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CIVITAS | NORTH LLC

Cumulative Impact Plan[1]

Wade 8-59 17 Pad

[1] COGCC 304 c. 19.A.-D.

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1.0 INTRODUCTION

All impacts are important and must be identified and mitigated when necessary. The following narrative intends to address specific cumulative impact estimations that align with the requirements of Rules 304.c.(19) and 303.a.(5) as well as inform the corresponding COGCC Form 2B.

When planning a new project, Civitas North, LLC (Civitas North) engages a team(s) of subject matter experts to aid in the siting of the future wells and facilities. These teams have demonstrated expertise in air quality, wildlife and biological resources, and other important cultural and environmental resources necessary to identify potential sites for an Oil & Gas Location. They are utilized throughout the project lifecycle to ensure impacts are identified and avoided, minimized, and/or mitigated. The ultimate goal is to develop a project that allows for subsurface mineral development while minimizing the impacts to the surrounding community that could result from surface development necessary to support the project. The Wade 8-59 17 Pad has been designed to do just that – protect public health, safety, welfare, wildlife resources and the environment. The Wade 8-59 17 Pad location was chosen as it is located over a mile away from the nearest Residential Building Unit, clear of any wildlife or biological resources, and minimizes impacts while developing the proposed minerals in the most effective way possible.

For every car that leaves the garage, there is a car exiting the road and coming home. A similar analogy can be used to describe oil and gas production – production begins declining from the very first day. Further, for any well that comes online, there is another well facing the twilight years of its productive life. Therefore, cumulative impacts for an Oil & Gas Location are not entirely comparable to long-term stationary source impacts such as mines, power plants, or gravel pits. By comparison, legacy oil and gas wells had significantly higher emission profiles when they were new; the emissions intensity of a facility that was developed in 2000 would have been markedly higher than the emissions intensity of a facility developed in 2022. This is undisputed and needs to be considered when assessing the potential impacts resulting from project approval. Currently, Civitas North does not have any legacy wells that can be plugged and abandoned within the proposed development area, but we will be consolidating 2 originally proposed locations onto one proposed location and reducing the well count from 24 originally planned wells down to 7 wells.

This Cumulative Impact Plan (CIP) outlines Civitas North's proposed project including facility design, operations, and maintenance procedures, which are tailored to reduce impacts during every phase of development and, more importantly, are protective of public health, safety, welfare, wildlife resources and the environment. This plan will also detail what is being done to avoid/eliminate, minimize, or mitigate potential impacts to other resources including water, soil, and wildlife resources.

2.0 AIR RESOURCES

This section will describe each phase of development relative to potential impacts to air resources as well as mitigation measures that will be employed to reduce or eliminate these potential impacts. Each phase of development and the potential emissions associated therewith have been estimated and catalogued in the Cumulative Impacts Data Evaluation Repository (CIDER). These emission estimates are known as "Bottom Up[2]" estimates. *See Appendix A.*

[2] "Bottom Up" estimates emissions from statistical analysis or industry-standard emission factors.

2.1 PHASES OF OIL & GAS DEVELOPMENT

The following section describes the life cycle of a well pad. The Pre-Production Operations phases – e.g., construction, drilling and completions – comprise a much shorter time than the Production Operations phase and subsequent abandonment.

2.2 PRE-PRODUCTION OPERATIONS

2.2.1 Construction

Well pad construction could take place over an estimated period of up to 2 months and will consist of the construction of a graded, level surface for wells and support equipment as well as the construction of an access road portions of which already exist and only require improvement of the existing roadway.

During the construction phase of the pad, there will be limited air emissions. Emissions will be limited to those resulting from the use of earth-moving equipment (i.e., internal combustion engines) and dust generated from construction activities and vehicular traffic. These types of emissions are generally consistent with those generated during agricultural activities or other land development activities.

2.2.2 Drilling

Each well will take approximately 5 to 7 days to drill to total depth. The drilling rig that will be utilized to drill the wells to total depth will be powered by on-site power generation. This power will be generated by diesel-powered engines. These engines require refueling approximately once a day and typically consume approximately 2600 gallons of fuel every 24-hours (note – daily fuel consumption varies by season; slightly more fuel is consumed during the colder temperatures).

During drilling operations, air emissions can be summarized in three (3) categories: i) emissions resulting from the use of the drilling rig and associated support equipment (i.e., front end loader, crane, etc.), ii) emissions resulting from drilling operations (i.e., mud break-out, pipe connections, etc.), and iii) dust emissions generated from vehicular traffic. Although little can be done to mitigate the exhaust emissions from internal combustion engines (e.g., category i), these types of emissions are short-lived and quickly dispersed.

The latter two (2) categories can be addressed with the utilization of best practices to lessen the potential impacts to surrounding stakeholders. The drilling rig uses a closed-loop fluid management system that uses a series of closed containers (i.e., tanks) and solids control equipment that eliminates the need for a conventional drilling pit. The addition of this equipment allows the drilling fluids to be managed, stored, and reused without exposure to the atmosphere.

2.2.3 Completions

The final stage prior to production is Completions which includes hydraulic fracturing, prepping the wellbore for production (i.e., drill-out, tube-up), and well flowback

2.2.3.1 HYDRAULIC FRACTURING

Hydraulic fracturing, also referred to as stimulation, will be carried out using hydraulic pumps, portable equipment, and include the use of portable tanks to capture and store completion fluids. Wells are often fractured in groups that generally consist of 3 wells. Although a group is created, each well is fractured individually in a series of stages. Operations on a group are continuous and may extended over five (5) days or more depending on the lateral length (e.g., horizontal distance) of the wellbore(s) and operational

performance of each stage(s).

During hydraulic fracturing operations, emissions can be summarized in three (3) categories: i) emissions resulting from the use of hydraulic pumps and other associated equipment, ii) emissions resulting from wellhead and related operations (i.e., swapping of equipment, wellbore preparation between stages, etc.), and iii) dust emissions generated from the use of sand and vehicular traffic. Although little can be done to mitigate the exhaust emissions from internal combustion engines (e.g., category i), these types of emissions are short-lived and quickly dispersed.

The latter two (2) categories can be addressed with the utilization of best practices to lessen the potential impacts to surrounding stakeholders. When connections are made between equipment, tanks, or a combination thereof, the practice of 'blocking and isolating' is employed for wellhead and related operations. Simply stated, the goal is to isolate equipment, piping, or tanks through the use of isolation valves (or similar) to minimize or eliminate emissions when swapping equipment or entering the wellbore. It has been Civitas North's experience that this practice results in negligible emissions of formation constituents into the atmosphere.

Sand is a major constituent in hydraulic fracturing operations. Sealed containers are used to store and transport sand on location ultimately reducing the likelihood of sand becoming airborne. Affectionately referred to as 'sandboxes', the use of these containers eliminates the traditional use of open-top sand hoppers and transportation via conveyor belt or similar methods. Worker and public exposure to silica dust has been drastically reduced through the use of sandboxes.

2.2.3.2 DRILL-OUT & TUBE-UP

The drill-out process utilizes a coiled-tubing unit (CTU) to drill out the plugs that were installed in the horizontal wellbore following each stage of the well stimulation. It takes between 3-4 days to drill-out a horizontal well in the DJ Basin. Throughout this process, the wellbore is overbalanced whereby the pressure within the wellbore is greater than the reservoir pressure which prevents the reservoir fluids and gases from entering the wellbore. It is possible that minor amounts of reservoir fluids will be entrained in the wellbore fluid and brought to surface. When this occurs, these fluids or gases will be routed to an emissions-controlled tank (i.e., oil, water) or to combustion device (i.e., gas) with a destruction efficiency of at least 98%.

Once all the plugs have been drilled out from the horizontal wellbore, production tubing will be installed. Generally, production tubing can be installed in a single well in one (1) day. Installation of production tubing is done when the wellbore is pressurized thereby requiring specialized equipment. Similar to CTU operations, when fluids or gases are encountered during installation, they are routed to an emissions-controlled tank (i.e., oil, water) or to combustion device (i.e., gas) with a destruction efficiency of at least 98%.

It has been Civitas North's experience that these practices employed during drill-out and tube-up result in negligible emissions into the atmosphere.

2.2.3.3 WELL FLOWBACK

Flowback is the process required to bring a well into production. Historically, flowback has required the use of temporary equipment (i.e., tanks, production equipment, etc.) which was used to allow a well to produce while it was "cleaning up". More recently, Civitas North has employed a flowback process that eliminates the need for most temporary equipment, routes the well streams through permanent production equipment, and ensures that all gas produced is produced into a sales pipeline thereby eliminating the practice of venting or flaring. With this new flowback process, the only temporary equipment typically needed is a sand knockout

(SKO) which is installed downstream of the wellhead and upstream of the separator. The purpose of this equipment is to remove any sand that is entrained with the production stream before it enters the separator. These SKOs need to be periodically emptied to avoid getting filled up (note – a good analogy is the garbage can in a kitchen; it needs emptied before it fills up). Any sand or other solids trapped in the SKO are removed from the container by using compressed air to blow the sand into an open-top tank (note – the open-top tank is also temporary equipment). The open-top tank is ultimately loaded onto a truck and taken to an approved and permitted commercial disposal location for final disposition.

It has been Civitas North's experience that emptying SKOs results in negligible emissions to the atmosphere.

2.3 PRODUCTION OPERATONS

2.3.1 PRODUCTION

During the final and longest phase of the well pad, wells will produce through a three-phase separation process where the well stream is separated into individual production streams: gas, oil, and water. Following separation, the gas will be routed to the natural gas sales pipeline. The natural gas may require compression to meet the pressure requirements of the midstream infrastructure. When required, compression is typically done in tandem with additional separation processes that rely on the vapor recovery units/towers (VRT). The use of VRTs increases the recovery efficiency of the gaseous hydrocarbons by providing an additional phase(s) of separation of gas from the liquid phase of the well stream.

The liquid well streams (e.g., oil and water) will enter an additional phase of separation (note – typically referred to as bulk separation) to remove any residual gas from the oil. This stage further stabilizes the oil and reduces the potential for emissions. The produced oil is then transferred into the oil storage tanks on location and sent to an oil pipeline. In the event the pipeline is down for maintenance, oil will be loaded onto trucks via a Lease Automated Custody Transfer (LACT) system for transportation off-site. The LACT system utilizes a metering system that automatically transfers oil into the truck, which will allow for truck vapors to be captured and combusted by a combustion device with a destruction efficiency of at least 98% as opposed to the traditional method of venting to the atmosphere. Once the water stream has been separated from the oil stream, it will be stored on-site in controlled water storage tanks and transported off-site via truck. Having the capability to transport oil and gas off location greatly reduces/eliminates any potential cumulative impacts associated with the production phase including reduced truck traffic and reduced air emissions.

The proposed Oil and Gas Location will be constructed with automated monitoring to continually assess the functionality of systems. Operating parameters such as pressure, temperature, flow volume and rate, and other related information will be monitored remotely 24 hours a day. In the event any of these parameters deviate from an acceptable tolerance(s), alarms are triggered, and notifications are transmitted to the appropriate personnel. Depending on the identified deviation, lease operators will be able to isolate the problem, redirect the process, or shut-in the well, facility, or entire location if necessary. The automation described above is meaningful as it ensures the capabilities necessary to prevent emission events from occurring in a manner that could impact public health and safety.

Crestone Peak Resources, LLC (Crestone), sister company of Civitas North, performed a regionally-based air modeling and emissions inventory on a project similar to the proposed Wade 8-59 17 Pad. This air modeling emission inventory was completed by a third-party consultant in July 2019. The model and emission inventory were conducted on a very conservative basis and included more wells and a longer duration relative to Wade 8-59 17 Pad. This study drew the following conclusions:

- Project-only air quality impacts were shown to be below the applicable ambient air quality standards.
- The highest impacts occurred near the immediate boundary of the well pad(s) and were drastically reduced at receptors beyond the immediate boundary of the well pad(s).
- Any impacts that were identified at residential receptors were well below the NAAQS.
- A human health risk assessment shows that risks associated with BTEX are below both the chronic and acute Reference Exposure Levels ("RELs").

It has been Civitas North's experience that normal production operations result in negligible emissions to the atmosphere. This observation is supported by dispersion modeling, real-time air quality monitoring, and data collected by the Colorado Department of Public Health and the Environment (CDPHE).

3.0 PUBLIC HEALTH IMPACTS

In 2019, Crestone, sister company of Civitas North, hired a third party expert (Center for Toxicology & Environmental Health, LLC or "CTEH") to design and perform studies to characterize the short-term impacts on local air quality and public health from discrete operational phases at four oil and natural gas well pads being developed in Weld County, Colorado.[3] It is important to note that Civitas North is using the same technologies and practices for the Wade 8-59 17 Pad as was used in the four locations in Weld County.

The specific goals of this project were to:

- Collect a high-resolution data set of chemical concentrations in air near the well pad and the surrounding communities; and
- Evaluate the impact on risks to public health, if any, from the release of oil and gas-related compounds into the air during specific operational phases of well development.

CTEH conducted real-time air monitoring for total VOCs, hydrogen sulfide, particulate matter, and specific VOCs (such as benzene), simultaneously with other measurements. More than 5,000 total measurements were collected in real-time by CTEH personnel over a period of 26 days.

These data, combined with corresponding documented wind directions, suggest that oil and natural gas-related analytes that may come from the four well pad studies, are not migrating to the surrounding communities to any significant extent. The report included the following statement: "Thus, the real-time and analytical data indicate no adverse health risks to nearby communities, including sensitive individuals, from cumulative exposures to VOCs that may be emitted from pre-production and production activities at Crestone well pads." Since Civitas North is planning to use the same practices, technologies, and practices for the Wade 8-59 17 Pad as was used in the four locations in Weld County, we are assuming the same conclusion can be relied upon.

Continuous Monitoring and Air Quality Testing

Civitas North monitors wells during each operational phase through its FLIR camera program to verify that sites are operating correctly and in compliance with regulations. Civitas North will implement continuous monitoring at the Wade 8-59 17 Pad per CDPHE Regulation 7. The monitoring will follow all CDPHE requirements. These monitors will be located based on the prevailing winds determined during the baseline monitoring period as well as to avoid sounds walls and equipment. They will continuously monitor for methane, total VOCs, particulate matter, and meteorological conditions.

[3] Community Exposure and Health Risk Assessment: Real-Time Air Monitoring and Air Sampling, Crestone Peak Resources, Weld County, CO, written by CTEH, The Science of Ready, dated December 11, 2019.

4.0 WATER RESOURCES

There are above- and below-ground mechanisms by which hydraulic fracturing activities have the potential to impact water resources. These mechanisms include water withdrawals in times of, or in areas with, low water availability; spills of hydraulic fracturing fluids or produced water; below ground migration of liquids and gases resulting from poor wellbore construction practices; and inadequate treatment and discharge of wastewater.

Water Sourcing

Water is a major component of nearly all hydraulic fracturing operations. It typically makes up more than 90% of the fluid volume injected into a well. The water used in hydraulic fracturing activities represents less than 1% of total annual water use and consumption in the United States. Coordination with other water uses is necessary to minimize potential conflicts with end users – i.e., agriculture, irrigation, etc.

Civitas North has recently changed its wellbore spacing methodology which has helped minimize or eliminate impacts including water acquisition. As water recycling becomes more feasible and accessible in the basin, Civitas North will utilize recycled water in more of its operations.

Groundwater Protection

Colorado mandates a strict casing and cementing program for all wells drilled within the State. Specifically, groundwater that has been classified as Domestic Use-Quality, Agricultural Use-Quality, Surface Water Quality Protection, or Potentially Usable Quality pursuant to 5 C.C.R. §1002-41, or groundwater that has not been classified by statute but exhibits total dissolved solids less than 10,000 mg/l requires isolation from the wellbore and all potential flow zones. Civitas North uses 9-5/8" steel surface casing that is set to a depth at least fifty (50) feet below the base of the deepest known groundwater subject to the above-captioned criteria. Typically, the surface casing set depth is approximately 1500' below ground surface and is generally synonymous with the base of regional Fox Hills or Upper Pierre aquifer (or its correlative geologic unit). Once the casing is set, it is fully-cemented in place using the displacement method thereby placing specialized cement from the bottom of the surface casing back to surface. The COGCC reviews all Form 02 Applications for Permit to Drill for adequate surface casing setting depths and cementing programs based on subsurface ground water maps prepared by the State Water Engineer, offset well data, and all available water well data.

Additionally, prior to operations, Civitas North checks for depth of ground water and soil suitability. Based on the soils that are present where the pad will be located it is estimated that depth to the water table is more than 80 inches. Thus, shallow groundwater is not a concern at this location.

Additional information on the importance of groundwater protection can be found on the Groundwater Protection Council's website - *https://www.gwpc.org/topics/hydraulic-fracturing/what-is-hydraulic-fracturing/* .

Surface Water Protection

Surface water has the potential to be impacted when a leak or spill occurs on location. Civitas North has reviewed the location and was unable to identify any contamination pathways to water resources within 2640' of the Wade 8-59 17 Pad. In an effort to eliminate events that may cause impacts, Civitas North employs various forms of isolation barriers and containment systems around equipment and storage areas. During drilling and completions operations, Civitas North installs a polyethylene liner across portions of the location as an isolation

barrier. The drilling rig and associated equipment (including fluid storage areas) are placed atop the liner. Similarly, the major equipment used during completion operations is sited atop the liner. Fluids other than freshwater are stored atop the liner as well. An engineered containment system is constructed around/beneath the production facilities (i.e., tanks, separators, etc.). The containment system is constructed of perimeter walls that are post driven into the ground around a flexible geotextile base. All components including the underlayment are sprayed with polyurea liner technology. This liner technology maintains seamless impermeability and puncture resistance and maintains its performance under exposure to UV rays, weather extremes, and those chemicals commonly used during operations and maintenance of the wells and facilities. As required by federal regulations (e.g., 40 CFR Part 112), a Spill

Prevention, Countermeasure, and Control Plan (SPCC Plan) is developed for each location taking into account site-specific conditions (i.e., containment capacities, flow-direction, etc.) to inform an appropriate response should one be warranted.

In the unlikely event that the loss of primary containment results in a discharge of produced water or hydrocarbons, nearby surface water(s) may be impacted. Fluid transport depends on a number of variables – i.e., volume, duration, composition of fluid, slope (both engineered and native slope), land cover, etc. Civitas North designs its well pads in such a manner that helps to prevent fluid migration off location. Further, Civitas North has developed a robust spill identification and response program. In the event of a release of fluids, there are provisions for immediate notification to designated company representative. Coincident with the notification, a series of response procedures is put into motion. Provided the procedure can be safely executed, immediate action is taken to stop the active discharge of fluid. Spill response resources are deployed as necessary to aid in the response efforts, to begin the impact assessment, and develop a path forward. Civitas North relies on a 'cradle to grave' accounting for all releases and associated cleanup. This includes but is not limited to formal documentation of the event, laboratory analysis, waste characterization and disposal manifesting.

5.0 TERRESTRIAL AND AQUATIC WILDLIFE RESOURCES AND ECOSTYSTEMS

The proposed Oil and Gas Location is located in non-cultivated fields just northeast of County Road 390 and State Highway 14. This property has historically been managed as rangeland and will continue to be managed as rangeland during the various phases of oil and gas development.

Terrestrial Wildlife Resources and Ecosystems

A robust environmental review was completed by a third-party consultant during the initial planning phase for the proposed location. Based on desktop analyses and field investigations, **no** potential conflicts were identified with regard to the presence of High-Priority Habitat or state/federal Sensitive, Threatened, or Endangered species. Habitat was identified for the following avian categories: Raptors, suitable nesting trees within 0.5 miles and Migratory Birds, potential habitat for ground-nesting birds within 0.5 miles. The consulting biologist has recommended that additional surveys are conducted prior to the start of operations for the two (2) avian categories discussed above (*see Wildlife Protection Plan*). Civitas North plans to incorporate this recommendation into its pre-project planning and will deploy a biologist in advance of the commencement of construction operations. In the event active nests are identified, Civitas North will coordinate with the applicable jurisdictional agency to determine appropriate next steps including site-specific mitigations.

Civitas North has minimized its disturbance footprint on this location by reducing the number of wells it plans to drill. The reduction in well count also reduces the number of associated appurtenances (i.e., separators, flowlines, etc.) required, further reducing the size of the well pad needed for production operations. Civitas North's weed management and interim reclamation plans are designed to minimize disruption to existing land cover and protect topsoil. Interim reclamation will be performed shortly after production has been initiated. The area(s) that will be revegetated will be done with input from the surface owner/tenant and conducive to fostering continued rangeland management on the subject lands.

Aquatic Wildlife Resources and Ecosystems

A robust environmental review was completed by a third-party consultant during the initial planning phase for the proposed location. Based on desktop analyses and field investigations, **no** potential conflicts were identified with regard to Waters of the United States, Waters of the State, FEMA-designated Floodplains, or other riparian habitat. Civitas North has reviewed the location and identified four (4) potential wetlands within 2640' of the Wade 8-59 17 Pad. Even though the nearest potential wetland is over 1000' from the proposed working pad surface, Civitas North, LLC will utilize its robust set of spill protection and response measures to aid in preventing potential discharges of fluids off location.

Civitas Resources, Inc, parent company of Civitas North, is an active member of the South Platte Water Related Activities Program ("SPWRAP"), a Colorado nonprofit corporation established by Colorado water users for the purpose of representing water users' interests and partnering with the State of Colorado to implement the Platte River Recovery Implementation Program in central Nebraska. This program provides a venue and mechanism to address possible Endangered Species Act issues on and along the Platte River including to assist in the recovery of threatened or endangered species within this important river corridor and elsewhere in the river basin. Additional information about this unique organization can be found here - http://cospwrap.org/ .

6.0 SOIL RESOURCES

Construction activities required to build the well pad and access road are required to disturb the in-situ native soils. The removal of topsoil will expose the shallow subsurface soils for a short period of time until import materials and associated top dressing (i.e., rock, road base, etc.) can be brought to location and applied across the disturbed areas. Soil removal and compaction can impact soil quality if the appropriate measures are not taken to protect this material.

Civitas North utilizes a soil scientist to perform a soil survey and analysis prior to the commencement of construction. The main deliverable of this survey is to determine the depth and associated characteristics of the soil horizons, especially topsoil, which will be disturbed during construction. The results of the analysis help inform the final grading plan and appropriate BMPs necessary for soil stabilization and preservation for future use. Topsoil will be stockpiled on the north side of the pad within the permitted disturbance area and will be constructed and maintained at minimal heights to reduce the potential for the development of anaerobic conditions.

Topsoil stockpiles will be constructed with slopes no greater than 3:1 to ensure that all surfaces can be seeded safely and effectively. After reaching final grade, the stockpiles will be drill seeded with a native, perennial grass and forb seed mix containing species with deep-reaching roots (i.e., alfalfa). Please note, the seed mix used at the proposed location with be appropriate for the soil type(s) present at the location and account for specific landowner requests. During seeding, soil amendments will be applied based on soil analytical results to promote species germination and establishment. A cover crop using an appropriate annual grass species will also be included in the seed mix to quickly establish growth and assist with soil stabilization until the permanent seed mix can establish itself.

In addition to soil impacts during construction, leaks or spills occurring on the proposed location may impact soil resources. As referenced in the Water Resources section, Civitas North has developed and implemented a robust set of protection measures to prevent the discharge of fluids. Additionally, personnel have been trained in spill identification and response protocols which helps to further reduce the impacts to soil resources in the unlikely event that a discharge occurs and breaches primary containment. Should a discharge occur, Civitas North employs industry BMPs to identify and remediate impacted media in accordance with COGCC's 900-Series Rules as well as other applicable state or federal regulatory requirements.

7.0 PUBLIC WELFARE

The following narrative is intended to supplement the above-described resources and potential impacts. Although this information is contained elsewhere within the application materials, brief summaries of impacts and mitigations for several key areas, often referred to as nuisances, are:

Noise

- Nuisance: relative to ambient levels, temporary increases in sound levels are expected during drilling and completion operations.
- Mitigation: Civitas North planned the pad so that the nearest home is over 10,000 from the proposed location, as such, noise originating from the location is not anticipated to be a nuisance.

Light

- Nuisance: since the drilling and completions phases occur 24-hours per day, lighting is required by regulation for worker safety during nighttime hours; illuminating the location may cast halos or shadows that are perceptible from a distance; headlights on vehicles may also be visible during the overnight hours when vehicles enter/exit location.
- Mitigation: lights will be angled in a downward manner to limit the 'halo effect' from impacting nearby receptors; only those lights necessary to maintain a safe working environment, and compliance with the applicable regulations, will be used.

Odor

- Nuisance: temporary odoriferous emissions during drilling and completions operations may be anticipated; these odors can generally be characterized as having a "petroleum scent" or a "burning metal" scent. Additionally, exhaust from diesel powered equipment may be identifiable from time to time.
- Mitigation: the pad was planned to be greater than 10,000' from the nearest residential building unit which is ultimately the best mitigation (e.g., avoidance). Additionally, Civitas North will utilize closed-loop fluid management systems, utilize IOGP Group II drilling fluids, remove drill cuttings on a daily basis and as soon as waste containers are full, utilize odor-mitigating additives in drilling fluids, and employ pipe cleaning procedures when removing drill pipe from the hole; the use of BMPs in addition to distance to nearest RBU is anticipated to eliminate odor as a potential nuisance to receptors.

Dust

- Nuisance: dust generated from the movement of equipment and materials on location may occur; vehicular traffic may generate dust while traversing the access road.
- Mitigation: the installation of vehicle tracking controls at the entrance of the access road, and use of freshwater as a dust suppressant as atmospheric conditions warrant on the pad and access road will serve to minimize potential dust generated from the location.

Recreation & Scenic Values

The property where the proposed Oil & Gas Location has been sited is dry rangeland that is surrounded by oil and natural gas development. Given the current use of the subject property and adjacent, surrounding properties, minimal disruption to recreation or scenic values are anticipated.

Recreation

- Active Recreation: no active recreational resources (i.e., parks, trails, etc.) were identified proximal to this location during a desktop review. As such, no impacts are anticipated.
- Passive Recreation: due to the remote and private nature of the proposed location, no impacts to passive recreation are anticipated.

Scenic Values

The construction of the well pad, associated equipment, and facilities will change the near-surface viewshed. Depending on the vantage point of the observer, the proposed project may modify the viewshed when looking westward. However, the viewshed will not be "blocked"; the observer should be able to reposition themselves for a vantage point that is free and clear of the proposed location. No permanent impacts are anticipated.

8.0 Proposed Best Management Practices

Air Resources Cumulative Impact Mitigation Measures

1. Employ pipe cleaning procedures when removing drill string from hole.
2. Utilize closed-loop, pit-less fluid management system.
3. Use of freshwater to minimize the generation and transportation of dust.
4. Employ the practice of "block and isolate" whenever possible on equipment, piping, and/or tank connections.
5. Use of sealed containers (e.g., sandboxes) for the storage and transportation of sand used in hydraulic fracturing.
6. Any gas encountered during drill-out will be combusted with a minimum of 98% destruction efficiency.
7. Any fluids encountered during drill-out will be sent to a controlled tank and stored until transferred for disposal (e.g., water) or sale (e.g., oil).
8. Any gas encountered during flowback will be routed to a gas sales pipeline or combusted with a minimum of 98% destruction efficiency.
9. Any fluids encountered during flowback will be sent to a controlled tank and stored until transferred for disposal (e.g., water) or sale (e.g., oil).
10. Lease Automated Custody Transfer (LACT) will be used to transfer fluids from the oil production tanks.
11. Instrument air skids will be used to generate compressed air for all pneumatic actuation.
12. Vapor Recovery Towers (VRT) will be used for separation of the production stream.
13. Production Facilities will be powered by electricity sourced from the regional power grid.
14. Wells, facilities, and equipment will be equipped to be shut-in remotely.

Public Health Cumulative Impacts Mitigation Measures

1. Civitas North monitors wells during each operational phase through its FLIR camera program to verify that sites are operating correctly and in compliance with regulations. Civitas North will implement continuous monitoring at the Wade 8-59 17 Pad per CDPHE Regulation 7. The monitoring will follow all CDPHE requirements. These monitors will be located based on the prevailing winds determined during the baseline monitoring period as well as to avoid sounds walls and equipment. They will continuously monitor for methane, total VOCs, particulate matter, and meteorological conditions.

Water Resources Cumulative Impacts Mitigation Measures

1. Installation of polyethylene liner on location during drilling and completions operations.
2. Installation of an engineered containment system around/beneath production facilities.
3. Development of a site-specific SPCC plan.

Terrestrial and Aquatic Wildlife Resources Mitigation Measures

1. Operator will conduct additional avian surveys prior to the commencement of construction to ensure no conflicts have developed since the prior survey(s).
2. Topsoil will be stockpiled on location with slopes not greater than 3:1

Soil Resources Mitigation Measures

1. Topsoil stockpiles will be stabilized with appropriate vegetation to provide both short- and long-term stabilization to prevent erosion.

Public Welfare Mitigation Measures

1. Lighting will be angled in a downward manner to limit the halo effect off location.
2. Lights will be placed at reasonable heights to limit spillage off location.
3. Utilization of a closed-loop fluids management system.
4. Use of IOGP Group II drilling fluids.
5. Remove drilling cuttings daily.
6. Odor-mitigating additives will be incorporated into drilling fluids.
7. Employ pipe-cleaning procedures when removing drill pipe from wellbore.
8. A hard-surface apron will be installed at the entrance of the access the road to prevent mud-tracking and associated dust emissions on the public roadway.
9. Freshwater will be used as a dust suppressant when necessary on the pad and access road.
10. Mud-tracking devices will be incorporated on the road access before the apron.
11. Equipment will be painted "desert tan" (or similar) to avoid creating a marked contrast with the surrounding landscape.

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