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## **AMENDED AND RESTATED OPERATOR AGREEMENT**

This Amended and Restated Operator Agreement ("Agreement") is made and entered into this ~~4th~~ day of November, 2018 (the "Execution Date"), but effective for all purposes on August 25, 2015 ("Effective Date"), by and between the Town of Erie, a Colorado municipal corporation ("Erie" or "Town"), whose address is 645 Holbrook Street, P.O. Box 750, Erie, Colorado 80516, and Crestone Peak Resources LLC, a Delaware limited liability company ("Crestone"), whose address is 1801 California Street, Suite 2500, Denver, Colorado 80202. Crestone and Erie may be referred to individually as a "Party" or collectively as the "Parties."

### **BACKGROUND**

- A.** Erie and Encana Oil & Gas (USA) Inc. ("Encana") entered into that certain Operator Agreement dated August 25, 2015 and amended May 2, 2016 addressing Encana's development of oil and gas interests within the Erie Town Limits and part of Erie's development planning area (the "Original Agreement").
- B.** Thereafter, Crestone acquired Encana's oil and gas interests within the Erie Town Limits and part of Erie's development planning area, and Crestone succeeded as assignee to Encana's interest in the Original Agreement, including Encana's right to develop oil and gas wells at certain locations under the Original Agreement.
- C.** Erie and Crestone are parties to a civil action commenced by Erie in the Erie Municipal Court, Case No. 17-2023, regarding alleged violations of Erie's Municipal Code on September 7, 2017 from odors emitted by Crestone's oil and gas operations in Erie. Erie and Crestone are also parties to a civil action commenced by Crestone in the Weld County District Court, Case No. 2017-CV-30972, that challenges the section of Erie's Municipal Code that prohibits nuisance odors. Erie and Crestone desire to resolve these two civil actions as part of this Agreement.
- D.** The Parties wish to shift the oil and gas development authorized at the Vessels Minerals pad to a new location, the Acme Pad, which requires increasing the number of wells proposed at the Acme Pad from fifteen (15) to thirty (30).
- E.** Additionally, the Parties wish to authorize the development of Flowlines, Gathering lines and other Related Facilities associated with Crestone's oil and gas development, provide for the mitigation of odors and other impacts produced from Crestone's operations, and address certain administrative matters.

**F.** The Parties wish to update the terms of the Original Agreement accordingly, and it is the intent of the Parties that this Agreement replace and supersede the Original Agreement as of the Execution Date.

**G.** Erie and Crestone value a balanced approach to oil and gas development that is protective of human health, safety and welfare, as well as the environment and wildlife. To that end, to achieve such goals in a cooperative manner, Erie and Crestone enter into this Agreement to accomplish the following:

1. To identify the new well pad sites and Related Facilities that Crestone plans to develop within the Erie Town Limits and on certain adjacent land within the five (5) years after the Execution Date;
2. To provide for a centralized product gathering and storage facility and the pipeline system necessary to serve such facility to reduce air emissions from and consolidate infrastructure for the new wells and reduce truck traffic;
3. To supplement state environmental requirements by adopting best management practices (“BMPs”) that will further mitigate the potential environmental and land use effects associated with this development, including BMPs for pad siting, well abandonment, plugged and decommissioned well testing, closed loop system use, minimization of air emissions, leak detection and repair, ambient air sampling, air quality action days, berm construction, Flowlines, chemical disclosure and storage, noise mitigation, safety, fencing construction, site disturbance, traffic management, access road improvement, visual quality mitigation, water quality protection, waste management, equipment anchoring, floodplain, wetland, and riparian area protection, natural resource and wildlife protection, historical and cultural resource protection, municipal service delivery, training and inspections, lighting installation, underground injection, water reuse, and odor mitigation;
4. To create a review process for these well pads, which includes enhanced submittal and notice requirements;
5. To authorize the location and development of these well pads and the Related Facilities, subject to: administrative approval of certain plans, studies and other materials to ensure that such development will comply with the BMPs and, under specified circumstances, additional environmental requirements; meetings with staff and neighbors; and mailed and posted notices;
6. To create a process of regular meetings between Erie and Crestone to improve communication and cooperation regarding Crestone’s operations within the Erie Town Limits and on the adjacent land; and

7. To replace and supersede both the Original Agreement and the Memorandum of Understanding between Encana and Erie dated August 28, 2012 (the "2012 MOU").

**H.** Section 10.12.1.F. of the Town's Unified Development Code ("UDC") authorizes Erie and an oil and gas operator to enter into an Operator Agreement for oil and gas operations.

NOW THEREFORE, the Parties agree as follows:

## **ARTICLE I. GENERAL PROVISIONS**

**1. Effective Date.** This Agreement will be effective as of the Effective Date and will replace and supersede the Original Agreement and the 2012 MOU in their entirety with respect to new wells that Crestone starts, and Related Facilities Crestone constructs, after the Effective Date within the Operator Agreement Area. This Agreement will not rescind, nullify, or otherwise affect any prior reviews and authorizations under or in the Original Agreement, except as set forth in Article IV, Sections 8 and 9.

**2. Intent to Supplement State Rules and Regulations.** The Parties recognize that pursuant to the Colorado Oil and Gas Conservation Act, Colo. Rev. Stat. § 34-60-101 et seq., the Colorado Oil and Gas Conservation Commission ("COGCC") regulates the development and production of oil and gas resources in Colorado, and the Act authorizes the COGCC to adopt statewide rules and regulations, which the COGCC has done. The Parties further recognize that pursuant to the Colorado Air Pollution Prevention and Control Act, Colo. Rev. Stat. § 25-7-101 et seq., the Colorado Air Quality Control Commission ("CAQCC") regulates air quality in Colorado, and the Act authorizes the CAQCC to adopt statewide rules and regulations, which the CAQCC has done. The BMPs developed jointly by the Parties and identified in this Agreement are intended to supplement and are in addition to these state rules and regulations.

**3. Exercise of Local Land Use Authority.** The Parties further recognize that Erie has enacted land use regulations pursuant to the Local Government Land Use Enabling Act, Colo. Rev. Stat. § 31-15-401 et seq., and the Land Planning Act, Colo. Rev. Stat. § 29-20-101 et seq., which delegate to local governments the authority to enact land use regulations that regulate, *inter alia*, the impacts of industrial uses, including oil and gas development, provided that such regulations are not preempted by state law. The Parties also recognize that Crestone's activities covered by this agreement are best addressed pursuant to a comprehensive and collaborative approach embodied in an operator agreement, and the requirements and procedures set forth in this Agreement are at least as protective of human health, safety, welfare and the environment as the requirements and procedures set forth in Erie's oil and gas regulations.

**4. Applicability.** Unless otherwise provided herein, this Agreement and the BMPs will apply to all new wells that Crestone drills, and Related Facilities Crestone constructs, within the Operator Agreement Area during the Term of this Agreement, whether Crestone's interest in the wells and Related Facilities predates or post-dates the Execution Date. This Agreement will not apply to any wells for which Crestone is not the operator. Wells drilled by Crestone prior to the Execution Date but on or after the Effective Date will be subject to all provisions of this Agreement but only to those BMPs set forth on Appendix A, Sections 2(A), 3(C) and (D), 3(E)(i)(k), (l), (o), (q), (s), (u), and (v), 3(E)(ii), 8, 9, 14, 15, 22, 25, and 26. This Agreement will not apply to wells drilled by Crestone prior to the Effective Date, except that Article V, Section 6 and the BMP set forth on Appendix A, Section 3(E)(ii) will apply to such wells. Notwithstanding the foregoing, Recompletion of any well by Crestone will be subject to those BMPs set forth on Appendix A, Sections 3(B), (C), and (D), 6, 7(A), 8, 11, 14, 22, 24, and 26 through 28. For any well that Crestone Recompletes: (a) Crestone will provide the Town with notice of its intent to submit a Form 2 to the COGCC prior to submitting such form for Recompletion of such well; (b) Crestone will hold a neighborhood meeting pursuant to Article III, Section 7; and (c) Crestone will mail and post notices, as applicable, pursuant to Article III, Sections 8 and 9. Additionally, compliance with the BMPs set forth on Appendix A, Sections 10, 12(c), 17, 18, and 19 will be determined through the Plans and Materials and the Town Review Process.

**5. Term.** The term of this Agreement will commence upon the Execution Date and will remain in effect for five (5) years (the "First Term"), at which time the Agreement will automatically be renewed and extended for an additional five (5) years unless either Party elects to terminate the Agreement at the end of the then current term by providing written notice to the other Party of such intent at least thirty (30) days prior to the expiration of this Agreement (the "Term").

**6. Effect of Termination on Obligations and Authorizations.** If the Agreement is terminated by either Party, any development authorized by the Agreement and for which the Conceptual Review Meeting has occurred will continue to be authorized under and subject to this Agreement. Upon termination of the Agreement, any development authorized by the Agreement and for which a Conceptual Review Meeting has not yet occurred will be subject to the then applicable Town Regulations, or such other operator agreement to which the Parties may agree.

**7. Drilling Plan.** In consultation with Erie and pursuant to this Agreement, Crestone has developed a Drilling Plan that includes both: (i) the new well pad sites that Crestone plans to develop during the First Term within the Operator Agreement Area (the "Identified Well Pads" or the "Identified Pad Sites"); and (ii) the BMPs that will apply to such development. The BMPs are listed on the Best Management Practices for Pad Site Locations attached as Appendix A, and the Identified Well Pads are depicted in the Operator Agreement Area Map attached as Appendix B.

**8. Location and Incorporation of Best Management Practices into COGCC Submittals.** Crestone will designate the Identified Well Pad locations on the corresponding Form 2A, Oil and Gas Location Assessments submitted to the COGCC by Crestone during the term of this Agreement. Crestone also will include the BMPs listed in Appendix A on all Forms 2, Applications for Permit to Drill, and Forms 2A, Oil and Gas Location Assessments, submitted to the COGCC for new wells that Crestone drills during the Term of this Agreement within the Operator Agreement Area.

**9. Regular Meetings between the Parties.** Erie and Crestone will meet at a minimum on a quarterly basis to discuss the implementation of this Agreement, the Comprehensive Drilling Plan, and the Erie Comprehensive Plan, as well as any changes to their respective plans and intentions. The responsibility to meet and confer will survive the termination of this Agreement until the Parties mutually agree to terminate these meetings. As part of these discussions, the Parties intend to exchange information regarding the possibility, location, and schedule for future oil and gas, residential, commercial, and other development so as to minimize future land use conflicts and concerns while allowing for the responsible exercise of land and mineral ownership rights. The Parties may jointly agree to share certain information on a confidential basis, to invite third parties to participate, and to change the frequency of the meetings.

**10. Annexation by Another Municipality.** If a municipal government other than Erie annexes any portion of the Operator Agreement Area, then this Agreement will apply to the annexed portion of the Operator Agreement Area only if both Crestone and the annexing municipality so agree in writing.

## **ARTICLE II. DEFINITIONS**

CDPHE. Colorado Department of Public Health and Environment.

Conceptual Review Meeting. Conceptual Review Meeting has the meaning set forth in Article III, Section 2.

Erie Building Unit. A Building Unit as defined in the COGCC 100 Series Rules and Regulations that is located within the Erie Town Limits.

Erie Town Limits. The area that is within Erie's town limits. The Erie Town Limits as of the Effective Date are depicted on the Operator Agreement Area Map.

Federal or State Study. A peer reviewed scientific study that is funded, conducted, or adopted by a United States federal or Colorado state agency. For this purpose: funding or conducting includes situations where the agency partially funds or conducts the study; and agency excludes the legislative and judicial branches and educational institutions.

**Filings.** All filings, site plans, permits, licenses, applications, easements, rights-of-way and other approval requests.

**Flowlines.** Flowlines as defined in the COGCC 100 Series Rules and Regulations.

**Gathering lines.** Gathering lines as defined in the COGCC 100 Series Rules and Regulations.

**Hub.** Hub has the meaning set forth in Appendix A, Section 3(A).

**Identified Well Pads and Identified Pad Sites.** These terms are interchangeable and will mean the seven (7) well pads identified by name and polygon on the Operator Agreement Area Map, including the Acme well pad and omitting the Vessels Minerals and Oskarson well pads.

**Nuisance Code.** The Erie Abatement of Nuisance Code.

**Operator Agreement Area.** The area depicted on the Operator Agreement Area Map attached as Appendix B, which includes the Erie Town Limits as of the Effective Date and certain adjacent land.

**Plans and Materials.** Plans and Materials has the meaning set forth in Article III, Section 3.

**Recompletion.** An operation whereby additional completion activity is conducted within the existing and previously producing wellbore.

**Regulation 7.** Regulation Number 7 adopted by the CAQCC.

**Related Facilities.** Facilities associated with Crestone's oil and gas development, including, without limitation, Flowlines, Gathering lines, access roads, utility lines, storage tanks, processing and separation facilities, and other production, processing, transportation, and marketing facilities.

**Rework.** An operation conducted in the wellbore of the well after it is completed to secure, restore, or improve production in a formation which is currently open to production in the wellbore.

**Term.** Term has the meaning set forth in Article I, Section 5.

**Town Regulations.** All ordinances duly adopted by the Town including the UDC.

**Town Review Process.** Town Review Process will mean the process outlined in Article III.

### **ARTICLE III. TOWN REVIEW PROCESS**

**1. Applicability.** This review process will apply to any new well pad that Crestone develops or operates within the Operator Agreement Area during the Term of this Agreement, except for: (i) the Woolley Beckey Sosa pad site which has been developed, is currently producing, and is outside the Erie Town Limits; (ii) the Morgan Hill pad site, which has been developed and is currently producing; (iii) the Cosslett pad site, which is currently being developed after satisfying the review process under the Original Agreement; and (iv) the Acme Pad site, which has undergone partial review under the UDC, and is governed by Article IV, Section 7. Although the Woolley Beckey Sosa, Morgan Hill, Cosslett, and Acme Pad sites are exempt from the Town Review Process, they each are subject Article V, Section 6 of this Agreement and to the BMPs listed in Appendix A.

**2. Conceptual Review Meeting.** The purpose of the Conceptual Review Meeting is for the Erie staff and Crestone, prior to Crestone's submittal of a Form 2A, Oil and Gas Location Assessment to the COGCC, to review the proposed development in a manner that ensures compliance with this Agreement (the "Conceptual Review Meeting"). This meeting will also allow Crestone and the Erie staff to explore site-specific concerns, to discuss impacts and potential mitigation methods including field design and infrastructure construction to minimize impacts, to discuss coordination of field design with other existing or potential development and operators, to review plans, and to discuss other elements of this Agreement. Erie and Crestone agree that there will be at least one separate Conceptual Review Meeting for each Identified Pad Site (and any other new pad site within the Operator Agreement Area).

a. Crestone will schedule the Conceptual Review Meeting to occur at least ninety (90) calendar days prior to its submission of a Form 2A, Oil and Gas Location Assessment to the COGCC.

b. If Crestone's scheduling constraints prevent it from scheduling the Conceptual Review Meeting to occur at least ninety (90) calendar days in advance of submitting a Form 2A, Oil and Gas Location Assessment to the COGCC, Crestone may schedule the Conceptual Review Meeting to occur no less than thirty (30) calendar days prior to the submission of the Form 2A, Oil and Gas Location Assessment to the COGCC. In such event, Erie may retain an outside consultant to review the materials and to participate in and/or conduct the conceptual review process under Article III, Section 5 and the other timeframes established in this Article will be readjusted or waived.

**3. Submittal of Materials to Erie.** No less than fifteen (15) calendar days prior to the Conceptual Review Meeting, Crestone will submit the following plans and materials ("Plans and Materials") to Erie. During the Conceptual Review Meeting, Erie and Crestone

will discuss modifications to any of the Plans and Materials that would better mitigate the impacts of operations and ensure compliance with the BMPs. After the submission of the Plans and Materials, the Town will share with the public through its website the number of wells that Crestone intends to drill on the well pad and the timeline that Crestone has provided for the phases of development. The Plans and Materials will include:

a. A site plan for site preparation, operation, and reclamation with timelines for each phase. This site plan will include a list of all proposed oil and gas facilities to be installed on the location.

b. A topographic map at a scale not to exceed 1"=40' showing the proposed oil and gas location and Related Facilities, including the well pad, tanks, roads, pipelines, easements, and municipal and subdivision boundaries. The map will specify the shortest distance between any proposed well or surface equipment on the well pad and the nearest exterior wall of an existing Erie Building Unit (as of the Effective Date).

c. A current aerial photo showing the proposed oil and gas locations displayed at the same scale as the topographic map to facilitate use as an overlay. The photograph will specify the shortest distance between any proposed well or surface equipment on the well pad and the nearest exterior wall of an existing Erie Building Unit (as of the Effective Date).

d. Reports/Studies/Plans. The following reports, studies, and plans will be prepared to adequately portray the physical characteristics of the properties.

i. An Air Quality Impact Assessment and Mitigation Plan that provides an assessment of air quality impacts of the proposed operations and a plan to maintain air quality, including a plan to minimize VOC emission in compliance with the BMP No. 3.

ii. A Hydraulic Fracturing Fluids Reporting Plan that explains how Crestone will comply with BMP No. 6.

iii. A Cultural, Historical, and Archeological Survey of the proposed site and other areas and properties impacted by access to the site.

iv. A Dust Suppression and Control Plan.

v. A Grading, Drainage, and Erosion Plan that identifies existing (dashed lines) and proposed (solid lines) contours, at two-foot intervals, and the methods for controlling erosion during construction and operational phases of the proposed operations. Erie will notify Crestone at the Conceptual Review Meeting, if a Phase III Drainage Report is required.



vi. An Emergency Response Plan that addresses events such as explosions, fires, gas or water pipeline leaks or ruptures, leaks from well casings and pits, tank leaks or ruptures, hydrogen sulfide or other toxic gas emissions, transportation of hazardous material and vehicle accidents or spills. The plan must include proof of adequate personnel, supplies, and funding to immediately implement the emergency response plan at all times during construction and operations.

vii. A Geological Report detailing the geological characteristics of the site, prepared by a registered engineer. The report will include an assessment of the geologic hazards within one mile of the site and a plan for mitigating impacts from geologic hazards to the proposed operations and impacts of the proposed operations on geologic hazards.

viii. A Public Services and Facilities Impact Assessment that provides a description of existing levels, demand for, adequacy of, and the operational costs of public services affected by the proposed operations; a description of the increase in demand on those services and a plan for mitigating the impacts to public services and facilities.

ix. A Lighting Plan for installation of down cast lighting or some other form of lighting that mitigates light pollution and spill-over onto adjacent properties; provided, however, that Crestone may still use lighting that is necessary for public and occupational safety.

x. An Operations Plan that describes the method and schedule for drilling, completion, production and reclamation.

xi. A Flowline Management Plan that explains how Crestone will satisfy COGCC Rules 1101–1105.

xii. A Landscaping and Reclamation Plan for interim reclamation and revegetation of the site and final reclamation of the site. The plan will include the locations of any proposed Reference Areas to be used as guides for interim and final reclamation. The plan should use drought tolerant species that are native and suitable for the climate and soil conditions of the area. An irrigation plan may be required where buffering is accomplished with vegetation.

xiii. A Spill Prevention Control and Countermeasures Plan.

xiv. A Traffic Management Plan showing the estimated number of vehicle trips per day for each type of vehicle, proposed access routes to and from the site, haul roads and measures to mitigate adverse impacts to traffic patterns and safety caused by the proposed operation.

xv. An Access Road Plan sufficient to demonstrate compliance with the approval standards in Section 10.12.4 of the UDC.

xvi. A Stormwater Control Plan to minimize impacts to surface waters from erosion, sediment, and other sources of nonpoint pollution. The stormwater control plan required by COGCC Rule 1002.f may be provided to establish compliance with this provision.

xvii. A Vegetation and Weed Management Plan that includes a written description of the species, character and density of existing vegetation on the site, a summary of the potential impacts to vegetation as a result of the proposed operations, and proposed mitigation to address these impacts. The plan will include any COGCC required interim and final reclamation procedures.

xviii. A Water Quality Impact Assessment and Mitigation Plan, which will include the following:

A. An inventory and location of all water bodies, as well as domestic and commercial water wells within one mile of the proposed oil and gas operation.

B. Identification of intake(s) for public drinking water supply.

C. Water quality monitoring and mitigation plan consistent with COGCC Rule 318A. The plan will, at a minimum, include the following elements:

(1) Key stream segments, other water bodies, and groundwater to monitor.

(2) Locations for and frequency of sampling and monitoring to establish baseline of existing conditions prior to the proposed oil and gas operation including existing water quality and groundwater data.

(3) Key indicators of water quality and stream health, and threshold levels that will be monitored to detect changes in water quality and health of the aquatic environment.

(4) Locations for and frequency of sampling and monitoring for key indicators of water quality and stream health, including but not limited to constituents regulated by the Colorado Water Quality Control Commission, and constituents associated

with the proposed oil and gas operation.

(5) Locations for and frequency of sampling and monitoring to measure effectiveness of water quality mitigation during the life of the proposed oil and gas operation and two years after final reclamation of all disturbed areas is complete.

(6) Mitigation steps that will be implemented to avoid degradation of water bodies if monitoring of key indicators reveals degradation proved to be the result of Crestone's operations.

xix. A Wildlife and Wildlife Habitat Assessment of existing wildlife and wildlife habitat, an evaluation of the impacts of the proposed oil and gas operation on wildlife and wildlife habitat, and proposed mitigation to address these impacts.

xx. A Noise Mitigation and Monitoring Plan that provides for continuous monitoring from 4 sides of the facility at least 350 feet from the sound wall where possible provided that approval from surrounding surface owners can be obtained. The plan should identify site-specific noise mitigation techniques such as dirt moving to attenuate noise, and source-based noise mitigation. Power will be supplied from the electric grid in lieu of generators if available at the site. The plan will ensure the following levels are achieved:

A. For db(A) scale noise, Crestone will insure that the noise level from operations subject to the light industrial zone noise standard under COGCC Regulations 802.b and 604.c.(2)(A) does not exceed sixty (60) db(A) and that the noise level from operations subject to the industrial zone noise standard under COGCC Regulations 802.b and 604.c.(2)(A) is reduced at least five (5) db(A) below the maximum level permitted by those Regulations. For this purpose, the noise level will be measured as set forth in COGCC Regulations 802.b & c, except no measurements will be taken when traffic is passing the sound level meter, Crestone will be present during all measurements, and building units will be limited to those units existing as of the Effective Date. As set forth in COGCC Regulation 802.b, the noise levels will be subject to increase for a period not to exceed fifteen (15) minutes in any one (1) hour period and reduction for periodic, impulsive or shrill noises.

B. For db(C) scale noise, Crestone will measure sound levels during drilling and hydraulic fracturing consistent with the guidance set forth in COGCC Rule 802.c, and Crestone will share these measurements with the Town every seventy-two (72) hours. If a measurement exceeds the existing ambient noise level from all other sources by three (3) db(C), then Crestone will obtain a low frequency noise impact analysis by a qualified

sound expert, including identification of any reasonable control measures that will be employed to mitigate such low frequency noise impact, and Crestone will discuss the results of such analysis with the Town Administrator.

xxi. An Odor Management Plan attached as Appendix D.

e. Any other information requested by Erie demonstrating how Crestone will comply with and implement the BMPs on Appendix A.

f. A Town review fee and consultant and referral agency cost reimbursement totaling thirty-five thousand dollars (\$35,000) per well pad.

g. If Crestone revises any of the Plans and Materials during the Town Review Process, Crestone will notify Erie of the revisions made and Erie will advise Crestone whether the revisions will affect compliance with the BMPs, but such communications will not affect the date by which Crestone may submit the Form 2A, Oil and Gas Location Assessment to the COGCC. Following the Town Review Process, Crestone may revise the Plans and Materials from time to time, provided that Crestone will discuss any such revisions with Erie either at the time they are made or alternatively at the next quarterly meeting required under Article I, Section 9. Any revisions to the Plans and Materials will comply with the BMPs. If Crestone makes any such revisions, Crestone will submit an amended Form 2A to the COGCC, as necessary to reflect such revisions.

**4. Erie Completeness Determination.** Once the Plans and Materials are deemed complete, Erie will issue a letter to Crestone stating this determination. If the Plans and Materials are incomplete, Erie will inform Crestone of the deficiencies promptly after discovery and no later than the Conceptual Review Meeting. If Erie does not inform Crestone of any deficiencies of the Plans and Materials by the Conceptual Review Meeting, the Plans and Materials will be deemed complete, and Erie will deliver to Crestone a written letter memorializing such completeness. Crestone will promptly correct any such deficiency in the Plans and Materials and resubmit the corrected documents to Erie by a mutually agreed upon date. Erie will inform Crestone of any further deficiencies within five (5) business days of resubmission, or the Plans and Materials will be deemed complete, and Erie will deliver to Crestone a written letter memorializing such completeness.

**5. Referral to Staff, Consultants, and Outside Agencies.** Upon request by Erie, Crestone will submit to Erie copies of the Plans and Materials for review by Erie staff, Erie consultants, and outside referral agencies, if any. For this purpose, Erie will provide Crestone with a list identifying the staff, consultants, and referral agencies to receive referral packets. Within seven (7) calendar days after receiving this list, Crestone will provide Erie with the requested referral packets in unsealed Tyvek envelopes, addressed to the identified referral recipients and containing all submittal information properly folded and compiled. Once Erie has received the referral packets, it will distribute them to the

appropriate staff, consultants, and referral agencies. Erie will send copies of the referral comments to Crestone upon receipt. Any referral will be undertaken so as not to delay the Town Review Process.

**6. Town Administrative Approval.** The Erie staff will review the Plans and Materials and, provided they demonstrate that the planned development will comply with the BMPs, the Town Administrator will administratively approve the Plans and Materials. The decision of the Town Administrator will not be unreasonably withheld and will be issued in writing within thirty-five (35) calendar days after the Plans and Materials are determined to be complete under Article III, Section 4. The decision of the Town Administrator will be consistent with development of the Identified Well Pads at the locations set forth in Appendix B and must not alter, impair, prevent, diminish, or delay such development. If the Erie staff and Crestone disagree whether the planned development will comply with the BMPs, then they will resolve this disagreement through the dispute resolution process set forth in Article V, Section 8. If the Erie staff determines that the planned development will comply with the BMPs, then the Town will not protest, request a COGCC commission hearing, or oppose or object in any forum to any permits, applications, or approvals related to the planned development.

**7. Neighborhood Meeting.** Prior to Crestone's submission of a Form 2A, Oil and Gas Location Assessment to the COGCC, Crestone will hold a neighborhood meeting at a convenient location approved by Crestone and Erie. The format of the neighborhood meeting will facilitate dialog between Crestone representatives and Erie residents. Erie residents will have the opportunity to ask questions and interact with Crestone's representatives during the neighborhood meeting. Crestone will also provide 3 x 5 cards for the public to make written comments. Erie will provide a lockbox for purposes of collecting written comments from meeting attendees. The Local Government Designee ("LGD") or his appointee will attend the meeting and collect the lockbox containing any written comments from meeting attendees. The LGD will transmit the written comments to Crestone and to the COGCC with any comments he submits on behalf of Erie regarding the Form 2A.

**8. Mailed Notice.** Crestone will mail notice of the anticipated Form 2A, Oil and Gas Location Assessment within ten (10) calendar days preceding the neighborhood meeting. Properties to receive notice will be jointly determined by Erie and Crestone at the Conceptual Review Meeting based on those Erie properties within at least one-half (1/2) mile of the pad site that would be affected by the proposed operation. Owners of record will be ascertained according to the records of the County Assessor's Office, unless more current information is made available in writing to Erie prior to the mailing of the notices. This notice will include reference to the neighborhood meeting, contact information for Crestone, the availability of Plans and Materials, and the approximate date drilling will begin. Crestone will provide Erie with an affidavit or certificate of mailing showing that notice was provided to the list of Erie property owners.

**9. Posted Notice.** Crestone will also post a sign, which conforms to the dimensions and requirements in the Code at the pad site, giving notice to the general public of the proposed development and contact information for Crestone. For parcels of land exceeding ten (10) acres in size, two (2) signs will be posted. Such signs will be approved by Erie and will be posted on the subject property in a manner and at a location or locations reasonably calculated by Erie to afford the best notice to the public, which posting will occur within ten (10) days preceding the neighborhood meeting.

**10. Pre-Drilling Notice.** If Crestone begins drilling the first well on the pad site more than six (6) months after the Form 2A, Oil and Gas Location Assessment for the site is approved by the COGCC, then Crestone will provide a pre-drilling notice. Crestone will mail this notice at least thirty (30) days before drilling begins to all properties that received mailed notice under Article III, Section 8. The pre-drilling notice will include the location of the wells to be drilled, the anticipated date drilling will begin, and Crestone's contact information. Crestone may satisfy this requirement by mailing the Move-In, Rig-Up Notice required by COGCC Rule 305.h to all properties that received mailed notice under Article III, Section 8.

**11. Submission of Form 2A, Oil and Gas Location Assessment to the COGCC.** Notwithstanding any other provision of this Agreement, Crestone may submit its Form 2A, Oil and Gas Location Assessment to the COGCC: (a) once the Town Administrator determines that the Plans and Materials demonstrate that the planned development will comply with the BMPs under Article III, Section 6; or (b) sixty (60) calendar days after Erie determines that the Plans and Materials are complete if the Town Administrator either makes no such determination or determines that the Plans and Materials demonstrate that the planned development will not comply with the BMPs. If the Town Administrator has determined that the Plans and Materials demonstrate that the planned development will not comply with the BMPs, then the Town may protest, seek a COGCC commission hearing, or otherwise oppose any COGCC permit or approval for the development.

#### **ARTICLE IV. CRESTONE OPERATIONS DURING THE TERM OF THIS AGREEMENT**

##### **1. Identified Pad Sites.**

###### **a. Construction of Identified Pad Sites and Associated Wells and Facilities.**

i. Crestone will develop the Identified Pad Sites, all wells on the Identified Pad Sites and all Related Facilities in accordance with this Agreement. Crestone intends to commence and complete its development of these Identified Pad Sites as quickly as is commercially reasonable under the current circumstances.

ii. Additional operations on wells within the Identified Pad Sites may occur during this Agreement and after its termination, including but not limited to the installation of production facilities, production and maintenance operations, Rework or Recompletion operations, and/or plugging and abandonment operations.

**b. Approval of Identified Pad Sites and Associated Wells and Related Facilities.**

i. This Agreement will constitute final approval by Erie of the Identified Pad Sites, all wells on the Identified Pad Sites, and all Related Facilities, and Crestone is authorized by this Agreement to commence development of such Pad Sites, wells, and Related Facilities, and to undertake such operations subject to the requirements of this Agreement. With the exception of the Overweight Vehicle Permit, Crestone will not be required to obtain from Erie any site plans, permits, licenses, applications, easements, rights-of-way or other approvals for such Pad Sites, wells, and Related Facilities under the Code or any other authority. Instead, such Pad Sites, wells, and Related Facilities will be subject to the terms and conditions of this Agreement, and the BMPs listed in Appendix A and the Operator Agreement Area Map attached as Appendix B.

ii. The Parties intend that this Agreement sets forth all of the obligations, duties, requirements, and conditions that Erie will apply to the Identified Pad Sites, the wells on the Identified Pad Sites, and the Related Facilities, as long as Crestone complies with the terms and conditions of this Agreement.

iii. If any approval by Erie becomes necessary for any of the Identified Pad Sites, any of the wells on the Identified Pad Sites, and any of the Related Facilities, then Erie will promptly issue approval through the Town Administrator or other designee and ensure that such approval is consistent with the terms and conditions of this Agreement and that it does not alter, impair, prevent, diminish, delay, or render financially infeasible such development.

**2. Pad Sites Not Identified on the Operator Agreement Area Map and Commenced During the First Term of Agreement.**

a. The Town Review Process and the BMPs will apply to any pad site and Related Facilities not included on the Operator Agreement Area Map that are proposed to be commenced during the First Term of this Agreement. If such pad site or Related Facilities are within the then current Erie Town Limits, Crestone also will obtain all necessary approvals for such site or facilities under the then-current Town Regulations. In the case of a conflict between this Agreement and the then-current Town Regulations, the more stringent requirements will apply.

b. As soon as practicable after Crestone formulates plans to develop any pad site and Related Facilities not included on the Operator Agreement Area Map, Crestone will discuss the site location of pad sites and Related Facilities with Erie before Crestone concludes surface use agreement negotiations for the site to identify issues and concerns and possible alternative locations. The Parties agree such information and disclosure constitute "confidential commercial data," which will be kept confidential by the Town and exempt from disclosure under Colo. Rev. Stat. § 24-72-204(3)(a)(IV).

c. For any pad site or Related Facilities not included on the Operator Agreement Area Map and within the Erie Town Limits, Erie will process all properly submitted Filings within the time period required by the applicable law, Code, rule, regulation, or ordinance. Erie acknowledges that time is of the essence with respect to all such Filings.

d. For purposes of this Section 2, if Crestone seeks to relocate any Identified Well Pad to a site other than the polygon depicted in the Operator Agreement Area Map, then such relocated pad site will be considered a pad site not included on the Operator Agreement Area Map and will be subject to subparts a, b, and c of this Section.

**3. The Hub.** The Hub has been approved, developed, and is operational as of the Execution Date. Erie will administratively approve all rights-of-way, easements, road crossings, or permits reasonably required to (1) connect wells drilled on the Identified Well Pads to the Hub, and (2) continue to operate and maintain the Hub and associated Related Facilities. Such approval will be subject to Erie review and inspection to ensure installed Related Facilities meet the town design and construction standards as required for right-of-way permits under Erie Municipal Code § 7-1-3(A)(6)(c).

**4. Pad Sites Unable to Connect to Hub.** Crestone intends to utilize the Hub for all Identified Pad Sites. However, Crestone may not be able to utilize the Hub for certain of these Pad Sites due to inability to obtain pipeline rights-of-way and/or other matters outside Crestone's reasonable control. For any such Pad Sites where Crestone is unable to utilize the Hub, Crestone may, after conferring with Erie, install hydrocarbon storage tanks and any other facilities necessary for the production of hydrocarbons at those locations. All other provisions of this Agreement will continue to apply to any such Pad Sites.

**5. Potential Encroachment.** To reduce the possibility of new residential development within Erie Town Limits encroaching within one thousand (1,000) feet of any of the Identified Pad Sites before Crestone has finished drilling and completing all of the wells on such Pad Site, the Parties will take the following action:

a. Erie will provide Crestone with timely and regular information on planned unit developments and subdivisions approved and preliminary and final plats filed within the Erie Town Limits. For this purpose, Erie will submit applications for such



developments, subdivisions, and plats to Crestone for comment during the applicable referral period.

b. Erie will make its best efforts to promptly notify Crestone if Erie determines that new residential development within the Erie Town Limits is likely to encroach within one thousand (1,000) feet of any of the Identified Pad Sites within the following six (6) months. Upon receiving such notice, Crestone will use its best efforts to prioritize the development of that Pad Site so that all wells on it are drilled and completed before any such encroaching residential development is finished and occupied. Erie and Crestone will attempt to work in good faith with the residential developer so that the wells can be drilled and completed before the residences are finished and occupied. The Parties acknowledge and agree that Crestone's ability to prioritize development at a particular Pad Site may be limited by factors beyond its control, including equipment availability, contractual obligations, commodity prices, and the COGCC approval process and that Crestone is not required to take any action that is commercially unreasonable.

**6. Additional Environmental Requirements.** Notwithstanding any other part of this Agreement, Erie reserves the right to enact by ordinance additional environmental requirements for the Identified Pad Sites, the wells located at such Pad Sites, and the Related Facilities; provided, however, that Erie determines: (i) that the results of a Federal or State Study published after the Execution Date show that the BMPs are insufficient to protect public health and environment within Erie; and (ii) that the additional environmental requirements will mitigate this demonstrated public health or environmental risk in a manner that allows for development of the Pad Sites and the associated wells, facilities, and operations that is economically practicable and technologically feasible. As part of its determination, Erie will solicit comment on the additional environmental requirements from the CDPHE and the COGCC. In addition, any such environmental requirements must apply to all similarly-situated oil and gas development that is subject to regulation by Erie. Notwithstanding the foregoing, Erie reserves the right in the future to enact and apply prospectively regulations that are general in nature and that are applicable to all commercial and industrial operations in the Town, provided however that the application of such prospective regulations does not alter, impair, prevent, diminish, delay, or render financially infeasible the development of the Identified Pad Sites, the wells located at such Pad Sites, and the Related Facilities, and further that such regulations are not preempted by state law.

**7. Acme Well Pad.** As of the Execution Date, and pursuant to the UDC, Crestone has submitted Plans and Materials to Erie for the Acme Pad site, Crestone has participated in a Conceptual Review Meeting with Erie regarding such site, Erie has determined that Crestone's submissions are complete, and Erie has referred the submissions to its Staff and outside agencies. After the Execution Date, Crestone will hold a neighborhood meeting for the Acme Pad site pursuant to Article III, Section 7, and satisfy all notice requirements for such site pursuant to Article III, Sections 8 through 10. Notwithstanding the foregoing, Crestone has the right to submit its Form 2A, Oil and Gas Location Assessment relating to

the Acme Pad site to the COGCC on or after November 1, 2018. Erie will execute a COGCC Rule 510 statement or written comment to the COGCC stating that the Acme Pad, wells on the Acme Pad, and Related Facilities for the Acme Pad have been approved by the Town through this Agreement.

**8. Vessels Minerals Well Pad.** Effective upon Crestone receiving all necessary approvals for the Acme Pad, the prior authorization of the Vessels Minerals Pad under the Original Agreement will be rescinded and will have no further force or effect. Crestone agrees and covenants that it will not develop the Vessels Minerals pad site provided that it receives all necessary approvals for the Acme Pad.

**9. Oskarson Well Pad.** The Oskarson well pad identified in the Original Agreement is within the Planning Area for the Town of Frederick as of the Execution Date. Accordingly, the prior authorization of the Oskarson well pad is rescinded and has no further force or effect.

**10. Pratt and Waste Connection Pads.** The Pratt and Waste Connection pads were previously developed outside the terms of this Agreement. The Parties agree that the Town Review Process and the BMPs will apply to any new wells drilled by Crestone from the Pratt or Waste Connection pads during the Term. Crestone also will obtain all necessary approvals for such new wells under the then-current Town Regulations. In the case of a conflict between this Agreement and the then-current Town Regulations, the more stringent requirements will apply.

**11. Pipeline Compensation.** Crestone will incur substantial additional construction and production costs associated with the longer lateral well bores that are required to shift development from the Vessels Minerals Pad Site to the Acme Pad Site. To offset a portion of these additional costs, Erie will not require any payment, fee, or other compensation for or in connection with the construction and operation of the Flowlines and Gathering lines that are associated with the Identified Pad Sites and the Hub, including any payment, fee, or other compensation for crossing Town property and roads for this purpose.

**12. Master Pipeline License.** Within thirty (30) calendar days after the Execution Date, Erie and Crestone will negotiate in good faith and execute, on mutually agreeable terms, a Master Pipeline License to authorize the construction and operation of all Flowlines and Gathering lines that are associated with the Identified Pad Sites and the Hub, and to cross Town property and roads for the same purpose (the "MPL"). The Parties agree that time is of the essence for negotiating and executing the MPL. The MPL will, at a minimum: (a) identify the Flowlines, Gathering lines, and other Related Facilities, set forth on Appendix C, that will be subject to the MPL; (b) identify the associated Town property and roads that may require access for Crestone's operations; (c) outline the process by which Erie will grant approval, which will not be unreasonably withheld, conditioned, or delayed, for licenses and easements in furtherance of Crestone's operations; (d) pursuant to Article IV, Section 11, specify that no payment, fee, or other compensation will be due

from Crestone for or in connection with the licenses and easements; (e) specify the term of the MPL, which will be for the anticipated life of all wells located on the Identified Pad Sites; (f) allow for the transferability of Crestone's interests in the licenses and easements; and (g) provide for reimbursement to Crestone for all relocation expenses if Erie determines that relocation of any Flowlines or Gathering lines are necessary after approval of the licenses or easements related to such Flowlines or Gathering lines. Once authorized under the MPL, Erie will not revoke any permit, right-of-way, license, or easement associated with this Agreement, the MPL, or Crestone's operations unless reasonably necessary to relocate Crestone's facilities, at which point, Erie will pay the full cost and expense of relocating Crestone's facilities, including any consequential expenses incurred by Crestone as a result of the relocation. If additional documentation is necessary to cross Town property, then Erie will promptly execute such documentation without unreasonable delay or condition. Nothing in this Article IV, Section 12 will be construed to be a waiver by the Town of the right to exercise its police power or its legislative authority regarding the matters set forth in this Section. Consistent with Article X, Section 20 of the Colorado Constitution, any financial obligation of the Town incurred pursuant to this Article IV, Section 12 and not performed during the current fiscal year is subject to annual appropriation, will extend only to monies currently appropriated, and will not constitute a mandatory charge, requirement, debt or liability beyond the current fiscal year.

## **ARTICLE V. OTHER PROVISIONS**

**1. No Waiver of Rights.** The Parties acknowledge and agree that this Agreement will not be used as evidence that either Party has waived any rights to assert its claims concerning the validity of Erie's land use authority or jurisdiction or Crestone's rights to develop its mineral resources. Nothing herein will be construed as an admission by either Party of any legal right or obligation.

**2. Force Majeure.** Neither Party will be liable for any delay or failure in performing under this Agreement in the event and to the extent that the delay or failure arises out of causes beyond a Party's reasonable control, including, without limitation, war, civil commotion, act of God, strike or other stoppage (whether partial or total) of labor, any law, decree, regulation or order of any government or governmental body (including any court or tribunal), or inability to obtain permits, licenses, consents, easements, or rights-of way. If any Party is rendered, wholly or in part, unable to carry out its obligations under this Agreement due to any such force majeure event, it is agreed that, upon the affected Party's giving notice and a description of such delay in reasonable detail in writing to the other Party as soon as reasonably possible after the occurrence of the causes relied on, the obligation of the Party giving such notice, so far as it is affected by such condition or event, will be suspended and any time periods will be extended for a period equal to the period of the continuance of the event or condition.

**3. Authority to Execute Agreement.** Each Party represents that it has the full right and authority to enter into this Agreement.

**4. Governing Law.** This Agreement will be governed and construed in accordance with the laws of the State of Colorado without reference to its conflicts of laws provisions.

**5. No Third-Party Beneficiaries.** Except for the rights of enforcement by the COGCC with respect to the BMPs, this Agreement is not intended to, and does not, create any right, benefit, responsibility or obligation that may be enforced by any non-party. Additionally, nothing in this Agreement will entitle any third party to any claims, rights or remedies of any kind.

**6. Inspections.** The Operator agrees to allow the Erie access to the well pads, provided the Town personnel are equipped with all appropriate personal protection equipment (PPE), that such personnel comply with the Operator's customary safety rules and are accompanied by an Operator's representative. Erie will be responsible for all of its costs and expenses of such inspections and likewise the Operator will be responsible for all off its costs and expenses of such inspections. Erie will use its best efforts to provide advance notice to the Operator prior to an inspection; however, Erie reserves the right in its discretion to make spot inspections or to inspect without notice in the event of an issue potentially involving an immediate risk to public safety, health or welfare or damage to the property of another. Erie agrees to provide the Operator with the results of any spot inspections within forty-eight (48) hours of the inspection. Additionally, Erie reserves the right to contact the appropriate COGCC or CDPHE area inspector if non-compliance issues are suspected or identified as a result of field inspections or if non-compliance issues are not resolved expeditiously.

**7. Notices.** All notices and other correspondence related to this Agreement will be in writing and will be delivered by: (i) certified mail with return receipt, (ii) hand delivery with signature or delivery receipt provided by a third party courier service (such as FedEx, UPS, etc.), (iii) fax transmission if verification of receipt is obtained, or (iv) email with return receipt, to the designated representative of the Party as indicated below. A Party may change its designated representative for notice purposes at any time by written notice to the other Party. The initial representatives of the Parties are as follows:

Erie: Town of Erie  
645 Holbrook Street  
P.O. Box 750  
Erie, Colorado 80516  
Attn: Town Administrator  
Telephone: 303.926.2710  
Fax: 303-926-2706  
Email: [townadministrator@erieco.gov](mailto:townadministrator@erieco.gov)

Crestone: Crestone Peak Resources LLC  
1801 California Street, Suite 2500  
Denver, Colorado 80202  
Attn: Jason Oates  
720-410-8500  
Email: [Jason.oates@crestonepr.com](mailto:Jason.oates@crestonepr.com)

**8. Dispute Resolution.** If either Party believes that the other Party has violated any provision of this Agreement, the Party claiming that a violation has occurred will send written notice to the other Party, identifying the violation and invoking the dispute resolution process in this Section. Upon receiving such written notice, the other Party will have thirty (30) calendar days to remedy the alleged violation, unless such violation involves operations at a well pad site, in which case the time period will be ten (10) days. If the other Party denies the alleged violation, then the Parties will meet to resolve the alleged violation within ten (10) or thirty (30) calendar days (as the case may be) of the date of delivery of the initial written notice. If a resolution of the matter cannot be achieved at the meeting, both Parties agree to make a reasonable effort to work through and with a mutually acceptable mediator to attempt to resolve the dispute. Notwithstanding the foregoing, if either Party believes that the dispute will not otherwise be resolved in a sufficiently prompt and effective manner, such Party may, at its discretion, institute a legal proceeding in a court of proper jurisdiction to seek appropriate remedies. Such remedies may include, without limitation, an injunction to stop an alleged violation or an order requiring the performance of all acts and things required by the Agreement. Provided, however, that no such legal proceeding will be initiated for a period of at least thirty (30) calendar days after delivery of the initial written notice. If the dispute involves operations at a well pad site, then Crestone will not commence operations at a subsequent well pad site until both the meeting between the Parties and if applicable the mediation have concluded.

**9. New Technologies.** Notwithstanding the BMPs outlined in Appendix A, the Town may propose to Crestone, in writing, new technologies reasonably believed to have a material benefit for public health, safety, welfare, and the environment within the Erie Town Limits. Such proposal will describe in sufficient detail: (i) the technology to be considered; (ii) the performance objective in this Agreement that is addressed by the technology; and (iii) support for why the technology will be materially beneficial. Crestone will consider the proposal in good faith and provide the Town with a written response within ten (10) business days stating whether and where Crestone will employ the proposed technology within the Erie Town Limits, and providing a brief explanation for why Crestone will or will not employ the proposed technology. Crestone on its part will notify the Town in writing of any new technology that it seeks to implement that would have a material benefit to public health, safety, welfare, and the environment and will seek written

approval from the Town to modify one or more of the BMPs set forth in this agreement as necessary to employ the proposed technology at a particular Identified Well Pad.

**10. Odor Management.** Crestone has previously used Gibson D822 drilling fluid when drilling new wells within the Operator Agreement Area. To improve odor management, Crestone will no longer use Gibson D822 drilling fluid within the Operator Agreement Area after the Execution Date. As required by the Odor Management Plan, Crestone will continue to evaluate alternatives to the Gibson D822 drilling fluid which have the potential to eliminate any odors associated with that fluid, and Crestone will continue to evaluate different additive formulations that have the potential to better suppress odors, including but not limited to additives that are not diesel-based.

**11. Amendments to Agreement.** No changes, alterations or modifications to any of the provisions hereof will be effective unless contained in a written agreement signed by both Parties.

**12. Assignment.** Crestone may convey or assign its rights and obligations for any or all of the Identified Well Pads provided that such conveyance or assignment includes both Crestone's rights and its obligations for the subject Identified Well Pads. For purposes of this paragraph, Crestone's rights include without limitation its vested development rights under Article IV, and Crestone's obligations include without limitation its BMP obligations under Appendix A.

**13. Public Nuisance.** Any development undertaken by Crestone under this Agreement will not constitute a public nuisance under the Nuisance Code so long as such development complies with the applicable Plans and Materials and the BMPs. Further, an operation in compliance with the Odor Mitigation Plan will not be deemed an odor nuisance under the Town's nuisance ordinance.

*[Signature page follows.]*

IN WITNESS WHEREOF, the Parties have caused this Agreement to be executed by a duly authorized representative on the day and year first above written.

**ERIE:**

THE TOWN OF ERIE

By: Jennifer Carroll

Name: Jennifer Carroll

Title: Mayor

Date: November 4, 2018

**CRESTONE:**

CRESTONE PEAK RESOURCES LLC

By: Jason C. Dates

Name: Jason C. Dates

Title: Director, External Affairs

Date: November 4, 2018

**APPENDIX A**  
**BEST MANAGEMENT PRACTICES FOR PAD SITE LOCATIONS**

**1. Distance to Erie Building Units.** For the Identified Well Pads, the minimum distance between a well or surface equipment, and the nearest exterior wall of an existing Erie Building Unit (as of the Effective Date) will not be less than the following:

Morgan Hill	2,190 feet
Woolley Beckey Sosa	1,010 feet
Woolley	2,450 feet
Erie Vessels	1,175 feet
Cosslett	1,150 feet
William Peltier	1,900 feet
Acme	532 feet

Compliance with this requirement will be determined from the actual as-built locations of the well or surface equipment. Nothing herein will be construed to grant Crestone any surface rights on property owned by the Town or another person. No Identified Pad Site will be located on Town property without authorization by the Town Board of Trustees.

**2. Abandonment and Decommissioned Well Testing.**

*A. Well Abandonment.* Crestone will comply with any COGCC rules regarding well abandonment. Upon plugging and abandonment of a well, Crestone will provide the Director with surveyed coordinates of the abandoned well and will leave onsite a permanent physical marker of the well location provided that approval from the surface owners can be obtained.

*B. Plugged and Decommissioned Well Testing.* Prior to and following the fracturing of any new well, Crestone commits to provide a copy of any required inventory and well report it sends to the COGCC or conditions or requirements it receives from the COGCC pursuant to the COGCC's DJ Basin Horizontal Offset Policy dated June 20, 2013 and revised December 17, 2013.

**3. Air Quality.**

*A. Hub.* In an effort to reduce air emissions, Crestone has constructed a central gathering and storage facility at a location in 1N-68W-Section 21 (the "Hub") to receive liquids from the wells which are the subject of this Agreement. As a result, Crestone will not install hydrocarbon storage tanks at these pad sites, which will eliminate potential sources of hydrocarbons from the sites. However, Crestone will still install at the pad sites all other equipment and facilities necessary for the production of hydrocarbons, including wellhead equipment, separation equipment, electrical equipment, and temporary flowback equipment (including temporary storage tanks). In addition, this BMP is subject to Article IV, Sections 3 and



4 of the Agreement.

*B. Well Completion.* For each well completion operation with hydraulic fracturing, Crestone will control emissions by the following procedures.

i. For the duration of flowback, route the recovered liquids into one or more storage vessels or re-inject the recovered liquids into the well or another well, and route the recovered gas into a gas flow line or collection system, re-inject the recovered gas into the well or another well, use the recovered gas as an onsite fuel source, or use the recovered gas for another useful purpose that a purchased fuel or raw material would serve, with no direct release to the atmosphere.

ii. If compliance with the prior paragraph is infeasible, Crestone must capture and direct flowback emissions to a completion combustion device equipped with a reliable continuous ignition source over the duration of flowback, except in conditions that may result in a fire hazard or explosion, or where high heat emissions from a completion combustion device may negatively impact waterways or nearby structures. Non-flammable gas may be vented temporarily until flammable gas is encountered where capture or combustion is not feasible.

*C. Production.* Gas produced during production will be captured and not flared or vented to the maximum extent practicable.

*D. Combustion Devices.* If using a pilot flame ignition system, the presence of a pilot flame must be monitored using a thermocouple or other equivalent device to detect the presence of a flame. A pilot flame must be maintained at all times in the flare's pilot light burner. If the pilot flame goes out and does not relight, then if no telemetry system is in place, a visible alarm will be in place on-site and activated. If using an electric arc ignition system, the arcing of the electric arc ignition system must pulse continually and a device must be installed and used to continuously monitor the electric arc ignition system.

*E. Air Quality Generally.*

i. Minimization of Emissions. To protect air quality, the following will be required:

a. The use of electric equipment and line power to the maximum extent practicable and if available at the site.

b. The use of Tier 2 and liquefied natural gas dual fuel hydraulic fracturing pumps. If Tier 4 fracturing pumps become economically practicable, technologically feasible, and readily available through the Liberty Quiet Fleet or comparable technology consistent with BMP No. 7.A, then Crestone will begin using such Tier 4 fracturing pumps. The use of diesel and natural gas co-fired Tier 2 or Tier 3 engines and natural gas fired spark ignition engines.

c. Comply with traffic provisions set forth in the Traffic Management

Plan, including any limitations on truck traffic to and from the site.

d. The utilization of pipelines for all transportation of gas and fluids from the sites.

e. Manufacture test or other data demonstrating hydrocarbon destruction or control efficiency that complies with a design destruction efficiency of 98% or better. This does not require a determination by the APCD that the design destruction efficiency is 98%.

f. Any flare, auto ignition system, recorder, vapor recovery device or other equipment used to meet the hydrocarbon destruction or control efficiency requirement will be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals. Telemetric control and monitoring systems, including surveillance monitors to detect when pilot lights on control devices are extinguished.

g. No use of glycol dehydrators.

h. No use of desiccant gas processing dehydrators.

i. Year-round compliance with odor standards pursuant to COGCC and CDPHE regulations.

j. Reduction or elimination of emissions of associated gas from hybrid gas-oil wells (*i.e.*, gas that is co-produced from a well that primarily produces oil), including prohibition of uncontrolled venting.

k. Best management practices during liquids unloading (*i.e.*, maintenance activities to remove liquids from existing wells that are inhibiting production), including at least 90% emissions reduction when utilizing combustion and the installation of artificial lift or unloading through the separator where feasible.

l. Reduction or elimination of emissions from oil and gas pipeline maintenance activities such as pigging or blowdowns. If any maintenance activity will involve the intentional venting of gas from a well tank, compressor or pipeline, beyond routine pipeline maintenance activity and pigging, the operator will provide forty-eight (48) hour advance written notice to the Town of such proposed venting. Such notice will identify the duration and nature of the venting event, a description as to why venting is necessary, a description of what vapors will likely be vented, what steps will be taken to limit the duration of venting, and what steps the operator proposes to undertake to minimize similar events in the future. If emergency venting is required, or if accidental venting occurs, the operator will provide such notice to the Town of such event as soon as possible, but in no event longer than 24 hours from the time of the event, with the information listed above and with an explanation as to the cause and how the event will be avoided in the future.

- m. Compliance with dust suppression techniques
  - n. Compliance with odor requirements set forth in the Odor Management Plan.
  - o. Centralization of compression facilities within a well site.
  - p. Operator will comply with all CDPHE air permits, if any, and will comply with all OSHA work practice requirements with respect to benzene.
  - q. Flaring will be eliminated or minimized to the maximum extent practicable.
  - r. Exhaust from all stationary engines, motors, chillers and other mechanized equipment will be vented by such equipment up or in a direction away from the closest occupied structures to such equipment.
  - s. Use of a pressure-suitable separator and/or vapor recovery unit (VRU) if applicable.
  - t. Flowline infrastructure will be constructed prior to the Production Phase.
  - u. Hydrocarbon control of 98% or better for crude oil, condensate, and produced water tanks with uncontrolled actual emissions of volatile organic compounds greater than two (2) tons per year.
  - v. No open vents to atmosphere unless specifically approved by Town.
- ii. Leak Detection and Repair. Crestone will develop and maintain an acceptable leak detection and repair ("LDAR") program as required by CDPHE using modern leak detection technologies such as infra-red cameras for equipment used on the well sites. IR camera monitoring will occur on a monthly frequency at well sites. The first inspection will occur within 30 days of the facility commencing production. Crestone will maintain records of all leaks found, date the leaks were repaired and the date the location is re-screened to verify that the leak has been repaired. Such records must be maintained for two years and must be made available to the Town upon request. Except when an emergency circumstance would necessitate an immediate repair, Crestone must repair leaks as quickly as practicable. If more than five (5) days repair time is needed after a leak is discovered, an explanation of why more time is required must be submitted to the Town. At least once per year, Crestone will notify the Town five (5) business days prior to an LDAR inspection of its facilities to provide the Town the opportunity to observe the inspection.
- iii. Ambient Air Sampling. Crestone will conduct, as approved by the Town, a specific ambient air quality test that includes:

a. Pre-construction baseline air quality testing will be completed within 500 feet of the well sites provided that approval from surrounding surface owners can be obtained.

b. The monitoring will be conducted by a consultant mutually agreed to by both Crestone and the Town and paid for by Crestone.

c. In addition, the Town may require Crestone to conduct additional air monitoring as needed to respond to emergency events such as spills, process upsets, or accidental releases.

d. Crestone will provide access to the well sites to the Town's third-party inspector to allow air sampling to occur.

iv. Air Quality Action Days. Crestone will respond to air quality Action Day advisories posted by the CDPHE for the Front Range Area by implementing their suggested air emission reduction measures as feasible. Emission reduction measures will be implemented for the duration of an air quality Action Day advisory and may to the maximum extent practicable include measures such as:

a. Minimize vehicle and engine idling;

b. Reduce truck traffic and worker traffic;

c. Delay vehicle refueling;

d. Suspend or delay use of fossil fuel powered ancillary equipment;  
and

e. Postpone construction activities, to the maximum extent practicable.

v. Compliance. Crestone must submit annual reports to the Town certifying (a) compliance with these air quality requirements and documenting any periods of material non-compliance, including the date and duration of each such deviation and a compliance plan and schedule to achieve compliance, (b) that the equipment at the well sites continues to operate within its design parameters, and if not, what steps will be taken to modify the equipment to enable the equipment to operate within its design parameters. The annual report must contain a certification as to the truth, accuracy and completeness of the reports, signed by a responsible corporate official. Crestone may satisfy this reporting obligation in whole or in part by submitting its AQCC Regulations No. 7 annual reports for the prior calendar year to the Town. Crestone will also concurrently provide the Town with a copy of any self-reporting submissions that Crestone provides to the CDPHE due to any incidence of non-compliance with any CDPHE air quality rules or regulations at the well sites.

**4. Containment Berms.** Crestone will utilize steel-rim berms and will maintain containment areas and devices as required by COGCC Rules 603.h.(2).C, 604.c.(2).G, and 604.c.(3).B.

**5. Flowlines and Pipelines.** Crestone will comply with the requirements for flowlines set forth in COGCC Rules 1101 through 1105, which address: registration, construction standards, design, installation, reclamation, inspection, maintenance, repair, operation, and integrity management, of flowlines; pressure testing; leak protection, detection, and monitoring; and data sharing with local government.

**6. Chemical Disclosure and Storage.** Prior to bringing hydraulic fracturing chemicals onto a new well site, Crestone will make available to the Town the name of the chemicals that Crestone has previously used to hydraulically fracture similar wells in the Denver Julesburg Basin. Following the hydraulic fracturing of a new well, Crestone will provide the Town with a copy of the hydraulic fracturing report that Crestone submits to the FracFocus website under COGCC Rule 205A. Crestone will not permanently store fracturing chemicals, flowback from hydraulic fracturing, or produced water in the Erie Town Limits. Crestone will remove all hydraulic fracturing chemicals at a well site within thirty (30) days following the completing of hydraulic fracturing at that well site.

The following chemicals will not be added to the hydraulic fracturing fluids used at the well sites:

Ingredient Name	CAS #
Benzene	71-43-2
Lead	7439-92-1
Mercury	7439-97-6
Arsenic	740-38-2
Cadmium	7440-43-9
Chromium	7440-47-3
Ethylbenzene	100-41-4
Xylene	1330-20-7
1,3,5-trimethylbenzene	108-67-8
1,4-dioxane	123-91-1
1-butanol	71-36-3
2-butoxyethanol	111-76-2
N,N-dimethylformamide	68-12-2
2-ethylhexanol	104-76-7
2-mercaptoethanol	60-24-2
Benzene, 1,1'-oxybis-, tetrapropylene derivatives, sulfonated, sodium salts (BOTS)	119345-04-9
Butyl glycidyl ether	8-6-2426
Polysorbate 80	9005-65-6
Quaternary ammonium compounds, dicoco alkyl dimethyl, chlorides (QAC)	61789-77-3
Bis hexamethylene triamine penta methylene phosphonic acid (BMPA)	35657-77-3
Diethylenetriamine penta (methylene-phosphonic acid) (DMPA)	15827-60-8

FD&C blue no. 1	3844-45-9
Tetrakis(triethanolaminate) zirconium(IV) (TTZ)	101033-44-7

**7. Noise Mitigation.** All permanent equipment with engines or motors that can be electrified will be electrified from the power grid or from renewable sources if available at the site. All well pads that are not electrically operated should use quiet design mufflers (also referred to as hospital grade or dual dissipative) or equivalent; or acoustically insulated housing or covers to enclose the motor or engine.

*A. Quiet Technology.* Crestone agrees to use the Liberty Quiet Fleet or comparable technology from an alternative vendor on all well sites.

**8. Reclamation.** Crestone will promptly reclaim and reseed all disturbed sites in conformance with COGCC rules.

**9. Safety.**

*A. Automatic Safety Protective Systems and Surface Safety Valve.* All new wells will be equipped to operate remotely and will remotely shut the well in should certain upset conditions be detected. Additionally, the automated safety system provides the ability to remotely shut-in wells on demand through operator remote intervention.

*B. Discharge Valves.* Open-ended discharge valves on all storage tanks, pipelines and other containers will be secured where the operation site is unattended or is accessible to the general public. Open-ended discharge valves will be placed within the interior of the tank secondary containment.

*C. Fires and Explosions.* Crestone will provide Town with copies of all reports to the COGCC regarding any accident or natural event involving a fire, explosion or detonation.

*D. Fencing.* Oil and gas well facilities (above ground) will be fenced with wrought iron fencing or Ameristar Impasse or Stronghold fencing or approved equivalent, as determined by the Director. The fencing color will be bronze unless the Director approves black fencing. Black fencing will only be approved by the Director if fencing or site furnishings in the adjacent developments have approved black elements.

*E. Maintenance.* Crestone will at all times keep the well sites, roads, rights-of-way, facility locations, and other oil and gas operation areas safe and in good order, free of noxious weeds, litter and debris.

i. Crestone's oil and gas operations addressed in this Agreement will comply with COGCC rules concerning weed control. Crestone will be responsible for ongoing weed control at all locations disturbed by the operation and along access roads during construction and operation, until abandonment and final reclamation is completed.

ii. Crestone's oil and gas operations addressed in this Agreement will comply

with COGCC rules concerning removal of debris.

iii. Crestone will utilize vehicle tracking control practices to control potential sediment discharges from unpaved surfaces. Such practices may include road and pad design and maintenance to minimize rutting and tracking, controlling site access, street sweeping or scraping, tracking pads, and wash racks. Traction chains from heavy equipment will be removed before entering a public roadway.

**10. Site Disturbance.** Crestone's oil and gas operations addressed by this Agreement will be located and constructed in a manner so that there is no unnecessary or excessive site disturbance and that minimizes the amount of cut and fill:

A. Multi-well drill pads and consolidated facilities will be used to minimize surface disturbance.

B. Pad dimensions will be the minimum size necessary to accommodate operational needs while minimizing surface disturbance.

C. Structures and surface equipment will be the minimum size necessary to satisfy present and future operational needs.

D. The Operation will be located in a manner to minimize impacts on surrounding uses, and achieve compatibility with the natural topography and existing vegetation.

**11. Traffic and Access Road.**

A. *Access to Public Roads.*

i. Access points to public roads will be located, improved and maintained to assure adequate capacity for efficient movement of existing and projected traffic volumes and to minimize traffic hazards.

ii. If an access road intersects with a pedestrian trail or walk, Crestone will pave the access road as a hard surface (concrete or asphalt) a distance of one hundred (100) feet either side of the trail or walk and if necessary, replace the trail or walk to address the weight load requirements of the vehicles accessing the well and production facilities.

iii. Temporary access roads associated with Crestone's oil and gas operations addressed by this Agreement will be reclaimed and revegetated to the original state within sixty (60) days after discontinued use of the temporary access roads.

B. *Use of Existing Roads.* Unless traffic safety, visual or noise concerns, or other adverse surface impacts clearly dictate otherwise, existing roads on or near the site of Crestone's oil and gas operations addressed by this Agreement will be used in order to minimize land disturbance.

C. *Transportation, Roads, and Access Standards.*

i. *Compliance with Town Standards.* All public roads will be constructed and maintained in compliance with Town standards as necessary to accommodate the traffic and equipment related to Crestone's oil and gas operations and emergency vehicles.

ii. *Dust Suppression.* Dust associated with on-site activities and traffic on access roads will be minimized throughout construction, drilling and operational activities such that there are no visible dust emissions from access roads or the site to the extent practical given wind conditions.

**12. Visual Quality.** Crestone's oil and gas operations addressed by this Agreement will not cause significant degradation to the scenic attributes and rural character of the Town.

A. Facilities will be painted in a uniform, non-contrasting, non-reflective color to blend with the surrounding landscape and with colors that match the land rather than the sky. The color should be slightly darker than the surrounding landscape.

B. Crestone's oil and gas operations addressed by this Agreement should be buffered from sensitive visual areas by providing landscaping along the perimeter of the site between the surface equipment and the sensitive visual area.

C. Crestone's oil and gas operations addressed by this Agreement will be sited away from prominent natural features and visual, scenic and environmental resources such as distinctive rock and land forms, rivers and streams, and distinctive vegetative patterns.

**13. Water Quality.** Crestone's oil and gas operations addressed by this Agreement will not cause significant degradation of water quality of affected water bodies. Crestone will implement the required water quality monitoring plan. Determination of effects of the Operation on water quality may include, but is not limited to the following considerations:

A. Applicable narrative and numeric water quality standards.

B. Changes in point and nonpoint source pollution loads.

C. Increase in erosion and sediment loads.

D. Changes in stream channel or shoreline stability.

E. Changes in stormwater runoff flows.

F. Changes in quality of ground water.

G. Crestone must notify the Town of any spill of any material on permeable ground on the well sites that has a reportable spill quantity under any law. Crestone will also provide the



Town with a copy of any self-reporting submissions that Crestone provides to the COGCC due to any spills at the well sites.

*A. Vehicle and Machinery Maintenance.* Routine field maintenance of vehicles or mobile machinery will not be performed within three hundred (300) feet of any water body. All fueling must occur over impervious material.

*B. Wells.* Crestone will provide copies of test results performed by Crestone on wells within the Erie Town Limits under COGCC Rule 318A.

#### **14. Waste Management.**

*A. Disposal of Waste, Debris and Equipment.* Crestone will dispose of all water, unused equipment, litter, sewage, waste, chemicals and debris off of the site at an approved disposal site.

i. All equipment used for drilling, re-drilling and maintenance will be removed from the well pad site within thirty (30) days after completion of the work, unless otherwise agreed to by the surface owner. Permanent storage of equipment on well pad sites will not be allowed.

ii. Materials will not be buried on-site.

*B. Burning of Trash.* No burning of trash will occur in association with Crestone's operation.

*C. Wastewater and Waste Management.* Crestone must submit a waste management plan that complies with the following:

i. All fluids will be contained and there will be no discharge of fluids.

ii. Waste will be stored in tanks, transported by tanker trucks and/or pipelines, and disposed of at licensed disposal or recycling sites.

iii. The plan will incorporate secondary containment and stormwater measures consistent with the requirements set forth in this Agreement.

iv. No land treatment of oil impacted or contaminated drill cuttings are permitted.

v. Crestone will not dispose of any wastewater within the Town.

vi. All other waste will be disposed of in accordance with state regulations.

**15. Anchoring.** All permanent mechanized equipment associated with Crestone's operation will be anchored to minimize transmission of vibrations through the ground.

**16. Floodplain, Wetlands and Riparian Areas.** Crestone's oil and gas operations addressed by this Agreement will not have a significant adverse effect on the floodplain and will not significantly degrade wetlands and riparian areas. Crestone's oil and gas operations conducted within the Floodplain Overlay District will comply with Section 10.2.7.C of the UDC.

**17. Natural Resource Areas.** Crestone's oil and gas operations addressed by this Agreement may not be located as to cause significant degradation of natural landmarks, rare plant species, riparian corridors, wildlife habitat or other sensitive areas.

**18. Wildlife.** Crestone's oil and gas operations addressed by this Agreement will not cause significant degradation of wildlife or wildlife habitat.

**19. Historical and Cultural Resources.** Crestone's oil and gas operations addressed by this Agreement will not cause significant degradation to resources of historic, cultural, paleontological, or archeological importance.

**20. Public Services and Facilities.** Crestone's oil and gas operations addressed by this Agreement will not have a significant adverse effect on the capability of the Town to provide municipal services or the capacity of the service delivery systems.

**21. Training.** Crestone agrees to participate in voluntary programs to encourage innovation in pollution control at well sites, including programs by the COGCC and CDPHE.

**22. Drive By Inspections.** Crestone agrees to self-monitoring – drive through neighborhoods at various times and hear/smell/see what is going on during each phase.

**23. Contact information.** Crestone will include its contact information on both the mailed notice required by Article III, Section 8 and the posted notice required by Article III, Section 9. This information will include a telephone number for Crestone. Members of the public with concerns or complaints regarding the oil and gas development covered by this Agreement may use this information to speak with Crestone.

**24. Lighting.** Crestone will install down cast lighting or some other form of lighting that mitigates light pollution and spill-over onto adjacent properties; provided, however, that Crestone may still use lighting that is necessary for public and occupational safety.

**25. Class II underground injection control wells.** Crestone will not develop any new Class II underground injection control wells within the Operator Agreement Area during the Term of this Agreement.

**26. Recycling and reuse.** Crestone will recycle and reuse water at the pad sites and otherwise minimize waste water production to the extent that it determines such recycling, reuse, and waste water minimization is technically and economically feasible.

**27. Town water supply.** To reduce truck traffic, Erie and Crestone will encourage the use of nearby water resources for the drilling and hydraulic fracturing of wells at the pad sites, including the use of Erie municipal water when determined technically feasible and economically practicable by Crestone.

**28. Road repairs.** If the projected use of public roads as a result of Crestone's oil and gas operations addressed by this Agreement will result in a need for an increase in roadway maintenance, Crestone will enter into a road maintenance agreement with the Town whereby Crestone provides for private maintenance or reimburses the Town for such increased costs and/or provides a bond or other financial assurance in an amount acceptable to the Town to cover the costs of mitigating impacts to public roads.

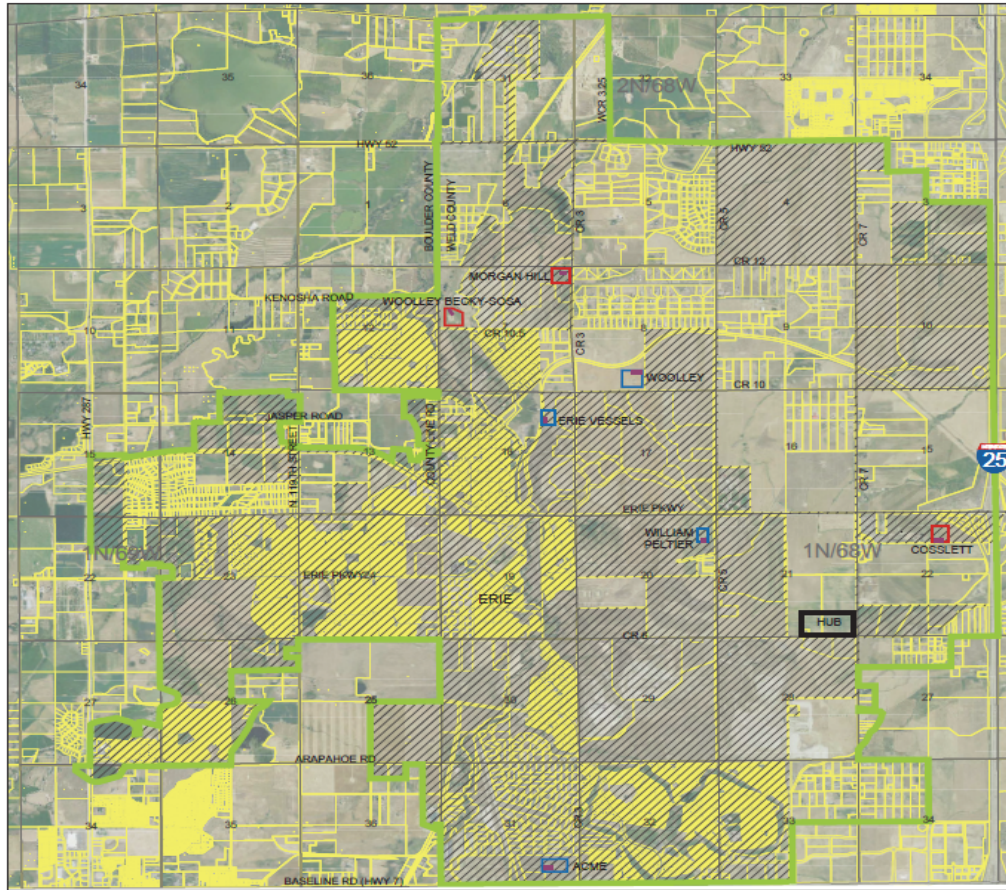
**29. Operations conducted in accordance with plans.** Crestone will conduct all operations in accordance with the plans discussed during the Conceptual Review Process as updated from time to time.



**30. Revision of best management practices.** Upon the request of either Party, the Parties may revise one or more of these BMPs if they mutually agree such revision would better avoid or mitigate impacts the BMP(s) is intended to address.

**31. Conflict with COGCC Requirements.** If the COGCC imposes any terms or conditions on Crestone's operations that are subject to this Agreement that conflict with these BMPs, the more stringent requirement will apply. If a BMP is satisfied through compliance with COGCC regulations, the COGCC has the sole authority to determine whether a violation of the COGCC requirements has occurred, and such determination by the COGCC will conclusively establish Crestone's compliance with the corresponding BMPs. If the COGCC determines that the COGCC requirements have been violated, then the COGCC's resolution of such alleged violation will constitute all enforcement due with respect to the corresponding BMPs under this Agreement.

# APPENDIX B

## OPERATOR AGREEMENT AREA MAP



LEGEND	
	Developed Pad Sites
	Undeveloped Pad Sites
	Parcel Boundary
	Incorporated Erie
	Operator Agreement Area
	Well Pad Facilities



**CRESTONE PEAK**  
RESOURCES

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**IDENTIFIED WELL PADS WITHIN THE  
OPERATOR AGREEMENT AREA**

WELD COUNTY, COLORADO

SCALE: 1" = 4000'      SEPTEMBER 13, 2018

# Odor Control Plan

## Crestone Peak Resources Operating LLC

This Odor Control Plan is designed to establish procedures to minimize and mitigate odors associated with Crestone's oil and gas operations near of Erie, Colorado, and is intended to become an integrated part of Crestone's daily operations to diligently and effectively identify and mitigate odors generated by Crestone's oil and gas exploration and production operations.

In response to several complaints from Erie residents during drilling and completion operations at its Pratt wellsite, Crestone retained Scentroid, a world-renowned odor consultant, to assess any odors related Crestone's drilling and completion operations near Erie. Scentroid conducted its assessment according the Colorado Department of Public Health and Environment (CDPHE) regulatory framework for five days, starting September 5, 2017. The field assessment showed that Crestone's operations did not exceed regulatory limit of 7 D/T (8 OU/m<sup>3</sup>) set forth in CDPHE's Regulation No. 2, 5 C.C.R. § 1001-4. Two instances exceeded the 7 D/T limit, but the source of these exceedances was municipal waste odors emanating from waste collection trucks associated with the adjacent Denver Landfill. Despite the lack of any evidence that Crestone's operations exceeded CDPHE's odor threshold, Crestone is implementing this Odor Control Plan to ensure that any odors emanating from its operations are a low as reasonably practicable.

### *Potential Odor Sources*

The Scentroid odor assessment evaluated the odor impacts of both the Pratt well site and other potential odor sources in the vicinity of the Pratt well site. Scentroid employed in-field olfactometers and collected samples for laboratory analysis to measure both odor intensity and concentration. Scentroid collected samples of drilling fluid used at the Pratt well site that were analyzed in Scentroid's laboratory to determine exact emission rates from all sources inside Crestone's drilling operation. The samples were warmed up until they reached the actual operating conditions at the Pratt wellsite. The emission rates were used in atmospheric dispersion modeling software to predict odor impact of the operation for all metrological condition over a 5-year period.

Scentroid identified several potential odor sources in the same area as the Pratt well site, including: (i) the Denver landfill; (ii) the sewer network, (iii) the central processing HUB area, (iv) mobile sources, including garage trucks, and (v) other drilling sites. Scentroid concluded that the primary odor contributor, which exceeded the odors generated by Crestone's operations, is the adjacent Denver Landfill, located directly east of Crestone's Pratt wellsite. The landfill processes municipal waste and drill cuttings from other drilling operations in the region. The odor emitting from these drill cuttings is indistinguishable to odors generated from Crestone's drilling operations. Thus, it is extremely difficult to separate landfill odors from those of Crestone's operations downwind of both facilities. The landfill's impact from only the processing of drill cuttings exceeded 10 OU at the same locations that generated complaints in Erie regarding Crestone's operations.

With respect to odor sources at Crestone's operations, Scentroid concluded that the most likely potential source of odor was the Gibson D822 drilling fluid Crestone used during the drilling operations. Based on this finding, Scentroid identified three areas where the drilling fluid odor had the highest potential to emit: (i) drilling pipes coated with drilling fluid being stored in the pipe rack; (ii) the suction tank, which receives crude oil as it comes from the well, and (iii) the shaker tank, which is a tank adjacent to the suction tank, used to separate drill cuttings from the drilling fluid.

### *Odor Mitigation Measures*

At the time of Scentroid's investigation, Crestone employed the following odor mitigation measures: Crestone erected walls around the Pratt well site to limit air flow through the well site; Crestone added odor-suppression liquid to its drilling mud to neutralize odors; and Crestone installed a chiller to cool the drilling fluid as it was piped through the recirculation system before routing to the suction tanks. Going forward, Crestone will continue to implement each of these measures.

In addition, Crestone will enclose the suction tank and shaker tanks. Crestone also will evaluate alternatives to the Gibson D822 drilling fluid system which have the potential to reduce odors associated with that system, and Crestone will continue to evaluate different additive formulations that have the potential to better suppress odors, including but not limited to non-diesel based additives. During flowback and well completions, Crestone will utilize closed-loop green completion techniques to the maximum extent practicable to minimize emissions and the flaring of natural gas.

In consultation with Erie, Crestone also will evaluate and employ one or more of the following additional measures as necessary on a site-by-site basis to comply with the 8 OU/m<sup>3</sup> standard such as covering trucks transporting drill cuttings, covering the drilling fluid mixing tanks, using a squeegee to remove drilling fluids from pipes as they exit the wellbore and ensuring that all drilling fluid is removed from pipes before storage. All of these additional measures focus on reducing air flow over these sources and reduce evaporation. If one or more of these additional measures do not contribute to maintaining odor compliance with the 8 OU/m<sup>3</sup> standard, Crestone reserves the right after consulting with Erie to adjust them at future sites in Erie as necessary to further minimize odor.

### *Routine Odor Monitoring*

In addition to the routine audio, visual, and olfactory (AVO) screening Crestone's well site personnel conduct during each 12-hour shift, Crestone will conduct regular odor monitoring during drilling and completion operations to safeguard against odor emissions. Surveys conducted with equipment that is sensitive to environmental conditions such as an optical gas imaging camera or olfactometer should be conducted in accordance with the manufacturer's recommendations. If surveys are delayed because of environmental conditions, this should be documented and the survey schedule should resume once those conditions cease to exist. The primary objective of this monitoring is to identify and mitigate odors from a well site before the odors can migrate off-site. Trained Crestone personnel will perform routine odor monitoring

every 72 hours during active drilling operations, using a field olfactometer. In addition, Crestone will conduct a survey using trained personnel or an automated system to identify potential odor source areas with an infrared LDAR camera to identify any hydrocarbon emissions.

If any odor trends are identified, the monitoring schedule will be modified to prioritize periods of highest odor detections. If an odor is documented, the investigator will attempt to identify the source of the odor. If the odor source is determined to be Crestone's operations, the investigator will request the necessary mitigation measures.

In addition, at any time a Crestone employee, contractor or subcontractor detects an odor that has sufficient concentration and intensity that it could lead to detection off-site, it will be reported to Crestone's drilling or completions superintendents, who initiate an investigation of the source of the odor if Crestone's operations could be an odor source. The investigator will then assign the proper staff to restore the source area to normal operation to eliminate the odor source. Such on-site investigation, reporting, and remediation are inherent components of Crestone's standard operating procedures. Crestone will conduct training sessions on how to detect strong odors.

#### *Odor Complaint Protocols*

One of Crestone's primary goals is to be a good neighbor and a contributor to the local community. All real-time odor complaints received either from Erie or from a complainant directly will be investigated as soon as is practicable considering appropriate safety protocols and site logistics. Odor complaints should be made to Erie at an email account to be established by Erie, but Crestone will also accept complaints directly through Crestone's Community Relations Hotline at 720-410-8537. The following information will be helpful in investigating complaints:

- Time and date of complaint
- Complaint location
- Complainants name
- Nearest oil and gas facility or operation, if known.
- Odor Intensity (0-5)
- Duration of the exposure
- Description of the odor

Crestone will ensure that the Community Relations Hotline is adequately staffed to appropriately respond to complaints in a timely manner. Crestone will inform the complainant that they should also submit the complaint to Erie, which can assist them in contacting the CDPHE and COGCC should they wish to do so.

Crestone will consider a complaint shared or filed with Crestone within one hour of the observation time and prior to any significant change in meteorological conditions to be a real-time complaint. The goal of the investigation will be to determine if an odor originates from

Crestone's operations and, if so, to determine the specific source and cause of the odor, and then to promptly mitigate the odor. Upon receipt of an odor complaint, Crestone will take following actions:

- The complaint will be investigated by trained Crestone personnel using the same protocols and methodology used for routine odor monitoring.
- The investigation will be documented in an electronic database and will apply the same odor ranking scale as Crestone's routine odor monitoring.
- If a complaint is verified (i.e., the investigator confirms the presence of an odor and Crestone's operations cannot be ruled out as a source), the investigator will immediately take steps to identify the source of the odor, request the necessary mitigation, and document that the mitigation has been completed.
- All off-site odor complaints to Erie, COGCC or CDPHE should be included in the data collection to identify any odor-complaint trends, evaluate the effectiveness of odor monitoring, and to identify potential recurring odor-generating activities.

Complaints received more than one hour after the odor detection or after a significant change in meteorological conditions will be investigated as non-real-time complaints. Non-real-time complaints will be investigated through a combination of recent monitoring data, weather data, and site work schedules to determine if the alleged odor could have originated from Crestone's operations.

#### *Odor Source Identification*

Once an odor is identified through either routine monitoring or through investigation of an odor complaint, Crestone personnel will as soon as possible take steps to identify the source of the odor using the odor ranking scale used for routine monitoring. If the source of the odor cannot be traced immediately to Crestone operations, the following steps should be used to identify the source of the odor. These steps will be completed within 24 hours if the complaint is received during normal business hours or 24 hours after the beginning of the next business day if the complaint is received after normal business hours:

- Record data from the on-site wind speed and direction monitoring equipment at the time the odor was identified.
- Collect daily facility monitoring data for the site.
- Using an aerial photograph or plan of the facility, draw a vector in the same direction as the wind, and intersect the location where the odor was identified. If the vector crosses the facility and the facility is upwind of the location where the odor was reported, then identify any Crestone facilities and operations that lie along the vector. Compare the identified odor to any potential odor sources along the vector path and then inspect Crestone's operations to determine whether they are an odor source.



- If Crestone operations are identified as a potential odor source, collaborate with Crestone's operational staff to prioritize odor-mitigation efforts.
- Perform a follow up self-inspection to verify successful mitigation of off-site odors. If not eliminated, repeat this process at varying times of the day, under varying operational conditions, and with varying wind directions until the source of the odor is identified and mitigated.

#### *Documentation*

To successfully evaluate the ongoing effectiveness of odor detection and mitigation, trends in the causes of odors, odor complaint response and follow-up, and to focus efforts on the best solutions for odor management, proper documentation must be created and maintained. This documentation will consist of an electronic database for odor routine monitoring and odor complaint investigations, and odor mitigation efforts.

To successfully track and analyze routine odor monitoring, complaint-investigation, and odor mitigation measures, data associated with these tasks will be systematically recorded. This data set will be designed in a format that allows for export of the data into Microsoft Excel® or similar data-management software and will be made available to Erie.