FORM 2B Rev 03/21

State of Colorado
Oil and Gas Conservation Commission

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Document Number: 402932424

Date Received:

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: [X] **OGDP** [ ] **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 2

Oil & Gas Development Plan Docket #:

Docket Number
220500097

Oil & Gas Development Plan ID #: Data not required

[ ] This OGDP is included in a Comprehensive Area Plan. CAP ID #:

OIL & GAS LOCATION DATA

1 Oil & Gas Location Name: FEDERAL Number: 298-13-1 Status: Active, built

OIL & GAS LOCATION INFORMATION

Form 2A Doc#: 402932354

Loc ID#: 315513

Oil & Gas Location: QTRQTR: Lot 12 Sec: 13 Twp: 2S Rng: 98W 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.

No residential or other building units are located within 1 mile of the Ryan Gulch Phase 2 OGDP. 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 respective Cultural Distance Maps – Form 2A for the Federal 298-13-1 and Federal RG 11-13-298 well pads).

TEP reviewed HPH within 1 mile of the Federal 298-13-1 and Federal RG 11-13-298 well pads. Both well pads are located outside of all HPH boundaries. HPH identified within 1 mile of the WPS for the Federal 298-13-1 well pad includes Mule Deer Severe Winter Range and Winter Concentration Area, and Aquatic Native Species Management Waters (see Wildlife Habitat Drawing - Form 2A for the Federal 298-13-1 well pad). HPH identified within 1 mile of the WPS for the Federal RG 11-13-298 well pad includes Mule Deer Severe Winter Range and Winter Concentration Area, and Aquatic Sportsfish Management Waters (see Wildlife Habitat Drawing - Form 2A for the Federal RG 11-13-298 well pad). As shown on the respective Wildlife Habitat Drawings, Mule Deer Severe Winter and Winter Concentration Area boundaries are located 990 feet and 453 feet from the Federal 298-13-1 and Federal RG 11-13-298 well pads, respectively. TEP consulted with CPW to discuss potential impacts from noise during operations and CPW informed TEP that noise impacts are not anticipated for these oil and gas locations. Based on this evaluation, it is unlikely that noise from either pre-production or production operations would adversely affect wildlife resources.

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 2 OGDP. 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 respective Cultural Distance Maps – Form 2A for the Federal 298-13-1 and Federal RG 11-13-298 well pads).

TEP reviewed HPH within 1 mile of the Federal 298-13-1 and Federal RG 11-13-298 well pads. Both well pads are located outside of all HPH boundaries. HPH identified within 1 mile of the WPS for the Federal 298-13-1 well pad includes Mule Deer Severe Winter Range and Winter Concentration Area, and Aquatic Native Species Management Waters (see Wildlife Habitat Drawing - Form 2A for the Federal 298-13-1 well pad). HPH identified within 1 mile of the WPS for the Federal RG 11-13-298 well pad includes Mule Deer Severe Winter Range and Winter Concentration Area, and Aquatic Sportsfish Management Waters (see Wildlife Habitat Drawing - Form 2A for the Federal RG 11-13-298 well pad). As shown on the respective Wildlife Habitat Drawings, Mule Deer Severe Winter and Winter Concentration Area boundaries are located 990 feet and 453 feet from the Federal 298-13-1 and Federal RG 11-13-298 well pads, respectively. TEP consulted with CPW to discuss potential impacts from noise during operations and CPW informed TEP that noise impacts are not anticipated for these oil and gas locations (see Attachment A to respective Lesser Impact Request Letters – Form 2A for the Federal 298-13-1 and Federal 11-13-298 well pads). Based on this evaluation, it is unlikely that noise from either pre-production or production operations would adversely affect wildlife resources.

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.

Because no residential or other building units are present within 1 mile of the well pads, it is unlikely for light generated during pre-production operations to adversely impact members of the public (see respective Cultural Distance Map - Form 2A for the Federal 298-13-1 and Federal RG 11-13-298 well pads).

As shown on the respective Wildlife Habitat Drawings, Mule Deer Severe Winter and Winter Concentration Area boundaries are located 990 feet and 453 feet from the Federal 298-13-1 and Federal RG 11-13-298 well pads, respectively. TEP consulted with CPW to discuss potential impacts from light during operations and CPW informed TEP that impacts from light are not anticipated for these oil and gas locations. 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 and production activities have the potential to generate odors. During planning of the Ryan Gulch Phase 2 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 pads. The nearest residential building unit is located over 1 mile from the WPS of the well pads., and therefore, it is unlikely for odor generated during pre-production operations (short-term) or production operations (long-term) to adversely affect members of the public (see respective Cultural Distance Maps – Form 2A for the Federal 298-13-1 and Federal RG 11-13-298 well pads).

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

Pre-production and production activities have the potential to generate odors. During planning of the Ryan Gulch Phase 2 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 pads. The nearest residential building unit is located over 1 mile from the WPS of the well pads., and therefore, it is unlikely for odor generated during pre-production operations (short-term) or production operations (long-term) to adversely affect members of the public (see respective Cultural Distance Maps – Form 2A for the Federal 298-13-1 and Federal RG 11-13-298 well pads).

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: 100

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 Tanks - 1000 bbls
2 Blowdown/Vent Tanks - 1000 bbls
4 Chemical Tanks - 2000 gallons (47.6 bbls)
1 Chemical Tank - 135 gallons (3.2 bbls)

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	NW	None within a 1/2 mile
Wetland	1942	NW	Intermittent Stream; Potential wetland (NWI - Riverine)
Surface Waters of the State	1942	NW	Intermittent Stream

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	5280	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)	3679968	Unspecified Source	0	Percentage Recycled Water	98 %
Ground Water	0	Recycled Water (non-Produced Water)	0	Total Water Usage	3754968		

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.

The use of fresh water would be limited to that used for drilling and for dust control. Water use would be reduced by recycling produced water. It is estimated that approximately 4,662 barrels of fresh water on average would be required to drill a single well (177,156 barrels for 38 wells) and that approximately 230,000 barrels of water (recycled produced water) would be required for completion of a single well (8.7 million barrels for 38 wells). A total of 98 percent of the total water used for drilling and completion would be recycled.

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	4895	0
Mule Deer Severe Winter Range	990	0
Aquatic Native Species Conservation Waters	4459	0

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)
Construction	7.52	0
Post-interim Reclamation	1.89	0

Provide any further information regarding the location's HPH disturbance.

The Federal 298-13-1 well pad is not located within High Priority Habitat.

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	2299	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.

NA

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

NA

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	42	Shrub Land	1129	Mountain Riparian	0	Wetland Aquatic	0
Native Grassland	0	Plains Riparian	0	Forest Land	1129	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 pinyon/juniper woodlands and Wyoming sagebrush shrublands 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 2 OGDP. 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 respective Wildlife Plans – Form 2A for the Federal 298-13-1 and Federal RG 11-13-298 well pads 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 respective Reclamation Plans – Form 2A for the Federal 298-13-1 and Federal RG 11-13-298 well pads). 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 298-13-1 and Federal RG 11-13-298 well pads beginning in September 2022, which is outside 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 respective Wildlife Protection Plans – Form 2A for the Federal 298-13-1 and Federal RG 11-13-298 well pads). 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 2 OGDP 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 BLM (see the respective Reclamation Plans – Form 2A for the Federal 298-13-1 and Federal RG 11-13-298 well pads). 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
70 - Redcreek-Rentsac complex, 5 to 30 percent slopes	7.52

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 Federal 298-13-1 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 is one mapped trail within 1 mile of the Federal 298-13-1 pad. The trail / road is call Hog Lot Ridge Road (BLM Road 1019). TEP reviewed the 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	0.77	0.65	0.04	0.02	0.02	922.87	0.02
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	153.44	123.22	7.36	30.97	2.53	16538.06	0
Drill Mud	0	0	1.92	0	0	0	0
Flowback or Completions	0	0	0	0	0	0	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	0.97	0.81	0.05	0.02	0.03	1159.41	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	0.74	4.91	0.67	0.01	0
Separators	0	0	0	0	0	0	0
Fugitives			0.13	0.9	0.12	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: 423 During Completions: 991

During Drilling: 2045 During Interim Reclamation: 40

During Production: 271

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	1.15	0	1.15
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	253	117	5	61	55	0	0	2934	0	3425
Drill Mud	0	139	188	7	139	0	0	0	139	612
Flowback or Completions	0	0	0	0	0	0	0	0	0	0

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	1	0	1
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	8	11	0	5	49	6	0	0	0	79
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	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 (BLM 2017b), 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, 101 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 2023 (5,309.38 lbs/year of 2.65 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 construction of the Federal RG 11-13-298 well pad, the expansion of the Federal 298-13-1 well pad, and the drilling of 22 oil and gas wells on the Federal RG 11-13-298 pad and 16 oil and gas wells on the Federal 298-13-1 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 0.0, 0.0, and 0.09 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 (BLM 2017b), 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 (2,629 lbs/year or 1.31 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 22 natural gas wells on the Federal RG 11-13-298 pad and 16 natural gas wells on the Federal 298-13-1 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 0.01, 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		210	760	418	77	39
Annual		421	4154	2699	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.

None

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	2	Active, built	18
Permitted by COGCC, unbuilt	0	Permitted by COGCC, unbuilt	0
Permitted by Relevant Local Government & not COGCC, unbuilt	0	Proposed	22
Proposed	1	Plugged and Abandoned	4

Total acreage disturbance during construction of the active and proposed oil & gas locations within 1-mile of the proposed Oil & Gas Location: 17.66

Source for acreage total:

- [X] Field Observation/Measurement
- [ ] COGCC Location Files
- [ ] Aerial PhotosOther
- [X] 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.

In addition to field observation/measurement, the other source for the proposed location acreage is also taken from proposed permits.

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:

- [X] Field Observation/Measurement
- [X] COGCC Location Files
- [ ] Aerial PhotosOther
- [X] Other

	Permitted Onsite Storage Capacity	Existing Onsite Storage Capacity
Oil	0	0
Condensate	15	16
Produced Water	6	11
Pits	1	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.

In addition to field observation/measurement and COGCC Location Files, the other source for the active and proposed oil & gas location tank totals is from proposed permits.

2 Oil & Gas Location Name: FEDERAL Number: RG 11-13-298 Status: Proposed

OIL & GAS LOCATION INFORMATION

Form 2A Doc#: 402932455

Loc ID#:

Oil & Gas Location: QTRQTR: LOT 4 Sec: 13 Twp: 2S Rng: 98W Meridian: 6

Total number of wells planned: 22

Operations Duration

Estimated total number of weeks to construct this Oil & Gas Location: 13

Estimated total number of weeks to drill all planned wells for this Oil & Gas Location: 32

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: 41

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.

No residential or other building units are located within 1 mile of the Ryan Gulch Phase 2 OGDP. 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 respective Cultural Distance Maps – Form 2A for the Federal 298-13-1 and Federal RG 11-13-298 well pads).

TEP reviewed HPH within 1 mile of the Federal 298-13-1 and Federal RG 11-13-298 well pads. Both well pads are located outside of all HPH boundaries. HPH identified within 1 mile of the WPS for the Federal 298-13-1 well pad includes Mule Deer Severe Winter Range and Winter Concentration Area, and Aquatic Native Species Management Waters (see Wildlife Habitat Drawing - Form 2A for the Federal 298-13-1 well pad). HPH identified within 1 mile of the WPS for the Federal RG 11-13-298 well pad includes Mule Deer Severe Winter Range and Winter Concentration Area, and Aquatic Sportsfish Management Waters (see Wildlife Habitat Drawing - Form 2A for the Federal RG 11-13-298 well pad). As shown on the respective Wildlife Habitat Drawings, Mule Deer Severe Winter and Winter Concentration Area boundaries are located 990 feet and 453 feet from the Federal 298-13-1 and Federal RG 11-13-298 well pads, respectively. TEP consulted with CPW to discuss potential impacts from noise during operations and CPW informed TEP that noise impacts are not anticipated for these oil and gas locations. Based on this evaluation, it is unlikely that noise from either pre-production or production operations would adversely affect wildlife resources.

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 2 OGDP. 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 respective Cultural Distance Maps - Form 2A for the Federal 298-13-1 and Federal RG 11-13-298 well pads).

TEP reviewed HPH within 1 mile of the Federal 298-13-1 and Federal RG 11-13-298 well pads. Both well pads are located outside of all HPH boundaries. HPH identified within 1 mile of the WPS for the Federal 298-13-1 well pad includes Mule Deer Severe Winter Range and Winter Concentration Area, and Aquatic Native Species Management Waters (see Wildlife Habitat Drawing - Form 2A for the Federal 298-13-1 well pad). HPH identified within 1 mile of the WPS for the Federal RG 11-13-298 well pad includes Mule Deer Severe Winter Range and Winter Concentration Area, and Aquatic Sportfish Management Waters (see Wildlife Habitat Drawing - Form 2A for the Federal RG 11-13-298 well pad). As shown on the respective Wildlife Habitat Drawings, Mule Deer Severe Winter and Winter Concentration Area boundaries are located 990 feet and 453 feet from the Federal 298-13-1 and Federal RG 11-13-298 well pads, respectively. TEP consulted with CPW to discuss potential impacts from noise during operations and CPW informed TEP that noise impacts are not anticipated for these oil and gas locations (see Attachment A to respective Lesser Impact Request Letters - Form 2A for the Federal 298-13-1 and Federal 11-13-298 well pads). Based on this evaluation, it is unlikely that noise from either pre-production or production operations would adversely affect wildlife resources.

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.

Because no residential or other building units are present within 1 mile of the well pads, it is unlikely for light generated during pre-production operations to adversely impact members of the public (see respective Cultural Distance Map - Form 2A for the Federal 298-13-1 and Federal RG 11-13-298 well pads).

As shown on the respective Wildlife Habitat Drawings, Mule Deer Severe Winter and Winter Concentration Area boundaries are located 990 feet and 453 feet from the Federal 298-13-1 and Federal RG 11-13-298 well pads, respectively. TEP consulted with CPW to discuss potential impacts from light during operations and CPW informed TEP that impacts from light are not anticipated for these oil and gas locations. 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 and production activities have the potential to generate odors. During planning of the Ryan Gulch Phase 2 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 pads. The nearest residential building unit is located over 1 mile from the WPS of the well pads., and therefore, it is unlikely for odor generated during pre-production operations (short-term) or production operations (long-term) to adversely affect members of the public (see respective Cultural Distance Maps - Form 2A for the Federal 298-13-1 and Federal RG 11-13-298 well pads).

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

Pre-production and production activities have the potential to generate odors. During planning of the Ryan Gulch Phase 2 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 pads. The nearest residential building unit is located over 1 mile from the WPS of the well pads., and therefore, it is unlikely for odor generated during pre-production operations (short-term) or production operations (long-term) to adversely affect members of the public (see respective Cultural Distance Maps - Form 2A for the Federal 298-13-1 and Federal RG 11-13-298 well pads).

WATER RESOURCES

[ ] 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: 100

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

	Number of Tanks	Total Volume (bbls)
Oil	0	0
Condensate	4	2000
Produced Water	6	3000
Other volumes of stored fluids, hydrocarbons, chemicals, or E&P Waste Fluids	7	1051

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 - 500 bbl gun barrel tanks = 1000 bbls
4 - 500 gal chemical tanks = 47.62 bbls
1 - 135 gal chemical tank - 3.2 bbls

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	None within a 1/2 mile
Wetland	1497	E	Existing Intermittent Drainage; Potential Wetland (NWI-Riverine)
Surface Waters of the State	1497	E	Existing Intermittent Drainage

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	5280	N	None; No Public Water System intakes within 1-mile of the Working Pad Surface.

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	102000	Recycled Water (Produced Water)	5059956	Unspecified Source	0	Percentage Recycled Water	98	%
Ground Water	0	Recycled Water (non-Produced Water)	0	Total Water Usage	5161956			

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.

The use of fresh water would be limited to that used for drilling and for dust control. Water use would be reduced by recycling produced water. It is estimated that approximately 4,662 barrels of fresh water on average would be required to drill a single well (177,156 barrels for 38 wells) and that approximately 230,000 barrels of water (recycled produced water) would be required for completion of a single well (8.7 million barrels for 38 wells). A total of 98 percent of the total water used for drilling and completion would be recycled.

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	453	0
Mule Deer Severe Winter Range	453	0
Aquatic Sportsfish Management Waters	2817	0

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)
Construction	8.15	0
Post-interim Reclamation	1.54	0

Provide any further information regarding the location's HPH disturbance.

The Federal RG 11-13-298 well pad is not located within High Priority Habitat.

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	2308	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.

NA

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

NA

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	248	Shrub Land	1026	Mountain Riparian	0	Wetland Aquatic	0
Native Grassland	0	Plains Riparian	0	Forest Land	1035	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 pinyon/juniper woodlands and Wyoming sagebrush shrublands 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 2 OGDP. 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 respective Wildlife Plans – Form 2A for the Federal 298-13-1 and Federal RG 11-13-298 well pads 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 respective Reclamation Plans – Form 2A for the Federal 298-13-1 and Federal RG 11-13-298 well pads). 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 298-13-1 and Federal RG 11-13-298 well pads beginning in September 2022, which is outside 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 respective Wildlife Protection Plans – Form 2A for the Federal 298-13-1 and Federal RG 11-13-298 well pads). 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 2 OGDP 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 BLM (see the respective Reclamation Plans – Form 2A for the Federal 298-13-1 and Federal RG 11-13-298 well pads). 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
73 - Rentsac channery loam, 5 to 50 percent slopes	8.15

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 Federal RG 11-13-298 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 Federal RG 11-13-298 pad. The trails / roads include Hog Lot Ridge Road (BLM Road 1019) and Tower Road. TEP reviewed the 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	184.27	141.51	9.97	30.97	2.53	24833.91	0
Drill Mud	0	0	1.9	0	0	0	0
Flowback or Completions	0	0	0	0	0	0	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	1.45	1.22	0.08	0.03	0.05	1739.12	0
Storage Tanks	4.99	22.73	24.85	23.11	11.2	6136.2	0.16
Dehydration Units	0	0	0	0	0	0	0
Pneumatic Pumps	0	0	0	0	0	0	0
Pneumatic Controllers	0	0	1.86	12.37	1.69	0.04	0
Separators	0	0	0	0	0	0	0
Fugitives			0.18	1.18	0.16	0	
Venting or Blowdowns	0	0	0	0	0	0	0
Combustion Control Devices	0	0	0	0	0	0	0
Loadout	0.16	0.72	0.58	0.54	0.26	192.87	0.01
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: 2008 During Completions: 5892

During Drilling: 12334 During Interim Reclamation: 180

During Production: 1225

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	348	158	5	90	55	0	0	3053	0	3709
Drill Mud	0	138	187	7	138	0	0	0	138	608

Flowback or Completions	0	0	0	0	0	0	0	0	0	0
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	245	0	0	0	1026	0	0	0	0	1271
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	123	14	0	0	0	199
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	18	0	0	0	0	20
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 (BLM 2017b), 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, 101 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 2023 (5,309.38 lbs/year of 2.65 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 construction of the Federal RG 11-13-298 well pad, the expansion of the Federal 298-13-1 well pad, and the drilling of 22 oil and gas wells on the Federal RG 11-13-298 pad and 16 oil and gas wells on the Federal 298-13-1 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 0.0, 0.0, and 0.09 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 (BLM 2017b), 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 (2,629 lbs/year or 1.31 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 22 natural gas wells on the Federal RG 11-13-298 pad and 16 natural gas wells on the Federal 298-13-1 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 0.01, 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		183	759	402	77	39
Annual		550	5588	3804	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.

None

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	13
Permitted by COGCC, unbuilt	0	Permitted by COGCC, unbuilt	14
Permitted by Relevant Local Government & not COGCC, unbuilt	0	Proposed	16
Proposed	1	Plugged and Abandoned	4

Total acreage disturbance during construction of the active and proposed oil & gas locations within 1-mile of the proposed Oil & Gas Location: 37.08

Source for acreage total:

- [X] Field Observation/Measurement
- [ ] COGCC Location Files
- [ ] Aerial PhotosOther
- [X] 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.

In addition to field observation/measurement, the other source for the proposed location acreage is also taken from proposed layout drawings. The existing pad, Federal 298-13-1 pad is counted in the the active/built and proposed categories since that existing pad is being expanded to include 16 new proposed wells.

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:

- [X] Field Observation/Measurement
- [X] COGCC Location Files
- [ ] Aerial PhotosOther
- [X] Other

	Permitted Onsite Storage Capacity	Existing Onsite Storage Capacity
Oil	6	0
Condensate	18	16
Produced Water	25	16
Pits	10	1

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.

In addition to field observation/measurement and COGCC Location Files, the other source for the active and proposed oil & gas location tank totals is from permits.

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 OGDP, along with the estimated disturbed acreage of each HPH.

No HPH Identified

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 OGDP:

	Construction			Post-interim Reclamation	
	Total Acreage (acres)	Total HPH Acreage (acres)		Total Acreage (acres)	Total HPH Acreage (acres)
New roads, including access roads	4.79	0	New roads, including access roads	1.29	0
Pipelines	1.47	0	Pipelines	0	0
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 OGDP.

The proposed oil and gas locations, proposed access road, and proposed pipeline corridors will be located outside of High Priority Habitat.

Number of miles of the existing lease road that are planned to be used to access these location(s): 1.86

BENEFICIAL IMPACT INFORMATION

Equipment and Facility Removal

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

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

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

Oil Tanks: 0

Condensate Tanks: 0

Produced Water Tanks: 0

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

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 2 OGDP 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 development plan.

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

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 2 Oil and Gas Development Plan which will include reconstruction of the existing Federal 298-13-1 well pad to support drilling, completion, and production operations for sixteen (16) proposed directional natural gas wells (the pad currently has 1 producing well), and construction of a new location the Federal RG 11-13-298 well pad with twenty-two (22) proposed directional natural gas wells.

Print Name: Vicki Schoeber Title: Regulatory Specialist

Email: vschoeber@terraep.com Date:

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

Total Attach: 0 Files

General Comments

User Group	Comment	Comment Date
		Stamp Upon Approval

Total: 0 comment(s)