

**REVIEW OF APPLICATION
FOR OIL AND GAS DRILLING PERMIT**

By the City of Carlsbad, New Mexico

30-015-34035

Mack Energy Corp. Catfish State Wells #1, #2, #3, and #4

RESPEC, March 24, 2005

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Permit approval is contingent on the following items:

Permit approval by State of New Mexico Oil Conservation Division (OCD).

Mack will notify the inspector of any changes in the drilling program.

Permit issuance is for drilling only; an additional permit will be required for surface operation and pipelines.

Mack is responsible for any and all environmental impact as a result of operations at this site.

The following items in the drilling plan were reviewed with respect to the City of Carlsbad Ordinance No. 2000-13, City of Carlsbad Wellhead and Water Facilities Protection Ordinance.

i Section 5. Wellhead Protection Areas

i Section 5(B)(3)(b)(1)(b) The surface casing must extend to the top of the freshwater-bearing strata.

RESPONSE:

The City of Carlsbad Water Department tells us that the top of freshwater in the Double Eagle capture area is +/- 290 feet below ground surface. The depth to freshwater will vary with location and elevation. Mack's casing plan to set surface casing to 250 feet may need to be adjusted in the field, according to what is encountered during drilling. The design for the casing and cementing meets criteria under this ordinance.

i Section 5(B)(3)(b)(1)(c) The second casing must extend a minimum of 100 feet below the bottom of the freshwater-bearing strata.

RESPONSE:

Mack's drilling plan to set the intermediate casing to +/- 1,150 feet is sufficient. The Wellhead Protection Areas are defined as extending to a depth of 2,500 feet below the surface of the ground (Ordinance No. 2000-13, Section 3, Definition P). The Matador 19 State wells encountered the top of salt formation at 1,242 feet located within 1/2 mile east of the Pike well. Due to the potential of cross-contamination of salt into the freshwater-bearing aquifer and known subsurface geology of the area, the design for the intermediate casing string and cementing is acceptable.

- i Section 5(B)(3)(b)(1)(d) The third casing must extend a minimum of 100 feet below the bottom of the brine water-bearing strata immediately underlying the freshwater-bearing strata.

RESPONSE:

Mack's drilling plan to set production casing to +/- 4,600 complies.

- i Section 5(B)(3)(b)(1)(f) Fresh, high-quality water shall be used in the drilling process.

RESPONSE:

Mack's drilling program uses only fresh water well control methods through completion of the intermediate casing string. The drilling program meets criteria for this ordinance.

- i Section 5(B)(3)(b)(1)(g) No open pits, ponds, etc. shall be permitted (i.e., only closed mud systems).

RESPONSE:

Mack drilling program specifies that no open pits will be constructed on the site and that all drilling fluids will be contained in steel tanks. Mack specifies the use of a closed mud system. Drill cuttings will be hauled from the site to an NMOC approved disposal facility or will be encapsulated in a pit outside the boundaries of the wellhead protection area.

- i Section 5(B)(3)(b)(1)(h) All liquids shall be contained in a sealed reservoir.

RESPONSE:

This is specified in the drilling program.

- i Section 5(B)(3)(b)(1)(i) The operator is required to provide H₂S (hydrogen sulfide) safety training and protective gear as needed.

RESPONSE:

Mack's experience and knowledge of oil and gas drilling and production in this area confirms that H₂S levels are below detection from the surface to the total depth of the well, and a contingency plan is not required. Mack's comment meets criteria for this ordinance.

- i Section 5(B)(3)(c)(1)(ii) The operator shall provide a copy of all OCD permitting documentation.

RESPONSE:

OCD permitting documentation is included.

- i Section 5(B)(3)(c)(2) The City Administrator, or designee, shall review the permit application for approval or disapproval. Permit applications not approved will be returned with an explanation as to the deficiencies found.

The permit application is approved.

- i Section 5(D)(3) All abandoned wells must be capped and comply with all local, state, and federal regulations.

RESPONSE:

Mack submitted plans to plug and abandon (P&A) the well in the event of a dry hole. Four cement plugs will be set, a 100-foot plug will be set above the perforated interval at +/-3,500 feet in the 7 7/8" casing, and a 100-foot cement plug will be set across each casing shoe for the 8 7/8" and 13 3/8" casing string. A 60-foot cement surface plug will be set and a dry hole marker will be installed. Mack's P&A plans meet the criteria for this ordinance.