APPENDIX A

604. SETBACK AND MITIGATION MEASURES FOR OIL AND GAS FACILITIES, DRILLING, AND WELL SERVICING OPERATIONS

a. **Setbacks.** Effective August 1, 2013:

(1) **Exception Zone Setback.** No Well or Production Facility shall be located five hundred (500) feet or less from a Building Unit except as provided in Rules 604.a.(1) A and B, and 604.b.

A. Urban Mitigation Areas. The Director shall not approve a Form 2A or associated Form 2 proposing to locate a Well or a Production Facility within an Exception Zone Setback in an Urban Mitigation Area unless:

i. the Operator submits a waiver from each Building Unit Owner within five hundred (500) feet of the proposed Oil and Gas Location with the Form 2A or associated Form 2, or obtains a variance pursuant to Rule 502; and

ii. the Operator certifies it has complied with Rules 305.a, 305.c., and 306.e.; and

iii. the Form 2A or Form 2 contains conditions of approval related to site specific mitigation measures sufficient to eliminate, minimize or mitigate potential adverse impacts to public health, safety, welfare, the environment, and wildlife to the maximum extent technically feasible and economically practicable; or

iv. the Oil and Gas Location is approved as part of a Comprehensive Drilling Plan pursuant to Rule 216.

B. Non-Urban Mitigation Area Locations. Except as provided in subsection 604.b., below, the Director shall not approve a Form 2 or Form 2A proposing to locate a Well or a Production Facility within an Exception Zone Setback not in an Urban Mitigation Area unless the Operator certifies it has complied with Rules 305.a., 305.c., and 306.e., and the Form 2A or Form 2 contains conditions of approval related to site specific mitigation measures sufficient to eliminate, minimize or mitigate potential adverse impacts to public health, safety, welfare, the environment, and wildlife to the maximum extent technically feasible and economically practicable.

(2) **Buffer Zone Setback.** No Well or Production Facility shall be located one thousand (1,000) feet or less from a Building Unit until the Operator certifies it has complied with Rule 305.a., 305.c., and 306.e. and the Form 2A or Form 2 contains conditions of approval related to site specific mitigation measures as necessary to eliminate, minimize or mitigate potential adverse impacts to public health, safety, welfare, the environment, and wildlife.

(3) **High Occupancy Buildings**. No Well or Production Facility shall be located one thousand (1,000) feet or less from a High Occupancy Building Unit without

Commission approval following Application and Hearing. Designated Setback Location and Exception Zone Setback mitigation measures pursuant to Rule 604.c. shall be required for Oil and Gas Locations within one thousand (1,000) feet of a High Occupancy Building, unless the Commission determines otherwise.

(4) **Designated Outside Activity Areas.** No Well or Production Facility shall be located three hundred fifty (350) feet or less from the boundary of a Designated Outside Activity Area. The Commission, in its discretion, may establish a setback of greater than three hundred fifty (350) feet based on the totality of circumstances. Designated Setback Location mitigation measures pursuant to Rule 604.c. shall be required for Oil and Gas Locations within one thousand (1,000) feet of a Designated Outside Activity Area, unless the Commission determines otherwise.

(5) **Maximum Achievable Setback**. If the applicable setback would extend beyond the area on which the Operator has a legal right to locate the Well or Production Facilities, the Operator may seek a variance under Rule 502.b. to reduce the setback to the maximum achievable distance.

604.b. **Exceptions.**

(1) **Existing Oil and Gas Locations.** The Director may grant an exception to setback distance requirements set forth in Rule 604 within a Designated Setback Location when a Well or Production Facility is proposed to be added to an existing or approved Oil and Gas Location if the Director determines alternative locations outside the applicable setback are technically or economically impracticable; mitigation measures imposed in the Form 2 or Form 2A will eliminate, minimize or mitigate noise, odors, light, dust, and similar nuisance conditions to the extent reasonably achievable; the proposed location complies with all other safety requirements of these Commission Rules; and:

A. An existing or approved Oil and Gas Location is within a Designated Setback Location solely as a result of the adoption of Rule 604.a., above, which established the Designated Setback Locations; or

B. The Oil and Gas Location is located within a Designated Setback Location solely as a result of Building Units constructed after the Oil and Gas Location was approved by the Director.

(2) **Existing Surface Use Agreement or Site Specific Development Plan**. The Director shall grant an exception to setback requirements set forth in Rule 604.a. for a Surface Use Agreement or site specific development plan (as defined in § 24-68-102(4)(a), C.R.S. that establishes vested property rights as defined in § 24-68-103, C.R.S.), that was executed on or before August 1, 2013, and which expressly governs the location of Wells or Production Facilities on the surface estate, provided mitigation measures imposed in the Form 2 or Form 2A will eliminate, minimize or mitigate noise, odors, light, dust, and similar nuisance conditions to the extent reasonably achievable and the location complies with all other safety requirements of these Commission Rules.

(3) **Surface Development after August 1, 2013 Pursuant to a Surface Use Agreement or Site Specific Development Plan.** A Surface Owner or Building Unit owner and mineral owner or mineral lessee may agree to locate future

Building Units closer to existing or proposed Oil and Gas Locations than otherwise allowed under Rule 604.a. pursuant to a valid Surface Use Agreement or site specific development plan (as defined in § 24-68-102(4)(a), C.R.S., that establishes vested property rights as defined in § 24-68-103, C.R.S.) that expressly governs the location of Wells or Production Facilities on the surface estate. All setback, notice, consultation and meeting requirements contained in Rules 305, 306, and 604.a shall apply with respect to all Building Units that are not governed by the applicable SUA or site specific development plan. Copies of any applicable SUA or site specific development plan shall be submitted by the Operator with a Form 2A Application or associated Form 2 for a proposed Oil and Gas Location on the relevant surface estate.

(4) In the event the Director refuses to grant an exception or variance requested pursuant to Rule 604.a.(5) or 604.b., a hearing before the Commission shall be held at the next regularly scheduled meeting of the Commission, subject to the notice requirements of Rule 507.

604.c. **Mitigation Measures.** The following requirements apply to an Oil and Gas Location within a Designated Setback Location and such requirements shall be incorporated into the Form 2A or associated Form 2 as Conditions of Approval.

(1) **Provisions for future encroaching development.** If a location comes within a Designated Setback Location solely as a result of surface development after well pad construction begins or production equipment has been placed, certain mitigation measures may not apply as determined by the Director.

(2) **Location Specific Requirements – Designated Setback Locations.** Subject to Rule 502.b., the following mitigation measures shall apply to any Well or Production Facility proposed to be located within a Designated Setback Location for which a Form 2, Application for Permit—to-Drill or Form 2A, Oil and Gas Location Assessment, is submitted on or after August 1, 2013:

A. **Noise.** Operations involving pipeline or gas facility installation or maintenance, or the use of a drilling rig, are subject to the maximum permissible noise levels for Light Industrial Zones, as measured at the nearest Building Unit. Short-term increases shall be allowable as described in 802.c. Stimulation or re-stimulation operations and Production Facilities are governed by Rule 802.

B. **Closed Loop Drilling Systems – Pit Restrictions.**

i. Closed loop drilling systems are required within the Buffer Zone Setback.

ii. Pits are not allowed on Oil and Gas Locations within the Buffer Zone Setback, except fresh water storage pits, reserve pits to drill surface casing, and emergency pits as defined in the 100-Series Rules.

iii. Fresh water pits within the Exception Zone shall require prior approval of a Form 15, Earthen Pit Report/Permit. In the Buffer Zone, fresh water pits shall be reported within 30-days of pit construction.

iv. Fresh water storage pits within the Buffer Zone Setback shall be conspicuously posted with signage identifying the pit name, the operator's name and contact information, and stating that no fluids other than fresh water are permitted in the pit. Produced water, recycled E&P waste, or flowback fluids are not allowed in fresh water storage pits.

v. Fresh water storage pits within the Buffer Zone Setback shall include emergency escape provisions for inadvertent human access.

C. **Green Completions – Emission Control Systems.**

i. Flow lines, separators, and sand traps capable of supporting green completions as described in Rule 805 shall be installed at any Oil and Gas Location at which commercial quantities of gas are reasonably expected to be produced based on existing adjacent wells within 1 mile.

ii. Uncontrolled venting shall be prohibited in an Urban Mitigation Area.

iii. Temporary flowback flaring and oxidizing equipment shall include the following:

aa. Adequately sized equipment to handle 1.5 times the largest flowback volume of gas experienced in a ten (10) mile radius;

bb. Valves and porting available to divert gas to temporary equipment or to permanent flaring and oxidizing equipment; and

cc. Auxiliary fuel with sufficient supply and heat to sustain combustion or oxidation of the gas mixture when the mixture includes non-combustible gases.

D. **Traffic Plan.** If required by the local government, a traffic plan shall be coordinated with the local jurisdiction prior to commencement of move in and rig up. Any subsequent modification to the traffic plan must be coordinated with the local jurisdiction.

E. **Multi-well Pads.**

i. Where technologically feasible and economically practicable, operators shall consolidate wells to create multi-well pads, including shared locations with other operators. Multi-well production facilities shall be located as far as possible from Building Units.

ii. The pad shall be constructed in such a manner that noise mitigation may be installed and removed without disturbing the site or landscaping.

iii. Pads shall have all weather access roads to allow for operator and emergency response.

F. **Leak Detection Plan.** The Operator shall develop a plan to monitor Production Facilities on a regular schedule to identify fluid leaks.

G. **Berm construction.** Berms or other secondary containment devices in Designated Setback Locations shall be constructed around crude oil, condensate, and produced water storage tanks and shall enclose an area sufficient to contain and provide secondary containment for one-hundred fifty percent (150%) of the largest single tank. Berms or other secondary containment devices shall be sufficiently impervious to contain any spilled or released material. All berms and containment devices shall be inspected at regular intervals and maintained in good condition. No potential ignition sources shall be installed inside the secondary containment area unless the containment area encloses a fired vessel. Refer to API Bulletin D16: Suggested Procedure for "Development of a Spill Prevention Control and Countermeasure Plan," 5th Edition (April 2011). Only the 5th Edition of the API bulletin applies to this rule; later amendments do not apply. All material incorporated by reference in this rule is available for public inspection during normal business hours from the Public Room Administrator at the office of the Commission, 1120 Lincoln Street, Suite 801, Denver, Colorado 80203. In addition, these materials may be examined at any state publications depository library and are available from API at 1220 L Street, NW Washington, DC 20005-4070.

H. **Blowout preventer equipment ("BOPE").** Blowout prevention equipment for drilling operations in a Designated Setback Location shall consist of (at a minimum):

i. **Rig with Kelly.** Double ram with blind ram and pipe ram; annular preventer or a rotating head.

ii. **Rig without Kelly.** Double ram with blind ram and pipe ram.

Mineral Management certification or Director approved training for blowout prevention shall be required for at least one (1) person at the well site during drilling operations.

I. **BOPE testing for drilling operations.** Upon initial rig-up and at least once every thirty (30) days during drilling operations thereafter, pressure testing of the casing string and each component of the blowout prevention equipment including flange connections shall be performed to seventy percent (70%) of working pressure or seventy percent (70%) of the internal yield of casing, whichever is less. Pressure testing shall be conducted and the documented results shall be retained by the operator for inspection by the Director for a period of one (1) year. Activation of the pipe rams for function testing shall be conducted on a daily basis when practicable.

J. **BOPE for well servicing operations.**

i. Adequate blowout prevention equipment shall be used on all well servicing operations.

ii. Backup stabbing valves shall be required on well servicing operations during reverse circulation. Valves shall be pressure tested before each well servicing operation using both low-pressure air and high-pressure fluid.

K. **Pit level indicators.** Pit level indicators shall be used.

L. **Drill stem tests.** Closed chamber drill stem tests shall be allowed. All other drill stem tests shall require approval by the Director.

M. **Fencing requirements.** Unless otherwise requested by the Surface Owner, well sites constructed within Designated Setback Locations, shall be adequately fenced to restrict access by unauthorized persons.

N. **Control of fire hazards.** Any material not in use that might constitute a fire hazard shall be removed a minimum of twenty-five (25) feet from the wellhead, tanks and separator. Any electrical equipment installations inside the bermed area shall comply with API RP 500 classifications and comply with the current national electrical code as adopted by the State of Colorado.

O. **Loadlines.** All loadlines shall be bullplugged or capped.

P. **Removal of surface trash.** All surface trash, debris, scrap or discarded material connected with the operations of the property shall be removed from the premises or disposed of in a legal manner.

Q. **Guy line anchors.** All guy line anchors left buried for future use shall be identified by a marker of bright color not less than four (4) feet in height and not greater than one (1) foot east of the guy line anchor.

R. **Tank specifications.** All newly installed or replaced crude oil and condensate storage tanks shall be designed, constructed, and maintained in accordance with National Fire Protection Association (NFPA) Code 30 (2008 version). The operator shall maintain written records verifying proper design, construction, and maintenance, and shall make these records available for inspection by the Director. Only the 2008 version of NFPA Code 30 applies to this rule. This rule does not include later amendments to, or editions of, the NFPA Code 30. NFPA Code 30 may be examined at any state publication depository library. Upon request, the Public Room Administrator at the office of the Commission, 1120 Lincoln Street, Suite 801, Denver, Colorado 80203, will provide information about the publisher and the citation to the material.

S. **Access roads.** At the time of construction, all leasehold roads shall be constructed to accommodate local emergency vehicle access requirements, and shall be maintained in a reasonable condition.

T. **Well site cleared.** Within ninety (90) days after a well is plugged and abandoned, the well site shall be cleared of all non-essential equipment, trash, and debris. For good cause shown, an extension of time may be granted by the Director.

U. **Identification of plugged and abandoned wells.** The operator shall identify the location of the wellbore with a permanent monument as specified in Rule 319.a.(5). The operator shall also inscribe or imbed the well number and date of plugging upon the permanent monument.

V. **Development from existing well pads.** Where possible, operators shall provide for the development of multiple reservoirs by drilling on existing pads or by multiple completions or commingling in existing wellbores (see Rule 322). If any operator asserts it is not possible to comply with, or requests relief from, this requirement, the matter shall be set for hearing by the Commission and relief granted as appropriate.

W. **Site-specific measures.** During Rule 306 consultation, the operator may develop a mitigation plan to address location specific considerations not otherwise addressed by specific mitigation measures identified in this subsection 604.c.

(3) **Location Specific Requirements – Exception Zone Setback.** Within the Exception Zone Setback, the following mitigation measures will be mandatory:

A. All mitigation measures required pursuant to subsection 604.c.(2), above, and:

B. **Berm Construction:**

i. Containment berms shall be constructed of steel rings, designed and installed to prevent leakage and resist degradation from erosion or routine operation.

ii. Secondary containment areas for tanks shall be constructed with a synthetic or engineered liner that contains all primary containment vessels and flowlines and is mechanically connected to the steel ring to prevent leakage.

iii. For locations within five hundred (500) feet and upgradient of a surface water body, tertiary containment, such as an earthen berm, is required around Production Facilities.

iv. In an Urban Mitigation Area Exception Zone Setback, no more than two (2) crude oil or condensate storage tanks shall be located within a single berm.

605. OIL AND GAS FACILITIES.

a. **Crude Oil and Condensate Tanks.**

(1) Atmospheric tanks used for crude oil storage shall be built in accordance with the following standards as applicable. Only those editions of standards incorporated by reference ~~cited~~ within this rule shall apply to this rule; later amendments do not apply. ~~The~~ All material ~~cited~~ incorporated by reference in this rule is available

for public inspection during normal business hours from the Public Room Administrator at the office of the Commission, 1120 Lincoln Street, Suite 801, Denver, Colorado 80203. In addition, these materials may be examined at any state publications depository library and are available from API at 1220 L Street, NW Washington, DC 20005-4070 and from Underwriters Laboratories, Inc. at 100 Technology Drive, Broomfield, CO 80021.

A. Underwriters Laboratories, Inc., No. UL-142, "Standard for Steel above ground Tanks for Flammable and Combustible Liquids," 9th Edition (December 28, 2006);

B. API Standard No. 650, "Welded Steel Tanks for Oil Storage," 12th Edition (March 2013);

C. API Standard No. 12B, "Bolted Tanks for Storage of Production Liquids," 15th Edition (October 2008);

D. API Standard No. 12D, "Field Welded Tanks for Storage of Production Liquids," 11th Edition (October 2008); or

E. API No. 12F, "Shop Welded Tanks for Storage of Production Liquids," 12th Edition (October 2008).

(2) Tanks shall be located at least two (2) diameters or three hundred fifty (350) feet, whichever is smaller, from the boundary of the property on which it is built. Where the property line is a public way the tanks shall be two thirds (2/3) of the diameter from the nearest side of the public way or easement.

A. Tanks less than three thousand (3,000) barrels capacity shall be located at least three (3) feet apart.

B. Tanks three thousand (3,000) or more barrels capacity shall be located at least one-sixth (1/6) the sum of the diameters apart. When the diameter of one tank is less than one-half (1/2) the diameter of the adjacent tank, the tanks shall be located at least one-half (1/2) the diameter of the smaller tank apart.

(3) At the time of installation, tanks shall be a minimum of two hundred (200) feet from any building.

(4) Berms or other secondary containment devices shall be constructed around crude oil, condensate, and produced water tanks to provide secondary containment for the largest single tank and sufficient freeboard to contain precipitation. A synthetic or engineered liner shall be placed directly beneath each above-ground tank. Berms and secondary containment devices and all containment areas shall be sufficiently impervious to contain any spilled or released material. Berms and secondary containment devices shall be inspected at regular intervals and maintained in good condition. No potential ignition sources shall be installed inside the secondary containment area unless the containment area encloses a fired vessel. Any electrical equipment installations inside the bermed area shall comply with API RP 500: Recommended Practice for Classification of Locations for Electrical Installations at Petroleum Facilities classified as Class I, Division I and Division 2, 3rd Edition (~~December~~ January 201~~4~~2) and the current national electrical code as adopted by the State of Colorado. Only the 3rd edition incorporated by reference within this rule shall apply to this rule; later

amendments do not apply. The material incorporated by reference in this rule is available for public inspection during normal business hours from the Public Room Administrator at the office of the Commission, 1120 Lincoln Street, Suite 801, Denver, Colorado 80203. In addition, these materials may be examined at any state publications depository library and are available from API at 1220 L Street NW, Washington, DC 20005-4070 and from the Department of Regulatory Agencies, Colorado Electrical Board at 1560 Broadway, Suite 110, Denver, CO 80202.

(5) Tanks shall be a minimum of seventy-five (75) feet from a fired vessel or heater-treater.

(6) Tanks shall be a minimum of fifty (50) feet from a separator, well test unit, or other non-fired equipment.

(7) Tanks shall be a minimum of seventy-five (75) feet from a compressor with a rating of 200 horsepower, or more.

(8) Tanks shall be a minimum of seventy-five (75) feet from a wellhead.

(9) Gauge hatches on atmospheric tanks used for crude oil storage shall be closed at all times when not in use.

(10) Vent lines from individual tanks shall be joined and ultimate discharge shall be directed away from the loading racks and fired vessels in accord with API RP 12R-1, 5th Edition (August 1997, reaffirmed April 2, 2008). Only the 5th Edition of the API standard applies to this rule; later amendments do not apply. The API standard is available for public inspection during normal business hours from the Public Room Administrator at the office of the Commission, 1120 Lincoln Street, Suite 801, Denver, Colorado 80203. In addition, these materials may be examined at any state publication depository library.

(11) During hot oil treatments on tanks containing thirty-five (35) degree or higher API gravity oil, hot oil units shall be located a minimum of one hundred (100) feet from any tank being serviced.

(12) **Labeling of tanks.** All tanks and containers shall be labeled in accordance with Rule 210.d.

605.b. **Fired Vessel, Heater-Treater.**

(1) Fired vessels (FV) including heater-treaters (HT) shall be minimum of fifty (50) feet from separators or well test units.

(2) FV-HT shall be a minimum of fifty (50) feet from a lease automatic custody transfer unit (LACT).

(3) FV-HT shall be a minimum of forty (40) feet from a pump.

(4) FV-HT shall be a minimum of seventy-five (75) feet from a well.

(5) At the time of installation, fired vessels and heater treaters shall be a minimum of two hundred (200) feet from buildings or well defined normally occupied outside areas.

(6) Vents on pressure safety devices shall terminate in a manner so as not to endanger the public or adjoining facilities. They shall be designed so as to be clear and free of debris and water at all times.

(7) All stacks, vents, or other openings shall be equipped with screens or other appropriate equipment to prevent entry by wildlife, including migratory birds.

605.c. **Special Equipment.** Under unusual circumstances special equipment may be required to protect public safety. The Director shall determine if such equipment should be employed to protect public safety and if so, require the operator to employ same. If the operator or the affected party does not concur with the action taken, the Director shall bring the matter before the Commission at public hearing.

(1) All wells located within five hundred (500) feet of a Residential Building Unit or well defined normally occupied outside area(s), shall be equipped with an automatic control valve that will shut the well in when a sudden change of pressure, either a rise or drop, occurs. Automatic control valves shall be designed so they fail safe.

(2) Pressure control valves required in (1) shall be activated by a secondary gas source supply, and shall be inspected at least every three (3) months to assure they are in good working order and the secondary gas supply has volume and pressure sufficient to activate the control valve.

(3) All pumps, pits, and producing facilities shall be adequately fenced to prevent access by unauthorized persons when the producing site or equipment is easily accessible to the public and poses a physical or health hazard.

(4) Sign(s) shall be posted at the boundary of the producing site where access exists, identifying the operator, lease name, location, and listing a phone number, including area code, where the operator may be reached at all times unless emergency numbers have been furnished to the county commission or its designee.

605.d. **Mechanical Conditions.** All Production Facilities, including associated valves, pipes and fittings, shall be securely fastened, inspected at regular intervals, and maintained in good mechanical condition.

605.e. **Buried or partially buried tanks, vessels, or structures.** Buried or partially buried tanks, vessels, or structures used for storage of E&P waste shall be properly designed, constructed, installed, and operated in a manner to contain materials safely. A synthetic or engineered liner shall be placed directly beneath. Such vessels shall be tested for leaks after installation and maintained, repaired, or replaced to prevent spills or releases of E&P waste.

605.f. **Produced water pits, special use and buried or partially buried vessels, or structures.** At the time of initial construction, pits shall be located not less than five hundred (500) feet from any Building Unit.