

State Oil and Gas Board



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At the August Board meeting the Board unanimously approved the following requirements for Operators to submit with the Petition for Unitization/Establishment of Special Field Rules in order to inject CO₂ into a field for use in EOR wells:

Requirements for permitting/ unitization of a Producing Field utilizing CO₂ EOR injection wells.

1) Geologic review of field:

- a) Geologic structure maps and cross-sections to display the areal extent of the oil pool(s), oil/ water contact, the trapping mechanism(s), any additional faulting or geologic features within field unit. The maps should include any nearby wells outside of the field unit that may be potentially affected by offsite migration of CO₂. There should be discussion as to whether any of these faults may be communicating out of the oil pool interval.
- b) Oil Pool isopach maps displaying the areal extent and thickness of the pay interval.
- c) Explain how the CO₂ or other injected gases will be contained within the field unit and course of action if there is CO₂ migration off unit. If there is to be water curtain wells then a proposed work plan describing location and schedule of installation should be submitted. Describe the method to ascertain the CO₂ is being held inside the field unit boundary (monitor well, seismic etc.).

The purpose for the submittal of this data is to determine that the producing unit can contain the injected CO₂ fluid by geologic reason or by some mechanical method. The offsite movement of CO₂ can carry oil which constitutes waste and therefore should be avoided.

- 2) Review of wells within the field unit:
 - a) A spread sheet of the current construction of all wells within the field unit to include the calculated top of cement for each casing string. A wellbore schematic shall be included on each well. The Base USDW should be identified at each well. A discussion should be submitted for the proposed remedial action to be performed on a well by well basis. A radial cement bond log is recommended for any well with a questionable primary cement job.
 - b) A spread sheet of all plugged wells within the field unit describing the construction of the well, primary cement work and all squeezes etc., perforations if open, location and thickness of plugs. The Base USDW should be identified at each well. A wellbore schematic shall be included on each well. Discussion should be submitted for proposed remedial action to be performed on a well by well basis.
- 3) Contingency plan of action for CO₂ release:
 - A) Subsurface release (should include the shutdown of the field until source of release is identified and remediation is under way).
 - B) Surface release should include an actual contingency plan similar to the required H₂S contingency plan.
- 4) Well construction and testing:
 - A) Production wells will be equipped with tubing and a packer as are Class II wells and will be subject to Braden Head testing and MIT testing as are Class II wells.
 - B) Minimum required pressure for MIT's will be determined by information furnished by Operator in the original Petition for Unitization. In any case, the minimum required pressure for MIT's will not be less than 1000 psi.
- 5) Review of wells within at least one-quarter (1/4) mile of the outside field boundary (CO₂ Unit Area of Review):
 - a) A spread sheet of the current construction of all wells within the AOR to include the calculated top of cement for each casing string. A wellbore schematic shall be included on each well. The Base USDW should be identified at each well. A discussion should be submitted for the proposed remedial action to be performed on a well by well basis in the event CO₂ is detected in the well.
 - b) A spread sheet of all plugged wells within the AOR describing the construction of the well, primary cement work and all squeezes etc., perforations if open, location and thickness of plugs. The Base USDW should be identified at each well. A wellbore schematic shall be included on each

well. Discussion should be submitted for proposed remedial action to be performed on a well by well basis.