

New additions are shown in **bold** and deletions shown in ~~bold strikethrough~~. Previous revisions from Change Sheet #1 are shown in original format of red double strikethrough and red double underline in the following sections.

Page 12 - Draft Model Criteria for Groundwater Monitoring in Areas of Oil and Gas Well Stimulation, Section 2.1.1, paragraphs 1 and 2 are edited and the order is reversed:

~~1. At a minimum, one upgradient and two downgradient monitoring wells will be required for each aquifer containing protected water that is penetrated by the stimulated well, or group of stimulated wells. Monitoring wells completed in each aquifer shall be constructed in similar zones of the aquifer, with similar construction details. Groundwater monitoring wells shall be located within 0.5 mile of the surface projection of the zone(s) of stimulation **for a well or within 0.5 mile of the perimeter of the surface projection of the zone(s) of stimulation for a group of wells.**~~

1.2. When a single aquifer containing protected water is penetrated by the stimulated well, or group of stimulated wells, that aquifer shall be monitored. When multiple aquifers containing protected water are ~~present~~penetrated by the stimulated well, or group of stimulated wells, a minimum of two, each aquifers (shallow protected water and deep protected water) shall be monitored **separately**. Shallow protected water refers to the shallowest aquifer containing protected water. Deep protected water refers to a deeper aquifer containing protected water, preferably near the base of protected water.

- Additional aquifers may require monitoring based on site-specific conditions.
- Operators will also be required to install monitoring wells in groundwater zones at a depth where a well failure or breach has occurred.

~~For each aquifer containing protected water located within 0.5 mile of the surface projection of the zone(s) of stimulation that is not penetrated by the well to undergo well stimulation, at least one monitoring well is required.~~

2. At a minimum, one upgradient and two downgradient monitoring wells will be required for each aquifer to be monitored. ~~containing protected water that is penetrated by the stimulated well, or group of stimulated wells.~~ Monitoring wells completed in each aquifer shall be constructed in similar zones of the aquifer, with similar construction details. Groundwater monitoring wells shall be located within 0.5 mile of the surface projection of the zone(s) of stimulation for a well or within 0.5 mile of the perimeter of the surface projection of the zone(s) of stimulation for a group of wells.

Page 17 - Draft Model Criteria for Groundwater Monitoring in Areas of Oil and Gas Well Stimulation, Section 2.1.2, paragraphs 9 and 10:

9. A detailed description of the well(s) to be stimulated, and any wells within **two times** the ~~DOGGR approved~~ ADSA for any stage, including all of the following:
- a) American Petroleum Institute (API) identification numbers
 - b) Any available geophysical logs (e.g., including Spontaneous Potential,

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Resistivity, and any porosity logs), and any other logs or tests that can provide information about the integrity of annular seals, including past mechanical integrity tests.

- c) Casing diagrams, including the following:
- Depths of perforation intervals
 - Diameter and depth of borehole
 - Cement plugs inside casings, including top and bottom of cement plug, with indication of method of determination
 - Cement fill behind casings, including top and bottom of cement fill, with indication of method of determination
 - Depths and names of the formations, zones, and markers penetrated by the well, including the top and bottom of the zone where well stimulation treatment will occur
 - Wellbore path giving both inclination and azimuth for directionally drilled wells
10. For any geologic features within or intersecting **five times** the ~~DOGGR-approved~~ ADSA of any stage that have the potential to constitute a leakage pathway (including faults, fractures, and changes in stratigraphy), the operator shall identify the potential risk where the geologic feature may act as a conduit and impact protected water.