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MAY - 9 2007

Dr. James H. Davis, Ph.D.
Bureau Chief, Petroleum Storage Tank Bureau
New Mexico Environment Department
2044 Galisteo Street
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Re: Variance Request from the Rules Governing Well Driller Licensing, Construction, Repair and Plugging of Wells (19.27.4 NMAC)

Dr. Davis:

Thank you for your letter discussing the suitability of specific sections of 19.27.4 NMAC to the construction and abandonment of monitor wells and soil borings at leaking petroleum storage tank sites within New Mexico. The nature of a monitor well necessitates design standards in some ways unique to general water well construction, and some ways similar. In the interest of requiring all wells constructed to not in themselves provide conduits for surface contamination inflow or inter-aquifer commingling, 19.27.4.29 NMAC provides that "All wells shall be constructed to prevent contamination, to prevent inter-aquifer exchange of water, to prevent flood waters from contaminating the aquifer, and to prevent infiltration of surface water".

Your letter requests several variances from the Office of the State Engineer rules. A response to each of your requests is provided below. After you have had a chance to review this letter, perhaps it would be beneficial for the New Mexico Environment Department and the Office of the State Engineer to meet to discuss any remaining issues or concerns related to the applicability of 19.27.4 NMAC to the drilling of monitoring wells and bore holes.

1) 19.27.4.29.C NMAC: A variance is granted to the New Mexico Environment Department to use steam cleaning to clean the drilling equipment for monitoring wells and soil borings at leaking petroleum storage tank sites. All down-hole equipment shall be maintained in a clean and sanitary condition to prevent contamination and to protect the public health.

2) 19.27.4.29.F NMAC: A variance is granted to the New Mexico Environment Department from the casing height requirement when extending the well casing 18 inches above the floor of the vault is not feasible. Providing us with a schematic showing elements of standard monitor well design, with particular focus on well head completion detail (including spatial relationship of land surface, top of annular seal, vault enclosure, casing risers, casing caps, and any elements of the vault that prevent water infiltration when the well is drilled by necessity in a flood-prone area), would be helpful to our understanding of how standard monitor well design protects against surface water entry.

3) 19.27.4.29.I NMAC: A variance is granted to the New Mexico Environment Department and lockable expanding plugs may be used in place of permanent caps on monitoring wells.

4) 19.27.4.29.K NMAC: No variance is granted from the well record requirement. A well record is required for each monitoring well.

5) 19.27.4.30.A.2 NMAC: The Rules Governing Well Driller Licensing, Construction, Repair and Plugging of Wells (19.27.4 NMAC) were implemented to cover a variety of well designs, including those with casings that extend through non-saturated strata to land surface. Placement of approved annular sealants through pressure methods or by use of tremie into appropriately sized annular spaces is specified to avoid sealant bridging and to displace trapped water or diluted sealant up and out the annulus. We recognize the need for a monitor well design that must discreetly tap a potentially contaminated hydrogeologic zone and appropriately reflect existing water chemistry calls for unique and site-specific design criteria. Providing us with additional information on how the New Mexico Environment Department requires annular sealant placement, and on the varieties of annular sealants sanctioned for use by the New Mexico Environment Department, will be helpful to our understanding of how the standard monitor well design at leaking petroleum storage tank sites provides a design complying with general and specific provisions of 19.27.4 NMAC.

   Additionally, if a standard annulus does not exist, such as within the confines of a subterranean vault, no annular seal around the contained casing would be required under 19.27.4 NMAC.

   A variance is granted to the New Mexico Environment Department from the requirement of placing the annular seal from land surface to the bottom of the blank casing used (for a well that is completed less than 20 feet below land surface) when necessary to meet the goals of the monitoring program for which the well is being drilled. In such situations, the annular space shall be sealed for the maximum length practical in order that the well is constructed to prevent contamination, to prevent inter-aquifer exchange of water, to prevent flood waters from contaminating the aquifer, and to prevent infiltration of surface water.

6) 19.27.4.30.C NMAC: No variance is granted for the well record requirement. For the well plugging plan, the Office of the State Engineer will review a general plugging plan from the New Mexico Environment Department on how the department typically plugs monitoring

wells at leaking petroleum storage tank sites. The Office of the State Engineer will approve the general plan from the New Mexico Environment Department if the plan is consistent with 19.27.4 NMAC. When the New Mexico Environment Department plugs a monitoring well in a manner consistent with the approved plugging plan, no additional plugging plan would be required for the well. However, if the plugging method for a specific monitoring well deviates from the approved plan, a plugging plan specific to the well shall be submitted to the Office of the State Engineer for review and approval.

Please let me know if you have any additional questions or concerns about the applicability of the Office of the State Engineer rules to the drilling of monitoring wells.

Sincerely,

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