FORM 2A Rev 08/19

State of Colorado
Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203
Phone: (303) 894-2100 Fax: (303) 894-2109

Oil and Gas Location Assessment

Document Number: 402230071

Date Received: 11/05/2019

☒ New Location ☐ Refile ☐ Amend Existing Location Location#:

This Oil and Gas Location Assessment is to be submitted to the COGCC for approval prior to any ground disturbance activity associated with oil and gas operations. Approval of this Oil and Gas Location Assessment will allow for the construction of the below specified Location; however, it does not supersede any land use rules applied by the local land use authority. Please see the COGCC website at http://cogcc.state.co.us/ for all accompanying information pertinent this Oil and Gas Location Assessment.

Location ID: **470933**

Expiration Date: **01/21/2023**

☒ This location assessment is included as part of a permit application.

CONSULTATION

☐ This location is included in a Comprehensive Drilling Plan. CDP #

☐ This location is in a sensitive wildlife habitat area.

☐ This location is in a wildlife restricted surface occupancy area.

☐ This location includes a Rule 306.d.(1)A.ii. variance request.

Operator

Operator Number: 10670

Name: MALLARD EXPLORATION LLC

Address: 1400 16TH STREET SUITE 300

City: DENVER State: CO Zip: 80202

Contact Information

Name: Erin Mathews

Phone: (720) 543 7951

Fax: ( )

email: emathews@mallardexploration.com

FINANCIAL ASSURANCE

☒ Plugging and Abandonment Bond Surety ID (Rule 706): 20170115 ☐ Gas Facility Surety ID (Rule 711):

☐ Waste Management Surety ID (Rule 704):

LOCATION IDENTIFICATION

Name: Koloa Number: Pad

County: WELD

QuarterQuarter: NENW Section: 15 Township: 8N Range: 61W Meridian: 6 Ground Elevation: 4960

Define a single point as a location reference for the facility location. When the location is to be used as a well site then the point shall be a well location.

Footage at surface: 500 feet FNL from North or South section line

2621 feet FWL from East or West section line

Latitude: 40.667786 Longitude: -104.191469

PDOP Reading: 1.4 Date of Measurement: 08/06/2019

Instrument Operator's Name: Eliot Kershner

LOCAL GOVERNMENT INFORMATION

County: WELD Municipality: N/A

Per § 34-60-106 (1)(f)(I)(A), the following questions pertain to the "local government with jurisdiction to approve the siting of the proposed oil and gas location."

The local government with jurisdiction is: County

Does the local government with jurisdiction regulate the siting of Oil and Gas Locations, with respect to this location? If the local government does regulate the siting, but has waived its right to precede the COGCC in siting determination, indicate by selecting "YES" here and selecting "Waived" for the disposition below. ☒ Yes ☐ No

If yes, in checking this box, I hereby certify that an application has been filed with the local government with jurisdiction to approve the siting of the proposed oil and gas location. ☒

The local government siting permit type is: 1041 WOGLA

The local government siting permit was filed on: 11/01/2019

The disposition of the application filed with the local government is: In Process

Additional explanation of local process:

1041 WOGLA (Permit #19-0043) submitted on 11/01/2019.

RELATED REMOTE LOCATIONS

(Enter as many Related Locations as necessary. Enter the Form 2A document # only if there is no established COGCC Location ID#)

This proposed Oil and Gas Location is:	LOCATION ID #	FORM 2A DOC #
☐		

FACILITIES

Indicate the number of each type of oil and gas facility planned on location

Wells	10	Oil Tanks*	20	Condensate Tanks*		Water Tanks*	10	Buried Produced Water Vaults*	
Drilling Pits		Production Pits*		Special Purpose Pits		Multi-Well Pits*		Modular Large Volume Tanks	2
Pump Jacks	10	Separators*	10	Injection Pumps*		Cavity Pumps*		Gas Compressors*	2
Gas or Diesel Motors*	10	Electric Motors	10	Electric Generators*	2	Fuel Tanks*		LACT Unit*	2
Dehydrator Units*		Vapor Recovery Unit*	4	VOC Combustor*		Flare*		Pigging Station*	

OTHER FACILITIES*

Other Facility Type	Number
Vapor Recovery Tower	1
Fired Vessels	10
Emission Control Devices	5

*Those facilities indicated by an asterisk (*) shall be used to determine the distance from the Production Facility to the nearest cultural feature on the Cultural Setbacks Tab.

Per Rule 303.b.(3)C, description of all oil, gas, and/or water pipelines:

3" welded steel flowlines from wellheads to separators carrying oil, gas and water.
3" welded steel gas supply line from compressors to wellheads.

CONSTRUCTION

Date planned to commence construction: 06/01/2020 Size of disturbed area during construction in acres: 16.03

Estimated date that interim reclamation will begin: 12/01/2020 Size of location after interim reclamation in acres: 8.00

Estimated post-construction ground elevation: 4960

DRILLING PROGRAM

Will a closed loop system be used for drilling fluids: Yes

Is H_2S anticipated? No

Will salt sections be encountered during drilling: No

Will salt based mud (>15,000 ppm Cl) be used? No

Will oil based drilling fluids be used? Yes

DRILLING WASTE MANAGEMENT PROGRAM

Drilling Fluids Disposal: OFFSITE Drilling Fluids Disposal Method: Commercial Disposal

Cutting Disposal: OFFSITE Cuttings Disposal Method: Commercial Disposal

Other Disposal Description:

Beneficial reuse or land application plan submitted?

Reuse Facility ID: or Document Number:

Centralized E&P Waste Management Facility ID, if applicable:

SURFACE & MINERALS & RIGHT TO CONSTRUCT

Name: Sievers F & R LLC Phone:

Address: 43605 County Road 92 Fax:

Address: Email:

City: Briggsdale State: CO Zip: 80611-9128

Surface Owner: ☒ Fee ☐ State ☐ Federal ☐ Indian

Check all that apply. The Surface Owner: ☐ is the mineral owner

☐ is committed to an oil and Gas Lease

☐ has signed the Oil and Gas Lease

☐ is the applicant

The Mineral Owner beneath this Oil and Gas Location is: ☒ Fee ☐ State ☐ Federal ☐ Indian

The Minerals beneath this Oil and Gas Location will be developed from or produced to this Oil and Gas Location: Yes

The right to construct this Oil and Gas Location is granted by: Surface Use Agreement

Surface damage assurance if no agreement is in place: Surface Surety ID:

Date of Rule 306 surface owner consultation

If this Form 2A is associated with Drilling and Spacing Unit applications, list docket number(s) below:

191000709

CURRENT AND FUTURE LAND USE

Current Land Use (Check all that apply):

Crop Land: ☐ Irrigated ☐ Dry land ☐ Improved Pasture ☐ Hay Meadow ☐ CRP

Non-Crop Land:	☒ Rangeland	☐ Timber	☐ Recreational	☐ Other (describe):	_____
Subdivided:	☐ Industrial	☐ Commercial	☐ Residential		

Future Land Use (Check all that apply):

Crop Land:	☐ Irrigated	☐ Dry land	☐ Improved Pasture	☐ Hay Meadow	☐ CRP
Non-Crop Land:	☒ Rangeland	☐ Timber	☐ Recreational	☐ Other (describe):	_____
Subdivided:	☐ Industrial	☐ Commercial	☐ Residential		

CULTURAL DISTANCE INFORMATION

Provide the distance to the nearest cultural feature as measured from Wells or Production Facilities onsite.

INSTRUCTIONS:
- All measurements shall be provided from center of nearest Well or edge of nearest Production Facility to nearest of each cultural feature as described in Rule 303.b.(3)A.
- Enter 5280 for distance greater than 1 mile.
- Building - nearest building of any type. If nearest Building is a Building Unit, enter same distance for both.
- Building Unit, High Occupancy Building Unit, Designated Outside Activity Area, School Facility, and Child Care Center – as defined in 100 Series Rules.
-For measurement purposes only, Production Facilities should only include those items with an asterisk(*) on the Facilities Tab.

	From WELL	From PRODUCTION FACILITY
Building:	855 Feet	591 Feet
Building Unit:	5280 Feet	5280 Feet
High Occupancy Building Unit:	5280 Feet	5280 Feet
Designated Outside Activity Area:	5280 Feet	5280 Feet
Public Road:	5280 Feet	5280 Feet
Above Ground Utility:	2509 Feet	2251 Feet
Railroad:	5280 Feet	5280 Feet
Property Line:	500 Feet	142 Feet
School Facility::	5280 Feet	5280 Feet
School Property Line:	5280 Feet	5280 Feet
Child Care Center:	5280 Feet	5280 Feet

SCHOOL SETBACK INFORMATION

Was Notice required under Rule 305.a.(4)? ☐ Yes ☒ No

DESIGNATED SETBACK LOCATION INFORMATION

Check all that apply. This location is within a:

- ☐ Buffer Zone
- ☐ Exception Zone
- ☐ Urban Mitigation Area

- Buffer Zone - as described in Rule 604.a.(2), within 1,000' of a Building Unit.
- Exception Zone - as described in Rule 604.a.(1), within 500' of a Building Unit.
- Urban Mitigation Area - as defined in 100-Series Rules.
- Large UMA Facility – as defined in 100-Series Rules.

Pre-application Notifications (required if location is within 1,000 feet of a building unit):

Date of Rule 305.a.(1) Urban Mitigation Area Notification to Local Government: _____

Date of Rule 305.a.(2) Buffer Zone Notification to Building Unit Owners: _____

FOR MULTI-WELL PADS AND PRODUCTION FACILTIES WITHIN DESIGNATED SETBACK LOCATIONS ONLY:

☐ Check this box if this Oil and Gas Location has or will have Production Facilities that serve multiple wells (on or offsite) and the Production Facilities are proposed to be located less than 1,000 feet from a Building Unit. *(Pursuant to Rule 604.c.(2)E.i., the operator must evaluate alternative locations for the Production Facilities that are farther from the Building Unit, and determine whether those alternative locations were technically feasible and economically practicable for the same proposed development.)*

☐ By checking this box, I certify that no alternative placements for the Production Facilities, farther from the nearest Building Unit, were available based on the analysis conducted pursuant to Rule 604.c.(2)E.i.

In the space below, explain rationale for siting the multi-well Production Facility(ies) that supports your Rule 604.c.(2)E.i determination. Attach documentation that supports your determination to this Form 2A.

SOIL

List all soil map units that occur within the proposed location. attach the National Resource Conservation Service (NRCS) report showing the "Map Unit Description" report listing the soil typical vertical profile. This data is to used when segregating topsoil.

The required information can be obtained from the NRCS web site at http://soildatamart.nrcs.usda.org/ or from the COGCC web site GIS Online map page found at http://colorado.gov/cogcc. Instructions are provided within the COGCC web site help section.

NRCS Map Unit Name: 4 - Ascalon fine sandy loam, 0 to 6 percent slopes

NRCS Map Unit Name:

NRCS Map Unit Name:

PLANT COMMUNITY:

Complete this section only if any portion of the disturbed area of the location's current land use is on non-crop land.

Are noxious weeds present: Yes ☐ No ☒

Plant species from: ☐ NRCS or, ☒ field observation Date of observation: 08/06/2019

List individual species:

Check all plant communities that exist in the disturbed area.

- ☒ Disturbed Grassland (Cactus, Yucca, Cheatgrass, Rye)
- ☒ Native Grassland (Bluestem, Grama, Wheatgrass, Buffalograss, Fescue, Oatgrass, Brome)
- ☐ Shrub Land (Mahogany, Oak, Sage, Serviceberry, Chokecherry)
- ☐ Plains Riparian (Cottonwood, Willow, Aspen, Maple, Poplar, Russian Olive, Tamarisk)
- ☐ Mountain Riparian (Cottonwood, Willow, Blue Spruce)
- ☐ Forest Land (Spruce, Fir, Ponderosa Pine, Lodgepole Pine, Juniper, Pinyon, Aspen)
- ☐ Wetlands Aquatic (Bullrush, Sedge, Cattail, Arrowhead)
- ☐ Alpine (above timberline)
- ☐ Other (describe):

WATER RESOURCES

Is this a sensitive area: ☐ No ☒ Yes

Distance to nearest

downgradient surface water feature: 344 Feet

water well: 1769 Feet

Estimated depth to ground water at Oil and Gas Location 265 Feet

Basis for depth to groundwater and sensitive area determination:

Location is sensitive due to being within the Upper Crow Creek Designated Groundwater Basin and proximity to a mapped Freshwater Emergent Wetland.
Depth to groundwater taken from water well permit #23214-.

Is the location in a riparian area: ☒ No ☐ Yes

Was an Army Corps of Engineers Section 404 permit filed ☒ No ☐ Yes If yes attach permit.

Is the location within a Rule 317B Surface Water Supply Area buffer zone: No

If the location is within a Rule 317B Surface Water Supply Area buffer have all public water supply systems within 15 miles been notified:

Is the Location within a Floodplain? ☒ No ☐ Yes

Floodplain Data Sources Reviewed (check all that apply)

- ☒ Federal (FEMA)
- ☒ State
- ☐ County
- ☐ Local
- ☐ Other

GROUNDWATER BASELINE SAMPLING AND MONITORING AND WATER WELL SAMPLING

Water well sampling required per Rule 609

WILDLIFE

- ☐ This location is included in a Wildlife Mitigation Plan
- ☐ This location was subject to a pre-consultation meeting with CPW held on

DESIGNATED SETBACK LOCATION EXCEPTIONS

Check all that apply:

- ☐ Rule 604.a.(1)A. Exception Zone (within 500' of a Building Unit) and is in an Urban Mitigation Area
- ☐ Rule 604.b.(1)A. Exception Location (existing or approved Oil & Gas Location now within a Designated Setback as a result of Rule 604.a.)
- ☐ Rule 604.b.(1)B. Exception Location (existing or approved Oil & Gas Location is within a Designated Setback due to Building Unit construction after Location approval)
- ☐ Rule 604.b.(2) Exception Location (SUA or site-specific development plan executed on or before August 1, 2013)
- ☐ Rule 604.b.(3) Exception Location (Building Units constructed after August 1, 2013 within setback per an SUA or site-specific development plan)

RULE 502.b VARIANCE REQUEST

- ☐ Rule 502.b. Variance Request from COGCC Rule or Spacing Order Number

ALL exceptions and variances require attached Request Letter(s). Refer to applicable rule for additional required attachments (e.g. waivers, certifications, SUAs).

OPERATOR COMMENTS AND SUBMITTAL

Comments: Manufacturer of MLVT: Hydrologistics
Size and Volume: Up to two (2) 157' diameter/42,000 BBLs
Anticipated time frame on site: 90 days

Since this location is not in a buffer zone, a Waste Management Plan and Facility Layout Drawing were not included.

I hereby certify that the statements made in this form are, to the best of my knowledge, true, correct and complete.
Signed: _____ Date: 11/05/2019 Email: regulatory@ascentgeomatics.com

Print Name: Justin Garrett Title: Regulatory Analyst

Based on the information provided herein, this Oil and Gas Location Assessment complies with COGCC Rules, applicable orders, and SB 19-181 and is hereby approved.

COGCC Approved: _____ **Director of COGCC** Date: 1/22/2020

Conditions Of Approval

All representations, stipulations and conditions of approval stated in this Form 2A for this location shall constitute representations, stipulations and conditions of approval for any and all subsequent operations on the location unless this Form 2A is modified by Sundry Notice, Form 4 or an Amended Form 2A.

COA Type	Description
Drilling/Completion Operations	This Form 2A has been approved prior to commission approval of the DSU (Docket #191000709). If the final agency action is denial of the DSU then the operator shall abandon this Oil and Gas Location by submitting a Form 4 Sundry within 45 days of the agency denial; however, if location construction has commenced, then the location will be immediately subject to final reclamation.

Best Management Practices

No	BMP/COA Type	Description
1	General Housekeeping	804. Visual Impacts: All long term facility structures will be painted a color that enables the facilities to blend in with the natural background color of the landscape, as seen from a viewing distance and location typically used by the public. Maintain appearance with garbage clean-up; a trash bin will be located on site to accumulate waste by the personnel drilling the wells. Site will have unused equipment, trash and junk removed immediately.
2	Storm Water/Erosion Control	Implement and maintain BMPs to control storm water runoff in a manner that minimizes erosion, transport of sediment offsite, and site degradation. Gas and water gathering lines will be co-located to minimize potential of erosion associated with construction of any pipeline(s).
3	Storm Water/Erosion Control	A sediment trap will be constructed to capture any sediment prior to leaving the location. The sediment trap has been sized in accordance with good engineering practices. A temporary diversion, consisting of a cut swale and compacted earthen berm, will be constructed along the pad edge and routed to the sediment trap to prevent offsite migration of sediment/contaminant into the nearby surface water features. If necessary, check dams will be constructed within the swale.

4	Material Handling and Spill Prevention	All flowlines are designed/constructed/tested to ASME B31.4 and API 1104 standards. Only materials with Material Test Reports (MTRs) provided by the pipeline supplier are used in the construction of the flowlines. Pressure testing of the flowlines is conducted on an annual basis. Audible, Visual, and Olfactory (AVO) inspections of the facility are conducted daily by the Operator. Any valve or fitting that is found to be ineffective is either repaired immediately or well shut-in procedures are implemented. Documented Audible, Visual, and Olfactory (AVO) inspections and optical gas imaging surveys are conduced monthly by a third-party specialist. The location will utilize a SCADA (remote monitoring) system to monitor facility pressures and flows. Sensors are placed on multiple points throughout the facility and are designed to measure the system for irregularities that would indicate a leak in the system or change in production of oil, water, or gas. The SCADA system is designed with alarms that are triggered by irregularities will activate automatic shut-in of the well and facility. If a leak is discovered or suspected, the well will be shut in and the line will be hydrotested. If a leak is determined, the well remains shut in while the leak is located and repaired. Not until the line has passed hydrotesting, will the well be brought back online.
5	Material Handling and Spill Prevention	Operator will install an engineered containment system around the tank battery. The containment system is constructed of a perimeter of metal walls that are post driven into the ground around a flexible geotextile base. All components are then sprayed with a polyurea liner technology. This liner technology maintains impermeability and is puncture resistance under exposure to UV rays, weather extremes, and chemicals commonly encountered in oil and natural gas production, and provides seamless protection. The liner is then topped with pea gravel. Secondary containment will be installed around separators and treaters consisting of metal berm walls. The separators and treaters will be set on top of compacted road base.

6	Construction	Operator will have an MLVT Design Package, certified and sealed by a licensed professional engineer, which is on file in their office and available upon request. The site shall be prepared in accordance with the specifications of the design package prior to tank installation; including ensuring that proper compaction requirements have been met. The MLVT will be at least 75 feet from a wellhead, fired vessel, heater-treater, or a compressor with a rating of 200 horsepower or more. It will be placed at least 50 feet from a separator, well test unit, or other non-fired equipment. All liner seams will be welded and tested in accordance with applicable ASTM international standards. Operator will be present during initial filling of the MLVT and the contractor will supervise and inspect the MLVT for leaks during filling. Operator will comply with the testing and re-inspection requirements and associated written standard operating procedures (SOP) listed on the design package. Signs will be posted on the MLVT indicating that the contents are freshwater. The MLVT will be operated with a minimum of 1 foot of freeboard at all times. Access to the MLVT will be limited to operational personnel and authorized regulatory agency personnel. Operator or contractor will conduct daily visual inspections of the exterior wall and surrounding area for integrity deficiencies. Operator will have a contingency plan/emergency response plan associated with the MLVT and it is on file at their office. A fabric reinforced liner will be utilized. In the event that a tank breach were to occur, the fabric reinforced liner will prevent a “zippering” failure from occurring. The liner will meet the specifications per the design package. Operator acknowledges and will comply with the Colorado Oil & Gas Conservation Commission Policy on the Use of Modular Large Volume Tanks in Colorado dated June 13, 2014.
7	Construction	Location will be equipped with remote monitoring capability including tank level alarms.
8	Emissions mitigation	Green Completions - Test separators and associated flow lines, sand traps and emission control systems shall be installed on-site to accommodate green completions techniques. When commercial quantities of salable quality gas are achieved at each well, the gas shall be immediately directed to a sales line or shut in and conserved. If a sales line is unavailable or other conditions prevent placing the gas into a sales line, the operator shall not produce the wells without an approved variance per Rule 805.b. (3)C.
9	Drilling/Completion Operations	During drilling and completions operations a temporary impermeable synthetic or geosynthetic liner will be utilized under equipment.
10	Interim Reclamation	Operator shall be responsible for segregating the topsoil, backfilling, re-compacting any backfill, reseeding, and re-contouring the surface of any disturbed area so as not to interfere with Owner’s operations and shall reclaim such area to be returned to preexisting conditions as best as possible with control of all noxious weeds.

Total: 10 comment(s)

Attachment Check List

Att Doc Num	Name
2479322	HYDROLOGY MAP
2479323	CORRESPONDENCE
2479344	OBJECTIVE CRITERIA REVIEW MEMO
402230071	FORM 2A SUBMITTED
402231710	ACCESS ROAD MAP
402231715	LOCATION DRAWING
402231716	LOCATION PICTURES
402231717	REFERENCE AREA MAP
402231720	REFERENCE AREA PICTURES
402231721	NRCS MAP UNIT DESC
402231722	MULTI-WELL PLAN
402231723	SURFACE AGRMT/SURETY

Total Attach: 12 Files

General Comments

User Group	Comment	Comment Date
Final Review	Updated Material Handling and Spill Response BMP with revisions provided by operator.	01/22/2020
Final Review	01/20/2020 - final review is complete; passed Final Review task.	01/20/2020
Final Review	01/20/2020 - The water well that is cited in this Form 2A was completed in a confined (bedrock) aquifer in the rock layer (sandstones) and clay zone at 265 to 315 feet, beneath the blue shale at 60 to 265 feet. The depth to water is listed at 84 feet. When reviewing depth to groundwater, COGCC looks at the 'Well Construction and Log' in nearby DWR water well files to see if the first water bearing zone is identified on the geologic log (which it was not), or relies on where the screened casing has been installed (in this case, 265 to 315 feet). Both are representative of depth to groundwater in confined (bedrock) aquifer water wells. Based on that, the estimated depth to groundwater would be estimated to be no shallower than 265 feet. Information for other water wells in the area indicate they are screened at similar depths (160 to 350 feet), have static water levels ranging from 90 to 200 feet, and depths to the first water bearing zone of 217 to 260 feet. 01/20/2020 - Per discussion with operator, the depth to groundwater has been revised to 265 feet.	01/20/2020
OGLA	The Objective Criteria Review Memo (Doc #2479344) is attached to this Form 2A. Following additional analysis arising out of the Objective Criteria, the Director determined that this application meets the standard for the protection of public health, safety, welfare, the environment and wildlife resources set by SB 19-181.	01/08/2020
Permit	Permit Review Complete.	12/16/2019
OGLA	IN PROCESS - Operator revised the estimated depth to groundwater, provided a BMP addressing spill protection during drilling, & revised the Hydrology Map to correctly label the Freshwater Emergent Wetland. No Public Comments. OGLA review completed and task passed.	12/10/2019
Permit	Requested additional information from operator regarding the conflicting approved and pending APD's within the lands shown on the Multi-Well Plan, doc #402231722. Additional information from operator as follows: Operator will attempt to space sections 15 and 22 into a 1280 acre DSU. Approved APDs in section 15 have been acquired by operator through a lease swap, and will be abandoned in the future. Pending APDs in section 22 will be withdrawn in the future.	12/06/2019
OGLA	ON HOLD - Requested operator revise the estimated depth to groundwater, provide a BMP addressing spill protection during drilling, & revise the Hydrology Map to correctly label the Freshwater Emergent Wetland. Due by 12/20/19.	12/06/2019
OGLA	COGCC staff conducted its technical review of this Form 2A Oil and Gas Location Assessment within the context of SB 19-181 and the required Objective Criteria. This Form 2A met Objective Criteria #5.c & #8.	12/06/2019
OGLA	This form has passed completeness.	11/07/2019

Total: 10 comment(s)