

AMENDMENT – MARK-UP

RULE H-2: WELL CONSTRUCTION, OPERATING AND REPORTING REQUIREMENTS FOR CLASS II DISPOSAL AND ENHANCED OIL RECOVERY (EOR) INJECTION WELLS

- a) No Class II Disposal ~~or EOR~~ Well, as defined in General Rule H-1 a) 1) (hereinafter referred to as “Class II ~~Disposal~~ Well” for purposes of this Rule), for which a permit has been issued in accordance with General Rule H-1, shall be operated until well internal mechanical integrity has been established in accordance with sub-paragraph o) below, and an authority for initial commencement of injection operations is issued by the Director.
- b) The permit holder shall provide notice to the Commission Regional Office where the Class II ~~Disposal~~ Well is located, prior to performing any well servicing activity, cementing, or any wireline logging activities, so as to allow commission staff to be present to observe the activity. Any well servicing which requires the resetting of the packer shall require an internal mechanical integrity test be run in accordance with subparagraph o) below, prior to re-commencement of injection.
- c) All well records for newly drilled Class II ~~Disposal~~ Wells shall be submitted in accordance General Rule B-5. Completion or recompletion reports and wireline logs for all subsequent well servicing, cementing or wireline logging activity performed on the well shall be filed no later than fifteen (15) days after completion of these activities.
- d) Following issuance of the permit to ~~D~~drill and or ~~O~~operate a Class II ~~Disposal~~ Well, an annual fee of \$100 per well shall be due each July 1st for the life of the well until the well is plugged.
- e) Surface and production casing requirements.
 - 1) Class II ~~Disposal~~ Wells shall be cased and cemented, in such manner that damage will not be caused to any USDW, as defined in General Rule H-1 a) 5) (hereinafter referred to as “USDW”), or oil and gas resources.
 - 2) For newly drilled Class II ~~Disposal~~ Wells
 - A) Set and cement surface casing 250 feet below the base of the lowermost USDW, and cement production casing to at least 250 feet above the proposed disposal zone; or
 - B) Set and cement surface casing fifty (50) feet below the base of the lowermost formation utilized for a public water system (see 40 CFR) in the area of the Class II ~~Disposal~~ Well, with a minimum of five hundred (500) feet of surface casing required, and cement production casing back to the surface.
 - 3) For existing wells converted to Class II ~~Disposal~~ Wells
 - A) Unless otherwise approved by the Director, production casing in the

existing well is required to be cemented to at least 250 feet above the proposed disposal zone. A cement bond (CBL), gamma ray (GR) and density log (VDL) shall be required to verify the presence of the required casing cement. The CBL should indicate at a minimum an 80% bond index over the 250 foot cemented interval.

- B) If a casing liner is required to provide well bore integrity above the required production cementing requirements in subparagraph e) 3) A) above, the liner must be set, at a minimum, below the cemented portion of the production casing and cemented back to surface.

f) Tubing and packer requirements.

- 1) All injection shall be through tubing and packer. The packer shall be placed no higher than 100 feet above the uppermost perforations or the casing seat in an open hole completion, provided the packer is within the cemented portion of the production casing, provided the packer is no less than 500 feet below the base of the USDW.
- 2) If the tubing and packer cannot be set or utilized in accordance with subsection f) 1) above, due to existing well construction conditions, the Permit Holder may request the Director to authorize an alternative packer setting depth or well construction. In determining an alternative packer setting depth or alternative well construction, the Director shall take into consideration the current construction of the well, the depth of the USDWs and the nature of the obstruction. If an alternative packer setting depth or well construction is authorized, the Director may require additional or more frequent internal mechanical integrity tests be performed on the well, or may require additional remedial or corrective work to assure that injection does not endanger USDWs.
- 3) The Permit Holder shall contact the Regional Office in which the well is located at least 24 hours prior to the initial setting or any resetting of the packer in a Class II Disposal Wells to enable an inspector to be present when the packer is set.

- g) The wellhead shall be maintained in a leak-free condition, and must have a working pressure guage in excess of the maximum discharge pressure of the pump. The wellhead shall be configured to include a one half inch female fitting, with shut-off valve, to allow monitoring of the annulus between the production casing and the injection tubing and a one half inch female fitting, with shut-off valve, installed on the tubing to measure the injection pressure.
- h) The injection pressure shall not exceed the maximum injection pressure established in accordance with General Rule H-1 h) 8).
- i) No change shall be made in the permitted injection zones unless the new zone is permitted in accordance with General Rule H-1.
- j) Injection fluids shall be confined to the permitted injection zones. If the Director has reason to believe, based upon well records or field observations, that injection fluids are migrating into zones not permitted for injection or into USDWs or to the surface or is

causing fluid migration into the USDWs, due to the operation of any Class II ~~Disposal~~ Well or resulting from a failure of internal or external mechanical integrity of the well, the Permit Holder shall be required to shut-in the well until all necessary corrective work, which may include plugging of the well, is completed.

- k) Internal mechanical integrity shall be maintained in accordance with subparagraph o) below.
- l) Only Class II Fluids, as defined in General Rule H-1 a) 3), and/or fresh water can be injected into a Class II ~~Disposal~~ Well.
- m) Each well shall have a legible sign placed near the well showing the Permit Holder and the well name and number and permit number and section, township and range as shown on the permit in the Commission records.
- n) The Permit Holder of each Class II ~~Disposal~~ Well shall file a Quarterly Well Status Report on forms prescribed by the Director. The report shall be filed within thirty (30) days after the end of each quarter of a calendar year commencing on January 1 of each year. The report shall include at a minimum:
 - 1) Name and permit number of the well;
 - 2) Names of all injection intervals;
 - 3) Maximum daily injection rates and pressures; and
 - 4) Monthly volumes of fluid injected.
- o) Establishment of Internal Mechanical Integrity.
 - 1) Internal mechanical integrity must be maintained at all times. If internal mechanical integrity is lost, the Permit Holder shall shut-in the well immediately and notify the Regional Office where the well is located, of loss of internal mechanical integrity. The well shall remain shut-in until the necessary remedial action necessary to restore internal mechanical integrity is completed and a new internal mechanical integrity test run and successfully passed.
 - 2) An internal mechanical integrity test shall be performed:
 - A) Prior to initial injection into a newly permitted Class II ~~Disposal~~ Well;
 - B) Prior to initial injection into a Class II ~~Disposal~~ Well after a change to a newly permitted injection zone;
 - C) Prior to resuming injection into any Class II ~~Disposal~~ Well after any workover of the well involving the resetting or movement of a packer;
 - D) Whenever the Director has reason to believe, based upon well records or field observation, that the Class II ~~Disposal~~ Wells may be leaking or improperly constructed; and

- E) At least once every five (5) years measured from the date of the last successful test.
- 3) Internal mechanical integrity test
 - A) The following tests shall be performed on Class II ~~Disposal~~ Wells to establish the internal mechanical integrity of the tubing, casing and packer of the well. The Permit Holder shall contact the Regional Office in which the well is located at least 48 hours prior to conducting the test to enable an inspector to be present when the test is done.
 - i) Pressure Test

The casing-tubing annulus above the packer shall be tested under the supervision of a Commission representative at a minimum pressure differential between the tubing and the annulus of fifty (50) psig for a period of thirty (30) minutes. The casing-tubing annulus starting test pressure shall not be less than three hundred (300) psig and may vary no more than ten (10) percent of the starting test pressure during the test. The pressure at which the test is to be performed shall be fifty (50) psig over the permitted injection pressure, with a maximum of one thousand (1000) psig.
 - ii) Radioactive Tracer Survey Test

For those wells in which alternative well construction has been approved by the Director in accordance with subparagraph f) 2) above, a radioactive tracer survey may be run in the well at a frequency to be determined by the Director to evidence mechanical integrity of the well by demonstrating that the injected fluid is being injected into the approved disposal zone.
 - B) Any Class II ~~Disposal~~ Well which fails an internal mechanical integrity test, or on which an internal mechanical integrity test has not been performed when required, shall be shut in until the well is successfully tested or remedial work is commenced and completed or the well is plugged. The necessary work shall be completed and an internal mechanical integrity test successfully completed within ninety (90) days. The Director may approve up to an additional ninety (90) days, with any greater length of time to be established by the Commission upon application by the operator.
- p) If the Director has reason to believe, based upon well records or field observation, that any Class II ~~Disposal~~ Well is causing fluid migration into the USDWs resulting from a failure of internal or external mechanical integrity, the Permit Holder shall shut in the well until any necessary corrective work is commenced and completed and internal and external mechanical integrity is established.
- q) Class II ~~Disposal~~ Wells no longer in service for periods greater than 24 months shall be plugged or temporarily abandoned in accordance with General Rule B-7.