

State of Colorado  
Oil and Gas Conservation Commission

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402814070

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## CUMULATIVE IMPACTS DATA IDENTIFICATION

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

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

## OPERATOR INFORMATION

OGCC Operator Number: 81490

Name of Operator: ST CROIX OPERATING INC

Address: P O BOX 13799

City: DENVER State: CO Zip: 80201

Contact Name and Telephone:

Name: Paul Melnychenko

Phone: (303) 489-9298

Email: paul@stcroixexp.com

## OIL &amp; GAS DEVELOPMENT PLAN INFORMATION

Oil &amp; Gas Development Plan Name: Horseshoe

Oil &amp; Gas Development Plan Docket #:

Oil &amp; Gas Development Plan ID #:

Docket Number

211100213

Data not required

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

## OIL &amp; GAS LOCATION DATA

1 Oil &amp; Gas Location Name: Horseshoe

Number: 1

Status: Proposed

## OIL &amp; GAS LOCATION INFORMATION

Form 2A Doc#: 402817594

Loc ID#:

Oil &amp; Gas Location: QTRQTR: NENE Sec: 27 Twp: 3S Rng: 49W Meridian: 6

Total number of wells planned: 1

## Operations Duration

Estimated total number of weeks to construct this Oil &amp; Gas Location: 1

Estimated total number of weeks to drill all planned wells for this Oil &amp; Gas Location: 1

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

Estimated total number of weeks to complete all planned wells for this Oil &amp; Gas Location: 1

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

Will there be simultaneous drilling and completions operations occurring at this Oil &amp; Gas Location? No

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

## Noise Impacts

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

Construction and drilling operations will be brief, averaging one week each. This well will not be hydraulically fractured. Noise impacts will be acute and brief. There are no residences within 1 mile of the location. Drivers on County Road YY may notice a small increase in ambient noise.

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

Production equipment will be consolidated at the proposed Horseshoe Production Facility. Increased noise will be a de minimis level due to the existing production in the area.

#### 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.

During pre-production activities, lights will be onsite for safety and 24-hour operations. These temporary lights will be downward facing as much as possible to minimize the distance that it will be visible. Lights will be on location for 1-2 weeks. There are no residences within 1 mile. During consultation with CPW, they concurred that due to the brief duration of pre-production activities, the lights should not be an overly adverse impact.

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

There will be no adverse light impacts to surrounding receptors during the production stage. Production operations will not have lighting onsite for typical operations.

#### 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.

This location was chosen because it is over 1 mile from the nearest building. Winds in the area generally blow west to east throughout the colder months (November-March) and along a north/south axis throughout the warmer months (March-October). The nearest Building Unit is approximately 1.5 miles away to the south. Drilling will be approximately one week. The brief nature of the drilling activity insures odors should not be a concern for any residents of Washington County.

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

All produced fluids will be transported via off-location flowline to the proposed Horseshoe Production Facility location. There fluids will move through a heater-treater into enclosed storage tanks. The existing oil and gas facilities in the area in addition to the enclosed storage options should not increase the odor factor in the area.

#### WATER RESOURCES

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

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

Estimated depth to groundwater: 130

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

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

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

No fluids will be stored on this location.

#### 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	S	N/A
Wetland	1858	NW	NWI-mapped freshwater emergent wetland at 1858 ft.
Surface Waters of the State	1858	NW	NWI-mapped freshwater emergent wetland at 1858 ft.

## 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 E N/A

## 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	0	Recycled Water (Produced Water)	4215	Unspecified Source	0	Percentage Recycled Water	75	%
Ground Water	1040	Recycled Water (non-Produced Water)	0	Total Water Usage	5255			

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.

St. Croix intends to use produced water for drilling activities. Freshwater will only be used for dust mitigation.

## ECOSYSTEM & WILDLIFE RESOURCES

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

High Priority Habitat (HPH) Name:	Distance	Estimated Acreage Disturbed
Greater Prairie Chicken Production Area	0	5.83
Pronghorn Winter Concentration	0	5.83

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

	Total Acreage (acres)	Total HPH Acreage (acres)	Provide any further information regarding the location's HPH disturbance.
Construction	5.83	5.83	This location is in irrigated cropland. Once the well is brought on to production, the location will undergo interim reclamation and be replanted the next growing season in accordance with the Surface Owner's crop schedule.
Post-interim Reclamation	0.002	0.002	

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	493.65	Non-Irrigated	0	Conservation Reserve Program(CRP)	0		
Non-Crop Land:	Rangeland	1640.35	Forestry	0	Recreation	0	Other	0
Subdivided:	Industrial	0	Commercial	0	Residential	0		

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

N/A

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

N/A

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	640	Shrub Land	1000	Mountain Riparian	0	Wetland Aquatic	0
Native Grassland	0	Plains Riparian	0	Forest Land	0	Alpine	0

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

This location is proposed within irrigated cropland. The adjacent rangeland is of poor habitat quality.

#### Soil Resources

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

NRCS Map Unit Name:	Estimated Disturbed Acreage
70 Valent Sand, 3-9 Percent Slopes	5.83

#### PUBLIC WELFARE

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

#### Building Units within 1-mile

0'-2,000'      2,001'-5,280'

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

#### Recreation and Scenic Value

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

N/A

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

N/A

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.

N/A

#### AIR RESOURCES

##### Pre-Production Emissions

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

	NOx	CO	VOCs	Methane	Ethane	CO2	N2O
Process Heaters or Boilers	0	0	0	0	0	0	0
Storage Tanks	0	0	0.01555	0.0021	2E-05	0.00027	0
Venting or Blowdowns	0	0	0	0	0	0	0
Combustion Control Devices	0	0	0	0	0	0	0
Non-Road Internal Combustion Engines	3.7038 2	0.7978 7	0.30235	0.00554	0	136.940 52	0.00109
Drill Mud	0	0	0.47559	2.02813	0.01776	0.26051	0
Flowback or Completions	0	0	0	0	0	0	0
Loadout	0	0	0.00111	1E-05	0	0	0

##### Production Emissions

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

	NOx	CO	VOCs	Methane	Ethane	CO2	N2O
Stationary Engines or Turbines	0	0	0	0	0	0	0
Process Heaters or Boilers	0	0	0	0	0	0	0
Storage Tanks	0	0	0	0	0	0	0
Dehydration Units	0	0	0	0	0	0	0
Pneumatic Pumps	0	0	0	0	0	0	0
Pneumatic Controllers	0	0	0	0	0	0	0
Separators	0	0	0	0	0	0	0
Fugitives			0.00089	0.05881	0.00051	0.00755	
Venting or Blowdowns	0	0	0	0	0	0	0
Combustion Control Devices	0	0	0	0	0	0	0
Loadout	0	0	0	0	0	0	0
Non-Road Internal Combustion Engines	0	0	0	0	0	0	0
Well Bradenhead	0	0	0	0	0	0	0
Well Maintenance	0	0	0	0	0	0	0

#### Diesel Vehicle Road Miles

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

During Construction: 1169                      During Completions: 3067  
During Drilling: 10151                      During Interim Reclamation: 859  
During Production: 535804

### PUBLIC HEALTH RESOURCES

#### Pre-Production Emissions

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

	BEN	TOL	ETH	XYL	NHE	TMP	H2S	FDE	MET	HAP
Process Heaters or Boilers	0	0	0	0	0	0	0	0	0	0
Storage Tanks	4E-05	0.00135	0.00017	5E-05	0.00172	0.00073	0	0	0	0
Venting or Blowdowns	0	0	0	0	0	0	0	0	0	0
Combustion Control Devices	0	0	0	0	0	0	0	0	0	0
Non-Road Internal Combustion Engines	1.56719	0.68701	0	0.47872	0	0	0	1.98209	0	4.71502
Drill Mud	0.02341	1.30935	0.16651	0.04502	1.66704	0.71047	0	0	0	4
Flowback or Completions	0	0	0	0	0	0	0	0	0	0
Loadout	0.00016	0.00291	0.00231	0.00789	0.004	0.00109	0	0	0	0.01835

#### Production Emissions

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

	BEN	TOL	ETH	XYL	NHE	TMP	H2S	FDE	MET	HAP
Stationary Engines or Turbines	0	0	0	0	0	0	0	0	0	0
Process Heaters or Boilers	0	0	0	0	0	0	0	0	0	0
Storage Tanks	0	0	0	0	0	0	0	0	0	0
Dehydration Units	0	0	0	0	0	0	0	0	0	0
Pneumatic Pumps	0	0	0	0	0	0	0	0	0	0
Pneumatic Controllers	0	0	0	0	0	0	0	0	0	0
Separators	0	0	0	0	0	0	0	0	0	0

Fugitives	0.0009 9	0.0379 6	0.004 83	0.001 31	0.0483 3	0.0206	0	0	0	0.1140 2
Venting or Blowdowns	0	0	0	0	0	0	0	0	0	0
Combustion Control Devices	0	0	0	0	0	0	0	0	0	0
Non-Road Internal Combustion Engines	0	0	0	0	0	0	0	0	0	0
Loadout	0	0	0	0	0	0	0	0	0	0
Well Bradenhead	0	0	0	0	0	0	0	0	0	0
Well Maintenance	0	0	0	0	0	0	0	0	0	0

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

St. Croix utilized existing production in the area as a baseline for emissions estimations. Based on these numbers and the distance from residential building units, St. Croix does not anticipate that there should not be any potential acute or chronic, short- or long-term incremental impacts to public health.

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.

St. Croix utilized existing production in the area as a baseline for emissions estimations. Based on these numbers and the distance from residential building units, St. Croix does not anticipate that there should not be any potential acute or chronic, short- or long-term incremental impacts to public health.

### 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	108	544	170	30	60
Annual	108	544	170	30	730

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

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

No proppant will be used for completion activities.

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.

Not applicable

### 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	0	0
Permitted by COGCC, unbuilt	0	0
Permitted by Relevant Local Government & not COGCC, unbuilt	0	0
Proposed	0	2

Total acreage disturbance during construction of the active and proposed oil & gas locations within 1-mile of the proposed Oil & Gas Location: 0

Source for acreage total:

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

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

N/A

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

Source for storage totals:

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

	Permitted Onsite Storage Capacity	Existing Onsite Storage Capacity
Oil	0	0
Condensate	0	0
Produced Water	0	0
Pits	0	0

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

N/A

2 Oil & Gas Location Name: Horseshoe

Number: 2

Status: Proposed

#### **OIL & GAS LOCATION INFORMATION**

Form 2A Doc#: 402817621

Loc ID#:

Oil & Gas Location: QTRQTR: SWSE Sec: 22 Twp: 3S Rng: 49W Meridian: 6

Total number of wells planned: 1

#### **Operations Duration**

Estimated total number of weeks to construct this Oil & Gas Location: 1

Estimated total number of weeks to drill all planned wells for this Oil & Gas Location: 1

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: 1

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

Will there be simultaneous drilling and completions operations occurring at this Oil & Gas Location? No

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

#### **Noise Impacts**

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

Construction and drilling operations will be brief, averaging one week each. This well will not be hydraulically fractured. Noise impacts will be acute and brief. There are no residences within 1 mile of the location. Drivers on County Road YY may notice a small increase in ambient noise.

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

Production equipment will be consolidated at the proposed Horseshoe Production Facility. Increased noise will be a de minimis level due to the existing production in the area.

#### **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.

During pre-production activities, lights will be onsite for safety and 24-hour operations. These temporary lights will be downward facing as much as possible to minimize the distance that it will be visible. Lights will be on location for 1-2 weeks. There are no residences within 1 mile. During consultation with CPW, they concurred that due to the brief duration of pre-production activities, the lights should not be an overly adverse impact.

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

There will be no adverse light impacts to surrounding receptors during the production stage. Production operations will not have lighting onsite for typical operations.

### 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.

This location was chosen because it is over 1 mile from the nearest building. Winds in the area generally blow west to east throughout the colder months (November-March) and along a north/south axis throughout the warmer months (March-October). The nearest Building Unit is approximately 1.5 miles away to the south. Drilling will be approximately one week. The brief nature of the drilling activity insures odors should not be a concern for any residents of Washington County.

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

All produced fluids will be transported via off-location flowline to the proposed Horseshoe Production Facility location. There fluids will move through a heater-treater into enclosed storage tanks. The existing oil and gas facilities in the area in addition to the enclosed storage options should not increase the odor factor in the area.

### **WATER RESOURCES**

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

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

Estimated depth to groundwater: 130

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	0	0

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.

No fluids will be stored on this location.

### **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	5280	S	N/A
Wetland	970	W	NWI-mapped freshwater emergent wetland at 970 ft.
Surface Waters of the State	970	W	NWI-mapped freshwater emergent wetland at 970 ft.

### **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	E	N/A

### **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	0	Recycled Water (Produced Water)	4215	Unspecified Source	0	Percentage Recycled Water	75	%
Ground Water	1040	Recycled Water (non-Produced Water)	0	Total Water Usage	5255			

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.

St. Croix intends to use produced water for drilling activities. Freshwater will only be used for dust mitigation.

## ECOSYSTEM & WILDLIFE RESOURCES

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

High Priority Habitat (HPH) Name:	Distance	Estimated Acreage Disturbed
Greater Prairie Chicken	0	6.19
Pronghorn Winter Concentration	0	6.19

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

	Total Acreage (acres)	Total HPH Acreage (acres)	Provide any further information regarding the location's HPH disturbance.
Construction	6.19	6.19	This location is in irrigated cropland. Once the well is brought on to production, the location will undergo interim reclamation and be replanted the next growing season in accordance with the Surface Owner's crop schedule.
Post-interim Reclamation	0.002	0.002	

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	522	Non-Irrigated	0	Conservation Reserve Program(CRP)	0	Other	0	
Non-Crop Land:	Rangeland	1612	Forestry	0		Recreation			0
Subdivided:	Industrial	0	Commercial	0		Residential			0

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

N/A

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

N/A

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

	Estimated Disturbed Acreage		Estimated Disturbed Acreage		Estimated Disturbed Acreage		Estimated Disturbed Acreage
Disturbed Grassland	<u>612</u>	Shrub Land	<u>1000</u>	Mountain Riparian	<u>0</u>	Wetland Aquatic	<u>0</u>
Native Grassland	0	Plains Riparian	0	Forest Land	0	Alpine	0

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

This location is proposed within irrigated cropland. The adjacent rangeland is of poor habitat quality.

## Soil Resources

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

NRCS Map Unit Name:	Estimated Disturbed Acreage
70 Valent Sand, 3-9 Percent Slopes	6.19

## PUBLIC WELFARE

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

### Building Units within 1-mile

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

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

### Recreation and Scenic Value

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

N/A

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

N/A

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.

N/A

## AIR RESOURCES

### Pre-Production Emissions

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

	NOx	CO	VOCs	Methane	Ethane	CO2	N2O
Process Heaters or Boilers	0	0	0	0	0	0	0
Storage Tanks	0	0	0.01555	0.0021	2E-05	0.00027	0
Venting or Blowdowns	0	0	0	0	0	0	0
Combustion Control Devices	0	0	0	0	0	0	0
Non-Road Internal Combustion Engines	3.7038 2	0.7978 7	0.30235	0.00554	0	136.940 52	0.00109
Drill Mud	0	0	0.47559	2.02813	0.01776	0.26051	0
Flowback or Completions	0	0	0	0	0	0	0
Loadout	0	0	0.00111	1E-05	0	0	0

### Production Emissions

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

	NOx	CO	VOCs	Methane	Ethane	CO2	N2O
Stationary Engines or Turbines	0	0	0	0	0	0	0
Process Heaters or Boilers	0	0	0	0	0	0	0
Storage Tanks	0	0	0	0	0	0	0
Dehydration Units	0	0	0	0	0	0	0
Pneumatic Pumps	0	0	0	0	0	0	0
Pneumatic Controllers	0	0	0	0	0	0	0
Separators	0	0	0	0	0	0	0
Fugitives			0.00089	0.05881	0.00051	0.00755	
Venting or Blowdowns	0	0	0	0	0	0	0
Combustion Control Devices	0	0	0	0	0	0	0
Loadout	0	0	0	0	0	0	0

Non-Road Internal Combustion Engines	0	0	0	0	0	0	0
Well Bradenhead	0	0	0	0	0	0	0
Well Maintenance	0	0	0	0	0	0	0

#### Diesel Vehicle Road Miles

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

During Construction: 1169                      During Completions: 3067  
During Drilling: 10151                      During Interim Reclamation: 859  
During Production: 535804

### PUBLIC HEALTH RESOURCES

#### Pre-Production Emissions

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

	BEN	TOL	ETH	XYL	NHE	TMP	H2S	FDE	MET	HAP
Process Heaters or Boilers	0	0	0	0	0	0	0	0	0	0
Storage Tanks	4E-05	0.00135	0.00017	5E-05	0.00172	0.00073	0	0	0	0.00406
Venting or Blowdowns	0	0	0	0	0	0	0	0	0	0
Combustion Control Devices	0	0	0	0	0	0	0	0	0	0
Non-Road Internal Combustion Engines	1.56719	0.68701	0	0.047872	0	0	0	1.98209	0	4.71502
Drill Mud	0.02341	1.30935	0.16651	0.04502	1.66704	0.71047	0	0	0	4
Flowback or Completions	0	0	0	0	0	0	0	0	0	0
Loadout	0.00016	0.00291	0.00231	0.00789	0.004	0.00109	0	0	0	0.01835

#### Production Emissions

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

	BEN	TOL	ETH	XYL	NHE	TMP	H2S	FDE	MET	HAP
Stationary Engines or Turbines	0	0	0	0	0	0	0	0	0	0
Process Heaters or Boilers	0	0	0	0	0	0	0	0	0	0
Storage Tanks	0	0	0	0	0	0	0	0	0	0
Dehydration Units	0	0	0	0	0	0	0	0	0	0
Pneumatic Pumps	0	0	0	0	0	0	0	0	0	0
Pneumatic Controllers	0	0	0	0	0	0	0	0	0	0
Separators	0	0	0	0	0	0	0	0	0	0
Fugitives	0.00099	0.03796	0.00483	0.00131	0.04833	0.0206	0	0	0	0.11402
Venting or Blowdowns	0	0	0	0	0	0	0	0	0	0
Combustion Control Devices	0	0	0	0	0	0	0	0	0	0
Non-Road Internal Combustion Engines	0	0	0	0	0	0	0	0	0	0
Loadout	0	0	0	0	0	0	0	0	0	0
Well Bradenhead	0	0	0	0	0	0	0	0	0	0
Well Maintenance	0	0	0	0	0	0	0	0	0	0

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

St. Croix utilized existing production in the area as a baseline for emissions estimations. Based on these numbers and the distance from residential building units, St. Croix does not anticipate that there should not be any potential acute or chronic, short- or long-term incremental impacts to public health.

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.

St. Croix utilized existing production in the area as a baseline for emissions estimations. Based on these numbers and the distance from residential building units, St. Croix does not anticipate that there should not be any potential acute or chronic, short- or long-term incremental impacts to public health.

### 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	108	544	170	30	60
Annual	108	544	170	30	730

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

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

No proppant will be used for completion activities.

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.

Not applicable

### 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	0	Active, built	0
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	2

Total acreage disturbance during construction of the active and proposed oil & gas locations within 1-mile of the proposed Oil & Gas Location: 0

Source for acreage total:

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

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

N/A

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

Source for storage totals:

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

	Permitted Onsite Storage Capacity	Existing Onsite Storage Capacity
Oil	0	0
Condensate	0	0
Produced Water	0	0

☐ Other

Pits 0 0

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

N/A

3 Oil & Gas Location Name: Horseshoe Production Number: Facility Status: Proposed

#### **OIL & GAS LOCATION INFORMATION**

Form 2A Doc#: 402817644

Loc ID#: \_\_\_\_\_

Oil & Gas Location: QTRQTR: SESE Sec: 22 Twp: 3S Rng: 49W Meridian: 6

Total number of wells planned: 1

#### **Operations Duration**

Estimated total number of weeks to construct this Oil & Gas Location: 1

Estimated total number of weeks to drill all planned wells for this Oil & Gas Location: 1

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: 1

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

Will there be simultaneous drilling and completions operations occurring at this Oil & Gas Location? No

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

#### **Noise Impacts**

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

Construction and drilling operations will be brief, averaging one week each. This well will not be hydraulically fractured. Noise impacts will be acute and brief. There are no residences within 1 mile of the location. Drivers on County Road YY may notice a small increase in ambient noise.

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

Increased noise will be a de minimis level due to the existing production in the area. Fluids from the proposed producing wells will be transported via off-location flowline to the production equipment on this location in order to minimize unnecessary traffic in the area.

#### **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.

During pre-production activities, lights will be onsite for safety and 24-hour operations. These temporary lights will be downward facing as much as possible to minimize the distance that it will be visible. Lights will be on location for 1-2 weeks. There are no residences within 1 mile. During consultation with CPW, they concurred that due to the brief duration of pre-production activities, the lights should not be an overly adverse impact.

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

There will be no adverse light impacts to surrounding receptors during the production stage. Production operations will not have lighting onsite for typical operations.

#### **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.

This location was chosen because it is over 1 mile from the nearest building. Winds in the area generally blow west to east throughout the colder months (November-March) and along a north/south axis throughout the warmer months (March-October). The nearest Building Unit is approximately 1.5 miles away to the south. Drilling will be approximately one week. The brief nature of the drilling activity insures odors should not be a concern for any residents of Washington County.

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

All produced fluids from the related proposed wells will be transported via off-location flowline to this location. These fluids will move through a heater-treater into enclosed storage tanks. The existing oil and gas facilities in the area in addition to the enclosed storage options should not increase the odor factor in the area.

WATER RESOURCES

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

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

Estimated depth to groundwater: 133

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

	Number of Tanks	Total Volume (bbls)
Oil	2	800
Condensate	0	0
Produced Water	2	800
Other volumes of stored fluids, hydrocarbons, chemicals, or E&P Waste Fluids	1	400

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.

St. Croix is proposing to add one skim tank to this location as well.

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	S	N/A
Wetland	2040	W	NWI-mapped freshwater emergent wetland at 2040 ft.
Surface Waters of the State	2040	W	NWI-mapped freshwater emergent wetland at 2040 ft.

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	E	N/A

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	0	Recycled Water (Produced Water)	4215	Unspecified Source	0	Percentage Recycled Water	75 %
Ground Water	1040	Recycled Water (non-Produced Water)	0	Total Water Usage	5255		

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.

St. Croix intends to use produced water for drilling activities. Freshwater will only be used for dust mitigation.

ECOSYSTEM & WILDLIFE RESOURCES

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

High Priority Habitat (HPH) Name:	Distance	Estimated Acreage Disturbed
Greater Prairie Chicken	0	5.55
Pronghorn Winter Concentration	0	5.55

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

	Total Acreage (acres)	Total HPH Acreage (acres)	Provide any further information regarding the location's HPH disturbance.
Construction	5.55	5.55	This location is proposed <40 meters from the county road. Greater Prairie Chicken do not typically occupy areas that are less than 700 meters from roads. The habitat is also not pristine for Pronghorn.
Post-interim Reclamation	1.77	1.77	

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	539	Non-Irrigated	0	Conservation Reserve Program(CRP)	0		
Non-Crop Land:	Rangeland	1785	Forestry	0		Recreation	0	Other 0
Subdivided:	Industrial	0	Commercial	0		Residential	0	

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

N/A

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

N/A

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	785	Shrub Land	1000	Mountain Riparian	0	Wetland Aquatic	0
Native Grassland	0	Plains Riparian	0	Forest Land	0	Alpine	0

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

This location will remove sub-prime habitat from the ecosystem. Once the location undergoes final reclamation, St. Croix will reseed with a seed mix approved by the surface owner and the CPW.

### Soil Resources

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

NRCS Map Unit Name:	Estimated Disturbed Acreage
70 Valent Sand, 3-9 Percent Slopes	5.55

### PUBLIC WELFARE

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

Building Units within 1-mile	0'-2,000'	2,001'-5,280'
Total number of Residential Building Units:	0	0
Total Number of non-school AND non child care center High Occupancy Building Units:	0	0

Total number of School Facilities:	0	0
Total number of Child Care Centers:	0	0

## Recreation and Scenic Value

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

N/A

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

N/A

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.

N/A

## AIR RESOURCES

### Pre-Production Emissions

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

	NOx	CO	VOCs	Methane	Ethane	CO2	N2O
Process Heaters or Boilers	0	0	0	0	0	0	0
Storage Tanks	0	0	0.01555	0.0021	2E-05	0.00027	0
Venting or Blowdowns	0	0	0	0	0	0	0
Combustion Control Devices	0	0	0	0	0	0	0
Non-Road Internal Combustion Engines	3.7038 2	0.7978 7	0.30235	0.00554	0	136.940 52	0.00109
Drill Mud	0	0	0.47559	2.02813	0.01776	0.26051	0
Flowback or Completions	0	0	0	0	0	0	0
Loadout	0	0	0	0	0	0	0

### Production Emissions

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

	NOx	CO	VOCs	Methane	Ethane	CO2	N2O
Stationary Engines or Turbines	0	0	0	0	0	0	0
Process Heaters or Boilers	0.2147 1	0.1803 5	0.01181	0.00494	0.00666	257.647 06	0.00472
Storage Tanks	0	0	0.29732	0.67841	0.00718	0.3673	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			0.00089	0.05881	0.00051	0.00755	
Venting or Blowdowns	0	0	0	0	0	0	0
Combustion Control Devices	0	0	0	0	0	0	0
Loadout	0	0	0.20253	0.00187	0.00018	2E-05	0
Non-Road Internal Combustion Engines	0	0	0	0	0	0	0
Well Bradenhead	0	0	0	0	0	0	0
Well Maintenance	0	0	0	0	0	0	0

### Diesel Vehicle Road Miles

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

During Construction:	1169	During Completions:	10151
During Drilling:	3067	During Interim Reclamation:	859
During Production:	535804		



## PUBLIC HEALTH RESOURCES

### Pre-Production Emissions

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

	BEN	TOL	ETH	XYL	NHE	TMP	H2S	FDE	MET	HAP
Process Heaters or Boilers	0	0	0	0	0	0	0	0	0	0
Storage Tanks	4E-05	0.00135	0.00017	5E-05	0.00172	0.00073	0	0	0	0.00406
Venting or Blowdowns	0	0	0	0	0	0	0	0	0	0
Combustion Control Devices	0	0	0	0	0	0	0	0	0	0
Non-Road Internal Combustion Engines	1.56719	0.68701	0	0.47872	0	0	0	1.98209	0	4.71502
Drill Mud	0.02341	1.30935	0.16651	0.04502	1.66704	0.71047	0	0	0	4
Flowback or Completions	0	0	0	0	0	0	0	0	0	0
Loadout	0	0	0	0	0	0	0	0	0	0

### Production Emissions

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

	BEN	TOL	ETH	XYL	NHE	TMP	H2S	FDE	MET	HAP
Stationary Engines or Turbines	0	0	0	0	0	0	0	0	0	0
Process Heaters or Boilers	0.00902	0.0146	0	0	7.72941	0	0	0.32206	0	8.07509
Storage Tanks	2.26658	6.27293	0.44951	3.73928	208.44323	0.134	0	0	0	221.30552
Dehydration Units	0	0	0	0	0	0	0	0	0	0
Pneumatic Pumps	0	0	0	0	0	0	0	0	0	0
Pneumatic Controllers	0	0	0	0	0	0	0	0	0	0
Separators	0	0	0	0	0	0	0	0	0	0
Fugitives	0.00099	0.03796	0.00483	0.00131	0.04833	0.0206	0	0	0	0.11402
Venting or Blowdowns	0	0	0	0	0	0	0	0	0	0
Combustion Control Devices	0	0	0	0	0	0	0	0	0	0
Non-Road Internal Combustion Engines	0	0	0	0	0	0	0	0	0	0
Loadout	0.02838	0.53107	0.42161	1.43916	0.72972	0.19864	0	0	0	3.34858
Well Bradenhead	0	0	0	0	0	0	0	0	0	0
Well Maintenance	0	0	0	0	0	0	0	0	0	0

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

St. Croix utilized existing production in the area as a baseline for emissions estimations. Based on these numbers and the distance from residential building units, St. Croix does not anticipate that there should not be any potential acute or chronic, short- or long-term incremental impacts to public health.

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.

St. Croix utilized existing production in the area as a baseline for emissions estimations. Based on these numbers and the distance from residential building units, St. Croix does not anticipate that there should not be any potential acute or chronic, short- or long-term incremental impacts to public health.

### Dust Impacts

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

Total

Monthly	During Construction	During Drilling	During Completions	During Interim Reclamation	During Production
Annual	108	544	170	30	60
	108	544	170	30	730

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

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

No proppant will be used for completion activities.

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.

Not applicable

#### 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	0	0
Permitted by COGCC, unbuilt	0	0
Permitted by Relevant Local Government & not COGCC, unbuilt	0	0
Proposed	0	2

Total acreage disturbance during construction of the active and proposed oil & gas locations within 1-mile of the proposed Oil & Gas Location: 0

Source for acreage total:

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

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

N/A

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

Source for storage totals:

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

	Permitted Onsite Storage Capacity	Existing Onsite Storage Capacity
Oil	0	0
Condensate	0	0
Produced Water	0	0
Pits	0	0

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

N/A

#### OIL & GAS DEVELOPMENT PLAN-SCALE DATA

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

High Priority Habitat (HPH) Name	Estimated Acreage Disturbed
Pronghorn Winter Concentration Area	3.22
Greater Prairie Chicken	3.22

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

Construction			Post-interim Reclamation		
	Total Acreage (acres)	Total HPH Acreage (acres)		Total Acreage (acres)	Total HPH Acreage (acres)
New roads, including access roads	1.47	1.47	New roads, including access roads	1.47	1.47
Pipelines	1.75	1.75	Pipelines	0	0
Utilities	0	0	Utilities	0	0

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

The three proposed locations will share access and off-location flowline corridors as much as practical to consolidate disturbance and minimize impacts.

Number of miles of the existing lease road that are planned to be used to access these location(s): 0

### **BENEFICIAL IMPACT INFORMATION**

#### **Equipment and Facility Removal**

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

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

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

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

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

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

Oil Tanks: 0

Condensate Tanks: 0

Produced Water Tanks: 0

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

These locations were chosen to create a minimum impact on the surrounding community. They are located adjacent to an existing county road to minimize traffic impacts; they are over 1 mile from buildings, schools, and other population centers.

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

These locations are being developed in an existing oil and gas field. The locations chosen are either within the existing disturbance of irrigated cropland or located adjacent to the county road to minimize traffic moving through habitat. The locations are also in areas of lesser quality habitat to minimize impacts on Pronghorn. Greater Prairie Chickens do not like areas that are within 700 meters of roads; these locations are all less than 400 meters from the existing county road. Visits to the location will be kept minimal with the production facilities being consolidated on one location. There should be minimal impacts to the surrounding ecosystems or wildlife by using consolidated production facilities to centralize the main traffic.

### **MITIGATION INFORMATION**

Item	Impacted Resource	Mitigation Description
1	Air Resources	Any emissions that may occur above the thresholds established by Colorado Department of Public Health and Environment for uncontrolled locations will be routed to a combustor with a minimum manufacturer's efficiency of 98%.

2	Ecosystem and Wildlife Resources	The acute activity impacts will be brief - approximately 1 week for construction and 1 week for drilling for each location. By piping all produced fluids to the consolidated production facilities location, there will be consolidation of traffic and leveraging the same well site visit to support both the proposed wells.
3	Public Welfare	These locations were chosen due to its proximity to existing production and the minimal longterm disturbance that would be required for its production phase. It is over 1 mile from the nearest building. There should be no short- or long-term incremental impacts to public health as a result of proposed activities.
4	Water Resources	These locations are over 1 mile from surface water resources.
5	Ecosystem and Wildlife Resources	St. Croix will utilize a pit-less, closed loop system for drilling. The proposed wells shall be drilled, completed, and operated using closed-loop pitless systems for containment and/or recycling of all drilling, completion, flowback and produced fluids.
6	Water Resources	All newly installed tanks will be set on an impervious liner within steel containment that will be calculated to contain 150% of the largest tank within the containment. All loadlines shall be bull plugged or capped.
7	Water Resources	This well will used produced water for drilling activities to minimize freshwater impacts in the area.
8	Ecosystem and Wildlife Resources	During drilling activities, lights will be onsite for safety and 24-hour operations. These temporary lights will be downward facing as much as possible to minimize the distance that it will be visible. Once drilling operations are finished, the lights will be removed and lights will not be a permanent fixture for the producing locations.

#### **OPERATOR COMMENTS AND SUBMITTAL**

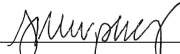
Print Name: Jessica Donahue

Title: Compliance Specialist

Email: jdonahue@ardorenvironmental.com

Date: 12/27/2021

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: 8/12/2022

## Attachment Check List

**Att Doc Num**      **Name**

402814070	Form 02B SUBMITTED
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Total Attach: 1 Files

### General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
OGLA	OGDP ID# 481919 and this Form are approved by Commission Order Number 1-577.	08/12/2022
OGLA	The Director has determined that the OGD application that this Form is a component of meets all requirements of Rule 306.a. The Director's Recommendation has been attached to the Form 2A.	07/29/2022
OGLA	With operator concurrence, the following was corrected: Updated estimated depth to groundwater for the Horseshoe Production Facility to 133 ft. Checked box for This Location is within 2,640 feet of a surface Water of the State for Horseshoe 1, Horseshoe 2, and Horseshoe Production Facility. Updated the distances to the nearest wetlands and Surface water of the state for Horseshoe 1, Horseshoe 2, and Horseshoe Production Facility.	07/25/2022
OGLA	The Director has determined this OGD application is complete. Form pushed to IN PROCESS.	04/07/2022
OGLA	Horseshoe OGD did not pass COMPLETENESS. Form 2B, Doc #402814070 will stay IN PROCESS.	01/26/2022

Total: 5 comment(s)