

State of Colorado
Oil and Gas Conservation Commission

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CUMULATIVE IMPACTS DATA IDENTIFICATION

Per Rule 303, this form and all required components and attachments will be submitted for any Oil and Gas Development Plan.

Form Type: ☒ OGD ☐ Partial 2B - Rule 803.b.(2).A UIC Conversion

OPERATOR INFORMATION

OGCC Operator Number: 96850

Name of Operator: TEP ROCKY MOUNTAIN LLC

Address: 1058 COUNTY ROAD 215

City: PARACHUTE State: CO Zip: 81635

Contact Name and Telephone:

Name: Jeff Kirtland

Phone: (970) 263-2736

Email: jkirtland@terraep.com

OIL & GAS DEVELOPMENT PLAN INFORMATION

Oil & Gas Development Plan Name: Ryan Gulch Phase 3

Oil & Gas Development Plan Docket #:

Oil & Gas Development Plan ID #:

Docket Number

221200375

Data not required

☐ This OGD is included in a Comprehensive Area Plan. CAP ID #: _____

OIL & GAS LOCATION DATA

1 Oil & Gas Location Name: RGU

Number: 23-6-297

Status: Proposed

OIL & GAS LOCATION INFORMATION

Form 2A Doc#: 402932511

Loc ID#: 335602

Oil & Gas Location: QTRQTR: NESW Sec: 6 Twp: 2S Rng: 97W Meridian: 6

Total number of wells planned: 16

Operations Duration

Estimated total number of weeks to construct this Oil & Gas Location: 9

Estimated total number of weeks to drill all planned wells for this Oil & Gas Location: 24

Number of planned drilling occupations to drill all planned wells for this Oil & Gas Location: 1

Estimated total number of weeks to complete all planned wells for this Oil & Gas Location: 28

Number of planned completions occupations to complete all planned wells for this Oil & Gas Location: 1

Will there be simultaneous drilling and completions operations occurring at this Oil & Gas Location? Yes

Estimated total number of months the Oil & Gas Location will be active, prior to abandonment and reclamation: 360

Noise Impacts

Provide a qualitative evaluation of the incremental adverse noise impacts to the surrounding receptors during the pre-production activities at this Oil & Gas Location.

Pre-production (short-term) activities are typically shorter in nature and emit a higher noise level than long-term production operations. Noise from these activities could have impacts on surrounding receptors if located within close proximity of the proposed WPS of the well pads. No residential or other building units are located within 1 mile of the Ryan Gulch Phase 3 OGD. Because no residential or other building units are present within 1 mile, it is unlikely for noise generated during pre-production or production operations to adversely impact members of the public.

TEP reviewed HPH within 1 mile of Federal RGU 23-6-297 well pad. The well pad is located within Mule Deer Severe Winter Range and Mule Deer Winter Concentration Area HPH. TEP is proposing to begin construction operations for the well pad in September of 2023 outside of the winter timing limitation for mule deer; however, planned drilling and completions operations are scheduled within the winter timing limitation. The pad is located in close proximity to existing oil and gas operations and adjacent to Blanco County Road 24. Because the pad is in close proximity to existing facilities and existing public roads, impacts to mule deer would be minimal. TEP will be paying a habitat mitigation fee to CPW to offset impacts to mule deer due to direct and indirect impacts associated with development activities, including winter operations. Based on this evaluation it is unlikely for noise during pre-production operations to adversely affect wildlife resources. All HPH boundaries within 1 mile of the WPS are shown on the Wildlife Habitat Drawing included in the Form 2A for the Federal RGU 23-6-297 well pad. TEP met with CPW to discuss potential impacts from noise during operations on the Federal RGU 23-6-297 well pad. CPW informed TEP that noise impacts are not anticipated for the oil and gas location.

Provide a qualitative evaluation of the incremental adverse noise impacts to the surrounding receptors during the production stage of this Oil & Gas Location.

No residential or other building units are located within 1 mile of the Ryan Gulch Phase 3 OGD. Because no residential or other building units are present within 1 mile, it is unlikely for noise generated during pre-production or production operations to adversely impact members of the public (see Cultural Distance Map – Form 2A for the Federal RGU 23-6-297 well pad).

TEP reviewed HPH within 1 mile of Federal RGU 23-6-297 well pad. The well pad is located within Mule Deer Severe Winter Range and Mule Deer Winter Concentration Area HPH. TEP is proposing to begin construction operations for the well pad in September of 2023 outside of the winter timing limitation for mule deer; however, planned drilling and completions operations are scheduled within the winter timing limitation. The pad is located in close proximity to existing oil and gas operations and adjacent to Blanco County Road 24. Because the pad is in close proximity to existing facilities and existing public roads, impacts to mule deer would be minimal. TEP will be paying a habitat mitigation fee to CPW to offset impacts to mule deer due to direct and indirect impacts associated with development activities, including winter operations. Based on this evaluation it is unlikely for noise during pre-production operations to adversely affect wildlife resources. All HPH boundaries within 1 mile of the WPS are shown on the Wildlife Habitat Drawing included in the Form 2A for the Federal RGU 23-6-297 well pad. TEP met with CPW to discuss potential impacts from noise during operations on the Federal RGU 23-6-297 well pad. CPW informed TEP that noise impacts are not anticipated for the oil and gas location.

Adverse cumulative noise impacts to members of the public and wildlife are not expected given that noise impacts from the project are expected to be nonexistent or minimal.

Light Impacts

Provide a qualitative evaluation of the incremental adverse light impacts to the surrounding receptors during the pre-production activities at this Oil & Gas Location.

Pre-production activities are typically shorter in nature and require sufficient lighting to ensure the safety of employees and contractors. All lighting used during the pre-production phase of development would be directed downward and inward towards operation to minimize light pollution in the vicinity of the location. Lighting from these activities could have minimal impacts on surrounding receptors if located within close proximity of the proposed WPS of each well pad. No residential or other building units are located within 1 mile of the Ryan Gulch Phase 3 OGD.

Because no residential or other building units are present within 1 mile of the well pad, it is unlikely for light generated during pre-production operations to adversely impact members of the public (see Cultural Distance Map – Form 2A for the Federal RGU 23-6-297 well pad).

TEP reviewed HPH within 1 mile of Federal RGU 23-6-297 pad. The well pad is located within Mule Deer Severe Winter Range and Mule Deer Winter Concentration Area HPH. TEP is proposing to begin construction operations for the well pad in September of 2023 outside of the winter timing limitation for mule deer; however, planned drilling and completions operations are scheduled within the winter timing limitation. The pad is located in close proximity to existing oil and gas operations and adjacent to Blanco County Road 24. Because the pad is in close proximity to existing facilities and existing public roads, impacts to mule deer would be minimal. TEP will be paying a habitat mitigation fee to CPW to offset impacts to mule deer due to direct and indirect impacts associated with development activities, including winter operations. Based on this evaluation it is unlikely for noise during pre-production operations to adversely affect wildlife resources. All HPH boundaries within 1 mile of the WPS are shown on the Wildlife Habitat Drawings included in the Form 2A for the Federal RGU 23-6-297 well pad. TEP met with CPW to discuss potential impacts from light during pre-production operations on the Federal RGU 23-6-297 well pad. Based on this evaluation, it is unlikely that light from pre-production operations would adversely affect wildlife.

Provide a qualitative evaluation of the incremental adverse light impacts to the surrounding receptors during the production stage of this Oil & Gas Location.

TEP does not plan to install any on-site lighting during production operations (long-term) and does not anticipate conducting any nighttime well maintenance operations requiring temporary lights. Therefore, light impacts to members of the public and wildlife resources are expected to be nonexistent during production operations (long-term).

Odor Impacts

Provide a qualitative evaluation of the incremental adverse odor impacts to the surrounding receptors during the pre-production activities at this Oil & Gas Location.

Pre-production activities have the potential to generate odors. During planning of the Ryan Gulch Phase 3 OGD, TEP determined through on-site surveys and review of available aerial imagery that there are no residential building units within 1 mile of the proposed WPS of the well pad. The nearest residential building unit is located over 1 mile from the WPS of the well pad, and therefore, it is unlikely for odor generated during pre-production operations (short-term) to adversely affect members of the public (see Cultural Distance Map– Form 2A for the Federal RGU 23-6-297 well pad).

Provide a qualitative evaluation of the incremental adverse odor impacts to the surrounding receptors during the production stage of this Oil & Gas Location.

Production activities have the potential to generate odors. During planning of the Ryan Gulch Phase 3 OGD, TEP determined through on-site surveys and review of available aerial imagery that there are no residential building units within 1 mile of the proposed WPS of the well pad. The nearest residential building unit is located over 1 mile from the WPS of the well pad, and therefore, it is unlikely for odor generated during production operations (long-term) to adversely affect members of the public (see Cultural Distance Map– Form 2A for the Federal RGU 23-6-297 well pad).

Adverse cumulative odor impacts are expected to be nonexistent or minimal given that odor impacts from the project are expected to be minimal.

WATER RESOURCES

☒ This Oil & Gas Location is listed as a sensitive area for water resources.

☒ This Oil & Gas Location is within 2,640 feet of a surface Water of the State.

Estimated depth to groundwater: 50

Estimated total planned on-location storage capacity of the Oil & Gas Location for:

	Number of Tanks	Total Volume (bbls)
Oil	0	0
Condensate	6	2600
Produced Water	9	3600
Other volumes of stored fluids, hydrocarbons, chemicals, or E&P Waste Fluids	9	1669

List, with volumes, the “Other” fluids planned to be stored on the Oil & Gas Location, including, but not limited to: hydrocarbons, chemicals, or E&P Waste fluids.

3 - Gun Barrel - 500bbls each
1 - Blowdown/Vent Tank - 80bbls
1 - Knockout Tank - 17bbls
1- Methanol Tank - 24bbls
4 - Chemicals - 48bbls each

Potential Impacted Surface Water Resources

Provide the distance and direction of the contaminant migration pathway from the Oil & Gas Location to the nearest downstream riparian corridors, wetlands, and surface Waters of the State. Also provide an evaluation of the baseline condition of the nearest downstream riparian corridors, wetlands, and surface Waters of the State.
Enter 2,640 for distances greater than 1/2-mile. Distances are measured along the migration pathway, not a straight line from the edge of the Oil & Gas Location.

	Distance	Direction	Evaluation of Baseline Condition
Riparian Corridor	2640	E	Perennial Stream; Piceance Creek
Wetland	2640	E	Perennial Stream; Potential Wetland - Piceance Creek (NWI)
Surface Waters of the State	52	NW	Intermittent Stream; Ryan Gulch

Potential Impacts to Public Water Resources

Provide the distance, direction, and evaluation of potential impacts to the nearest Public Water System Intake. Enter 5,280 for distances greater than 1-mile.

Distance Direction Evaluation of Baseline Condition

Public Water System Intake 2640 N No PWS intakes within 1-mile of WPS

Estimated Water Usage

Provide the estimated total volumes of the following that are anticipated to be used during the drilling and completions stage of the Oil & Gas Location activity.

Water Source	Volume (bbls)		Volume (bbls)		Volume (bbls)	
Surface Water	75000	Recycled Water (Produced Water)	368000	Unspecified Source	0	Percentage Recycled Water
			0			98 %
Ground Water	0	Recycled Water (non-Produced Water)	0	Total Water Usage	375500	
					0	

If an unspecified water source is planned to be used, provide a description of the source.

No unspecified water sources are planned for use during drilling and completion operations

Evaluate the measures being taken to reduce freshwater use, including reusing and recycling produced water.

Fresh water required for drilling operations (surface, intermediate, and production casing) and dust control, would be transported by truck from the Mautz Ranch Fresh Water Pond. The Mautz Ranch Fresh Water Pond is located along Ryan Gulch on TEP property north of County Road 86. Water trucks would utilize existing county and lease roads and would follow existing truck routes where applicable. The intake on the water pumps at the source locations would be fitted with a quarter-inch (0.25") mesh screen to prevent impacts to aquatic wildlife. TEP estimates that approximately 4,687.5bbls of fresh water would be used for drilling operations and dust control per well.

ECOSYSTEM & WILDLIFE RESOURCES

List High Priority Habitats (HPH) that occur within one mile of the Oil & Gas Location and list the distance from working pad surface. If the location is partially or entirely within a HPH list the distance as '0' and provide the estimated acreage disturbance of that HPH by the location construction.

High Priority Habitat (HPH) Name:	Distance	Estimated Acreage Disturbed
Aquatic Sportfish Management Waters	0	7.19
Mule Deer Winter Concentration Area	0	7.7
Mule Deer Severe Winter Range	0	7.7

List total size of disturbed acreage and disturbed High Priority Habitat (HPH) area (in acres) during the Oil & Gas Location construction and after interim reclamation.

	Total Acreage (acres)	Total HPH Acreage (acres)	Provide any further information regarding the location's HPH disturbance.
Construction	7.7	7.7	The RGU 23-6-297 drill pad is completely located within High Priority Habitats including, Mule Deer Winter Concentration Area and Mule Deer Severe Winter Range, and partially located within High Priority Habitat for Aquatic Sportfish Management Waters.
Post-interim Reclamation	2.17	2.17	

Provide the acreage of the existing land use types that occur within one mile of the Oil & Gas Location. Note: a circle with a one mile radius is approximately 2010 acres.

		Existing Acreage		Existing Acreage		Existing Acreage		Existing Acreage
Crop Land:	Irrigated	0	Non-Irrigated	0	Conservation Reserve Program(CRP)	0		
Non-Crop Land:	Rangeland	2310	Forestry	0	Recreation	0	Other	0
Subdivided:	Industrial	0	Commercial	0	Residential	0		

If any land use is industrial, provide a description of the use or operation of the industrial facilities.

If any land use is "Other", provide a description of the land use.

If any portion of the land use for the proposed oil and gas location includes Rangeland, Forestry, or Recreation, provide a list of the plant community or communities and estimated acreage disturbed for each:

	Estimated Disturbed Acreage		Estimated Disturbed Acreage		Estimated Disturbed Acreage		Estimated Disturbed Acreage
Disturbed Grassland	358	Shrub Land	374	Mountain Riparian	0	Wetland Aquatic	0
Native Grassland	0	Plains Riparian	0	Forest Land	1578.29	Alpine	0

Provide a qualitative evaluation of incremental adverse impacts to ecosystems, including any plant communities, as a result of Oil and Gas Operations associated with the proposed Oil & Gas Location.

The loss of basin big sagebrush and Wyoming sagebrush shrubland would be long-term, but these species are common throughout the region, and the loss would be negligible at both a project and regional level. Gradual reestablishment of a portion of the affected shrubland is likely following reclamation. TEP has designed the project to incorporate existing infrastructure to minimize impacts to the ecosystem and wildlife that rely on available habitats in the vicinity surrounding the Ryan Gulch Phase 3 OGD. As a result of incorporating existing infrastructure into the development plan, impacts to existing wildlife habitat would be minimal and impacts on wildlife would be reduced compared to less developed or undeveloped areas because some habituation of the animals to oil and gas operation and other human activities would be expected (see the Wildlife Plan – Form 2A for the Federal RGU 23-6-297 well pad for detailed BMPs proposed to minimize impacts to wildlife). Hydraulic fracturing operations would use recycled produced water pumped through an existing buried water collection system avoiding use of truck traffic to deliver water for well completions and avoiding potential wildlife impacts. TEP would also install five temporary surface steel frac lines to support remote frac and flowback operations. The temporary surface frac lines would be installed following the existing access roads and existing pipeline rights-of-ways minimizing short-term disturbance to wildlife during hydraulic fracturing. To minimize traffic during operations, TEP would install buried natural gas and produced water pipelines. Disturbance associated with pipeline construction would be promptly revegetated with native species consistent with CPW's recommended seed mix when the pipeline is completed (see the Reclamation Plan – Form 2A for the Federal RGU 23-6-297 well pad). TEP would utilize remote telemetry equipment to minimize well site visitation reducing the vehicles traveling on dirt/gravel roads. When feasible, TEP would limit post-development operations to daylight hours when wildlife activity is minimal. To minimize the potential for wildlife related traffic accidents, TEP would implement speed restrictions for all roads and would require that all TEP employees and contractors adhere to posted speed limits. TEP has scheduled construction of the Federal RGU 23-6-297 well pad for September 2023, which is outside of the nesting season for migratory birds (April 1 to August 31); however, if the construction schedule changes and vegetation removal is required during the nesting season, TEP would utilize methods to avoid a take of migratory birds during construction. TEP would either implement hazing prior to April 1, or a pre-construction migratory bird survey would be conducted during the nesting season to determine if nesting migratory birds are present within the project area. If any active nests are located, TEP would provide work zone buffers around those active nests as allowed under Rule 1202.a.(8) (see the Wildlife Protection Plan – Form 2A for the Federal RGU 23-6-297 well pad). Additionally, TEP would conduct raptor surveys within 0.25 mile or 0.5 mile (depending on the species) of proposed well development activities prior to construction and implement appropriate buffers around active nests during the species' nesting seasons to avoid impacts. To minimize the potential spread and infestation of invasive, non-native plants within areas used for the Ryan Gulch Phase 3 OGD that could degrade wildlife habitat and out-compete native vegetation, TEP would implement a weed management program. This includes control or reduction of invasive weeds and non-native populations that have been established prior to development, as well invasive plant species that may be introduced during project development and reclamation activities. Interim and final reclamation of disturbed areas would use seed mixes that are certified to be weed-free. Reclamation would be monitored annually until reclamation is successful, and if noxious weeds are documented, TEP would use methods to treat the weeds as outlined within the Pesticide Use Permit on record with the BLM (see the Reclamation Plan – Form 2A for the Federal RGU 23-6-297 well pad). These measures would minimize impacts on existing vegetation communities within the Project area as well as maintain native vegetation for the continued use of wildlife in the Project area.

Soil Resources

List all soil map units that occur within the Oil & Gas Location and list the estimated total area (in acres) disturbance of each soil map unit.

NRCS Map Unit Name:	Estimated Disturbed Acreage
6 - Barcus channery loamy sand, 2 to 8 percent slopes	5.31

PUBLIC WELFARE

☐ This Oil & Gas Location lies within a Disproportionately Impacted Community as defined in the 100-series rules.

Building Units within 1-mile

0'-2,000' 2,001'-5,280'

Total number of Residential Building Units:	0	0
Total Number of non-school AND non child care center High Occupancy Building Units:	0	0
Total number of School Facilities:	0	0
Total number of Child Care Centers:	0	0

Recreation and Scenic Value

List all State Parks, State Trust Lands, or State Wildlife Area within 1-mile of the Oil & Gas Location.

There are no State Parks, State Trust Lands, or State Wildlife Areas within 1 mile of the RGU 23-6-297 pad per COGCC mapping.

List all Designated Outdoor Activity Areas within 1-mile of the Oil & Gas Location.

There are no Designated Outdoor Activity Areas within 1 Mile of the Oil and Gas Location.

List all mapped trails that support any of the following recreational activities within 1-mile of the Oil & Gas Location: Hiking, Biking, Horseback Riding, Motorcycle Riding, ATV Riding, OHV, Nordic Skiing, Snowmobiling, or Snowshoeing.

There are two (2) mapped trails within 1 mile of the RGU 23-6-297 pad. The trail / roads include Tower Road and Hog Lot Ridge Road (BLM Road 1019). TEP reviewed BLM Transportation layer and Colorado Trails Explorer to evaluate existing trails in the vicinity of the Oil and Gas Location.

AIR RESOURCES

Pre-Production Emissions

Complete the following chart based on the estimated total equipment emissions (in tons) for the Oil & Gas Location during the pre-production (construction, drilling, completions) stage for Criteria Pollutants by equipment type.

	NOx	CO	VOCs	Methane	Ethane	CO2	N2O
Process Heaters or Boilers	2.15	1.81	0.12	0.05	0.07	2584.04	0.05
Storage Tanks	0	0	0	0	0	1.04	0
Venting or Blowdowns	0	0	0	0	0	0	0
Combustion Control Devices	0	0	0	0	0	0	0
Non-Road Internal Combustion Engines	155.3	124.33	7.52	30.97	2.53	19184.42	0
Drill Mud	0	0	1.92	0	0	0	0
Flowback or Completions	0.06	0.29	0.12	0.78	0.11	109.67	0
Loadout	0	0	0	0	0	0	0

Production Emissions

Complete the following chart based on the estimated full facility equipment emissions (in tons) for the Oil & Gas Location once the Oil & Gas Location has entered the production stage, for Criteria Pollutants. The table should be filled out based on ONE year of operation.

	NOx	CO	VOCs	Methane	Ethane	CO2	N2O
Stationary Engines or Turbines	0	0	0	0	0	0	0
Process Heaters or Boilers	1.77	1.49	0.1	0.04	0.06	2125.59	0
Storage Tanks	3.63	16.54	18.08	16.82	8.15	4466.41	0.12
Dehydration Units	0	0	0	0	0	0	0
Pneumatic Pumps	0	0	0	0	0	0	0
Pneumatic Controllers	0	0	2.2	14.62	1.99	0.04	0
Separators	0	0	0	0	0	0	0
Fugitives			0.19	1.25	0.17	0	
Venting or Blowdowns	0	0	0	0	0	0	0
Combustion Control Devices	0	0	0	0	0	0	0
Loadout	0.11	0.52	0.42	0.39	0.19	140.27	0
Non-Road Internal Combustion Engines	0	0	0	0	0	0	0
Well Bradenhead	0	0	0	0	0	0	0
Well Maintenance	0	0	0.43	2.84	0.39	0.01	0

Diesel Vehicle Road Miles

Complete the following chart for diesel vehicle road miles during each stage of oil and gas location operations.

During Construction:	23	During Completions:	59
During Drilling:	122	During Interim Reclamation:	2
During Production:	16		

PUBLIC HEALTH RESOURCES

Pre-Production Emissions

Complete the following chart based on the estimated total equipment emissions (in lbs) for the Oil & Gas Location during the pre-production (construction, drilling, completions) stage for Hazardous Air Pollutants (HAP).

	BEN	TOL	ETH	XYL	NHE	TMP	H2S	FDE	MET	HAP
Process Heaters or Boilers	0	0	0	0	0	0	0	3.23	0	3.23
Storage Tanks	0.08	0	0	0	0.09	0	0	0	0	0.17
Venting or Blowdowns	0	0	0	0	0	0	0	0	0	0
Combustion Control Devices	0	0	0	0	0	0	0	0	0	0
Non-Road Internal Combustion Engines	283	130	5	70	55	0	0	2972	0	3515
Drill Mud	0	139	188	7	139	0	0	0	139	612
Flowback or Completions	1	2	0	1	8	1	0	0	0	13
Loadout	0	0	0	0	0	0	0	0	0	0

Production Emissions

Complete the following chart based on the estimated total equipment emissions (in lbs) for the Oil & Gas Location once the Oil & Gas Location has entered the production stage, for Hazardous Air Pollutants (HAP). The table should be filled out based on ONE year of operation.

	BEN	TOL	ETH	XYL	NHE	TMP	H2S	FDE	MET	HAP
Stationary Engines or Turbines	0	0	0	0	0	0	0	0	0	0
Process Heaters or Boilers	0	0	0	0	0	0	0	3	0	3
Storage Tanks	178	0	0	0	746	0	0	0	0	924
Dehydration Units	0	0	0	0	0	0	0	0	0	0
Pneumatic Pumps	0	0	0	0	0	0	0	0	0	0
Pneumatic Controllers	22	34	1	15	145	17	0	0	0	234
Separators	0	0	0	0	0	0	0	0	0	0
Fugitives	2	0	0	0	5	0	0	0	0	7
Venting or Blowdowns	0	0	0	0	0	0	0	0	0	0
Combustion Control Devices	0	0	0	0	0	0	0	0	0	0
Non-Road Internal Combustion Engines	0	0	0	0	0	0	0	0	0	0
Loadout	2	0	0	0	13	0	0	0	0	15
Well Bradenhead	0	0	0	0	0	0	0	0	0	0
Well Maintenance	4	7	0	3	28	3	0	0	0	45

Provide a qualitative evaluation of any potential acute or chronic, short- or long-term incremental impacts to public health as a result of the estimated total pre-production hazardous air pollutant emissions.

As part of an air quality assessment performed for a BLM EA of a similar nearby TEP project (See Cumulative Impact Plan attached for Form 2A), HAP emissions from pre-production operations were quantified. Impacts from pre-production HAP emissions were not estimated or analyzed as part of the 2017 BLM EA given that the emissions from pre-production activities are from short-term activities and do not occur over the lifetime of the project. In addition, as part of the 2017 BLM EA, HAP emissions from production operations were quantified and impacts were estimated. The total HAPs emissions, 1.01 tpy include benzene, toluene, ethylbenzene, xylenes, n-hexane, and formaldehyde emissions of 0.16, 0.23, 0.01, 0.09, 0.48, and 0.04 tpy, respectively. These total HAP emissions are of similar magnitude to the maximum level of project pre-production total HAP emissions presented above for year 2024 (5,989.17 lbs/year or 2.99 tpy). Impacts from production HAP (benzene, toluene, ethylbenzene, xylenes, n-hexane, and formaldehyde) emissions in the vicinity of the well pads were analyzed and the potential maximum acute (short-term; 1-hour) and long-term (annual) HAP concentrations were estimated to be well below applicable health thresholds for these HAPs. Therefore, it is estimated the HAP emissions resulting from the emissions from the expansion of the Federal RGU 23-6-297 well pad and the drilling of 16 oil and gas wells on the Federal RGU 23-6-297 pad would not cause or contribute to any potential acute or chronic, short-or long-term incremental impacts to public health.

2,2,4-trimethylpentane, hydrogen sulfide, and methanol HAP emissions from pre-production activities were estimated and are shown in Tables 7, 8, and 9. The maximum emissions are estimated as 0.001, 0.0, and 0.08 tpy, respectively. Although these HAPs were not specifically modeled in the BLM 2017 study, the emissions levels are less than the project benzene emissions (which were modeled). Given that the applicable short-term (1-hour) and long-term (annual) health thresholds for these HAPs are above the levels applicable to benzene it is estimated the short-term and long-term concentrations for these HAPs would be well below applicable health thresholds.

Provide a qualitative evaluation of any potential acute or chronic, short- or long-term incremental impacts to public health as a result of the estimated annual production hazardous air pollutant emissions.

As part of an air quality assessment performed for a BLM EA of a similar nearby TEP project (See Cumulative Impact Plan attached for Form 2A), HAP emissions from production operations were quantified. The total HAPs emissions, 1.01 tpy include benzene, toluene, ethylbenzene, xylenes, n-hexane, and formaldehyde emissions of 0.16, 0.23, 0.01, 0.09, 0.48, and 0.04 tpy, respectively. These total HAP emissions are of similar magnitude to the level of project production total HAP emissions presented above (2,021 lbs/year or 1.01 tpy).

As part of the 2017 BLM EA, impacts from production HAP emissions (benzene, toluene, ethylbenzene, xylenes, n-hexane, and formaldehyde) in the vicinity of the well pads were analyzed and the potential maximum acute (short-term; 1-hour) and long-term (annual) HAP concentrations were estimated to be well below applicable health thresholds for these HAPs. In addition, long-term exposures to emissions of suspected carcinogens (benzene, ethylbenzene and formaldehyde) were evaluated based on estimates of the increased latent cancer risk over a 70-year lifetime. The estimated cancer risk from these HAPs is shown to be below acceptable cancer risk levels. Therefore, it is estimated the HAP emission resulting from the production activities from 16 natural gas wells on the Federal RGU 23-6-297 pad would not cause or contribute to any potential acute or chronic, short-or long-term incremental impacts to public health.

2,2,4-trimethylpentane, hydrogen sulfide, and methanol HAP emissions from production activities were estimated and are shown in Table 10. These emissions are estimated as 0.02, 0.0, and 0.0 tpy, respectively. Although these HAPs were not specifically modeled in the BLM 2017 study, the emissions levels are less than the project benzene emissions (which were modeled). Given that the applicable short-term (1-hour) and long-term (annual) health thresholds for these HAPs are above the levels applicable to benzene, it is estimated that the short-term and long-term concentrations for these HAPs would be well below applicable health thresholds.

Dust Impacts

The following are the estimated number of truck trips traveling on or off the Oil & Gas Location.

Total	During Construction	During Drilling	During Completions	During Interim Reclamation	During Production
Monthly	201	756	418	77	39
Annual	401	4234	2701	77	466

Estimated total pounds (lbs) of proppant to be used during completions activities. 0

Provide the type of proppant(s) that are planned to be used during completions activities.

NA

Provide an evaluation of the proposed proppant management system that will be used to minimize dust during completions activities, including the estimated amount of silica dust that will leave the Oil & Gas Location.

NA

EXISTING OIL & GAS

Total number of oil & gas locations within 1-mile of the Oil & Gas Location:

		Total Number of Locations			Total Number of Wells
Permitted by Relevant Local Government & not COGCC, unbuilt	Active, built	3	Permitted by COGCC, unbuilt	Active, built	23
	Permitted by COGCC, unbuilt	0		Permitted by COGCC, unbuilt	0
	Proposed	0		Proposed	18
	Plugged and Abandoned	0		Plugged and Abandoned	0

Total acreage disturbance during construction of the active and proposed oil & gas locations within 1-mile of the proposed Oil & Gas Location: 14.52

Source for acreage total:

- ☒ Field Observation/Measurement
- ☐ COGCC Location Files
- ☒ Aerial PhotosOther
- ☐ Other

If "Other" is selected, please describe the source use to determine the acreage total for construction disturbance of the active and proposed oil & gas locations within 1-mile of the proposed Oil & Gas Location.

Total permitted capacity of on-location storage (in number of pits and tanks) of the active and proposed oil & gas locations within 1-mile of the Oil & Gas Location :
NOTE: providing the existing number of pits and tanks on surrounding existing locations is optional.

Source for storage totals:

- ☒ Field Observation/Measurement
☒ COGCC Location Files
☐ Aerial PhotosOther
☐ Other

	Permitted Onsite Storage Capacity	Existing Onsite Storage Capacity
Oil	0	0
Condensate	6	6
Produced Water	6	7
Pits	3	0

If "Other" is selected, please describe the source use to determine the tank totals for the active and proposed oil & gas locations within 1-mile of the proposed Oil & Gas Location.

2 Oil & Gas Location Name: FEDERAL Number: RGU 44-1-298 Status: Proposed

OIL & GAS LOCATION INFORMATION

Form 2A Doc#: 402525732

Loc ID#: 335640

Oil & Gas Location: QTRQTR: LOT 36 Sec: 1 Twp: 2S Rng: 98W Meridian: 6

Total number of wells planned: 18

Operations Duration

Estimated total number of weeks to construct this Oil & Gas Location: 9

Estimated total number of weeks to drill all planned wells for this Oil & Gas Location: 26

Number of planned drilling occupations to drill all planned wells for this Oil & Gas Location: 1

Estimated total number of weeks to complete all planned wells for this Oil & Gas Location: 26

Number of planned completions occupations to complete all planned wells for this Oil & Gas Location: 1

Will there be simultaneous drilling and completions operations occurring at this Oil & Gas Location? Yes

Estimated total number of months the Oil & Gas Location will be active, prior to abandonment and reclamation: 360

Noise Impacts

Provide a qualitative evaluation of the incremental adverse noise impacts to the surrounding receptors during the pre-production activities at this Oil & Gas Location.

Pre-production (short-term) activities are typically shorter in nature and emit a higher noise level than long-term production operations. Noise from these activities could have impacts on surrounding receptors if located within close proximity of the proposed WPS of the well pads.

No residential or other building units are located within 1 mile of the Ryan Gulch Phase 3 OGD. Because no residential or other building units are present within 1 mile, it is unlikely for noise generated during pre-production or production operations to adversely impact members of the public.

TEP reviewed HPH within 1 mile of Federal RGU 44-1-298 well pad. The well pad is located within Mule Deer Severe Winter Range and Mule Deer Winter Concentration Area HPH. TEP is proposing to begin construction operations for the well pad in September of 2023 outside of the winter timing limitation for mule deer; however, planned drilling and completions operations are scheduled within the winter timing limitation. The pad is located in close proximity to existing oil and gas operations and adjacent to Blanco County Road 24. Because the pad is in close proximity to existing facilities and existing public roads, impacts to mule deer would be minimal. TEP will be paying a habitat mitigation fee to CPW to offset impacts to mule deer due to direct and indirect impacts associated with development activities, including winter operations. Based on this evaluation it is unlikely for noise during pre-production operations to adversely affect wildlife resources. All HPH boundaries within 1 mile of the WPS are shown on the Wildlife Habitat Drawing included in the Form 2A for the Federal RGU 44-1-298 well pad. TEP met with CPW to discuss potential impacts from noise during operations on the Federal RGU 44-1-298 well pad. CPW informed TEP that noise impacts are not anticipated for the oil and gas location.

Provide a qualitative evaluation of the incremental adverse noise impacts to the surrounding receptors during the production stage of this Oil & Gas Location.

No residential or other building units are located within 1 mile of the Ryan Gulch Phase 3 OGD. Because no residential or other building units are present within 1 mile, it is unlikely for noise generated during pre-production or production operations to adversely impact members of the public (see Cultural Distance Map – Form 2A for the Federal RGU 44-1-298 well pad). TEP reviewed HPH within 1 mile of Federal RGU 44-1-298 well pad. The well pad is located within Mule Deer Severe Winter Range and Mule Deer Winter Concentration Area HPH.

TEP is proposing to begin construction operations for the well pad in September of 2023 outside of the winter timing limitation for mule deer; however, planned drilling and completions operations are scheduled within the winter timing limitation. The pad is located in close proximity to existing oil and gas operations and adjacent to Blanco County Road 24. Because the pad is in close proximity to existing facilities and existing public roads, impacts to mule deer would be minimal. TEP will be paying a habitat mitigation fee to CPW to offset impacts to mule deer due to direct and indirect impacts associated with development activities, including winter operations. Based on this evaluation it is unlikely for noise during pre-production operations to adversely affect wildlife resources. All HPH boundaries within 1 mile of the WPS are shown on the Wildlife Habitat Drawing included in the Form 2A for the Federal RGU 44-1-298 well pad. TEP met with CPW to discuss potential impacts from noise during operations on the Federal RGU 44-1-298 well pad. CPW informed TEP that noise impacts are not anticipated for the oil and gas location.

Adverse cumulative noise impacts to members of the public and wildlife are not expected given that noise impacts from the project are expected to be nonexistent or minimal.

Light Impacts

Provide a qualitative evaluation of the incremental adverse light impacts to the surrounding receptors during the pre-production activities at this Oil & Gas Location.

Pre-production activities are typically shorter in nature and require sufficient lighting to ensure the safety of employees and contractors. All lighting used during the pre-production phase of development would be directed downward and inward towards operation to minimize light pollution in the vicinity of the location. Lighting from these activities could have minimal impacts on surrounding receptors if located within close proximity of the proposed WPS of each well pad. No residential or other building units are located within 1 mile of the Ryan Gulch Phase 3 OGD.

Because no residential or other building units are present within 1 mile of the well pad, it is unlikely for light generated during preproduction operations to adversely impact members of the public (see Cultural Distance Map – Form 2A for the Federal RGU 44-1-298 well pad).

TEP reviewed HPH within 1 mile of Federal RGU 44-1-298 pad. The well pad is located within Mule Deer Severe Winter Range and Mule Deer Winter Concentration Area HPH. TEP is proposing to begin construction operations for the well pad in September of 2023 outside of the winter timing limitation for mule deer; however, planned drilling and completions operations are scheduled within the winter timing limitation. The pad is located in close proximity to existing oil and gas operations and adjacent to Rio Blanco County Road 24. Because the pad is in close proximity to existing facilities and existing public roads, impacts to mule deer would be minimal. TEP will be paying a habitat mitigation fee to CPW to offset impacts to mule deer due to direct and indirect impacts associated with development activities, including winter operations. Based on this evaluation it is unlikely for lighting pre-production operations to adversely affect wildlife resources. All HPH boundaries within 1 mile of the WPS are shown on the Wildlife Habitat Drawings included in the Form 2A for the Federal RGU 44-1-298 well pad. TEP met with CPW to discuss potential impacts from light during pre-production operations on the Federal RGU 44-1-298 well pad. Based on this evaluation, it is unlikely that light from pre-production operations would adversely affect wildlife.

Provide a qualitative evaluation of the incremental adverse light impacts to the surrounding receptors during the production stage of this Oil & Gas Location.

TEP does not plan to install any on-site lighting during production operations (long-term) and does not anticipate conducting any nighttime well maintenance operations requiring temporary lights. Therefore, light impacts to members of the public and wildlife resources are expected to be nonexistent during production operations (long-term).

TEP reviewed HPH within 1 mile of Federal RGU 44-1-298 pad. The well pad is located within Mule Deer Severe Winter Range and Mule Deer Winter Concentration Area HPH. TEP is proposing to begin construction operations for the well pad in September of 2023 outside of the winter timing limitation for mule deer; however, planned drilling and completions operations are scheduled within the winter timing limitation. The pad is located in close proximity to existing oil and gas operations and adjacent to Rio Blanco County Road 24. Because the pad is in close proximity to existing facilities and existing public roads, impacts to mule deer would be minimal. TEP will be paying a habitat mitigation fee to CPW to offset impacts to mule deer due to direct and indirect impacts associated with development activities, including winter operations. Based on this evaluation it is unlikely lighting production operations to adversely affect wildlife resources. All HPH boundaries within 1 mile of the WPS are shown on the Wildlife Habitat Drawings included in the Form 2A for the Federal RGU 44-1-298 well pad. TEP met with CPW to discuss potential impacts from light during pre-production operations on the Federal RGU 44-1-298 well pad. Based on this evaluation, it is unlikely that light from production operations would adversely affect wildlife.

Odor Impacts

Provide a qualitative evaluation of the incremental adverse odor impacts to the surrounding receptors during the pre-production activities at this Oil & Gas Location.

Pre-production activities have the potential to generate odors. During planning of the Ryan Gulch Phase 3 OGDP, TEP determined through on-site surveys and review of available aerial imagery that there are no residential building units within 1 mile of the proposed WPS of the well pad. The nearest residential building unit is located over 1 mile from the WPS of the well pad, and therefore, it is unlikely for odor generated during pre-production operations (short-term) to adversely affect members of the public (see Cultural Distance Map– Form 2A for the Federal RGU 44-1-298 well pad).

Provide a qualitative evaluation of the incremental adverse odor impacts to the surrounding receptors during the production stage of this Oil & Gas Location.

Production activities have the potential to generate odors. During planning of the Ryan Gulch Phase 3 OGDP, TEP determined through on-site surveys and review of available aerial imagery that there are no residential building units within 1 mile of the proposed WPS of the well pad. The nearest residential building unit is located over 1 mile from the WPS of the well pad, and therefore, it is unlikely for odor generated during production operations (long-term) to adversely affect members of the public (see Cultural Distance Map– Form 2A for the Federal RGU 44-1-298 well pad). Adverse cumulative odor impacts are expected to be nonexistent or minimal given that odor impacts from the project are expected to be minimal.

WATER RESOURCES

[X] This Oil & Gas Location is listed as a sensitive area for water resources.

[X] This Oil & Gas Location is within 2,640 feet of a surface Water of the State.

Estimated depth to groundwater: 50

Estimated total planned on-location storage capacity of the Oil & Gas Location for:

	Number of Tanks	Total Volume (bbls)
Oil	0	0
Condensate	2	1000
Produced Water	6	3000
Other volumes of stored fluids, hydrocarbons, chemicals, or E&P Waste Fluids	9	2051

List, with volumes, the “Other” fluids planned to be stored on the Oil & Gas Location, including, but not limited to: hydrocarbons, chemicals, or E&P Waste fluids.

- 2 - Gun Barrel - 500bbls each
- 2 - Blowdown/Vent Tank - 500bbls each
- 4 - Chemicals - 12bbls each
- 1 - Chemical (Corrosion Inhibitor) - 3bbls

Potential Impacted Surface Water Resources

Provide the distance and direction of the contaminant migration pathway from the Oil & Gas Location to the nearest downstream riparian corridors, wetlands, and surface Waters of the State. Also provide an evaluation of the baseline condition of the nearest downstream riparian corridors, wetlands, and surface Waters of the State.
Enter 2,640 for distances greater than 1/2-mile. Distances are measured along the migration pathway, not a straight line from the edge of the Oil & Gas Location.

	Distance	Direction	Evaluation of Baseline Condition
Riparian Corridor	2640	E	Perennial Stream; Piceance Creek
Wetland	2640	E	Perennial Stream; Potential Wetland - Piceance Creek (NWI)
Surface Waters of the State	10	SW	Intermittent Stream; Unnamed

Potential Impacts to Public Water Resources

Provide the distance, direction, and evaluation of potential impacts to the nearest Public Water System Intake. Enter 5,280 for distances greater than 1-mile.

	Distance	Direction	Evaluation of Baseline Condition
Public Water System Intake	2640	N	No PWS intakes within 1-mile of WPS

Estimated Water Usage

Provide the estimated total volumes of the following that are anticipated to be used during the drilling and completions stage of the Oil & Gas Location activity.

Water Source	Volume (bbls)	Volume (bbls)	Volume (bbls)
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Surface Water	<u>84000</u>	Recycled Water (Produced Water)	<u>414000</u>	Unspecified Source	<u>0</u>	Percentage	<u>98</u>	%
			<u>0</u>			Recycled Water		
Ground Water	<u>0</u>	Recycled Water	<u>0</u>	Total Water Usage	<u>422400</u>			
		(non-Produced Water)			<u>0</u>			

If an unspecified water source is planned to be used, provide a description of the source.

No unspecified water sources are planned for use during drilling and completion operations

Evaluate the measures being taken to reduce freshwater use, including reusing and recycling produced water.

Fresh water required for drilling operations (surface, intermediate, and production casing) and dust control, would be transported by truck from the Mautz Ranch Fresh Water Pond. The Mautz Ranch Fresh Water Pond is located along Ryan Gulch on TEP property north of County Road 86. Water trucks would utilize existing county and lease roads and would follow existing truck routes where applicable. The intake on the water pumps at the source locations would be fitted with a quarter-inch (0.25") mesh screen to prevent impacts to aquatic wildlife. TEP estimates that approximately 4,666bbls of fresh water would be used for drilling operations and dust control per well.

Recycled produced water will be utilized for well completion operations reducing fresh water usage to only 2% of the total water volume.

ECOSYSTEM & WILDLIFE RESOURCES

List High Priority Habitats (HPH) that occur within one mile of the Oil & Gas Location and list the distance from working pad surface. If the location is partially or entirely within a HPH list the distance as '0' and provide the estimated acreage disturbance of that HPH by the location construction.

High Priority Habitat (HPH) Name:	Distance	Estimated Acreage Disturbed
Mule Deer Winter Concentration Area	0	5.63
Mule Deer Severe Winter Range	0	5.63
Aquatic Sportsfish Management Waters	0	1.02

List total size of disturbed acreage and disturbed High Priority Habitat (HPH) area (in acres) during the Oil & Gas Location construction and after interim reclamation.

	Total Acreage (acres)	Total HPH Acreage (acres)	Provide any further information regarding the location's HPH disturbance.
Construction	<u>5.63</u>	<u>5.63</u>	The Federal RGU 44-1-298 pad is located entirely within Mule Deer Winter Concentration Area and Mule Deer Severe Winter Range, and is also located partially within Aquatic Sportsfish Management Waters
Post-interim Reclamation	<u>1.65</u>	<u>1.65</u>	

Provide the acreage of the existing land use types that occur within one mile of the Oil & Gas Location. Note: a circle with a one mile radius is approximately 2010 acres.

		Existing Acreage		Existing Acreage		Existing Acreage		Existing Acreage
Crop Land:	Irrigated	<u>0</u>	Non-Irrigated	<u>0</u>	Conservation Reserve Program(CRP)	<u>0</u>		
Non-Crop Land:	Rangeland	<u>2287.61</u>	Forestry	<u>0</u>	Recreation	<u>0</u>	Other	<u>0</u>
Subdivided:	Industrial	<u>0</u>	Commercial	<u>0</u>	Residential	<u>0</u>		

If any land use is industrial, provide a description of the use or operation of the industrial facilities.

If any land use is "Other", provide a description of the land use.

If any portion of the land use for the proposed oil and gas location includes Rangeland, Forestry, or Recreation, provide a list of the plant community or communities and estimated acreage disturbed for each:

	Estimated Disturbed Acreage		Estimated Disturbed Acreage		Estimated Disturbed Acreage		Estimated Disturbed Acreage
Disturbed Grassland	<u>0</u>	Shrub Land	<u>574.48</u>	Mountain Riparian	<u>0</u>	Wetland Aquatic	<u>0</u>
Native Grassland	<u>0</u>	Plains Riparian	<u>0</u>	Forest Land	<u>1713.13</u>	Alpine	<u>0</u>

Provide a qualitative evaluation of incremental adverse impacts to ecosystems, including any plant communities, as a result of Oil and Gas Operations associated with the proposed Oil & Gas Location.

The loss of basin big sagebrush and Wyoming sagebrush shrubland would be long-term, but these species are common throughout the region, and the loss would be negligible at both a project and regional level. Gradual reestablishment of a portion of the affected shrubland is likely following reclamation. TEP has designed the project to incorporate existing infrastructure to minimize impacts to the ecosystem and wildlife that rely on available habitats in the vicinity surrounding the Ryan Gulch Phase 3 OGD. As a result of incorporating existing infrastructure into the development plan, impacts to existing wildlife habitat would be minimal and impacts on wildlife would be reduced compared to less developed or undeveloped areas because some habituation of the animals to oil and gas operation and other human activities would be expected (see the Wildlife Plan– Form 2A for the Federal RGU 44-1-298 well pad for detailed BMPs proposed to minimize impacts to wildlife). Hydraulic fracturing operations would use recycled produced water pumped through an existing buried water collection system avoiding use of truck traffic to deliver water for well completions and avoiding potential wildlife impacts. TEP would also install five temporary surface steel frac lines to support remote frac and flowback operations. The temporary surface frac lines would be installed following the existing access roads and existing pipeline rights-of-ways minimizing short-term disturbance to wildlife during hydraulic fracturing. To minimize traffic during operations, TEP would install buried natural gas and produced water pipelines. As mentioned above, disturbance associated with pipeline construction would be promptly revegetated with native species consistent with CPW's recommended seed mix when the pipeline is completed (see the Reclamation Plan – Form 2A for the Federal RGU 44-1-298 well pad). TEP would utilize remote telemetry equipment to minimize well site visitation reducing the vehicles traveling on dirt/gravel roads. When feasible, TEP would limit post-development operations to daylight hours when wildlife activity is minimal. To minimize the potential for wildlife related traffic accidents, TEP would implement speed restrictions for all roads and would require that all TEP employees and contractors adhere to posted speed limits. TEP has scheduled construction of the Federal RGU 44-1-298 well pad for September 2023, which is outside of the nesting season for migratory birds (April 1 to August 31); however, if the construction schedule changes and vegetation removal is required during the nesting season, TEP would utilize methods to avoid a take of migratory birds during construction. TEP would either implement hazing prior to April 1, or a pre-construction migratory bird survey would be conducted during the nesting season to determine if nesting migratory birds are present within the project area. If any active nests are located, TEP would provide work zone buffers around those active nests as allowed under Rule 1202.a.(8) (see the Wildlife Protection Plan – Form 2A for the Federal RGU 44-1-298 well pad). Additionally, TEP would conduct raptor surveys within 0.25 mile or 0.5 mile (depending on the species) of proposed well development activities prior to construction and implement appropriate buffers around active nests during the species' nesting seasons to avoid impacts. To minimize the potential spread and infestation of invasive, non-native plants within areas used for the Ryan Gulch Phase 3 OGD that could degrade wildlife habitat and out-compete native vegetation, TEP would implement a weed management program. This includes control or reduction of invasive weeds and non-native populations that have been established prior to development, as well invasive plant species that may be introduced during project development and reclamation activities. Interim and final reclamation of disturbed areas would use seed mixes that are certified to be weed-free. Reclamation would be monitored annually until reclamation is successful, and if noxious weeds are documented, TEP would use methods to treat the weeds as outlined within the Pesticide Use Permit on record with the BLM (see the Reclamation Plan – Form 2A for the Federal RGU 44-1-298 well pad). These measures would minimize impacts on existing vegetation communities within the Project area as well as maintain native vegetation for the continued use of wildlife in the Project area.

Soil Resources

List all soil map units that occur within the Oil & Gas Location and list the estimated total area (in acres) disturbance of each soil map unit.

NRCS Map Unit Name:	Estimated Disturbed Acreage
6 - Barcus channery loamy sand, 2 to 8 percent slopes	5.63

PUBLIC WELFARE

☐ This Oil & Gas Location lies within a Disproportionately Impacted Community as defined in the 100-series rules.

Building Units within 1-mile	0'-2,000'	2,001'-5,280'
Total number of ResidentialBuilding Units:	0	0
Total Number of non-school AND non child care center High Occupancy Building Units:	0	0
Total number of School Facilities:	0	0
Total number of Child Care Centers:	0	0

Recreation and Scenic Value

List all State Parks, State Trust Lands, or State Wildlife Area within 1-mile of the Oil & Gas Location.

There are no State Parks, State Trust Lands, or State Wildlife Areas within 1 mile of the RGU 44-1-298 pad per COGCC mapping.

List all Designated Outdoor Activity Areas within 1-mile of the Oil & Gas Location.

There are no Designated Outdoor Activity Areas within 1 Mile of the Oil and Gas Location.

List all mapped trails that support any of the following recreational activities within 1-mile of the Oil & Gas Location: Hiking, Biking, Horseback Riding, Motorcycle Riding, ATV Riding, OHV, Nordic Skiing, Snowmobiling, or Snowshoeing.

There are two (2) mapped trails within 1 mile of the RGU 44-1-298 pad. The trail / roads include Tower Road and Hog Lot Ridge Road (BLM Road 1019). TEP reviewed BLM Transportation layer and Colorado Trails Explorer to evaluate existing trails in the vicinity of the Oil and Gas Location.

AIR RESOURCES

Pre-Production Emissions

Complete the following chart based on the estimated total equipment emissions (in tons) for the Oil & Gas Location during the pre-production (construction, drilling, completions) stage for Criteria Pollutants by equipment type.

	NOx	CO	VOCs	Methane	Ethane	CO2	N2O
Process Heaters or Boilers	2.96	2.49	0.16	0.07	0.09	3553.05	0.07
Storage Tanks	0	0	0	0	0	1.04	0
Venting or Blowdowns	0	0	0	0	0	0	0
Combustion Control Devices	0	0	0	0	0	0	0
Non-Road Internal Combustion Engines	169.17	132.56	8.69	30.97	2.53	21721.83	0
Drill Mud	0	0	1.92	0	0	0	0
Flowback or Completions	0.07	0.33	0.13	0.87	0.12	123.38	0
Loadout	0	0	0	0	0	0	0

Production Emissions

Complete the following chart based on the estimated full facility equipment emissions (in tons) for the Oil & Gas Location once the Oil & Gas Location has entered the production stage, for Criteria Pollutants. The table should be filled out based on ONE year of operation.

	NOx	CO	VOCs	Methane	Ethane	CO2	N2O
Stationary Engines or Turbines	0	0	0	0	0	0	0
Process Heaters or Boilers	1.34	1.13	0.07	0.03	0.04	1610.29	0
Storage Tanks	1.18	5.36	12.18	1.01	7.98	2736.64	0.04
Dehydration Units	0	0	0	0	0	0	0
Pneumatic Pumps	0	0	0	0	0	0	0
Pneumatic Controllers	0	0	1.85	12.31	1.68	0.04	0
Separators	0	0	0	0	0	0	0
Fugitives			0.14	0.96	0.13	0	
Venting or Blowdowns	0	0	0	0	0	0	0
Combustion Control Devices	0	0	0	0	0	0	0
Loadout	0.03	0.14	0.29	0.02	0.19	70.84	0
Non-Road Internal Combustion Engines	0	0	0	0	0	0	0
Well Bradenhead	0	0	0	0	0	0	0
Well Maintenance	0	0	0.57	3.78	0.52	0.01	0

Diesel Vehicle Road Miles

Complete the following chart for diesel vehicle road miles during each stage of oil and gas location operations.

During Construction:	23	During Completions:	66
During Drilling:	136	During Interim Reclamation:	2
During Production:	16		

PUBLIC HEALTH RESOURCES

Pre-Production Emissions

Complete the following chart based on the estimated total equipment emissions (in lbs) for the Oil & Gas Location during the pre-production (construction, drilling, completions) stage for Hazardous Air Pollutants (HAP).

	BEN	TOL	ETH	XYL	NHE	TMP	H2S	FDE	MET	HAP
Process Heaters or Boilers	0	0	0	0	0	0	0	4.44	0	4.44
Storage Tanks	0.08	0	0	0	0.09	0	0	0	0	0.17
Venting or Blowdowns	0	0	0	0	0	0	0	0	0	0
Combustion Control Devices	0	0	0	0	0	0	0	0	0	0

Non-Road Internal Combustion Engines	312	142	5	79	55	0	0	3009	0	3602
Drill Mud	0	139	188	7	139	0	0	0	139	612
Flowback or Completions	1	2	0	1	9	1	0	0	0	14
Loadout	0	0	0	0	0	0	0	0	0	0

Production Emissions

Complete the following chart based on the estimated total equipment emissions (in lbs) for the Oil & Gas Location once the Oil & Gas Location has entered the production stage, for Hazardous Air Pollutants (HAP). The table should be filled out based on ONE year of operation.

	BEN	TOL	ETH	XYL	NHE	TMP	H2S	FDE	MET	HAP
Stationary Engines or Turbines	0	0	0	0	0	0	0	0	0	0
Process Heaters or Boilers	0	0	0	0	0	0	0	2	0	2
Storage Tanks	84	0	0	0	433	0	0	0	0	517
Dehydration Units	0	0	0	0	0	0	0	0	0	0
Pneumatic Pumps	0	0	0	0	0	0	0	0	0	0
Pneumatic Controllers	19	29	1	13	122	14	0	0	0	198
Separators	0	0	0	0	0	0	0	0	0	0
Fugitives	1	0	0	0	4	0	0	0	0	5
Venting or Blowdowns	0	0	0	0	0	0	0	0	0	0
Combustion Control Devices	0	0	0	0	0	0	0	0	0	0
Non-Road Internal Combustion Engines	0	0	0	0	0	0	0	0	0	0
Loadout	1	0	0	0	9	0	0	0	0	10
Well Bradenhead	0	0	0	0	0	0	0	0	0	0
Well Maintenance	6	9	0	4	38	4	0	0	0	61

Provide a qualitative evaluation of any potential acute or chronic, short- or long-term incremental impacts to public health as a result of the estimated total pre-production hazardous air pollutant emissions.

As part of an air quality assessment performed for a BLM EA of a similar nearby TEP project (See Cumulative Impact Plan attached for Form 2A), HAP emissions from production operations were quantified. The total HAPs emissions, 1.01 tpy include benzene, toluene, ethylbenzene, xylenes, n-hexane, and formaldehyde emissions of 0.16, 0.23, 0.01, 0.09, 0.48, and 0.04 tpy, respectively. These total HAP emissions are of similar magnitude to the level of project production total HAP emissions presented above (2,021 lbs/year or 1.01 tpy).

As part of the 2017 BLM EA, impacts from production HAP emissions (benzene, toluene, ethylbenzene, xylenes, n-hexane, and formaldehyde) in the vicinity of the well pads were analyzed and the potential maximum acute (short-term; 1-hour) and long-term (annual) HAP concentrations were estimated to be well below applicable health thresholds for these HAPs. In addition, long-term exposures to emissions of suspected carcinogens (benzene, ethylbenzene and formaldehyde) were evaluated based on estimates of the increased latent cancer risk over a 70-year lifetime. The estimated cancer risk from these HAPs is shown to be below acceptable cancer risk levels. Therefore, it is estimated the HAP emission resulting from the production activities from 18 natural gas wells on the Federal RGU 44-1-298 pad would not cause or contribute to any potential acute or chronic, short-or long-term incremental impacts to public health.

2,2,4-trimethylpentane, hydrogen sulfide, and methanol HAP emissions from production activities were estimated and are shown in Table 10. These emissions are estimated as 0.02, 0.0, and 0.0 tpy, respectively. Although these HAPs were not specifically modeled in the BLM 2017 study, the emissions levels are less than the project benzene emissions (which were modeled). Given that the applicable short-term (1-hour) and long-term (annual) health thresholds for these HAPs are above the levels applicable to benzene, it is estimated that the short-term and long-term concentrations for these HAPs would be well below applicable health thresholds.

Provide a qualitative evaluation of any potential acute or chronic, short- or long-term incremental impacts to public health as a result of the estimated annual production hazardous air pollutant emissions.

As part of an air quality assessment performed for a BLM EA of a similar nearby TEP project (See Cumulative Impact Plan attached for Form 2A), HAP emissions from production operations were quantified. The total HAPs emissions, 1.01 tpy include benzene, toluene, ethylbenzene, xylenes, n-hexane, and formaldehyde emissions of 0.16, 0.23, 0.01, 0.09, 0.48, and 0.04 tpy, respectively. These total HAP emissions are of similar magnitude to the level of project production total HAP emissions presented above (2,021 lbs/year or 1.01 tpy).

As part of the 2017 BLM EA, impacts from production HAP emissions (benzene, toluene, ethylbenzene, xylenes, n-hexane, and formaldehyde) in the vicinity of the well pads were analyzed and the potential maximum acute (short-term; 1-hour) and long-term (annual) HAP concentrations were estimated to be well below applicable health thresholds for these HAPs. In addition, long-term exposures to emissions of suspected carcinogens (benzene, ethylbenzene and formaldehyde) were evaluated based on estimates of the increased latent cancer risk over a 70-year lifetime. The estimated cancer risk from these HAPs is shown to be below acceptable cancer risk levels. Therefore, it is estimated the HAP emission resulting from the production activities from 18 natural gas wells on the Federal RGU 44-1-298 pad would not cause or contribute to any potential acute or chronic, short-or long-term incremental impacts to public health.

2,2,4-trimethylpentane, hydrogen sulfide, and methanol HAP emissions from production activities were estimated and are shown in Table 10. These emissions are estimated as 0.02, 0.0, and 0.0 tpy, respectively. Although these HAPs were not specifically modeled in the BLM 2017 study, the emissions levels are less than the project benzene emissions (which were modeled). Given that the applicable short-term (1-hour) and long-term (annual) health thresholds for these HAPs are above the levels applicable to benzene, it is estimated that the short-term and long-term concentrations for these HAPs would be well below applicable health thresholds.

Dust Impacts

The following are the estimated number of truck trips traveling on or off the Oil & Gas Location.

Total	During Construction	During Drilling	During Completions	During Interim Reclamation	During Production
Monthly	202	759	523	77	39
Annual	404	4632	3138	77	466

Estimated total pounds (lbs) of proppant to be used during completions activities. 0

Provide the type of proppant(s) that are planned to be used during completions activities.

NA

Provide an evaluation of the proposed proppant management system that will be used to minimize dust during completions activities, including the estimated amount of silica dust that will leave the Oil & Gas Location.

NA

EXISTING OIL & GAS

Total number of oil & gas locations within 1-mile of the Oil & Gas Location:

		Total Number of Locations			Total Number of Wells
Active, built		5	Active, built		21
Permitted by COGCC, unbuilt		0	Permitted by COGCC, unbuilt		0
Permitted by Relevant Local Government & not COGCC, unbuilt		0	Proposed		30
Proposed		0	Plugged and Abandoned		2

Total acreage disturbance during construction of the active and proposed oil & gas locations within 1-mile of the proposed Oil & Gas Location: 29.29

Source for acreage total:

- ☒ Field Observation/Measurement
- ☒ COGCC Location Files
- ☐ Aerial PhotosOther
- ☐ Other

If "Other" is selected, please describe the source use to determine the acreage total for construction disturbance of the active and proposed oil & gas locations within 1-mile of the proposed Oil & Gas Location.

Total permitted capacity of on-location storage (in number of pits and tanks) of the active and proposed oil & gas locations within 1-mile of the Oil & Gas Location :
NOTE: providing the existing number of pits and tanks on surrounding existing locations is optional.

Source for storage totals:

- ☒ Field Observation/Measurement
☒ COGCC Location Files
☐ Aerial Photos/Other
☐ Other

	Permitted Onsite Storage Capacity	Existing Onsite Storage Capacity
Oil	0	0
Condensate	17	15
Produced Water	16	27
Pits	6	0

If "Other" is selected, please describe the source use to determine the tank totals for the active and proposed oil & gas locations within 1-mile of the proposed Oil & Gas Location.

OIL & GAS DEVELOPMENT PLAN-SCALE DATA

List High Priority Habitats (HPH) that are estimated be disturbed by the construction of new roads, including access roads, pipelines, and utilities for this OGD, along with the estimated disturbed acreage of each HPH.

High Priority Habitat (HPH) Name	Estimated Acreage Disturbed
Mule Deer Winter Concentration Area	4.31
Mule Deer Severe Winter Range	4.31
Aquatic Sportfish Management Waters	4

List the total estimated of disturbed acreage and the total disturbed High Priority Habitat (HPH) area (in acres) during construction and the acreage that will remain disturbed after interim reclamation of the following for the entire OGD:

	Construction			Post-interim Reclamation	
	Total Acreage (acres)	Total HPH Acreage (acres)		Total Acreage (acres)	Total HPH Acreage (acres)
New roads, including access roads	0.28	0.28	New roads, including access roads	0.17	0.17
Pipelines	4.03	4.03	Pipelines	0.05	0.05
Utilities	0	0	Utilities	0	0

Provide any further information regarding the HPH disturbance from the construction of new roads, including access roads, pipelines, and utilities for this OGD.

Federal RGU 23-6-297 - The proposed pipeline corridor is located within HPH. The proposed gas pipeline is within Aquatic Sportfish Management Waters, Mule Deer Winter Concentration Area, and Mule Deer Severe Winter Range.
Federal RGU 44-1-298 - The existing access road to the oil and gas location will be improved to support proposed activities. The pipeline corridor will be installed primarily within existing pipeline Rights-of-Ways. Both the proposed access road and proposed pipeline corridors are located within Mule Deer Winter Concentration Area and Mule Deer Severe Winter Range, and are also located partially within Aquatic Sportsfish Management Waters

Number of miles of the existing lease road that are planned to be used to access these location(s): 0.14

BENEFICIAL IMPACT INFORMATION

Equipment and Facility Removal

Total number of existing wells that are planned to be plugged and abandoned as part of this OGD: 0

Total number of existing locations that are planned to be closed and undergo final reclamation as part of this OGD: 0

Total number of acres that are planned to be reclaimed through the closing of existing locations: 0

Total number of existing pits that are planned to be closed and undergo final reclamation as part of this OGD: 0

Total number of tanks planned to be removed from existing locations through the approval of this OGD:

Oil Tanks: 0

Condensate Tanks: 0

Produced Water Tanks: 0

Estimated number of vehicle trips that are planned to be prevented from the above mentioned facility closures and equipment upgrades (on an annual basis): 0

Provide a qualitative evaluation of any incremental beneficial impacts to the surrounding community directly and indirectly from this OGD.

Rio Blanco County and the town of Meeker would benefit most notably from the employment and tax revenues generated by the proposed development plan. Some of these benefits would be likely to extend to the City of Rifle, in Garfield County, which acts as a service center for regional oil and gas activity and is located approximately 38 miles southeast of the Project Area. In addition to the direct jobs created by the project, the development plan would support jobs in regional businesses that support the project and its employees, including retail trade, lodging and eating establishments, construction, real estate, and other services.

Taxes paid by TEP on production and equipment would support infrastructure and community services in Rio Blanco County. In the tax district where the Ryan Gulch Phase 3 OGD is located (Tax District 8), ad valorem (property) taxes on production fund Rio Blanco County government, Meeker RE1 and Rangely RE4 school districts, hospitals and medical centers in Meeker and Rangely, and special districts, including county-wide fire protection, cemetery, library, parks and recreation, Colorado River Water Conservation District, Piceance Creek Pest Control, and White River Soil Conservation District. In addition to ad valorem taxes, Rio Blanco County would receive a portion of state severance taxes and federal mineral royalties paid on production. The severance tax rate on oil and gas production in Colorado ranges from 2% to 5% on a graduated scale based on sales volume. Half of severance taxes paid to the state is returned to local governments impacted by oil, gas and mineral production. The federal mineral royalty rate on existing oil and gas leases is 12.5% of production value. Nearly half (49%) of federal mineral royalties are returned to Colorado, a portion of which is allocated to local governments and school districts impacted by mineral development.

While production-based taxes would produce the greatest benefits to local governments, Rio Blanco County would also receive tax revenues from property taxes paid on physical assets in the Project Area and sales and use taxes paid on equipment purchases associated with the Ryan Gulch Phase 3 OGD.

Provide a qualitative evaluation of any incremental beneficial impacts to the surrounding wildlife and ecosystems directly and indirectly from this OGD.

A detailed discussion of the benefits to surrounding wildlife and ecosystem is included above under the section titled "Terrestrial and Aquatic Wildlife Resources and Ecosystems." As discussed above, TEP would minimize impacts to wildlife and surrounding ecosystems by using existing infrastructure, recycling produced water thereby reducing truck trips, installation of buried pipelines, coordination with CPW, ground clearing outside of migratory bird habitat restrictions, and implementation of a weed management program.

MITIGATION INFORMATION

No Mitigation Measures Listed

OPERATOR COMMENTS AND SUBMITTAL

TEP Rocky Mountain LLC (TEP) is proposing the Ryan Gulch Phase 3 Oil and Gas Development Plan which will include drilling, completing, and operating eighteen (18) proposed directional natural gas wells for a total of twenty-two (22) wells from the existing Federal RGU 44-1-298 pad (COGCC Loc ID: 335640) as well as drilling, completing, and operating sixteen (16) proposed directional natural gas wells for a total of twenty-six (26) wells from the existing Federal RGU 23-6-297 pad (COGCC Loc ID: 335602).

Print Name: Melissa Luke

Title: Regulatory Specialist

Email: mluke@terraep.com

Date: 01/08/2023

Based on the information provided herein, this Cumulative Impacts Data Identification Form 2B complies with COGCC Rules and is hereby accepted into the Cumulative Impacts Data Evaluation Repository (CIDER database).
Contact OGLA Staff for consultation.

COGCC Approved: _____

Director of COGCC

Date: _____

Attachment Check List

Att Doc Num

Name

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Total Attach: 0 Files

General Comments

User Group

Comment

Comment Date

OGLA	Returned to Draft on 4/19/2023 to allow operator to address issues identified in completeness review.	04/19/2023
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Total: 1 comment(s)