slopes Greater than 30 Percent or Fragile/Saline Soils. Apply CSU constraint on areas (1) with slopes steeper than 30 percent or (2) areas with fragile and/or saline soils regardless of slope based on the NRCS soil description and surveys to reduce erosion potential, maintain soil stability and productivity of sensitive areas, ensure successful reclamation, and minimize contributions of salinity, selenium, and sediments likely to affect downstream water quality, fisheries, and aquatic habitats.
	CRV-CSU-3: Intermittent and Ephemeral Streams. Apply CSU constraint within 100 feet from the edge of intermittent or ephemeral drainages as defined by the U.S. Geological Survey (USGS) National Hydrography Dataset or by field evaluation to maintain and protect water quality, stream stability, aquatic health, seasonal use and downstream fisheries, and sediment processes downstream.
	CRV-CSU-6: BLM Sensitive Plants outside ACECs. Apply CSU constraints to surface-disturbing activities within a 100-meter (328-feet) buffer around occupied habitat for sensitive plants outside ACECs to protect BLM sensitive plant populations and habitat outside of ACECs (6,400 acres BLM-managed surface/900 acres Federal mineral estate).
	CRV-CSU-8: BLM Sensitive Fish and Wildlife Species and Significant Natural Plant Communities. Apply CSU constraint to habitats for fish and wildlife species listed as sensitive by the BLM and for significant natural plant communities (including relict plant communities and old-growth forests and woodlands) to protect BLM sensitive aquatic and terrestrial and significant plant communities.
	CRV-TL-2: Big Game Winter Habitat. Prohibit surface occupancy and surface-disturbing activities from December 1 to April 15 to protect mule deer and elk critical winter range, severe winter range, and winter concentration areas, and moose winter range, to reduce behavioral disruption of big game during the winter season.
	CRV-TL-4: Nesting Season for Migratory Birds. Prohibit initiation of surface occupancy and surface-disturbing activities between May 15 and July 15 to minimize the destruction of active nests for birds of conservation concern. The application of the timing limitation would consider: the type of equipment to be used (e.g., hand-operated power tools verses mechanized/motorized equipment), the scale and duration of the project, habitat types present, breeding phenology, weather conditions, elevation, and terrain. Note: This stipulation was originally limited to Birds of Conservation Concern.
	CRV-TL-5: Raptors (non-special status raptor species). Prohibit surface occupancy and surface-disturbing activities to protect nesting and fledgling habitat during active nesting. Buffer distances are 0.25 or 0.5 mile depending on species. Nesting dates vary by species within a combined period from December 15 to September 15 (northern goshawk).
¹ Lease stipulations apply to project components and actions on BLM lands overlying Federal lease COC50944 (surface location) and approved as part of the APDs. ² RMP stipulations apply to project components and actions on BLM off-lease lands approved by a linear ROW/TUP, as well as on BLM on-lease lands through approval of a site ROW for the well pad. For this project, TEP has agreed to apply the RMP-based raptor nesting stipulation (TL-5) throughout the project.	

- No Surface Occupancy (NSO) – Prohibits surface-disturbing activities, other types of uses, and structures/infrastructure within specified areas.
- Controlled Surface Use (CSU) – Allows BLM to require relocation of a proposed project component or activity by more than 200 meters when necessary to provide adequate protection of a resource or resource use. Also allows BLM to require additional design, implementation, and reclamation measures when necessary to protect a specific resource or resource use.
- Timing Limitation (TL) – Prohibits use of an area during a specified period when necessary to protect seasonally critical resource values; generally applied in relation to ecological resources.

Appendix B (Stipulations) of the 2015 ROD/ARMP describes criteria for granting exceptions to these stipulations when neutral or beneficial to the protected resource or use and beneficial to overall CRV resource management or to a particular project, ecological community, resource area, or public health and safety.

In addition to the RMP-derived stipulations to be applied to the site ROW and linear ROWs/TUPs are a variety of NSO, CSU, and TL stipulation for the protection of resources present in the project vicinity but not applicable to the project based on design and location of facilities of infrastructure. These include NSOs for potentially eligible cultural resources; steep slopes greater than 50%; threatened or endangered species; bald and golden eagle nests; perennial streams, fisheries, and riparian areas. As noted in **Table 3**, RMP stipulations CRV-NSO-3 and CRV-CSU-2 previously applied to the City of Rifle's water supply on Beaver Creek but are no longer in effect because the City has ceased use of Beaver Creek as a municipal water source. A variety of additional protections apply to the project as best management practices (BMPs), design features, and particularly as COAs (see the **Appendix**).

It is important to note that none of the lease or RMP stipulations applies to adjacent NFS land south of the BLM property boundary and near the proposed WMC 24-17 project site. The adjacent NFS land is managed by the WRNF as the Mamm Creek Roadless Area. The location of the project entirely on BLM-administered and private lands, and project design, would avoid any surface disturbance on NFS land.

2.4 LAND USE PLAN CONFORMANCE

The Proposed Action is subject to, has been reviewed for, and is in conformance with (43 CFR §1610.5, BLM 1617.3) the following plan:

Land Use Plan (LUP) Name: *Colorado River Valley Field Office (CRVFO) Record of Decision and Approved Resource Management Plan (Record of Decision/Approved Resource Management Plan), approved June 12, 2015*

Decision Language: Page 106, LRT-GOAL-01, LRT-OBJ-01: *"Provide for the development of transportation systems, utilities, communication sites, and renewable energy resources when such needs are consistent with other resource values."*

Page 111, Goal (MIN-GOAL-01): *"Provide opportunities for leasing, exploration, and development of fluid minerals using balanced multiple-use management to meet local and national energy needs."*

Page 111, Oil and Gas, including Coalbed, Natural Gas, and Geothermal (MIN-OBJ-01): *"Facilitate orderly, economic, and environmentally sound exploration and development of oil and gas resources (including coalbed, natural gas and geothermal) using the best available technology."*

Page 111, Management Action (MIN-MA-01): *"Manage approximately 603,100 acres of Federal mineral estate as open to oil and gas leasing and development."*

Determination of Conformance: The Proposed Action is subject to, has been reviewed for, and is in conformance with the LUP.

Land Use Plan (LUP) Name: *U.S. Department of Agriculture, Forest Service, White River National Forest. Final Record of Decision: Oil and Gas Leasing on Lands Administered by The White River National Forest, approved December 3, 2015.*

Decision Language: Page 6 of the ROD: “Currently, 114,520 acres in the WRNF are leased.” [and later] “If these leases expire, are relinquished, are terminated, or are completed and rehabilitated, then the parcels become subject to the USFS availability decisions.”

Determination of Conformance: The targeted lease (COC75070) underlying NFS lands was an existing lease designated as open under the 2015 WRNF Oil and Gas Leasing EIS. On November 17, 2016, the BLM published its ROD for the *Previously Issued Oil and Gas Leases in the White River National Forest*. Page 9 of the BLM ROD: “Under the decision...12 undeveloped leases [including COC75070] would remain open....” The BLM’s decision incorporates WRNF management decisions for the targeted lease. The Proposed Action is therefore in conformance with the applicable LUP for the WRNF.

2.5 DECISIONS TO BE MADE

The primary decision by the BLM upon completion of this EA is whether to authorize TEP’s development, operation, and production of 17 Federal wells drilled into adjacent Federal lease COC75070 underlying NFS land. The APDs, their Surface Use Plans of Operations, and any related Applicant-committed design features and BMPs would provide the outline or framework for BLM’s decision.

Based on the information presented and analyzed in this EA, the BLM may choose to (a) authorize the project as described in the Proposed Action; (b) authorize the project with modifications, or (c) not authorize the project at this time. Options (a) and (b) would include the use of COAs to avoid or reduce project impacts. These would be in addition to the applicable Federal lease stipulations listed in **Table 3**.

Approval of this EA would not constitute final approval of all associated actions, such as the issuance of project-related APDs and ROW/TUP grants, all of which would require successful completion of the respective BLM review processes. Conformance to the EA, if approved, as well as to applicable laws, regulations, and BLM policies, would be required for any applications for APDs and ROWs/TUPs submitted pursuant to the EA. If future APDs or applications for ROWs/TUPs do not conform to this EA, additional analyses in subsequent NEPA documents would be required.

3. AFFECTED ENVIRONMENT AND IMPACTS

3.1 INTRODUCTION

Table 4 lists the resources and resource uses analyzed in detail, and the bases for determining that some resources or uses did not require detailed analysis. Some of the information presented in the table is derived from cultural resources by Grand River Institute (GRI 2020) and ecological surveys by WestWater Engineering (2020a, 2020b), and review of existing information, GIS data, and field visits by members of BLM resource specialists. For the resources and uses analyzed in detail, issues are identified in **Table 5** that would either (1) assist the decision maker in making a reasoned choice among the alternatives or (2) potentially result in a significant impact. Each issue statement defines the issue and focuses the detailed analysis while the impact indicator defines how the impact is measured. Cultural Resources. Accordingly, no further work is recommended.

Table 4. Resource and Resource Use Analysis Considerations		
Resource/Resource Use	Analyzed in Detail	Not Present, Unaffected by Alternatives, or Other Basis for Not Being Analyzed in Detail
Access and Transportation		Existing and proposed road system would be sufficient to safely handle the proposed vehicle use with the proposed road maintenance. Traffic would be similar to existing traffic given the continuous oil and gas development of the area. Potential indirect impacts include increased opportunity for wildlife collisions, contributions to roadway deterioration, dust emissions on unpaved roads, and noise. Impacts would generally be limited to the construction phase.
Air Quality and Climate Change	X	
Cultural Resources		A Class III Cultural Resource inventory was conducted in August 2020 (GRI 2020). The literature review indicated that one linear feature, a historic ditch (5GF4763.1), was newly recorded in 2012 as a not eligible (for the National Register of Historic Places [NRHP], non-contributing segment and thus given no further consideration for this project. A new segment (5GF4763.3) and associated reservoir and collection ponds at the headwaters of the ditch were recorded for the present project. The ditch and ponds have been upgraded during the past 10 years and were field evaluated as not eligible. Despite an intensive pedestrian survey, no additional sites were identified during the Class III inventory. At present, no Native American concerns are known within the project area, and none were identified during the inventories in the immediate vicinity. Cultural inventories indicated no historic properties in the project area. Any new site discovered would be protected by an Education/Discover COA in the Appendix and Stipulation NSO-21.
Fossil Resources		The project area is in a Class 5 paleontological area, potentially containing unique or scientifically important fossils. However, soil cover and avoidance of bedrock outcrops result in low risk of loss.
Geologic and Mineral Resources		Unaffected by the Alternatives.
Invasive Non-Native Plants		Weed control by the operator on BLM and private lands (a COA) would address existing or new areas of invasive non-native plants.
Migratory Birds		A TL for migratory bird nesting habitat (May 15 through July 15) provides sufficient protections. See TL-4 in Table 3 .
Native American Religious Concerns		No Native American concerns are known within the project area and none were identified during the inventories in the immediate vicinity.
Nesting Raptors		A TL provides sufficient protections, in combination with buffer requirements for eagles under the Bald and Golden Eagle Protection Act (BGEPA).
Noise		Increased noise levels would mostly be temporary. Elevated noise levels during production due to any generators or pumps (not currently proposed) would require the installation of sound-abatement measures.
Prime or Unique Farmlands		Not Present.
Range Management		The integrity of the existing range allotment fence along the buried pipeline alignment would be maintained throughout pipeline construction. Damaged portions of the fence would be replaced with new fence sections.
Recreation		Unaffected by the Alternatives because the project area is not readily accessible to the public.

Table 4. Resource and Resource Use Analysis Considerations		
Resource/Resource Use	Analyzed in Detail	Not Present, Unaffected by Alternatives, or Other Basis for Not Being Analyzed in Detail
Rights-of-Way		Four new ROWs and four TUPs would be required to support off-lease activities on BLM land. The existing Flatiron Mesa Road and existing pipeline ROWs would be used to support the project.
Riparian and Wetland Zones		Unaffected by the Alternatives.
Socioeconomics and Environmental Justice		Unaffected by the Alternatives.
Soils		The project area is on lands mapped in the 2015 CRVFO ROD/ARMP as subject to stipulation CSU-1 (see Table 3) for slopes greater than 30% or fragile/saline soils. Operator-committed measures such as stormwater controls, avoidance of problematic slopes and soils, and prompt effective reclamation would be implemented along with soil protection measures listed in the COAs. These measures would avoid or reduce impacts to soils and would satisfy CSU-1.
Special Designations		The project would avoid any surface disturbance on NFS land, including the WRNF Mamm Creek Roadless Area.
Special Status Plants		The presence of 2.42 acres of suitable habitat for Harrington's penstemon, a sensitive species (see CSU-6 in Table 3), was identified during surveys by WestWater (2020a). Because the surveys were conducted outside the flowering season, a followup plant survey would be conducted in 2021. Although the presence of suitable habitat could result in loss on site of individual plants, the extent of loss is expected to be minor based conditions. Although not expected, the followup surveys in 2021 could potentially lead to adjustments to the proposed disturbance area under a COA in the Appendix .
Special Status Wildlife – Aquatic		Beaver Creek supports a "Green Lineage" cutthroat trout fishery, which is crossed by an existing field development road on private land. Continued use of this established, culverted crossing would not be expected to affect the Green Lineage trout or its habitat. This variety of trout is no longer afforded protection under the Endangered Species Act but managed by the BLM as a sensitive species. Stipulation CSU-8 (Table 3) and COAs in the Appendix would provide sufficient protections for the Green Lineage trout population in Beaver Creek.
Special Status Wildlife – Terrestrial		No special status terrestrial wildlife species or their habitats were identified during surveys.
Vegetation		After well development, 80% of the disturbance on BLM-managed lands would be reclaimed using species and methods described in the COAs and ROW stipulations. The loss of mature mountain shrubs, including Gambel oaks, would be long term, but these species are common throughout the region, and the loss would be negligible at both a project and regional level. Gradual reestablishment of a portion of the affected shrubland is likely following final reclamation.
Visual Resources	X	
Wastes, Hazardous or Solid		TEP would properly manage each type of waste.
Water Resources – Groundwater	X	
Water Resources – Surface Water		Impacts to surface waters are not anticipated. The USGS-mapped stream closest to proposed surface disturbance is separated by 0.5 mile of vegetated buffer. A USGS-mapped stream would be crossed by

Table 4. Resource and Resource Use Analysis Considerations		
Resource/Resource Use	Analyzed in Detail	Not Present, Unaffected by Alternatives, or Other Basis for Not Being Analyzed in Detail
		<p>proposed surface lines 380 feet east of the existing RU 44-7 frac pad. This crossing would not affect the stream. Both streams are labeled as intermittent by the USGS but are more likely to be ephemeral based on field visits by BLM staff and resource surveys by WestWater (2020b). See CSU-3 in Table 3. Disturbance would not occur in ephemeral or intermittent streams or WOTUS. Operator-committed measures include stormwater BMPs; prompt effective reclamation; secondary containment around tanks; pressure testing of pipelines before and during use; and COAs in the Appendix. In addition, a Stormwater Management Plan (SWMP) and Spill Prevention, Control, and Countermeasures (SPCC) Plan would be required.</p> <p>Only 3.6% of water consumed would be fresh water; the remaining 96.4% would be recycled water, minimizing water depletions from the Colorado River Basin.</p> <p>As noted in Table 3, the City of Rifle formerly used an intake on Beaver Creek as part of its municipal water supply. The City no longer uses this intake (City of Rifle 2018). Nonetheless, Beaver Creek continues to warrant protection as a trout fishery. Water/soil protection measures described in the Appendix, along with the buffer distance between project components and streams, would provide adequate protections of Beaver Creek.</p>
Wild and Scenic Rivers		Not Present
Wild Horses and Burros		Not Present
Wilderness, Lands with Wilderness Characteristics		Not Present
Wildlife – Big Game	X	The new surface components of the project occur within big game winter habitats.

Table 5. Issues		
Resource/ Resource Use	Issue Statement	Impact Indicator
Air Quality	How would the Proposed Action and the act of drilling, completing, and producing 17 Federal wells affect the air quality resource, including greenhouse gases and climate change?	Contributions from new oil and gas development above Modeling Significant Impact Levels (SILs). Impacts to local air quality within the National Ambient Air Quality Standards (NAAQS) standards. Greenhouse gas emissions during well development and subsequent downstream use (combustion) would be below the level of discernible effects on statewide, regional, or global emissions or climate impacts.
Visual Resources	How would the Proposed Action affect the existing character of the landscape?	Contrast with the existing landscape in color, form, and texture. Class III VRM
Water Resources – Groundwater	How would the Proposed Action affect groundwater resources?	Contamination of water wells or aquifers near the project area.

Wildlife – Big Game	How would the Proposed Action affect big game species (mule deer and Rocky Mountain elk) in terms of local patterns of distribution, habitat use, and movement? (No population-level impacts are expected.)	Avoidance or reduced use by deer and elk in areas normally used during the periods when operations occur, including displacement to lower quality habitat and/or lowered overwinter survival and reduced reproductive success.
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The following subsections describe the affected environment (current conditions) and environmental effects (consequences) of the Proposed Action and No Action Alternative. Potential impacts to the environmental elements addressed in this EA would be avoided or reduced by operator BMPs regularly used in project design by TEP and industry wide; design features more specific to the project and incorporated into the Proposed Action by TEP during collaboration with the BLM and CPW; and general and site-specific COA (**Appendix**) mandated and enforced by the BLM.

3.2 ISSUE 1: AIR QUALITY

3.2.1 Affected Environment

In accordance with Section V of BLM Colorado's Comprehensive Air Resource Protection Protocol (CARPP), the BLM Colorado State Office air resource specialists prepared the Annual Report 2.0 as a comprehensive assessment tool to assist in the preparation of project level NEPA for oil and gas development projects (BLM 2019). The Annual Report 2.0 provides up to date information on oil and gas development (current regulations, rates for drilling and production, emission inventories, etc.) and the state of the atmosphere (air pollutant concentration trends, air quality related values, etc.) for each applicable Colorado field office or planning area. The report also places this information in the context of the Colorado Air Resource Management Modeling Study (CARMMS), which provides cumulative analyses for multiple projected oil and gas development scenarios in Colorado out through year 2025 for CARMMS 2.0 (BLM 2017).

The Annual Report 2.0 is a web-based, dynamic, data-driven document that allows BLM Colorado to convey a vast amount of information in a relatively compact and reusable framework. Consistent with CEQ regulation 40 CFR §1502.21 - Incorporation by reference, and mandates to reduce paperwork, the data from the Annual Report 2.0 for the Colorado River Valley Field Office are incorporated by reference in this analysis to describe the baseline and reasonably foreseeable affected environments and potential impacts associated with the proposed action and other foreseeable emissions sources. All the documents described above are available to the public on BLM Colorado's website: <https://www.blm.gov/programs/natural-resources/soil-air-water/air/colorado>.

Overview and Baseline Air Quality Conditions

Several air quality monitors are present and operating within the CRVFO boundaries. These measure particulate matter (PM₁₀ and PM_{2.5}), ozone (O₃), and nitrogen dioxide (NO₂) concentrations. The monitoring data show trends that comply with the current U.S. National Ambient Air Quality Standards (NAAQS). The trends for ground level ozone are very close to the standard of 70 parts per billion (ppb).

The CRVFO is flanked on three sides by Class I (Wilderness) areas, including the Flat Tops, Eagles Nest, and Maroon Bells-Snowmass Wildernesses. Due to their proximity, these areas would be the most likely to be affected by any future Federal oil and gas development in the CRVFO. Only the Flat Tops and the Maroon Bells-Snowmass Wildernesses have available visibility monitoring data. The data show significant improvements in visibility trends for both the clearest and haziest days at the Maroon Bells-Snowmass Wilderness. The Flat Tops data are limited, but short-term trends indicate visibility

improvements for both the clearest and haziest days. A nearby CASTNET monitoring site measures total nitrogen deposition. The data trends suggest that the mean deposition flux is stable at approximately 2.8 kilograms per hectare per year (kg/ha-yr). A National Atmospheric Deposition Program (NADP) site monitors wet chemistry deposition within the CRVFO at Sunlight Peak; the data trend appears to be stable with an annual average wet nitrogen deposition of approximately 1.7 kg/ha-yr. The Flat Tops Wilderness NADP monitor has been inactive since 2009, but the available data have an overall flat wet deposition trend. Absent additional site-specific data, nitrogen deposition in the CRVFO is below the defined maximum critical loading levels (BLM 2019).

In addition, sections of the Annual Report 2.0 are used to describe the baseline and reasonably foreseeable future affected environments as follows:

- **Regulatory Analysis** – This section of the Annual Report (Section 2.0, Affected Environment) describes and defines the applicable general and oil and gas specific air quality regulations as well as the authority for such laws; provides a basic overview of the science and issues associated with the various types of air pollutants (criteria, hazardous, and greenhouse gases) and air quality related values, any applicable metrics for their analysis, and the contexts of such analysis relative to various geographic designations (attainment, non-attainment, Class I airsheds, etc.); and provides for all available criteria pollutant monitoring data and geographic based national emissions inventory data. This section is referenced to set the context for air analysis current conditions and existing analysis.
- **Analysis Methodology Summary** – This section of the Annual Report (Section 3.0, Analysis Methods and Tools) describes the basic science of air resources analysis; refers to the CARPP for project specific analysis guidelines (followed in this EA); describes the analysis methods used with the annual report to scale current cumulative development within the context of the applicable CARMMS scenario; describes why scaling current report year emissions is a scientifically valid method for describing cumulative impacts; and provides plots of the CARMMS high scenario emissions (for various development and pollutant groups) as well as plots of the modelled impacts for each CARMMS scenario. This section is referenced to provide support for the methodology of analysis used in this EA.
- **Field Office Data/Analysis** – This section of the Annual Report (see Section 4.1 for CRVFO) provides details about the current and trending pace of oil and gas development within the field office or planning area and also describes a summary of the available air quality monitoring data for the field office presented in the Regulatory Analysis described above.

For the Annual Report 2.0, the BLM continually tracks emissions changes and air quality conditions to determine which projection path (low, medium, high) would be most appropriate to estimate air quality impact correlations based on the cumulative development (i.e., net emissions changes) that has occurred since the base emissions inventory year. Annual oil and gas completions and development inventories are routinely compiled by the BLM to track current oil and gas development with regard to CARMMS-modeled “budgets” (annual oil and gas emissions levels). The following paragraph summarizes oil and gas development that has occurred for the CRVFO with CARMMS projection information.

- In the CRVFO, approximately 661 new actively producing natural gas Federal and fee wells were completed since the CARMMS 2.0 baseline year 2015 through mid-2020. This pace of new development for the first five years of the 10-year CARMMS period is well below the new oil and gas development levels analyzed in the CARMMS 2.0 low oil and gas development scenario. As a result, the level of emissions from new oil and gas development during the CARMMS 2.0

analysis period (2016-2025) is trending well below the levels analyzed in the CARMMS low oil and gas development scenario.

Based on these development / emissions trends data, the CARMMS 2.0 low new oil and gas emissions scenario predicted cumulative concentrations for the project area are appropriate for characterizing potential ambient conditions that could be realized if oil and gas development continues at current pace or increases slightly. The majority of the new development occurred in the western portion of the CRVFO, adjacent to the I-70 corridor and extending north toward the Piceance Basin and is consistent with the locations of new oil and gas development modeled for CARMMS 2.0.

The CARMMS analysis does not predict any significant impacts to visibility at nearby Class I areas or to acid lake neutralization for any of the scenarios or reporting-year emissions levels. Additionally, all of the modeled scenarios maximum values are below the air quality NAAQS with the exception of ozone in the medium and high CARMMS 2.0 scenarios. However, as described above, the CARMMS 2.0 low scenario is currently the most accurate forecast for the CRVFO. The only issue resulting from the analysis are the estimated impacts from potential nitrogen deposition at the Eagles Nest Wilderness.

The 2019 report-year modeled data for nitrogen deposition impacts suggest that on a quasi-cumulative basis, the CRVFO may be contributing to nitrogen deposition at the Eagles Nest Wilderness at rates that are above the deposition analysis threshold (DAT). The DAT is an individual project-level threshold that is not applicable to cumulative field office development. No such threshold currently exists for aggregated projects within a given area. A direct measurement of nitrogen does not exist at the Eagles Nest Wilderness, and it is unclear what rate nitrogen deposition is actually occurring (BLM 2019).

Reasonably Foreseeable Future Near-field Air Quality

Reasonably foreseeable future near-field air quality conditions for the area surrounding the proposed project can be described using the results of the CARMMS modeling study (version 2.0). A tool based on CARMMS 2.0 emissions input and modeling output determines how much new Federal and non-Federal oil and gas related emissions were modeled in a specific CARMMS "domain" (4km spaced grid that includes the new proposed project and adjacent grid-cells) for all of the CARMMS 2.0 projected future emissions scenarios (low, medium, and high). The CARMMS near-field domain used to describe future affected environment is approximately 256 square kilometers (16km x 16km) with the proposed project at the center of the domain. The tool provides the range of corresponding modeled cumulative concentrations (for each CARMMS scenario) of ambient nitrogen dioxide, ozone, and particulate matter (less than 10 and 2.5 microns in diameter) for projected year 2025.

For the CARMMS 2.0 low scenario, there were approximately 383 tons per year (TPY) of new NO_x emissions and 813 TPY of new VOC emissions modelled for increased total (Federal and non-Federal) oil and gas development / operations through year 2025 (post-2015) in the near-field domain (~ 256 square kilometers) surrounding the proposed project. The following **Table 6** shows the maximum expected cumulative modeled year 2025 concentration in the near-field domain surrounding the project for each pollutant analyzed and reflects potential impacts for the emissions levels described above for new Federal and non-Federal oil and gas development and operations in the near-field domain. All concentrations are shown in the form of the NAAQS standards. The PM_{2.5} values represent the daily (24 hour) and annual standards, respectively.

Table 6. Predicted Year 2025 Reasonably Foreseeable Local Air Pollutant Concentrations		
<i>Parameter</i>	<i>Maximum Cumulative Concentrations from All Sources across the Entire Near-field Domain, CARMMS 2.0 LOW Scenario</i>	<i>NAAQS</i>
1-hour NO ₂	24 ppb	100 ppb
8-hour O ₃	68 ppb	70 ppb
24-hour PM ₁₀	8 µg/m ³	150 µg/m ³
24-hour PM _{2.5}	4 µg/m ³	35 µg/m ³
Annual PM _{2.5}	3 µg/m ³	12 µg/m ³
µg/m ³ = micrograms per cubic meter; ppb = parts per billion		

Reasonably Foreseeable Future Field Office and State-Level Air Quality

Field Office Specific Data / Information (CRVFO). This section of the report (Section 4.1 Colorado River Valley Field Office) presents data for cumulative emissions from new Federal oil and gas development within the CRVFO as compared to the emission scenarios analyzed by CARMMS, and qualitatively scales the CARMMS projected impacts to the cumulative report year emissions to provide a context for the current cumulative impacts. This section is referenced to set the context for the project's current cumulative impacts at field office scales.

State-Wide Data / Information (Colorado). This section of the report (Section 5.0 Cumulative Air Resources Assessment) provides data and analysis similar to those described above, except on a statewide basis (BLM Colorado Cumulative). This section is referenced to set the context for the project's current cumulative impacts at BLM Colorado (i.e., state-level) scales.

Oil and gas development is expected to remain on the current track (i.e., lower than the CARMMS low scenario) for the foreseeable future in Colorado, due primarily to low commodity prices. There are currently no foreseeable significant shifts in petroleum market dynamics (supply, demand, etc.), changes or advancements in development and recovery technologies, newly discovered resources or plays, or political influences (tax or regulatory incentives) that would significantly affect the rates of development occurring in Colorado. Thus, CARMMS 2.0 is an applicable and appropriate tool for describing impacts for future oil and gas projects within all of the Colorado planning areas.

Baseline Conditions and Reasonably Foreseeable Future GHG Emissions and Climate Change

Climate Statistics and Analysis. This section of the Annual Report (Section 6.0, Climate Statistics and Analysis) describes Colorado's climate (as summarized from the Western Regional Climate Center website) and the science, metrics, and trends accounting for recent and projected climate change (relative to future global emissions scenarios) as summarized from Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (2015) and Special Report (SR15). This section also provides context for the estimates of various downstream combustion related emissions from various Federal and non-Federal contributors relative to total U.S. and global emissions.

Data and information from these reports and analyses describe that all climate model projections indicate future warming in Colorado. The Statewide average annual temperatures are projected to warm by +2.5 °F to +5 °F by 2050 relative to a 1971 to 2000 baseline under Representative Concentration Pathway (RCP) 4.5. Summer temperatures are projected to warm slightly more than winter temperatures, with

maximum values similar to the hottest summers that have occurred in the past 100 years. Precipitation projections are less clear.

Nearly all of the models predict an increase in winter precipitation by 2050, although most projections of snowpack (April 1 snow-water equivalent measurements) show declines by mid-century due to projected warming. Late-summer flows are projected to decrease as the peak shifts earlier in the season, although the changes in the timing of runoff are more certain than changes in the amount of runoff. The majority of published research indicates a tendency towards future decreases in annual streamflow for all of Colorado's river basins. Increased warming, drought, and insect outbreaks, all caused by or linked to climate change, will continue to increase wildfire risks, and impacts to people and ecosystems.

3.2.2 Environmental Effects

Proposed Action

Project-Level Emissions Inventory

An air emissions inventory was compiled for the proposed development of 17 Federal wells on the WMC 24-17 Pad located on Federal lands using BLM's online emissions inventory tool (EMIT). The project-specific emissions inventory is based on operator-provided input and includes emissions from development (construction, drilling, and completion activities) and production activities for the proposed action. Maximum potential annual emissions are estimated for this assessment assuming that all development (drilling and completions) and one full year of production for all wells occur in the same calendar year.

The following pollutants were inventoried where an appropriate basis, methodology, and sufficient data exist: carbon monoxide (CO), nitrogen oxides (NO_x, including nitrogen dioxide [NO₂]), particulate matter less than 2.5 microns in effective diameter (PM_{2.5}), particulate matter less than 10 microns in effective diameter (PM₁₀), sulfur oxides (SO_x, including sulfur dioxide [SO₂]), volatile organic compounds (VOCs), carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), and hazardous air pollutants (HAPs). Emissions of lead from oil and gas activities are extremely low in western Colorado and are therefore, not analyzed.

Ozone is not directly emitted like other criteria pollutants and instead results from complex interactions in the atmosphere, generally from a combination of significant quantities of VOCs and NO_x emitted from various sources within a region. Emissions of these ozone precursors are shown in **Table 7**.

Table 7. Estimated Air Emissions (maximum potential TPY), 17 Federal Wells, WMC 24-17 Project

<i>Parameter</i>	<i>Criteria Pollutants or Precursors</i>						<i>GHGs</i>			<i>HAPs</i>
	<i>PM₁₀</i>	<i>PM_{2.5}</i>	<i>VOC</i>	<i>NO_x</i>	<i>CO</i>	<i>SO_x</i>	<i>CO₂</i>	<i>CH₄</i>	<i>N₂O</i>	
Development Emissions	9.241	3.985	5.476	98.833	64.119	3.695	19,960.399	0.846	0.310	1.3641
Production Emissions	14.098	1.499	4.862	1.420	3.689	0.0256	1,864.836	40.901	0.002	0.280 ¹
¹ HAPs emissions during the production phase are attributed to modeled loadout losses, pneumatic losses, and fugitive losses from valves, connectors, and flanges.										

The emissions inventory was developed using reasonable but conservative scenarios for each activity. Production emissions were calculated based on full functionality of the wells. Potential emissions were calculated assuming the minimum/basic legally required control measures, site-specific voluntary operator controls, operational parameters, and equipment configurations data provided by the operator.

In general, the proposed development would have a temporary localized impact on air quality, which would mostly occur during well development and the initial production years before well yields decline. Air quality would be impacted by emissions associated with the transportation of drilling and completion equipment. Fugitive dust and vehicle emissions would be generated from the mobilization of equipment necessary for well drilling and completion and erecting the drill rig. During drilling and well completion, air quality would be affected by emissions from generators and engines to run equipment, onsite and offsite vehicle traffic, and fugitive gases. These activities would also produce short-term emissions of other criteria pollutants, HAPs, and GHGs from vehicle and equipment exhausts.

When well development is complete, the daily activities would decrease to periodic operational and maintenance checks and product load-out and hauling, which initially could occur as frequently as multiple times per day (prior to declining production). These activities would produce emissions from process heaters and vehicles, as well as fugitive emissions of production-related gases from infrastructure components (pressure relief valves, and working and breathing losses from tanks, flanges, seals, valves, etc.), pneumatic devices that utilize the gas's kinetic energy to operate, and liquid product load-out. Methane is the primary component for the majority of the various gas streams, although at some points in the process the fraction of VOCs and HAPs may be elevated relative to the sales gas fraction. Although control equipment may be installed to ameliorate fugitive emissions from production facilities, emissions of criteria pollutants, HAPs, and GHGs also occur via combustion.

Potential Near-field Air Quality Impacts – Project-Level Contribution

The BLM Colorado CARMMS-based near-field modeling tool used to assess potential local air quality impacts for the Proposed Action and other foreseeable emissions sources since an applicable ambient receptor (e.g., residence) is not located in the immediate vicinity of the proposed development area. The near-field assessment was conducted using the estimated maximum total emissions rates (development plus production) for the project phases shown in **Table 7**. As described earlier, the maximum potential annual emissions estimate for this project assume that all development (drilling and completions) and one full year of production for all wells occur in the same calendar year. This hypothetical “worst-case” annual emissions level is provided for the following potential impact analysis discussion only as it is more realistic to assume that the maximum level of annual emissions for the project would account for full project development and only partial year production phase operations after development is complete. It is reasonable to conclude that potential air quality impact contributions for the proposed project would be less than those predicted using the maximum potential annual emissions estimates shown in **Table 7**.

As described for the foreseeable future near-field affected environment, the CARMMS 2.0 low scenario modeled approximately 383 TPY of NO_x and 813 TPY of VOC for new Federal and non-Federal oil and gas development (years 2016-2025) in a 16-kilometer-square (256 square kilometers) domain area surrounding the Proposed Action. These annual emissions rates (383 TPY and 813 TPY) modeled for CARMMS 2.0 are high enough to include maximum potential annual emissions for the proposed action and also accounts for production operations of the 140 new oil and gas wells completed in this near-field area since CARMMS 2.0 base-line year (2015). Assuming that the Proposed Action's per-well annual production phase NO_x and VOC emissions rates apply for these recently developed wells suggests that the actual emissions associated with new oil and gas operations established post base-line year has not reached the levels of emissions modeled in CARMMS 2.0 for projected new Federal and non-Federal development which allows adequate space in the emissions budget for the Proposed Action as well as other new oil and gas development in the project area.

As shown in the foreseeable affected environment (**Table 6**), in the CARMMS 2.0 low scenario, the maximum predicted year 2025 cumulative local air pollutant concentrations from all sources modeled for CARMMS 2.0 are less than the NAAQS. It should be noted that the CARMMS 2.0 predicted future year

2025 concentrations for both the high and medium scenarios that assume maximum level RFD through year 2025 are also at or below the NAAQS for all pollutants except ozone in the near-field analysis domain. The CARMMS 2.0 high and medium scenarios assume the same levels of new Federal and non-Federal oil and gas development with additional emissions controls applied for the medium scenario new Federal oil and gas emissions sources including Tier 4 drill rig engines and no-bleed pneumatic devices; drill rig engine emissions make up largest portion of NO_x emissions and pneumatic devices make up largest portion of production phase VOC emissions for the Proposed Action emissions sources. Applying the additional medium scenario emissions controls to all new Colorado-wide Federal oil and gas development years 2016-2025 would not cause a significant reduction in cumulative concentrations for the project area with less than 1 ppb reduction for both NO₂ and ozone concentrations.

The CARMMS 2.0 near-field modeling tool predicted that the contributions to cumulative air quality for Federal project-specific maximum potential annual emissions (full development plus one full year of production occurring in the same year) would be below applicable project-level Significant Impact Levels (SILs) for ozone, PM₁₀, and 24-hour PM_{2.5} while SILs would be exceeded for NO₂ 1-hour and annual PM_{2.5}. NO₂ 1-hour and annual PM_{2.5} air pollutant contributions would be expected to decrease and only exceed the SILs temporarily as development operations end, and as production declines from its initial peak. Even with temporary project-level impacts above SILs for NO₂ 1-hour and PM_{2.5} annual, future cumulative ambient concentrations for these pollutants are expected to be well below the NAAQS and therefore, are not a concern. As shown in **Table 6**, in the CARMMS 2.0 low scenario, the maximum predicted cumulative local air pollutant concentrations from *all* sources (as described above) modeled for CARMMS 2.0 are less than the NAAQS.

New CRVFO O&G Potential Contribution to Local, State, and Regional Cumulative Air Quality

The following sections of the online Annual Report 2.0 provide supplemental information for the discussion of cumulative effects:

- **Field Office Data and Analysis** – This section of the Annual Report (Section 4.1 for CRVFO) presents data for cumulative emissions from new Federal oil and gas development within the Field Offices as compared to the emissions scenarios analyzed by CARMMS, and qualitatively scales the CARMMS projected impacts to the cumulative report year emissions to provide a context for the current cumulative impacts. This section is referenced to set the context for the project's current cumulative impacts at field office scales. As described in the Annual Report, Field Office specific contributions to cumulative air quality concentrations and related values (visibility, deposition, etc.) for sensitive areas around the Region are predicted to be minimal and insignificant with respect to accepted impact thresholds for new foreseeable Federal oil and gas development post-2015 through year 2025.

The baseline affected environment discussion suggests that CRVFO-wide oil and gas sources could be contributing to annual nitrogen deposition at nearby Eagles Nest Wilderness above the project-level impact threshold (DAT). A potential annual nitrogen deposition contribution that could be associated with the Proposed Action can be estimated by dividing the Proposed Action's annual emissions by the levels modeled in CARMMS 2.0 for CRVFO, and then scaling the CARMMS 2.0 modeled deposition results for CRVFO. Applying this approach for annual NO_x emissions, the Proposed Action's maximum annual nitrogen deposition contribution at Eagles Nest Wilderness would be ~40% of the DAT for the year of project development (maximum emissions year); emissions for production years after development would likely result in minimal annual nitrogen deposition at Eagles Nest Wilderness.

- Cumulative Air Resources Assessment (BLM Colorado) – This section of the Annual Report (Section 5.0, Cumulative Air Resources Assessment) provides data and analysis similar to those described above, except on a statewide basis (BLM Colorado Cumulative). This section is referenced to set the context for the project’s current cumulative impacts at BLM Colorado (i.e., state level) scales. As described for the Annual Report, cumulative air quality concentrations and related value (visibility, deposition, etc.) levels for the local area/subregion are predicted to improve through year 2025 while considering new oil and gas development within northwest Colorado.

Potential Greenhouse Gas Emissions – Project-Level Contribution

Continued operation of well-site equipment and associated vehicle traffic would result in minor cumulative contributions to atmospheric GHGs. While significance levels exist to determine Prevention of Significant Deterioration (PSD) applicability and emissions control requirements for GHGs, policies regulating specific GHG concentration levels and their potential for significance with respect to regional or global impacts have not been established for GHGs. For the WMC 24-17 project, the maximum estimated GHG emissions resulting from Federal well development and production activities are approximately 20,083 TPY (18,219 metric tpy) as CO₂ equivalent (CO₂e) and 3,338 TPY (3,028 metric tpy) as CO₂e, respectively (**Table 8**). In other words, in a hypothetical scenario in which all wells are developed and have a full year of production in the same year (maximum potential annual emissions), 86% of the combined GHG emissions for that year are modeled to result from development, and 14% are modeled to result from production.

To place the GHG emissions for this pad in context, the calculated GHG emissions in Colorado for year 2005 (Colorado’s baseline year for GHG emissions reductions goals) was about 125.7 million metric tons (MMT) of carbon dioxide equivalent (CO₂e), including 40 MMT CO₂e from electric power, 31 MMT CO₂e from transportation, and 25 MMT CO₂e from residential/ commercial/industrial fuel use, and 8 MMT CO₂e from natural gas and oil systems (Heald, 2019).

Total maximum GHG emissions (Federal) for this project from the development, production, and downstream (end-use combustion) phases would be approximately 0.3% of Colorado’s total 2005 GHG emissions, and approximately 1.1% of residential/commercial/industrial use for natural gas and oil sectors combined, assuming that all downstream emissions would occur in Colorado.

Table 8. Maximum GHG Emissions, 17 Federal Wells, WMC 24-17 Project				
<i>Project Phase</i>	<i>Pollutants (Metric TPY as CO₂ Equivalent)</i>			
	<i>Carbon dioxide (CO₂)</i>	<i>Methane (CH₄)</i>	<i>Nitrous oxide (N₂O)</i>	<i>Total CO₂ equivalent</i>
Federal Development	18,108	28	84	18,219
Federal Production	1,692	1,336	1	3,028
Federal Subtotal – Upstream/Midstream	19,800	1,364	84	21,247
Federal Subtotal – Downstream Combustion	353,252	301	332	353,885
Total Federal GHG Emissions	373,051	1,664	416	375,132

No Action Alternative

Selection of the No Action Alternative would constitute denial of the 17 Federal APDs and denial of the requested ROW grants and TUP needed to access and support the WMC 24-17 project. The No Action Alternative would result in none of the Federal surface-disturbing activities or other Federal activities

submitted as part of the Proposed Action being authorized or implemented. The No Action Alternative would avoid new Federal project-related surface disturbance and potential Federal project-related impacts to air resources since the proposed 17 Federal wells would not be developed.

3.3 ISSUE 2: VISUAL RESOURCES

3.3.1 Affected Environment

Planned Actions in the Area

As described previously, the Proposed Action would occur about 7 miles south of the City of Rifle, on the upper slopes of the unnamed mountain at the southern extent of Flatiron Mesa. The WRNF nearby boundary has an east-west alignment near southern edge of the proposed WMC 24-17 pad. All proposed surface disturbance would occur on BLM or private lands. Also as described previously, vegetation in the vicinity of the proposed pad consists of mixed mountain shrubs with sagebrush in small clearings. An expansive grassy bowl extends off the proposed pad's western edge; the southern edge of the pad location is characterized by an open grassy landscape with a consistent covering of dark-colored basalt boulders. This area is designated as VRM Class III.

The proposed pipeline corridor would follow the north-south alignment of the existing range allotment fence downslope about 600 feet through mountain shrubs dominated by serviceberry and snowberry on the upper third of the fenceline. The existing fence has created a linear feature in the landscape that can be seen from foreground and middle-ground views north of the project area and is apparent from the north background view (see discussion below). Where the lower 2/3 of the fence line/pipeline alignment drops in elevation across the north-sloping surface, stands of aspen with decadent and an understory of wild rose and Rocky Mountain maple dominate the landscape. This tall cover of the aspen and maples provide shading that accentuates the linear appearance of the fence line.

The existing RU 44-7 frac pad is located on private land within a Class IV VRM area on the lower, flatter portion of Flatiron Mesa and is not visible from any public roads or the City of Rifle.

VRM Objectives

The objective of VRM Class III areas, such as where the proposed new construction would occur, is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be no greater than moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape (BLM 2020).

3.3.2 Environmental Effects

Proposed Action

Impacts

The upper portion of the project area is generally visible from two viewing angles (from the northeast and directly north), including two Key Observation Points (KOPs) used in modeling potential visual impacts. Both of these views have proposed project features at background distances. The project area cannot be viewed from the northwest or west along Interstate 70 (I-70), U.S. Highway 6, other public roads along the Colorado River valley floor, or Beaver Creek Road (CR 317). The project area is also not visible from southbound State Highway 13 (SH 13), being obscured by the lower slopes of Flatiron Mesa. It should be noted that the modeling photos taken with snow cover and reduced foliage cover accentuate the visual impact compared to summer views.

Northeastern View KOP. The new well pad would likely be faintly apparent in the landscape from westbound I-70 west of Silt and a KOP at the intersection of Airport Road and Hunter Mesa Road just south of Rifle-Garfield County Airport. The pad fill slopes, ranging from 20 to 35 feet in height with an approximate length of 200 feet, would be seen to the scrutinizing eye but not readily visible to the casual observer due to the background setting. The existing RU 23-17 and RU 31-17 support pads, with their existing access roads cutting across the upper brushy slopes of Flatiron Mesa, are apparent from westbound I-70 and the Airport Road KOP (**Figure 4**). Expansion of the existing range fenceline, faintly visible from this KOB, to a 50-foot-wide pipeline corridor running downslope to the RU 23-17 pad would create a new linear feature that would attract the casual observer's attention, but not dominate the view.

Northern View KOP. A KOP along Railroad Avenue (SH 13) near the Rifle Municipal Pool and the north side of Rifle provides a direct vantage of the upper portion of the project area (well pad and proposed pipeline corridor) to southbound travelers and viewers from the city (**Figure 5**). The RU 23-17 pad shows a readily apparent contrast in the background view with the narrow fence line (proposed to become a 50-foot-wide pipeline disturbance) also vaguely visible. The current linear scar from the fence line mimics the vertical lines that naturally are created from drainages down the upper slopes.

Protective Measures

The WMC 24-17 pad would blend with the openings in the mountain brush vegetation that are visible at the top of the unnamed mountain and meet Class III VRM objectives, particularly after the site undergoes interim reclamation. TEP's installation of production equipment, including 500-bbl storage tanks along the base of the 2:1 cut slope at the south edge, would avoid "skylighted" of the tanks and reducing their visibility. A COA in the **Appendix** requires production equipment to be painted shadow gray to reduce the visual impact. The proposed new access road would not be visible from either of the two KOPs.

The pipeline corridor would likely create an apparent linear contrast that would require additional removal of brush and selected aspen trees along its edges to create a feathered and/or undulating edge to soften the lines of the pipeline disturbance. The removal of vegetation along the buried pipeline alignment by either hydroaxing or felling (chain sawing) individuals or patches of trees would be conducted by a TEP contractor as an adaptive BMP. Such removal of vegetation would disturb the surface negligibly if at all and would involve no more than 2 acres of additional vegetation impacts.

During removal of topsoil following the clearing and hydroaxing of coarse woody vegetation for the pipeline corridor, an initial shallow stripping depth (not to exceed 12 inches) would be used to preserve as much of the root biomass of herbaceous and small woody plants as feasible. If necessary to preserve all topsoil material present, a second stripping depth would extend through topsoil or usable subsoil. The shallow (surficial) material would be used as a topdressing on the recontoured surface before seeding. In addition, the mixed mountain shrubland native seed mix specified by BLM would be modified to include seeds of commercially available native shrubs present in or near the site (e.g., serviceberry, mountain-mahogany, snowberry, and bitterbrush).

When clearing large woody material during feathering and scalloping of the pipeline corridor edge, the debris of hydroaxed or felled trees and tall shrubs would be salvaged and stockpiled for spreading lightly across the reseeded surface. The purpose of these measures is to soften both the linearity and contrast in color and texture of the smooth surface of the pipeline corridor. Progress of the efforts to reduce visual impacts would be reviewed from the KOPs during implementation to ensure compliance with VRM Class III objectives (see the **Appendix**).



Existing Conditions

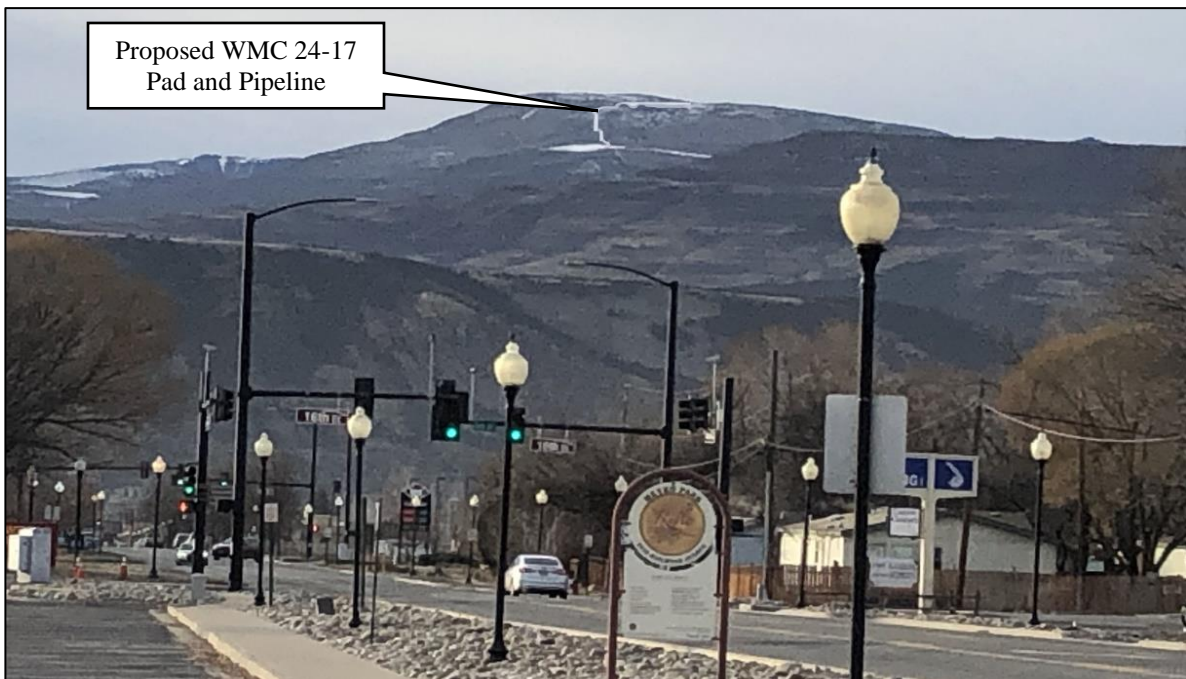


Proposed Conditions

Figure 4. Project Area looking southwest from Northeastern View KOP along Airport Road, Rifle.



Existing Conditions



Proposed Conditions

Figure 5. Project Area looking south from Northern View KOP along Railroad Avenue, Rifle.

3.4 ISSUE 3: WATER RESOURCES – GROUNDWATER

3.4.1 Affected Environment

The Lower Piceance Structural Basin contains both alluvial and bedrock aquifers (Colorado Geological Survey [CGS] 2003). These alluvial aquifers are the most productive aquifers in the region (EPA 2004) and are defined as narrow, thin deposits of sand and gravel formed primarily along stream courses, in this case, along the Colorado River and its tributaries. Domestic wells are generally less than 200 feet deep, with water levels typically ranging between 100 and 150 feet.

The principal bedrock aquifers of the Piceance Basin are the Uinta Formation and the Parachute Creek Member of the Green River Formation, defined as the upper and lower Piceance Basin aquifer systems, respectively. The upper Uinta Formation consists of discontinuous layers of sandstone, siltstone, and marlstone and is less permeable than the hydrologically connected Parachute Creek Member (Robson and Saulnier 1981). The Uinta Formation also contains a shallow, perched aquifer separated from the upper aquifer unit (Cole et al. 1995). The upper Piceance Basin aquifer is underlain by the Mahogany confining unit, and correlates with the Mahogany Zone, the principal oil shale unit of the Piceance Basin. The Mahogany Zone separates the upper and lower aquifers.

The lower aquifer consists of fractured marlstone of the lower Parachute Creek Member. Thicknesses of the upper and lower aquifer units average 700 and 900 feet, respectively (Colorado Geological Survey 2003). Beneath these two aquifer systems is a confining unit consisting of the lower two members of the Green River Formation and the Wasatch Formation. Although considered a confining unit, the Wasatch Formation contains some discontinuous, localized water-bearing sands that support freshwater wells.

Below the Wasatch Formation is the Mesaverde aquifer. The top of this aquifer in the project area is more than 3,000 feet below ground surface (bgs), too deep for economic water development. The Mesaverde aquifer is of regional importance but does not provide recharge to freshwater zones within the shallower groundwater system of the project area.

Water quality of the upper Piceance Basin aquifer unit is relatively good, ranging in Total Dissolved Solid (TDS) levels from 500 to 1,000 milligrams per liter (mg/L). In the lower unit, TDS concentrations increase from 1,000 to 10,000 mg/L along basin flow paths. Waters with TDS values in excess of 1,000 mg/L are generally unsuitable for potable supply. Water suitable for drinking has a Federal secondary standard set at 500 mg/L or less (EPA 2006).

Water quality in the Mesaverde aquifer is highly variable, with concentrations of dissolved solids ranging from less than 1,000 mg/L in many of the basin-margin areas to more than 10,000 mg/L in the central part of the basin (EPA 2004). In general, areas of the aquifer that are recharged by infiltration from precipitation or surface water are relatively low in TDS. However, water quality in the Piceance Basin is generally poor overall due to the presence of nahcolite deposits and salt beds throughout the basin. Only shallow waters such as those from the surficial Wasatch Formation are used for drinking water (EPA 2004).

According to the Colorado Division of Water Resources (CDWR) database, no domestic and/or livestock watering wells are located within a 1-mile radius of the proposed oil and gas well sites.

3.4.2 Environmental Consequences

Proposed Action

Impacts

Potential impacts to groundwater resources from the proposed development include contamination of groundwater with produced water, drilling mud, and petroleum constituents. Hydraulic fracturing would be incorporated to create additional pathways to facilitate gas production. Agents called “proppants,” used to prop open the fractures, are mixed with both fresh water and produced water. Typical proppants include sand, aluminum, glass, or plastic beads, with less than 1% of other compounds such as corrosion-, friction-, and scale-inhibitors (EnerMax Inc. 2007). Fracing techniques are used to create secondary porosity fractures, held open by proppants, allowing the otherwise trapped gas to migrate up the borehole for production.

Drilling scenarios are developed to prevent fluids and produced hydrocarbons from migrating upward into freshwater zones. Geologic and engineering reviews are conducted to ensure that the cementing and casing programs are adequate to protect all downhole resources. With proper construction practices, drilling practices, and BMPs, no significant adverse impact to groundwater aquifers is anticipated to result from the project (see drilling COAs in the **Appendix**).

Hydraulic fracturing would be conducted at 6,000 feet or more bgs. The dimensions of fractures induced by fracing have been measured with field monitoring equipment and in laboratory tests and compared to three-dimensional (3D) hydraulic fracturing models. Researchers have successfully validated these models for fracturing in reservoirs such as associated with oil and gas development in western Colorado, and operators estimates of fracture lengths in their planning.

Hydraulically induced fracture orientation in relation to the wellbore depends on the downhole environment (i.e., rock mechanics, minimum and maximum principal stress directions, physical rock properties, etc.) and the wellbore trajectory. In vertical or normal directional wells, fracture growth is primarily lateral or outward from the wellbore, with minimal secondary fractures extending at an upward or downward angle away from the lateral fractures. Any fracture growth toward the surface is limited by barriers such as variations in stress and rock type in the layered sedimentary rocks overlying the target zone. Information on microseismic monitoring and fracture dimensions (Fisher and Warpinski 2012) indicates that fractures are not a threat to propagate across the long vertical distances (several thousand feet) from the target well depths to much shallower freshwater aquifers. In general, domestic and stock watering wells in the general project vicinity extend to depths of less than 200 feet, with a few to 500 feet.

Protective Measures

In addition to the protection afforded by vertical separation between the upper extent of fractures and freshwater aquifers, BLM and COGCC require proper casing and cementing of wellbores to isolate the aquifers penetrated by the bore. The BLM requires that surface casing be set from 500 to 1,500 feet deep, and potentially deeper, based on a geologic review of the formations, freshwater and other aquifers, and proximity and connectivity to surface waters. Cement is then pumped into the space between the casing and surrounding rock to prevent fluids from moving up the wellbore and casing annulus and coming in contact with shallow rock layers, including freshwater aquifers. BLM petroleum engineers review well and cement design and final drilling and cementing logs to ensure that the cement has been properly placed. When penetration of groundwater and freshwater aquifers is anticipated, the BLM inspectors may witness the cementing of surface casing and pressure testing to ensure that the space between the casing and borehole wall is sealed.

A list of chemicals used during completions would be posted to the *FracFocus.org* website. This website, a chemical registry of substances used in hydraulic fracturing completions, is managed by the Groundwater Protection Council and Interstate Oil and Gas Compact Commission. Although a variety of chemicals are used in fracing, the bulk of fluid injected into the target formation consists of water mixed with sand, typically representing around 99.5% of the total by volume. The sand is used as a proppant to help keep the newly formed fractures from closing.

Following hydraulic fracturing, the pressure differential between the formation—a result of several thousand feet of overlying bedrock—and the borehole that connects with the surface causes most of the injected fluids to flow toward the borehole and then to the surface along with hydrocarbon fluids released from the formation. The composition of this mixture, called flowback water, gradually shifts over a period of several days to a few months as injected fluids that have not yet migrated back to the wellbore or reacted with the native rock are carried out of the formation. The BLM and COGCC have strict requirements for handling and disposal of flowback water and sand proppant returned to the surface, and of well cuttings.

COGCC requires groundwater sampling in connection with the State-issued APDs. This mandated sampling includes baseline samples and subsequent monitoring samples from all available groundwater sources, to a maximum of four within a 0.5-mile radius of a proposed oil and gas well, multi-well pad, or dedicated disposal well. Initial sampling would be conducted within 12 months prior to setting conductor pipe in a well or the first well on a multi-well pad, or commencement of drilling a dedicated disposal well. Subsequent sampling would be conducted at the initial sample locations 6 to 12 months following drilling of the well, and again 5 to 6 years following drilling.

No Action Alternative

Selection of the No Action Alternative would constitute denial of the 17 Federal APDs and denial of the ROW grants needed to access and support the WMC 24-17 project. Based on the information above, the No Action Alternative would avoid new project-related surface disturbance and potential impacts to groundwater resources, since the drilling and completion of the 17 Federal wells would not occur.

3.5 ISSUE 4: WILDLIFE – BIG GAME

3.5.1 Affected Environment

As described earlier, the site lies within an area mapped by CPW as overall winter range for mule deer and overall, transitional, and summer range for mule deer and Rocky Mountain elk (**Figure 6**). Deer and elk are the most common and the ecologically, recreationally, and economically most important big game species in the region. Mule deer winter range is important for maintaining deer populations. Because of its relatively low elevation, the project area receives use primarily by animals that have migrated downslope in fall from higher elevations to areas where temperatures are milder, snow cover is thinner and less persistent, and forage is more readily through the snowpack than at higher elevations. In addition to these migrant animals, a small number of mule deer reside in the project vicinity year-round. Winter densities of big game in an area vary based on the severity of the winter and the types of habitat present, including forage quality and quantity, presence of thermal and hiding cover, and proximity to water.

Planned actions and reasonably foreseeable trends in the area would present similar impacts. However, because impacts from avoidance or reduced use in proximity to development activities are temporary, they are mostly associated with long-term reductions in the amount or quality of habitat, particularly the loss of forage and cover, and habitat fragmentation. Habitat loss associated with typical Federal oil and gas developments in the CRVFO area is reduced by the use of multi-well pads with lower surface densities and by prompt reclamation of temporarily disturbed areas and interim reclamation of well pads.

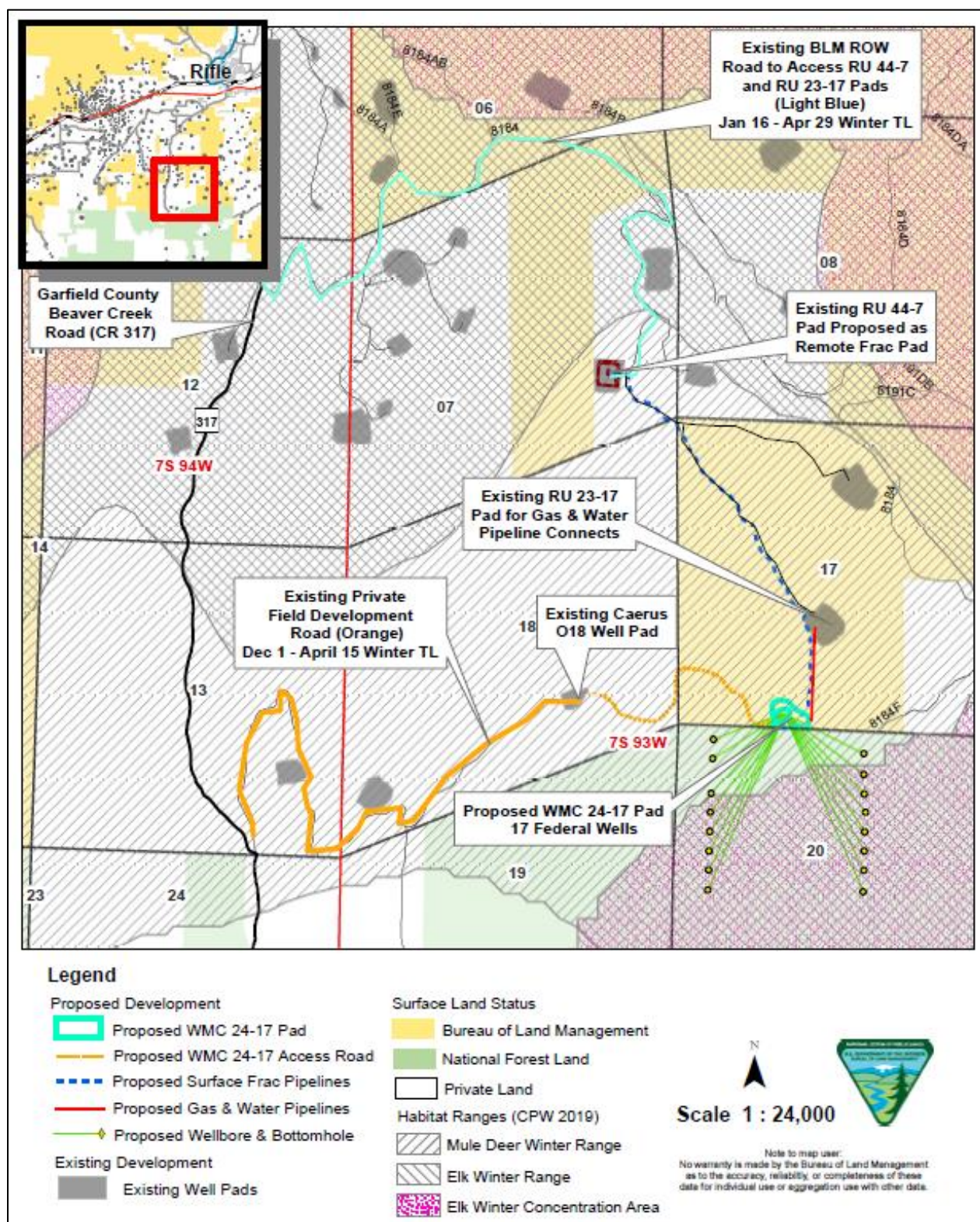


Figure 6. Big Game Winter Habitats

3.5.2 Environmental Consequences

Proposed Action

Impacts

The general project vicinity, between Mamm Peak and the Colorado River / I-70 corridor has had decades of energy development and other commercial, agricultural, and motorized recreational activity on both Federal and private lands. As a result, impacts on wildlife would be reduced compared to less developed or undeveloped areas. Some habituation of the animals to oil and gas operations and other human activities in the mosaic of private and public lands also tends to reduce impacts compared to more remote locations. In addition is the small scale of new surface disturbance associated with the proposed pad expansion (19.74 acres short term, and 4.07 acres long term; see **Table 2**). More than half of this surface disturbance would be on previously disturbed areas not representing high-quality wildlife habitat.

Impacts to terrestrial wildlife from the Proposed Action may include habitat fragmentation and loss from construction of project components, effective habitat loss due to avoidance and displacement from preferred habitat, reduced survivorship from physical stress and energy depletion, and direct mortality.

Effective habitat loss due to avoidance and displacement generally affects a larger area than physical habitat loss. The extent of this effective habitat loss cannot be estimated quantitatively because of the variation of habitat type and quality in terms of forage, cover, climate, proximity to water, and sensitivity of the animals to disturbance. Sensitivity to disturbance is affected by the prior exposure of the animals to human use and associated noise and activity, and by the effective radius of the disturbance based on intensity and noise levels at the site and the effectiveness of topographic and vegetation screening. In general, disturbance-related impacts are temporary, with altered patterns of distribution and habitat use returning to pre-disturbance conditions when development transitions to long-term production. This return to prior patterns may occur relatively quickly if the animals have remained in the project vicinity, or upon their return the area during the next seasonal movement.

TEP's preferred schedule includes the potential for development activities during the 2021-2022 winter season. If that schedule were implemented without measures to reduce impacts, big game distribution and habitat use would be affected primarily by effective habitat loss from avoidance of project activities and dislocation to less favorable areas in terms of habitat quality and microclimate. These effects cannot be quantified due to numerous variables associated spatial and temporal (year-to-year) variability. Winter development would normally be precluded by a TL stipulation prohibiting construction, drilling, and completion activities. For the ROWs/TUPs, the TL applied would be the stipulation in the 2015 ROD/ARMPA, from December 1 to April 15. For the wells and well pad, the TL applied would normally be the stipulation on the underlying Federal lease, from January 16 to April 29. For consistency across the project, TEP has agreed to accept the longer TL period from the 2015 ROD/ARMPA for the on-lease operations.

If winter drilling were authorized by the BLM, in consultation with CPW, through an approved exception to the winter TL, the impacts could be relatively greater than if winter development were not allowed, although the difference is difficult to quantify due to a number of variables. Mule deer and elk (the latter less common in the project vicinity) are often restricted to smaller areas during winter due to more localized distribution of suitable forage and favorable topography. Both species must expend more energy during winter to move through snow, locate food, and maintain body temperature. Less suitable habitats to which the animals may disperse include areas with lower forage quality and quantity, less forage availability through snow, less thermal and hiding cover, and less availability of water. These conditions, as well as the physical stress of moving through snow and across larger areas to obtain food,

may contribute to decreased overwinter survival of individual animals. Reduced survivorship of pregnant females, or of the fetuses they are carrying, reduces reproductive success of the herd.

The TL stipulation contains exception criteria allowing the BLM to approve winter development for a specific location, activity, and dates if it determines, following consultation with CPW, that proposed impact reduction measures associated with the exception would be sufficient to offset the expected impacts. This determination typically considers proposed protective measures in relation to the size and location of the project, the type and extent of available habitats, and the start and end dates of the winter activities, as well as design features such as use of pipelines instead of trucks to move water and liquid condensate and restriction of activities to daylight hours when possible.

As described in **Section 1.2**, measures sufficient to allow a winter TL exception would generally consist one or more of the following: habitat treatments to improve forage quality and quantity, weed control, reseeding or other restoration of depleted areas, supplemental water, and removal of unneeded fences. Restricting development to daylight hours when possible is often included for access routes to reduce direct mortality from vehicles.

Note that the measures listed above are mostly focused on improving habitat quality in areas outside the project area. This approach, favored by BLM and CPW, recognizes that (1) over the long term, the accrual of habitat benefits from TL exceptions can have positive impacts on more animals, for a longer period, than the negative impacts of displacement and habitat avoidance; and (2) design features and BMPs incorporated by the proponent, as a result of collaboration with BLM and CPW during project planning, would reduce the severity impacts at or in proximity to the development.

Timing of initiation of the winter activities is also important. In the case of activities that begin in fall or earlier and continue into the winter period, the animals adjust their patterns of movement and habitat use when movement farther from the disturbance is relatively easy. For this reason, BLM does not approve, and CPW does not concur with, big game TL exceptions that begin later in winter, after wildlife patterns of winter movement and use are fully established and when movement to other areas is more difficult.

Both the BLM and CPW prefer to delay any final decision on winter TL exceptions and associated protective measures until closer in time to the winter season when the exception would be applied, in this case the 2021-2022 winter season. This delayed determination allows the agencies to better assess site conditions, which may vary from year to year. These conditions include whether forage has been destroyed by fire, damaged by drought, or depleted by livestock; the likely onset, severity, and duration of winter conditions (e.g., related to temperatures and snowpack); and subsequent revisions to the development schedule, potentially including reduced or no activities during the TL period. Project schedules commonly change because of unforeseen changes in economics, equipment availability and performance, geologic conditions—or the advent of a viral pandemic. Projects are sometimes dropped from an operator's plans, eliminating the need for a TL exception for the project.

If BLM and CPW determine that granting an exception to the big game winter TL is not supported by site conditions, project design, and agreed-upon measures to avoid, reduce, or offset impacts, TEP would not be allowed to conduct the activities during the TL period.

No Action Alternative

The Proposed Action involves development of Federal fluid minerals within a duly issued Federal oil and gas lease, which grants the lessee a right to explore and develop the lease. Although the BLM cannot deny the right to drill and develop the leasehold, individual APDs can be denied. Selection of the No Action Alternative would constitute denial of the 17 Federal APDs and denial of the requested ROW grants and TUP needed to access and support the WMC 24-17 project. The No Action Alternative would

result in none of the surface-disturbing activities or other activities submitted as part of the Proposed Action being authorized or implemented. Based on the information above, the No Action Alternative would eliminate new project-related surface disturbance and potential impacts to big game.

4. COORDINATION AND CONSULTATION

4.1 ORGANIZATIONS AND PERSONS CONSULTED

TEP – Adam Tankersley Trevor Burrell, Wayne Gallahan, Bryan Hotard, Kyle Kohl, Makayla Grant
USFS – Kelsha Anderson, Jason Gross (WRNF, Rifle Ranger District)
COGCC – Dave Kubeczko
CPW – Taylor Elm, Elissa Slezak, Danielle Neumann
Grand River Institute – Carl Connor
WestWater Engineering – Leah Weckworth

4.2 LIST OF PREPARERS

BLM staff who participated in preparing this EA are listed alphabetically by last name in **Table 9** (next page). Participation by these individuals varies and includes reviewing survey results submitted by the Operator’s consultants, evaluating impacts likely to occur from implementation of the Proposed Action, and identifying appropriate COAs to be attached and enforced by the BLM (**Appendix**).

Table 9. BLM Project Team – Authors and Reviewers		
<i>Name</i>	<i>Title</i>	<i>Area of Participation</i>
Jill Bogdanovich	Realty Specialist	Right-of-Way Authorizations
John Brogan	Archaeologist	Cultural Resources, Native American Religious Concerns
Jim Byers	Natural Resource Specialist	Project Lead, Access and Transportation, Socioeconomics, Visual Resources, Wastes
Vanessa Caranese	Geologist	Fossil Resources, Geology and Mineral Resources, Groundwater, Vegetation
Allen Crockett, Ph.D., J.D.	Supervisory NRS, Planning and Environmental Coordinator	Technical Review, NEPA
Sylvia Ringer	Wildlife Biologist	Migratory Birds, Special Status Species Animals, Aquatic and Terrestrial Wildlife
Wesley Toews	Physical Scientist	Air Quality, Noise, Soils, Surface Water, WOTUS

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APPENDIX
CONDITIONS OF APPROVAL

SURFACE-USE CONDITIONS OF APPROVAL

WMC 24-17 Project

DOI-BLM-CO-G020-2021-0001-EA

GENERAL SURFACE-USE COAS APPLICABLE TO ALL ACTIVITIES ASSOCIATED WITH THE WMC 24-17 PROJECT

The following surface-use COAs shall be implemented, where applicable and feasible, to reduce impacts from project activities. These COAs are in addition to all stipulations attached to the respective Federal leases and to any site-specific COAs, which are presented following these general COAs.

Note: The following Conditions of Approval (COAs) would also be used as Resource Protection Stipulations, where applicable, for the BLM rights-of-way related to this project: WMC 24-17 well pad, the WMC 24-17 access road, natural gas pipeline, and produced water pipeline, as well as the temporary use permit for temporary surface frac lines.

1. Administrative Notification. The operator shall notify the BLM representative at least 48 hours prior to initiation of construction. If requested by the BLM representative, the operator shall schedule a pre-construction meeting, including key operator and contractor personnel, to ensure that any unresolved issues are fully addressed prior to initiation of surface-disturbing activities or placement of production facilities.
2. Road Construction and Maintenance. Roads shall be crowned, ditched, surfaced, drained with culverts and/or water dips, constructed, and maintained to road standards submitted with APDs and described in BLM's *Gold Book*. Initial gravel application shall be a minimum of 6 inches. The operator shall provide timely year-round road maintenance and cleanup on the access roads. A regular schedule for maintenance shall include, but not be limited to, blading, ditch and culvert cleaning, road surface replacement, and dust abatement. When rutting within the traveled way becomes greater than 6 inches, blading and/or gravelling shall be conducted as approved by the BLM. (*Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development, The Gold Book, Fourth Edition—Revised 2007, BLM/VO/ST-06/021+3071/REV 07*)
3. Drill Cuttings Management. Cuttings generated from the numerous planned well bores shall be worked through a shaker system on the drill rig, mixed with a drying agent, and deposited in the on-site drilling pit (cuttings trench). The cuttings shall be remediated prior to earthwork reshaping related to well pad interim reclamation.
4. Dust Abatement. The operator shall implement dust abatement measures as needed to prevent fugitive dust from vehicular traffic, equipment operations, or wind events. The BLM may direct the operator to change the level and type of treatment (watering or application of various dust agents, surfactants, and road surfacing material) if dust abatement measures are observed to be insufficient to prevent fugitive dust.
5. Drainage Crossings and Culverts. Construction activities at intermittent and ephemeral drainage crossings (e.g., burying pipelines, installing culverts) shall be timed to avoid high flow conditions. Construction that disturbs any flowing stream shall utilize either a piped stream diversion or a cofferdam and pump to divert flow around the disturbed area.

Culverts at drainage crossings shall be designed and installed to pass a 25-year or greater storm event. On perennial and intermittent streams, culverts shall be designed to allow for passage of aquatic biota. The minimum culvert diameter in any installation for a drainage crossing or road drainage shall be 24 inches. Crossings of drainages deemed jurisdictional Waters of the U.S. pursuant to Section 404 of

the Clean Water Act may require additional culvert design capacity. Due to the flashy nature of area drainages and anticipated culvert maintenance, the U.S. Army Corps of Engineers (USACE) recommends designing drainage crossings for the 100-year event. Contact the USACE Colorado West Regulatory Branch at 970-243-1199.

Pipelines installed beneath stream crossings shall be buried at a minimum depth of 4 feet below the channel substrate to avoid exposure by channel scour and degradation. Following burial, the channel grade and substrate composition shall be returned to pre-construction conditions.

6. Jurisdictional Waters of the U.S. The operator shall obtain appropriate permits from the USACE prior to discharging fill material into Waters of the U.S. in accordance with Section 404 of the Clean Water Act. Waters of the U.S. (WOTUS) are defined in 33 CFR Section 328.3 and may include wetlands as well as streams. Permanent impacts to jurisdictional waters may require measures specified by USACE to offset these impacts. Contact the USACE Colorado West Regulatory Branch at 970-243-1199 to determine jurisdiction and obtain applicable permits. If the locations are deemed jurisdictional by the USACE, TEP would be required to comply with any avoidance or other measures specified by the USACE under Nationwide Permit 12 and submit a pre-construction notification to the USACE. Small ephemeral drainages would be crossed perpendicularly using narrowed disturbances with adequate armoring BMPs installed to protect the backfilled trenches from potential stream flows. Soil would not be stockpiled in ephemeral channels and dry washes. Stormwater controls would also include straw wattles or bales on the downhill side of disturbed areas and around all soil stockpiles, berms, diversion ditches, and sediment traps. Additional stormwater controls may be required depending on site conditions within the drainage basin (size, slope steepness, type of substrate, type, and density of plant cover, etc.).

7. Reclamation Practices for the WMC 24-17 Project.

The following reclamation measures shall apply specifically to the reclamation of the BLM WMC 24-17 pad and access road and pipeline ROWs/TUPs. For fee/fee pad and ancillary road and pipeline upgrades on private land, the same measures shall apply unless the private landowner desires otherwise.

Regardless of surface ownership, the operator shall be responsible for achieving temporary stabilization and interim reclamation that minimizes erosion and transport of soils from disturbed surfaces and soil stockpiles and minimizes the potential for infestations of State-listed noxious weeds or other invasive non-native plant species.

- a. Reclamation Plans. In areas that have low reclamation potential or are especially challenging to restore, reclamation plans will be required prior to APD approval. The plan shall contain the following components: detailed reclamation plans, which include contours and indicate irregular rather than smooth contours as appropriate for visual and ecological benefit; timeline for interim and final reclamation earthwork, and seeding; soil test results and/or a soil profile description; amendments to be used; soil treatment techniques such as roughening, pocking, and terracing; erosion control techniques such as hydromulch, blankets/matting, and wattles; and visual impact reduction measures in a sensitive VRM area.
- b. Deadline for Reclamation Earthwork and Seeding. Interim reclamation of the road cuts and fills and final reclamation of the buried pipelines shall be completed within 30 days following completion of construction. Any such area on which construction is completed prior to December 1 shall be seeded during the remainder of the early winter season instead of during the following spring unless BLM approves otherwise based on weather. If road or pipeline construction occurs discontinuously (e.g., new segments installed as new pad is built) or continuously but with a total duration greater than 30 days, reclamation, including seeding, shall be phased such that no portion of the temporarily disturbed area remains in an unreclaimed condition for longer than 30 days. BLM may authorize deviation from this requirement based on

the season and the amount of work remaining on the entirety of the road or pipeline when the 30-day period has expired.

If requested by the project lead NRS for a specific pad or group of pads, the operator shall contact the NRS by telephone or email approximately 72 hours before reclamation and reseeding begins. This will allow the NRS to schedule a pre-reclamation field visit if needed to ensure that the parties are in agreement and provide time for adjustments to the plan before work is initiated.

The deadlines for seeding described above are subject to extension upon approval of the BLM based on season, timing limitations, or other constraints on a case-by-case basis. If the BLM approves an extension for seeding, the operator may be required to stabilize the reclaimed surfaces using hydromulch, erosion matting, or other method until seeding is implemented.

- c. Topsoil Stripping, Storage, and Replacement. All topsoil shall be stripped following removal of vegetation during construction of pipelines and roads. In areas of thin soil, a minimum of the upper 6 inches of surficial material shall be stripped. The BLM may specify a stripping depth during the pre-work meeting or based on subsequent information regarding soil thickness and suitability. The stripped topsoil shall be stored separately from subsoil or other excavated material and replaced prior to final seedbed preparation.
- d. Seedbed Preparation. For cut-and-fill slopes of the access road and/or buried pipelines, initial seedbed preparation shall consist of backfilling and recontouring to achieve the configuration specified in the reclamation plan. Following slope recontouring, the backfilled or ripped surfaces shall be covered evenly with topsoil.

If directed by the BLM, the operator shall implement measures following seedbed preparation (when broadcast-seeding or hydroseeding is to be used) to create small depressions to enhance capture of moisture and establishment of seeded species. Depressions (pocking) shall be no deeper than 1 to 2 inches and shall not result in piles or mounds of displaced soil. Excavated depressions shall not be used unless approved by the BLM for the purpose of erosion control on slopes. Where excavated depressions are approved by the BLM, the excavated soil shall be placed only on the downslope side of the depression.

If directed by the BLM, the operator shall conduct soil testing prior to reseeding to identify if and what type of soil amendments may be required to enhance revegetation success. At a minimum, the soil tests shall include texture, pH, organic matter, sodium adsorption ratio (SAR), cation exchange capacity (CEC), alkalinity/salinity, and basic nutrients (nitrogen, phosphorus, potassium [NPK]). Depending on the outcome of the soil testing, the BLM may require the operator to submit a plan for soil amendment. Any requests to use soil amendments not directed by the BLM shall be submitted to the CRVFO for approval.

- e. Seed Mixes. A seed mix consistent with BLM standards in terms of species and seeding rate for the specific habitat type shall be used on all BLM lands affected by the project (see Attachment 1 of the letter provided to operators dated September 9, 2014).

The seed shall contain no prohibited or restricted noxious weed seeds and shall contain no more than 0.5 percent by weight of other weed seeds. Seed may contain up to 2.0 percent of “other crop” seed by weight, including the seed of other agronomic crops and native plants; however, a lower percentage of other crop seed is recommended. Seed tags or other official documentation shall be submitted to BLM at least 14 days before the date of proposed seeding for acceptance. Seed that does not meet the above criteria shall not be applied to public lands.

- f. Seeding Procedures. Seeding shall be conducted no more than 24 hours following completion of final seedbed preparation.

Where practicable, seed shall be installed by drill-seeding to a depth of 0.25 to 0.5 inch. Where drill-seeding is impracticable, seed may be installed by broadcast-seeding at twice the drill-seeding rate, followed by raking or harrowing to provide 0.25 to 0.5 inch of soil cover or by hydroseeding and hydromulching. Hydroseeding and hydromulching shall be conducted in two separate applications to ensure adequate contact of seeds with the soil.

An exception to these seeding requirements shall be made for seeding of sagebrush. Sagebrush seeding shall occur prior to winter snowfall, or on top of snow. Sagebrush may be sown either by broadcast seeding, or, if not on snowpack, by placing the seed in the fluffy seed box of a seed drill, with the drop tube left open to allow seed to fall out on the ground surface.

If interim revegetation is unsuccessful, the operator shall implement subsequent reseeding until interim reclamation standards are met.

- g. Mulch. Mulch shall be applied within 24 hours following completion of seeding in project areas within pinyon-juniper, sagebrush shrubland, and/or salt-desert shrub habitat types. Mulch may consist of either hydromulch or of certified weed-free straw or certified weed-free native grass hay crimped into the soil. Mulch shall not be used within mountain shrub or spruce-fir forest habitat types, unless requested or approved by the BLM.

NOTE: Mulch is not required in areas where erosion potential mandates use of a biodegradable erosion-control blanket (straw matting).

- h. Erosion Control. Cut-and-fill slopes shall be protected against erosion with the use of water bars, lateral furrows, or other BMPs approved by the BLM. Additional BMPs such as biodegradable wattles, weed-free straw bales, or silt fences shall be employed as necessary to reduce transport of sediments into the drainages. The BLM may require use of hydromulch or biodegradable blankets or matting in areas with high erosion potential to ensure adequate protection from slope erosion and offsite transport of sediments and to improve reclamation success. Stormwater controls such as wattles or straw bales would also be required on the downhill side of all disturbed areas including berms, diversion ditches, sediment traps, and around all soil stockpiles.
- i. Monitoring. The operator shall conduct annual monitoring surveys of BLM sites categorized as “operator reclamation in progress” and shall submit an annual monitoring report of the BLM sites, including a description of the monitoring methods used, to the BLM by **December 31** of each year. The annual monitoring report shall document whether attainment of reclamation objectives appears likely. If one or more objectives appear unlikely to be achieved, the report shall identify appropriate corrective actions. Upon review and approval of the report by the BLM, the operator shall be responsible for implementing the corrective actions or other measures specified by the BLM.
8. Weed Control. The operator shall regularly monitor and promptly control noxious weeds or other undesirable plant species as set forth in the Glenwood Springs Field Office *Noxious and Invasive Weed Management Plan for Oil and Gas Operators*, dated March 2007. A Pesticide Use Proposal (PUP) must be approved by the BLM prior to the use of herbicides. Annual weed monitoring reports and Pesticide Application Records (PARs), including GPS data in accordance with the February 27, 2014, letter to operators, shall be submitted to the BLM by **December 1**.
9. Big Game Winter Range Timing Limitation. To minimize impacts to wintering big game, no use of the BLM road or pipeline rights-of-way for construction, drilling, or completion activities shall occur during a Timing Limitation (TL) period from **December 1 to April 15 annually**.
10. Bald and Golden Eagles. It shall be the responsibility of the operator to comply with the Bald and Golden Eagle Protection Act (Eagle Act) with respect to “take” of either eagle species. Under the

Eagle Act, “take” includes to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, and disturb. “Disturb” means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle; (2) a decrease in its productivity by substantially interfering with normal breeding, feeding, or sheltering behavior; or (3) nest abandonment by substantially interfering with normal breeding, feeding, or sheltering behavior. Avoidance of eagle nest sites, particularly during the nesting season, is the primary and preferred method to avoid a take. Any oil or gas construction, drilling, or completion activities planned within 0.5 mile of a bald or golden eagle nest, or other associated activities greater than 0.5 miles from a nest that could disturb eagles, shall be coordinated with the BLM project lead, BLM wildlife biologist, and the USFWS representative to the BLM Field Office at 970-243-2778 x28.

11. Raptor Nesting. To protect nesting raptors, a survey shall be conducted prior to construction, drilling, or completion activities that are to begin during the raptor nesting season (**February 1 to August 15**). The survey shall include all potential nesting habitat within 0.25 mile of a well pad, access road, pipeline, or other surface facility. Results of the survey shall be submitted to the BLM. If a raptor nest is located within the buffer widths specified above, a 60-day raptor nesting TL will be applied by the BLM to preclude initiation of construction, drilling, and completion activities during the appropriate nesting season. The operator is responsible for complying with the Migratory Bird Treaty Act (MBTA), which prohibits the “take” of birds or of active nests (those containing eggs or young), including nest failure caused by human activity (see COA for Migratory Birds below).
12. Migratory Birds – Nesting Habitat. Pursuant to BLM Instruction Memorandum 2008-050, all vegetation removal or surface disturbance in previously undisturbed lands providing potential nesting habitat for migratory birds is prohibited from **May 15 to July 15**. An exception to this TL may be granted if nesting surveys conducted no more than one week prior to surface-disturbing activities indicate that no migratory bird species are nesting within 30 meters (100 feet) of the area to be disturbed. Nesting shall be deemed to be occurring if a territorial (singing) male is present within the distance specified above. Nesting surveys shall include an audial survey for diagnostic vocalizations in conjunction with a visual survey for adults and nests. Surveys shall be conducted by a qualified breeding bird surveyor between sunrise and 10:00 AM under favorable conditions for detecting and identifying migratory birds. This provision does not apply to ongoing construction, drilling, or completion activities that are initiated prior to May 15 and continue into the 60-day period at the same location.
13. Migratory Birds – General. It shall be the responsibility of the operator to comply with the Migratory Bird Treaty Act (MBTA) with respect to “take” of migratory bird species, which includes injury and direct mortality resulting from human actions not intended to have such result. To minimize the potential for the take of a migratory bird, the operator shall take reasonable steps to prevent use by birds of fluid-containing pits associated with oil or gas operations, including but not limited to reserve pits, produced-water pits, hydraulic fracturing flowback pits, evaporation pits, and cuttings trenches. Liquids in these pits—whether placed or accumulating from precipitation—may pose a risk to birds as a result of ingestion, absorption through the skin, or interference with buoyancy and temperature regulation.

Based on low effectiveness of brightly colored flagging or spheres suspended over a pit, the operator shall install netting with a mesh size of 1 to 1.5 inches, and suspended at least 4 feet above the fluid surface, on all pits into which fluids are placed, except for storage of fresh water in a pit that contains no other material. The netting shall be installed within 24 hours of placement of fluids into a pit. The requirement for netting does not apply to pits during periods of continuous, intensive human activity at the pad, such as drilling and hydraulic fracturing phases or, as pertains to cuttings trenches, during

periods of active manipulation for cuttings management, remediation of contaminated materials, or other purposes.

In addition to netting of pits, oil slicks and oil sheens shall be promptly skimmed off the fluid surface. The requirement for prompt skimming of oil slicks and oil sheens also applies to cuttings trenches in which precipitation has accumulated. All mortality or injury to birds shall be reported immediately to the BLM project lead and to the USFWS representative to the BLM Field Office at 970-243-2778 x28 and visit <http://www.fws.gov/mountain-prairie/contaminants/oilpits.htm>.

14. Range Management. Range improvements (fences, gates, reservoirs, pipelines, etc.) shall be avoided during development of natural gas resources to the maximum extent possible. If range improvements are damaged during exploration and development, the operator shall be responsible for repairing or replacing the damaged range improvements. If a new or improved access road bisects an existing livestock fence, steel frame gate(s) or a cattleguard with associated bypass gate shall be installed across the roadway to control grazing livestock.
15. Paleontological Resources. All persons associated with operations under this authorization shall be informed that any objects or sites of paleontological or scientific value, such as vertebrate or scientifically important invertebrate fossils, shall not be damaged, destroyed, removed, moved, or disturbed. If in connection with operations under this authorization any of the above resources are encountered the operator shall immediately suspend all activities in the immediate vicinity of the discovery that might further disturb such materials and notify the BLM of the findings. The discovery shall be protected until notified to proceed by the BLM.
16. Cultural Education/Discovery. All persons in the area who are associated with this project shall be informed that if anyone is found disturbing historic, archaeological, or scientific resources, including collecting artifacts, the person or persons would be subject to prosecution.

If subsurface cultural values are uncovered during operations, all work in proximity to the resource shall cease and the Authorized Officer with the BLM notified immediately. The operator shall take any additional measures requested by the BLM to protect discoveries until they can be adequately evaluated by the permitted archaeologist. Within 48 hours of the discovery, the SHPO and consulting parties shall be notified of the discovery and consultation shall begin to determine an appropriate response. The BLM, in cooperation with the operator, shall ensure that the discovery is protected from further disturbance until an appropriate response is implemented. Operations may resume at the discovery site upon receipt of written instructions and authorization by the authorized officer.

Pursuant to 43 CFR 10.4(g), the holder shall notify the authorized officer, by telephone, with written confirmation, immediately upon the discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony on Federal land. Further, pursuant to 43 CFR 10.4 (c) and (d), the holder shall stop activities in proximity to the discovery that could adversely affect the discovery. The holder shall make a reasonable effort to protect the human remains, funerary items, sacred objects, or objects of cultural patrimony for a period of thirty days after written notice is provided to the authorized officer, or until the authorized officer has issued a written notice to proceed, whichever occurs first.

Antiquities, historic ruins, prehistoric ruins, and other cultural or paleontological objects of scientific interest that are outside the authorization boundaries but potentially affected, either directly or indirectly, by the Proposed Action shall also be included in this evaluation. Impacts that occur to such resources as a result of the authorized activities shall be addressed at the operator's cost, including the cost of consultation with Native American groups.

Any person who, without a permit, injures, destroys, excavates, appropriates, or removes any historic or prehistoric ruin, artifact, object of antiquity, Native American remains, Native American cultural

item, or archaeological resources on public lands is subject to arrest and penalty of law (16 USC 433, 16 USC 470, 18 USC 641, 18 USC 1170, and 18 USC 1361).

17. Visual Resources. Production facilities shall be placed away from the fill slope near the interior of the pad or along the cut slope as indicated on the plats attached to the APD, unless an alternative placement is approved by the BLM, to avoid or minimize visibility from travel corridors, residential areas, and other sensitive observation points—unless directed otherwise by the BLM due to other resource concerns—and shall be placed to maximize reshaping of cut-and-fill slopes and interim reclamation of the pad.

To the extent practicable, existing vegetation shall be preserved when clearing and grading for pads, roads, and pipelines. The BLM may direct that cleared trees and rocks be salvaged and redistributed over reshaped cut-and-fill slopes or along linear features.

Aboveground facilities shall be painted **Shadow Gray** selected to minimize contrast with adjacent vegetation or rock outcrops.

18. Escape Ramps (Open Pits and Cellars, Tanks, and Trenches). The operator shall construct and maintain pits, cellars, open-top tanks, and trenches to exclude livestock, wildlife, and humans (except authorized personnel) and, in the event of inadvertent entry, to escape from these below-grade areas. At a minimum, the operator shall construct and maintain escape ramps, ladders, or other methods of avian and terrestrial wildlife escape from each pit, cellar, open-top tank, and trench. Ramps shall be secured and properly positioned to allow wildlife to escape.

19. Noise Abatement for Compressors, Generators, and Pumps. Any production equipment operated for extended periods on a Federal oil and gas lease and/or BLM-administered public land shall adhere to the Residential/Agricultural/Rural Zone standard established in Colorado Oil and Gas Conservation Commission (COGCC) Regulation No. 802, Noise Abatement. Under this provision, the noise level shall not exceed 50 A-weighted decibels (dBA) between 7:00 p.m. and 7:00 a.m. (nighttime) and 55 dBA between 7:00 a.m. and 7:00 p.m. (daytime) at a distance of 350 feet from the noise source. This standard shall apply even in remote locations where the COGCC would consider the Light Industrial to be sufficient (i.e., no residences in proximity to the noise source). BLM's objective for noise abatement is to reduce noise impacts to the existing solitude that is typical on BLM-leased lands, and particularly to reduce impacts that could have an adverse impact on wildlife.

Noise control techniques to be considered for such production-related equipment shall include, but not be limited to, enclosure within a sound-insulated structure, installation of an improved muffler system, some combination of these, or potentially the use of electrical power. Methods for safe ventilation of sound-insulated buildings shall be a key consideration in building design to avoid open doors or windows that defeat the intended noise controls. Any noise-abating structure shall use the same BLM-approved color as used on other production facilities on the pad.

If the BLM determines that the required Residential/Agricultural/Rural noise standard is not being met under normal conditions, the operator may be required to suspend use of the compressor or implement additional noise abatement measures.

SITE-SPECIFIC SURFACE-USE COAS FOR THE WMC 24-17 PROJECT

Resource Survey Requirements Prior to Surface Disturbance.

Prior to any surface-disturbing activities related to the new construction aspects of the WMC 24-17 project, TEP shall obtain a special status plant survey for Harrington's penstemon during the May-June 2021 flowering period to determine the presence or extent of sensitive plant species in proximity to the proposed road, WMC 24-17 pad and/or buried pipelines. TEP shall also obtain and appropriate avian

survey prior to any construction, drilling, or completion work that would occur during the raptor nesting season or the BOCC-nesting season to ensure protections of nesting birds.

Cutthroat Trout Habitat.

To address CPW consultation on regarding the presence of Green Lineage cutthroat trout:

1. The road crossing structure at Beaver Creek will not require additional work, since the WRNF has recently improved it. TEP shall make no additional to the road crossing at Beaver Creek without prior written approval by the BLM.
2. TEP shall stage a spill response kit at the RU 31-12V pad along Beaver Creek Road containing supplies needed to ensure immediate and effective response in the event of a spill in the Beaver Creek watershed.
3. If feasible, dust suppression in proximity to Beaver Creek shall utilize potable water from a nearby source instead of raw water to avoid the spread of disease organisms and aquatic nuisance species.

TEP has implemented and shall continue to maintain stormwater control measures (i.e., sediment traps, culvert head gates, etc.) along the existing access roads to minimize potential adverse impacts to Designated Cutthroat Trout Habitat.

Boulder/Rock Wall for Pad Construction.

The northeastern corner of the pad (corner #7) shall be constructed with a 3- to 4-foot-high rock wall to preserve the stand of Gambel oak trees located near this corner. The rock wall shall be keyed in during construction of the fill slope. Given the amount of basalt boulders to be unearthed during road and pad construction, such boulders shall be placed in a wall-like fashion along the open cut slopes of the pad and new access road.

Visual Resource Impact Reduction for Buried Pipelines.

The removal of vegetation to create a “feathered” edge along the buried pipeline alignment, either using a hydroaxe or by felling (chain sawing) individual and/or patches of trees, shall be conducted by TEP contractor(s) under direction of a BLM representative as an adaptive BMP. Such removal of vegetation shall not specifically disturb the surface and shall not involve more than 2 acres of additional vegetation impacts to develop the visual BMP. Feathering of the linear edge of the pipeline shall be reviewed from the KOPs by the Authorized Officer to ensure compliance with VRM Class III.

Production Unit Placements.

If practicable, production tanks planned for the pad shall be downsized to low profile tanks once the pad is built depending on the appearance of the well pad in the visual landscape.

Gate Installation.

A steel frame gate shall be installed at the intersection of the proposed access road and the existing range fence along the eastern edge of TEP’s property boundary located in Section 18, Township 7 South, Range 93 West, 6th P.M. The gate shall be fitted with a steel chain and pad lock to control access and ensure containment of cattle grazing within the associated grazing allotments.

Clearing and Grubbing.

- (a) In general, the WMC 24-17 pad, road and pipeline alignment shall be hydroaxed to eliminate the fuel loading from brush and trees to be cleared.

- (b) Where practicable on sideslopes greater than 25%, the cleared tree stems shall be placed cross-slope at the toe of the staked fill slope to contain the excavated fill from erosional impacts and provide increased stability of the roadbed.

Specific Vegetation Clearing, Topsoil Salvage and Handling, and Seeding.

During removal of topsoil following the clearing and hydroaxing of coarse woody vegetation, an initial shallow stripping depth (not to exceed 12 inches) shall be used to preserve as much of the root biomass of herbaceous and small woody plants as feasible. If necessary to salvage all soil material suitable for use in reclamation, a second stripping depth shall extend through the topsoil or usable subsoil. The shallow (surficial) material shall be used as a topdressing on the recontoured surface before seeding. In addition, the mixed mountain shrubland native seed mix specified by BLM shall be modified to include seeds of commercially available native shrubs present in or near the site (e.g., serviceberry, mountain-mahogany, snowberry, and bitterbrush).

When clearing large woody material during feathering and scalloping of the pipeline corridor edge, the debris of hydroaxed or felled trees and tall shrubs shall be salvaged and stockpiled for spreading lightly across the reseeded surface. The purpose of these measures is to soften both the linearity and contrast in color and texture of the smooth surface of the pipeline corridor. Progress of this impact reduction work shall be reviewed by the visual resource contractor from the KOPs during implementation to ensure compliance with VRM Class III objectives (see the **Appendix**).

Topsoil Placement and Storage for Access Road.

Where practicable, topsoil along the access road shall be windrowed along the uphill and/or downhill side(s) of the disturbance corridor, depending on the amount of tree cover and its importance in the visual landscape. Defining the topsoil windrowing areas shall be closely coordinated with the dirt work contractor.

Road Construction Width.

The access road shall be constructed with a driving surface of approximately 20 feet in width, where practicable. The road shall be constructed with 2.5 feet on either side of the proposed driving surface for stormwater control features such as bar ditches, berms, and culvert inlets and outlets. The access road shall have grades at or below 12%.

Culvert Installations.

Culverts shall be installed where needed along the proposed access road to direct stormwater away from the road. Culverts shall be fitted with rock at the inlet and outlet of each culvert. Culvert installation shall be further evaluated during construction to determine if additional culverts are needed. The access road shall be surfaced with a minimum of six (6) inches of 3/4-inch gravel or other surfacing materials approved by the BLM or private surface landowner.

Rock Armoring on Road and/or Pad Fill Slopes.

Excess rock or boulders exposed during excavation of the pad and/or access road location shall be placed or stacked along the exposed cut slope of the proposed pad and/or proposed road where appropriate. Specific locations of stacked or placed boulders shall be reviewed with the BLM prior to placement.

Surface Frac Lines.

The installation of welded steel 4.5-inch surface lines shall use the edges of existing roads and/or pipeline corridors wherever feasible. Surface frac lines installed across a drainage shall be accomplished in a manner that does not inhibit the natural flow of the drainage.

The surface lines shall be welded together on existing pads and pulled/placed alongside roads while keeping ditches clear for maintenance. A pre-work meeting shall be held by TEP with BLM and TEP contractor representatives (including the contractor hired for the surface line installations) to outline in detail the location and method of installation for the cross-country segments.

Generally, welded steel surface lines shall be pushed and directed from the edge of WMC 24-17 pad downhill to the RU 23-17 pad along the proposed buried pipeline corridor. From the RU 23-17 pad to the RU 44-17 frac pad, a front-end loader shall pull and lay out the lines along the edge of the existing RU 23-17 access road. The lines shall be tested initially after installation and periodically during each frac stage to ensure they have suitable integrity to deliver fluids without failure or spill. The steel lines shall be anchored along the alignment as needed to maintain the lines in place during their installation and operation. During removal, the frac lines shall be pulled onto existing pad locations, cut into 40-foot sections, loaded on trailers, and hauled to a pipe yard for inspection and reuse.

Field Adjustments for Pipeline Connections at RU 23-17 Pad.

The proposed 30-foot by 30-foot pipeline equipment area to be used for metering and a pig launcher on the western side of the RU 23-17 pad near the road entrance shall be designed and constructed to allow continued drainage flow from the existing French drain outlet. A drainage culvert shall be installed under the nearby access road to allow water from the French drain to pass through the culvert and to avoid soil saturation conditions that can occur in the vicinity of the drain outlet. Based on BLM/TEP field review prior to construction, the RU 23-17 Equipment Area shall be shifted from its location shown on the APD plats to allow for proper drainage at the outlet of the French drain.

BUREAU OF LAND MANAGEMENT

Colorado River Valley Field Office
2300 River Frontage Road
Silt, CO 81652

Drilling Conditions of Approval Applications for Permit to Drill

Operator: TEP Rocky Mountain, LLC
Lease Numbers: COC75070 (bottomholes)
Pad: WMC 24-17
Surface Location: Garfield County, Section 17, T7S, R93W

1. Forty-eight hours *prior* to (a) spudding, (b) conducting BOPE tests, (c) cementing/running casing strings, and (d) within 24 hours *after* spudding please leave message on the following contact number: 970-876-9064.

The BLM CRVFO inspectors are Ed Fancher, Greg Rios, Alex Provstgaard, Brandon Jamison, and Mitch Schierland. Please contact one of the following petroleum engineer(s) with emergency, drilling or completion issues: Stephen Garcia at (970) 456-2138, sbgarcia@blm.gov.

2. A CRVFO petroleum engineer shall be contacted for a verbal approval prior to commencing remedial work, sidetracking operations, plugging operations on newly drilled boreholes, changes within the drilling plan, changes to the well design, changes or variances to the BOPE, deviating from conditions of approval, and conducting other operations not specified within the APD. Contact the petroleum engineer for verbal approvals (contact information above).
3. If a well control issue or failed test (e.g., kick, blowout, water flow, casing failure, or a bradenhead pressure increase) arises during drilling or completions operations, the petroleum engineer shall be notified within 24 hours from the time of the event. IADC/Driller's Logs and Pason Logs (mud logs) shall be forwarded to CRVFO – Petroleum Engineer, 2300 River Frontage Road, Silt, CO 81652 within 24 hours of a well control event.
4. The BOPE shall be tested and conform to Onshore Order No. 2 for a 3M system and recorded in the IADC/Driller's log.
5. Air and/or mist drilling requires BLM petroleum engineer's notification and approval.
6. Flexible choke lines shall meet or exceed the API SPEC 16C requirements. Flexible choke lines shall have flanged connections and configured to the manufacturer's specifications. The flexible choke lines shall be anchored in a safe and workmanlike manner. At minimum, all connections shall be effectively anchored in place for safety of the personal on location. Manufacturer specifications shall be kept with the drilling rig at all times and immediately supplied to the Authorized Officer or inspector upon request. Specifications at a minimum shall include acceptable bend radius, heat range, anchoring, and the working pressure. All flexible choke lines shall be free of gouges, deformations, and as straight/short as possible.
7. Chronologic drilling progress reports must be emailed directly to the BLM Colorado River Valley Field Office petroleum engineers on a daily basis. Reports shall include daily mud reports, details of casing that has been run and its cementing, water flows, lost circulation zones, hydrocarbon shows and other information that describes drilling conditions.

8. An electrical/mechanical mud monitoring equipment shall be function tested prior to drilling out the surface casing shoe. As a minimum, this equipment shall include a pit volume totalizer, stroke counter, and flow sensor.
9. A gas buster shall be functional and all flare lines effectively anchored in place, prior to drilling out the surface casing shoe. The discharge of the flare lines shall be a minimum of 100 feet from the wellhead and targeted at bends. The panic line shall be a separate line (not open inside the buffer tank) and effectively anchored. All lines shall be downwind of the prevailing wind direction and directed into a flare pit, which cannot be the reserve pit. The flare system shall use an automatic ignition. Where noncombustible gas is likely or expected to be vented, the system shall be provided supplemental fuel for ignition and maintain a continuous flare.
10. On the first well drilled on this pad, a triple combo open-hole log shall be run from the base of the surface borehole to surface and from TD to bottom of surface casing shoe. This log shall be submitted within 48 hours in .las and .pdf format to: CRVFO – Petroleum Engineer, 2300 River Frontage Road, Silt, CO 81652. Contact 970-876-9000 for clarification.
11. Submit the (a) mud/drilling log (e.g., Pason disc), (b) driller's event log/operations summary report, (c) production test volumes, (d) directional survey, and (e) Pressure Integrity Test results within 30 days of completed operations (i.e., landing tubing) per 43 CFR 3160-9 (a).
12. Notify the BLM Petroleum Engineer two weeks prior to commencing completion operations.
13. Whether the well is completed as a dry hole or as a producer, "Well Completion and Recompletion Report and Log" (Form 3160-4) shall be submitted not later than 30 days after completion of the well or after completion of operations being performed, in accordance with 43 CFR 3164. In accordance with 43-CFR 3162.4(b) submit a complete set of electrical/mechanical logs in .LAS format with standard Form 3160-4, Well Completion or Recompletion Report and Log.
14. Not later than the 5th business day after any well either begins production on which royalty is due anywhere on a lease site or allocated to a lease site, or resumes production in the case of a well which has been off production for more than 90 days, the operator shall notify the authorized officer by letter or sundry notice, Form 3160–5, or orally to be followed by a letter or sundry notice, of the date on which such production has begun or resumed. If the well is completed for production, the Authorized Officer shall be notified when the well is placed in a producing status. Such notification may be sent by telegram or other written communication, not later than five (5) days following the date on which the well is placed on production.
15. A schematic facilities diagram as required by 43 CFR 3162.7-5 (b.9. d.) and shall be submitted to the appropriate District Office within sixty (60) days of installation or first production, whichever occurs first. All site security regulations as specified in Onshore Oil & Gas Order No. 3 shall be adhered to. All product lines entering and leaving hydrocarbon storage tanks shall be effectively sealed in accordance with 43 CFR 3162.7-5 (b. 4).
16. All off-lease storage, off-lease measurement, or commingling on-lease or off-lease will require prior written approval from the Authorized Officer.
17. "Sundry Notice and Report on Wells" (Form 3160-5) shall be filed for approval for all changes of plans and other operations in accordance with 43 CFR 3162.3-2.
18. **Water Use.** The purpose of this COA is to assist the BLM in ensuring that water depletions associated with Federal oil and gas development activities are adequately covered by the USFWS Programmatic Biological Opinion for the four endangered Colorado River fishes. The Operator shall provide the volumes of fresh water and reused/recycled water used during project development using the following table. The volumes per well shall be identified by each development phase

(construction, drilling, and completion) and by activity (e.g., dust abatement, pipeline hydrostatic testing, drilling, and completion operations). The water volumes shall be identified in an attachment to the BLM Form 3160-4, "Well Completion or Recompletion Report and Log" (completion report) submitted to the BLM Field Office. All volumes are to be reported in barrels per well.

The Operator shall report total volume of water used during pad construction with the first well completion report of the pad. Water volumes used for subsequent activities (drilling and completing an additional well on the pad, dust abatement) shall be included in subsequent completion reports.

Well Name/No.:			API No.:		
County:			Well Pad:		
Operator:					
Activity	Water Use (barrels)				
	Construction	Drilling		Completion	
	Fresh	Fresh	Reused/ Recycled	Fresh	Reused/ Recycled
Road/Pipeline/Pad Dust Abatement					
Pipeline Hydrostatic Testing					
Cementing					
Mud					
Acid Wash/ Hydraulic Fracturing					

List of Wells		
Proposed Pad	Proposed Wells	Surface Locations
WMC 24-17	Federal WMC 11-20	T7S R93W Sec 17
	Federal WMC 12-20	T7S R93W Sec 17
	Federal WMC 13-20	T7S R93W Sec 17
	Federal WMC 32-20	T7S R93W Sec 17
	Federal WMC 33-20	T7S R93W Sec 17
	Federal WMC 311-20	T7S R93W Sec 17
	Federal WMC 312-20	T7S R93W Sec 17
	Federal WMC 331-20	T7S R93W Sec 17
	Federal WMC 332-20	T7S R93W Sec 17
	Federal WMC 411-20	T7S R93W Sec 17
	Federal WMC 412-20	T7S R93W Sec 17
	Federal WMC 431-20	T7S R93W Sec 17
	Federal WMC 432-20	T7S R93W Sec 17
	Federal WMC 511-20	T7S R93W Sec 17
	Federal WMC 512-20	T7S R93W Sec 17
	Federal WMC 531-20	T7S R93W Sec 17
	Federal WMC 532-20	T7S R93W Sec 17

**United States Department of the Interior
Bureau of Land Management
Colorado River Valley Field Office, Colorado**

FINDING OF NO SIGNIFICANT IMPACT (FONSI)

WMC 24-17 Project

TEP Rocky Mountain LLC

DOI-BLM-CO-G020-2021-0001-EA

Based on the analysis of potential environmental impacts contained in the attached Environmental Assessment (EA), and considering the significance criteria in 40 CFR 1508.27, I have determined that the Proposed Action will not have a significant effect on the human environment. An Environmental Impact Statement (EIS) is therefore not required.

BACKGROUND

The project was posted on the ePlanning website on November 10, 2020, to invite public involvement. No public comments were received.

CONTEXT

This project is a site-specific action directly involving exploration and production of oil and gas from existing Federal leases. The project includes the construction of a new well pad and access road and pipeline segments, the use of existing well pads to support frac operations and pipeline connections, and the use of existing roads and water storage facilities. Lands to be affected by the project include BLM-administered public lands and private lands approximately 7 miles south of Rifle, Colorado. The project site is located at the southern extent of Flatiron Mesa adjacent to the WRNF boundary and is accessed by existing and/or proposed roads east of Beaver Creek Road (CR 317). The project vicinity is in a region where such activities have occurred in the past and continue to occur. Dispersed well pads, pipeline gathering systems, and access roads have been and continue to be features of public land use within and near the project boundaries. The project represents a minor increase in the number of existing or currently authorized oil and gas wells and a minor increase in the amount of long-term surface disturbance within the general vicinity.

INTENSITY/SEVERITY

I have considered the potential intensity/severity of the impacts anticipated to accompany implementation of the Proposed Action in relation to each of the ten areas suggested for consideration by the Council on Environmental Quality (CEQ):

1. Impacts that may be both beneficial and adverse. The attached EA is not a cost-benefit analysis. However, the project would result in both positive and negative impacts. The project would cause impacts during short-term development activities and long-term production and maintenance activities. These impacts and measures to avoid, minimize, or reduce adverse impacts include design features and Conditions of Approval (COAs) described in Section 3 of the EA. The reasonably foreseeable impacts are not significant and would decrease when all of the wells have been put into production. The project would also result in the production of natural gas for public use, in short-term and long-term employment,

and in the generation of revenue in the form of Federal oil and gas royalties and a variety of State and local taxes.

2. *The degree to which the Proposed Action affects public health and safety.* The Proposed Action is not expected to have significant adverse impacts on public health and safety. None of the environmental effects associated with the implementation of the Proposed Action are determined to be significant, nor are they expected to contribute significantly to existing or reasonably foreseeable future impacts to public health and safety.

3. *Unique characteristics of the geographic area such as proximity of historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.* The Proposed Action would not result in significant impacts to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas. The project has been designed to avoid impacts or minimize impacts to other resources and uses, including big game and visual resources. The project area does not include municipal water supplies and is not expected to impact groundwater aquifers used for domestic or agricultural purposes.

4. *The degree to which effects on the quality of the human environment are likely to be highly controversial.* The proposed oil and gas development is consistent with past and ongoing oil and gas developments in the vicinity and elsewhere in Colorado and would be implemented for the existing Federal oil and gas leases representing valid existing rights. Moreover, the applicable BLM land use plan specifically allows this type of use in the leased area. The environmental effects of the project are consistent with those resulting from similar projects previously approved and implemented in the area with regard to scale, intensity, or suitability, and are not scientifically controversial.

5. *The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.* The construction of a new well pad and access road, installation of the buried pipelines, and the drilling, completion, and production of oil and gas wells are common activities in the project vicinity. The degree of possible effects of the project on the human environment are neither unique nor unknown.

6. *The degree to which the Proposed Action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.* This decision is similar to many that have previously been made and will continue to be made by the BLM regarding the development of valid Federal oil and gas leases in the CRVFO area. The decision is within the scope of the applicable 2015 CRVFO Resource Management Plan and Record of Decision. The decision does not represent a decision in principle about a future consideration.

7. *Whether the Proposed Action is related to other actions with individually insignificant but cumulatively significant impacts.* The Proposed Action would have no significant cumulative effects on the environment, either when combined with the effects created by past or concurrent projects, or when combined with the effects from reasonably foreseeable future projects or from natural changes taking place in the environment.

8. *The degree to which the Proposed Action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historic resources.* The Proposed Action would have no adverse impacts to the resources or result in the specific impacts listed above.

9. *The degree to which the Proposed Action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.* The Proposed Action incorporates the results of surveys for Federally listed, proposed, or candidate threatened or endangered plant and animal species and would have no effect on such species.

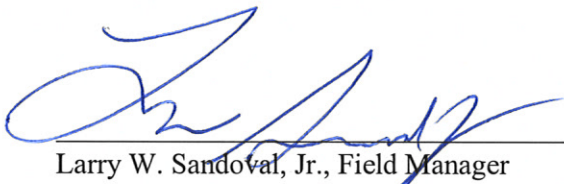
Impacts to four endangered species of Colorado River fishes from water depletions (consumptive use) are addressed in the Programmatic Biological Opinion (PBO) for BLM-authorized oil and gas projects in the Colorado River Basin of northwestern Colorado issued by the U.S. Fish and Wildlife Service (USFWS) in December 2017. In the PBO, the USFWS concluded that with adherence to the mandatory conservation measures, oil and gas projects would not jeopardize continued existence or recovery of the four endangered fishes or harm their critical habitat. In addition, the project has been designed to minimize the use of fresh water from the Colorado River Basin by utilizing water re-use when feasible.

10. Whether the Proposed Action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment. This decision complies with other Federal, State, or local laws and requirements imposed for the protection of the environment.

FINDING OF NO SIGNIFICANT IMPACT

On the basis of the information contained in the EA, and all other information available to me, it is my determination that: 1) Therefore, an Environmental Impact Statement (EIS) or a supplement to the existing EIS is not necessary and will not be prepared.

This finding is based on my consideration of CEQ criteria for significance (40 CFR 1508.27) with regard to both the context and the intensity of the impacts described in the EA.



Larry W. Sandoval, Jr., Field Manager
Colorado River Valley Field Office

1/14/2021

Date

**United States Department of the Interior
Bureau of Land Management
Colorado River Valley Field Office, Colorado**

DECISION RECORD

**WMC 24-17 Project
*TEP Rocky Mountain LLC***

DOI-BLM-CO-G020-2021-0001-EA

INTRODUCTION

The Proposed Action analyzed in the attached EA consists of constructing a new 4.89-acre oil and gas well pad (WMC 24-17), building 0.86 mile of new access road, installing buried natural gas and produced water pipelines, installing temporary surface water pipelines for frac operations support, and using existing support pads and linear infrastructure, to drill and produce 17 oil and gas wells. The Federal wells would be drilled from the proposed pad with underlying Federal lease COC50944 to develop fluid minerals within the targeted Federal lease COC75070 underlying lands in the White River National Forest. The project area includes BLM and private surface lands south of the Rifle, Colorado and accessed from Beaver Creek Road (CR 317).

DECISION

It is my decision to approve the facilities, infrastructures, and activities analyzed as the Proposed Action in the attached EA. This decision does not constitute approval of any APDs submitted under the Proposed Action, or of any ROW grants or TUPs required for project implementation. The decision to approve, defer, or deny any project-related APD or ROW/TUP will be based on BLM's review of the respective applications.

This decision does not approve an exception to the big game winter range TL, which prohibits construction, drilling, and completion activities from December 1 to April 15 of each year. As described in the EA, the proponent's currently preferred development schedule would include such activities during the TL period in the 2021-2022 winter season. Although the EA describes and analyzes the types of impacts expected to result from winter development in the area, the BLM and CPW anticipate deferring a determination regarding approval or denial of a TL exception until the fall prior to the specific winter TL period.

Deferring the determination regarding a winter range TL exception until closer in time to the specific winter season would allow a more accurate assessment of site conditions, including habitat quality and availability, other sources of disturbance or other stressors, and reasonably likely winter conditions. This assessment would consider site conditions in relation to design features, BMPs, COAs, and specifically proposed measures for avoiding or offsetting adverse impacts to wintering deer and elk. Typical measures, as disclosed in the EA, include habitat treatments to improve forage quality and quantity, weed control, restoration of depleted areas, supplemental water, and removal of unneeded fences.

The granting of a TL exception for winter activities in big game winter range was contemplated in the 2015 ROD/ARMP, which lists types of criteria by which the Authorized Officer may make such a determination. If a TL exception is formally sought by the proponent but not approved by the BLM in collaboration with CPW, project-related winter development activities during the TL period would not occur.

RATIONALE

Analysis of the Proposed Action indicates that TEP will be able to exercise its valid Federal lease rights with an acceptable level of impacts to the human and natural environments. This determination is based on BLM-ensured conformance to applicable Federal laws and regulations, the existing BLM land use plan (2015 CRVFO ROD/ARMPA), WRNF leasing decisions incorporated into the ROD for BLM's 2016 EIS for Previously Issued Leases in the WRNF, lease stipulations attached to the Federal lease underlying the proposed WMC 24-17 well pad, COAs for any approved APDs, and stipulations for any ROWs/TUPs for the project. Any substantial deviations from the Proposed Action described in the EA must receive be reviewed and approved by the BLM before implementation and may require additional NEPA analysis.

This decision will provide for the orderly, economical, and environmentally sound exploration and development of Federal fluid mineral resources on existing oil and gas leases.

IMPACT REDUCTION AND MONITORING

The BLM will monitor and inspect operations to ensure compliance throughout the life of the project. BLM inspection and enforcement activities are designed to observe any anticipated or unanticipated environmental effects of the project to ensure that TEP and its contractors comply with all BLM regulations, policies, and permit requirements.

To reduce impacts to visual resources and meet VRM Class III objectives, TEP will use BMPs and design features to remove selected trees and mountain brush vegetation to achieve a feathered edge along both sides of the buried pipeline corridor north of the WMC 24-17 pad.

Roads will be constructed and maintained consistently with the Gold Book standards (USDI and USDA 2007).

Revegetation will be designed, implemented, and monitored as specified in the COAs, including annual reports submitted to the BLM. Any areas not showing satisfactory progress (with a goal of success within 5 years) may be subject to supplemental or replacement seeding of the disturbed area.

Monitoring for noxious or other invasive weeds will be conducted as specified in the COAs, including annual reports submitted to the BLM. Any infestations identified will be treated with an herbicide appropriate for the species and site conditions (including restrictions in areas near surface water), at application rates, and using application methods and products approved by the BLM prior to treatment.

COMPLIANCE WITH MAJOR LAWS

This decision complies with applicable laws, regulations, and policies, including the Endangered Species Act, Migratory Bird Treaty Act, Bald and Golden Eagle Protection Act, Clean Water Act, Clean Air Act, Archaeological Resources Protection Act, Paleontological Resources Protection Act, and National Historic Preservation Act.


PUBLIC INVOLVEMENT

On November 10, 2020, the BLM noticed the project to the public by posting on the BLM ePlanning website. No public comments were received.

PROTESTS AND APPEALS

In accordance with 43 CFR 3165.3, any adversely affected party contesting this decision may request an administrative review of this decision, before the State Director, either with or without oral presentation. This request, including all supporting documentation, should be submitted in writing within twenty (20) business days of the date this decision was received, or considered to have been received, by the party and

sent to the Colorado State Director, 2850 Youngfield Street, Lakewood, Colorado 80215-7076. The decision of the State Director may then be appealed to the Interior Board of Land Appeals in accordance with 43 CFR 3165.4. BLM Colorado will not accept a request for State Director Review, or a notice of appeal transmitted electronically (i.e., by email, facsimile, or social media).



Larry W. Sandoval, Jr., Field Manager
Colorado River Valley Field Office

1/14/2021

Date