

# COGCC Setback Review Stakeholder Group Meeting

## Multi-well Pads

**Issue Statement:** Multi-well pads cause less total surface disturbance; however, they result in creation of an industrial site with concentrated oil and gas activity for longer time periods possibly generating greater impacts than many single well sites.

### COCGG 100 Series Definitions:

**MULTI-WELL SITE** shall mean a common well pad from which multiple wells may be drilled to various bottomhole locations.

### COCGG Related Rules:

#### **303. REQUIREMENTS FOR FORM 2A, OIL AND GAS LOCATION ASSESSMENT.**

d. FORM 2A, OIL AND GAS LOCATION ASSESSMENT.

(3) Information requirements. In all instances, the Form 2A requires the attachment of the following information.

- I. Where the proposed oil and gas location is for multiple wells on a single pad, a drawing showing proposed wellbore trajectory with bottom-hole locations.

(4) Form 2A requiring approval.

A.iv. bb. Is servicing multiple wells

#### **603. DRILLING AND WELL SERVICING OPERATIONS AND HIGH DENSITY AREA RULE**

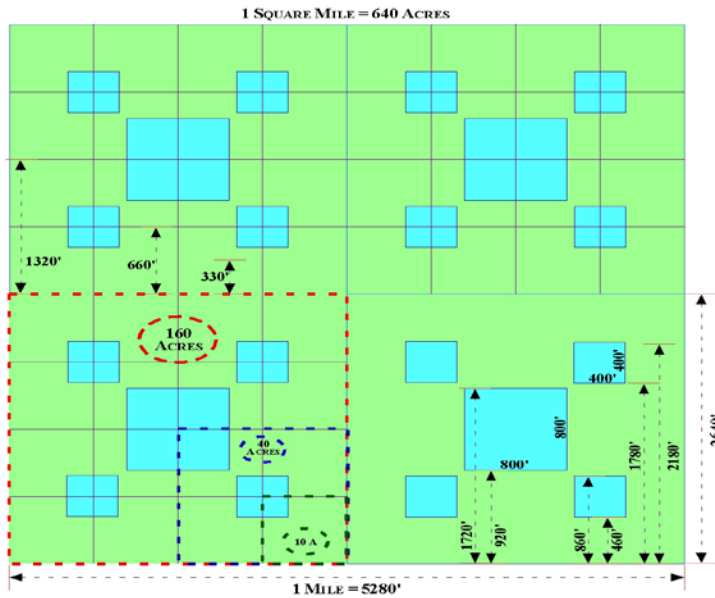
e. The following rules shall apply in high density and designated outside activity areas:

- (17) 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).

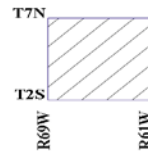
#### **322. COMMINGLING**

- The commingling of production from multiple formations or wells is encouraged in order to maximize the efficient use of wellbores and to minimize the surface disturbance from oil and gas operations. Commingling may be conducted at the discretion of an operator, unless the Commission has issued an order or promulgated a rule excluding specific wells, geologic formations, geographic areas, or field from commingling in response to an application filed by a directly and adversely affected or aggrieved party or on the Commission's own motion.
- This rule supersedes the procedural requirements to establish commingling and allocation contained in any Commission order as of the effective date of this rule, but does not supersede any allocation made under such order.

**318A(I). GREATER WATTENBERG AREA SPECIAL WELL LOCATION, SPACING AND UNIT DESIGNATION RULE (EXCEPT THE CITY AND COUNTY OF BROOMFIELD)**



**RULE 318A  
GREATER WATTENBERG AREA**

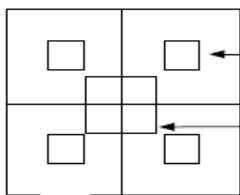
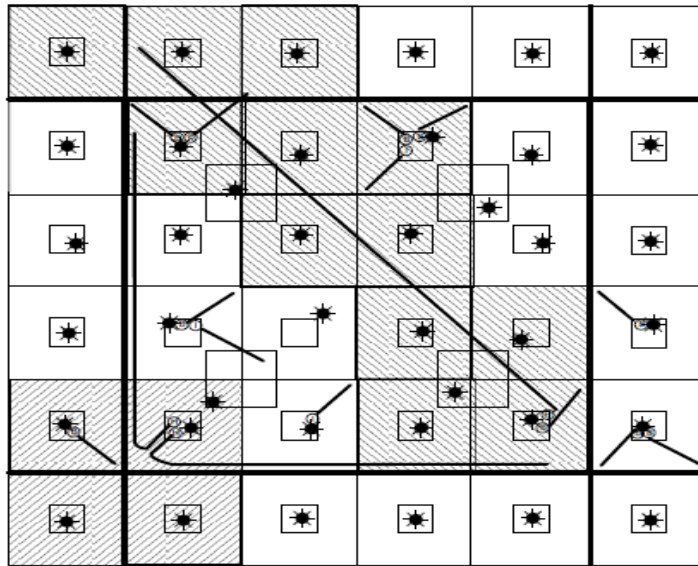


FOR A 5280' SECTION DISTANCES ARE SHOWN

\*IF SECTION IS LARGER THEN MINIMUM DISTANCES NEED TO BE GREATER (I.E. 460' IS OUTSIDE WINDOW IN A 5288' SECTION)

SCALE: 1 INCH = 1000 FEET

**Greater Wattenberg Area (GWA)  
Drilling & Spacing Exhibit**



1320'-0"  
2640'-0"  
Governmental Quarter Quarter Section  
Governmental Quarter Section

Rule 318A.a.(1) 400 foot window

Rule 318A.a.(2) 800 foot window

- ★ Pre-GWA Authorized Well
- ⊙ GWA Boundary Well
- ⊙ GWA Interior Infill Well
- ⊙ GWA Horizontal Well

**Example Units**

- Rule 318A.a.(4)C. Wellbore Spacing Unit
- Rule 318A.a.(4)D. Horizontal Wellbore Spacing Unit

**Operations Issues:** Below are possible impacts and benefits for the use of multi-well pads.

### **Possible Benefits:**

Less Disturbed Area: Less area disturbed required for the site construction due to combining several single wells on one multi-well pad. In a master plan for developing a field many infill wells may be drilled in close proximity of each other i.e., 20 acre spacing. With vertical wells drilled as individual well sites, the disturbed area may be about 2 acres for each well site. This would mean that in one governmental section of 640 acres there would be 32 well sites disturbing 64 acres. If several wells are directionally drilled from a common well site less surface area would be impacted. For example, if in the same governmental section, the 32 wells were instead drilled from 4 well sites in the center of each quarter section with each well offsetting by 30 feet, there would be approximately 5 acres disturbed at each well site for a total of 20 acres.

Reduced traffic: Due to combining trip generations at a multiple well site field development, traffic on local roads will be reduced when compared to field development by single well sites. This is best explained by understanding that a rig mobilization and demobilization will occur for each single well site. For multiple wells on pad, a rig can drill several wells after the rig has been mobilized. Traffic will be central to a few destinations, the multiple well sites as compared to a distributed traffic model for many single well sites.

Reduced Dust: Due to the reduced traffic and centralized traffic model, fewer traffic movements will result in less dust being generated. Further dust should be easy to monitor and mitigate by used best management practices centralized traffic model on only a few dirt roads.

Reduced Air Emission: Due to the reduced traffic and dust particulate diesel truck and road dust should be reduced. Further there are operation efficiencies which are possible when operators can combine emission control units. From the regulatory perspective, air emissions are initially computed as a point source (well site basis) exceeding an annual per ton threshold in order to determine if an air permit is required. As a single well, this threshold may not indicate an air permit is needed. But, as a multi-well site, the threshold may indicate an air permit is needed and regulatory monitoring can be performed.

Improved Operational Efficiencies: When multiple wells are at one site, production equipment can be designed for efficiency and utilization by several wells and remote continuous monitoring is easier.

Emergency Response: It is easier for emergency response to get to and know where the sites are located when there are fewer locations.

Fewer people bear a greater burden of development.

### **Possible Impacts:**

Drilling and Completion Time: The drilling and completion time for a multi-well site will be longer because several wells are being constructed. If a single well takes a few days to drill and another couple

to complete, the construction activity is over in about a week. On a multi-well site, the construction activity is extended by the number of weeks per well. A single well appears to be a temporary construction activity. Multi-well site can have longer term construction activity.

Potential Noise Impacts: Due to the wellsite activities, drilling and completion construction lasting a longer time period, adjacent properties may be exposed to noise impacts requiring mitigation. Possible best management measures daytime tripping, visual vehicle back-up warning, staging night time activities as low impact, sound walls, and daytime deliveries.

Potential Odor Impacts: Due to the wellsite activities, drilling and completion construction lasting a longer time period, adjacent properties may be exposed to odor impacts requiring mitigation. Possible best management measures closed loop drilling and completion techniques, green completion practices, vapor recovery units, and flared emissions. The odor impacts could be monitored and managed through requiring operators to apply best management practices to control and mitigate. The Form 2A (Oil and Gas Location Assessment) and the field inspection processes can be used to regulate the impacts.

Larger Site Air Emission: Due to multi-well site having large activities, more equipment and lasting a longer time the point source emission may be larger. From the regulatory perspective, air emissions are initially computed as a point source (wellsite basis) exceeding an annual per ton threshold in order to determine if an air permit is required. As a single well, this threshold may not indicate an air permit is needed. But, as a multi-well site, the threshold may indicate a CDPHE air permit is needed and regulatory monitoring can be performed.

Larger Visual Site Impact: Due to multi-well site having large activities, more equipment and lasting a longer time the visual impact may be larger at this site. There will be more equipment at the site, including tanks, separators, dehydrators, pumps, compressors, and wellheads. The visual impacts could be monitored and managed through requiring operators to apply best management practices to control and mitigate. The Form 2A (Oil and Gas Location Assessment) and the field inspection processes can be used to regulate the impacts.

More Activity: A multi-well site will have more workover re-entry or recompletion work over the well of the wells. Multi-well sites may potentially require continuous industrial activity for long periods of time.

Higher concentration of disturbance (traffic, water trucks)