

**UNIT OPERATIONS, ENHANCED RECOVERY PROJECTS, AND STORAGE OF GASEOUS OR LIQUID HYDROCARBONS**

**406. UNDERGROUND GAS STORAGE FIELDS**

**A. OPERATING REQUIREMENTS**

(1) ALL WELLS USED FOR THE PURPOSE OF INJECTING, PRODUCING, OR MONITORING GAS CONTAINED IN AN UNDERGROUND GAS STORAGE FACILITY SHALL BE PERMITTED AND REGULATED BY THE COMMISSION.

(2) COMMISSION APPROVAL SHALL BE REQUIRED PRIOR TO DRILLING, REPAIR, OR PLUGGING AND ABANDONING OF ANY WELL USED FOR THE PURPOSE OF INJECTING, PRODUCING, OR MONITORING GAS CONTAINED IN AN UNDERGROUND GAS STORAGE FACILITY.

(3) THE MAXIMUM ALLOWED STORAGE RESERVOIR PRESSURE, MEASURED IN PSIG, SHALL BE NO GREATER THAN 75 PERCENT OF THE FRACTURE GRADIENT OF THE FORMATION AS DETERMINED BY A STEP RATE TEST OR AS CALCULATED BY A LICENSED ENGINEER USING A METHOD ACCEPTABLE TO THE COMMISSION. THE UNDERGROUND GAS STORAGE RESERVOIR SHALL NOT BE SUBJECTED TO OPERATING PRESSURES IN EXCESS OF THE CALCULATED FRACTURE PRESSURE.

**B. CONSTRUCTION REQUIREMENTS**

(1) GAS STORAGE WELLS COMPLETED AFTER JANUARY 1, 2008, SHALL BE COMPLETED USING A TUBING AND PACKER CONFIGURATION. THE PACKER SHALL BE SET WITHIN 100 FEET OF THE TOP PERFORATION OR THE TOP OF THE OPEN HOLE PORTION OF THE WELL BORE. MECHANICAL INTEGRITY TESTS SHALL BE PERFORMED AS REQUIRED IN RULE 326.A.(1) ON ALL GAS STORAGE WELLS EQUIPPED WITH TUBING AND PACKER. IF A GAS STORAGE WELL FAILS TO DEMONSTRATE MECHANICAL INTEGRITY BY A COMMISSION APPROVED METHOD, THE OPERATOR OF THE WELL SHALL IMMEDIATELY ISOLATE THE LEAK OR LEAKS IN A MANNER THAT CONTAINS NATURAL GAS AND ASSOCIATED FLUIDS IN THE WELL OR STORAGE RESERVOIR AND DEMONSTRATES THAT THE WELL DOES NOT POSE A THREAT TO THE ENVIRONMENT OR TO PUBLIC HEALTH, SAFETY, AND WELFARE.

(2) NATURAL GAS LEAK DETECTORS SHALL BE PLACED AT ALL GAS STORAGE WELLS LOCATED WITHIN ONE QUARTER (¼) MILE OF AN OCCUPIED RESIDENCE, COMMERCIAL BUILDING, ASSEMBLY BUILDING, SCHOOL, FIELD OFFICE OR ENCLOSED COMPRESSOR SITE. NATURAL GAS LEAK DETECTORS, WHERE APPLICABLE, SHALL BE INTEGRATED WITH AUTOMATED WARNING SYSTEMS. EACH NATURAL GAS LEAK DETECTOR SHALL BE TESTED AT LEAST ANNUALLY, AND IF DEFECTIVE, SHALL BE REPAIRED OR REPLACED WITHIN 48 HOURS.

(3) NATURAL GAS LEAK DETECTOR TESTING RESULTS SHALL BE MAINTAINED AT THE FACILITY AND SHALL BE AVAILABLE FOR COMMISSION INSPECTION FOR A PERIOD OF AT LEAST FIVE (5) YEARS.

**C. MONITORING REQUIREMENTS**

(1) BY JANUARY 1, 2008, ALL WELLS USED FOR THE PURPOSE OF INJECTING, PRODUCING, OR MONITORING GAS CONTAINED IN AN UNDERGROUND GAS STORAGE FACILITY SHALL BE CONFIGURED TO PROVIDE ACCESS TO THE ANNULUS BETWEEN THE PRODUCTION AND SURFACE CASING WITH A NEEDLE VALVE AND FITTINGS, TO ALLOW FOR THE MONITORING OF BRADENHEAD PRESSURE. VALVES AND GAUGES SHALL BE CHECKED FOR NORMAL

OPERATION AT LEAST ANNUALLY. BRADENHEAD PRESSURE FOR EACH INDIVIDUAL WELL SHALL BE MEASURED AND RECORDED THREE TIMES PER WEEK. BRADENHEAD PRESSURE RECORDS SHALL BE MAINTAINED AT THE FACILITY AND SHALL BE AVAILABLE FOR COMMISSION INSPECTION FOR A PERIOD OF AT LEAST FIVE (5) YEARS.

(2) A BRADENHEAD PRESSURE TEST SHALL BE PERFORMED AT LEAST ANNUALLY DURING THE PERIOD OF MAXIMUM STORAGE RESERVOIR PRESSURE ON ALL EXISTING GAS STORAGE WELLS WITHIN THE BOUNDARIES OF A GAS STORAGE FIELD. THESE TESTS SHALL BE REPORTED ON A BRADENHEAD TEST REPORT, FORM 17.

(3) IN THE EVENT THE BRADENHEAD PRESSURE EXCEEDS 0.25 PSI/FT TIMES THE DEPTH OF THE SURFACE CASING OF THE GAS STORAGE WELL, THE OPERATOR OF THE WELL SHALL IMMEDIATELY ISOLATE THE INJECTION ZONE IN A MANNER THAT CONTAINS NATURAL GAS IN THE STORAGE RESERVOIR AND DEMONSTRATES THAT THE WELL DOES NOT POSE A THREAT TO PUBLIC HEALTH, SAFETY, AND WELFARE. THE WELL SHALL BE IMMEDIATELY TESTED AND REPAIRED OR SHALL REMAIN SHUT-IN UNTIL THE CAUSE OF THE HIGH BRADENHEAD PRESSURE CAN BE DETERMINED AND REPAIRED.

#### **D. REPORTING REQUIREMENTS**

(1) THE OPERATOR OF AN UNDERGROUND GAS STORAGE FACILITY SHALL REPORT MONTHLY TO THE COMMISSION THE VOLUME OF GAS PLACED INTO STORAGE AND THE VOLUME OF GAS REMOVED FROM STORAGE AT THE FACILITY USING MONTHLY REPORT OF FLUIDS INJECTED, FORM 14. THE OPERATOR MUST SUBMIT THIS REPORT NO LATER THAN THE 25<sup>TH</sup> DAY OF THE MONTH IMMEDIATELY FOLLOWING THE MONTH COVERED BY THE REPORT.

(2) THE OPERATOR OF AN UNDERGROUND GAS STORAGE FACILITY SHALL IMMEDIATELY REPORT TO THE COMMISSION ANY PRESSURE CHANGES OR OTHER MONITORING DATA THAT INDICATE THE PRESENCE OF LEAKS IN A GAS STORAGE WELL OR THE LACK OF CONFINEMENT OF THE INJECTED GASES AND ANY ASSOCIATED FLUIDS IN THE UNDERGROUND GAS STORAGE RESERVOIR.

(3) THE OPERATOR OF AN UNDERGROUND GAS STORAGE FACILITY SHALL IMMEDIATELY REPORT ANY CHANGE OF WELL STATUS OR WELL CLASSIFICATION TO THE COMMISSION.

(4) EACH OPERATOR OF AN UNDERGROUND GAS STORAGE FACILITY SHALL DEVELOP AND IMPLEMENT A STORAGE FACILITY SAFETY PLAN PRIOR TO JANUARY 1, 2008. THIS PLAN SHALL INCLUDE CURRENT EMERGENCY RESPONSE PROCEDURES, PROVISIONS TO PROVIDE SECURITY AGAINST UNAUTHORIZED ACTIVITY, AND ANY CURRENT NATURAL GAS RELEASE DETECTION AND PREVENTION MEASURES USED BY THE FACILITY. THE EMERGENCY RESPONSE PROCEDURES FOR THE GAS STORAGE FACILITY SHALL INCLUDE CONTINGENCY PLANS FOR GAS STORAGE WELL LEAKS AND LOSS OF CONTAINMENT FROM GAS STORAGE WELLS OR THE STORAGE RESERVOIR. THE EMERGENCY RESPONSE PROCEDURES SHALL ALSO IDENTIFY SPECIFIC CONTRACTORS AND EQUIPMENT VENDORS CAPABLE OF PROVIDING NECESSARY SERVICES AND EQUIPMENT TO GAS STORAGE WELLS OR THE STORAGE RESERVOIR. THE PLAN SHALL INCLUDE CURRENT CONTACT INFORMATION FOR ALL RESIDENCES AND ALL BUILDING OCCUPANTS WITHIN ONE QUARTER ( $\frac{1}{4}$ ) MILE OF ANY ACTIVE GAS STORAGE WELL IN THE GAS STORAGE FIELD. COPIES OF THE PLAN SHALL BE AVAILABLE AT THE GAS STORAGE FACILITY AND THE NEAREST OPERATIONAL OFFICE OF THE OPERATOR OF THE FACILITY. THE PLAN SHALL BE UPDATED AS CHANGES IN SAFETY FEATURES AT THE FACILITY OCCUR OR AS THE COMMISSION REQUIRES. EMERGENCY RESPONSE PROCEDURES SHALL BE COMMUNICATED

TO ALL RESIDENCES AND ALL BUILDING OCCUPANTS WITHIN ONE QUARTER (¼) MILE OF ACTIVE GAS STORAGE WELLS.

(5) OPERATORS OF UNDERGROUND GAS STORAGE FACILITIES IN OPERATION AS OF JANUARY 1, 2008 AND AFTER SHALL PROVIDE TO THE COMMISSION COPIES OF ANY FEDERAL ENERGY REGULATORY COMMISSION ("FERC") APPROVAL. WHENEVER THE OPERATOR OF AN UNDERGROUND GAS STORAGE FACILITY FILES ANY APPLICATION OR REPORT CONCERNING THE GAS STORAGE FACILITY OR OPERATION OF THE FACILITY WITH FERC, THE OPERATOR SHALL AT THE SAME TIME DELIVER A COPY OF THIS APPLICATION OR REPORT TO THE COMMISSION.

DRAFT