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ENVIRONMENT

Residential developers of oil fields face environmental issues

One of the physical consequences of the population growth in the Denver metropolitan area is the surge in homebuilding in northwestern Adams County, especially in Thornton and Westminster. As land developers and home builders purchase agricultural land in those areas, they face some unique environmental issues as a result of the presence of hundreds of inactive and active oil and gas wells. The Wattenberg field is one of the major petroleum resources in Colorado.

Regulatory Context

There is a special regulatory context for addressing environmental issues in an oil field.

First, under the Resource Conservation and Recovery Act (RCRA), exploration and production (E&P) wastes are exempt from federal and state hazardous-waste regulations whether or not the chemical analyses indicate the waste would be characteristically hazardous. This exemption is lost if other materials are brought to the wellhead area and mixed with the E&P wastes or the E&P wastes are transferred off-site. Further, if E&P wastes are a source of groundwater or surface water contamination, then they are subject to Colorado Water Quality Control Commission regulations.

Second, the Colorado Oil and Gas Conservation Commission (COGCC) is the state agency that provides regulatory oversight of oil field activities, including how E&P wastes are handled and disposed, how wells are closed and how wellhead areas are environmentally restored.

Inactive Wells

Historically, the guidance for well closure has been provided under the general assumption that the surrounding land use will continue to be agricultural. Examples of such closure efforts include cutting the casing off below the normal plow depth and discing the E&P wastes and soils from the wellhead area into the surrounding surface soil matrix. The former caused a recent problem in Louisville, Colo., where a capped gas well was

discovered during excavation for a new bank and the bank building had to be relocated several feet. The design of subdivisions in inactive oil fields have taken the precautionary step to not locate proposed structures over closed wells.

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With time, microbial and chemical processes in the soil should degrade the E&P wastes in the vicinity of the inactive well. Unfortunately, there are instances where underground vessels were not removed and/or residual E&P wastes are contributing to a water pollution problem. The Environmental Response Fund, established with the COGCC, has monies for use in mitigating environmental problems associated with abandoned wells.

Active Wells

Recently, the COGCC amended the E&P Waste Management regulations (900 Series of Rules), which establish permitting, operating and closure requirements for all pit methods of E&P waste management; and procedures for spill response, reporting and remediation. A new addition to those regulations is the companion COGCC Environmental Guidance Document. Many of the revisions reflect an underlying concern to protect nearby water resources from possible pollution by E&P wastes. Interim guidance is provided for the two-year period that began July 1 until the revisions become fully effective on July 1, 1997.

To ensure the protection of groundwater resources, changes will be made in active well operations that are in or near Sensitive Areas, which are defined using the following criteria: quality of produced water, presence of unconfined aquifer or recharge area, hydraulic conductivity of soils, presence of

wellhead protection area, proximity to domestic water supply and depth/quality of groundwater. Also, those changes will contribute to improved environmental protection in the vicinity of the active well.

One type of change addresses protection to prevent releases. For example, unlined earthen pits are not an acceptable method for handling produced water. Other equipment — such as above-ground tanks and underground leakproof vessels — or adequate lining in an earthen pit may be used. Disposal of produced water by percolation is not appropriate. Acceptable disposal methods are evaporation, hauling water to permitted injection wells and reuse on agricultural lands.

A second type of change addresses remediation of spills or releases of oily wastes that exceed five barrels. Hydrocarbon cleanup will be considered complete when the residual oil concentration in the soil is less than 1,000 mg/kg Total Petroleum Hydrocarbon (TPH). For active wells outside SAs, the cleanup level is 10,000 mg/kg TPH. For general comparison, the state's cleanup guidelines for contaminated soil associated with leaking underground storage tanks address levels of 100, 250 and 500 mg/kg TPH, depending on the potential for groundwater pollution and beneficial uses of groundwater. The two cleanup levels are not strictly comparable since the COGCC addresses unrefined petroleum released to surface soil and the state's UST regulations address refined product released to subsurface soil, which is nearer to groundwater.

Initial Environmental Issues

The process of environmental due diligence for potential purchasers of land with inactive or active oil and gas wells should address, at a minimum, the following initial environmental issues:

- The records and staff of COGCC should be consulted to identify the possibility of any

closed wells on the land parcel. The history of a closed well should be reviewed for information on depth to top of casing and installation of any underground vessels at the site. If a potential environmental problem exists as a result of the historic oil field operations, then the COGCC should be contacted about whether or not the operator's bond has been released and about the oil field's eligibility for remediation money under the Environmental Response Fund.

- If there are active wells on the land parcel, then a determination should be made using COGCC guidelines on whether or not the wells are in a Sensitive Area. The operator should be interviewed about plans for compliance with the amended 900 Series of Rules, including the interim period, and about the well's environmental history.

In summary, documentation of the environmental due diligence process should include the findings of the above activities. Additionally, the statements should be included on the exemption of E&P wastes under RCRA along with the possibility that petroleum-contaminated soils may exist in the area of the well after closure, even with strict adherence to COGCC regulations. Thus, further environmental restoration would be the responsibility of the new owner of the land parcel. ▲