FORM 2B Rev 03/21

State of Colorado
Oil and Gas Conservation Commission

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CUMULATIVE IMPACTS DATA IDENTIFICATION

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

Form Type: [X] **OGDP** [ ] **Partial 2B - Rule 803.b.(2).A UIC Conversion**

OPERATOR INFORMATION

OGCC Operator Number: 47120
Name of Operator: KERR MCGEE OIL & GAS ONSHORE LP
Address: P O BOX 173779
City: DENVER State: CO Zip: 80217-3779

Contact Name and Telephone:
Name: Sam Samet
Phone: (720) 9293317
Email: sam_samet@oxy.com

OIL & GAS DEVELOPMENT PLAN INFORMATION

Oil & Gas Development Plan Name: North Core OGDP

Oil & Gas Development Plan Docket #:

Docket Number
220500111

Oil & Gas Development Plan ID #:

OGDP ID Number
482683

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

OIL & GAS LOCATION DATA

1 Oil & Gas Location Name: BLUE CHIP Number: 6-22HZ Status: Proposed

OIL & GAS LOCATION INFORMATION

Form 2A Doc#: 403038033

Loc ID#:

Oil & Gas Location: QTRQTR: SENW Sec: 22 Twp: 5N Rng: 67W Meridian: 6

Total number of wells planned: 12

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: 11

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: 9

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: 300

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.

A noise model representing the proposed operations at the pad was created to assess the predicted operational noise levels with the COGCC allowable dBA and dBC noise limits. The results of the noise modeling indicate that with mitigation the proposed drilling and completions operations will be in compliance with the COGCC A-weighted and C-weighted noise limits.

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

KMOG predicts the noise levels during the production stage will meet the COGCC allowable dBA and dBC noise limits. KMOG fully expects to comply with the COGCC A-weighted and C-weighted production noise limits. The use of electricity will minimizes noise at the production stage.

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.

KMOG will meet all applicable lighting requirements as set forth by Sec. 424 during the construction and pre-production phase operations. During the construction phase, lighting shall be directed downward and inward and shielded to avoid glare on public roads and building units.

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

KMOG will meet all applicable lighting requirements as set forth by Sec. 424(B) during the production phase operations.
Permanent lighting will be installed at the production facility. KMOG will have three types of lights at the production facility including the Lease Automated Custody Transfer (LACT) lights, emergency strobe lights and heat trace lights. The lights above the LACT door are for personnel visiting at night and it will be directed downward to avoid glare on public roads and adjacent building units. These lights are on a switch and will be turned off when personnel leave the location. The strobe lights are also on the LACT building and act as an emergency indicator that will activate if a high level of gas is detected within the LACT building. The heat trace lights are a small red light that acts as a visual indication that the heat trace circuit is powered on. After new lighting is installed at the location, KMOG will certify that the lighting complies with the base allowances and standards set forth in 424 b.c.d.

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.

During the pre-production phase all odor sources are attributed to the hydrocarbon-based drilling fluid when left untreated. To eliminate and/or reduce these odors the KMOG has partnered with a commercial vendor to design and optimize a treatment plan using odor neutralizers mixed in all drilling fluids on location to encapsulate and mitigate odor at the source. The odor neutralizer product is added to the active drilling fluid system at a concentration rate of five gallons per 24-hours, metered, and continuously added throughout the 24 -hour period. The concentration volumes and essential oil type were carefully selected through testing with a Nasal Ranger olfactometer by the unaffiliated third-party company to ensure odors are neutralized to the maximum extent possible

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

KMOG production facilities are designed as a closed system to reduce exposure to the atmosphere thereby eliminating potential odors.
KMOG uses pipelines to transport hydrocarbons from the production facility eliminating odors that could occur during truck loading.
Production facilities are inspected regularly by KMOG personnel to make sure the equipment is working property and necessary maintenance is performed, to reduce potential odors. KMOG incorporates Audio, Visual, Olfactory (AVO) observations at production facility inspections.
KMOG will use Best Management Practices to reduce unloading events and to reduce potential odor causing emissions when liquids unloading is necessary (i.e., maintenance activities to remove liquids from existing wells that are inhibiting production).
KMOG remotely monitors production facilities, this reduces traffic onto production facilities which may create odors from truck traffic.

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: 110

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

	Number of Tanks	Total Volume (bbls)
Oil	0	0
Condensate	1	285
Produced Water	4	1140
Other volumes of stored fluids, hydrocarbons, chemicals, or E&P Waste Fluids	3	24.9

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.

5000 GAL - Corrosion/Scale Protection Chemical 11.9 BBL
350 GAL- Corrosion/Bacterial Protection Chemical 8.33 BBL
350 GAL - Methanol 8.33 BBL
500 GAL - Propane 11.9 BBL

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	2590	SW	Herbaceous Riparian
Wetland	2480	SW	Riverine
Surface Waters of the State	1305	W	Perennial 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 Potential Impacts

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	4141586	Recycled Water (Produced Water)	27611	Unspecified Source	0	Percentage Recycled Water	1 %
Ground Water	1379318	Recycled Water (non-Produced Water)	0	Total Water Usage	5548515		

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.

KMOG uses recycled water when possible and receieves its surface water from surface non-potable sources

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 Native Species, Conservation Waters	4760	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	12.62	0
Post-interim Reclamation	3.03	0

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

N/A

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	1865.22	Non-Irrigated	0	Conservation Reserve Program(CRP)	0	

Non-Crop Land:	Rangeland	357.61	Forestry	2.67	Recreation	0	Other	88.74
Subdivided:	Industrial	32.85	Commercial	3.7	Residential	35.45		

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.

Open Water, Developed - Open Space, Developed - Low Intensity, Developed - Medium Intensity, Developed - High Intensity, Barren Land, Woody Wetlands, Emergent Herbaceous Wetlands

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	0	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.

N/A

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
79-Weld loam, 1 to 3 percent slopes	12.9

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	10
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.

None

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

None

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.

None

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	1.1	0.17	0.05	0.01	0.0024	164.24	0.0013
Storage Tanks	0.01	0.06	0.06	0.29	0.1	32.23	0
Venting or Blowdowns	0.01	0.05	0.39	0.51	0.18	23.03	0

Combustion Control Devices	0.0045	0.02	0.03	0.08	0.03	6.3	0
Non-Road Internal Combustion Engines	78.37	81.75	10.32	0.22	0.08	7556.48	0.04
Drill Mud	0.06	0.27	0.52	1.26	0.15	9	0
Flowback or Completions	0	0	0	0	0	0	0
Loadout	0	0	0.04	0.21	0.07	0.16	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	2.41	2.02	0.13	0.06	0.07	2887	0.05
Storage Tanks	0.07	0.3	0.52	0.99	0.45	158.87	0.0002
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			0.38	0.31	0.11	0.03	
Venting or Blowdowns	0	0	4.74	6.12	2.17	0.51	0
Combustion Control Devices	0.0045	0.02	0.03	0.08	0.03	6.3	0
Loadout	0.12	0.08	0.0001	0.0006	0	14.6	0.0001
Non-Road Internal Combustion Engines	0	0	0.6	1.12	0.51	1.2	0
Well Bradenhead	0	0	0.0026	0.0034	0.0012	0.0003	0
Well Maintenance	0	0	1.93	2.49	0.88	0.21	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: 23670 During Completions: 49599

During Drilling: 10220 During Interim Reclamation: 10192

During Production: 139268

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	9.41	23.07	2.36	5.5	64.2	5.85	0	0	0	110.39
Storage Tanks	2.45	1.75	0.07	0.42	1.28	0	0	0	0	5.98
Venting or Blowdowns	8.6	21.08	2.15	5.03	58.67	5.35	0	0	0	100.88
Combustion Control Devices	0.0001	0.0001	0	0.0001	0.0006	0.0001	0	0	0	0.0009
Non-Road Internal Combustion Engines	309.97	759.77	77.56	181.17	2113.99	192.77	0	0	0	3635.23
Drill Mud	0.01	0.01	0.0014	0.0033	0.04	0.0036	0	0	0	0.07
Flowback or Completions	0	0	0	0	0	0	0	0	0	0
Loadout	1.79	1.28	0.05	0.31	0.94	0	0	0	0	4.37

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	0.1	0.16	0	0	0	0	0	3.61	0	3.87
Storage Tanks	34.63	25.61	0.94	6.01	50.5	0.01	0	0	0	117.71
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	5.04	9.82	1.55	10.64	32.79	3.15	0	0	0	62.98
Venting or Blowdowns	103.78	254.38	25.97	60.66	707.8	64.54	0	0	0	1217.13
Combustion Control Devices	0.15	0.18	0.03	0.12	1.16	0.15	0	0	0	1.79
Non-Road Internal Combustion Engines	0	0	0	0	0	0	0	0	0	0
Loadout	42.46	29.78	1.16	6.99	86.66	0.24	0	0	0	167.29
Well Bradenhead	0.06	0.14	0.01	0.03	0.39	0.04	0	0	0	0.67
Well Maintenance	42.23	103.51	10.57	24.68	288.02	26.26	0	0	0	495.28

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.

Air monitoring will be conducted during pre-production activities including production rig and completion operations (hydraulic fracturing, drillout and flowback).
KMOG`s general Air Monitoring Program has been approved by the CDPHE and is attached to this form. A site-specific Air Monitoring Plan for this location will be submitted to the COGCC and CDPHE for approval of air monitor locations prior to operations. The attached general Air Monitoring Program has been used on multiple locations. KMOG has been performing air monitoring around pre-production and production facility operations since 2018. Over 1,200 air samples have been collected and analyzed for benzene and other hazardous air pollutants following EPA methods. Results of all validated samples have been below Health Guidance Values complied by CDPHE. See Section 11 of the attached Air Monitoring Program on how the monitoring results are compared to the HGVs.
The analytical results collected to date are representative of pre-production operations for this pad. In addition to the analytical data, continuous VOC analyzer will be located around the pre-production as described in Sections 9 and 10 of the Air Monitoring Program. These monitors are used to indicate a change in operations. Based on historical monitoring, KMOG has established three (3) investigation levels for the continuous analyzers that correlate to benzene levels well below the HGV. For each investigation level there is an associated investigation response. See Sections 14 and 15 of the Air Monitoring Program for more details investigation levels and responses.

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.

ir monitoring will be conducted during early production facility operations, which is 6 months after the last well is turned over to production. Air monitoring will follow the approved Air Monitoring Program. These production facilities are designed to minimize or eliminate air emissions. See Section 5 of the Air Monitoring Program for more information on the design of the production facility. Some of the air monitoring has been conducted at bulk separator production facilities. Results of all validated samples have been below Health Guidance Values complied by CDPHE. See Section 11 of the attached Air Monitoring Program on how the monitoring results are compared to the HGVs. The analytical results collected to date are representative of production facility operations for this pad. As discussed for the pre-production operations, continuous VOC analyzer will be located around the production facility.

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	5885	2095	5010	3167	855
Annual	6275	7892	11022	3167	10264

Estimated total pounds (lbs) of proppant to be used during completions activities. 190139710

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

Silica Proppant

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.

Utilize Sand Containerized Proppant Delivery System that eliminates the use of pneumatic transfer on location. This methodology utilizes a gravity choke feed system that reduces dust significantly from historical practices. The dust levels from this system are minimal and below OSHA's permissible exposure limit which eliminates the need for additional PPE.

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	48	Active, built	45
Permitted by COGCC, unbuilt	0	Permitted by COGCC, unbuilt	0
Permitted by Relevant Local Government & not COGCC, unbuilt	0	Proposed	0
Proposed	0	Plugged and Abandoned	26

Total acreage disturbance during construction of the active and proposed oil & gas locations within 1-mile of the proposed Oil & Gas Location: 5.27

Source for acreage total:

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

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

N/A

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

Source for storage totals:

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

	Permitted Onsite Storage Capacity	Existing Onsite Storage Capacity
Oil	21	
Condensate	0	
Produced Water	14	
Pits	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.

N/A

2 Oil & Gas Location Name: RAINBOW Number: 24-9HZ Status: Proposed

OIL & GAS LOCATION INFORMATION

Form 2A Doc#: 403038035

Loc ID#:

Oil & Gas Location: QTRQTR: SWNE Sec: 9 Twp: 5N Rng: 67W Meridian: 6

Total number of wells planned: 28

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: 20

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: 16

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: 300

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.

The results of noise modeling indicate that the proposed drilling and completions operations will be in compliance with the COGCC A-weighted and C-weighted noise limits.

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

KMOG predicts the noise levels during the production stage will meet the COGCC allowable dBA and dBC noise limits. KMOG fully expects to comply with the COGCC A-weighted and C-weighted production noise limits. The use of electricity will minimizes noise at the production stage.

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.

KMOG will meet all applicable lighting requirements as set forth by Sec. 424 during the construction and pre-production phase operations. During the construction phase, lighting shall be directed downward and inward and shielded to avoid glare on public roads and building units.

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

KMOG will meet all applicable lighting requirements as set forth by Sec. 424(B) during the production phase operations. Permanent lighting will be installed at the production facility. KMOG will have three types of lights at the production facility including the Lease Automated Custody Transfer (LACT) lights, emergency strobe lights and heat trace lights. The lights above the LACT door are for personnel visiting at night and it will be directed downward to avoid glare on public roads and adjacent building units. These lights are on a switch and will be turned off when personnel leave the location. The strobe lights are also on the LACT building and act as an emergency indicator that will activate if a high level of gas is detected within the LACT building. The heat trace lights are a small red light that acts as a visual indication that the heat trace circuit is powered on. After new lighting is installed at the location, KMOG will certify that the lighting complies with the base allowances and standards set forth in 424 b.c.d.

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.

During the pre-production phase all odor sources are attributed to the hydrocarbon-based drilling fluid when left untreated. To eliminate and/or reduce these odors the KMOG has partnered with a commercial vendor to design and optimize a treatment plan using odor neutralizers mixed in all drilling fluids on location to encapsulate and mitigate odor at the source. The odor neutralizer product is added to the active drilling fluid system at a concentration rate of five gallons per 24-hours, metered, and continuously added throughout the 24 -hour period. The concentration volumes and essential oil type were carefully selected through testing with a Nasal Ranger olfactometer by the unaffiliated third-party company to ensure odors are neutralized to the maximum extent possible.

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

KMOG production facilities are designed as a closed system to reduce exposure to the atmosphere thereby eliminating potential odors.
KMOG uses pipelines to transport hydrocarbons from the production facility eliminating odors that could occur during truck loading.
Production facilities are inspected regularly by KMOG personnel to make sure the equipment is working property and necessary maintenance is performed, to reduce potential odors. KMOG incorporates Audio, Visual, Olfactory (AVO) observations at production facility inspections.
KMOG will use Best Management Practices to reduce unloading events and to reduce potential odor causing emissions when liquids unloading is necessary (i.e., maintenance activities to remove liquids from existing wells that are inhibiting production).
KMOG remotely monitors production facilities, this reduces traffic onto production facilities which may create odors from truck traffic.

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:

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

	Number of Tanks	Total Volume (bbls)
Oil	0	0
Condensate	2	570
Produced Water	8	2280
Other volumes of stored fluids, hydrocarbons, chemicals, or E&P Waste Fluids	6	49.8

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.

"350 GAL - Corrosion/Scale Protection Chemical 8.33 BBL
350 GAL- Corrosion/Bacterial Protection Chemical 8.33 BBL
350 GAL - Methanol 8.33 BBL
500 GAL - Propane 11.9 BBL"

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	N	NA
Wetland	2640	NW	NA
Surface Waters of the State	0	NE	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 Potential Impacts

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	7871648	Recycled Water (Produced Water)	52478	Unspecified Source	0	Percentage Recycled Water	1 %
Ground Water	2633005	Recycled Water (non-Produced Water)	0	Total Water Usage	105571 30		

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.

KMOG uses recycled water when possible and recieves its surface water from surface non-potable sources

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.

Data not required

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	26.26	0
Post-interim Reclamation	8.24	0

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

NA

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	1430.44	Non-Irrigated	0	Conservation Reserve Program(CRP)	0		
Non-Crop Land:	Rangeland	600.9	Forestry	350.05	Recreation	0	Other	199.26
Subdivided:	Industrial	0	Commercial	140.56	Residential	108.53		

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.

Open Water, Developed - Open Space, Developed - Low Intensity, Developed - Medium Intensity, Developed - High Intensity, Barren Land, Woody Wetlands, Emergent Herbaceous Wetlands

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	0	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.

NA

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
18-Colby-Adena loams, 3 to 9 percent slopes	21.2
34-Kim loam, 5 to 9 percent slopes	3.6
79-Weld loam, 1 to 3 percent slopes	1.4

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	29
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.

NA

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

NA

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.

NA

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	1.1	0.17	0.05	0.01	0.0024	164.24	0.0013
Storage Tanks	0.03	0.15	0.14	0.67	0.23	75.2	0.0001
Venting or Blowdowns	0.03	0.12	0.61	0.78	0.28	53.69	0.0001
Combustion Control Devices	0.01	0.06	0.03	0.08	0.03	6.3	0
Non-Road Internal Combustion Engines	175.86	190.76	24.07	0.51	0.18	17631.78	0.08
Drill Mud	0.14	0.63	1.22	2.94	0.36	10.51	0
Flowback or Completions	0	0	0	0	0	0	0
Loadout	0	0	0.1	0.49	0.17	0.36	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	5.61	4.72	0.31	0.13	0.17	6737	0.12
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			0.93	0.76	0.27	0.07	
Venting or Blowdowns	0	0	11.04	14.26	5.06	1.2	0
Combustion Control Devices	0.01	0.06	0.1	0.25	0.09	6.32	0
Loadout	0	0	1.38	2.61	1.18	2.81	0
Non-Road Internal Combustion Engines	0.28	0.19	0.0001	0.0013	0.0001	34.07	0.0003
Well Bradenhead	0	0	0.0026	0.0034	0.0012	0.0003	0
Well Maintenance	0	0	4.5	5.81	2.06	0.49	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: 38600 During Completions: 94689

During Drilling: 17024 During Interim Reclamation: 15303

During Production: 694234

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	9.41	23.07	2.36	505	64.2	5.85	0	0	0	110.39
Storage Tanks	5.72	4.09	0.17	0.98	3	0	0	0	0	13.96

Venting or Blowdowns	13.27	32.54	3.32	7.76	90.53	8.25	0	0	0	155.67
Combustion Control Devices	0.0001	0.0001	0	0.0001	0.0006	0.0001	0	0	0	0.0009
Non-Road Internal Combustion Engines	723.25	1772.8	180.98	422.72	4932.65	449.8	0	0	0	8482.21
Drill Mud	0.01	0.03	0.0033	0.01	0.09	0.01	0	0	0	0.16
Flowback or Completions	0	0	0	0	0	0	0	0	0	0
Loadout	4.17	2.99	0.15	0.72	2.19	0	0	0	0	10.19

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	0.24	0.38	0	0	0	0	0	8.42	0	9.42
Storage Tanks	80.81	59.76	2.2	14.02	117.84	0.02	0	0	0	274.66
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	12.33	24.03	3.8	26.04	80.22	7.7	0	0	0	154.12
Venting or Blowdowns	241.75	592.56	60.49	141.3	1648.74	150.35	0	0	0	2835.18
Combustion Control Devices	0.45	0.54	0.08	0.36	3.49	0.44	0	0	0	5.36
Non-Road Internal Combustion Engines	0	0	0	0	0	0	0	0	0	0
Loadout	94.55	68.28	2.58	16.01	162.61	0.25	0	0	0	344.29
Well Bradenhead	0.06	0.14	0.01	0.03	0.39	0.04	0	0	0	0.67
Well Maintenance	98.5	241.53	24.66	57.59	672.05	61.28	0	0	0	1155.65

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.

Air monitoring will be conducted during pre-production activities including production rig and completion operations (hydraulic fracturing, drillout and flowback).
KMOG`s general Air Monitoring Program has been approved by the CDPHE and is attached to this form. A site-specific Air Monitoring Plan for this location will be submitted to the COGCC and CDPHE for approval of air monitor locations prior to operations. The attached general Air Monitoring Program has been used on multiple locations. KMOG has been performing air monitoring around pre-production and production facility operations since 2018. Over 1,200 air samples have been collected and analyzed for benzene and other hazardous air pollutants following EPA methods. Results of all validated samples have been below Health Guidance Values complied by CDPHE. See Section 11 of the attached Air Monitoring Program on how the monitoring results are compared to the HGVs.
The analytical results collected to date are representative of pre-production operations for this pad. In addition to the analytical data, continuous VOC analyzer will be located around the pre-production as described in Sections 9 and 10 of the Air Monitoring Program. These monitors are used to indicate a change in operations. Based on historical monitoring, KMOG has established three (3) investigation levels for the continuous analyzers that correlate to benzene levels well below the HGV. For each investigation level there is an associated investigation response. See Sections 14 and 15 of the Air Monitoring Program for more details investigation levels and responses.

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.

Air monitoring will be conducted during early production facility operations, which is 6 months after the last well is turned over to production. Air monitoring will follow the approved Air Monitoring Program. These production facilities are designed to minimize or eliminate air emissions. See Section 5 of the Air Monitoring Program for more information on the design of the production facility. Some of the air monitoring has been conducted at bulk separator production facilities. Results of all validated samples have been below Health Guidance Values complied by CDPHE. See Section 11 of the attached Air Monitoring Program on how the monitoring results are compared to the HGVs. The analytical results collected to date are representative of production facility operations for this pad. As discussed for the pre-production operations, continuous VOC analyzer will be located around the production facility.

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	9560	2120	5010	4303	2073
Annual	10168	13076	21042	4303	24873

Estimated total pounds (lbs) of proppant to be used during completions activities. 3792717 16

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

Silica Proppant

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.

Utilize Sand Containerized Proppant Delivery System that eliminates the use of pneumatic transfer on location. This methodology utilizes a gravity choke feed system that reduces dust significantly from historical practices. The dust levels from this system are minimal and below OSHA's permissible exposure limit which eliminates the need for additional PPE.

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	33	Active, built	40
Permitted by COGCC, unbuilt	0	Permitted by COGCC, unbuilt	0
Permitted by Relevant Local Government & not COGCC, unbuilt	0	Proposed	0
Proposed	0	Plugged and Abandoned	23

Total acreage disturbance during construction of the active and proposed oil & gas locations within 1-mile of the proposed Oil & Gas Location: 8.44

Source for acreage total:

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

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

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:

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

	Permitted Onsite Storage Capacity	Existing Onsite Storage Capacity
Oil	10	
Condensate	0	
Produced Water	6	
Pits	2	

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 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	5.54	0	New roads, including access roads	5.54	0
Pipelines	37.65	0	Pipelines	0.26	0
Utilities	2.66	0	Utilities	0.06	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 North Core OGDP was planned to avoid HPH

Number of miles of the existing lease road that are planned to be used to access these location(s): 0.23

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: 27

Total number of existing locations that are planned to be closed and undergo final reclamation as part of this OGDP: 10

Total number of acres that are planned to be reclaimed through the closing of existing locations: 14.05

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): 1308

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

Oil Tanks: 18

Condensate Tanks: 0

Produced Water Tanks: 12

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

As a result of plugging 27 wells the surrounding community can expect reduced truck traffic traveling to multiple locations. This will reduce the amount of time that trucks are present in the area. The surrounding community will see reduced noise and dust associated with that traffic. Removing older well heads and tanks will reduce the risk of emissions associated with those locations. The reduction from 27 locations to 2 locations will create a less fragmented area. As a result of plugging 27 wells, the surrounding community can expect reduced truck traffic traveling to multiple locations. This will reduce the amount of time that trucks are present in the area. The surrounding community will also see reduced noise and dust associated with that traffic. Removing older well heads and tanks will reduce the risk of emissions associated with those locations. Plugging these 27 wells will eliminate approximately: 0.123 TPY (Tons Per Year) of NOx, 2.103 TPY of VOC, 0.544 TPY of CO, and 0.007 TPY of Benzene.

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

As a result of this development we will be plugging 27wells and reclaiming approximately 14.05 acres across multiple locations and disturbing 84.7 acres concentrated in four locations prior to reclamation and 16.9 after interim reclamation. This development will ultimately restore nearly 3 more acres than are disturbed and will be concentrated to two areas thereby reducing habitat fragmentation. Limited beneficial impacts to the surrounding wildlife and ecosystems are expected and could include the addition of potential hunting perches for raptors and the elimination of agricultural runoff.

MITIGATION INFORMATION

Item	Impacted Resource	Mitigation Description
1	Water Resources	Nearby Water Resources Blue Chip 6-22HZ Wetlands and Surface Waters of the State An unnamed ditch with an ordinary high-water mark (OHWM) is upgradient, located approximately 60 feet north of the Site. The unnamed ditch has connectivity to an intermittent stream located downgradient of the Site, approximately 160 feet to the east. The intermittent stream is mapped on the National Wetland Inventory (NWI) and the National Hydrography Dataset (NHD) and exhibits an OHWM. The unnamed ditch flows east to the intermittent stream, where stream flow continues south. Consistent with Site topography, surface water runoff would be conveyed southeast towards a series of holding ponds located approximately 0.5 mile downgradient. Downgradient is to the south and east of the pad. Two permanent water tanks will be located 493 feet southwest of the OHWM. A permanent maintenance tank will be located 514 feet southwest of the OHWM. Three chemical totes will be located 296 feet southwest of the OHWM. CPW has granted a waiver to Rule 1202.a.(3). For additional information please refer to the Ordinary High Water Mark Exhibit. The nearest OHWM is approximately 2,480 feet south. Rainbow 24-9HZ Wetlands and Surface Waters of the State There are two swales near the Rainbow 24-9HZ location. Neither of these swales contain ordinary high water marks (OHWM) nor hydrophytic vegetation. The location is nearly 3,750 feet from the nearest OHWM. MITIGATION MEASURES: KMOG protects water resources by carefully choosing the location, utilizing drainage control measures, and proper grading techniques. KMOG segregates topsoil in order to protect soil resources. Enhanced soil compaction minimizes absorption and downward migration of fluids in the event of an incidental spill. Liners are installed under the production facility equipment during the production phase. KMOG will adhere to rule 309.3.(5).D by containing flowback and stimulation fluids in tanks, constructing lined berms or other lined containment devices pursuant to Rule 603.o around any new crude oil, condensate, and produced water storage tanks, maintaining adequate spill response equipment at the Oil and Gas Location during drilling and completion operations; and not construct or utilize any pits. Both prior to, and after drilling and completion operations, KMOG contracts with a third-party professional to perform water sampling from water wells near the location. The baseline sampling helps establish existing conditions, and the post-development samples verify KMOG's operations are safe. To prevent fluid leaks, temporary produced water storage tanks are designed, constructed, and maintained in accordance with the following portions of the National Fire Protection Association (NFPA) Code 30 (2008 version): • Tanks are built to engineering standards using noncombustible materials, with relief device sizing based on API 2000 standards. • Tanks are inspected and maintained while in use. • The only pipes within the containment are related to the temporary tanks (i.e. no external piping is co-located within the containment), and firefighting equipment is, likewise, not stored within the containment area. The temporary produced water storage tanks are staged on a geosynthetic liner and surrounded by an earthen berm. The berms enclose an area sufficient to provide secondary containment for 150% of the volume of the largest single tank and are sufficiently impervious to contain spilled or released material. The berms and the liner are inspected at the same time as stormwater inspections. While the site is under construction, site inspections will occur every 14 days. During completions operations, all fluid containing equipment is inspected daily. When the location is on production, site inspections will occur every month. Automation technology will be utilized at these facilities. This technology includes the use of fluid level monitoring for the tanks and produced water sumps, high-level shut offs, and electronic sensors to monitor the interstitial space of double-walled produced water sumps. All automation is monitored by Kerr-McGee's Integrated Operations Center (IOC), which is manned 24 hours per day, 7 days per week.

2	Ecosystem and Wildlife Resources	NTICIPATED IMPACTS: KMOG is able to avoid impacts to wildlife at the north Core OGDP Locations because of their location outside of HPH. DETAILS: The locations were surveyed by a third-party biological contractor prior to permit submittal. The area 2,640 feet from the edge of the disturbance area was surveyed for Migratory Bird Treaty Act (MBTA) species. The biological surveys check for all species and environmental conditions outlined in the COGCC rules using accepted scientific survey practices. Where surface access is granted by the surface owner these surveys are conducted on the ground. If access is not possible, surveys are conducted from public ROW to the best of the contractor's ability. The locations will be surveyed again for nests approximately two weeks prior to construction start. Periodic inspections for nests and of avian protection will occur throughout the life of the project. Blue Chip 6-22HZ There is no high priority habitat (HPH) within one mile of the Blue Chip 6-22HZ location. There no trees suitable for nesting of bald eagle and minimal trees suitable for nesting of non-eagle raptors within a half mile of the Location. Rainbow 24-9HZ There is no high priority habitat (HPH) within one mile of the Rainbow 24-9HZ location. There are few trees suitable for nesting of bald eagle nor other raptors within a half mile of the Location. Three potential burrowing owl nesting habitats are within 0.25 miles of the Location at approximately 400 feet northeast, 240 feet southwest and 950 feet south of the Location. Reclamation KMOG will reclaim 14 acres associated with plugging and abandoning 27 nearby wells. The North Core OGDP & associated roads will be reclaimed to 16.9 acres. Development of the OGDP will result in the reclamation of nearly 3 acres more than are disturbed. MITIGATION MEASURES: Blue Chip 6-22HZ CPW recommends surveys for nesting non-eagle raptors if project activities start between February 1 and August 15. Rainbow 24-9HZ CPW recommends surveying for nesting raptors including eagles if the project activities start between December 1 and August 15. CPW also recommends a three-survey protocol for determining the presence or absence of the western burrowing owl if construction activities begin between March 15 and October 31. General Mitigation Light will be minimized by directing lighting downward and inward. Avian protection will be installed on openings larger than two inches. Approximately two weeks prior to construction start, the approved locations will be surveyed by third party biological contractor for nests. A site-specific spill prevention, control, and countermeasure plan compliant with EPA rule 40 CFR 112 has been created and submitted with the 2A for these locations. Automated emergency response systems and emergency shutdown systems will be installed. Remote monitoring systems will be utilized at these locations. Periodic inspections for nests and of avian protection will occur throughout the life of the project. Training is provided to employees and contractors on wildlife conservation practices, including no harassment, feeding of wildlife, or illegal hunting. KMOG maintains a Standard Operating Procedure (SOP) for water suction hoses and transportation Tanks that meets 1202.a.(2).A requirements with 3rd party contractors when moving equipment from locations. The contractor will use a CPW-approved disinfectant solution capable of killing whirling disease spores and other aquatic nuisance species defined by CPW. KMOG does not use drilling pits, production pits or any other pits at oil and gas locations in the Denver-Julesburg Basin. Reclamation KMOG will plug and abandon 27 wells and 10 associated facility locations and reclaim 14 acres of previously created pads after wells in this OGDP are in the production phase. The North Core OGDP locations will disturb 84.7 acres for pre-production activities and be reclaimed to approximately 17 acres. The net reclamation of this OGDP exceeds the disturbance created, with 3 more acres being reclaimed than are permanently disturbed. This will also eliminate fragmentation of habitat. The area will be surveyed on multiple occasions to ensure that animals or their nests are not present. If animals are discovered the proper actions will be followed to ensure the safety of the animal and their habitat. The tables below indicate the 27 wells that will be plugged and abandoned associated with this OGDP.
3	Air Resources	ANTICIPATED IMPACTS:

Short-term impacts: During pre-production activities KMOG anticipates the release of 21,300 tons of emissions. KMOG expects 10,341 lbs. of Hazardous Air Pollutants (HAP) during pre-production.
Long-term Impacts: During one year of production KMOG anticipates the release of 8,264 tons of emissions. KMOG expects 5,560 lbs. of HAP during one year of production.
DETAILS:
To ensure the wellbeing of those working and living near operations, KMOG contracts with a third-party environmental air quality expert to perform continuous air monitoring during drilling and completions.
MITIGATION MEASURES:
KMOG anticipates minimal impact to air resources from its operations. KMOG's continued efforts in facility design and operations create a very low emission footprint for pre-production and production operations. Based on the 2022 Colorado Regulation 7 Emission Inventory, KMOG has the lowest intensity of any oil and gas operator in the State of Colorado. As a result of KMOG's proactive approach to emissions, KMOG has already met the 2030 intensity targets set in the CDPHE's recently adopted Regulation 22. KMOG's calculated 2020 intensity is 1.83 mtCO2e/kBOE and the year 2030 Regulation 22 targets are set at 6.80mtCO2e/kBOE. Although, KMOG is well ahead of the efforts to reduce emissions, KMOG continues to strive to find and apply innovative opportunities for emissions reduction across pre-production and production operations.
KMOG has collected over 3,400 Benzene air samples within 300 feet of analogous locations, including baseline sampling. All samples are well below CDPHE health guidance values (HGV) and are generally 85% lower than the HGV.
KMOG will place continuous VOC and benzene monitors at multiple locations throughout drilling, completions and the first six months of production. These monitors send alerts to the IOC so that the safety of the location is monitored 24 hours per day, seven days per week.
During drilling: KMOG uses natural gas engines to power it's rigs rather than diesel generators. This change in fuel type produces 30% less CO2, 75% less Nitrogen Oxide, particulate matter is reduced by 90% and sulfur oxides are reduced by 50%.
During Completions: During completions KMOG uses a closed loop system. As a standard practice, KMOG has also implemented the pipelined Water on Demand (WOD) system which will eliminate 188,365 truck trips at the North Core OGDP locations during completions activities.
During Flowback: Fluids will flow through separation equipment where the gas will be collected through a gas gathering line instead of vented or burned.
During Production: KMOG uses production facilities that have been designed to eliminate most emission sources. Oil will not be stored on location where it could cause emissions but will be gathered and sent via pipeline to a stabilization facility. This gathering system also reduces the number of vehicles visiting the location. Additionally, KMOG uses air actuated pneumatic devices rather than natural gas actuated devices. There will be no flaring of associated sales gas. There will be no compressor engines on location.
Produced water can contain entrained gas, KMOG equips water storage tanks with combustion devices with a 98% destruction efficiency. If the pilot for the combustor goes out the location will be remotely shut in.
There will be maintenance tanks at the North Core OGDP locations, that will only be used during maintenance operations. These tanks are identified as "condensate tanks" on the North Core OGDP Form 2B. The maintenance tanks are not part of normal operation and are only used to manually flow to the tanks for activities such as equipment blowdowns for maintenance or well unloading. In the event the tanks are utilized, it is standard KMOG practice to empty maintenance tanks within 24 hours in order to minimize emissions. The maintenance tanks are equipped with monitoring devices that report data such as temperature, pressure and fluid level and can be monitored from KMOG's IOC in Platteville. The maintenance tanks are attached to the overall tank vapor recovery piping that goes to the Enclosed Combustion Device (ECD). If any vapors are recovered, then they are sent to the ECD and not released into the atmosphere. Maintenance activities that send fluids to the maintenance tanks are recorded and emissions are quantified, reported, and permitted according to requirements in CDPHE Regulation 3 and Regulation 7. The maintenance tank is required to safely perform maintenance activities when deemed necessary. These are infrequent and not part of the normal operation of the facility.
KMOG will have permanent water storage tanks on the North Core OGDP locations. The tanks will be controlled with VOC combustors. Tank emissions monitoring systems will be in place, which means that tank pressures will be continuously recorded, and the location will be shut in if tank pressures start to approach the pressure at which relief devices would vent emissions to the atmosphere. Therefore, the possibility of venting from tanks is eliminated. The tank components and control device will be on preventative

		maintenance schedules to ensure device integrity and minimize the potential for leaks/failure. The tanks (and entire facility) will have Leak Detection and Repair (LDAR) surveys completed. KMOG has a dedicated emissions team that conducts the LDAR program. This team performs weekly audio visual and olfactory (AVO) inspections to make sure equipment is working per design and in a manner safe for the environment. The entire facility will be inspected to ensure that there are not any leaks that can be detected using hearing, sight, or smell. If a leak is found it is reported to the state, repaired and reinspected with a FLIR camera to confirm the repair has been completed. Facilities will also be inspected for gas leaks at least monthly using an infrared camera. KMOG maintains the IOC where facilities are monitored and can be shut in remotely if a leak is suspected. The IOC allows KMOG to quickly respond without creating any additional traffic. The reduction of 27 wells and 10 facility locations will remove the following potential sources of emissions: 12 water tanks and 18 oil tanks. The omission of approximately 1,418 truck trips annually to visit those locations will also reduce emissions.
4	Public Welfare	ANTICIPATED IMPACTS: During the short-term pre-production activities KMOG anticipates an increase in truck traffic, minimal to no increase in noise and light. There are no anticipated odor impacts. As a result of plugging and reclaiming multiple wells nearby and creating a more consolidated location the scenery in the areas of the proposed locations will be changed during pre¬production and production phases. DETAILS: Noise KMOG contracted a third party to model noise and create a noise mitigation plan. Site-specific noise models were used to predict the future noise impact of the proposed operations and determine what noise mitigation measures, if any, would be required to demonstrate compliance with the COGCC maximum permissible noise levels. Noise modeling results were calculated and include the effects of local topography, buildings, barriers, and ground cover. As a result of the lack of RBUs within 2,000 feet ambient noise surveys were not required. The models use the anticipated drilling rig, quiet completions fleet and production equipment. The results of the noise modeling can be found in the Noise Mitigation and Monitoring Plans. At the Blue Chip and Rainbow Locations, the receptor locations were modelled at 25 feet from the structure, towards the facility for both dBA and DBC predictions. The closest receptor at the Blue Chip pad is approximately 2,670 feet to the southwest. The closest receptor at the Rainbow pad is approximately 2,370 feet to the southwest. The unmitigated modeling results for the drilling, completions and production phases are below the maximum permissible levels. Light Site specific three-dimensional lighting models were developed for each of the phases of this development to determine their associated lighting impacts. The lighting fixtures used in the models were selected based on currently operated representative sites and research conducted into available vendor lighting systems. All calculated values fall well below the prescribed regulatory limits with all calculated light values falling below 1 lx. This light level is similar to a clear night with a full moon. KMOG anticipates at total of 76,944 (49,028 monthly) truck trips during the drilling and completions phase. When the locations reach production phase the truck traffic will be drastically reduced to 1,862 annual (156 monthly) trips throughout the anticipated 25-year life of the facility. MITIGATION MEASURES: Noise: Although operations are conducted 24/7, at night KMOG aims to minimize all non-essential work. KMOG has gone to considerable lengths to modify the rigs available to significantly reduce noise by not only using the quietest shale shaker model available, but also installing vibrating pads below shaker mounts. Extreme grade exhaust silencers are used on engines and drawworks traction motor. The generator house is fully enclosed with sound dampening louver boxes. KMOG utilizes quiet completion fleets whose engines are boxed to reduce noise pollution. Testing has shown that this equipment is substantially quieter than traditional models. As a result of the placement of the North Core OGDP Locations outside of 2,000 feet from any RBUs minimal mitigation is required. Both locations will be in compliance with allowable noise levels. Light: KMOG uses Light-emitting diode (LED) fixtures to the extent possible that are angled downward and inward toward the location and away from homes and businesses to reduce skyglow. LED lights not only use less energy and last longer, they emit light in a specific direction unlike incandescent and Compact Fluorescent lamps (CFL) bulbs which emit light in all directions. Lights are directed to task areas only and switched off when

		not needed. Light masts are automatically switched off/on based on lighting sensors. Low power (63W) LED lights are used for the drill rig. Sound barriers are positioned to reduce lighting trespass to surrounding off-site buildings. Lighting within the Production area has been reduced to provide OSHA's minimum acceptable value for safe operations. Truck Traffic: In order to minimize truck traffic, KMOG utilizes a design that eliminates oil storage from location, reduces emissions, reduces the footprint of the pad and the number of truck trips to location. The condensate produced from this location will flow off-site through a pipeline, eliminating the need for trucks to transport oil. This system eliminates approximately 80% of KMOG's post-production traffic. KMOG transports the water used in hydraulic fracturing through the Water-On-Demand pipeline system. Since its inception in 2012, this technology has enabled KMOG to eliminate more than 25 million miles of truck traffic. At these locations this will eliminate 188,365 truck trips. During production, trucks will only visit two locations instead of 10 locations within the area, thereby reducing associated emissions, odors, dust, and noise. Dust: Sand boxes are used during hydraulic stimulation to reduce the risk of silica dust. Road dust will be controlled by implementing a strict 10 mph speed limit on the lease roads and 5 mph speed limit on location. If necessary KMOG will spray down the lease road with water. KMOG will attempt to minimize the tracking of mud onto roads. Street sweepers will be utilized if mud tracking becomes an issue. Access roads and Vehicle Tracking Control will receive maintenance as needed throughout operations. KMOG will respond quickly and work with Weld County to address any concerns related to county road damages. Odor: Although no odor impacts are anticipated, KMOG will suppress odors to the maximum extent possible using closed loop systems and proactively using an odor neutralizer. KMOG will address any citizen concerns regarding odor within 24 hours. Viewshed: The scenery in the area will be changed both during pre-production and production phases. The plugging of 27 older wells will eliminate 10 facilities locations in the area, older equipment will be removed from those locations, including 12 water tanks and 18 oil tanks.
5	Public Health Resources	ANTICIPATED IMPACTS: KMOG does not anticipate any negative impacts to public health. MITIGATION MEASURES: KMOG does not anticipate any impact to public health by its operations. As a part of the CPRN (Colorado Preparedness Response Network) KMOG will work alongside other operators to facilitate training drills. These drills and the presence of oil and gas operations in the area has the potential to enhance the capabilities and the watchfulness of the emergency responders. The IOC staffed 24 hours per day, seven days per week, will remotely monitor the wells and facility. This enables KMOG to deploy appropriate resources quickly, efficiently, and to collaborate with local emergency response agencies as necessary. This system also helps reduce traffic.

OPERATOR COMMENTS AND SUBMITTAL

Please send questions and comments to both sam_samet@oxy.com and djregulatory@oxy.com

Print Name: Sam Samet Title: Senior Regulatory Analyst

Email: djregulatory@oxy.com Date: 05/26/2022

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: 11/21/2022

Attachment Check List

Att Doc Num	Name
403045190	Form 02B SUBMITTED
403045618	OTHER

Total Attach: 2 Files

General Comments

User Group	Comment	Comment Date
OGLA	OGDP ID# 482683 and this Form are approved by Commission Order Number 407-3400. Orders 407-3401 and 407-3402 are associated spacing orders for this OGDP.	11/21/2022
OGLA	Updated Form with estimated emissions reductions from the plugging and abandonment of the wells. Added OGDP ID# to Form.	11/21/2022
OGLA	Updated a HAP from tons to lbs after consulting with operator.	11/02/2022
OGLA	The Director has determined this OGDP application is complete. Form pushed to IN PROCESS	08/08/2022

Total: 4 comment(s)