FORM 2B Rev 03/21

State of Colorado
Oil and Gas Conservation Commission

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CUMULATIVE IMPACTS DATA IDENTIFICATION

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

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

OPERATOR INFORMATION

OGCC Operator Number: 8960
Name of Operator: BONANZA CREEK ENERGY OPERATING COMPANY LLC
Address: 410 17TH STREET SUITE #1400
City: DENVER State: CO Zip: 80202

Contact Name and Telephone:
Name: Scott Park
Phone: (970) 415-0778
Email: spark@bonanzacrk.com

OIL & GAS DEVELOPMENT PLAN INFORMATION

Oil & Gas Development Plan Name: State Antelope B-2 Pad

Oil & Gas Development Plan Docket #:

Docket Number
210700117

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: State Antelope B-2 Pad Number: N/A Status: Active, built

OIL & GAS LOCATION INFORMATION

Form 2A Doc#: 402735734

Loc ID#: 159738

Oil & Gas Location: QTRQTR: NWNW Sec: 2 Twp: 5N Rng: 62W Meridian: 6

Total number of wells planned: 11

Operations Duration

Estimated total number of weeks to construct this Oil & Gas Location: 2
Estimated total number of weeks to drill all planned wells for this Oil & Gas Location: 7.9
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: 6.3
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: 348

Noise Impacts

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

The State Antelope B-2 Pad is wholly located within an agricultural area and zoned as such. The closest RBU is located 1.2 miles to the north of the well pad and the closest HPH is located 2.2 miles northeast of the well pad. Given the distance of these receptors from the proposed location, noise from pre-production activities is not anticipated to have an adverse cumulative effect on people located at the RBUs or pronghorn using the HPH.

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

The State Antelope B-2 Pad is wholly located within an agricultural area and zoned as such. The closest RBU is located 1.2 miles to the north of the well pad and the closest HPH is located 2.2 miles northeast of the well pad. In addition, no production equipment would be located on this feeder well pad. Given the distance of these receptors from the proposed location, noise from production activities is not anticipated to have an adverse cumulative effect on people located at the RBUs or pronghorn using the HPH.

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.

The State Antelope B-2 Pad is wholly located within an agricultural area and zoned as such. The closest RBU is located 1.2 miles to the north of the well pad and the closest HPH is located 2.2 miles northeast of the well pad. Given the distance of these receptors from the proposed location, and the fact that all drill rig, completion rig, and associated lighting would be down-shielded on the pad, light from pre-production activities is not anticipated to have an adverse cumulative effect on people located at the RBUs or pronghorn using the HPH.

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

The State Antelope B-2 Pad is wholly located within an agricultural area and zoned as such. There are zero RBUs located within 2,000 feet of the location. Adverse light impacts to any receptors outside of the 2,000 foot distance are not expected during production as operational activities would only occur during daylight hours, and because there would be no permanent lights (with the exception of emergency lighting that is only triggered in the event of an equipment issue) on production facilities or equipment.

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.

The State Antelope B-2 Pad is wholly located within an agricultural area and zoned as such. The closest RBU is located 1.2 miles north of the proposed location, therefore, odor impacts on human receptors during pre-production are not anticipated. In addition, BCEOC will use a freshwater mud system to drill and case the surface hole. BCEOC will use a Group II Oil-Based Mud for drilling of the production string. This drilling mud has a polycyclic aromatic hydrocarbon content of approximately 11-12% by weight, which results in a 99% reduction in aromatic compound compared to diesel-based drilling muds. Due to the low VOC and BTEX counts of the Group II system, odor neutralizer is not anticipated. However, residual sources of odor during pre-production activities would include the drilling mud, associated mud pits, drill cuttings, the three-sided bins where drill cuttings would be stored, centrifuge solids, odors from the transfer area where muds and cuttings are hauled away, and exhaust from drilling and completion engines. Additional measures to minimize odor impacts on the Location include the following:

• Oil and gas operations will be in compliance with the Department of Public Health and Environment, Air Quality Control Commission, Regulation No. 2 Odor Emission, 5 C.C.R. 1001-4, Regulation No. 3 (5 C.C.R. 1001-5), and Regulation No. 7 Section XVII.B.1 (a-c) and Section XII.
• Fresh water mud system will be utilized for surface hole
• BCEOC will be using Group II Oil Based Mud for drilling of the production string.
• Group II Oil Based Mud will have Polycyclic Aromatic Hydrocarbon content of 11-12% by weight
• Due to the low VOC and BTEX counts of the Group II system, odor neutralizer is not anticipated. Oil based drilling fluid not being used in the active mud system shall be stored in closed, upright tanks.
• In an effort to keep odor from oil base cuttings as low as possible, BCEOC will continuously haul cuttings to an approved disposal facility throughout the drilling process. BCEOC will not stockpile cuttings or store any large amount of cuttings on location. Trucks will run continuously during daylight hours to keep the volume of cuttings on location at a minimum.
• Upon tripping out of the hole, the OD and ID of the drill pipe will be wiped to remove any residual mud.
• A catch can system mounted around the BOP to catch any mud that falls through the rotary table preventing any spillage and source of odor.
• Tanks will be gauged using infrared; thief hatches will not be opened for these purposes.
• Vapor recovery systems will be installed on storage tanks.
• Truck loadouts, well unloads, and swabbing will be controlled eliminating high pressure venting or flaring.

Based on these minimization measures and the fact that there are no receptors within 2,000 feet, cumulative impacts from odor during the pre-production phase are not anticipated from the State Antelope B-2 Pad.

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

The State Antelope B-2 Pad is wholly located within an agricultural area and zoned as such. The closest RBU is located 1.2 miles north of the proposed location, therefore, odor impacts on human receptors during production are not anticipated. In addition, production equipment on the Location would be limited, including one maintenance tank. Therefore, there would be minimal potential for production related odors due to the infrequent use of the maintenance tank. In the unlikely event of an odor complaint from RBUs north of the Location, BCEOC would determine the source of the odor, and employ mitigation measures accordingly.

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: 17

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	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.

When needed, the Maintenance Tank (400 bbl) would contain mixed well fluids.

Potential Impacted Surface Water Resources

Provide the distance and direction of the contaminant migration pathway from the Oil & Gas Location to the nearest downstream riparian corridors, wetlands, and surface Waters of the State. Also provide an evaluation of the baseline condition of the nearest downstream riparian corridors, wetlands, and surface Waters of the State.
Enter 2,640 for distances greater than 1/2-mile. Distances are measured along the migration pathway, not a straight line from the edge of the Oil & Gas Location.

	Distance	Direction	Evaluation of Baseline Condition
Riparian Corridor	2640	SE	N/A
Wetland	2640	SE	N/A
Surface Waters of the State	2640	SE	N/A

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	SE	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	2953500	Recycled Water (Produced Water)	50000	Unspecified Source	0	Percentage Recycled Water	1 %
Ground Water	0	Recycled Water (non-Produced Water)	0	Total Water Usage	300350 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.

BCEOC intends to use 50,000 bbls of recycled water at the State Antelope B-2 Pad. This volume of recycled water is feasible without constructing additional infrastructure that results in surface disturbance, or requiring additional truck traffic.

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
N/A	5280	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	11.92	0
Post-interim Reclamation	6	0

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

No HPH will be disturbed by the State Antelope B-2 Pad. However, BCEOC and other operators are actively working to plug and abandon 3 wells that are located within the vicinity of the State Antelope B-2 Pad. This P&A activity will restore approximately 14.55 acres of habitat to pre-disturbance conditions, making the habitat available for wildlife use.

Provide the acreage of the existing land use types that occur within one mile of the Oil & Gas Location. Note: a circle with a one mile radius is approximately 2010 acres.

		Existing Acreage		Existing Acreage		Existing Acreage		Existing Acreage
Crop Land:	Irrigated	0	Non-Irrigated	0	Conservation Reserve Program(CRP)	0		
Non-Crop Land:	Rangeland	2198.22	Forestry	0	Recreation	0	Other	54.56
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.

Oil and Gas Development

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	4.1	Shrub Land	5.9	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.

Construction of the State Antelope B-2 Pad would result in the initial disturbance of approximately 12 acres of Western Great Plains shortgrass prairie, including about 6 acres of long-term disturbance after interim reclamation. This habitat would be unavailable for use by wildlife during the 29-year lifetime of the location. However, given the abundance of Western Great Plains habitat within Weld County and the broader DJ Basin, this small-scale disturbance is not likely to adversely impact wildlife that could use these habitats, nor is it likely to result in substantial cumulative impacts to the shortgrass prairie and sandhill steppe vegetative communities. In addition, as a result of development of the State Antelope B-2 Pad, BCEOC and other operators will P&A three existing oil and gas locations in the vincinty State Antelope B-2 Pad. Upon reclamation of these locations, approximately 14.5 acres of habitat will be returned to native vegetation communities. In addition to restoring habitat to the native vegetative communities, the P&A'ing of 3 wells and reclamation of the associated well pads helps reduce habitat fragmentation within the Western Great Plains ecosystem.

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
Osgood sand, 0 to 3 percent slopes	11
Valent sand, 3 to 9 percent slopes	0.9

PUBLIC WELFARE

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

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

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

Recreation and Scenic Value

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

There is 1155.51 acres of Colorado State Trust Land within 1 mile of the State Antelope B-2 Pad. Based on a review of aerial imagery, the surrounding area is mostly being leased for oil and gas operations. There is no evidence that the property is used for recreational purposes, and hunting and wildlife activity is not expected due to the operational use of the land.

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	0.12	0.031	0.0012	0.00032	0	0	0.0016
Storage Tanks	0.00026	0.0012	0.43	0.0022	0.0028	0.63	0.0016
Venting or Blowdowns	0	0	0	0	0	0	0
Combustion Control Devices	0.0027	0.013	0.03	0.042	0.016	5.14	2.16E-07
Non-Road Internal Combustion Engines	108.59	60.64	3.32	0.49	0.008	12181.51	0.099
Drill Mud	0	0	2.79	3.92	1.5	0.19	0
Flowback or Completions	0.098	0.45	1.07	1.51	0.58	183.7	0.00032
Loadout	0	0	4.4E-05	0.043	0.056	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	1.36	2.3	0.018	0.14	0.061	67.93	0.00014
Process Heaters or Boilers	5.15	4.33	0.28	0.12	0.16	6183.53	0.11
Storage Tanks	0.6	2.74	15.12	1.66	3.49	1254.15	0.0019
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	1.28	5.82	9.74	3.59	3.45	2499.63	4.1E-06
Fugitives			0.61	0.4	0.21	0.026	
Venting or Blowdowns	0	0	4.51	5.88	2.3	0.29	0
Combustion Control Devices	0	0	0	0	0	0	0
Loadout	0.15	0.67	3.94	3.18	4.96	300.04	0.00048
Non-Road Internal Combustion Engines	0	0	0	0	0	0	0
Well Bradenhead	0	0	0.18	25.16	9.61	1.2	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:	14700	During Completions:	101640
During Drilling:	46200	During Interim Reclamation:	10500

During Production: 2192400

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	1.34E-06	3.9E-05	3.97E-07	6.8E-07	0	0	0	0.00038	0	0.00042
Storage Tanks	0.0012	0.0011	0.00013	0.00076	0.0078	3.5E-05	0	0	0	0.011
Venting or Blowdowns	0	0	0	0	0	0	0	0	0	0
Combustion Control Devices	9.86E-05	0.00013	9.71E-06	3.53E-05	0.00075	5.6E-07	0	0	0	0.001
Non-Road Internal Combustion Engines	0.062	0.025	0	0.018	0.0004	0.0013	0	0.054	0	0.16
Drill Mud	0.0092	0.012	0.0009	0.0033	0.07	5.21E-05	0	0	0	0.095
Flowback or Completions	0.0035	0.0045	0.00035	0.0013	0.027	2E-05	0	0	0	0.036
Loadout	5.27E-10	6.19E-10	2.5E-08	7.17E-10	4.41E-07	1.18E-10	0	0	0	4.68E-07

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	0.00098	0.00034	1.53E-05	0.00012	0	0	0	0.013	0.0019	0.016
Process Heaters or Boilers	0.00011	0.00018	0	0	0.093	0	0	0.0039	0	0.097
Storage Tanks	0.055	0.04	0.0041	0.011	0.27	0.0079	0	0	0	0.39
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	0.016	0.0098	0.00099	0.0026	0.13	0.00095	2.76E-05	0	0	0.16
Fugitives	0.002	0.0019	0.00017	0.00048	0.014	6.14E-05	0	0	0	0.019
Venting or Blowdowns	0.015	0.018	0.0014	0.0051	0.00047	0.00013	0	0	0	0.04
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	0.0058	0.0041	0.00046	0.00079	0.066	0.00046	0	0	0	0.077
Well Bradenhead	0.059	0.075	0.0058	0.021	0.45	0.00033	0	0	0	0.61
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.

A Public Health incremental impacts evaluation was conducted as a high-level and conservative screening. This screening method used the total amount of each Hazardous Air Pollutant (HAP) that may be emitted from equipment or activities during pre-production (as reported in Item 129 above) to estimate the steady state air concentration of each HAP within the facility using a box model. The highest potential concentrations of each HAP were then used to evaluate both acute and chronic exposures. Acute exposure comparison was based on the U.S. Environmental Protection Agency (USEPA) Acute Exposure Guideline Levels for Airborne Chemicals (AEGLs) for commercial/Industrial exposure. For acute exposure for residential properties, the Agency for Toxic Substances and Disease Registry (ATSDR) Minimal Risk Levels (MRLs) for acute duration exposure were used as a comparison. For chronic exposure, the reference calculations were obtained from the USEPA Regional Screening Level tables. The default exposure values prepared by USEPA were used in the risk evaluation.

Based on the airborne HAP concentrations estimated using HAP emission rates and the box model described above, no HAP is expected to exceed the target cancer risk or noncancer hazard index for chronic duration exposures within the well pad location during pre-production. Additionally, no HAPs exceed the residential or industrial screening levels for acute duration exposures within the well pad location during pre-production. These results support the conclusion that no mitigation is required to protect public health during the pre-production phase of this Oil and Gas Location beyond the well pad location.

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.

A Public Health incremental impacts evaluation was conducted as a high-level and conservative screening. This screening method used the total amount of each Hazardous Air Pollutant (HAP) that may be emitted from equipment or activities during pre-production (as reported in Item 129 above) to estimate the steady state air concentration of each HAP within the facility using a box model. The highest potential concentrations of each HAP were then used to evaluate both acute and chronic exposures. Acute exposure comparison was based on the U.S. Environmental Protection Agency (USEPA) Acute Exposure Guideline Levels for Airborne Chemicals (AEGLs) for commercial/Industrial exposure. For acute exposure for residential properties, the Agency for Toxic Substances and Disease Registry (ATSDR) Minimal Risk Levels (MRLs) for acute duration exposure were used as a comparison. For chronic exposure, the reference calculations were obtained from the USEPA Regional Screening Level tables. The default exposure values prepared by USEPA were used in the risk evaluation.

Based on the airborne HAP concentrations estimated using HAP emission rates and the box model described above, no HAP is expected to exceed the target cancer risk or noncancer hazard index for chronic duration exposures within the well pad location during production. Additionally, no HAPs exceed the residential or industrial screening levels for acute duration exposures within the well pad location during production. These results support the conclusion that no mitigation is required to protect public health during the production phase of this Oil and Gas Location beyond the well pad location.

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		420	1500	2850	300	150
Annual		420	2750	4180	300	1800

Estimated total pounds (lbs) of proppant to be used during completions activities. 17187840

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

30/50 mesh sand

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.

BCEOC uses a gravity fed box proppant delivery system, rather than the historic pneumatic trailer proppant transfer system that blows sand out of the trailer into frac sand silos on the location; a method that required supplemental dust control to meet OSHA requirements. This approach eliminates the noise and dust associated with the transfer of sand using pneumatic trailers. With this approach, truck trips and sand handling are reduced, thereby reducing dust on and off the well pad. The transfer from the container to the blender is accomplished using gravity flow and conveyors, a much cleaner and quieter process. With a gravity fed proppant delivery system, the delivery container is also a well pad storage container, eliminating the need for frac sand silos on location. Storing frac sand in containers reduces sand dust during fracing operations by dropping sand directly from the container into the blender sand hopper. As a result of the gravity fed box proppant delivery system, BCEOC does not anticipate any silica dust to migrate off of the State Antelope B-2 Pad during completion operations.

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	8	Active, built	22
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	8

Total acreage disturbance during construction of the active and proposed oil & gas locations within 1-mile of the proposed Oil & Gas Location: 43.37

Source for acreage total:

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

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

N/A

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

Source for storage totals:

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

	Permitted Onsite Storage Capacity	Existing Onsite Storage Capacity
Oil	28	28
Condensate	56	56
Produced Water	15	15
Pits	1	1

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

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.

No HPH Identified

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

	Construction			Post-interim Reclamation	
	Total Acreage (acres)	Total HPH Acreage (acres)		Total Acreage (acres)	Total HPH Acreage (acres)
New roads, including access roads	0	0	New roads, including access roads	0	0
Pipelines	11.39	0	Pipelines	0	0
Utilities	0	0	Utilities	0	0

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

N/A

Number of miles of the existing lease road that are planned to be used to access these location(s): 4.24

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: 3

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

Oil Tanks: 7

Condensate Tanks: 20

Produced Water Tanks: 4

Total number of existing locations that are planned to be closed and undergo final reclamation as part of this OGDP: 3

Total number of acres that are planned to be reclaimed through the closing of existing locations: 14.55

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): 36

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

BCEOC's proposed development of the State Antelope B-2 Pad will result in direct, socioeconomic benefits to the surrounding community, including the contribution of local employment opportunities, revenues, royalties, and taxes from each well to be distributed to local mineral owners, Weld County, and the State of Colorado. Sales and use taxes on purchases of taxable goods in the region would also be collected by Weld County and the State. Development and operation of the Location would require development-related goods and services from a variety of local and regional contractors and vendors during both the Pre-Production and Production phases. Expenditures by BCEOC for these goods and service would generate economic effects for Weld County, and for Colorado in the form of taxes collected. Additional socioeconomic benefits will be yielded to the communities surrounding the Location in the forms of personal revenue spent by employees and contractors and hotels, restaurants, and stores.

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

There are two key beneficial impacts on wildlife and ecosystems associated with BCEOC's proposed development of the State Antelope B-2 Pad. First, the State Antelope B-2 Pad is an existing well pad. BCEOC’s use of an existing well pad, instead of a new well pad, reduces the amount of new surface disturbance required, thereby reducing the amount of wildlife habitat loss. Second, 3 wells will be P&A'd in the vicinity of the State Antelope B-2 Pad. This P&A activity equates to approximately 14.5 acres of wildlife habitat that will be restored to the ecosystem surrounding the State Antelope B-2 Pad. The plugging and abandonment of these older wells also reduces the spider web effect created by historic development of single, vertical wells, and leads to more connectivity of wildlife habitat. BCEOC's proposed development of the State Antelope B-2 Pad also includes commitment to numerous timing limitations that would prevent surface disturbance, drilling, or completion activities during sensitive breeding and nesting seasons for migratory birds and other wildlife species, which helps reduce or avoid potential displacement from breeding, nesting and brood rearing habitats.

MITIGATION INFORMATION

Item	Impacted Resource	Mitigation Description
1	Water Resources	All cumulative impacts to water resources have been avoided or minimized through the Minimization Measures identified in the Cumulative Impact Plan and Water Management Plan; which include the following: • BCEOC will implement a site-specific Stormwater Management Plan (SWMP) to protect Waters of the State that could receive stormwater runoff from the Location. • BCEOC will have no staging, refueling, or chemical storage areas associated with the Project in the vicinity of water resources. • BCEOC will manage potential pollutants located onsite by sealing, wrapping, covering, or having containment/protection while not actively being used to eliminate and/or minimize contact with stormwater runoff, and prevent discharges of chemicals or other materials from the site. • BCEOC will practice proper storage, safe-handling, good housekeeping and spill prevention practices and procedures to prevent pollutants or contaminants from leaving the site. • Energy dissipaters such as coconut blankets, straw mulch, or straw waddles will be installed during construction and will be left in place and maintained for the life of the project or until disturbed slopes have been revegetated and stabilized. Locations for these BMPs will be dictated by the Site Specific SWMP for the State Antelope B-2 Pad. • Upon surface owner authorization and per COGCC Rules 615 and 318A.e(4), BCEOC will collect baseline water quality samples from an appropriate set of water wells within the vicinity of the oil and gas location. Baseline samples will be collected prior to drilling (setting of conductor casing) operations for the initial site well. • BCEOC will use SCADA to allow for rapid well shutdown in the event of a potential release. • BCEOC will disinfect water suction hoses and water transportation tanks withdrawing from or discharging into surface waters used previously in another river, intermittent or perennial stream, lake, pond, or wetland and discard rinse water in an approved disposal facility. Disinfection practices will be repeated prior to completing work and before moving to the next water body. Disinfection will be performed by scrubbing and pre-rinsing equipment away from water bodies to remove all mud, plants, and organic materials and then by implementing one of the following practices: o Spray/soak equipment with a CPW-approved disinfectant solution capable of killing whirling disease spores and other aquatic nuisance species defined by CPW; or o Spray/soak equipment with water greater than 140° Fahrenheit for at least 10 minutes. All equipment and any compartments they contain will be completely drained and dried between each use. • At new and existing Oil and Gas Locations, Bonanza will not situate new staging, refueling, or Chemical storage areas within 500 feet of the Ordinary High-Water Mark (“OHWM”) of any river, perennial or intermittent stream, lake, pond, or wetland. As a result of the above-listed Minimization Measures, no additional Mitigation Measures are required. "

2	Ecosystem and Wildlife Resources	MITIGATION MEASURES: During final reclamation, BCEOC will re-contour and re-vegetate all roads and pads to a stable condition to restore natural habitats for wildlife species. MINIMIZATION MEASURES: General Wildlife Species • Provided the private surface landowner agrees, BCEOC will implement the CPW's Actions to Minimize Adverse Impacts to Wildlife Resources, dated October 27, 2008, and updated March 16, 2012 (CDOW 2008). This document includes a suite of salient measures and project design features intended to reduce, avoid, or offset potential impacts to wildlife habitats and populations for oil and natural gas development. • BCEOC will work with landowners to identify and protect wildlife populations and habitats. • BCEOC will not utilize reserve pits or other open pits for wastewater, which would reduce the potential impacts to bird species. • If BCEOC installs fencing, the fencing design will comply with CPW's Fencing with Wildlife in Mind guidance (CPW 2015). • Where applicable, BCEOC will adhere to CPW recommended hazing and exclusion measures and pre-construction nest surveys if vegetation removal is to occur between April 1 and August 31. Raptor Species • Prior to ground disturbing activities, determine either through consultation with CPW or surveys the locations of raptor nesting and roosting sites. • Consult with and implement CPW recommendations regarding raptor protection measures including seasonal timing restrictions and recommended buffer zones. • Avoid disturbance of raptor nesting habitat during the breeding season (variable by species--January 1 to July 15). • Avoid impacts to raptor roost sites during the wintering period (variable by species--November 15 to April 1). Migratory Birds • To reduce impacts to Birds of Conservation Concern (BCC), construction, drilling, or completion activities that are initiated prior to March 1st may continue through the breeding season because it is assumed loss of suitable breeding habitat occurred in the oil and gas location prior to the start of the breeding season • Project will apply the following step-down approach, consistent with state and federal recommendations to avoid disturbing active migratory bird nests during construction: o Avoidance – Conduct habitat-disturbing activities (for example, grading, scraping, mowing, and grubbing) in the nonbreeding season (September 1 to March 31) to the extent practicable. o Habitat Manipulation/Removal – If work activities are planned between April 1 and August 31, remove or alter vegetation within construction footprints and road rights-of-way prior to April 1 to discourage nesting within areas scheduled for summer construction. o Habitat Maintenance – Once vegetation has been removed or mowed, appropriate measures (that is, repeated mowing/trimming) should be implemented to assure vegetation does not grow to more than six inches high. o Preconstruction Clearance Surveys – If activities 1 through 3 cannot be completed, preconstruction clearance surveys should be conducted by a trained biologist during the nesting season, as described below, to identify any active nests. • To prevent access by wildlife, including birds and bats, BCEOC will fence and net or install other CPW-approved exclusion devices on new Drilling Pits, Production Pits, and other Pits associated with Oil and Gas Operations that are intended to contain Fluids. o Such fencing and netting or other CPW-approved exclusion device will be installed within 5 days after the cessation of active drilling and completion activities and maintained until the Pit is removed from service and dried or closed pursuant to the Commission's 900 Series Rules. o The Director may require an operator to fence and net or install other CPW-approved exclusion devices on an existing Pit if the Director determines that the installation is necessary and reasonable to protect Wildlife Resources based on the analysis required by Rule 909.j, or other information that demonstrates additional protections for Wildlife Resources are appropriate. o BCEOC will properly maintain and repair all fences, nets, and CPW-approved exclusion devices required by this Rule 1202.a.(4).

3	Public Welfare	Noise Impacts to receptors from noise have been minimized or avoided, therefore, no additional mitigation measures are required. Odor Impacts to receptors from odor have been minimized or avoided, therefore, no additional mitigation measures are required. Light Impacts to receptors from light have been minimized or avoided, therefore, no additional mitigation measures are required.
4	Air Resources	All impacts to air resources have been minimized, therefore, no additional mitigation measures for air quality are included.
5	Public Health Resources	HAP emissions are not expected to contribute to acute or chronic risks to human health within or beyond the well pad Location. Therefore, no additional mitigation measures are required.
6	Soil Resources	BCEOC will place a sign on each topsoil stockpile designating and preserving that material for reclamation purposes throughout the lifetime of the location.
7	Ecosystem and Wildlife Resources	BCEOC will reseed disturbed areas in the first favorable season following rig demobilization with species consistent with the plant community in the vicinity of the Location. BCEOC will monitor the site to identify areas of poor growth or areas that fail to germinate; these areas will be reseeded as needed. BCEOC will monitor the site for the presence of noxious weeds. If encountered, BCEOC will employ a third-party consultant knowledgeable in identifying such species and implement weed control measures consistent and in compliance with the Colorado Noxious Weed Act. If necessary, BCEOC will implement a weed control plan.

OPERATOR COMMENTS AND SUBMITTAL

Any decimal point placement variations between e-form fields and associated management plans are due to rounding and e-form data entry character limitations.

Print Name: Scott Park Title: Director

Email: spark@bonanzacrk.com Date: 07/20/2021

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: _____

Attachment Check List

Att Doc Num	Name

Total Attach: 0 Files

General Comments

User Group	Comment	Comment Date
		Stamp Upon Approval

Total: 0 comment(s)