

MRG, LP
CE Pad
SENE Section 11, T5N R68W
City of Loveland
Larimer County, Colorado

CUMULATIVE IMPACTS PLAN

MRG, LP (MRG), has drafted this Cumulative Impacts Plan in accordance with Rules 304.c.(19) and 303.a.(5).

This location was chosen because it provided the least impacts on sensitive receptors in the mineral development area. This location is not located within a mile of High Priority Habitat. The location is less than 2,000 feet from a Residential Building Unit in a Disproportionately Impacted Community.

Resource	Anticipated Impact	Avoidance Measures	Minimization Measures	Mitigation Measures
Air Resources	This location was chosen through the alternative location analysis process due to the minimal impacts on sensitive receptors. Long-term air impacts should also be minimal. This location will be connected to a natural gas pipeline to minimize emissions onsite.	City of Loveland has evaluated that electricity is available to support an electric drilling rig; based on this evaluation, MRG will utilize an electric drilling rig for drilling all wells on location.	MRG will utilize Tier 4 Quiet Fleet for completion operations.	Any emissions that may occur above the thresholds established by Colorado Department of Public Health and Environment for uncontrolled locations will be routed to an enclosed combustor with a minimum manufacturer's efficiency of 98%. MRG will shut in the facility to reduce the need for flaring if the pipeline is unavailable
Air Resources	A temporary localized increase of Oxides of nitrogen (NOx), Carbon monoxide (CO), Volatile Organic Compounds (VOCs), Methane (CH ₄), Ethane (C ₂ H ₆), Carbon dioxide (CO ₂), Nitrous oxide (N ₂ O) may occur during construction, and well drilling and completion. Road use, surface disturbance, well drilling, well completion, and equipment installation will impact air quality through the generation of dust related to travel, transport, and general construction.		A closed-loop system will be used for drilling operations. Natural gas from the production equipment is captured and routed to a pipeline eliminating any unnecessary gas destruction via emission control devices (ECD) and therefore is not released into the environment.	During flowback operations, a closed tank system will be utilized, and any vapors will be controlled by an enclosed combustor. MRG will perform a baseline air quality monitoring survey prior to the commencement of drilling operations and the site will have continuous air monitoring for VOC and methane during the drilling, completion, and first 3 years of production operations, in accordance with CDPHE Regulation 7 and recommendations from the City of Loveland.

Resource	Anticipated Impact	Avoidance Measures	Minimization Measures	Mitigation Measures
	In both the pre-production (short-term) and production (long-term) operations of this project, the cumulative adverse impacts are expected to be minimal due to the remote nature of the oil and gas location and the lack of receptors for which conditions would cause impacts.			
Air Resources	Vehicle Emissions – traffic to the area will be temporarily increased due to the construction and drilling activity	MRG is proposing to utilize a temporary surface freshwater line to transport freshwater for completions to location to eliminate the truck traffic that would have been necessary if water hauling was utilized.	Telemetry will be installed on location to monitor the location remotely and minimize the truck traffic trips required to visit the well. The location will be connected to a third-party crude oil gathering pipeline to reduce truck traffic that would otherwise be required to haul produced hydrocarbon fluids from location.	

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Air Resources	The proposed location is within the Denver Metro/North Front Range Ozone Nonattainment Area.	On forecasted high ozone days, MRG will: eliminate use of VOC paints and solvents; minimize vehicle and engine idling; reduce truck traffic and worker traffic; postpone the refueling of vehicles; suspend or delay the use of fossil fuel powered ancillary equipment; reschedule non-essential operational activities such as pigging, well unloading and tank cleaning; and postpone flowback if emissions cannot be adequately captured with a vapor recovery unit (VRU).		
Public Health	This location was chosen due to its distance from most sensitive receptors. It is less than 2,000 feet from a Residential Building Unit. There should be no short- or long-term		None currently anticipated due to the remote nature of the oil and gas location and its distance from City of Loveland, City of Johnstown, and Larimer County residents.	

Resource	Anticipated Impact	Avoidance Measures	Minimization Measures	Mitigation Measures
	incremental impacts to public health as a result of proposed activities.			
Surface Water Resources	This location is located approximately 1,800 feet away from surface water resources.	There are no downgradient surface water features within 500', floodplains, or shallow groundwater features at the pad location.	The location will be connected to a crude oil transportation pipeline to minimize the fluid stored on location.	The location will utilize steel secondary containment around all fluids stored on location. The location will also be surrounded by berms to contain all fluids on location.
Groundwater Resources	The location is not anticipated to have impacts to groundwater. Groundwater resources will not be utilized for operations on the location.			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.
Terrestrial and Aquatic Wildlife Resources and Ecosystems	This proposed oil and gas location is not located within any designated High Priority Habitat or other designated habitat as defined by the COGCC 1200 Series Rules. The nearest High Priority Habitat is greater than 1 mile away.			MRG will utilize a pit-less, closed loop system for drilling. The proposed well shall be drilled, completed, and operated using closed-loop pitless systems for containment and/or recycling of all drilling, completion, flowback and produced fluids. All separators and heater-treater equipment will be outfitted with bird cones.

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				MRG proposes to utilize one drilling occupation and one completions occupation to minimize traffic and operations in the area.
Soil Resources	The CE Pad location will impact up to 13.4 acres of topsoil because of pre-production (short-term) activities and 5.2 acres of production (long-term) activities.			<p>Topsoil will be stockpiled until it is redistributed during interim reclamation. The topsoil will be protected from migrating away from location by structural best management practices to help anchor it in place.</p> <p>During interim reclamation, as much topsoil as possible will be redistributed to insure the continued viability of the microbial ecosystem within by reseeding.</p> <p>Areas of concern for potential spillage such as produced water truck load-outs, will be placed on lined areas within secondary containment to protect soils from potential pollution.</p> <p>Pollution control containers (spill boxes) will be used on truck loading lines within the limits of the secondary containment systems.</p>

Resource	Anticipated Impact	Avoidance Measures	Minimization Measures	Mitigation Measures
				<p>MRG will stabilize and maintain areas needed for production operations or for subsequent drilling operations to minimize dust and erosion to the extent possible.</p> <p>MRG is committed to completing interim reclamation as soon as practical following operations on location.</p>
Public Welfare – Noise	Noise impacts are expected to be minimal due to limited receptors. The CE Pad is located over 2,000 feet from School Facilities, High Occupancy Building Units, and Child Care Centers.		MRG will utilize an electric drilling rig to minimize noise generated by diesel engines.	<p>MRG will utilize 660 linear feet of 32-foot-high acoustical perimeter sound walls to mitigate potential noise impacts to the nearby residential building unit during drilling and completions operations.</p> <p>During production, MRG will utilize 220 linear feet of 20-foot-high acoustical perimeter sound wall to mitigate potential noise impacts.</p>
Public Welfare – Light	Lights will be on location for safe drilling and completions operations. Two permanent lights are proposed for security for the production location.		All lights will be directed downward and inward such that no light shines above a horizontal plane passing through the center point light source.	MRG will utilize warm color lighting on location.

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Public Welfare – Odor	This location is within 1 mile from the nearest Residential Building Unit. 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 Residential Building Unit to the northeast should not be affected by odors on location.		MRG will utilize Group II oil-based mud during drilling operations.	<p>A closed-loop system will be used for drilling operations.</p> <p>Excess oil-based mud will be stored in an enclosed container while on location.</p> <p>MRG will cover trucks transporting drill cuttings.</p>
Public Welfare – Dust	A proposed dirt road across private surface will access the location. Dust could occur with dry weather, especially during construction and drilling operations when traffic to location will be more frequent.			MRG will employ practices for control of fugitive dust caused by their operations. Such practices shall include but are not limited to the use of speed restrictions, regular road maintenance, restriction of construction activity during high-wind days, and silica dust controls when handling sand used in hydraulic fracturing operations.

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Public Welfare – Recreation and Scenic Values	The proposed well is located within agricultural land. Once the well has been drilled and put onto production, the location will undergo interim reclamation.			During interim reclamation, MRG proposes to create landscaped, contoured earthen berms around the location to minimize any potential visual impacts to the surrounding landscape.