Colorado Petroleum Association – Rule 609 Alternate Proposal

SERIES SAFETY REGULATIONS

609. **STATEWIDE GROUNDWATER SAMPLING:**

Except coalbed methane wells, which are subject to Rule 608, and wells subject to Rule 318A or applicable orders Well Sites and Multi-well Sites shall be subject to the following groundwater sampling requirements. For the purposes of this Rule 609, the terms "Well", "Well Sites" or "Multi-well Site" shall be limited to oil and gas wells:

a. **Sampling locations**: Initial baseline samples and subsequent monitoring samples shall be collected from two (2) domestic water wells or springs used for domestic purposes located within a one-half (1/2) mile radius of the proposed Well Site or Multi-well Site. Sampling locations shall be selected by the operator based on the following criteria:

(1) Preferred sample locations. Permitted, domestic water wells in regular working order are preferred. Springs used for domestic purposes may be sampled when less than two (2) domestic water wells are available. Permitted, perennial springs are preferred to unpermitted or intermittent springs.

(2) Proximity to the proposed Well Site or Multi-well Site. Sample locations closest to the proposed Well Site or Multi-well Site are preferred.

(3) Local topography and hydrogeology. Groundwater and surface water flow directions, to the extent known or reasonably can be inferred, should be considered in selecting sampling locations.

(4) Orientation of locations with respect to the Well Site or Multi-well Site. Where possible, the sampling locations should be on opposite sides of the Well Site or Multi-well Site.

(5) Multiple identified aquifers available. Where multiple defined aquifers are present, sampling the deepest identified aquifer is preferred.

(6) Previously sampled domestic wells. An operator may use existing groundwater sampling data collected from any domestic well or spring used for domestic purposes located within (1/2) one-half mile of a proposed Well Site or Multi-well Site.

b. **Inability to locate or access satisfactory sampling locations:**

(1) If the operator cannot locate two (2) satisfactory sampling locations under these criteria, the requirements of this Rule 609 shall not apply. Failure to locate satisfactory sampling locations shall not be grounds for a rule violation subject to Rule 522.

(2) Where the owners of suitable sampling locations refuse to grant access or cannot reasonably be contacted despite an operator's reasonable efforts to obtain consent to conduct sampling, or do not consent to public disclosure of sampling results, the operator shall notify the Director and the requirements of this Rule 609 shall not apply. Failure to obtain consent to

access from an owner of a potential satisfactory sampling location shall not be grounds for a rule violation subject to Rule 522. In no event shall the operator be required to compensate any well or spring owners in order to satisfy the "reasonable efforts" standard herein.

c. **Initial sampling:** Initial sampling shall be conducted:

(1) Prior to commencement of drilling on a Well Site or Multi-well Site; and

(2) Prior to hydraulic fracturing treatment of an Oil Well or Gas Well if more than twelve (12) months have passed since the most recent sampling event for the Well Site or Multi-well Site was conducted.

d. **Subsequent sampling:**

(1) Subsequent monitoring sampling shall be conducted not less than 12 months, nor more than 18 months, following completion of any Oil Well, Gas Well, or, in the case of Multi-well Sites, completion of the last Oil Well or Gas Well.

(2) Additional "post-completion" test(s) may be required if, in the Director's opinion, material changes in water quality related to oil and gas production activity are identified during subsequent monitoring sampling.

(3) The Director may require further water well sampling at any time in response to verified complaints from water well or spring owners within one half (1/2) mile of a Well Site or Multi-well Site.

(4) Any decision by the Director to require or not require further sampling shall not create any presumptions, shift the burden of proof, or create any claim or defense in any proceeding relating to water quality.

e. **Duplicative sampling not required.** One sampling event can satisfy both the initial baseline and any subsequent sampling required hereunder if the pertinent criteria have been satisfied.

f. **Sampling procedures and analytical:**

(1) Sampling and analysis shall be conducted in conformance with an accepted industry standard as described in Rule 910.b.(2).

(2) The initial baseline testing described in this section shall include pH, specific conductance, total dissolved solids (TDS), dissolved gases (methane, ethane, propane), alkalinity (total bicarbonate and carbonate as CaCO3), major dissolved anions (bromide, chloride, fluoride, sulfate, nitrate and nitrite as N, phosphorus), major dissolved cations (calcium, iron, magnesium, manganese, potassium, sodium), other elements (barium, boron, selenium and strontium), presence of bacteria (iron related, sulfate reducing,), total petroleum hydrocarbons (TPH) and BTEX compounds (benzene, toluene, ethylbenzene and xylenes). Field observations such as odor, water color, sediment, bubbles, and effervescence shall also be included. The sample location shall be surveyed in accordance with Rule 215. COGCC recommends that the latest version of EPA SW 846 analytical methods be used where possible and that analyses of samples be performed by laboratories that maintain state or national accreditation.

(3) If free gas or a dissolved methane concentration greater than 1.0 milligram per liter (mg/l) is detected in a water well, gas compositional analysis and stable isotope analysis of the methane (carbon and hydrogen – 12C, 13C, 1H and 2H) shall be performed to determine gas type. Upon receipt of written analytical test data, the operator shall notify the Director and the owner of the water well or spring if:

A. the test results indicated thermogenic or a mixture of thermogenic and biogenic gas;

B. the methane concentration increases by more than 5.0 mg/l between sampling periods; or

C. the methane concentration increases to more than 10.0 mg/l.

g. **Violations:** No Operator shall be considered to have violated the Commission's rules, regulations, orders or the Colorado Oil and Gas Conservation Act if test results exceed water quality standards in Table 910-1 or other applicable water quality standards unless and until the Operator is first determined to be a Responsible Party for such exceedances pursuant to Rule 524.

h. **Reporting.** Copies of all test results described above shall be provided to the Director and the owner of a sampled well or spring within three (3) months of collecting the samples. The analytical data and surveyed well locations shall also be submitted to the Director in an electronic data deliverable format.

i. **Operational conflicts.** This rule shall be binding with respect to any operationally conflicting local government rule, regulation,permit or land use condition of approval.