United States Department of the Interior
Bureau of Land Management

BLM

Environmental Assessment
DOI-BLM-CO-N050-2020-0046

TEP's Lower Wagonroad Ridge Master Development Plan

September 2020

Estimated Lead Agency Total Costs Associated with Developing and Producing this EA: $105,000

U.S. Department of the Interior
Bureau of Land Management
Northwest District
White River Field Office
220 East Market St
Meeker, CO 81641

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1. INTRODUCTION

1.1. Identifying Information

Project Title: Lower Wagon Road Ridge Master Development Plan (LWR MDP)

Legal Description: Township 2 South, Range 97 West, 6th P.M.
Section 6: Lots 16 – 23
Section 7: All
Section 18: All

Township 2 South, Range 98 West, 6th P.M.
Section 1: Lots 29 – 36
Section 12: All
Section 13: All
Section 24: N½N½

Rio Blanco County, Colorado

Applicant: Terra Energy Partners (TEP)

NEPA Document Number: DOI-BLM-CO-N050-2020-0046-EA

Case Files: Leases - COC60736, COC03453, COC62046, COC57285, and COC70220 (Refer to Appendix B for lease stipulations.)
ROWs - COC80217, COC80218, COC80218-01, COC80219, COC80220, COC80221, COC80266, COC80267, COC80267-01, COC80268, Amend COC73845 and COC67964

1.2. Background

The Lower Wagonroad Ridge Master Development Plan (LWR MDP) is an oil and gas exploration and development project proposed by TEP Rocky Mountain LLC ("TEP") over an approximate two to three-year period. The proposed LWR MDP project area is located 23 miles southwest of Meeker, Colorado, and 27 miles southeast of Rangely, Colorado, within Rio Blanco County, Colorado. The project would occur within a 4.87 square mile area along the northeastern end of Wagonroad Ridge between Ryan Gulch and Black Sulphur Creek, approximately 1.25 miles west of Rio Blanco County Road 5 (RBC Rd 5) and Piceance Creek, and would include all or portions of Sections 6, 7, and 18 of Township 2 South, Range 97 West, and Sections 1, 12, and 13 of Township 2 South, Range 98 West, Sixth Principal Meridian (Figure 1).

1.3. Purpose and Need for Action

The purpose of the action is to provide the applicant the opportunity to develop oil and gas resources consistent with their federal oil and gas lease. The need for the action is established by the BLM's responsibility under the Mineral Leasing Act of 1920 (MLA), as amended [30 USC 181 et seq.], the Onshore Oil and Gas Leasing Reform Act (FOOGLRA) of 1987, and the Energy Policy Act (EPA) of 2005. The MLA authorizes the BLM to issue oil and gas leases for the exploration of oil and gas and permit the development of those leases. It is the policy of the BLM to make mineral resources available for leasing and to encourage development of mineral resources to meet national, regional, and local needs while protecting other natural resources. The existing lease is a binding legal contract that allows development of the mineral by the lessee. The Federal Land Management and Policy Act and the Mineral Leasing Act (FLPMA) of 1976 allows for use of public land for rights-of-way for oil and gas infrastructure, with appropriate consideration of other public resources.

1.4. Decision to be Made

Based on the analysis contained in this EA, the BLM will decide whether to approve or deny the proposed Applications for Permits to Drill (APDs) and any associated rights-of-way (ROWs), and if so, under what terms and conditions. Under the National Environmental Policy Act (NEPA), the BLM must determine if there are any significant environmental impacts associated with the Proposed Action warranting further analysis in an Environmental Impact Statement (EIS). The Field Manager is the responsible officer who will decide one of the following:

- To approve the APDs and ROW grants with design features as submitted;
- To approve the APDs and ROW grants with additional mitigation added;
- To analyze the effects of the Proposed Action in an EIS; or
- To deny the APDs and ROW grants.

1.5. Conformance with the Land Use Plan

The Proposed Action is subject to and is in conformance (43 CFR 1610.5) with the following land use plan:

Land Use Plan: White River Record of Decision and Approved Resource Management Plan (ROD/RMP), as amended by the White River Field Office Oil and Gas Development Approved Resource Management Plan Amendment (ROD/RMPA)

Date Approved: July 1997, amended August 2015

Decision Language: "Make federal oil and gas resources available for leasing and development in a manner that provides reasonable protection for other resource values." (ROD/RMPA, page 2-34)

"Manage BLM public lands, including the siting of public and private facilities through the issuance of applicable land use authorizations, in a manner that balances the needs of oil and gas development with the management for other resources values.

Respond to internal and external requests for land use authorizations (e.g., pipelines, access routes, utility lines, communication sites, leases, and permits).

Emphasize efficient use of and colocation with existing ROWs to protect resources and resource uses. Consider the establishment of new ROW corridors to meet demand for oil and gas activities." (ROD/RMPA, page 2-39)

2. PUBLIC INVOLVEMENT

The BLM uses a scoping process to identify potential significant issues in preparation for impact analysis. The principal goals of scoping are to identify issues, concerns, and potential impacts that require detailed analysis. Scoping is both an internal and external process. Internal scoping was initiated when the project was presented to the White River Field Office (WRFO) interdisciplinary team on June 2, 2020. External scoping was conducted by posting this project on the WRFO's on-line National Environmental Policy Act (NEPA) register on August 6, 2020.

3. PROPOSED ACTION AND ALTERNATIVES

The Proposed Action for the LWR MDP involves development of 51 Federal directionally drilled natural gas wells on 3 existing well pads (RG 41-18-297 pad, RGU 23-7-297 pad and RGU 44-1-298 pad) and 1 additional Federal produced water disposal well (Federal RG 33-22-299) on an existing well pad (Federal 299-23-3 pad). The new natural gas wells would develop portions of 5 Federal Leases currently held by production including COC60736, COC03453, COC62046, COC57285, and COC70220. Of the 51 proposed wells, 20 wells would be drilled within the Ryan Gulch Oil and Gas Exploratory Unit. The proposed injection well would be used to inject treated produced water into Federal Lease COC60755 during long-term production operations.

The LWR MDP would also involve construction of a Centralized Waste Management Facility (CWMF) for produced water management, construction of a CWMF for drill cuttings disposal for cuttings generated during drilling of the RGU 44-1-298 pad, upgrading production facilities on the RGU 23-6-297 pad, and installation of associated pipelines. TEP would use existing TEP operated facilities including the Mautz Ranch Multi-Well Pit and NE Ryan Gulch Water Recycling Facility to support well completion operations and management of produced water during long-term production operations. TEP would also use the existing Love Ranch CWMF operated by XTO Energy Inc. (XTO) during development of the proposed wells providing produced water storage capacity during well completion operations.

3.1. No Action (Alternative A)

The No Action Alternative constitutes denial of the Applications for Permit to Drill (APDs) associated with the Proposed Action and denial of any associated right-of-way (ROW) grants. Under the No Action Alternative, none of the proposed project components described in the

Proposed Action would take place. All existing disturbance would remain as it is currently, and no additional development would occur.

In total, there are approximately 13.37 acres of surface disturbance associated with existing infrastructure in the Lower Wagonroad Ridge area (Table 1).

Table 1. Existing Surface Disturbance in the Lower Wagon Road Ridge Area

Well Pad	*Surface Ownership*	*Number or Length (feet) [Federal/Private]*	*Existing Disturbance (acres) [Federal/Private]*
RG 41-18-297 Pad	Federal	1/0	0.78 [0.78/0]
RGU 23-7-297 Pad	Federal	1/0	1.05 [1.05/0]
RGU 44-1-298 Pad	Federal	1/0	1.34 [1.34/0]
RGU 23-6-297 Pad	Federal	1/0	1.82 [1.82/0]
Pitcher's Mound Pit[2]	Federal	1/0	2.29 [2.29/0]
Wagonroad Ridge CWMF	Private	0/1	6.84 [0/6.84]
Federal 299-23-3 Pad (Injection)	Federal	1/0	0.51 [0.51/0]
Well Pad/Support Pad Subtotal		**6/1**	**14.62 [7.78/6.84]**
RGU 44-1-298 Access Road	Federal	970/0	0.24 [0.24/0]
Pitcher's Mound Pit Access Roads	Federal	425/0	0 [0/0]
Access Road Subtotal		**1,395 [1,395/0]**	**0.24 [0.24/0]**
RG 41-18-297 (8-inch gas line)[3]	Federal	1,397 [1,397/0]	0.42 [0.42/0]
RG 41-18-297 (6-inch water line)[3]		1,502 [1,502/0]	
RGU 23-7-297 (8-inch gas line)[4]	Federal	166 [166/0]	0 [0/0]
RGU 23-7-297 (6-inch water line)[4]		462 [462/0]	
RGU 44-1-298 (8-inch gas line)	Federal	444 [444/0]	0.02 [0.02/0]
Pitcher's Mound Pit (Dual 8-inch water lines)	Federal	3385 [3385/0]	0.21 [0.21/0]
Pitcher's Mound Pit (Dual 4-inch water line reroute)[5]	Federal	625 [625/0]	0.04 [0.04/0]
Pitcher's Mound Pit (Williams 6-inch gas line reroute)[5]		630 [630/0]	
Pipeline Subtotal		**8,611 [8,611/0]**	**0.69 [0.69/0]**
Grand Total (Fed/Fee)[1]			**15.54 [8.7/6.84]**

3.2. Proposed Action (Alternative B)

3.2.1. Project Components and General Schedule

TEP submitted 16 APDs associated with the RG 41-18-297 well pad on May 27, 2020 and 15 APDs for the RGU 23-7-297 pad on August 26, 2020. The remaining 20 APDs on the RGU 44-1-298 pad would be submitted in the future as development of the LWR MDP progresses.

TEP has planned to maximize its use of existing disturbance. As such, many of the same infrastructure (e.g., temporary surface pipelines) serve multiple well pads. Similarly, the well pads would be used not only to drill wells but also for remote completion operations to support

the drilling of wells from other pads. The RGU 23-7-297 well pad would be used for remote completion operations for wells on the RGU 44-1-298 and RG 41-18-297 pads; the RG 41-18-297 pad would be used for remote completion operations for wells on the RGU 23-7-297 well pad. Right-of-way grants would be required to authorize facilities (e.g., well pads, access roads, pipelines) used to develop off-lease wells.

In summary, the 3 existing wells pads would develop a total of 51 new natural gas wells. Produced water management would require one existing well pad to be used to develop one new water disposal well, one new produced water pit would be constructed for produced water storage, and four existing produced water pits would be used for produced water storage. For disposal of drill cuttings, one new waste management facility would be constructed. Associated buried pipelines (approximately 8,611 feet or 1.63 miles) and temporary surface pipelines (approximately 40,819 or 7.7 miles) would be installed to support development of the proposed wells.

If all of the LWR MDP components were constructed, it would result in a total of 56.44 acres being disturbed during drilling and completion operations (excluding areas occupied by temporary surface pipelines and existing access roads that do not require upgrades); approximately 62.7 percent of this disturbance would occur on previously disturbed sites (Table 2). After interim reclamation, long term disturbance would be 22.33 acres (Table 2).

Under the Proposed Action, TEP could implement all or any combination of the LWR MDP components with the authorization of the APDs and related ROWs (Figure 1).

Table 2: Proposed Disturbance for Project Components

Well Pad	*Surface Ownership*	*Number or Length (feet) (Federal/Private)*	*Existing Disturbance (acres) (Federal/Private)*	*Re-disturbance (acres) (Federal/Private)*	*New Disturbance (acres) (Federal/Private)*	*Total Short-Term Disturbance (acres) (Federal/Private)*	*Long Term Disturbance (acres) (Federal/Private)*
RG 41-18-297 Pad	Federal	1/0	0.78 [0.78/0]	3.81 [3.81/0]	1.5/0[1.5/0]	6.09 [6.09/0]	1.31 [1.31/0]
RGU 23-7-297 Pad	Federal	1/0	1.05 [1.05/0]	2.75 [2.75/0]	1.86/0[1.86/0]	5.66 [5.66/0]	1.91 [1.91/0]
RGU 44-1-297 Pad	Federal	1/0	1.34 [1.34/0]	3.12 [3.12/0]	1.41/0[1.41/0]	5.87 [5.87/0]	1.71 [1.71/0]
RGU 23-6-297 Pad	Federal	1/0	1.82 [1.82/0]	0.07 [0.07/0]	0 [0/0]	1.88 [1.88/0]	1.88 [1.88/0]
Pitcher's Mound Pit[2]	Federal	1/0	2.29 [2.29/0]	2.35 [2.35/0]	7.85 [7.85/0]	12.48 [12.48/0]	6.7 [6.7/0]
Wagonroad Ridge CWMF	Private	0/1	6.84 [0/6.84]	1.01 [0/1.01]	7.6[0/7.6]	15.46 [0/15.46]	6.87[0/6.87]
Federal 299-23-3 Pad (Injection)	Federal	1/0	0.51 [0.51/0]	2.09 [2.09/0]	0.65 [0.65/0]	3.25 [3.25/0]	0.58[0.58/0]
Well Pad/Support Pad Subtotal		**6/1**	**14.62 [7.78/6.84]**	**15.20 [14.19/1.01]**	**20.87 [13.27/7.6]**	**50.69 [35.23/15.46]**	**14.09/6.87[20.97]**
RGU 44-1-297 Access Road	Federal	970/0	0.24[0.24/0]	0.12 [0.12/0]	0.03 [0.03/0]	0.39 [0.39/0]	0.36 [0.36/0]
Pitcher's Mound Pit Access Roads	Federal	425/0	0 [0/0]	0.54 [0.54/0]	0 [0/0]	0.54 [0.54/0]	0.33 [0.33/0]
Access Road Subtotal		**1,395 [1,395/0]**	**0.24 [0.24/0]**	**0.66 [0.66/0]**	**0.03 [0.03/0]**	**0.93 [0.93/0]**	**0.69 [0.69/0]**
Pipelines[2]							
RG 41-18-297 (8-inch gas line)[3]	Federal	1,397 [1,397/0]	0.42 [0.42/0]	1.02 [1.02/0]	0 [0/0]	1.43 [1.43/0]	0.42 [0.42/0]
RG 41-18-297 (6-inch water line)[3]		1,502 [1,502/0]					
RGU 23-7-297 (8-inch gas line)[4]	Federal	166 [166/0]	0 [0/0]	0.07[0.07/0]	0 [0/0]	0.07 [0.07/0]	0 [0/0]
RGU 23-7-297 (6-inch water line)[4]		462 [462/0]					
RGU 44-1-297 (8-inch gas line)	Federal	444 [444/0]	0.02 [0.02/0]	0.05 [0.05/0]	0 [0/0]	0.07 [0.07/0]	0 [0/0]
Pitcher's Mound Pit (Dual 8-inch water lines)	Federal	3385 [3385/0]	0.21 [0.21/0]	2.62 [2.62/0]	0.14 [0.14/0]	2.97 [2.97/0]	0.21 [0.21/0]
Pitcher's Mound Pit (Dual 4-inch water line reroute)[5]	Federal	625 [625/0]	0.04 [0.04/0]	0.024 [0.24/0]	0 [0/0]	0.28 [0.28/0]	0.04 [0.04/0]
Pitcher's Mound Pit (Williams 6-inch gas line reroute)[5]		630 [630/0]					
Pipeline Subtotal		**8,611 [8,611/0]**	**0.69 [0.69/0]**	**4 [4/0]**	**0.14 [0.14/0]**	**4.82/0[4.82]**	**0.67 [0.67/0]**
Grand Total (Fed/Fee)[1]			**8.7/6.84[15.55]**	**19.84 [18.83/1.01]**	**21.05 [13.45/7.6]**	**40.98/15.46[56.44]**	**22.33 [15.45/6.87]**

[1] Approximately 62.7% of the proposed project disturbance would be on land previously disturbed.
[2] Disturbance calculations include portions of the existing RGU 23-35-198 pad.
[3] Proposed 8-inch and 6-inch pipeline supporting the RG 41-18-297 pad will be collocated in the same trench.
[4] Proposed 8-inch and 6-inch pipeline supporting the RGU 23-7-297 pad will be collocated in the same trench.
[5] Table does not include temporary surface pipelines.

RG 41-18-297 Well Pad, Access Road, and Production Pipelines

- Reconstruct the existing Federal RG 41-18-297 pad to a 6.09-acre footprint to drill 16 new Federal wells (Figure 2). The well pad ROW COC80217 would be approximately 400 ft by 665 ft and contain 6.1 acres.
- The ROW for the existing access road (COC80221) would be 1,750 ft long, 35 ft wide, and contain approximately 1.41 acres.
- Reconstruct the existing Federal RGU 23-7-297 pad to a 5.66-acre footprint to be used for remote completions operations for the wells drilled on the RG 41-18-297 pad.
- Install one buried 8-inch steel natural gas pipeline (approximately 1,397 feet) from the RG 41-18-297 pad to the existing 16-inch natural gas pipeline operated by Bargath following the existing pipeline corridor. The pipeline ROW COC80218 would be 1,397 ft long, 25 ft wide, and contain approximately 0.8 acres.
- Install one buried 6-inch FlexSteel produced water pipeline (approximately 1,502 feet) from the RG 41-18-297 pad to the tie-in location with the existing 6-inch water pipelines operated by TEP following the existing pipeline corridor. The water line ROW COC80219 (within same trench as pipeline ROW COC80218) would be 1,502 ft long, 25 ft wide and contain approximately 0.86 acres.
- A temporary use permit (TUP) COC80218-01 for the temporary extra work area for construction of the natural gas pipeline (COC80218) and water pipeline (COC80219) would be 1,502 ft long, 15 ft wide, and contain approximately 0.52 acres.

RGU 23-7-297 Well Pad, Access Road, and Production Pipelines

- Reconstruct the existing Federal RGU 23-7-297 pad to a 5.66-acre footprint to drill 15 new Federal wells (Figure 3). The well pad ROW COC80266 would be approximately 650 ft by 380 ft and contain 5.6713 acres.
- The ROW for the existing access road (Amend COC67964) would be 10,310 ft (1.953 miles) long, 35 ft wide, and contain approximately 8.28 acres.
- Reconstruct the existing Federal RG 41-18-297 pad to a 6.09-acre footprint to be used for remote completions operation for the wells drilled on the RGU 23-7-297 pad.
- Install one buried 8-inch steel natural gas pipeline from the RGU 23-7-297 pad to the existing 16-inch natural gas pipeline operated by Bargath within the adjacent pipeline corridor south of the pad. The pipeline ROW COC80267 would be 166 ft long, 25 ft wide, and contain approximately 0.10 acres.
- Install one buried 6-inch FlexSteel produced water pipeline from the RGU 23-7-297 pad to the tie-in location with the existing 6-inch water pipelines operated by TEP within the adjacent pipeline corridor south of the pad. The water line ROW COC80268 (within the same trench as pipeline ROW COC80267) would be 462 ft long, 25 ft wide, and contain approximately 0.27 acres.

- A temporary use permit (TUP) COC80267-01 for the temporary extra work area for construction of the natural gas pipeline (COC80267) and water pipeline (COC80268) would be 462 ft long, 15 ft wide, and contain approximately 0.16 acres.

RGU 44-1-298 Well Pad, Access Road, and Production Pipelines

- Reconstruct the existing Federal RGU 44-1-298 pad to a 5.87-acre footprint to drill 20 new Federal wells (Figure 4). A ROW would be required for the well pad for the off-lease wells.
- Upgrade/re-route the existing access road. The ROW for the access road would be included in the well pad ROW.
- Reconstruct the existing Federal RGU 23-7-297 pad to a 5.66-acre footprint to be used for remote completions operation for the wells drilled on the RGU 44-1-298 pad.
- Install one buried 8-inch steel natural gas pipeline (approximately 444 ft long) from the RGU 44-1-298 pad to the existing 16-inch natural gas pipeline operated by Bargath within the adjacent pipeline corridor west of the pad. A pipeline ROW would be required; the BLM assumes that TEP would apply for permanent ROW width of 25 ft and require a TUP permit for an additional 15 ft for construction.
- A power line from the existing White River Electric Association power line south of CR 24 would be installed to the proposed water pump on the RG 44-1-298 well pad.

Note: As of September 3, 2020, the BLM has not yet received ROW applications associated with development of the RGU 44-1-298 pad; therefore, required ROW widths are assumed to be the same as for the pipelines associated with the other well pads.

Temporary Facilities Used in Support of Drilling and Completion Operations

The following temporary facilities that transport water needed for drilling and completion operations. The TUP COC80220 would be authorized for the components located on BLM-managed lands.

- Install one 12-inch temporary surface poly (lay flat) water supply pipeline (approximately 1,393 feet) from the XTO Fresh Water Pond to the Love Ranch CWMF (Figure 5). The pipeline would be installed over an existing bridge crossing Piceance Creek. (Because this pipeline is located entirely on private land, it is not included in the TUP.)
- Install one 10-inch temporary surface poly water supply pipeline from Love Ranch Centralized E&P Waste Management Facility to the RG 41-18-297 and RGU 23-7-297 remote completions locations (Figure 5). The pipeline would be installed following an existing two-track between the Love Ranch CWMF to the PC 8-1 pad (XTO), then following the existing access road and/or pipeline corridor to the RG 41-18-297 pad and then to the RGU 23-7-297 pad. The total pipeline TUP area (from Love Ranch to the RGU 23-7-297 pad) is 18,311 ft long, 35 ft wide, and contains approximately 14.71 acres.

- Temporary use of 60 ft by 60 ft (approximately 0.08 acres) on the XTO PC 8-1 well pad for one transfer booster pump and two frac tanks (Figure 5).
- To further support development of the RGU 23-7-297 wells, install two 10-inch temporary surface poly water supply pipelines from end of the existing 6-inch water lines southwest of the RG 41-18-297 (Cedar Junction) to the RG 41-18-297 pad. The pipeline TUP area would be 2,026 ft long, 35 ft wide, and contain approximately 1.63 acres.
- To transport water between the wells and the remote completions pad, TEP would install five 4.5-inch steel temporary surface frac lines:
    - Between the RGU 23-7-297 pad and the RG 41-18-297 pad. The pipeline TUP area would be 6,387 ft long, 35 ft wide, and contain approximately 5.13 acres (Figures 2 and 3).
    - Between the RGU 23-7-297 pad and the RGU 44-1-298 pad. The pipeline TUP area would be 5,118 ft long, 35 ft wide, and contain approximately 4.11 acres (Figure 4).
- Install one 10-inch temporary surface poly water supply pipeline (approximately 8,281 feet) from NE Ryan Gulch Water Recycling Facility to the tie-in location with an existing 12-inch pipeline operated by Caerus to transport supplemental produced water to TEP's existing water management system for use during completions operations (Figure 6). The pipeline would be installed following an existing pipeline corridor from the NE Ryan Gulch Water Recycling Facility to the tie-in point located in the SE¼NE¼ of Section 19, Township 1 South, Range 97 West, 6th P.M. A TUP would be required for the temporary surface poly water pipeline that would be 8,281 ft long, 35 ft wide, and contain approximately 6.65 acres.

Produced Water Management (In Support of Long-Term Production Operations)

Use of the RGU 23-6-297 Pad for Produced Water Storage

- Upgrade and expand existing facilities on the RGU 23-6-297 pad to support produced water storage and transportation to TEP's existing and proposed Centralized E&P Waste Management Facilities in the area (Figure 7).
- Installation of two buried 6-inch stainless steel water pipelines (approximately 25 feet each) between the four existing 6-inch water pipelines located at the existing Mud Can in Lot 36 of Section 1, Township 2 South, Range 98 West, 6th P.M. near the Williams Ryan Gulch Gas Plant (Figure 8). New produced water pipelines would support movement of produced water from the RG 41-18-297 pad and RGU 23-7-297 pad to the tank battery on the RGU 23-6-297 pad. ROW COC73845 would be amended to include the two new 6-inch stainless steel produced water pipelines; the ROW amendment would be 25 ft long, 15 feet wide, and contain 0.009 acres.

Addition of a Water Disposal Well at the Federal 299-23-3 Pad

- Reconstruct the existing Federal 299-23-3 Pad to a 3.21-acre footprint to drill one new Federal produced water disposal well (Figure 9). ROW COC76535 would be authorized for the 400 ft x 350 ft well pad for disposal of off-lease water into the disposal well site.

Pitcher's Mound Water Recycling Facility

- Construct the new Pitcher's Mound Water Recycling Facility to a 12.48-acre footprint to support produced water storage and water recycling operations during well completions and long-term well production operations. The existing (adjacent) RGU 23-35-198 pad would be utilized to the greatest extent possible to consolidate operational activities and surface disturbance at this location (Figure 10).
- Install two buried 8-inch Coreline (steel with internal poly lining) produced water pipelines (approximately 3,385 feet each) from the proposed Pitcher's Mound Water Recycling Facility to the proposed tie-in location with the existing 6-inch FlexSteel produce water pipelines located in Lot 8 of Section 35, Township 1 South, Range 98 West, 6th P.M.
- Install one buried 4-inch FlexPipe produced water pipeline (approximately 683 ft) from the proposed Pitcher's Mound Water Recycling Facility to the proposed tie-in location with the existing 4-inch produced water pipelines within the adjacent pipeline corridor north of the water recycling facility.
- Reroute the existing dual 4-inch FlexPipe water pipelines (approximately 625 feet each) from the south side of the proposed Pitcher's Mound Water Recycling Facility near Rio Blanco County Road 83 to the proposed tie-in location with the existing 4-inch produced water pipeline within the pipeline corridor north of the RGU 23-35-198 pad.
- Reroute the existing Bargath 6-inch steel natural gas gathering pipeline (approximately 630 feet) from the south side of the proposed Pitcher's Mound Water Recycling Facility near Rio Blanco County Road 83 to the proposed tie-in location with the existing 8-inch natural gas pipeline within the pipeline corridor north of the RGU 23-35-198 pad.
- Reroute the existing dual 4-inch FlexPipe water pipelines (approximately 225 feet each) from the proposed tank battery to the proposed tie-in location north of the RGU 23-35-198 pad. The existing tank battery will be relocated during construction of the Pitcher's Mound Water Recycling Facility, which will require the relocation of the existing water pipelines.

Drill Cuttings Disposal

Drill cuttings for wells on the 41-18-297, 23-7-297 and 298-23-3 pads would be disposed of as described in section 3.2.2, number 6.

In order to dispose of drill cuttings associated with the RGU 44-1-298 pad, TEP is planning to construct the 15.46-acre Wagonroad Ridge Centralized Waste Management Faciltiy on TEP property in the NW ¼ of Section 1, Township 3 South, Range 99 West, 6th P.M. (Figure 11). The facility would also be used for drill cuttings disposal associated with future development in the area. The facility would encompass the existing Federal 399-1-3 pad and Federal 399-1-4 pad; both locations have been used previously for drill cuttings management and / or disposal. The waste management facility would be constructed with three separate drilling pits for cuttings disposal. The first would be located on the Federal 399-1-3 pad, the second would be located on

the Federal 399-1-4 pad, and the third would be location between the two existing pad locations. Excess material from pit construction would be stockpiled between the pits.

3.2.2. Design Features

The entire Surface Use Plan of Operations (SUPO) is incorporated into the Proposed Action and is available for review at the WRFO. Key items relevant to the issues associated with the Proposed Action are listed in Appendix C.

1. The Proposed Action would include drilling and completion of the wells, production of natural gas and associated liquid condensate (oil), proper handling and disposal of produced water, and interim and final reclamation.
2. During pad construction, topsoil would be stripped during the initial earthwork and windrowed, where feasible, around the outer edge of the disturbance perimeter to serve as storm water diversions and catchments. Topsoil would remain windrowed and temporarily seeded until interim reclamation is scheduled after all wells on each pad are placed into production.
3. During permanent pipeline construction, topsoil would be segregated along one side of the pipeline corridor for later placement back onto the reclaimed ROW. Permanent (buried) pipeline construction would occur within an average 40-ft wide disturbance corridor. Installation of the proposed temporary surface pipelines will not require removal of topsoil. Construction of temporary surface pipeline generally causes minimal surface disturbance due to the nature of surface installation. Temporary surface pipeline would occur within an average 35-ft wide corridor. Surface disturbance associated with installation of surface pipelines will be reviewed following removal of the pipelines and if necessary, spot reseeding (broadcast) may occur.
4. The proposed pipeline work would be conducted within existing roadways or pipeline corridors. Before strength testing of the pipeline can be accomplished, reinforced poly pigs would be passed through the inside of the line when applicable, to free sections of any debris. Segments of the line would then be hydrostatically tested for strength and held for a duration of at least 4 hours. The length of the tested sections would depend on topography and the progress of the installation work.
5. Construction of pads, roads, and pipelines would follow the guidelines established in the BLM Gold Book, Surface Operating Standards for Oil and Gas Exploration and Development (USDI and USDA 2007). The new access roads associated with Pitcher's Mound Water Recycling Facility would be graveled to ensure all-weather accessibility to the site. Existing roads would undergo review for spot- graveling needs. A road maintenance program would be required during the production phase of the wells. This program would include, but not be limited to blading, ditching, culvert installation and cleanout, weed control, and gravel surfacing where excessive rutting or erosion occur. Roads would be maintained in a safe and usable condition.

6. A closed-loop drilling system would be used during drilling, which eliminates the need for a fluid- containing reserve pit. Recovered drilling fluid would be stored on location in steel tanks for reuse. Drill cuttings would be collected from the drill rig shaker system, mixed with drying agents, and deposited in the drilling pit/cuttings trench for later burial during interim reclamation or hauled to an approved waste management facility for treatment and disposal. The cuttings would be tested and remediated per Colorado Oil and Gas Conservation Commission ("COGCC") regulations (Table 910-1 standards) prior to burial during interim reclamation.
7. All TEP facilities will be evaluated to determine potential air emissions and will comply with both Federal (EPA) and State (CDPHE) regulations. After evaluation, TEP will submit appropriate Air Pollution Emission Notice (APENs) and/or permits to the Air Pollution Control Division (APCD) of the Colorado Department or Public Health and Environment (CDPHE). Once the applicable permits have been submitted, TEP will collect and calculate emission information required within the permit(s) to demonstrate compliance with the State and Federal Regulations.
8. Standard best management practices would be implemented to ensure disturbed areas on pads, roads, and pipelines are reclaimed in a timely manner.
9. The Proposed Action would be implemented consistent with the Federal oil and gas leases, Federal regulations (43 CFR 3100), and the operational measures included in the APDs. TEP would be responsible for continuous inspection and maintenance of the access roads, pads, and pipelines.

3.2.3. WRFO Standard Conditions of Approval

The WRFO routinely requires a standard set of conditions of approval (COAs) that are applicable to most oil and gas development projects (most of these standard COAs are described in Appendix 2 of the Oil and Gas Development RMPA). Relevant COAs that were not already included in the SUPO are listed in Appendix D. Site-specific mitigation measures, if applicable, are identified as mitigation in the EA in each analysis section below.

3.3. Alternatives Considered but Eliminated from Detailed Analysis

The Pitcher's Mound Water Recycling Facility was originally proposed as a 10.99-acre disturbance approximately 200 feet to the west of the current location. There were resource concerns with this particular location and the applicant was able to redesign the facility to mitigate impacts to sensitive resources in the area by moving the facility to the east and overlapping it with the existing RGU 23-33-198 pad.

4. ISSUES

The CEQ Regulations state that NEPA documents "must concentrate on the issues that are truly significant to the action in question, rather than amassing needless detail" (40 CFR 1500.1(b)).

While many issues may arise during scoping, not all of the issues raised warrant analysis in an environmental assessment (EA). Issues will be analyzed if: 1) an analysis of the issue is necessary to make a reasoned choice between alternatives, or 2) if the issue is associated with a significant direct, indirect, or cumulative impact, or where analysis is necessary to determine the significance of the impacts. The following sections list the resources considered and the determination as to whether they require additional analysis.

4.1. Issues Analyzed

The following issues are analyzed in detail in this EA (Section 5):

Air Quality

1. How would emissions generated from the construction and equipment used in the development and operations of the proposed project impact air quality? (section 5.4.1)

Vegetation

2. How would the MDP affect vegetation within the Mesa Verde Play Area? (section 5.5.1)

Wildlife Habitat

3. How would activity associated with the proposed action affect nesting raptors and migratory birds? (section 5.6.1)
4. How would construction of the well pads and associated infrastructure as well as drilling, completions, and operation of the wells affect big game seasonal ranges? (section 5.6.2)

4.2. Issues Considered but not Analyzed in Detail

Soil and Water Resources

1. How would the proposed project development and operations affect surface water quality and groundwater quality?

The proposed project is not within mapped COGCCs Rule 317b public water system protection area. Areas of disturbance do not involve fragile soils or steep slopes and would be more than 7,500 feet from mapped perennial streams.

Potential impacts to surface water from the development of the proposed project could result from sediment transportation and unintentional releases of chemicals or produced fluids during construction, drilling, completion, production, and transportation. Groundwater could be impacted by the infiltration of unintentional releases or when drilling operations penetrate fresh water or encounter a loss circulation zones.

Potential impacts to water resources would be minimized with the implementation of Design Features Numbers 1 through 20 (Appendix C), Standard Conditions of Approval Numbers 15 through 18 (Appendix D), and the Colorado Oil and Gas Commission's (COGCC) 300, 600, 900, 1000, and 1100 Series Rules

TEP's Design Features and BLM Standards COAs (Appendices C and D) include closed looped drilling system, secondary tank containment, containment lining, cuttings management, and tank contained completion flow back. The COGCC 300, 600, 900, 1000, and 1100 Series Rules regulate oil and gas exploration, drilling, and production operations and waste and include flowlines, spill control, reporting, and cleanup.

Any spills from construction, drilling, completion, and operations would likely be small in nature and would be cleaned up immediately. Control measures in the Design Features and COAs would limit their dispersion into groundwater or surface water.

The proposed casing and cementing program for the wells are designed to protect and isolate all usable groundwater zones. Any water zones encountered during drilling would be protected by cementing the area between the surface casing and formation which would prevent the movement of fluids and gases between formations and protect the casing from corrosion. A well survey called a cement bond log is performed to ensure the cement is properly sealed around the casing and between the casing and the well bore. Additionally, prior to hydraulic fracturing, the casing would be pressure tested with fluid to the maximum pressure that would be applied to the casing. The well's construction design is also reviewed by the professional engineering staff at the BLM and COGCC.

Water usage for each well is anticipated to be 67,000 barrels (~8.6 acre-feet); 9,500 barrels (1.2 acre-feet) would be fresh water and the remaining 57,500 barrels (7.4 acre-feet) would be recycled produced water. Overall estimated water use would be 62.4 acre-feet of fresh water and 377 acre-feet of recycled water. Fresh water for construction and drilling would be obtained from private permitted industrial sources. Recycled water for well completions operations would be sourced primarily from TEP's produced water recycling program and water share agreements with local operators

The water depletion for this action is covered under the Programmatic Biological Opinion (PBO)(ES/GJ-6-CO-08-F-0006 TAILS 65413-2008-F-0073-R001) with the U.S. Fish and Wildlife Service (FWS) for water usage that could indirectly impact threatened and endangered fish species. COA #6 in Appendix D requires the operator to submit actual water usage via sundry notice to the BLM, which is compiled into a report submitted to FWS annually.

Fresh water required for drilling operations (surface, intermediate, and production casing) and dust mitigation is proposed be transported by truck from the freshwater pond along Ryan Gulch located at TEP's Mautz Ranch property and freshwater pond located adjacent to the Love Ranch CWMF. These facilities are similar to stock ponds in design and would not provide natural aquatic wildlife habitat. COAs #11-14 in Appendix E are required Conservation Measures for the PBO and recommendations from CPW for the protection of aquatic wildlife through the requirement of pump screening and the sanitation of equipment.

2. How would surface disturbing activities associated with the proposed project's construction, development, and operations affect soil resources including Prime Farmland?

Total project soil disturbance is estimated to be 56.4 acres (41 acres BLM and 15.4 acres private). Roughly 35.4 acres would occur on existing or previously disturbed soils and slightly more than 21 acres would be new disturbance. All disturbance areas are on slopes less than 25 percent, not considered as steep slopes, and are not mapped as fragile soils.

Three portions (approximately1.5 acres) of the proposed project are within mapped soils classified by the Natural Resources Conservation Service (NRCS) as Prime Farmland if irrigated. These three portions would either be traversed by a temporary surface frac pipelines that follow an existing road, a temporary lay-flat freshwater line, or tanks placed on an existing well pad disturbance. Removal of vegetation or new displacement of soils would not occur in these areas.

Long term disturbance after interim reclamation would be roughly 22.3 acres (15.5 acres BLM and 6.9 acres private). Complete reclamation of this remaining acreage would occur at the time of final well pad abandonment (~40 years).

Impacts to soil and soil productivity from the development and operations of the proposed project could occur from soil compaction, mixing of soil layers, loss of topsoil by erosion, and contamination from unintentional releases of chemicals or produced fluids during construction, drilling, completion, production, and transportation.

These potential impacts would be minimized with the implementation of the previously mentioned Design Features, Standard COAs, and COGCC's Rules in "How would the proposed project development and operations affect surface water quality and groundwater quality?".

Inspection, monitoring, control measures, interim and final reclamation procedures would minimize the potential loss of topsoil until a self-sustaining diverse native vegetative community is re-established. Once achieved, it is likely soil and vegetative cover would return to pre-disturbance productivity levels.

Implementation of TEP's Design Features, Standard Conditions of Approval, and COGCC Rules, would prevent the potential for unacceptable impacts to occur by helping maintain soil stability and productivity. The impacts to the soils involved, including the 1.5 acres of Prime Farmland if irrigated, would likely be negligible to the overall productivity of soils within the project area.

3. How would the construction, drilling, completion, and operations of the proposed project, affect hydrology, floodplains, and water rights?

All the proposed projects pads and disturbance are on or near ridgelines except for RGU 44-1-298 which is situated adjacent to an ephemeral drainage. The topographic location of the ridgeline disturbances would limit the potential to adversely affect the area's hydrology. The 1.4 acres of new disturbance for the expansion of RGU 44-1-298 would remain outside of the existing ephemeral drainage and would have little to no effect on the hydrology of the drainage.

The proposed project would include an estimated 1,000 feet of temporary surface frac and freshwater pipelines within Federal Emergency Management Agency (FEMA) mapped floodplains. Placement of the temporary pipelines would be short term and it is unlikely these temporary pipelines would adversely influence the hydrology or a flood event due to their low

profiles of approximately 6 inches and 12 inches. A short section (about 35 feet) of the temporary surface freshwater line would cross Piceance Creek at an existing bridge which would have little to no effects on the hydrology or the floodplain in the area.

Water rights would not be affected by the Proposed Action. As previously mentioned, fresh water used for construction and drilling would be obtained from a permitted source with water rights. Water used for well completions operations would be sourced primarily from TEP's produced water recycling program. Supplemental water required for well completions operations would be through water share agreements with local oil and gas operators.

Cultural and Paleontological Resources

4. How would implementation of the MDP affect scientifically noteworthy paleontological resources?

5. The Proposed Action fully overlies the Uintah Formation, classified as Potential Fossil Yield Classification (PFYC) 5 geologic unit for its very high potential to yield scientifically noteworthy fossil resources. Portions of this MDP proposal also overlap with Modern Alluvium, a PFYC 2 geologic unit with a low potential to yield important fossil resources. Any excavations into the underlying sedimentary rock formation would impact the Uintah Formation, however, which could result in crushing, displacing, or exposing scientifically noteworthy fossils. Therefore, *a permitted paleontological monitor must be present before the start of excavations that may impact the underlying sedimentary rock formation*.

6. Would implementation of the MDP affect cultural resources?

TEP modified their preliminary development proposal to avoid the only historic property known in the project vicinity (5RB.1109). The Proposed Action was then inventoried for cultural resources (OAHP #RB.LM.R1523), which resulted in a finding of *no adverse effect* to historic properties. This proposal does not require additional consultation with the State Historic Preservation Officer (SHPO) pursuant to Section X.F.5 of the State Protocol Agreement between the Colorado State Director of the BLM and the Colorado SHPO.

5. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

5.1. General Setting & Access to the Project Area

The proposed Lower Wagonroad Ridge project area is located 23 miles southwest of Meeker, Colorado, and 27 miles southeast of Rangely, Colorado, within Rio Blanco County, Colorado. The project would occur within a 4.87 square mile area along the northeastern end of Wagonroad Ridge between Ryan Gulch and Black Sulphur Creek, approximately 1.25 miles west of Rio Blanco County Road 5 and Piceance Creek, and would include all or portions of Sections 6, 7, and 18 of Township 2 South, Range 97 West, and Sections 1, 12, and 13 of Township 2 South, Range 98 West, Sixth Principal Meridian (Figure 1).

5.2. Cumulative Impacts

5.2.1. Cumulative Impacts Analysis Areas

The geographic extent of cumulative impacts varies by the type of resource and impact. The timeframes, or temporal boundaries, for those impacts may also vary by resource. Different spatial and temporal cumulative impact analysis areas (CIAAs) have been developed and are listed with their total acreage in Table 3.

Table 3: Cumulative Impact Analysis Areas by Resource

Resource	CIAA	Total CIAA Acreage	Temporal Boundary
Air	White River Field Office	~2.7 million acres	2-3 years for construction, drilling, completions; 40 years operations
Vegetation	Mesa Verde Play Area	712,276 acres	Anticipated impacts associated with construction, drilling, and reclamation activities would be reduced once activities cease. Reclamation of pipelines and interim reclamation (3-4 years) would return some vegetation while the wells are in production. Other impacts associated with vegetation loss would remain for decades (assuming the wells are in production for 35 years) until the wells are plugged, the land reclaimed, and the shrub component can re-establish.
Raptor and Migratory Bird Habitat	Watershed subbasin(s): Corral Gulch Yellow Creek Hatch Gulch-Piceance Creek Headwaters and Outlet Ryan Gulch Stake Springs Draw	~34,550 acres	Anticipated impacts associated with avoidance of suitable habitat due to human activity during construction, drilling, and reclamation would be reduced once these activities cease.
Big Game Habitat	Winter and Severe Winter Range in GMU 22	Total: 552,067 acres Winter Range: 322,356 acres	Anticipated impacts associated with construction, drilling, and reclamation activities would be reduced

		Severe Winter: 229,711 acres	once these activities cease. Reclamation of pipelines and interim reclamation (3-4 years) would return some foraging habitat while the wells are in production. Other impacts associated with habitat avoidance due to production activities or the loss of habitat on the well pad would remain for decades (assuming the wells are in production for 35 years) until the wells are plugged, the land reclaimed, and the shrub component is allowed to re-establish.

5.2.2. Past, Present, and Reasonably Foreseeable Future Actions

Cumulative effects are defined in the CEQ regulations (40 CFR 1508.7) as "...the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions."

In 2015 the BLM published the Oil and Gas Development Proposed RMP Amendment/FEIS, which considered changes in the location, type, and level of oil and gas development within the resource area. Based on an updated 2007 RFD scenario, it is assumed that the majority of oil and gas development would occur within the Mesaverde Play Area (MPA; Piceance Basin) and consist of multi-well pads. The proposed amendment in the Proposed RMPA/FEIS considered drilling up to 15,040 wells from 1,100 well pads with an associated surface disturbance of 13,200 acres (Section 2.4.6, page 2-29 of the Proposed RMPA/FEIS). An estimated 12 acres per pad would be disturbed initially (including areas needed for associated infrastructure) however that would be reduced to 5 acres per pad following interim reclamation (see Table 4-2 of the Proposed RMPA/FEIS). Further, it was assumed there would be up to 790 miles of roads and 565 miles of utility lines (pipelines and power lines) developed to support this activity (see Table 4-3 of the Proposed RMPA/FEIS).

As of October 2019, the Colorado Oil and Gas Conservation Commission database indicated there were a total (i.e., including those drilled prior to the 1997 RMP) of 2,708 producing wells, 193 shut-in wells, and 42 wells where drilling has begun but are not yet in production.

Estimates of surface disturbance within the lease (COC 70220) that are most likely attributed to oil and gas activities equal approximately 7 acres. This area represents 8.75 percent of the total area of the lease, which is approximately 80 acres in size. Producing well density in the project

area equals <1 producing well per square mile, while road density in the project area equals approximately 3 miles of road per square mile. For lease COC 057285 there is approximately 6 acres of surface disturbance on the 714 acres lease. This accounts for less than 1 percent surface disturbance on the lease. There is approximately 1 mile of roads per square mile within the lease boundary. On lease COC60736 there is approximately 12 acres of disturbance on 975 acres. This equals out to about 1.2% of the lease and there is approximately 2.5 miles of roads per square mile on the lease.

This project is located within the 598,600-acre MPA, where it was assumed that full-field development would include a total of 972 well pads and require two to three pads per section.

5.3. Air Quality

5.3.1. How would emissions generated from the construction and equipment used in the development and operations of the proposed project impact air quality?

Affected Environment

The proposed project is in the central portion of Rio Blanco County, Colorado on federal and private surface in an area that meets the National Ambient Air Quality Standards (NAAQS) for Criteria Pollutants. They are situated a straight-line distance of 23 miles west southwest of Meeker, Colorado on ridgelines with an average elevation of roughly 6,500 feet. No private residences are within 1.5 miles of the proposed production well pads.

There are approximately 3,420 active wells (e.g., producing, shut-in, temporarily abandoned, injection, and drilling status) within the WRFO. The Colorado Oil and Gas Conservation Commission (COGCC) online database indicates 88 wells have been spud since January 2019.

Oil and gas development activity in the vicinity of the proposed production wells is relatively high. According to the COGCC database, there are 187 active and 18 plugged/drilled and abandoned wells within a two-mile radius (an area representing approximately 11,900 acres) of the proposed production pads. Two of the 187 active wells were spud since January 2019. Approximately 86 percent (~10,240 acres) of the area within the two mile-radius is federal surface and 90 percent (~10,700 acres) is federal oil and gas mineral estate, all of which is currently leased. Seventy five percent (~8,000 acres) of the leased area involves two Federal Oil and Gas Exploratory Units, the Ryan Gulch COC68239X and the Freedom COC69547X. The remaining 25 percent consists of non-unitized federally leases. The proposed wells would be in-fill wells for both unitized and non-unitized federal leases.

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 2019 Annual Report as a comprehensive assessment tool to assist in the preparation of project level NEPA for oil and gas development projects. The 2019 Annual Report provides up to date information on oil and gas development (current regulations, rates for drilling and production, emissions 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 2.0), which provides cumulative analyses for multiple projected oil and gas development scenarios in Colorado out to year 2025.

The 2019 Annual Report 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 2019 Annual Report for the White River Field Office is incorporated by reference in this analysis to describe the affected environment and cumulative impacts analysis associated with the proposed or preferred action. All of the documents described above are available to the public on BLM Colorado's website at: https://www.blm.gov/programs/natural-resources/soil-air-water/air/colorado.

Alternative A (No Action Alternative) – Direct and Indirect Effects

Under the No Action Alternative, the BLM would not authorize any of the Proposed Action elements and there would be no additional direct or indirect impacts to air quality or climate change beyond that associated with the operation of the existing infrastructure on each pad. Such air quality impacts would continue for the life of the existing wells until final reclamation has been completed.

Alternative B (Proposed Action) – Direct and Indirect Effects

In general, Alternative B would have a temporary impact on air quality, which would mostly occur during construction, drilling, completion, and the initial production years of the well before well yields decline (production declines in excess of 50 percent during the first three years are typical). Use of the access roads, pipeline construction, disturbed well pad areas, and development activities such as drilling, hydraulic fracturing, well completion, and equipment installation would all impact air quality through the generation of dust related to worker travel, materials transport, and general construction. This phase would also produce short-term emissions of criteria, hazardous, and greenhouse gas pollutants from vehicle and construction equipment exhausts. Once drilling and completion are complete, the daily activities at the site would be reduced to operational and maintenance checks and product load-out and hauling, which initially may occur as frequently as multiple daily visits (prior to declining production). Emissions from these activities would include vehicle and compression or artificial lift pump exhaust, fugitive emissions of production related gases from infrastructure components, pneumatic devices that use 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 volatile organic compounds and hazardous air pollutants may be elevated compared to the sales gas fractions.

A detailed emissions inventory for the Proposed Action was prepared in accordance with section III.B of BLM Colorado's CARPP. The inventory was developed using the BLM CO Emissions Tool and supplemented with a proposed drilling and development timeline. The inventories include emissions from construction, drilling, completion, and production related activities and is the best available information. Table 4 contains the cumulative estimated criteria and hazardous air pollutant emissions (Particulate Matter ($PM_{2.5}$, PM_{10}), Volatile Organic Carbon (VOC),

Nitrogen Oxides (NOx), Carbon Monoxide (CO), Sulfur Oxides (SO_x), Hazardous Air Pollutants (HAPs)) which could occur from the project's 40 year life.

Table 4. Estimated Life of Project Emissions – (tons)

No. Well Pads	No. Wells	PM_{10}	$PM_{2.5}$	VOC	NO_X	CO	SO_X	HAPs
4	51	23.8	9.1	6.7	118	106	2.5	2.4

A quantitative analysis of the potential impacts from Alternative B was produced using a screening level gridded near-field assessment tool based on the results of the CARMMS 2.0. This data is useful for determining the relative contribution of federal oil and gas emissions to the cumulative concentrations modelled within the grid cells. In addition to data specific to the project location, the tool also retrieves data for the modelled grid cell (any grid cell) from each CARMMS 2.0 scenario with the closest emissions greater than the project-specific emissions. The scenario with the lowest modelled impacts is used to represent the "project only" modelled emissions (i.e., it is the one least influenced by neighboring grid cells, where higher neighboring emissions would influence adjacent cell concentrations beyond a project specific source estimate) and is used to determine what the project's contributions to the site-specific concentrations would actually be. There are a variety of factors that can affect the overall accuracy of this approach for describing project-related impacts. However, as a screening assessment there is a high degree of conservatism in using cumulative projected domain-specific data to analyze project impacts (so long as the emissions are fully accounted for). As a first-tier approach for analysis this method provides a fast and reliable way to allocate CARMMS 2.0 gridded emissions and impacts for project tracking assessments at the near-field scale.

The gridded emissions near-field assessment tool was run for the maximum emissions project year (for both NO_X and VOC - 2021). The results from the CARMMS 2.0 modeling domain produced spatially allocated emissions (i.e., the maximum grid cell) in excess of the project emissions for each pollutant analyzed.

Table 5 shows the maximum expected modelled concentration in the modeling domain for the maximum year and pollutant analyzed. 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. The CARMMS 2.0 modeling domain predicted no modeled exceedances for any of the NAAQS pollutants analyzed.

Table 5. Gridded Domain Model Impacts

Pollutant (units)	Low CARMMS 2.0 Model Concentration[1]	Percent NAAQS[2]	2021 Project Contributions[3]	SIL[4]
NO2 1 hour (ppb)	14.2	14%	0.92	4
O3 8 hour (ppb)	63.7	91%	0.10	1
PM10 (µg/m3)	5.7	4%	1.93	5
PM2.5 24 hour (µg/m3)	3.3	9%	0.16	1.2
PM2.5 Annual (µg/m3)	1.8	15%	0.12	0.2

[1] Ambient concentration based on the full cumulative model (cleanest background)

[2] The percent of the NAAQS the full cumulative model results represent

[3] The project emissions contributions to the cumulative ambient concentrations

[4] Significant Model Impact Levels (SIL) defined by CDPHE and EPA, to be referenced if NAAQS is exceeded

Climate Change Analysis

No analysis tools exist to describe the project's incremental contributions to the global phenomenon of climate change in terms of potential warming, drought, sea level rise or other common environmental metrics associated with increasing concentrations of atmospheric greenhouse gases. The problem is by nature a cumulative issue, and any downscaling of the projected global climate changes effects to project scales (based on emissions scaling) does not provide meaningful analysis due to the fact that no significance levels have been defined. As identified in the emissions inventory (below) the project would emit greenhouses gases and would thus contribute to the accumulation of atmospheric greenhouse gases, and potential climate change effects if future year global emissions and impacts are consistent with any of the scenarios analyzed by IPCC contributing scientists.

The wells are estimated to remain in production for 40 years. Over that time, the conservatively estimated sum of the total oil and gas produced would equal approximately four times the initial first year maximum production volumes. This estimate is based on empirical data of production rates from nearby wells completed within the same formations tracked over varying periods of time, and the operator's experience in the basin for how these wells might produce during the first year (where production is typically the highest). The greenhouse gas (GHG) estimates assume that all of the oil and gas production is eventually combusted in one form or another (the exact nature and/or configuration and location of that combustion apparatus is unknown and not reasonably foreseeable). Table 6 summarizes the estimated total project GHG emissions attributable to development.

Table 6. Project GHG Emissions (tons)

Sub-activity	CO_2	CH_4 (CO_2e)	N_2O (CO_2e)	Total CO_2e
Subtotal – Development[1]	120,570	60	100	120,730
Subtotal – Downstream[2]	7,207,400	5,200	9,900	7,222,500
Total Emissions	7,327,970	5,260	10,000	7,343,230

[1] Construction, drilling, operations, and completion related emissions as CO_2e

[2] Oil and Gas production (cumulative)

Cumulative Impacts

As previously mentioned, the Colorado State Office Air Resource Specialists prepared the 2019 Annual Report as a comprehensive assessment tool to assist in the preparation of project level NEPA for oil and gas development projects. The 2019 Annual Report provides up to date information on oil and gas development (current regulations, rates for drilling and production, emissions 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 CARMMS 2.0, which provides cumulative analyses for multiple projected oil and gas development scenarios in Colorado out to year 2025. The proposed project would fall within the low CARMMS 2.0 scenario for the WRFO.

The BLM expects oil and gas development to remain on the current track (i.e., tracking low relative to CARMMS 2.0) for the foreseeable future in Colorado. There are currently no foreseeable significant shifts in petroleum market dynamics (supply, demand, etc.), changes or advancements in development / recovery technologies, newly discovered resources / plays, or political influences (tax or regulatory incentives) that would significantly affect the rates of development occurring in Colorado.

Given the low Federal development that has occurred over the monitoring period, it is reasonable to conclude that the WRFO is meeting the air quality goals and objectives defined for oil and gas development within its RMP. Overall development is tracking well below the levels analyzed under the low CARMMS 2.0 scenario. The CARMMS 2.0 data shows that the projected development in WRFO is not likely to have significant impacts on the NAAQS or visibility at nearby Class I areas.

Climate Change Analysis

Mineral production and development of the Proposed Action is estimated to contribute a maximum of 7.34 million tons of carbon dioxide equivalent (CO_2e) over the 40 year estimated project's life, approximately 19 percent of BLM Colorado's 2019 annual downstream emissions, and 0.18 percent of the 2019 annual U.S. total downstream GHG emissions (2019 Annual Report Table 6). If compared on the same temporal scale (i.e., annually) the project would contribute far less towards the compared GHG metrics and would rapidly decline as the project ages.

5.4. Vegetation

5.4.1. How would TEP's Lower Wagon Ridge MDP affect vegetation within the Mesa Verde Play Area?

Affected Environment

The proposed master development plan would be located primarily within the Ryan Gulch and Black Sulphur Creek drainages. Portions of the project would be located along the ridgetop between Ryan Gulch and Black Sulphur Creek. The RGU 23-6-297 well pad and RGU 44-1-298 well pad would be in the valley bottom of Ryan Gulch. All the proposed pipelines would follow existing access roads and pipeline ROWs. The primary vegetation communities within the area

of the proposed development plan include pinyon/juniper woodlands, basin big sagebrush shrublands along the valley bottoms, Wyoming sagebrush shrublands along ridgetops and sideslopes, and irrigated pasture and hayfields along Piceance Creek. The pinyon/juniper woodlands surrounding the project area are mature, productive/dry woodland sites.

Common vegetation observed in the Proposed Action area for the Master Development Plan: blue grama (*Bouteloua gracilis),* bluebunch wheatgrass (*Pseudoroegneria spicata),* Indian ricegrass (*Achnatherum hymenoides),* Intermediate wheatgrass (*Thinopyrum intermedium),* prairie Junegrass (*Koeleria macrantha),* smooth brome (*Bromus inermis),* Western wheatgrass (*Pascopyrum smithii),* hoary tansyaster (*Machaeranthera canescens),* hoary townsend daisy(*Townsendia incana),* Lewis flax (*Linum lewisii),* lobeleaf groundsel (*Packera multilobate),* longleaf phlox (*Phlox longifolia),* low pussytoes (*Antennaria dimorpha),* rosy pussytoes (*Antennaria rosea),* roughseed cryptantha (*Cryptantha flavoculata),* Scarlet globemallow (*Sphaeralcea coccinea),* sharpleaf twinpod (*Physaria acutifolia),* spearleaf buckwheat (*Eriogonum lonchophyllum),* thickleaf beardtongue (*Penstemon pachyphyllus),* two-lobe larkspur (*Delphinium nuttallianum),* Utah sweetvetch (*Hedysarum boreale),* Antelope bitterbrush (*Purshia tridentate),* basin big sagebrush (*Artemisia tridentate),* broom snakeweed (*Gutierrezia sarothrae),* four-winged saltbush (*Atriplex canescens),* mountain snowberry (*Symphoricarpos oreophilus),* rubber rabbitbrush (*Ericameria nauseosa),* two-needle pinyon (*Pinus edulus),* Utah juniper (*Juniperus osteosperma),* and Wyoming sagebrush (*Artemisia tridentate wyomingensis)* (WestWater, 2019, 2020).

Forestry

The Proposed Action area possesses a woodlands component within both productive and dry exposure stand classes of pinyon/juniper woodlands as defined by a survey performed in 2003-2005 by White River Field Office personnel. Productive exposure types occur on primarily lower gradient slopes and on north and east aspects. Growth rates are higher in these areas due to soil features which allow for effective use of precipitation. Dry exposure types occur when slopes and soil features do not allow for the retention of precipitation. The growth rates within these areas are low and most generally the trees present are mature. These habitat types are further broken down based on the age class of the stand. In this case the affected stands are both mature and young. Mature pinyon/juniper trees on productive exposure establish themselves as the dominant plant community on the site. Young pinyon/juniper trees are a component of the plant community or encroach into sagebrush and mountain shrub communities in the absence of reproduction through time and will eventually establish as the dominant plant community. Mature stands are valuable locally as a source of firewood and craftwood. Encroachment sites of young pinyon trees are valuable for Christmas tree harvest and posts for fence construction.

Invasive non-native plant species

Nine Colorado State listed noxious weed species were observed within the Proposed Action master development area. Noxious weeds were primarily observed near existing disturbances such as roads, pads, and pipeline ROWs. Weed plant species observed included bull thistle (*Cirsium vulgare (List B),* cheatgrass *(Bromus tectorum (List C)),* common mullein (*Verbascum thapsus (List C)*), diffuse knapweed (*Centaurea diffusa (List B)),* field bindweed (*Convolvulus arvensis List C)),* Houndstongue (*Cynoglossum officinale (List B)*), musk thistle (*Carduus nutans*

(List B)), redstem filaree (*Erodium cicutarium (List C)*), and spotted knapweed (*Centaurea stoebe (List B)*) (WestWater, 2019, 2020).

Special Status Plant Species

An estimated 9.15 acres of occupied Dudley Bluffs twinpod (*Physaria obcordata,* threatened) habitat was observed within 300 meters of the RGU 23-7-297 and RGU 41-18-297 surface pipeline (WestWater, 2020). To determine the action area, a 300-meter buffer was applied to the project footprint, which is the "project zone of influence". Occupied twinpod habitat within 600 meters of the project features or the project zone of influence were then buffered by 600 meters, creating the "plant consideration area". There are currently 87.29 acres of existing disturbance within the plant consideration area. Existing disturbance was digitized from ESRI World Imagery. The majority of the disturbance acreage within 600 meters of the occupied habitat consists of oil and gas infrastructure developed on private surface, County Road 5, pipeline ROWs, developed roads, and two-track roads. Livestock grazing activities also occur within the plant consideration area. Immediately outside the action area and the plant consideration area are other disturbances associated with county roads, well pads, pipelines, access roads, and livestock grazing activities. The action area and the plant consideration area are within the Square S livestock grazing allotment.

Alternative A (No Action Alternative) – Direct and Indirect Effects

Under Alternative A there would be no new development authorized. The existing disturbance would remain the same acreages and there would be no new direct or indirect impacts to vegetation communities.

Alternative B (Proposed Action) – Direct and Indirect Effects

Approximately 62.7 percent of the proposed MDP would be on land (federal and private) previously disturbed because of oil and gas development. Of the proposed locations, all are previously built pads, with the exception of the proposed Pitcher's Mound Pit. The Pitcher's Mound Pit would be all new ground disturbance occurring on federal land. Approving all aspects of the Proposed Action approximately 13.45 acres of new disturbance would occur on federal land. A total of 18.83 acres of already reclaimed vegetation would be re-disturbed and direct long-term disturbance to federal land because of the five well pads, support pads, pipelines and access roads is expected to be approximately 15.45 acres (Table 2).

Direct effects as a result of the Proposed Action involves the removal of native herbaceous and woody vegetation. The dominant vegetation removed would primarily come from the inter-mountain basins big sagebrush shrubland and it is projected that five acres of mature pinyon-juniper trees would be removed as a result of the Proposed Action. Directly following construction of the proposed buried pipelines, final reclamation would commence, returning surface disturbance back to 0.66 acres (See Section 3.2 for details on final disturbance acreages). Surface disturbance would be temporary in overall nature, taking potentially a minimum of three growing years to establish vegetation after reclamation efforts have begun. Annual monitoring of the disturbance areas until re-vegetation reaches 80 percent coverage with at least five desirable plant species, no one species exceeding 70 percent relative cover, would help ensure effectiveness of reclamation success criteria standards.

Forestry

Table 7 shows the estimated loss of woodland acres resulting from construction of the Pitcher's Mound Pit. Following final reclamation of the pit location it is expected that pinyon and juniper will invade the site within 50-70 years and would develop into a mature stand within 200-300 years. Under the Proposed Action about 5 acres of woodlands would be removed to construct the Pitcher's Mound Pit location. As per the WRFO 2015 RMPA any trees harvested for oil and gas development must be purchased from the BLM prior to disturbance. Impacts would be long-term until woodlands regenerated successfully. For the life of the Pitcher's Mound the location would be devoid of trees. Trees removed would be used in reclamation efforts for that proposed location disturbance stated in Appendix E (#18).

Table 7. Pinyon and Juniper Removed for Construction of the Pitcher's Mound Pit.

Project Name	Acreage in Woodlands		
	Acres Disturbed (Total)	Stand Class	Total Cords
Pitcher's Mound Pit	5	Pinyon Juniper Productive Mature/Young	25

Special Status Plant Species

The proposed surface pipeline (Love Ranch CWMF to the RG 41-18-297 well pad) would parallel an existing buried pipeline ROW and developed road for the majority of its alignment. Once the surface pipeline descends from the dividing ridge between Black Sulphur Creek and Ryan Gulch it would parallel an existing pipeline ROW to the Love Ranch CWMF. The proposed pipeline would create a negligible amount of new surface disturbance during placement of the pipeline. Disturbance associated with the pipeline would be a result of construction equipment driving up and down the approved ROW during the surface pipeline installation. No grading or trenching activities would occur because of existing disturbance. Some soil surface disturbance may be created when the tracked fusing machine and skid steer turns or travels along un-disturbed surface along portions of the alignment as it descends into the valley of Piceance Creek. Areas within 660 ft of occupied and suitable habitat for threatened species are managed as NSO areas (NSO-25).

For threatened species, an exception may be granted for surface disturbance if; "disturbance does not preclude the survival and recovery of the species, as agreed or consulted upon by the BLM and FWS, with particular emphasis on protecting populations within ACECs. Exceptions may be contingent on special design, construction, and implementation measures. Surface occupancy may be authorized within 330 ft of occupied habitat following an environmental analysis and ESA Section 7 consultation or conference with the FWS (for species listed under the ESA) that results in "no effect" or concurrence with a wholly beneficial effect determination. Surface occupancy may be considered for actions when the overall impacts to the species' habitat from an action would be less than compared to other project alternatives that maintain a 330 ft buffer

around occupied habitat. The proponent must convincingly demonstrate through in-depth biological analyses and collaboration with BLM and FWS that any action within 330 ft is the least damaging option when compared to other project alternatives. The FWS must concur with the proposed action in their Biological Opinion for approval of the exception to be considered by the BLM." (RMPA, 2015). The BLM did receive electronic Biological Opinion concurrence from FWS on August 12, 2020, that the project "*may affect, but is not likely to adversely affect*" Dudley Bluffs twinpod. Conservation measures for the Love Ranch CWMF, RGU 23-7-297 and RGU 41-18-297 surface pipeline are attached as Site Specific Mitigation in Appendix E.

An estimated 9.15 acres of occupied Dudley Bluffs twinpod habitat was observed within 300 meters of the Love Ranch CWMF, RGU 23-7-297 and RGU 41-18-297 surface pipeline. The nearest occupied habitat is approximately 130 meters from the surface pipeline. Section 2.21.3 of the Oil and Gas Development RMPA states that management of areas within 330 ft of occupied habitat for federally listed and proposed plants are exclusion areas for new land use authorizations. However, the 41-18-297 well pad to Love Ranch CWMF lay flat line falls outside the 330 feet, so a ROW can be approved.

All other project features associated with the MDP are greater than 300 meters from occupied habitat.

Invasive non-native plant species

Nine Colorado Sate listed noxious weed species were observed within the Proposed Action area. Noxious weeds were primarily observed near existing disturbances such as roads, pads, and pipeline ROWs.

Invasive, non-native plant species could become an increased component of the native plant community surrounding the entire Proposed Action. New ground disturbance that exposes underlying soils creates the ideal seed bed for invasive and non-native weeds species to germinate. Uncleaned construction equipment and vehicles brought into the area is also another potential vector to bring in unwanted invasive weed species not currently present in the project areas. Even using certified weed free seed/mulch during reclamation efforts can bring in unwanted weed species. Using the 2020 Biological Survey Report Terra Energy Partners Lower Wagonroad Ridge Master Development Plan (WestWater, 2020) as a baseline for what is currently in the direct proposed project areas, moving forward, if new weeds appear along any portions of the pipeline ROWs, pits and/or well pads, weed management needs to be executed immediately.

Seed Mixtures

TEP currently is proposing to use BLM Native seed mix #2 for well pad RG 41-18-297 according to their applicant committed measures stated in their SUPO. However, this range site is a typical pinyon juniper woodland and the BLM recommends BLM Native seed mix #3 for reclamation efforts on that particular well pad (Appendix E #10). Other seed mixes for the remainder of the well pads, pipelines and pits would be recommended at the time they are approved through a COA.

Cumulative Impacts

When added to other projects and developments, in and near the project area, as well as within the Piceance Basin as a whole, short-term removal of existing wooded/shrubland vegetation on public land would increase. However, long-term changes in plant community composition and structure on a broader scale would not result in a noteworthy increase in vegetation disturbance or long-term changes in plant community because the buried pipelines would be re-seeded directly after construction/placement. Successful reclamation on the well pads would result in an increase in available forage for livestock and wildlife.

Noxious and invasive weeds present in the general area are primarily associated with existing areas of development/disturbance and livestock grazing. Existing roads and livestock grazing throughout the general area are a common source of weeds, so elimination of weedy species from the general area is unlikely. The extent of infestation and persistence of weeds would be dependent on monitoring and treatment. If weeds are not properly treated, then spread of weedy plant species would increase within the Piceance Basin as a whole.

Denial of the Proposed Action would have little impact on the cumulative effects of oil and gas development to the vegetative communities in the Piceance Basin. Effects currently occurring on the existing well pads and ROWs would continue as they have currently been approved.

Mitigation Measures and Residual Impacts

See Appendix D for Standard Vegetation, Invasive Non-Native Plant Species Conditions of Approval (COA #11-14, #22-28). Appendix E has Site Specific Mitigation (Conservation Measures from the Biological Assessment) concerning SSPS (#1-9).

If revegetation is prompt, proper seed is selected, and invasive non-native weed species are managed efficiently, there would likely be no long-term impacts to surrounding vegetation communities adjacent to the project area.

5.5. Wildlife Habitat

5.5.1. How would activity associated with the Proposed Action affect nesting raptors and migratory birds?

Affected Environment

The majority of the project (RGU 44-1-298, 23-6-297, 23-7-297, 41-18-287 pads, and associated pipelines) would be located in the Ryan Gulch Outlet subbasin with a surface line traversing down into the Piceance Creek drainage. The Pitcher's Mound pit and associated infrastructure would be located amid a developed Natural Soda field, along a ridge between the Yellow Creek and Ryan Gulch drainages. The CWMF would be expanding an existing location in the Ryan Gulch Headwater subbasin and the proposed injection well would expand on the existing Federal 299-23-3 location in the Stake Springs subbasin that leads into Yellow Creek. As described in the 5.5.1 Vegetation section, the project area is surrounded by pinyon/juniper woodlands with intermixed Wyoming sagebrush shrublands and Basin big sage and irrigated hay meadow valley bottoms.

The elevation range of the project area is 5,200-6,700 feet. The encompassed subbasins, Ryan Gulch and Yellow Creek drainages, consist of approximately 34,550 acres of a variety of vegetation types, but primarily pinyon/juniper woodlands that provide habitat for nesting and foraging raptors. Historic BLM records have documented over 70 raptor nests in the project area, along the Ryan Gulch, Stake Springs, and Yellow Creek drainages.

Overlapping surveys of approximately 2,027 and 2,119 acres of suitable woodland raptor nesting habitat of pinyon/juniper woodlands located and re-located twenty raptor nests, finding 3 occupied by long-eared owls and 3 occupied by red-tailed hawks, within the 0.5-mile raptor survey area (WestWater 2019, 2020).

Several additional species of raptors and migratory birds (including Birds of Conservation Concern) may potentially inhabit the region. Common raptor species would include American kestrel, Cooper's hawk, golden eagle, great horned owl, northern goshawk, northern pygmy owl, northern saw-whet owl, peregrine falcon, prairie falcon and sharp-shinned hawk. These raptors generally initiate nesting in April. Nestlings are fledged and generally independent of the nest and associated nest habitat by late July or early August. Brewer's sparrow, Cassin's finch, pinyon jay, and juniper titmouse are also likely nesting and foraging in the sagebrush shrublands and pinyon/juniper woodlands surrounding the project area.

Alternative A (No Action Alternative) – Direct and Indirect Effects

The No Action Alternative would have no additional impacts on the available raptor habitat, but disruptive activity associated with the existing development on each pad and supporting facilities would still occur and potentially affect nesting raptors in the manner described above. To allow development of the leases, the BLM would still likely evaluate other well pad (APDs) locations in the future that would have similar impacts to the other alternatives.

Alternative B (Proposed Action) – Direct and Indirect Effects

While the footprint of individual oil and gas wells is minimal relative to other energy developments (e.g., mining), the total habitat lost to the network of wells and connecting roads can be considerable in areas undergoing full-field development (Postovit and Postovit, 1989). The potential for oil and gas-related disturbance of nesting, foraging, or roosting raptors arises not only from road and well pad construction, drilling, and equipment installation, but also from continual servicing and maintenance of wells over their productive lifetime (BLM TN 433). Recommendations concerning temporal buffers suggest that nesting areas should be protected from the time of adult arrival through at least the first few weeks after hatch (Suter and Joness 1981, Romin and Muck 2002). Evidence suggests that nesting raptors may be less sensitive to disturbance after hatching (White and Thurow, 1985).

Development of the proposed activities would not directly remove raptor nest trees; survey has located numerous nesting sites in the adjacent habitat. A Cooper's hawk nest was located was located approximately 30 meters from the RGU 23-7-297, a long-eared owl nest was located approximately 382 meters from the 299-23-1 injection pad, both in intact pinyon/juniper stands, and a red-tailed hawk nest was located 162 meters on a cliff face overlooking the RG 41-18-297 surface pipeline.

The majority of the proposed action would expand pad locations where the Ryan Gulch Unit field development, associated infrastructure, and maintained access road and pipelines have been in place since the Unit's approval in 2005. The Pitcher's Mound Pit location would directly remove habitat, about 5 acres of woodlands, that could potentially provide nesting habitat for migratory birds not detected during the survey specific to raptors. Raptors and the majority of other birds in the United States are protected by the Migratory Bird Treaty Act (MBTA). Removing or destroying active nests (i.e., nests that contain eggs or young) or causing abandonment of an active nest with intent could constitute a violation of the MBTA.

Impacts to raptors and migratory bird species can be minimized if surface disturbing and disruptive activities take place outside the nesting season. Timing limitations are intended to prevent disruption of ongoing nest efforts, including development-induced absences of the adult birds sufficient to jeopardize egg or nestling survival from malnourishment, exposure, or predation. Nesting season is generally considered to occur from April 1 to August 1 in this area; impacts to nesting raptors and migratory bird species would be somewhat mitigated by implementing a timing restriction from February 1 through August 1 (WR-TL-15) on surface disturbing and disruptive activities within 0.25 miles of an active raptor nest. To avoid or minimize the disruption of migratory bird nesting activity by schedule vegetation clearing, facility construction, and concentrated operational activities (e.g., drilling, completion, utility installation) to avoid nesting habitats during the core migratory bird nesting season from May 15 to July 15 (Table 8).

Cumulative Impacts

There are more than 70 well pads, as well as ancillary facilities for compression of gas and water handling (and associated access roads) within the Ryan Gulch and Yellow Creek drainages. The approximate 55-acre Proposed Action would contribute to cumulative forms of habitat loss, fragmentation, and disruptive activities. However, there are more than 34,000 acres of available habitat adjacent to the project areas. The Proposed Action would not impact the overall suitability of the habitat in the CIAA.

Mitigation Measures and Residual Impacts

Biological surveys located active raptor nests with 0.25 miles the RGU 23-7-297 pad, Federal 299-23-1 injection pad, and RG 41-18-297 surface pipeline in T2S, R97W, Sec.7 & 8. The following mitigation would apply a timing limitation from February 1 through August 1, as a COA (Appendix E #15-16): "Surface-disturbing and disruptive activities will not be allowed within 0.25 miles of active nest sites of those raptors that are not considered special-status during the period from nest territory establishment to dispersal of young from nest. A survey for nest status would be required before construction, drilling, or completions can proceed. If activities begin outside this window and the nest becomes active (e.g., drilling begins in Dec or Jan) the timing limitation would not be applied. The Authorized Officer may also grant an exception if the nest is unattended or remains unoccupied by May 15 of the project year."

The survey did not locate any *active* raptor nests within 0.25 miles of the RGU 44-1-298, 23-6-297, 41-18-287 well pads, the Pitcher's Mound pit, or the CWMF, but did identify unoccupied nests, so an exception to the timing limitation is granted while the current survey is valid.

Table 8. Raptor and Migratory Bird COAs by Location

Location	Active/Inactive-WR-TL-15
RG 41-18-297 Pad	Inactive nest, exception to WR-TL-15 granted while surveys are valid (until June 1, 2022)
RGU 23-7-297 Pad	Active nest, WR-TL-15 applied
RGU 44-1-297 Pad	Inactive nest, exception to WR-TL-15 granted while surveys are valid (until June 1, 2022)
RGU 23-6-297 Pad	Inactive nest, exception to WR-TL-15 granted while surveys are valid (until June 1, 2022)
Pitcher's Mound Pit	Inactive nest, exception to WR-TL-15 granted while surveys are valid (until June 1, 2022).
Wagonroad Ridge CWMF	Inactive nest, not a federal authorization
299-23-1 Injection Pad	Active nest, WR-TL-15 applied
RG 41-18-297 *surface pipeline in T2S, R97W, Sec.7 & 8*	Active nest, WR-TL-15 applied

Raptor surveys for the project are valid until June 1, 2022, at which time WR-TL-15 would either be applied to all surface disturbing or disruptive activities or re-survey of sites concludes there are no active raptor nests in the project area.

5.5.2. How would construction of the well pads and associated infrastructure as well as drilling, completions, and operation of the wells affect big game seasonal ranges?

Affected Environment

The project area is located within GMU 22 and is delineated by CPW entirely as big game winter range, and severe winter and winter concentration in the lower elevations and along Piceance Creek for mule deer. These seasonal ranges receive heaviest use from December through April, depending on snow accumulation. Typically, deer and elk herds winter at lower elevations along Piceance Creek and migrate to spring and summer ranges in the upper elevations along Calamity Ridge, into the Cathedral Bluffs, and on the Roan Plateau as green-up occurs.

The 2015 RMPA analyzed threshold allowances, a predetermined percentage of disturbance for of each discrete seasonal range, based on deer seasonal range, within a lease holding within a GMU. The proposed action is in the RMPA designated big game winter range and severe winter range.

As discussed in detail in Sec. 5.5.1, the primary vegetation communities within the project area include pinyon/juniper woodlands, basin big sagebrush shrublands along the valley bottoms, Wyoming sagebrush shrublands along ridgetops and side slopes, and irrigated pasture and hayfields along Piceance Creek, with mature pinyon/juniper woodlands surrounding the project. This landscape serves to provide important severe winter habitat, where maximum snowpack and minimum temperatures force 90 percent of big game (in the two worst two out of ten winters), and winter concertation habitat, where big game densities can increase 200 percent from the surrounding winter range (in five out of ten winters) (CPW 2020).

Alternative A (No Action Alternative) – Direct and Indirect Effects

The No Action Alternative would not result in the additional impacts associated with the Proposed Action and therefore would not result in any additional loss to available seasonal range above that which has been lost to the existing development at each well pad. Big game animal avoidance due to disturbing activities at each well pad would continue commensurate with the level of operations conducted during the life of the existing developments at each well pad. To allow development of the lease, the BLM would still likely evaluate other well pad (APDs) locations in the future that would have similar impacts to the other alternatives.

Alternative B (Proposed Action) – Direct and Indirect Effects

The Proposed Action would create approximately 55 acres of disturbance for the expansion of well pad locations, access roads, and pipelines, the majority of which is sagebrush shrublands surrounded by pinyon/juniper. Interim reclamation would return approximately 21 acres to a grass/forb mix and would be capable of serving as a source of herbaceous forage once that vegetation becomes established.

Adverse impacts to big game from energy development result from the direct habitat removal for the footprint of the development and indirect impacts caused by traffic, noise and light, invasive plants, and the overall fragmentation of habitat as the density of facilities accumulates (CPW, 2020). Recent research in the Piceance Basin showed "deer strongly avoided areas within 600 m of well pads with active drilling at all times, and this avoidance persisted out to 1000 m at night (with the strongest responses within 800 m). During both day and night, the strength of avoidance of drilling well pads increased as distance decreased, with essentially no locations falling within 200 m of these pads" (Northrup et al 2015). Sawyer et al. (2009) also documented a greater avoidance of active drilling than other energy development activities by mule deer, indicating that this activity is the predominate stressor during hydrocarbon development. Thus, measures aimed at mitigating impacts from drilling, such as seasonal drilling restrictions, sound and light barriers, and reductions in vehicle traffic, are likely to have the greatest benefit to deer. The other development infrastructure (i.e., roads and producing pads) altered deer behavior, but to a lesser extent (Nothrup et al., 2015). Avoidance was demonstrated to a distance of 200 meters around producing pads and 100 meters around roads and would be further diminished around pipelines as vegetation becomes established.

More pronounced avoidance responses of deer and elk are likely to remain localized during construction, drilling, and completion activities and extend to an estimated 1,980 acres of severe winter and 840 acres of winter range habitat within 600 meters or 0.86 percent of the severe winter and 0.35 percent of winter range available in GMU 22.

In an effort to encourage clustered development and reduce the extent of seasonal ranges subject to cumulative adverse behavioral effects (i.e., harassment, avoidance) attributable to oil and gas development, exceptions to timing limitations would be offered contingent on development remain below threshold allowances that were analyzed in the 2015 RMPA (Table 9). The threshold strategy is intended to confine more high intensity activities (e.g., high frequency traffic, noise, concentrated human presence associated with pad/access/pipeline construction, drilling, and completions) on big game ranges to a pre-defined extent (i.e., the acute allowance

within each lease holding or GMU). This activity and the accumulation of locations that continue to require regular activity to prepare the well(s) for sustained production, up to and including interim reclamation work, would also be confined to a predetermined proportion of a lease holding (i.e., the collective allowance).

Table 9. Current Disturbance for TEP Leaseholdings in GMU 22.

Big Game Seasonal Range	Acute Threshold Allowance	Calculated Acute Effects	Collective Threshold Allowance	Calculated Collective Effects
Summer Range	15%	0	20%	5.89%
Winter Range	20%	0	20%	7.24%
Severe Winter Range	15%	0	20%	11.2%
Winter Concentration Area	20%	0	20%	0

*A grace period of 5 years from the time of the RMPA ROD approval in 2015 had been provided to allow compliance in the event leaseholder/operator activity exceeds threshold allowances at the time of ROD approval as well as providing the BLM adequate time to ensure reclamation meet identified standards outlined in the RMPA ROD. The BLM calculated this estimate using the available data in the DMS (Data Management System) and geospatial data of known data gaps (not uploaded in DMS) of recently permitted and constructed locations. Collective data will continue to be uploaded bringing more certainty to the Collective acreage; the Acute acreage estimates were generated from operator provided shapefiles submitted with the APDs.

The federally authorized portion of the majority of proposed action in severe winter range, a 34-acre footprint, would result in an acute avoidance area of approximately 490 acres and increase disturbance to 3.34 percent of acute and 11.43 percent collective effects for the allowable severe winter range disturbance, below the allowable threshold for acute disturbance to severe winter range habitats (15 percent) for the TEP lease holdings (Table 10).

The federally authorized portion of the proposed action in general winter range, the 3.25-acre footprint for the RG 33-22-299 injection well, would result in an acute avoidance area of approximately 57 acres and increase disturbance to 0.13 percent of acute and 7.25 percent collective effects for the allowable general winter range disturbance, below the allowable threshold for acute disturbance to winter range habitats (20 percent) for the TEP lease holdings (Table 10).

Table 10. Proposed Disturbance Thresholds for TEP Leaseholdings in GMU 22.

Range and Status	Pads	Disturbance Acres	Disturbance Buffered by 200m	Total Range Acres	Max Threshold Acres	Threshold Allowance in Lease-holding	Percent of Range Used
Summer Range Acute	0	0		4,033.58	605.04	15%	0%
Summer Range Collective	4	237.51		4,033.58	806.72	20%	5.89%
Winter Range Acute	**1***	**3.25**	**56.8**	45,256.86	9,051.37	20%	**0.13%**
Winter Range Collective	145+**1**	3,276.38+ **3.25 = 3,279.63**		45,256.86	9,051.37	20%	**7.25%**
Severe Winter Range Acute	**5**	**33.74**	**489.9**	14,688.02	2,203.2	15%	**3.34%**
Severe Winter Range Collective	61+**5**	1,645.3 + **33.74 = 1,679.04**		14,688.02	2,937.6	20%	**11.43%**
Winter Concentration Areas Acute	0	0		84.56	16.91	20%	0%
Winter Concentration Areas Collective	0	0		84.56	16.91	20%	0%

***Bold** font represents Proposed Action and increased disturbance.

Cumulative Impacts

Approximately 41.5 percent (228,900 acres) of GMU 22 is designated as big game severe winter range and approximately 43.5 percent (239,950 acres) is designated as big game general winter range in the 2015 RMPA; much of this area is influenced by oil and gas activity. The proposed action would contribute about 2,800 acres to cumulative direct and indirect forms of big game habitat loss, fragmentation, and avoidance. These impacts would be diminished after disruptive drilling and completion activities cease and interim reclamation of the pad and pipeline disturbance is revegetated and available as forage. The proposed action is in an area of concentrated development attributed to the Ryan Gulch Unit, and though there are oil and natural gas fields of development throughout, the majority of GMU 22, approximately 517,900 acres,

provides general winter range and 187,200 acres of mule deer severe winter and range (as delineated by CPW) provides connectivity along the lower elevations of the Piceance Basin.

Mitigation Measures and Residual Impacts

The application of timing limitations (Appendix E #16 and 17) from December 1 through April 30 (WR-TL-12 and WR-TL-14) are intended to reduce the intensity, frequency, and extent of disturbances imposed on animals occupying important seasonal habitats during periods when animals are physiologically or energetically challenged; application of timing limitations for big game severe winter and winter ranges reduce exposure of big game to disruptive activities. The behavioral response of animals exposed to these disturbances generally elevates energetic demands (e.g., avoidance movements, elevated metabolism) or reduces foraging efficiency (e.g., disuse of available resources, reduced foraging efficiency) which suppresses animal fitness or reproductive performance.

To qualify for timing limitation exceptions, fluid mineral development activity must not exceed the percentage of acreage represented by those threshold allowances. The area of acute effects would be defined by the physical footprint of those concentrated intensive activities associated with, for example, pad and pipeline construction and well drilling and completion operations, buffered by 660 feet (~200 m) on all seasonal ranges. The area of acute effects would include the area of collective effects in addition to all residual and incomplete lease development activities buffered by 660 feet, including but not limited to: access corridors, multiple-well pads awaiting further drilling or not meeting interim reclamation success criteria (as defined in the WRFO Reclamation Plan), linear ROWs that support vehicle traffic after final reclamation, and facilities receiving frequent visitation (i.e., an average greater than seven vehicle trips per pad per week). The current development activity within the lease holdings of the operator meets the current identified threshold allowances and would therefore likely be granted an exception to allow for year-round drilling when the operator identifies a need and requests the exception. The timing limitation continues to be issued on the overall project as additional work may occur over the life of the development which would be restricted to those time periods. *Construction activities would be scheduled outside the timing limitation.*

Disturbed areas would be revegetated during interim reclamation, returning 34 acres to available forage for big game species and final reclamation would ultimately return cover for security as the shrub component becomes established.

6. SUPPORTING INFORMATION

6.1. List of Preparers

Name	Title	Area of Responsibility	Date Signed
Pau Daggett	Mining Engineer	Air Quality; Geology and Minerals; Soil Resources; Surface and Ground Water Quality; Floodplains, Hydrology, and Water	8/18/2020

Name	Title	Area of Responsibility	Date Signed
		Rights; Prime and Unique Farmlands	
Shawn Wiser	Wildlife Biologist	Wetlands and Riparian Zones, Special Status Animal Species, Migratory Birds, Aquatic and Terrestrial Wildlife,	08/18/2020
Heather Woodruff	Ecologist	Vegetation, Invasive, Non-Native Species, Special Status Plant Species, Wild Horses, Forestry and Woodland Products, Livestock Grazing, Areas of Critical Environmental Concern	08/18/2020
Lukas Trout	Archaeologist	Cultural Resources, Paleontological Resources, Native American Religious Concerns	9/21/2020
Matthew Dupire	Natural Resource Specialist/Project Lead	Visual Resources, Hazardous or Solid Wastes, Social and Economic Conditions, Lands with Wilderness Characteristics, Recreation, Access and Transportation, Wilderness, Scenic Byways	8/19/2020
Stacey Burke	Realty Specialist	Realty Authorizations	7/29/2020
Heather Sauls	Planning & Environmental Coordinator	NEPA Compliance	9/8/2020

6.2. Tribes, Individuals, Organizations, or Agencies Consulted

On July 10, 2020, the Biological Assessment to initiate Informal Section 7 Consultation on the TEP Lower Wagonroad Ridge Project was electronically submitted to the FWS Western Colorado Ecological Services Field Office. On August 12, 2020, the WRFO received a Biological Opinion back from FWS on concurrence that the project "may affect, but not likely to adversely affect" *Physaria obcordata*.

The U.S. Fish and Wildlife Service issued a Programmatic Biological Opinion (PBO)(ES/GJ-6-CO-08-F-0006 TAILS 65413-2008-F-0073-R001) on December 26, 2017, which concurred with BLM's determination that water depletions are "Likely to Adversely Affect" the Colorado Pikeminnow, Razorback Sucker, Humpback Chub, and Bonytail. The BLM would obtain data on actual freshwater used for the federal action via Condition of Approval (Appendix D, #6) and subsequent sundry notice. These water use amounts would be summarized to calculate a total annual water depletion amount that would be submitted at the end of each calendar year to the U.S. Fish and Wildlife Service and tracked against the overall projected threshold freshwater use.

The BLM, CPW and COGCC staff met with TEP representatives and contractors on the locations on July 15, 2020 and July 21, 2020. August 19, 2020 CPW submitted a letter to the BLM stating that "CPW staff has been in communication with BLM WRFO staff regarding the 2015 RMPA guidelines for Big Game Winter Range Timing Limitations, Greater sage-grouse, raptors and migratory birds, grazing, and aquatic resource protection. CPW understands that the BLM will be applying COAs to locations in this project based on the RMPA guidelines for these habitats, and CPW will continue to work directly with BLM staff to help inform these decisions in sensitive wildlife habitat."

6.3. References

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BLM Technical Note 433. An Assessment of the Effects of Oil and Gas Field Activities on Nesting Raptors in the Rawlins, Wyoming and Price, Utah Field Offices of the Bureau of Land Management.

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Colorado Parks & Wildlife. 2020 Status Report: Big Game Winter Range and Migration Corridors. May 2020, CPW, Denver, CO.

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Sawyer, H., Korfanta, N.M., Nielson, R.M., Monteith, K.L. and D. Strickland. Mule Deer and energy development- Long-term trends of habituation and abundance. Glob Charge Biol. 2017:00:1-9, https://doi.org/10.1111/gcb.1371

Suter, G. W., II, and J. L. Joness. 1981. Criteria for Golden Eagle, Ferruginous Hawk, and Prairie Falcon nest site protection. Raptor Research 15:12–18.

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2019. Biological Survey Report Terra Energy Partners. Report Prepared for Terra Energy Partners. July 2019. Grand Junction, Colorado.

WestWater Engineering
2020. Biological Survey Report Terra Energy Partners Lower Wagonroad Ridge Master Development Plan. Report Prepared Terra Energy Partners. June 2020. Grand Junction, Colorado.

White, C. M. and T. L. Thurow. 1985. Reproduction of Ferruginous Hawks exposed to controlled disturbance. Condor 87:14–22.

APPENDIX A. FIGURES

Figure 1: Overview Map of Project Area

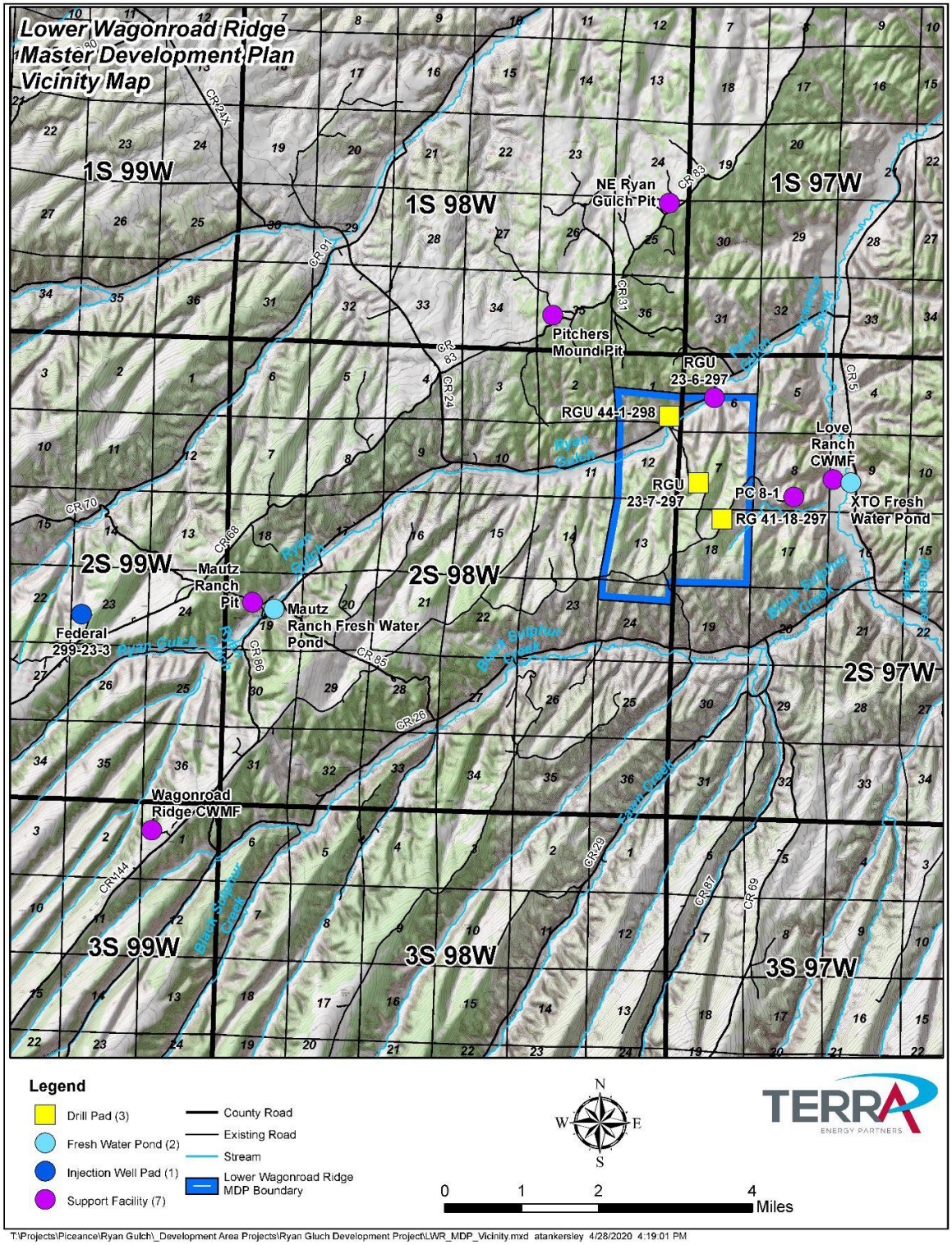


Figure 2: RG 41-18-297 Well Pad

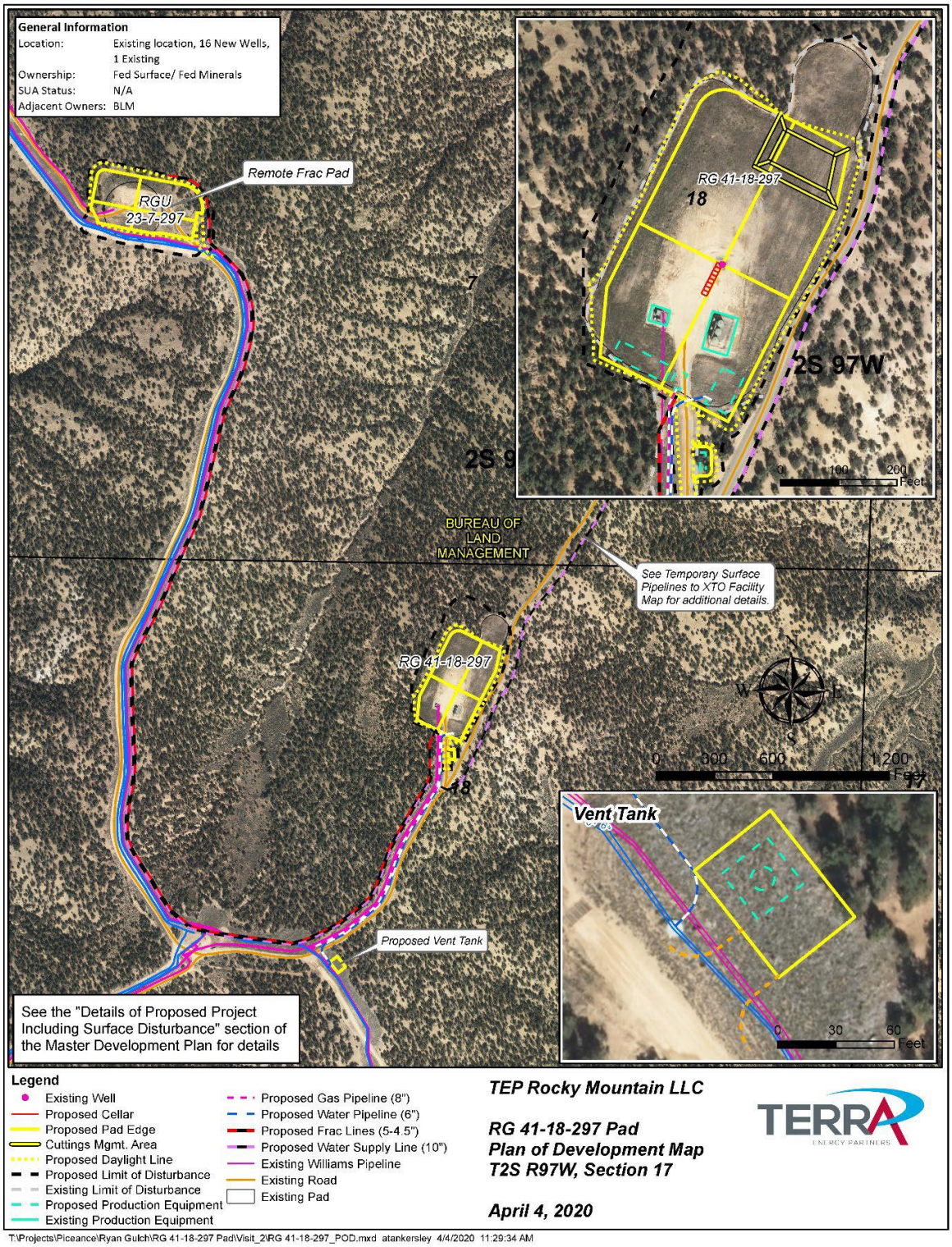


Figure 3: RGU 23-7-297 Well Pad

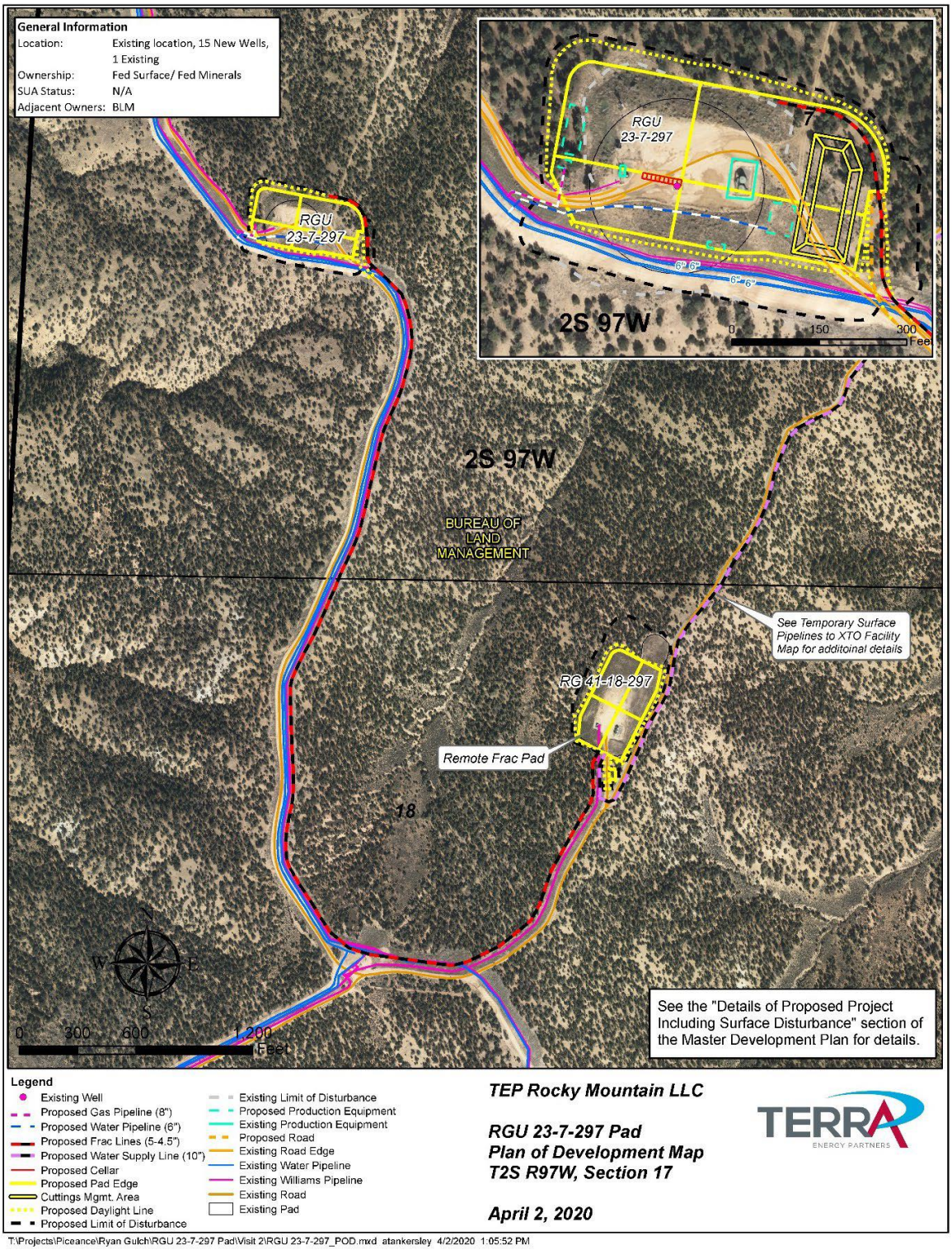


Figure 4 RGU 44-1-298 Well Pad

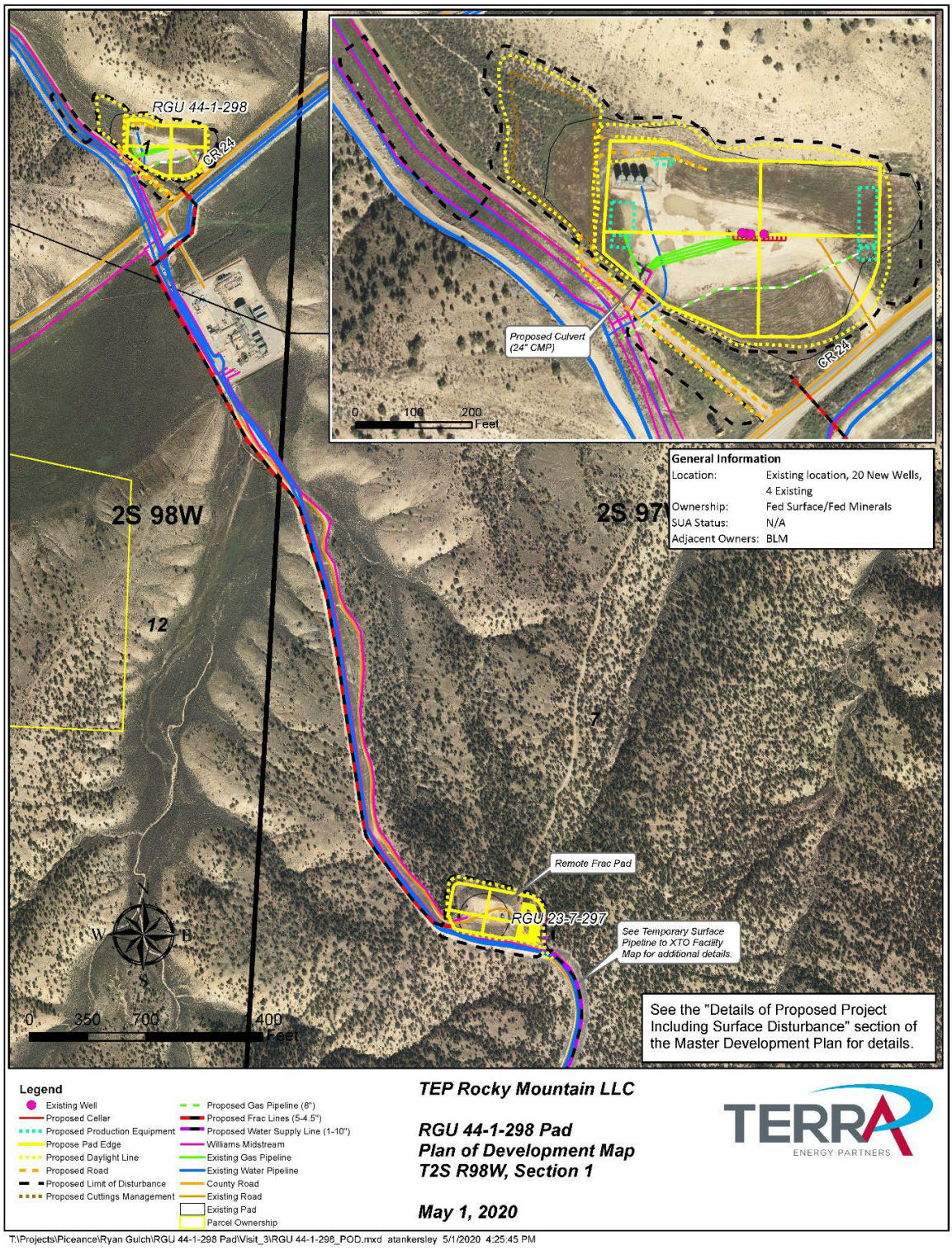


Figure 5 Temporary Surface Water Pipelines from XTO Pond to RGU 23-7-297 Pad

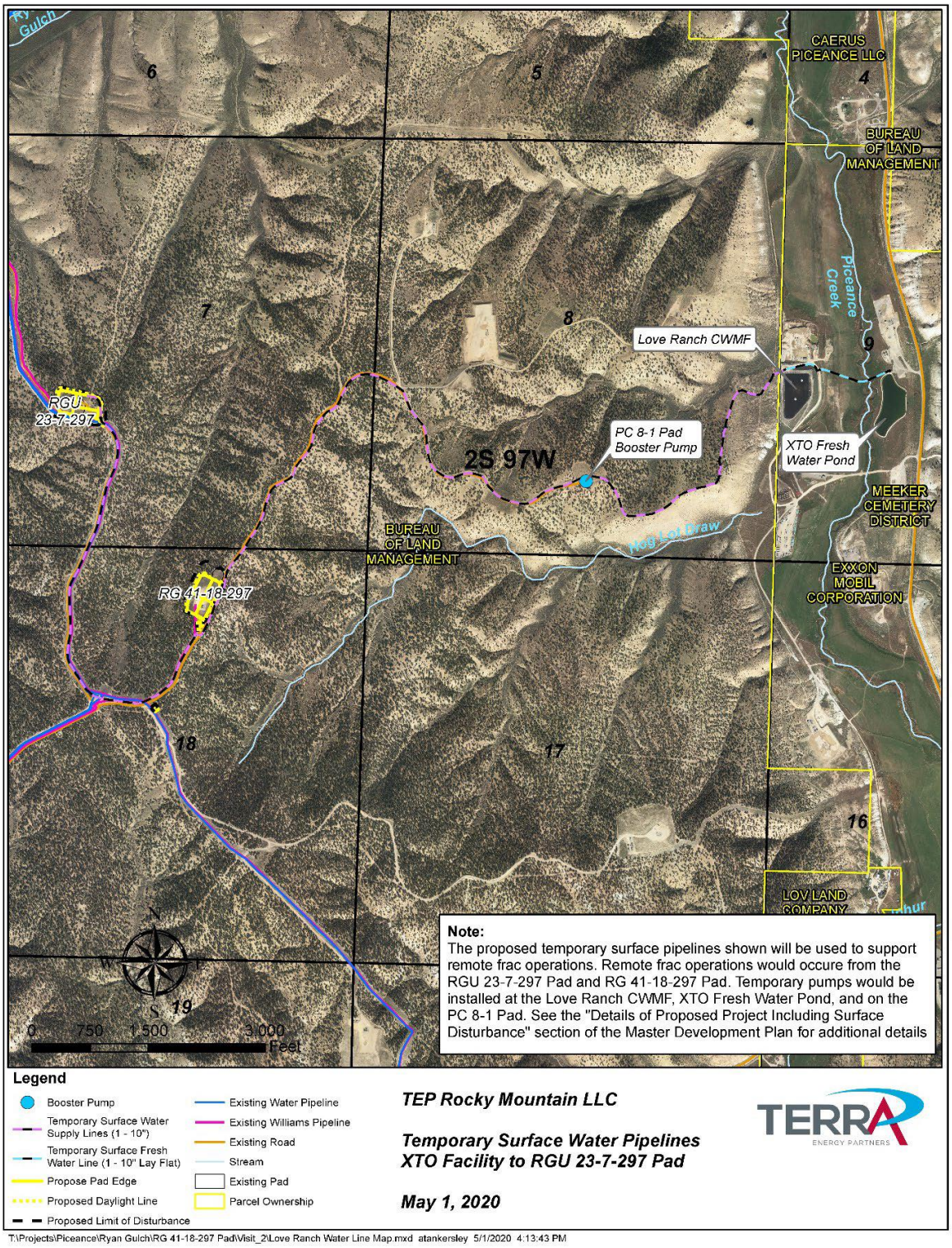


Figure 6: NE Ryan Gulch Water Recycling Pit Surface Water Line

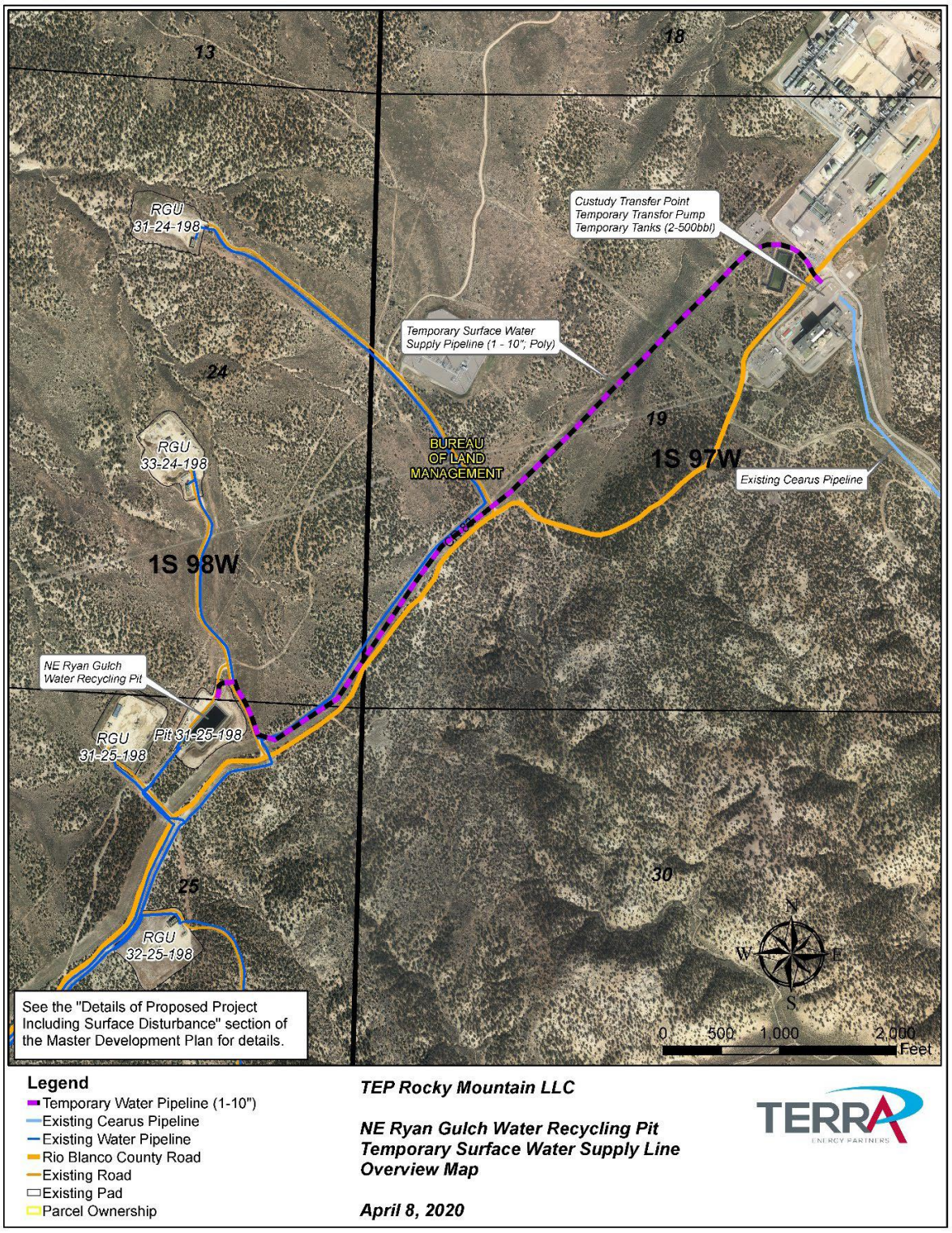


Figure 7: RGU 23-6-297 Well Pad Layout for Produced Water Storage and Transport

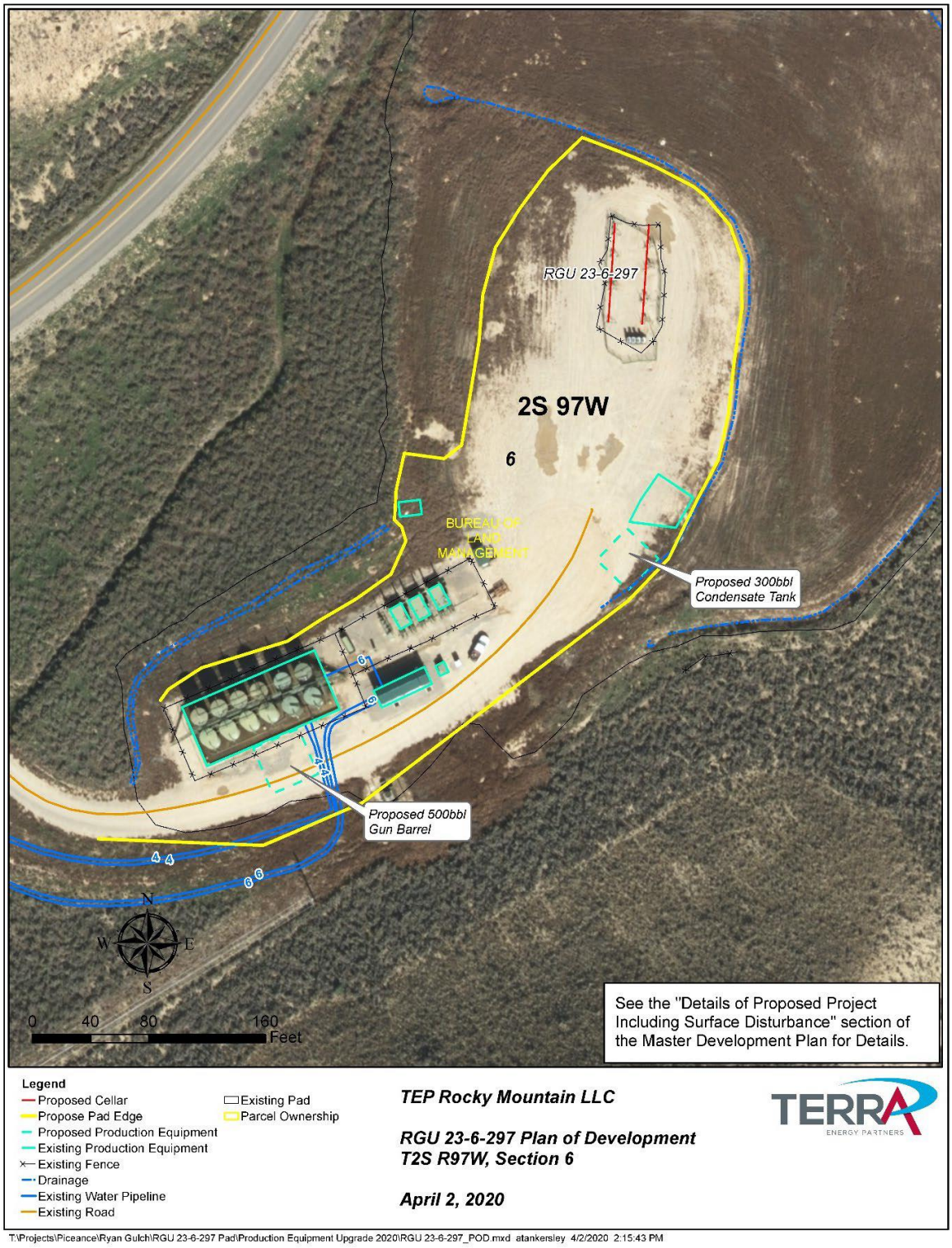


Figure 8: Dual Six-Inch Water Pipeline Jumper

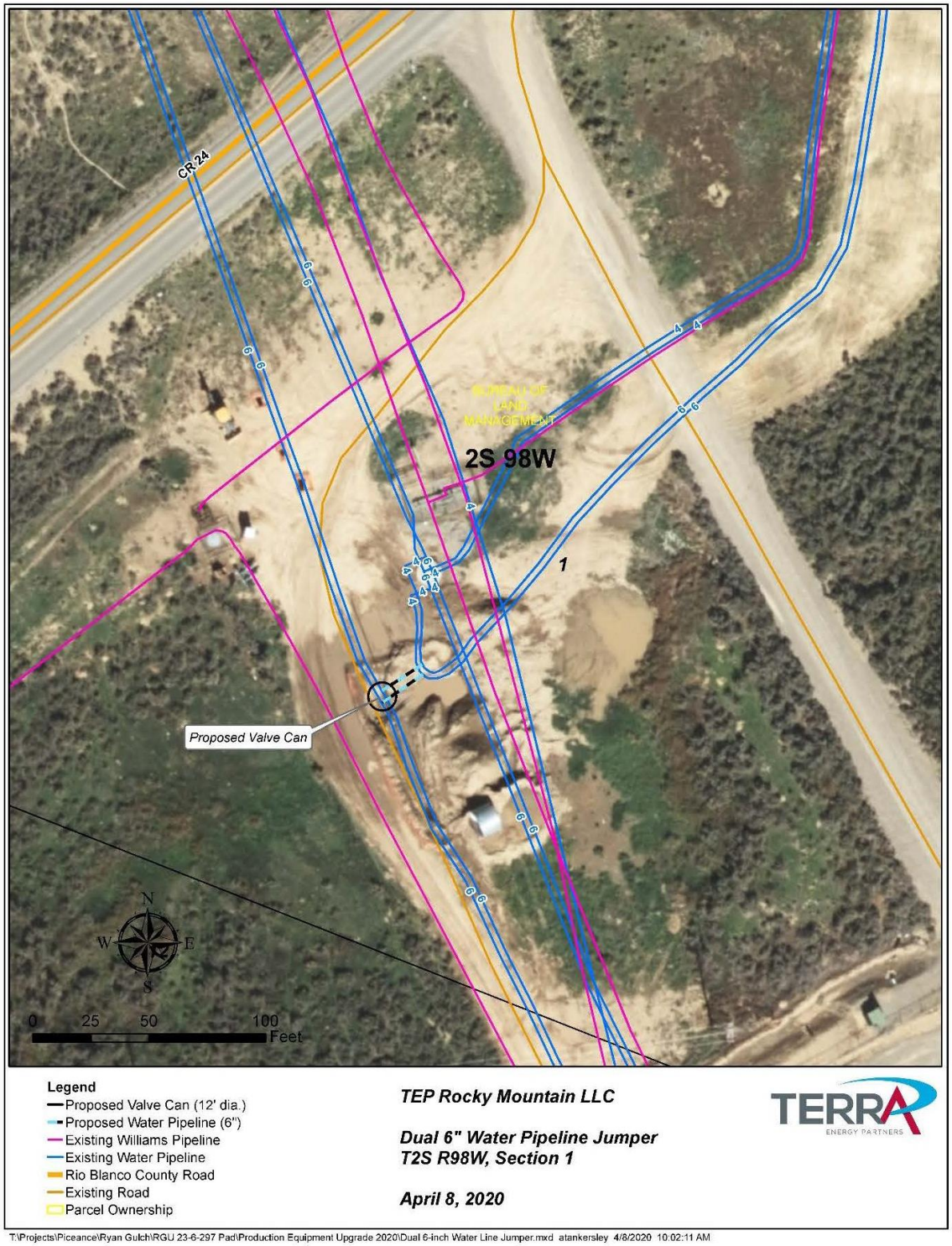


Figure 9: Location of the New Produced Water Disposal Well on the 299-23-3 Pad

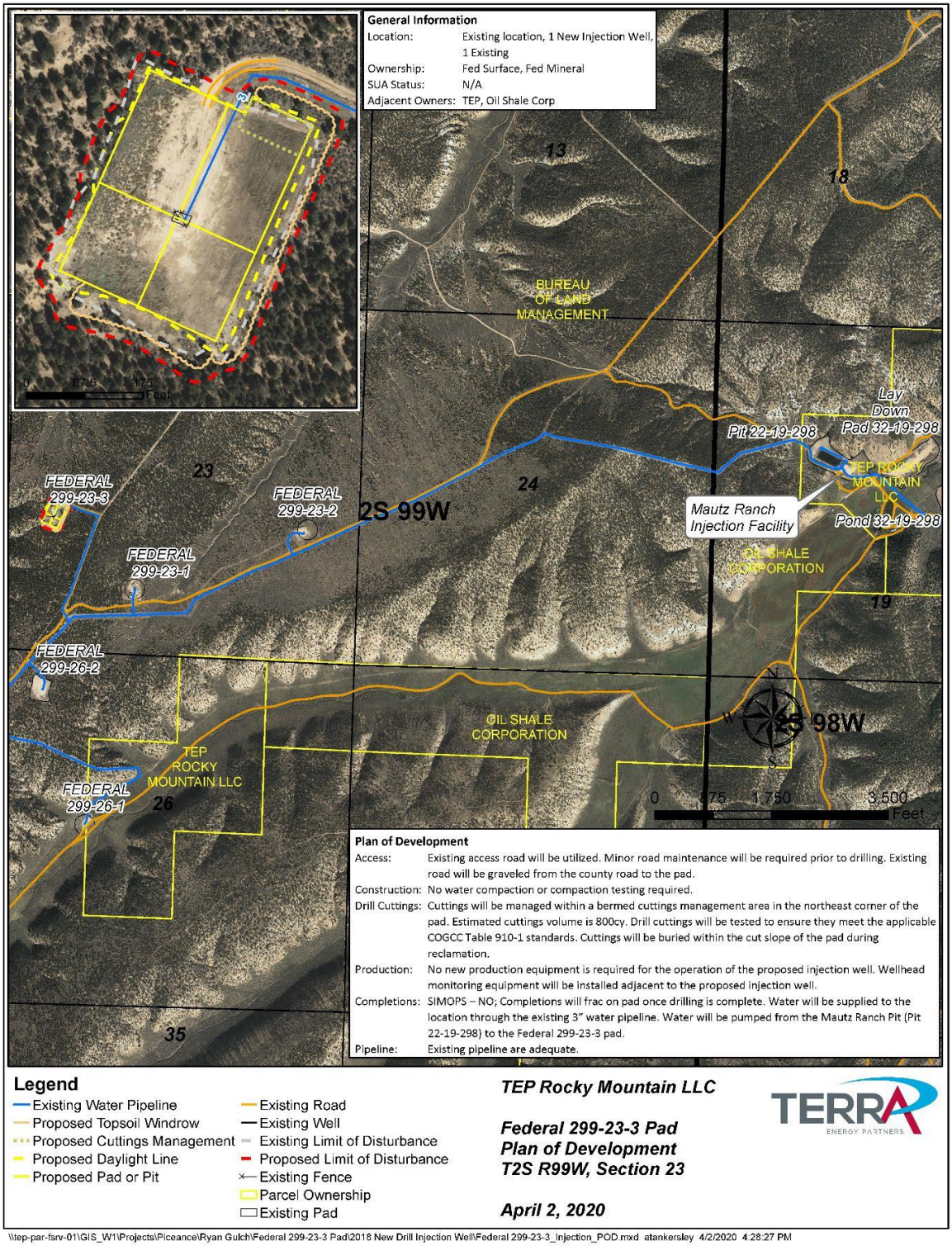


Figure 10: Pitcher's Mound Water Recycling Facility Layout

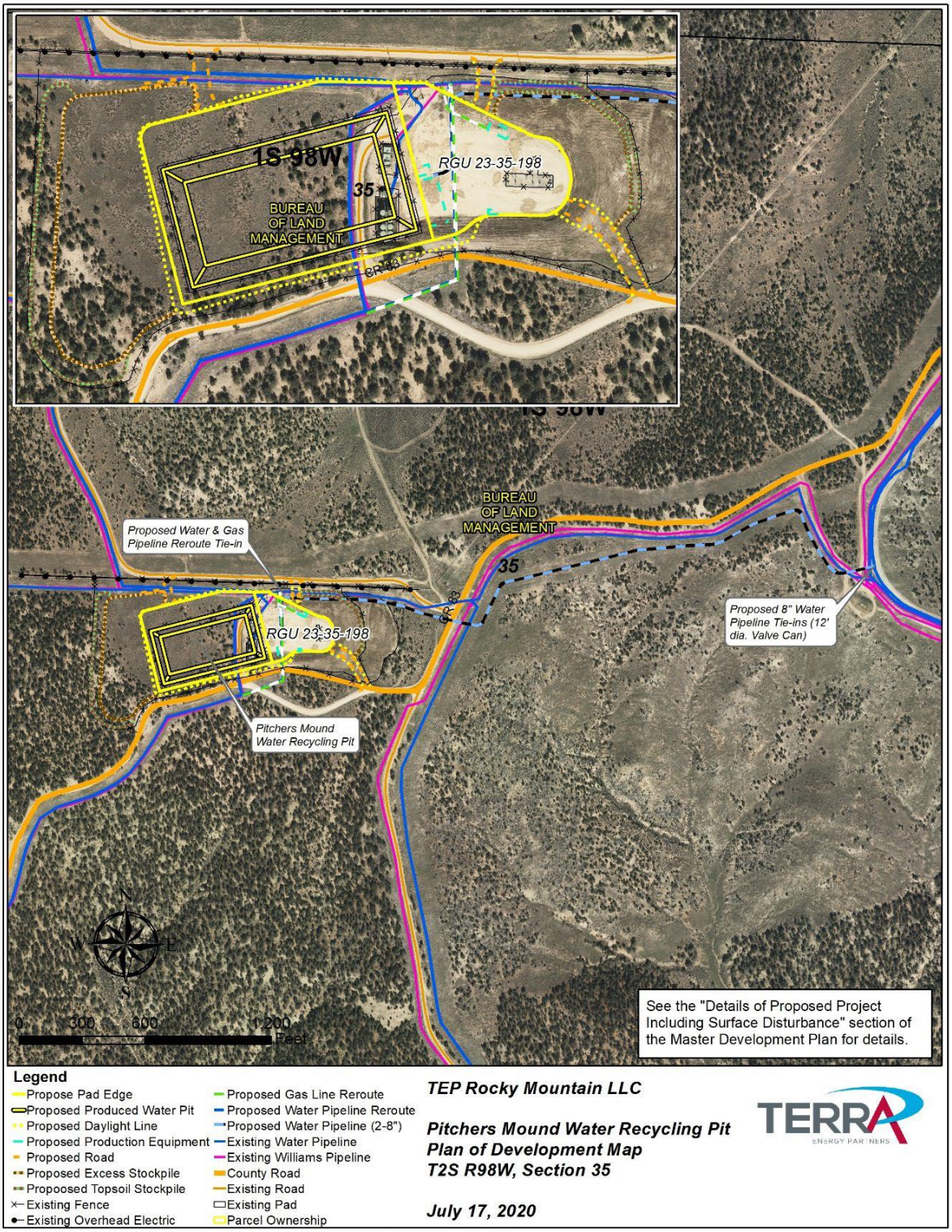
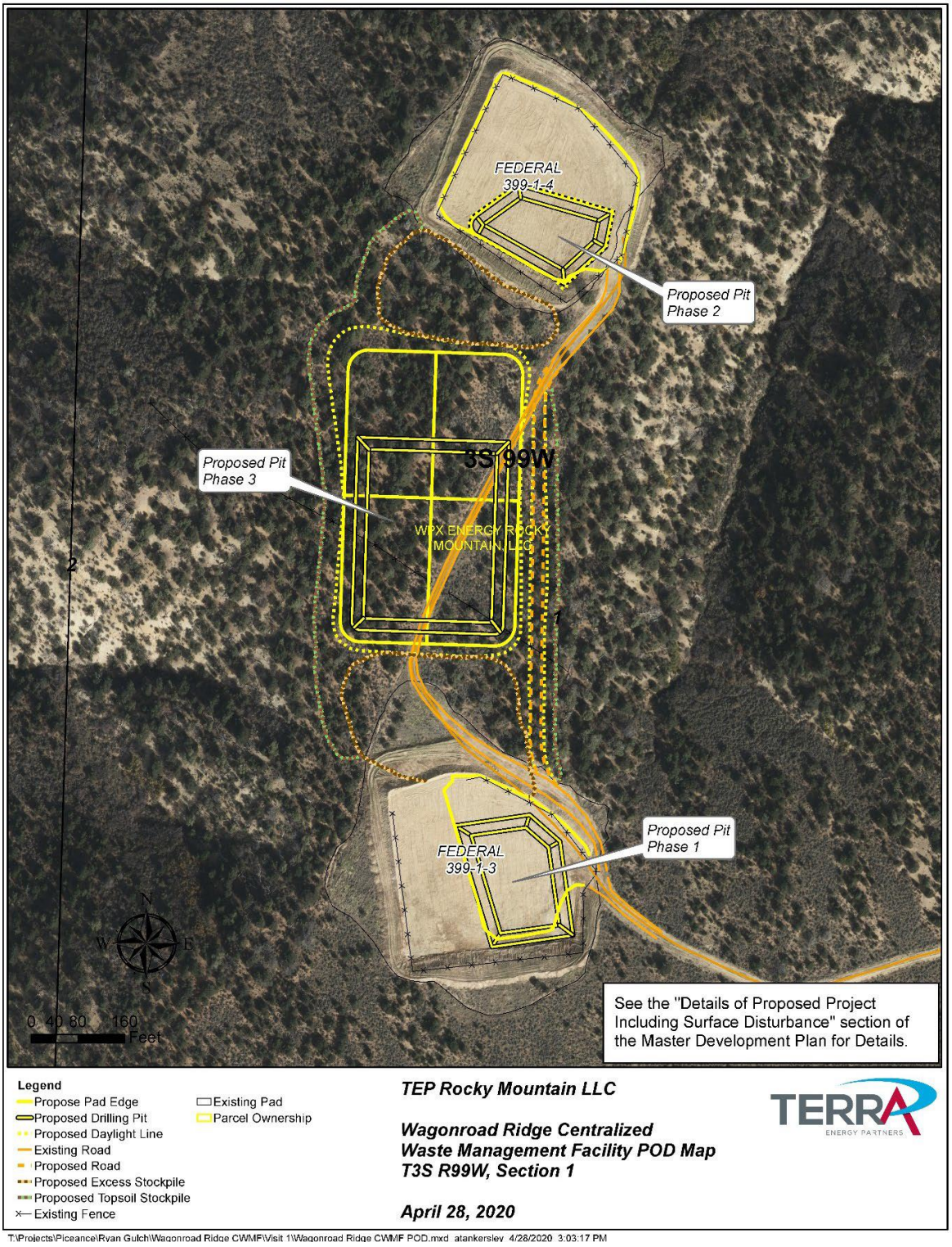


Figure 11: Wagon Road Ridge Centralized Waste Management Facility Overview Map



APPENDIX B. LEASE STIPULATIONS

Effective Date of Lease: COC 60736: 8/14/1997
COC 70220: 11/10/1994
COC 62046: 8/13/1998
COC 03453: 8/30/1951
COC 57285: 11/10/1994

Lease Stipulations: There are no specific lease notices or stipulations on lease COC 03453 since it is an older lease from 1951.

Table B-1. Stipulations and Lease Notices on the COC60736 Lease

Exhibit Number	Type of Exhibit (Stipulation or Lease Notice)	General Purpose	Applies to All or a Portion of the Lease
WR-TL-08	Timing Limitation	Big Game Severe Winter Range	Portion
WR-NSO-09	NSO	Sensitive Plants and Remnant Vegetation.	Portion

Table B-2. Stipulations and Lease Notices on the COC70220

Exhibit Number	Type of Exhibit (Stipulation or Lease Notice)	General Purpose	Applies to All or a Portion of the Lease
C	Timing Limitation	Big Game Severe Winter Range	All
C-2	CSU	Sensitive Plants and Remnant Vegetation.	All

Table B-2. Stipulations and Lease Notices on the COC62046

Exhibit Number	Type of Exhibit (Stipulation or Lease Notice)	General Purpose	Applies to All or a Portion of the Lease
WR-CSU-01	CSU	Reclamation and Storm Water	Portion
WR-NSO-06	NSO	ACEC Sensitive Plants	Portion

Table B-2. Stipulations and Lease Notices on the COC57285

Exhibit Number	Type of Exhibit (Stipulation or Lease Notice)	General Purpose	Applies to All or a Portion of the Lease
WR-TL-08	Timing Limitation	Big Game Severe Winter Range	All
Exhibit C-2	CSU	Rare and Sensitive Plants	All

APPENDIX C. TEP SUBMITTED MASTER DEVELOPMENT PLAN AND DESIGN FEATURES

The entire Surface Use Plan of Operations (SUPO) is incorporated into the Proposed Action and is available for review at the WRFO. Key items relevant to the issues associated with the Proposed Action include:

1. Construction of pads, roads, and pipelines would follow the guidelines established in the BLM Gold Book, Surface Operating Standards for Oil and Gas Exploration and Development (USDI and USDA 2007) areas of the well pad location, access road, or pipeline corridors.
2. Prior to construction, stormwater controls will be installed to ensure control of stormwater runoff and sediment migration from the site
3. Secondary tank containment is 110 percent with engineered liner at the remote frac site during completions operations. The secondary containment system will consist of an engineered liner that will be designed and constructed to be "sufficiently impervious" to contain any spilled or released fluids. In addition to installing an engineered secondary containment system, TEP will also implement an emergency contingency plan that provides specific procedures and emergency response actions to be taken in the event of a spill / release.
4. Perimeter berms, approximately 2.5-feet in height, will be constructed along the fill edge of the pad to ensure containment in the event of a release.
5. Water used for remote completions operations would be transported through existing and proposed pipelines minimizing vehicle traffic on existing roadways.
6. A closed-loop drilling system would be used during drilling.
7. Recovered drilling fluid would be stored on location in steel tanks for reuse.
8. Cuttings would be tested and remediated per Colorado Oil and Gas Conservation Commission ("COGCC") regulations
9. Any excess drill cuttings not manageable within the proposed drilling pit would be hauled to an approved third-party commercial disposal facility.
10. Water Recycling pit would be built below natural grade and synthetically lined with high density polyethylene primary and secondary liners with a leach detection and a geotextile clay (GCL) tertiary liner.
11. During permanent pipeline construction, topsoil would be segregated along one side of the pipeline corridor for later placement back onto the reclaimed ROW.
12. During pad construction, topsoil would be stripped during the initial earthwork; windrowed, where feasible, around the outer edge of the disturbance perimeter to serve as storm water diversions and catchments; and temporarily seeded until interim reclamation is scheduled.

13. Disturbance areas are not located on fragile soils and avoid steep slopes.
14. TEP will complete interim reclamation of pads.
15. Reclamation monitoring will be conducted per Appendix 3 of the 2015 White River Field Office Approved Resource Management Plan Amendment for Oil and Gas Development.
16. Drilling muds with chlorides testing more than 3,000 ppm or those containing hydrocarbons will not be used in drilling operations until after the surface casing has been set. When drilling to set the surface casing, drilling fluid will be composed only of fresh water, bentonite, and/or a benign lost circulation material
17. Surface casing will be cemented from casing shoe to surface.
18. Production casing will be cemented from casing shoe to surface casing.
19. Temporary surface pipeline would be installed over an existing bridge crossing Piceance Creek.
20. Fresh water for construction, drilling, and completions would be obtained from a permitted source.

APPENDIX D. STANDARD CONDITIONS OF APPROVAL (FEDERAL SURFACE AND SPLIT-ESTATE)

D.1. General

1. The Operator will submit a Sundry Notice a minimum of 48-hours prior to commencing construction and/or reclamation work.
2. Notify Craig Interagency Dispatch (970-826-5037) in the event of any fire.
    a. The reporting party will inform the dispatch center of fire location, size, status, smoke color, aspect, fuel type, and provide their contact information.
    b. The reporting party, or a representative of, should remain nearby, in a safe location, in order to make contact with incoming fire resources to expedite actions taken towards an appropriate management response.
    c. The applicant and contractors will not engage in any fire suppression activities outside the approved project area. Accidental ignitions caused by welding, cutting, grinding, etc. will be suppressed by the applicant only if employee safety is not endangered and if the fire can be safely contained using hand tools and portable hand pumps. If chemical fire extinguishers are used the applicant must notify incoming fire resources on extinguisher type and the location of use.
    d. Natural ignitions caused by lightning will be managed by Federal fire personnel. If a natural ignition occurs within the approved project area, the fire may be initially contained by the applicant only if employee safety is not endangered. The use of heavy equipment for fire suppression is prohibited, unless authorized by the Field Office Manager.

D.2. Wildlife

3. In the event a producing well is established, all new production equipment which has open-vent exhaust systems, such as heater treaters, separators, dehydration units, and flare stacks, will be designed and constructed to prevent birds and bats from entering or nesting in or on such units, and to the extent practical, to discourage birds from perching on the exhaust stacks.
4. The operator will prevent access to facilities that store or are expected to store fluids which may pose a risk to such birds and bats (e.g., toxicity, compromised insulation, drowning). Features that prevent access to such fluids must be in place and functional within 24 hours of installation and will remain effective until such features are removed or incapable of storing fluids. Deterrence methods may include netting or other alternative methods that effectively prevent use and that meet BLM approval. All lethal and non-lethal events that involve migratory birds will be reported to the BLM Authorized Officer immediately.

5. Open utility trenches should be inspected daily to reduce the potential for wildlife or livestock to become trapped should they fall into a trench. If an animal has fallen into the trench, the Authorized Officer will be notified immediately.

6. Water Use**.** The purpose of this COA is to assist the BLM with ensuring that water depletions associated with Federal oil and gas development activities are adequately covered by the U.S. Fish and Wildlife Service (FWS) Programmatic Biological Opinion for the four endangered Colorado River fishes.

   The Operator will provide the volumes of fresh water and reused/recycled water used during project development. The river sub-basin of origin (i.e., Colorado, Dolores, Green, Gunnison, White, and Yampa) will be identified for fresh water. The volumes per well will 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 will 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.

   For reporting the water used during construction, submit the total water used for construction with the first completion report. Completion reports submitted subsequent to the first completion report will have the water-use that was not included in the previous completion reports.

Well Name/No.:		**API No.:**	
County:		**Well Pad:**	
Operator:			
Water Source (River Sub-Basin)			

Purpose	**Water Use (barrels)**				
	Construction	**Drilling**		**Completion**	
	Fresh	**Fresh**	**Reused/ Recycled**	**Fresh**	**Reused/ Recycled**
Dust Abatement (Road/Pipeline/Pad)					
Pipeline Hydrostatic Testing					
Cementing					
Mud					
Acid Wash/ Hydraulic Fracturing					

D.3. Paleontological Resources

7. The operator/holder is responsible for informing all persons who are associated with the project operations that they will be subject to prosecution for disturbing or collecting vertebrate fossils, collecting large amounts of petrified wood (over 25lbs./day, up to 250lbs./year), or collecting fossils for commercial purposes on public lands.

8. If any paleontological resources are discovered as a result of operations under this authorization, the operator/holder or any of his agents must stop work immediately at that site, immediately contact the Authorized Officer, and make every effort to protect the site from further impacts, including looting, erosion, or other human or natural damage. Work may not resume at that location until approved by the Authorized Officer. The BLM or designated paleontologist will evaluate the discovery and take action to protect or remove the resource within 10 working days. Within 10 days, the operator will be allowed to continue construction through the site, or will be given the choice of either (a) following the Paleontology Coordinator's instructions for stabilizing the fossil resource in place and avoiding further disturbance to the fossil resource, or (b) following the Paleontology Coordinator's instructions for mitigating impacts to the fossil resource prior to continuing construction through the project area.

D.4. Cultural Resources

9. The applicant is responsible for informing all persons who are associated with the project that they will be subject to prosecution for knowingly disturbing archaeological sites or for collecting artifacts.

10. If any archaeological materials are discovered as a result of operations under this authorization, activity in the vicinity of the discovery will cease, and the BLM WRFO Archaeologist will be notified immediately. Work may not resume at that location until approved by the Authorized Officer. The applicant will make every effort to protect the site from further impacts including looting, erosion, or other human or natural damage until BLM determines a treatment approach, and the treatment is completed. Unless previously determined in treatment plans or agreements, BLM will evaluate the cultural resources and, in consultation with the State Historic Preservation Office (SHPO), select the appropriate mitigation option within 48 hours of the discovery. The applicant, under guidance of the BLM, will implement the mitigation in a timely manner. The process will be fully documented in reports, site forms, maps, drawings, and photographs. The BLM will forward documentation to the SHPO for review and concurrence.

11. Pursuant to 43 CFR 10.4(g), the applicant must notify the Authorized Officer, by telephone and written confirmation, immediately upon the discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony. Further, pursuant to 43 CFR 10.4(c) and (d), the operator must stop activities in the vicinity of the discovery and protect it for 30 days or until notified to proceed by the Authorized Officer. Colorado Statute CRS 24-80-1302 must be adhered to upon the identification of suspected human skeletal remains and associated funerary items on Colorado State and private lands. The

applicant will immediately notify the coroner of the county wherein the remains are located as well as the sheriff, police chief, or land managing agency official.

D.5. Invasive, Noxious, and Non-Native Species

12. All vehicles and construction equipment will be cleaned using compressed air or high-pressure water spraying equipment prior to use to reduce the potential for introduction of invasive, noxious weeds or other undesirable non-native species. The wash/blow down will concentrate on tracks, feet, or tires and on the undercarriage, with special emphasis on axles, frame, cross members, motor mounts, and on underneath steps, running boards, and front bumper/brush guard assemblies. Operator will dispose of solid wastes collected from the cleaning station.
13. All seed, straw, mulch, or other vegetative material to be used on BLM lands will comply with United States Department of Agriculture (USDA) state noxious weed seed requirements and must be certified by a qualified Federal, State, or county office as free of noxious weeds. Any seed lot with test results showing presence of State of Colorado A or B list species will be rejected in its entirety and a new tested lot will be used instead.
14. All sites will be monitored and treated for noxious weeds for the life of the project until Final Abandonment has been approved by the BLM. Monitoring will be conducted annually during the growing season to determine the presence of any State-listed noxious weeds. Noxious weeds that have been identified during monitoring will be promptly treated and controlled.
15. Pesticide Use Proposals (PUPs) must be submitted to and approved by the BLM before applying herbicides on BLM lands. The PUP will include target weed species, the herbicides to be used, application rates and timeframes, estimated acres to be treated, as well as maps depicting the areas to be treated and known locations of weeds. The WRFO recommends that all PUPs be submitted no later than March 1st of the year anticipating herbicide application.
16. Use of off-highway vehicles (OHVs) on federal land surface for access to weed treatment areas along the pipeline ROWs, and reclaimed roads will be considered on a case-by-case basis (provide that access is limited and will not create visible tracks) and will require prior written approval from the Authorized Officer.

D.6. Waste

17. When drilling to set the surface casing, drilling fluid will be composed only of fresh water, bentonite, and/or a benign lost circulation material that does not pose a risk of harm to human health or the environment (e.g., cedar bark, shredded cane stalks, mineral fiber and hair, mica flakes, ground and sized limestone or marble, wood, nut hulls, corncobs, or cotton hulls).
18. All substances that pose a risk of harm to human health or the environment will be stored in appropriate containers. Fluids that pose a risk of harm to human health or the environment, including but not limited to oil, condensate, and/or produced water, must be

stored in appropriate containers and in secondary containment systems at 110 percent of the largest vessel's capacity. Secondary fluid containment systems, including but not limited to tank batteries must be lined with a minimum 24 mil impermeable liner.

19. As a reasonable and prudent lessee/operator in the oil and gas industry, acting in good faith, all lessees/operators and right-of-way holders will report all emissions or releases that may pose a risk of harm to human health or the environment, regardless of a substance's status as exempt or nonexempt and regardless of fault, to the BLM WRFO by phone at 970-878-3800 or by email to BLM_CO_WR_NRS@blm.gov.
20. As a reasonable and prudent lessees/operator and/or right-of-way holder in the oil and gas industry, acting in good faith, all lessees/operators and right-of-way holders will provide for the immediate clean-up and testing of air, water (surface and/or ground) and soils contaminated by the emission or release of any substance that may pose a risk of harm to human health or the environment, regardless of that substance's status as exempt or non-exempt. Where the lessee/operator or right-of-way holder fails, refuses or neglects to provide for the immediate clean-up and testing of air, water (surface and/or ground) and soils contaminated by the emission or release of any quantity of a substance that poses a risk of harm to human health or the environment, the BLM WRFO may take measures to clean-up and test air, water (surface and/or ground) and soils at the lessee/operator's expense. Such action will not relieve the lessee/operator of any liability or responsibility.

D.7. Range Management

21. The operator must coordinate with the livestock grazing permittee authorized to graze livestock within the project area a minimum of 72 hours prior to drilling activities associated with this permit. Livestock grazing permittee contact information may be found at www.blm.gov/ras/ or by contacting the appropriate BLM Field Office. The operator will provide the grazing permittee the location, nature, and extent of the anticipated activity being completed.
22. Any range improvement projects such as fences, water developments, cattleguards, gates, or other livestock handling/distribution facilities that are damaged or destroyed either directly or indirectly as a result of implementation of the Proposed Action will be promptly repaired or replaced by the applicant to restore pre-disturbance functionality. If the operator damages any range improvement project(s) the operator will notify the Authorized Officer and identify the actions taken to repair the feature(s).

D.8. Reclamation Procedures

- ***Interim Reclamation***

23. All long-term above-ground structures will be painted and maintained [Covert Green] from the BLM "Supplemental Environmental Colors" chart to blend with the natural color of the landscape background.

24. To reduce erosion and reduce the risk of weed establishment, interim reclamation will be initiated when either there are no drilling activities expected on the pad for the next six months or there has been no activity on the pad within the last six months, regardless of whether or not there are outstanding approved APDs.

25. In order to inspect and operate the well or complete workover operations, it may be necessary to drive, park, and operate equipment on restored, interim vegetation within the previously disturbed area. Damage to soils and interim vegetation will be repaired and reclaimed following use. To prevent soil compaction, under some situations, such as the presence of moist, clay soils, the vegetation and topsoil will be removed prior to workover operations and restored and reclaimed following workover operations.

- ***Final Reclamation***

26. Final abandonment of pipelines and flow lines will involve flushing, capping, and properly disposing of any fluids in the lines. All surface lines and any lines that are buried close to the surface that may become exposed in the foreseeable future due to water or wind erosion, soil movement, or anticipated subsequent use, must be removed. Deeply buried lines may remain in place unless otherwise directed by the Authorized Officer.

- ***Monitoring and Final Abandonment Approval***

27. All seed tags will be submitted via Sundry Notice (SN)/letter to the designated Natural Resource Specialist/Realty Specialist within 14 calendar days from the time the seeding activities have ended. The SN/letter will include the purpose of the seeding activity (i.e., seeding well pad, cut and fill slopes, seeding pipeline corridor, etc.). In addition, the SN/letter will include the pipeline, well(s) or well pad number associated with the seeding activity, if applicable, the name of the contractor that performed the work, his/her phone number, the method used to apply the seed (e.g., broadcast, hydro-seeded, drilled), whether the seeding activity represents interim or final reclamation, the total acres seeded, an attached map that clearly identifies all disturbed areas that were seeded, and the date the seed was applied.

28. Each year by January 1st, Terra Energy Partners (TEP) will submit a Reclamation Status Report to the WRFO via the most current BLM approved data management system that includes the pipeline name and/or well number, API number, legal description, UTM coordinates, project description (e.g., well pad, pipeline, etc.), reclamation status (e.g., interim or final), whether the well pad and/or pipeline has been re-vegetated and/or re-contoured, date seeded, photos of the reclaimed site, acres seeded, seeding method (e.g., broadcast, drilled, hydro-seeded, etc.), and contact information for the person responsible for developing the report. The report will include maps showing each point (), polygon (e.g., well pad), and/or polyline (e.g., road, pipeline) feature that was included in the report. The data must be submitted in UTM Zone 13N, NAD 83, in units of meters. In addition, scanned copies of seed tags that accompanied the seed bags will be included with the report. Internal and external review of the WRFO Reclamation Status Report and

the process used to acquire the necessary information will be conducted annually, and new information or changes in the reporting process will be incorporated into the report.

29. The operator will be responsible for ensuring that all disturbance GIS and reclamation data will be submitted via White River Data Management System (WRDMS) which can be accessed at https://my.usgs.gov/wrfo/

D.1. Reclamation Performance Standards

▪ *Interim Reclamation Standard*

30. Disturbed areas not needed for long-term production operations or vehicle travel have been recontoured, protected from erosion, and revegetated with a self-sustaining, vigorous, diverse, native (or otherwise approved) plant community sufficient to minimize visual impacts, provide forage, stabilize soils, and impede the invasion of noxious weeds.

▪ *Final Reclamation Standard*

31. The operator must meet the following reclamation success criteria, and these standards apply to both interim and final reclamation:
    a. Self-sustaining desirable vegetative groundcover consistent with the site Desired Plant Community (DPC) (as defined by the range site, WRFO Assessment, Inventory, and Monitoring (AIM) protocol site data (BLM TN 440), ecological site or an associated approved reference site) is adequately established, as described below, on disturbed surfaces to stabilize soils through the life of the project.
    b. Vegetation with 80 percent similarity of desired foliar cover, bare ground, and shrub and/or forb density in relation to the identified DPC. Vegetative cover values for woodland or shrubland sites are based on the capability of those sites in an herbaceous state.
    c. The resulting plant community must have composition of at least five desirable plant species, and no one species may exceed 70 percent relative cover to ensure that site species diversity is achieved. Desirable species may include native species from the surrounding site, species listed in the range/ecological site description, AIM data, reference site, or species from the BLM approved seed mix. If non-prescribed or unauthorized plant species (e.g., yellow sweetclover, *Melilotus officinalis*) appear in the reclamation site, BLM may require their removal.
    d. Bare ground does not exceed the AIM data, range site description, or if not described, bare ground will not exceed that of a representative undisturbed DPC meeting the Colorado Public Land Health Standards.
    e. Reclamation sites affected by cheat grass and or other invasive annuals will be qualified based on the condition of the site (i.e., the relative vegetative cover) prior to disturbance.
        i. If the Project site contains less than 25 percent relative cover of undesirable species, interim and final reclamation will be considered

acceptable when relative cover of undesirable species on the project site does not exceed 5percent.

ii. If the project site contains 25 percent to 50 percent relative cover of undesirable species, interim and final reclamation will be considered acceptable when relative cover to of undesirable species on the project site does not exceed 10 percent.

iii. If the project site contains more than 50 percent relative cover of undesirable species on the project site does not exceed the level defined by site-specific criteria established in the reclamation plan for that site.

D.9. Right-of-Way (Grant)

32. The holder will notify the authorized officer at least 60 days prior to non-emergency activities that would cause surface disturbance in the right-of-way. A "Notice to Proceed" will be required prior to any non-emergency activities that would cause surface disturbance on the right-of-way. Any request for a "Notice to Proceed" must be made to the authorized officer, who will review the Proposed Action for consistency with resource management concerns such as wildlife, big game winter range, paleontology, special status species, and cultural resource protection. The authorized officer may require the completion of special status species surveys or other resource surveys. Additional measures may be required to protect special status species or other resources.

33. At least 90 days prior to termination of the right-of-way, the holder will contact the Authorized Officer to arrange a joint inspection of the right-of-way. The inspection will result in the development of an acceptable termination and rehabilitation plan submitted by the holder. This plan will include, but is not limited to, removal of facilities, drainage structures, and surface material; recontouring; topsoiling; or seeding. The Authorized Officer must approve the plan in writing prior to the holder’s commencement of any termination activities.

34. Provide the Authorized Officer with Geographic Information System (GIS) data to accurately locate and identify the well pad, access road, pipeline and all constructed infrastructure (as-built) within 60 days of construction completion. Acceptable data formats are: (1) corrected global positioning system (GPS) files with sub-meter accuracy or better or, (2) ESRI shapefiles or geodatabases. Option 2 is preferred. Data must be submitted in NAD83. Data may be submitted as: (1) an email attachment: or (2) on a standard CD in compressed or uncompressed format. All data will include metadata, for each submitted layer, that conforms to the Content Standards for Digital Geospatial Metadata from the Federal Geographic Data Committee standards.

35. The Holder will indemnify the United States for any and all injury, loss or damage to life or property, including fire suppression costs, the United States may suffer as a result of losses, claims, demands or judgments caused by Holder’s use or occupancy of public lands under this grant or permit.

36. The Authorized Officer may suspend or terminate in whole, or in part, any notice to proceed which has been issued when, in his or her judgment, conditions arise which result in the approved terms and conditions being inadequate to protect the public health and safety or to protect the environment.
37. Holder shall maintain the ROW in a safe, usable condition.
38. As provided in 43 CFR 2807.12(b)(1)-(5), the Holder will be strictly liable for any activity or facility associated with your ROW area which the BLM determines presents a foreseeable hazard or risk of damage or injury to the United States. BLM has determined that the permitted/authorized activity or facility (natural gas pipelines and power lines) presents a foreseeable hazard or risk of damage and has also determined that the financial limitation of strict liability in this grant is $2,709,000 for any one incident. This strict liability amount is updated annually by BLM pursuant to 43 CFR 2807.12(b)(3) and 2886.13(b)(3).
39. When performing construction and maintenance (including emergency repairs) activities during the "closed" fire season (May 10 – October 20), as set by Colorado State Law, or during any other closed fire season prescribed by the BLM Colorado State Director, the Holder, including any persons such as contractors, etc. working on their behalf, shall equip at least one on-site vehicle with firefighting equipment, including, but not limited to, fire suppression hand tools (i.e. shovels, rakes, Pulaski's, etc.), a 16-20 pound fire extinguisher, and a sufficient supply of water for initial attack, with a mechanism to effectively spray the water (i.e. backpack pumps, water sprayer, etc.).
40. During conditions of extreme fire danger or when the State of Colorado and/or the BLM Colorado State Director issues a fire restriction order, operations shall be limited or suspended in specific areas, or additional mitigation measures may be required by the BLM Authorized Officer.
41. In accordance with 43 CFR 2805.12(d) (or subsequent revisions), the Holder shall do everything reasonable to prevent fires on or in the immediate vicinity of the ROW. The Holder will immediately report fires to the BLM Authorized Officer or local fire dispatch (970-826-5037) and take all necessary fire suppression actions, when safe to do so, with their personnel and equipment on any fires they cause to ignite.
42. Holder shall maintain the condition of the origin area of the fire from further damage to enable the Fire Investigator to properly assess the origin area and cause of the fire. The Holder shall report to the Fire Investigator or BLM Incident Commander and shall not enter into the origin area on fires unless given permission to do so.
43. The Holder will cooperate with the BLM in its efforts to investigate, suppress and respond to all future fires. The duty to "cooperate" includes, but is not limited to, the following duties regardless of whether BLM is on the scene:
    a. The duty to provide the BLM (Authorized Officer or local fire dispatch (970-826-5037) with reasonable and timely notice concerning all fires involving the Holder's facilities or discovered during routine operations.

b. The duty to share factual information with the BLM concerning fires, including but not limited to the names of Holder's employees and/or contractors with knowledge of the incident; and to allow employees and/or contractors to be interviewed by BLM's investigators regarding factual information relating to a fire.

c. It is the duty of the Holder to preserve the point of ignition, fire scene and reasonably account to the BLM for Holders actions taken at the scene of a fire.

d. The duty to minimize disturbance of potential evidence located at the scene; to not engage in any evidence collection or destructive testing without BLM and or its counsel's express written consent; to properly handle and preserve any evidence collected and to make all documents and evidence, including expert reports, available to the BLM in a rapid and timely manner upon request of BLM and/or its counsel.

e. The duty to not hamper the BLM investigation of origin and cause of the fire; and to reasonably assist BLM's investigation at the scene.

f. The duty to provide information upon request of BLM and/or its counsel concerning the construction, monitoring, inspection, maintenance and/or repairs of any of Holder's facilities located at or adjacent to a fire.

g. The duty to provide information upon request of BLM and/or its counsel concerning the monitoring, inspection, and or alteration by Holder of any condition on public land, including but not limited to, public land adjacent to any of the Holder's facilities.

h. The duty, during BLM fire suppression efforts: to defer to and follow the instructions of the BLM's Incident Commander regarding activities within the boundaries of the fire and checking in and out of the fire; and to recognize BLM's primary authority over the incident scene.

APPENDIX E. SITE SPECIFIC MITIGATION

1. Any excavations into the underlying sedimentary rock formation must be monitored by a permitted paleontologist. The monitoring paleontologist must be present before the start of excavations that may impact the underlying rock.
2. Installation and removal of the surface pipeline from the RGU 23-7-297 well pad to Love Ranch CWMF and the XTO Fresh Water Pond within 300 meters of threatened plants will occur after the active blooming period (mid-April to June 30th) for Dudley Bluffs twinpod.
3. Personnel and activities associated with the construction of the Proposed Action will be confined to the permitted surface pipeline right-of-way (ROW). The minimum amount of construction equipment needed to safely install the surface pipeline along the slope from Love Ranch CWMF to the ridgetop would be used.
4. The construction contractor will perform dust suppression and dust monitoring during project construction activities. If winds or project construction equipment are creating large plumes of dust, dust suppression will be implemented. Dust suppression will be achieved with freshwater. There should be no traces of oil or solvents in the water and it should be properly permitted for this use by the State of Colorado.
5. T-posts would be installed, approximately every 10-feet, along both sides of the surface pipeline for the portion of the pipeline that will be placed along the hillside from the Love Ranch CWMF to the top of the ridge, in order to reduce lateral movement of the pipeline.
6. For future major planned construction and maintenance activities along the approved ROW that would cause surface disturbance within 300 meters of occupied or suitable special status plant habitat, resurveys for *Physaria* spp. must be conducted prior to disturbance. If such areas have not been surveyed in the last three years (most current survey is 2020) during the bloom period, surveys would be conducted in suitable and occupied habitat within the full extent of the planned construction footprint.
7. All construction equipment and vehicles associated with the Proposed Action that may act as a vector for weeds will be cleaned with compressed air before entering the Project Area.
8. If non-native or invasive species are found, TEP will treat the infestations using the White River Field Office Integrated Weed Management Plan (IWMP) (DOI-BLM-CO-110-2010-0005-EA and DOI-BLM-CO-110-2016-0069EA) as a compliance guideline. The individual plants and/or larger infestations will be recorded on a GPS unit to notify the BLM in addition to flagging, as stated in the IWMP.
9. A valid BLM Pesticide Use Proposal (PUP) must be held by either the proponent or by a Third-Party contractor acting on the behalf of the proponent. The valid PUP must be attained prior to spraying.

a. The PUP application will be submitted via email and/or mail to the designated White River BLM Field Office Invasive Non-Native Weed Specialist. The PUP will include target weed species, the herbicides to be used, application rates and timeframes, estimated acres to be treated, as well as maps depicting the areas to be treated and known locations of weeds.

b. All general PUP applications must be submitted no later than February 1st of the year anticipating herbicide application.

c. PUP applications must be approved by the BLM and a valid PUP number must be received by the operator before applying herbicides on BLM lands.

10. Only ground (spot) treatment using backpack sprayers will be permitted within 600 meters of *P. obcordata*; beyond 600 meters from these threatened plants, other applicators may be used with the exception of aerial herbicide applicators, which will not be permitted in any part of the project area.

    a. Appropriate adjuvants such as non-ionic surfactants or methylated seed oil (MSO) will be used with each herbicide as necessary.

    b. Indicator dyes will be used with all herbicide.

    c. No spraying of weeds will occur outside the project footprint area.

    d. Proponent may use the Pesticide Use Proposal (PUP) and Certified Pesticide Applicator (CPA) already held by Proponent. The CPA, as directed by Proponent, must use the herbicides in Table 2 at the lowest rate needed, and always with an indicator dye, and appropriate spray adjuvant.

    e. The weed technicians working under the CPA license must be able to correctly identify *P. obcordata* when they are implementing their control measures.

    f. Technicians will control weed species before they flower and set seed.

Table E-1. Herbicides pending approval for use within 5 meters to 600 meters of *P. obcordata*, and their conventional buffer widths.

Active Ingredient	**Buffer Width (feet)**	**Application Rate**
Chlorsulfuron	1200	No more than 1oz. per acre
Clopyralid	900	No more than 0.375 lbs (1 pint of transline) per acre
Glyphosate	50	No more than 2.25 lbs of the acid glyphosate per acre (3 qts of Roundup pro)
Imazapic	25	No more than 6 oz. per acre
Metsulfuron Methyl	900	No more than 1 oz. per acre

11. All disturbed areas (interim reclamation) on well pad RG 41-18-297 will be promptly (at the first appropriate seeding window between September 1 and March 15) seeded with recommended modified BLM Native Seed Mix #3 (Table E-2). The elevation and

vegetation community for this location is: pinyon/juniper woodland with an elevation of 6638 It is recommended that this site be seeded in accordance with the WRFO Surface Reclamation Plan (Appendix 3 of the WRFO RMPA ROD). If an alternate date of seeding is requested, contact the designated Natural Resource Specialist/Realty Specialist prior to seeding for approval. Seed mixture rates are Pure Live Seed (PLS) pounds per acre. Drill seeding is the preferred method of application and drill seeding depth shall be no greater than ½ inch. If drill seeding cannot be accomplished, seed should be broadcast at double the rate used for drill seeding and harrowed or raked into the soil. Final reclamation of the well pad and associated access road will be completed using the reclamation practices and seed mixes recommended at that time.

Table E2. Recommended Modified BLM Native Seed Mix #3 for Reclamation on RG 41-18-297.

Seed Mix	Cultivar	Common Name	Scientific Name	Application Rate (lbs. PLS/acre)
3	Whitmar	Bluebunch Wheatgrass	*Pseudoroegneria spicata ssp. inermis*	3.5
	Rimrock	Indian Ricegrass	*Achnatherum hymenoides*	4
		Needle and Thread Grass	*Hesperostipa comata ssp. comata*	3.5
	Maple Grove	Lewis Flax	*Linum lewisii*	1
		Scarlet Globemallow	*Sphaeralcea coccinea*	1
		Sulphur Flower Buckwheat	*Eriogonum umbellatum*	1.5

12. Avoid direct discharge of pipeline hydrostatic test water to any reservoir, lake, wetland, or natural perennial or seasonally flowing stream or river.
13. Avoid dust suppression activities within 300 feet of the ordinary high-water mark of any reservoir, lake, wetland, or natural perennial or seasonally flowing stream or river.
14. Screen all pump intakes with ¼ inch or finer mesh material.
15. Disinfect heavy equipment, hand tools, boots and any other equipment that was previously used in a river, stream, lake, pond, or wetland prior to moving the equipment to another water body. The disinfection practice should follow this outline:
    a. Remove all mud and debris from equipment and spray/soak equipment with a 1:15 solution of disinfection solution containing the following ingredients:
        i. Dialkyl dimethyl ammonium chloride, 5-10% by weight;
        ii. Alkyl dimethyl benzyl ammonium chloride, 5-10% by weight;
        iii. Nonyl phenol ethoxylate, 5-10% by weight;
        iv. Sodium sesquicarbonate, 1-5%;

v. Ethyl alcohol, 1-5%; and

vi. Tetrasodium ethylene diaminetetraacetate, 1-5%;

vii. and water, keeping the equipment moist for at least 10 minutes and managing rinsate as a solid waste in accordance with local, county, state, or federal regulations; or

b. Spray/soak equipment with water greater than 140 degrees Fahrenheit for at least 10 minutes.

c. Sanitize water suction hoses and water transportation tanks (using methods described above) and discard rinse water at an appropriately permitted disposal facility.

16. W-TL-15: Surface-disturbing and disruptive activities (including, but not limited to construction, drilling, and completions) will not be allowed within 0.25 miles of active nest sites of those raptors that are not considered special-status during the period from nest territory establishment to dispersal of young from nest (from February 1 through August 1).

    Exception: An exception to the TL can be granted if an environmental analysis of the proposed action indicates that nature or conduct of the activity could be conditioned so as not to interfere with adult attendance and visitation of the nest site, jeopardize survival of the eggs or nestlings, or otherwise impair the utility of nest for current or subsequent nesting activity or occupancy. The Authorized Officer may also grant an exception if the nest is unattended or remains unoccupied by May 15 of the project year. An exception may be granted to these dates by the Authorized Officer, consistent with policies derived from federal administration of the Migratory Bird Treaty Act.

    a. WR-TL-15: Surface-disturbing and disruptive activities (including, but not limited to construction, drilling, and completions) will not be allowed within 0.25 miles of active nest sites of those raptors that are not considered special-status during the period from nest territory establishment to dispersal of young from nest (from February 1 through August 1). The current survey is valid until June 1, 2022.

    b. WR-TL-15: No active nests were located near the location and an exception to this stipulation is granted until June 1, 2022, at which time the timing limitation will be applied or a new biological survey must be conducted to consider another Exception to the TL.

Location	**Active/Inactive-WR-TL-15**
RG 41-18-297 Pad	b. Inactive nest, exception to TL granted while surveys are valid (until June 1, 2022)
RGU 23-7-297 Pad	a. Active nest, TL applied

RGU 44-1-297 Pad	b. Inactive nest, exception to TL granted while surveys are valid (until June 1, 2022)
RGU 23-6-297 Pad	a. Inactive nest, exception to TL granted while surveys are valid (until June 1, 2022)
Pitcher's Mound Pit	b. Inactive nest, exception to TL granted while surveys are valid (until June 1, 2022)
RG 33-22-299 Injection Pad	a. Active nest, TL applied
RG 41-18-297 *surface pipeline in T2S, R97W, Sec.7 & 8*	a. Active nest, TL applied

17. The following COA applies to Pitcher's Mound Pit location:

    Avoid or minimize the disruption of migratory bird nesting activity by scheduling or prioritizing vegetation clearing, facility construction, and concentrated operational activities (e.g., drilling, completion, utility installation) to avoid nesting habitats during the core migratory bird nesting season from May 15 to July 15.

18. The following COA applies to RG 41-18-297, RGU 23-7-297, RGU 44-1-297, RGU 23-6-297, Pitcher's Mound Pit, and all associated pipelines:

    WR-TL-12: No surface disturbing activities (including construction, drilling, completion, and intensive maintenance activities) from December 1 through April 30 would be permitted in order to reduce the disturbance of big game animals on severe winter range. Exceptions and modifications to this Condition of Approval may be considered as expressed in WR-TL-12 in the WRFO Oil and Gas RMPA ROD (2015) for drilling and completion activities; *construction activities should be scheduled outside the timing limitation.*

19. The following COA applies to RG 33-22-299 (injection well pad):

    WR-TL-14: No surface disturbing activities (including construction, drilling, completion, and intensive maintenance activities) from February 1 through March 30 would be permitted in order to reduce the disturbance of big game animals on winter range and winter concentration areas. Exceptions and modifications to this Condition of Approval may be considered as expressed in WR-TL-14 in the WRFO Oil and Gas RMPA ROD (2015) for drilling and completion activities; *construction activities should be scheduled outside the timing limitation.*

20. In accordance with the 1997 White River RMP/ROD, all trees removed in the process of construction shall be purchased from the BLM. Trees should first be used in reclamation efforts and then any excess material made available for firewood or other uses.

a. Woody materials required for reclamation shall be removed in whole with limbs intact and shall be stockpiled along the margins of the authorized use area separate from the topsoil piles. Once the disturbance has been recontoured and reseeded, stockpiled woody material shall be scattered across the reclaimed area where the material originated. Redistribution of woody debris will not exceed 20 percent ground cover. Limbed material shall be scattered across reclaimed areas in a manner that avoids the development of a mulch layer that suppresses growth or reproduction of desirable vegetation. Woody material will be distributed in such a way to avoid large concentrations of heavy fuels and to effectively deter vehicle use. Woody materials that are to be stockpiled along margins and not used in the topsoil should not exceed pile dimensions of 8 x 8 x 8 feet. Materials used in the stockpiles should be a variety of diameters but should be no smaller than 6 inches in diameter. Additionally, the piles should be no less than 30 feet apart.

b. Trees that must be removed for construction and are not required for reclamation shall be cut down to a stump height of 6 inches or less prior to other heavy equipment operation. These trees shall be cut in four-foot lengths (down to 4 inches diameter) and placed in manageable stacks immediately adjacent to a public road to facilitate removal for company use or removal by the public.