FORM 2B Rev 03/21

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] **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: Rachel Friedman
Phone: (720) 929-6564
Email: djregulatory@oxy.com

OIL & GAS DEVELOPMENT PLAN INFORMATION

Oil & Gas Development Plan Name: SPROUT

Oil & Gas Development Plan Docket #:

Docket Number
230900284

Oil & Gas Development Plan ID #: Data not required

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

OIL & GAS LOCATION DATA

1 Oil & Gas Location Name: ALFALFA Number: 8-20HZ Status: Proposed

OIL & GAS LOCATION INFORMATION

Form 2A Doc#: 403278400

Loc ID#:

Oil & Gas Location: QTRQTR: SENE Sec: 20 Twp: 2N Rng: 67W Meridian: 6

Total number of wells planned: 13

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: 14

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: 10

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.

An ambient survey will be conducted in order to determine current noise levels in this area. 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. Continuous monitoring will be implemented at the appropriate noise points of compliance from the working pad surface per Rule 423.a(5)A&B. 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.

Inclusive of the ambient data obtained prior to pad construction and the noise impact model of the production facility 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. All oil-based drilling fluids will be built using a Group III base oil with negligible aromatic content and PAH less than 0.001% so that it does not emit odor during all production drilling operations. The Group III base oil will be utilized in a closed loop drilling fluid system and eliminate odor at the shakers, transfer tank, active/reserve tanks, and cuttings in collection tanks and during transport. As a result there will not be any incremental adverse odor impacts to the surrounding receptors during pre-production activities.

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

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

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

Estimated depth to groundwater: 21

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

	Number of Tanks	Total Volume (bbls)
Oil	0	0
Condensate	0	0
Produced Water	0	0
Other volumes of stored fluids, hydrocarbons, chemicals, or E&P Waste Fluids	4	40.5

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

3 Chemical Totes:
500 GAL - Corrosion/Scale Protection Chemical = 11.9 BBLS
350 GAL - Corrosion/Bacterial Protection Chemical = 8.33 BBLS
350 GAL - Methanol = 8.33 BBLS
1 Propane Tank: 11.9 BBLS PROPANE 500 GAL

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	659	NW	FORESTED/SHRUB RIPARIAN
Wetland	511	W	FRESHWATER EMERGENT WETLAND
Surface Waters of the State	1326	NW	DITCH

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	THERE ARE NO PUBLIC WATER SYSTEM INTAKES WITHIN ONE MILE

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	4968604	Recycled Water (Produced Water)	33124	Unspecified Source	0	Percentage Recycled Water	1 %
Ground Water	1670927	Recycled Water (non-Produced Water)	0	Total Water Usage	6672655		

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

N/A

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

KMOG uses recycled water when possible and receives its surface water from surface non-potable sources. Recycled water percentage in 0.5%

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	12.5	0
Post-interim Reclamation	4.13	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	674.75	Non-Irrigated	0	Conservation Reserve Program(CRP)	0	

Non-Crop Land:	Rangeland	1287	Forestry	147.67	Recreation	0	Other 243.31
Subdivided:	Industrial	86.6	Commercial	267.85	Residential	365.04	

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

Quadrant Management Inc 2 parcels - 131120202007 & 131120202006 - investment management

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

66.13 acres of Developed Open Space; 43.37 acres of Low Intensity; 25.58 acres of Developed Medium Intensity 8.23 acres of Developed High Intensity.

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		Shrub Land		Mountain Riparian		Wetland Aquatic	
Native Grassland		Plains Riparian		Forest Land		Alpine	

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.

No impacts outside of the oil and gas location and the associated access road

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
44-Olney loamy sand, 1 to 3 percent slopes	5.9
72- Vona loamy sand, 0 to 3 percent slopes	9.9
73-Vona loamy sand 3 to 5 percent slopes 0.8 acres & 70- Valent sand, 3 to 9 percent slopes 0.4 acre	1.2

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	163
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	1.0995	0.1749	0.0486	0.0067	0.0024	164.2417	0.0013
Storage Tanks	0	0	0	0	0	0	0
Venting or Blowdowns	0.0121	0.0553	0.4061	0.5246	0.1861	24.9421	0
Combustion Control Devices	0	0	0	0	0	6.2976	0
Non-Road Internal Combustion Engines	96.1214	107.0914	12.3015	0.334	0.1185	10648.5219	0.0583
Drill Mud	0.0647	0.2948	0.5658	1.3653	0.1651	9.0906	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	0.927	8.034	0.4326	0.0096	0.0034	237.6722	0.0019
Process Heaters or Boilers	0.9275	0.7791	0.051	0.0213	0.0288	1113.0353	0.0204
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			0.4896	0.3854	0.1368	0.0337	
Venting or Blowdowns	0	0	5.0991	6.5864	2.3371	0.5524	0
Combustion Control Devices	0	0	0	0	0	6.2976	0
Loadout	0	0	0	0	0	0	0
Non-Road Internal Combustion Engines	0.1286	0.0859	0.0001	0.0006	0	15.8194	0.0001
Well Bradenhead	0	0	0.0026	0.0034	0.0012	0.0003	0
Well Maintenance	0	0	0.0486	0.0627	0.0223	0.0053	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: 7247
During Completions: 445876
During Drilling: 150084
During Interim Reclamation: 54927
During Production: 364

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	9.4128	23.0722	2.3554	5.5016	64.1964	5.854	0	0	0	110.3923
Storage Tanks	0	0	0	0	0	0	0	0	0	0
Venting or Blowdowns	8.89	21.8002	2.2255	5.1983	60.6572	5.5313	0	0	0	104.3063
Combustion Control Devices	0	0	0	0	0	0	0	0	0	0
Non-Road Internal Combustion Engines	471.9732	1156.8731	118.1011	275.8565	3218.9002	293.5285	0	0	0	5535.2325

Drill Mud	0.0062	0.0152	0.0016	0.0036	0.0423	0.0039	0	0	0	0.0727
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	13.6216	33.3885	3.4085	7.9615	92.9006	8.4715	0	0	0	159.7522
Process Heaters or Boilers	0.039	0.0631	0	0	0	0	0	1.3913	0	1.4933
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	6.7401	13.2051	2.0898	14.366	43.6994	4.1688	0	0	0	84.2693
Venting or Blowdowns	111.6707	273.7208	27.9432	65.2687	761.6046	69.45	0	0	0	1309.658
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	0.0572	0.1402	0.0143	0.0334	0.39	0.0356	0	0	0	0.6707
Well Maintenance	1.0639	2.6077	0.2662	0.6218	7.2557	0.6616	0	0	0	12.4769

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 operations since 2020 using the approved program. Over 6,500 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. KMOG has been performing air monitoring around production facility operations since 2020 using the approved program. Over 6,500 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 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	3283	1624	7822	3052	24
Annual	3989	8338	24771	3052	284

Estimated total pounds (lbs) of proppant to be used during completions activities. 237210400

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	54	Active, built	105
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	70

Total acreage disturbance during construction of the active and proposed oil & gas locations within 1-mile of the proposed Oil & Gas Location: 43.65

Source for acreage total:

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

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

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

Source for storage totals:

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

	Permitted Onsite Storage Capacity	Existing Onsite Storage Capacity
Oil	47	
Condensate	3	
Produced Water	17	
Pits	8	

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: CLOVER Number: 2-29HZ Status: Proposed

OIL & GAS LOCATION INFORMATION

Form 2A Doc#: 403278417

Loc ID#:

Oil & Gas Location: QTRQTR: NWNE Sec: 29 Twp: 2N 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: 8

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.

An ambient survey will be conducted in order to determine current noise levels in this area. 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. Continuous monitoring will be implemented at the appropriate noise points of compliance from the working pad surface per Rule 423.a(5)A&B. 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.

Inclusive of the ambient data obtained prior to pad construction and the noise impact model of the production facility 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.

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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. All oil-based drilling fluids will be built using a Group III base oil with negligible aromatic content and PAH less than 0.001% so that it does not emit odor during all production drilling operations. The Group III base oil will be utilized in a closed loop drilling fluid system and eliminate odor at the shakers, transfer tank, active/reserve tanks, and cuttings in collection tanks and during transport. As a result there will not be any incremental adverse odor impacts to the surrounding receptors during pre-production activities.

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

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

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

Estimated depth to groundwater: 66

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

	Number of Tanks	Total Volume (bbls)
Oil	0	0
Condensate	0	0
Produced Water	0	0
Other volumes of stored fluids, hydrocarbons, chemicals, or E&P Waste Fluids	4	40.46

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.

28.7 BBLS IN 3 CHEMICAL TOTES:
500 GAL - Corrosion/Scale Protection Chemical = 11.9 BBLS
350 GAL - Corrosion/Bacterial Protection Chemical = 8.33 BBLS
350 GAL - Methanol = 8.33 BBLS
11.9 BBLS 1 PROPANE TANK -500 GAL

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	N/A
Wetland	130	W	POND
Surface Waters of the State	2640	NW	COAL RIDGE DITCH

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	There are no Public Water System Intakes within 5,280'

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	4318856	Recycled Water (Produced Water)	28792	Unspecified Source	0	Percentage Recycled Water	1 %
Ground Water	1456476	Recycled Water (non-Produced Water)	0	Total Water Usage	5804125		

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

n/a

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. Percentage recycled water 0.5%

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	11.71	0
Post-interim Reclamation	3.79	0

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

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	1209.38	Non-Irrigated	0	Conservation Reserve Program(CRP)	0		
Non-Crop Land:	Rangeland	787.27	Forestry	52.7	Recreation	0	Other	341.72
Subdivided:	Industrial	59.66	Commercial	274.66	Residential	232		

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

Quadrant Management Inc 2 parcels - 131120202007 & 131120202006 - investment management

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

14.46 acres OPEN WATER; 176.8 acres of DEVELOPED, OPEN SPACE; 51.72 acres of LOW INTENSITY; 47.81 acres of DEVELOPED, MEDIUM INTESITY; 7.34 acres of DEVELOPED, HIGH INTESNISTY; 0.89 acres of BARREN LAND; 0.22 acres of WOODY WETLANDS;, and 42.48 acres of EMERGENT 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		Shrub Land		Mountain Riparian		Wetland Aquatic	
Native Grassland		Plains Riparian		Forest Land		Alpine	

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.

No impacts outside of the Oil and Gas Location and Associated access road

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
4-Aquolls and Aquepts, flooded 0.3 & 73- vona loamy sand 3-5percent slopes 0.5 acres	0.8
44-Olney loamy sand, 1-3 percent slopes 8.5; 72-vona loamy sand 1-3percent slopes 0.0 acres	8.5
47-Olney fine sandy loam, 1 to 3 percent slopes	3.6

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	547
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	1.0995	0.1749	0.0486	0.067	0.0024	164.2417	0.0013
Storage Tanks	0	0	0	0	0	0	0
Venting or Blowdowns	0.0112	0.051	0.3928	0.5073	0.18	23.0255	0
Combustion Control Devices	0	0	0	0	0	0	0
Non-Road Internal Combustion Engines	88.7275	98.8536	11.3552	0.3083	0.1094	9829.4049	0.0538
Drill Mud	0.0597	0.2721	0.5223	1.2602	0.1524	8.9963	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	0.927	8.034	0.4326	0.0096	0.0034	237.6722	0.0019
Process Heaters or Boilers	0.6699	0.5627	0.0368	0.0154	0.0208	803.8588	0.0147
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			0.3828	0.3125	0.1109	0.0273	
Venting or Blowdowns	0	0	0.3828	0.3125	0.1109	0.0273	0
Combustion Control Devices	0	0	0	0	0	6.2976	0
Loadout	0	0	0	0	0	0	0
Non-Road Internal Combustion Engines	0.1187	0.0793	0.0001	0.0006	0	14.6026	0.0001
Well Bradenhead	0	0	0.0026	0.0034	0.0012	0.0003	0
Well Maintenance	0	0	0.0448	579	0.0206	0.0049	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: 6970 During Completions: 353786

During Drilling: 118958 During Interim Reclamation: 59302

During Production: 364

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	9.4128	23.0722	2.3554	5.5016	64.1964	5.854	0	0	0	110.3923
Storage Tanks	0	0	0	0	0	0	0	0	0	0
Venting or Blowdowns	8.6019	21.0847	2.1524	5.0276	58.666	5.3497	0	0	0	100.8822
Combustion Control Devices	0	0	0	0	0	0	0	0	0	0
Non-Road Internal Combustion Engines	435.6676	1067.8828	109.0164	254.6367	2971.2925	270.9494	0	0	0	5109.4454
Drill Mud	0.0057	0.014	0.0014	0.0033	0.039	0.0036	0	0	0	0.671
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	13.6216	33.3885	3.4085	7.9615	92.9006	8.4715	0	0	0	159.7522
Process Heaters or Boilers	0.0281	456	0	0	0	0	0	1.0048	0	1.0785
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	5.0384	9.8159	1.5541	10.6361	32.7857	3.1464	0	0	0	62.9765
Venting or Blowdowns	103.0807	252.6653	25.7937	60.2481	703.0196	64.1077	0	0	0	1208.9151

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	0.0572	0.1402	0.0143	0.0334	0.39	0.0356	0	0	0	0.6707
Well Maintenance	0.982	2.4071	0.2457	0.574	6.6975	0.6107	0	0	0	11.5171

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 operations since 2020 using the approved program. Over 6,500 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. KMOG has been performing air monitoring around production facility operations since 2020 using the approved program. Over 6,500 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 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	3530	1666	7758	3295	24
Annual	4221	6609	19655	3295	284

Estimated total pounds (lbs) of proppant to be used during completions activities. 205302300

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	40	Active, built	78
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 82

Total acreage disturbance during construction of the active and proposed oil & gas locations within 1-mile of the proposed Oil & Gas Location: 33.95

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.

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
- [ ] Aerial PhotosOther
- [ ] Other

	Permitted Onsite Storage Capacity	Existing Onsite Storage Capacity
Oil	42	
Condensate	4	
Produced Water	15	
Pits	10	

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.

3 Oil & Gas Location Name: RADEMACHER Number: 14-30HZ Status: Proposed

OIL & GAS LOCATION INFORMATION

Form 2A Doc#: 403278425

Loc ID#:

Oil & Gas Location: QTRQTR: SESW Sec: 30 Twp: 3N Rng: 67W Meridian: 6

Total number of wells planned: 18

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: 19

Number of planned drilling occupations to drill all planned wells for this Oil & Gas Location: 2

Estimated total number of weeks to complete all planned wells for this Oil & Gas Location: 14

Number of planned completions occupations to complete all planned wells for this Oil & Gas Location: 2

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.

An ambient survey will be conducted in order to determine current noise levels in this area. 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. Continuous monitoring will be implemented at the appropriate noise points of compliance from the working pad surface per Rule 423.a(5)A&B. 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.

Inclusive of the ambient data obtained prior to pad construction and the noise impact model of the production facility 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. All oil-based drilling fluids will be built using a Group III base oil with negligible aromatic content and PAH less than 0.001% so that it does not emit odor during all production drilling operations. The Group III base oil will be utilized in a closed loop drilling fluid system and eliminate odor at the shakers, transfer tank, active/reserve tanks, and cuttings in collection tanks and during transport. As a result there will not be any incremental adverse odor impacts to the surrounding receptors during pre-production activities.

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

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

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

Estimated depth to groundwater: 23

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	4	40.5

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

3 Chemical Totes - 28.56 BBLs:
500 GAL - Corrosion/Scale Protection Chemical = 11.9 BBLS
350 GAL - Corrosion/Bacterial Protection Chemical = 8.33 BBLS
350 GAL - Methanol = 8.33 BBLS
1 Propane Tank - 11.9 BBLs 500 GAL

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	1644	SE	forested/shrub riparian
Wetland	28	W	delinieated wetland
Surface Waters of the State	28	W	delineated wetland

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	There are no public water system intakes within 5,280'

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	6883493	Recycled Water (Produced Water)	45890	Unspecified Source	0	Percentage Recycled Water	1 %
Ground Water	2307458	Recycled Water (non-Produced Water)	0	Total Water Usage	923684 0		

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

N/A

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

KMOG uses recycled water when possible and receives its surface water from surface non-potable sources
Recycled water percentage is 0.5%

ECOSYSTEM & WILDLIFE RESOURCES

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

High Priority Habitat (HPH) Name:	Distance	Estimated Acreage Disturbed
MULE DEER MIGRATION CORRIDOR	0	5.84
MULE DEER SEVERE WINTER RANGE	0	6.56
AQUATIC NATIVE SPECIES CONSERVATION WATERS	1307	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	12.77	6.56
Post-interim Reclamation	4.25	3.07

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

KMOG will adhere to timing stipulations related to MDMC and MDSWR
2023 Effective HPH layers used
2 overlapping HPHs within the Location - used the larger of the 2 areas as the disturbed HPH

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	1340.37	Non-Irrigated	0	Conservation Reserve Program(CRP)	0		
Non-Crop Land:	Rangeland	275.32	Forestry	17.35	Recreation	0	Other	748.58
Subdivided:	Industrial	123.55	Commercial	0	Residential	112.52		

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

Parcel 1209323000002 LG Everist Inc - Gravel Quarry

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

289.78 acres OPEN WATER; 64.27 acres of Developed Open Space; 67.61 acres of Low Intensity; 34.03 acres of Developed Medium Intensity 17.12 acres of Developed High Intensity, 11.12 acres of barren land, 28.02 acres of Woody Wetlands, and 236.63 acres of Emergent 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		Shrub Land		Mountain Riparian		Wetland Aquatic	
Native Grassland		Plains Riparian		Forest Land		Alpine	

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.

No impacts outside of the oil and gas location and access road

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
24-fort Collins loam, 0-3 percent slopes1	2.1
50-Otero sandy loam, 0 to 1 percent slopes	10.3
Ustic Torriorthents, moderately steep	2.7

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:	2	122
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	1.0995	0.1749	0.0486	0.0067	0.0024	164.2417	0.0013
Storage Tanks	0.0211	0.0963	0.0873	0.4324	0.1469	48.3428	0.0001
Venting or Blowdowns	0.0168	0.0766	0.4728	0.6107	0.2167	34.5256	0.0001
Combustion Control Devices	0.0091	0.0413	0.034	0.0827	0.0294	6.3045	0
Non-Road Internal Combustion Engines	133.0912	128.2804	17.0328	0.4625	0.1641	14744.1072	0.0807
Drill Mud	0.0895	0.4082	0.7832	1.8904	0.2286	9.5621	0
Flowback or Completions	0	0	0	0	0	0	0
Loadout	0	0	0.0637	0.3156	0.1072	0.2327	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	0.93	8.03	0.43	0.01	0.0034	237.67	0.0019
Process Heaters or Boilers	1.67	1.41	0.09	0.04	0.05	2010	0.04
Storage Tanks	0.1	0.45	0.78	1.48	0.67	238.3	0.0003
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			0.59	0.49	0.17	0.04	
Venting or Blowdowns	0	0	7.1	9.17	3.25	0.77	0
Combustion Control Devices	0.01	0.04	0.07	0.17	0.06	6.31	0
Loadout	0	0	0.89	1.68	0.76	1.8	0
Non-Road Internal Combustion Engines	0.18	0.12	0.0001	0.0008	0	21.9	0.0002
Well Bradenhead	0	0	0.0026	0.0034	0.0012	0.0003	0
Well Maintenance	0	0	2.89	3.74	1.33	0.31	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: 12276 During Completions: 581071

During Drilling: 197842 During Interim Reclamation: 67836

During Production: 10575

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	3.67	2.63	0.11	0.63	1.93	0	0	0	0	8.9729
Venting or Blowdowns	10.35	25.38	2.59	6.05	70.61	6.44	0	0	0	121.4271
Combustion Control Devices	0.0001	0.0001	0	0.0001	0.0006	0.0001	0	0	0	0.0009
Non-Road Internal Combustion Engines	653.5013	1601.8243	163.5245	381.9551	4456.9387	406.4241	0	0	0	7664.1681
Drill Mud	0.01	0.02	0.0022	0.01	0.06	0.01	0	0	0	0.1006
Flowback or Completions	0	0	0	0	0	0	0	0	0	0
Loadout	2.86	1.92	0.08	0.46	1.41	0	0	0	0	6.5484

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	13.62	33.39	3.41	7.96	92.9	8.47	0	0	0	159.75
Process Heaters or Boilers	0.07	0.11	0	0	0	0	0	2.51	0	2.7
Storage Tanks	51.95	38.42	1.42	9.01	75.76	0.01	0	0	0	176.56
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	7.66	14.89	2.36	16.1	49.92	4.8	0	0	0	95.72
Venting or Blowdowns	155.5	281.15	28.91	90.88	1060.5	96.71	0	0	0	1823.65
Combustion Control Devices	0.3	0.36	0.05	0.24	2.32	0.29	0	0	0	3.57
Non-Road Internal Combustion Engines	0	0	0	0	0	0	0	0	0	0
Loadout	62	44.2	1.69	10.37	115.14	0.24	0	0	0	233.66
Well Bradenhead	0.06	0.14	0.01	0.03	0.39	0.04	0	0	0	0.67
Well Maintenance	63.35	155.27	15.8	37.02	432.03	39.4	0	0	0	742.92

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 operations since 2020 using the approved program. Over 6,500 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. KMOG has been performing air monitoring around production facility operations since 2020 using the approved program. Over 6,500 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 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		4521	1691	7748	3769	71
Annual		5304	10991	32282	3769	851

Estimated total pounds (lbs) of proppant to be used during completions activities. 327694400

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	39	Active, built	44
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	65

Total acreage disturbance during construction of the active and proposed oil & gas locations within 1-mile of the proposed Oil & Gas Location: 10.59

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:

Permitted Onsite Storage Capacity	Existing Onsite Storage Capacity

☐ Field Observation/Measurement	Oil	34	
☒ COGCC Location Files	Condensate	0	
☐ Aerial PhotosOther	Produced Water	9	
☐ Other	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.

N/A

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.

High Priority Habitat (HPH) Name	Estimated Acreage Disturbed
Mule Deer Migration Corridor	0.64
Mule Deer Severe Winter Range	1.07

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	3.78	1.07	New roads, including access roads	7.59	1.07
Pipelines	8.34	0	Pipelines	0.04	0
Utilities	1.24	0.46	Utilities	0.09	0.03

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

MDSW & MDMC will be affected by the widening of an existing access road at the Rademacher Location. The Alfalfa and Clover Locations will not impact HPH.

Number of miles of the existing lease road that are planned to be used to access these location(s): 1.33

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: 94

Total number of existing locations that are planned to be closed and undergo final reclamation as part of this OGDP: 23

Total number of acres that are planned to be reclaimed through the closing of existing locations: 39.1

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): 1572

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

Oil Tanks: 54

Condensate Tanks: 0

Produced Water Tanks: 27

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

As a result of plugging 94 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 23 locations to 3 locations will create a less fragmented area.

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 KMOG will be plugging 94 wells and reclaiming approximately 39.1 acres across 23 locations and disturbing approximately 37 acres prior to reclamation and 12.17 after interim reclamation. This development will ultimately restore nearly 27 more acres than are disturbed and will be concentrated in three areas instead of 23, 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.

MITIGATION INFORMATION

Item	Impacted Resource	Mitigation Description
1	Water Resources	ANTICIPATED IMPACTS: Although water will be used for operations there are no anticipated impacts to the quality of either surface or subsurface water. A mixture of non-potable surface water, groundwater and recycled water will be used for completions operations. KMOG intends to use a total of 21,713,620 BBLs of water during drilling and completions activities on these locations. 74.5% (16,170,953 BBLs) will be sourced from non-potable surface water and 25% (5,434,861 BBLs) will be sourced from groundwater. 107,806 BBLs (0.5%) will be from recycled sources. KMOG protects water resources by carefully choosing the location, utilizing drainage control measures, and proper grading techniques. KMOG segregates topsoil 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 constructing 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. Two wetlands are 10 and 15 feet from the Rademacher location's southwestern edge. Temporary staging of production chemicals is proposed within approximately 300 feet of the nearest wetland; therefore, KMOG requested and was granted a CPW waiver of Series Rule 1202.a.(3) restrictions against the staging of "refueling, or chemical storage areas" within 500 feet of wetlands. These wetlands were determined by the US Army Corp of Engineers to not meet the definition of jurisdictional wetland under the definition of the Waters of the United States. This detail can be found attached to the wildlife mitigation plan. The stormwater management plan has been designed with sediment traps and flow will be restricted to leaving location at historic rates.

2	Ecosystem and Wildlife Resources	KMOG can avoid impacts to wildlife at the Alfalfa and Clover Locations because of their position outside of HPH. Portions of the Rademacher Location fall within HPH. 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 ECMC 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. Following a review of sensitive resources with the potential to be affected by proposed pad construction and drilling operations at the Alfalfa 8-20HZ & Clover 2-29HZ pads by KMOG, potential adverse impacts to the ecosystem are anticipated to be minimal. Five raptor nests were identified within 1/2 mile of the Site, including one occupied Great Horned Owl nest, one occupied Red-tailed Hawk, and three unoccupied nests (See Wildlife Protection Plan for more detail). KMOG will perform pre-construction surveys to determine nearby nest statuses. CPW protocol-level surveys will be performed prior to construction. If active Burrowing Owl burrows are identified within 1/4 mile of the Site, KMOG will proceed with CPW consultation. No additional HPH or sensitive wildlife resources have been identified. Five raptor nests were identified within 1/2 mile of the Clover Site, including one occupied Great Horned Owl nest and four unoccupied nests. During a Clover site visit on 4/13/2023, one active burrowing owl burrow was identified 1/4 mile east the Clover Location with suitable habitat present and mapped within ¼ mile of the location. The Rademacher location was reviewed for sensitive resources and a consultation was held at the location with Colorado Parks and Wildlife (CPW) on February 8, 2023. The southeastern portion of the location overlaps mule deer Severe Winter Range and Migration Corridor 1202.d HPHs. The proposed Rademacher Location and access road are approximately 1,600 feet from the St. Vrain Creek Native Aquatic Species Conservation Water. The nearest ordinary high water mark (OHWM) within St. Vrain Creek is greater than 500 feet from the Location; therefore, restrictions associated with Series Rule 1202.c.(1).R do not apply. And, because the Location is greater than 1,000 feet from the St. Vrain Creek HPH, restrictions associated with Series Rule 1202.a.(10) do not apply. MITIGATION MEASURES: If construction coincides with the raptor nesting season, KMOG will perform pre-construction surveys to determine nearby nest statuses. If construction occurs during the Burrowing Owl nesting season, CPW protocol-level surveys will be performed prior to construction. If active Burrowing Owl burrows are identified within 1/4 mile of the Site, KMOG will proceed with CPW consultation. At Rademacher, KMOG will survey for nesting raptors if project activities start between February 1 and August 15. For ground disturbances beginning between March 15 and August 31, 2023, the full three-survey CPW- protocol will be completed no more than 7 days prior to the start of work. KMOG has agreed to comply with seasonal stipulations associated with severe winter range, therefore pre-production activities will not occur between December 1 and May 1. Migration Corridor impacts are based on surface density limitations of one pad per square mile and less than one linear mile of routes per square mile. CPW recommends an indirect impacts mitigation fee if this cannot be achieved. Associated with the Rademacher development, KMOG will reclaim 15.75 more acres than it disturbs in the area by reclaiming 49 wells and 10 facilities therefore no mitigation fees are required, and the development will lead to habitat de-fragmentation in the area. KKMOG will plug and abandon 94 wells and 23 associated facility locations and reclaim 39.1 acres of previously created pads after wells in this OGDP are in the production phase. Associated with the reclamation of this locations 54 oil tanks and 27 water tanks will be removed. The reduction of 23 facilities will eliminate an estimated 1,572 annual truck trips. The Sprout OGDP locations will disturb 37 acres for pre-production activities and be reclaimed to approximately 12.2 acres. The net reclamation of this OGDP exceeds the disturbance created, with nearly 27 more acres being reclaimed than are permanently disturbed. This will also reduce habitat fragmentation. 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 animals.
3	Air Resources	ANTICIPATED IMPACTS: Short-term impacts: During pre-production activities KMOG anticipates the release of 36,611 tons of emissions. KMOG expects 18,982 pounds of Hazardous Air Pollutants (HAP) during pre-production. Long-term Impacts: During one year of production KMOG anticipates the release of 5,041

tons of emissions. KMOG expects 6,252 pounds 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 to reduce emissions from pre-production and production create a very low emission footprint. Based on the 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 2022 intensity is 2.93 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 all operations
Over 6,700 air samples have been collected and analyzed for benzene and other hazardous air pollutants following EPA methods during pre-production operations. 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 health guidance values (HGVs).
KMOG will continuously monitor for volatile organic compounds (VOC) and benzene monitors during drilling, completions and the first six months of production facility operations following the CDPHE approved monitoring plan for these locations.
During Drilling: Rig power will be supplied by two natural gas engines with a battery energy storage system and an automated engine management system. As necessary, a diesel generator will be used to supplement additional power during the highest demand portions of the wells. KMOG uses an automated engine management system that preferentially uses natural gas engines over diesel for rig power.
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 approximately 393,676 truck trips at the Sprout 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. In the sprout OGDP, piping oil will eliminate 137,252 truck trips. 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 Rademacher Location, that will only be used during maintenance operations. These tanks are identified as "condensate tanks" on the Sprout OGDP Form 2B. The maintenance tanks are not used as 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 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 Rademacher location. 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. Produced water will be piped from the Alfalfa and Clover locations eliminating 17,823 truck trips over the lifetime of the wells. The reduction of 94 wells and 23 facility locations will remove the following potential sources of emissions: 27 water tanks and 54 oil tanks. The omission of approximately 1,572 truck trips annually to visit those locations will also reduce emissions.
4	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.
5	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 the visual quality of the area will be improved. Trucks will only be required to visit three locations rather than the 17 that will be reclaimed because of this work. 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 ECMC maximum permissible noise levels. Noise modeling results were calculated and include the effects of local topography, buildings, barriers, and ground cover. 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 Rademacher location four A-weighted compliance points were used 350 feet from the location towards RBUs and four C-weighted compliance points at 25 feet from the location towards RBUs. The Alfalfa location compliance points included 1 A-weighted point at 350 feet from the location toward the closest BU and 1 C-weighted point at the BU. The Clover location modeling utilized 2 A-weighted points at 350 feet from the location toward the closest RBUs/BUs and 3 C-weighted compliance points at the RBUs/BUs. Pre-production Phase: Unmitigated drilling operations noise levels are anticipated to be above the C-weighted MPNL of 65 dBC. Unmitigated completions operations noise levels are expected to be above the A weighted MPNL of 60 dBA. To reach compliance at Alfalfa, KMOG will place 800 linear feet of 32-foot STC32 sound walls and 100 feet of 24-foot STC43 during drilling, completions and flowback on 3 sides of the location. To reach compliance at Clover, KMOG will place 1,540 linear feet of 32-foot STC32 sound walls and 80 feet of 24-foot STC43 walls on all sides of the location during drilling, completions and flowback. o reach compliance at Rademacher, KMOG will place 1,340 linear feet of 32-foot STC32 sound walls and 100 feet of 24-foot STC43 walls on the north, west and southern sides of the location during drilling, completions and flowback. Production: Unmitigated production operations noise levels are anticipated to be within allowable limits for both Weld County and ECMC requirements, therefore no mitigation is required. 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. Truck Traffic KMOG anticipates at total of 116,700 (49,565 monthly) truck trips during the drilling and completions phase. When the locations reach production phase the truck traffic will be reduced to 968 annual (81 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. 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, but they also 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. Lighting within the Production area has been reduced to provide OSHA's minimum acceptable value for safe operations. Truck Traffic: 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 393,676 truck trips. During production, trucks will only visit two locations instead of 17 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 roads 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 the jurisdiction responsible to address any concerns related to county road damages. Odor: Although no odor impacts are anticipated, KMOG will suppress odors using closed loop systems and group III mud. The scenery in the area will be changed both during pre-production and production phases. The plugging of 94 older wells will eliminate 23 facilities locations in the area, older equipment will be removed from those locations, including 27 water tanks and 54 oil tanks.

OPERATOR COMMENTS AND SUBMITTAL

Print Name: Rachel Friedman Title: Geological Advisor

Email: rachel_friedman@oxy.com Date: 09/13/2023

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

COGCC Approved: **Director of COGCC** Date: 3/18/2024

Attachment Check List

Att Doc Num	Name
403364201	Form 02B SUBMITTED
403428923	OTHER

Total Attach: 2 Files

General Comments

User Group	Comment	Comment Date
OGLA	OGDP ID# 485787and this Form are approved by Commission Order Number 407-3580	03/18/2024
OGLA	Concurrence with the operator to update the Rademacher HPH statement as the 2023 maps were used and not the 2022 maps.	02/22/2024
OGLA	The Director has determined this OGDP application is complete. Form pushed to IN PROCESS on 12/28/23. Technical issues the form did not go into In Process status. Push the form to In Process again.	02/13/2024
OGLA	Completeness review - return to draft	12/01/2023

Total: 4 comment(s)