

CHAPTER 17

The China Syndrome Revisited -- Local Regulation of Underground Injection Wells and Responses Thereto

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Synopsis

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§ 17.01. Introduction.

Coalbed methane gas production creates waste waters in two ways. First, frac fluids are injected into the coal seam to liberate methane gas. Second, coal seams must be dewatered in order to facilitate methane recovery. As a result of these injected and produced waters, a coalbed methane gas well initially may generate up to fifty barrels of fluid a day.

The waste water from coalbed methane gas production must be disposed of in accordance with applicable federal and state environmental regulations. Previously, oil and gas producers may have disposed of waste waters by any expedient means, such as dumping or discharge into aboveground bodies of water. These practices, however, now may be strictly regulated or prohibited. As a result, underground injection control (UIC) wells are the safest and most cost-effective means of disposing of waters produced during coalbed methane gas recovery. UIC wells may use abandoned oil or gas production wells or wells drilled specifically for disposal purposes. When properly employed, UIC wells inject unwanted waste liquids into the Earth at levels that will not cause harm to the surface or to materials located below the surface.

Misconceptions regarding injection wells may result in adverse public reaction to a proposed or operating UIC well. This mistrust could result in restrictions or bans by states or localities on the use of injection wells. This Chapter will discuss the regulatory forms in which that opposition may be expressed and ways in which it may be dealt with by coalbed methane gas producers.

Injection wells are used to dispose of waste fluids produced by a variety of sources. All UIC wells are regulated under the Environmental Protection Agency's (EPA) supervisory powers in the Safe Drinking Water Act (SDWA or Act).⁽¹⁾ The EPA has designated UIC wells according to the origin of the wastes injected. Injection wells used to dispose of water produced in oil and gas extraction are defined by the EPA as Class II wells.⁽²⁾ The Class II designation also applies to wells that use produced water for the enhanced recovery of oil or natural gas.⁽³⁾

Injection waste water generated by coalbed methane gas recovery is generally regulated because of the produced fluid's strong saline content. This waste water is so saline that it is characterized as a brine. Chloride levels in brines resulting from oil and gas production can be nearly seven times as high as those in seawater.⁽⁴⁾ As a result, the level of dissolved solids in produced water far exceeds the EPA's drinking water standards. Injection or other introduction of waste water into an underground source of drinking water renders it unusable.⁽⁵⁾

Given the high levels of chlorides and other dissolved solids in waste fluids, improper use of injection wells to dispose of fluids produced in coalbed methane gas recovery can pose a threat to underground drinking water sources. This threat is realized if injected fluids are allowed to migrate from lower strata into underground sources of drinking water.⁽⁶⁾ Injected waters have occasionally contaminated underground sources of drinking water in one of three ways: through improperly maintained injection wells that allow injected fluids to migrate back up the wellbore and flow out into the drinking water strata; through injection directly into the underground source of drinking water; and through abandoned oil and gas wells near the UIC well that have not been properly plugged, again allowing the injected fluids to migrate from the injected strata into the abandoned wellbore and eventually up into the underground source of drinking water.⁽⁷⁾

§ 17.02. Federal and State Regulation of UIC Wells.

[1]--Federal Regulation.

In the SDWA, Congress required the EPA Administrator to promulgate regulations governing the use of injection wells.⁽⁸⁾ It is important to note, however, that the regulations established by the EPA contain a grandfather clause for all UIC wells operating before passage of the SDWA. Under this clause, Class II and III wells in existence prior to the adoption of the EPA regulations are exempt from complying with UIC well regulations.⁽⁹⁾ The regulations contain general prohibitions on the migration of injected fluids from UIC wells into underground sources of drinking water.⁽¹⁰⁾