

State of Colorado Energy & Carbon Management 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: [X] OGD P [ ] Partial 2B - Rule 803.b.(2).A UIC Conversion

OPERATOR INFORMATION

ECMC Operator Number: 96850 Contact Name and Telephone: Jeff Kirtland
Name of Operator: TEP ROCKY MOUNTAIN LLC Name: Jeff Kirtland
Address: 1058 COUNTY ROAD 215 Phone: (970) 263-2736
City: PARACHUTE State: CO Zip: 81635 Email: jkirtland@terraep.com

OIL & GAS DEVELOPMENT PLAN INFORMATION

Oil & Gas Development Plan Name: Arco Deep 1-27

Oil & Gas Development Plan Docket #: Oil & Gas Development Plan ID #:

Docket Number 220900247

OGDP ID Number 483885

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

OIL & GAS LOCATION DATA

1 Oil & Gas Location Name: Puckett Number: MV 1-23 Status: Active, built

OIL & GAS LOCATION INFORMATION

Form 2A Doc#: 403821833 Loc ID#: 322524
Oil & Gas Location: QTRQTR:NWNW Sec: 23 Twp: 6S Rng: 97W Meridian: 6
Total number of wells planned: 0

Operations Duration

Estimated total number of weeks to construct this Oil & Gas Location: 4
Estimated total number of weeks to drill all planned wells for this Oil & Gas Location: 0
Number of planned drilling occupations to drill all planned wells for this Oil & Gas Location: 0
Estimated total number of weeks to complete all planned wells for this Oil & Gas Location: 24
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? No
Estimated total number of months the Oil & Gas Location will be active, prior to abandonment and reclamation: 6

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.

No residential or other building units are located within 2,000 feet of either the Arco Deep 1-27 location or the MV 1-23 location (see Tables 23 and 24); therefore, noise impacts to members of the public are expected to be minimal during pre-production operations (short-term) and production operations (long-term). Because no residential building units are present within 2,000 feet, 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 Arco Deep 1-27 and MV 1-23 pads).

TEP reviewed HPH within 1 mile of the MV 1-23 pad. The pad is not located within HPH; however, the pad is located approximately 215 feet from Greater Sage-Grouse General Habitat Management Areas and 1,625 feet Greater Sage-Grouse Priority Habitat Management Areas. TEP stated that all planned operations would be compliant with applicable noise standard under ECMC Rule 423. CPW agreed that a noise mitigation plan would not be necessary for either location based on the siting condition, operational compliance with noise standards, and the low priority for habitat within the vicinity of the oil and gas locations. CPW informed TEP that noise impacts are not anticipated for either the Arco Deep 1-27 location or the MV 1-23 location.

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

Because no residential building units are present within 2,000 feet, it is unlikely for noise generated during production operations to adversely impact members of the public (see Cultural Distance Map – Form 2A).

TEP reviewed HPH within 1 mile of the MV 1-23 pad. The pad is not located within HPH; however, the pad is located approximately 215 feet from Greater Sage-Grouse General Habitat Management Areas and 1,625 feet Greater Sage-Grouse Priority Habitat Management Areas. TEP stated that all planned operations would be compliant with applicable noise standards under ECMC Rule 423. CPW agreed that a noise mitigation plan would not be necessary for either location based on the siting condition, operational compliance with noise standards, and the low priority for habitat within the vicinity of the oil and gas locations. CPW informed TEP that noise impacts are not anticipated for either the Arco Deep 1-27 location or the MV 1-23 location.

### **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 will 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.

No residential or other building units are located within 2,000 feet of either the Arco Deep 1-27 location or the MV 1-23 location; therefore, impacts from lighting to members of the public are expected to be minimal during pre-production operations (short-term). Because no residential building units are present within 2,000 feet of either pad, it is unlikely for lighting during pre-production operations to adversely impact members of the public (see Cultural Distance Map – Form 2A for the Arco Deep 1-27 and MV 1-23 pads).

TEP reviewed HPH within 1 mile of the MV 1-23 pad. The pad is not located within HPH; however, the pad is located approximately 215 feet from Greater Sage-Grouse General Habitat Management Areas and 1,625 feet Greater Sage-Grouse Priority Habitat Management Areas. TEP stated that all planned operations would be compliant with applicable lighting standards under ECMC Rule 424 and that all lighting fixtures would be directed downward and inward to minimize light pollution from planned activities. CPW agreed that a light mitigation plan would not be necessary for these locations based on the siting condition, operational compliance with lighting standards, and the low priority for habitat within the vicinity of these oil and gas locations. CPW informed TEP that lighting impacts are not anticipated for these oil and gas locations.

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. Potential sources of odors during drilling operations include drilling rig generators, third-party vehicles, drying shaker assembly and centrifuge solids, drill cuttings storage, water base/bentonitic drilling mud, and mud tanks. Potential sources of odors during completion operations include frac pumps, bender, and frac tanks. Potential sources of odors during flowback operations include separators and tanks, and during production operations include separators, tanks, emissions combustion devices, and natural gas generators.

No residential or other building units are located within 2,000 feet of the either the Arco Deep 1- 27 pad or the MV 1-23 pad; therefore, impacts from odors to members of the public are expected to be minimal during pre-production operations (short-term) and production operations (long-term). Because no residential building units are present within 2,000 feet, it is unlikely for odor generated during pre-production operations (short-term) or production operations (long-term) to adversely impact members of the public (see Cultural Distance Map – Form 2A for the Arco Deep 1-27 and MV 1-23 pads).

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

There will be no production operations at this oil and gas location therefore there will be no adverse odor impacts.

**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	<u>0</u>	<u>0</u>
Condensate	<u>0</u>	<u>0</u>
Produced Water	<u>4</u>	<u>60000</u>
Other volumes of stored fluids, hydrocarbons, chemicals, or E&P Waste Fluids	<u>0</u>	<u>0</u>

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.

**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	<u>2640</u>	<u>NE</u>	<u>NA</u>
Wetland	<u>2640</u>	<u>NE</u>	<u>NA</u>
Surface Waters of the State	<u>776</u>	<u>NW</u>	<u>Intermittent Stream</u>

**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	<u>2640</u>	<u>S</u>	<u>No PWS intakes within 1-mile of the working pad surface (WPS)</u>

**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	<u>11000</u>	Recycled Water (Produced Water)	<u>0</u>	Unspecified Source
			<u>0</u>	<u>0</u> %

Ground Water 0

Recycled Water 0  
(non-Produced Water)

Total Water Usage 11000

Percentage  
Recycled Water

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 proposed operations.

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

Fresh water required for dust control will be transported by truck from the Parachute Creek Fresh Water Takeout. The Parachute Creek Fresh Water Takeout is located along Parachute Creek on TEP property west of County Road 215. 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 11,000 bbls of fresh water would be used for dust control during construction and completion operations. Recycled produced water will be utilized during well completion operation. Volume associated with well completion operations are included in the Arco Deep 1-27 section below.

**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
Greater Sage Grouse Priority Habitat Management Area	1625	0
Greater Sage Grouse General Habitat Management Area	215	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)	Provide any further information regarding the location's HPH disturbance.
Construction	<u>4.5</u>	<u>0</u>	The MV 1-23 Pad is not located with High Priority Habitat.
Post-interim Reclamation	<u>0</u>	<u>0</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>2026</u>	Forestry <u>194</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.

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	<u>0</u>	Shrub Land <u>4.5</u>	Mountain Riparian <u>0</u>	Wetland Aquatic <u>0</u>
Native Grassland	<u>0</u>	Plains Riparian <u>0</u>	Forest Land <u>0</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 mature mountain shrubs 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 re-establishment of a portion of the affected shrubland is likely following reclamation. TEP has designed the project to incorporate existing infrastructure to minimize impact to the ecosystem and wildlife that rely on available habitats in the vicinity surrounding the existing Arco Deep 1-27 pad which was re-constructed and the MV 1-23 pad to be re-constructed. 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 attached to the Form 2A for the Arco Deep 1-27 and MV 1-23 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 for the 16 wells on the Arco Deep 1-27 pad. The temporary surface frac lines would be installed following the existing access roads and existing/proposed 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 Reclamation Plan attached to the Form 2A). TEP would utilize remote telemetry equipment to minimize well site visitation reducing the vehicles traveling on dirt/gravel roads. 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. Construction activities for the Arco Deep 1-27 pad and the associated support facilities were completed in November 2023. Reconstruction and expansion of the MV 1-23 pad is currently scheduled for May 2025, which is within the nesting season for migratory birds (April 1 to August 31). If vegetation removal occurs during the nesting season, TEP would implement hazing or other exclusionary measures prior to April 1 to avoid take of migratory birds. Alternatively, TEP may conduct a migratory bird survey prior to vegetation removal as required by ECOM Rule 1202.a.(8) to avoid take of migratory birds. Additionally, TEP would conduct raptor surveys within 0.25 mile or 0.5 mile 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 expansion of the MV 1-23 pad 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 in the Arco Deep 1-27 OGD 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. 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
Parachute-Irigul complex, 5 to 30 percent slopes	4.02
Northwater-Adel complex, 5 to 50 percent slopes	0.21
Parachute-Irigul-Rhone association, 25 to 50 percent slopes MLRA 48A	0.02

**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	1
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 MV 1-23 frac pad per ECOM 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 no trails within 1 mile of the MV 1-23 frac pad. TEP reviewed 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	0	0	0	0	0	0
Storage Tanks	0	0	0	0	0	0	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	19.98	28.71	6.48	38.64	5.6	6531.11	0
Drill Mud	0	0	0	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	0	0	0	0	0	0
Storage Tanks	0	0	0	0	0	0	0
Dehydration Units	0	0	0	0	0	0	0
Pneumatic Pumps	0	0	0	0	0	0	0
Pneumatic Controllers	0	0	0	0	0	0	0
Separators	0	0	0	0	0	0	0
Fugitives	0	0	0	0	0	0	0
Venting or Blowdowns	0	0	0	0	0	0	0
Combustion Control Devices	0	0	0	0	0	0	0
Loadout	0	0	0	0	0	0	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	0	0	0	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: 624                      During Completions: 1491  
 During Drilling: 0                              During Interim Reclamation: 98  
 During Production: 0

**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	0	0	0
Storage Tanks	0	0	0	0	0	0	0	0	0	0
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	48.31	44.8	4.36	20.2	121.88	0	0	5797.54	0	6037.1
Drill Mud	0	0	0	0	0	0	0	0	0	0
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	0	0	0
Storage Tanks	0	0	0	0	0	0	0	0	0	0
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	0	0	0	0	0	0	0	0	0	0
Separators	0	0	0	0	0	0	0	0	0	0
Fugitives	0	0	0	0	0	0	0	0	0	0
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	0	0	0	0	0	0	0	0	0	0
Well Bradenhead	0	0	0	0	0	0	0	0	0	0
Well Maintenance	0	0	0	0	0	0	0	0	0	0

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 the Balzac Gulch EA (BLM 2017b), individual HAP emissions from pre-production operations were quantified. The total HAPs emissions, 0.20 tpy include benzene, toluene, ethylbenzene, xylenes, n-hexane, and formaldehyde emissions of 0.08, 0.04, 0.0005, 0.02, 0.04, and 0.007 tpy, respectively. These HAP emissions are of similar magnitude to the level of Arco Deep 1-27 OGDG pre-production HAP emissions (benzene, toluene, ethylbenzene, xylenes, n-hexane, and formaldehyde) presented above (0.04, 0.09, 0.07, 0.02, 0.12, and 3.12 tpy, respectively).

Impacts from pre-production HAP emissions were not estimated or analyzed as part of the Balzac Gulch EA (BLM 2017b) given that the emissions from pre-production activities are from short-term activities and do not occur over the lifetime of the project. Also, these HAP emissions are less than those which could occur from production activities. As part of the Balzac Gulch EA (BLM 2017b) 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 reconstruction of the Arco Deep 1-27 and MV 1-23 pads and drilling of 16 natural gas wells on the Arco Deep 1-27 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 Table 9. These emissions are estimated as 0.0, 0.0, and 0.05 tpy, respectively. Although these HAPs were not specifically modeled in the Balzac Gulch EA (BLM 2017b), 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 the Balzac Gulch EA (BLM 2017b), individual 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 HAP emissions are of similar magnitude to the level of project production HAP emissions (benzene, toluene, ethylbenzene, xylenes, n-hexane, and formaldehyde) presented above (0.01, 0.0004, 0.0, 0.002, 0.06, and 0.001 tpy, respectively).

As part of the Balzac Gulch EA (BLM 2017b), 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 was 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 Arco Deep 1-27 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 0.002, 0.0, and 0.0 tpy, respectively. Although these HAPs were not specifically modeled in the Balzac Gulch EA (BLM 2017b), 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	92	0	141	35	0
Annual	92	0	797	35	0

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	13	53
Permitted by ECMC, unbuilt	0	18
Permitted by Relevant Local Government & not ECMC, unbuilt	0	0
Proposed	0	4

Total acreage disturbance during construction of the active and proposed oil & gas locations within 1-mile of the proposed Oil & Gas Location: 57.77

Source for acreage total:

- Field Observation/Measurement
- ECMC Location Files
- Aerial Photos/Other
- 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:		Permitted Onsite Storage Capacity	Existing Onsite Storage Capacity
<input checked="" type="checkbox"/> Field Observation/Measurement	Oil	4	0
<input checked="" type="checkbox"/> ECMC Location Files	Condensate	10	12
<input type="checkbox"/> Aerial Photos/Other	Produced Water	21	8
<input type="checkbox"/> Other	Pits	5	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.

2 Oil & Gas Location Name: Arco Deep Number: 1-27 Status: Active, built

**OIL & GAS LOCATION INFORMATION**

Form 2A Doc#: 403135970

Loc ID#: 322539

Oil & Gas Location: QTRQTR: NESW Sec: 27 Twp: 6S Rng: 97W Meridian: 6

Total number of wells planned: 16

**Operations Duration**

Estimated total number of weeks to construct this Oil & Gas Location: 0

Estimated total number of weeks to drill all planned wells for this Oil & Gas Location: 15

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: 24

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? No

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.

No residential or other building units are located within 2,000 feet of the Arco Deep 1-27 location; therefore, noise impacts to members of the public are expected to be minimal during pre-production operations (short-term) and production operations (long-term). The nearest residential building unit is located more than 1-mile from the WPS. Because no residential building units are present within 2,000 feet, 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).

TEP reviewed HPH within 1 mile of the Arco Deep 1-27 pad. The pad is located within greater sage-grouse General Habitat Management Area and is located 475 feet west of greater sage-grouse Priority Habitat Management Area. During the pre-application consultation process, TEP and CPW discussed potential noise impacts to greater sage-grouse. TEP stated that the pad would be reconstructed with a 25-foot depth of cut along the east side of the pad, which would provide a physical barrier along the pad edge closest to greater sage-grouse Priority Habitat Management Area reducing the overall levels of noise in the easterly direction. Noise generated from activities on the pad would be greatest in the westerly direction away from greater sage-grouse habitat. TEP also stated that all planned operations would be compliant with applicable noise standards under ECMC Rule 423. CPW agreed that a noise mitigation plan would not be necessary for this location based on the siting condition, operational compliance with noise standards, and the low priority for habitat within the vicinity of this oil and gas location. CPW informed TEP that noise impacts are not anticipated for this 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.

Because no residential building units are present within 2,000 feet, 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).

TEP reviewed HPH within 1 mile of the Arco Deep 1-27 pad. The pad is located within greater sage-grouse General Habitat Management Area and is located 475 feet west of greater sage-grouse Priority Habitat Management Area. During the pre-application consultation process, TEP and CPW discussed potential noise impacts to greater sage-grouse. TEP stated that the pad would be reconstructed with a 25-foot depth of cut along the east side of the pad, which would provide a physical barrier along the pad edge closest to greater sage-grouse Priority Habitat Management Area reducing the overall levels of noise in the easterly direction. Noise generated from activities on the pad would be greatest in the westerly direction away from greater sage-grouse habitat. TEP also stated that all planned operations would be compliant with applicable noise standards under ECMC Rule 423. CPW agreed that a noise mitigation plan would not be necessary for this location based on the siting condition, operational compliance with noise standards, and the low priority for habitat within the vicinity of this oil and gas location. CPW informed TEP that noise impacts are not anticipated for this oil and gas location.

### **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 will 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.

No residential or other building units are located within 2,000 feet of the Arco Deep 1-27 location; therefore, impacts from lighting to members of the public are expected to be minimal during pre-production operations (short-term). The nearest residential building unit is located more than 1-mile from the WPS. Because no residential building units are present within 2,000 feet, it is unlikely for lighting during pre-production operations to adversely impact members of the public (see Cultural Distance Map – Form 2A).

TEP reviewed HPH within 1 mile of the Arco Deep 1-27 pad. The pad is located within greater sage-grouse General Habitat Management Area and is located 475 feet west of greater sage-grouse Priority Habitat Management Area. During the pre-application consultation process, TEP and CPW discussed potential lighting impacts to greater sage-grouse. TEP stated that the pad would be reconstructed with a 25-foot depth of cut along the east side of the pad, which would provide a physical barrier along the pad edge closest to greater sage-grouse Priority Habitat Management Area reducing the overall amount of light in the easterly direction. TEP stated that all planned operations would be compliant with applicable lighting standards under ECMC Rule 424 and that all lighting fixtures would be directed downward and inward to minimize light pollution from planned activities. CPW agreed that a light mitigation plan would not be necessary for this location based on the siting condition, operational compliance with lighting standards, and the low priority for habitat within the vicinity of this oil and gas location. CPW informed TEP that lighting impacts are not anticipated for this oil and gas location.

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. Potential sources of odors during drilling operations include drilling rig generators, third-party vehicles, drying shaker assembly and centrifuge solids, drill cuttings storage, water base/bentonitic drilling mud, and mud tanks. Potential sources of odors during completion operations include frac pumps, blender, and frac tanks. Potential sources of odors during flowback operations include separators and tanks, and during production operations include separators, tanks, emissions combustion devices, and natural gas generators.

No residential or other building units are located within 2,000 feet of the Arco Deep 1-27 location; therefore, impacts from odors to members of the public are expected to be minimal during pre-production operations (short-term) and production operations (long-term). The nearest residential building unit is located more than 1-mile from the WPS. Because no residential building units are present within 2,000 feet, it is unlikely for odor generated during pre-production operations (short-term) or production operations (long-term) to adversely impact members of the public (see Cultural Distance Map – Form 2A).

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

No residential or other building units are located within 2,000 feet of the Arco Deep 1-27 location; therefore, impacts from odors to members of the public are expected to be minimal during pre-production operations (short-term) and production operations (long-term). The nearest residential building unit is located more than 1-mile from the WPS. Because no residential building units are present within 2,000 feet, it is unlikely for odor generated during pre-production operations (short-term) or production operations (long-term) to adversely impact members of the public (see Cultural Distance Map – Form 2A).

**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	<u>0</u>	<u>0</u>
Condensate	<u>2</u>	<u>1000</u>
Produced Water	<u>6</u>	<u>2400</u>
Other volumes of stored fluids, hydrocarbons, chemicals, or E&P Waste Fluids	<u>5</u>	<u>548</u>

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.

1 - 500 bbl Gun Barrel = 500 bbl  
 4 - 12 bbl chemical tanks = 48 bbls  
 1 - 17 bbl Knockout Tank  
 1 - 3.21 bbl Chemical Tank

**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	<u>2640</u>	<u>S</u>	<u>Perennial Stream</u>
Wetland	<u>2640</u>	<u>SW</u>	<u>Perennial Stream</u>
Surface Waters of the State	<u>230</u>	<u>S</u>	<u>Intermittent Stream</u>

**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	<u>2640</u>	<u>SE</u>	<u>No PWS intakes within 1-mile of the working pad surface (WPS)</u>

**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)	Percentage Recycled Water	%	
Surface Water	<u>75000</u>	Recycled Water (Produced Water)	<u>211200</u>	Unspecified Source	<u>0</u>	<u>96</u> %
			<u>0</u>		<u>0</u>	
Ground Water	<u>0</u>	Recycled Water (non-Produced Water)	<u>0</u>	Total Water Usage	<u>218700</u>	
					<u>0</u>	

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

NA

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 Parachute Creek Fresh Water Takeout. The Parachute Creek Fresh Water Takeout is located along Parachute Creek on TEP property west of County Road 215. 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 4,688 bbls 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	3403	0
Greater sage-grouse Priority Habitat Management Area	475	0
Greater sage-grouse General Habitat Management Area	0	6.45

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	6.45	6.45	The Arco Deep 1-27 drill pad is completely located within Greater Sage Grouse General Habitat Management. The Oil and Gas Location is not within the Greater Sage Grouse Priority Habitat Management Area and Aquatic Sportfish Management Waters. A pre-application consultation meeting occurred with the CPW on August 16, 2022. TEP provided details on the proposed development plan, reviewed the draft Wildlife Mitigation Plan (attached to the Form 2A Doc #403135970), discussed potential impact to sensitive wildlife in the area, reviewed best management practices and discussed any necessary waivers needed for the planned operation. During this consultation, TEP requested and obtained a waiver to Rule 304.b.(2).B.viii requiring the preparation of an Alternative Location Analysis for Oil and Gas Locations located within High Priority Habitat.
Post-interim Reclamation	1.27	1.27	

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	2296	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	0	Shrub Land	2296	Mountain Riparian	0	Wetland Aquatic	0
Native Grassland	0	Plains Riparian	0	Forest Land	0	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 mature mountain shrubs 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 re-establishment of a portion of the affected shrubland is likely following reclamation. TEP has designed the project to incorporate existing infrastructure to minimize impact to the ecosystem and wildlife that rely on available habitats in the vicinity surrounding the existing Arco Deep 1-27 pad to be re-constructed. 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 Wildlife Plan attached to the Form 2A 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 for the 16 wells on the Arco Deep 1-27 pad. The temporary surface frac lines would be installed following the existing access roads and existing/proposed 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 Reclamation Plan attached to the Form 2A). TEP would utilize remote telemetry equipment to minimize well site visitation reducing the vehicles traveling on dirt/gravel roads. 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 reconstruction of the Arco Deep 1- 27 pad, access road, and installation of a portion of the pipeline infrastructure during May 2023 (a portion of the pipeline infrastructure would be installed in July 2023), which is within the nesting season for migratory birds (April 1 to August 31). If vegetation removal occurs during the nesting season, TEP would implement hazing or other exclusionary measures prior to April 1 to avoid take of migratory birds. Alternatively, TEP may conduct a migratory bird survey prior to vegetation removal as required by ECMC Rule 1202.a.(8) to avoid take of migratory birds. Additionally, TEP would conduct raptor surveys within 0.25 mile or 0.5 mile 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 expansion of the Arco Deep 1-27 pad and installation of infrastructure 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 in the Arco Deep 1-27 OGDG 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. 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
Parachute-Rhone loams, 5 to 30 percent slopes	6.45

**PUBLIC WELFARE**

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

<b>Building Units within 1-mile</b>	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.

No State Parks, State Trust Lands, or State Wildlife Areas exist within 1 mile of the Arco Deep 1-27 pad.

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 Arco Deep 1-27 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 no trails within 1 mile of the Arco Deep 1-27 pad.

**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	1.23	1.03	0.07	0.03	0.04	1476.59	0.03
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	20.6	12.43	1.92	4.78	0.39	3569.19	0
Drill Mud	0	0	1.47	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	0.43	2.84	0.39	0.01	0
Process Heaters or Boilers	0	0	0.43	2.84	0.39	0.01	0
Storage Tanks	0	0	0.43	2.84	0.39	0.01	0
Dehydration Units	0	0	0.43	2.84	0.39	0.01	0
Pneumatic Pumps	0	0	0.43	2.84	0.39	0.01	0
Pneumatic Controllers	0	0	0.43	2.84	0.39	0.01	0
Separators	0	0	0.43	2.84	0.39	0.01	0
Fugitives	0	0	0.43	2.84	0.39	0.01	0
Venting or Blowdowns	0	0	0.43	2.84	0.39	0.01	0
Combustion Control Devices	0	0	0.43	2.84	0.39	0.01	0
Loadout	0	0	0.43	2.84	0.39	0.01	0
Non-Road Internal Combustion Engines	0	0	0.43	2.84	0.39	0.01	0
Well Bradenhead	0	0	0.43	2.84	0.39	0.01	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: 3353                      During Completions: 2835  
 During Drilling: 19665                      During Interim Reclamation: 270  
 During Production: 2610

**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	1.85	0	1.85
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	39.19	18.82	0.3	12.35	8.48	0	0	448.81	0	527.95
Drill Mud	0	106.89	144.71	5.56	106.89	0	0	0	106.89	470.94
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	21	0	0	0	83	0	0	0	0	104
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	0	0	0	0	0	0	0	0	0	0
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	2	0	0	0	0	3
Well Bradenhead	0	0	0	0	0	0	0	0	0	0
Well Maintenance	4	7	0	3	28	3	0	2	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 the Balzac Gulch EA (BLM 2017b), individual HAP emissions from pre-production operations were quantified. The total HAPs emissions, 0.20 tpy include benzene, toluene, ethylbenzene, xylenes, n-hexane, and formaldehyde emissions of 0.08, 0.04, 0.0005, 0.02, 0.04, and 0.007 tpy, respectively. These HAP emissions are of similar magnitude to the level of Arco Deep 1-27 OGDG pre- production HAP emissions (benzene, toluene, ethylbenzene, xylenes, n-hexane, and formaldehyde) presented above (0.12, 0.11, 0.08, 0.03, 0.09, and 1.86 tpy, respectively).

Impacts from pre-production HAP emissions were not estimated or analyzed as part of the Balzac Gulch EA (BLM 2017b) given that the emissions from pre-production activities are from short-term activities and do not occur over the lifetime of the project. Also, these HAP emissions are less than those which could occur from production activities. As part of the Balzac Gulch EA (BLM 2017b) 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 reconstruction of the Arco Deep 1-27 well pad and drilling of 16 natural gas wells 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, these emissions are estimated as 0.0, 0.0, and 0.05 tpy, respectively. Although these HAPs were not specifically modeled in the Balzac Gulch EA (BLM 2017b), 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 the Balzac Gulch EA (BLM 2017b), individual 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 HAP emissions are of similar magnitude to the level of project production HAP emissions (benzene, toluene, ethylbenzene, xylenes, n-hexane, and formaldehyde) presented above (0.01, 0.0004, 0.0, 0.002, 0.1, and 0.001 tpy, respectively).

As part of the Balzac Gulch EA (BLM 2017b), 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 was 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 Arco Deep 1-27 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, these emissions are estimated as 0.002, 0.0, and 0.0 tpy, respectively. Although these HAPs were not specifically modeled in the Balzac Gulch EA (BLM 2017b), 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	165	843	195	42	39
Annual	329	3034	1106	42	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.

No proppant is planned for the Arco Deep 1-27 pad

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.

No proppant is planned for the Arco Deep 1-27 pad

**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	<u>4</u>	Active, built <u>66</u>
Permitted by ECMC, unbuilt	<u>0</u>	Permitted by ECMC, unbuilt <u>0</u>
Permitted by Relevant Local Government & not ECMC, unbuilt	<u>0</u>	Proposed <u>0</u>
Proposed	<u>0</u>	Plugged and Abandoned <u>0</u>

Total acreage disturbance during construction of the active and proposed oil & gas locations within 1-mile of the proposed Oil & Gas Location: 29

Source for acreage total:

- Field Observation/Measurement
- ECMC Location Files
- Aerial Photos/Other
- 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.

NA

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:		Permitted Onsite Storage Capacity	Existing Onsite Storage Capacity
<input checked="" type="checkbox"/> Field Observation/Measurement	Oil	<u>1</u>	<u>0</u>
<input checked="" type="checkbox"/> ECMC Location Files	Condensate	<u>9</u>	<u>15</u>
<input type="checkbox"/> Aerial Photos/Other	Produced Water	<u>8</u>	<u>9</u>
<input type="checkbox"/> Other	Pits	<u>2</u>	<u>1</u>

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.

NA

**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 OGDG, along with the estimated disturbed acreage of each HPH.

High Priority Habitat (HPH) Name	Estimated Acreage Disturbed
Greater Sage Grouse Priority Habitat Management Area	0.33
Greater Sage Grouse General Habitat Management Area	8.87

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 OGDG:

	Construction			Post-interim Reclamation	
	Total Acreage (acres)	Total HPH Acreage (acres)		Total Acreage (acres)	Total HPH Acreage (acres)
New roads, including access roads	<u>4.336</u>	<u>4.336</u>	New roads, including access roads	<u>1.623</u>	<u>1.623</u>
Pipelines	<u>6.078</u>	<u>4.775</u>	Pipelines	<u>0</u>	<u>0</u>
Utilities	<u>0</u>	<u>0</u>	Utilities	<u>0</u>	<u>0</u>

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

The proposed / existing access road for the Arco Deep 1-27 OGDG is located within greater sage-grouse General Habitat Management Area. The proposed pipeline ROW is located within greater sage-grouse General Habitat Management Area. A small portion of the proposed pipeline corridor is also located within greater sage-grouse Priority Habitat Management Area. A pre-application consultation meeting occurred with the CPW on August 16, 2022. TEP provided details on the proposed development plan, reviewed the draft Wildlife Mitigation Plan (attached to the Form 2A Doc #403135970), discussed potential impact to sensitive wildlife in the area, reviewed best management practices. TEP agreed to the following BMP: Avoidance – Construction activities associated with the cross-country section of the pipeline corridor within greater sage-grouse General Habitat Management Area and Priority Habitat Management Area will be completed outside the CPW recommended timing limitation (March 1 – July 15).

Number of miles of the existing lease road that are planned to be used to access these location(s): 11.08

**BENEFICIAL IMPACT INFORMATION**

**Equipment and Facility Removal**

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

Total number of existing locations that are planned to be closed and undergo final reclamation as part of this OGDG: 1

Total number of acres that are planned to be reclaimed through the closing of existing locations: 4.5

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

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

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.

The communities of Rifle, Colorado and Parachute, Colorado would benefit most notably from the employment and tax revenues generated by the proposed development plan. In addition to the direct jobs created by the project, the development plan would support jobs in local 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 would support infrastructure and community services in Rifle and across the county. In Garfield County ad valorem (property) taxes on production fund local governments; education and health care facilities; and fire protection, water conservation, and sanitation services including the City of Rifle, Garfield School District No. Re-2, Rifle Downtown Development District, Grand River Hospital, West Divide Water Conservancy District, Rifle Branch of the Garfield County Public Library District, and Colorado River Fire Rescue.

In addition to ad valorem taxes, Rifle and other Garfield County residents would receive a portion of state severance taxes and federal mineral royalties paid on production in the OGD through services provided. Severance tax on oil and gas production in Colorado is progressive, starting at 2% and increasing with sales volume. Half of severance taxes paid to the state is returned to local governments impacted by oil, gas, and mineral production. Nearly half (49%) of federal mineral royalties, which are generally 12.5% of production value, 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, Garfield County and the City of Rifle would also receive tax revenues from property taxes paid on physical assets 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 OGD.

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. If vegetation removal must be scheduled between April 1 to August 31, hazing or other exclusion measures would be implemented prior to April 1 to avoid take of migratory birds or a pre-construction nesting migratory bird surveys would be conducted prior to vegetation removal during the nesting season and if active nests are located, work zone buffers would be provided around active nests. Construction of the cross-country portion of the pipeline was not scheduled within the greater sage-grouse timing limitation (March 1 to July 15).

### **MITIGATION INFORMATION**

No Mitigation Measures Listed

### **OPERATOR COMMENTS AND SUBMITTAL**

\*Additional Soil Resource Listed for Puckett MV 1-23\* Parachute-Rhone loams, 5 to 30 percent slopes (Total Acreage 0.250)

TEP Rocky Mountain LLC (TEP) has approval to drill, complete, and operate sixteen (16) proposed directional natural gas wells from the Arco Deep 1-27 (OGDP ID: 483885/Loc ID: 322539). The Arco Deep 1-27 has one producing well. In support of the the Arco Deep 1-27 pad development, TEP will utilize the Puckett MV 1-23 oil and gas location (Loc ID: 322524) as a remote support facility during well completion operations associated with the approved wells on the Arco Deep 1-27 pad.

Print Name: Luke, Melissa

Title: Regulatory Specialist

Email: mluke@terraep.com

Date: 08/06/2024

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

ECMC Approved: 

**Director of ECMC**

Date: 4/4/2025

**ATTACHMENT LIST**

**Att Doc Num**      **Name**

403822098	Form 02B SUBMITTED
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Total Attach: 1 Files

**General Comments**

<b><u>User Group</u></b>	<b><u>Comment</u></b>	<b><u>Comment Date</u></b>
OGLA	OGDP ID# 489068 and this Form are approved by Commission Order Number 510-80	04/04/2025
OGLA	The Director has determined this OGDG application is complete. Form pushed to IN PROCESS.	01/21/2025

Total: 2 comment(s)