Management and Disposal of Coal Ash from an Environmental Perspective

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§ 4.01. Environmental ConsiderationsÑGeneral.

Environmental concerns about coal ash have increased in recent years, as demands for more power and development of new combustion technologies have led to more ash production and composition variations. Environmental regulatory authorities are re-examining practices which have long enjoyed little scrutiny. Numerous states have promulgated rules imposing sweeping permit requirements on ash disposal and handling, spurred on by pressure from community groups objecting to the siting of ash disposal facilities in their communities and demanding that stricter regulations be imposed.

The increased interest in ash disposal is based on several factors. The major environmental issue with regard to placement of ash in the environment is the potential for heavy metals to leach into the groundwater. Hundreds of cleanup efforts in the 1980s and early 1990s, mainly in response to the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA)[(1)] and the Resource Conservation and Recovery Act (RCRA),[(2)] have demonstrated that groundwater is exceedingly difficult and expensive to remediate. The ineffectiveness of pump-and-treat methodologies has caused environmental agencies to emphasize prevention of groundwater contamination, rather than its cure.[(3)]

The agencies have resorted to requirements for groundwater monitoring, liners, leachate collection and treatment, and final caps to monitor and avoid groundwater problems for ash as well as other wastes.[(4)]

Another source of greater regulatory scrutiny is the focus of citizens and legislatures on "out of state" waste Ñ including ash Ñ as the villain of the waste disposal arena.[(5)]

The fact that ash imported into the state was originally exported from the state as coal has not seemed to diffuse the outcry.

The Clean Air Act Amendments of 1990[(6)] require coal-burning electric utilities, which generate 90 percent of all fossil fuel wastes, to lower sulfur emissions. As a result, many utilities are shifting to fluidized bed combustion (FBC) units, which add limestone to coal combustion in order to capture sulfur and nitrogen oxide emissions during combustion without the use of end-of-the-pipe scrubbers. The volume of ash produced by an FBC unit may double that of conventional pulverized coal plants using the same amount of coal.[(7)]

Moreover, the composition and pH of the ash produced in FBC units is different than that of ash from conventional plants, and regulatory authorities tend to want more assurances that its disposal is safe.[(8)]

Finally, energy producers, particularly cogeneration facilities, are now demanding as part of coal purchase contract terms that coal suppliers take back the ash.[(9)]

This practice has put the spotlight on ash disposal in many coal-producing states. These states have become arenas for conflicts between environmentalists demanding tighter controls and coal producers asking for more flexibility to dispose of greater amounts of ash.

§ 4.02. Beneficial Reuse.

[1]ÑGeneral.

While ash is incurring greater scrutiny as a potential polluter, it is also gaining in value as a by-product suitable for countless uses.[(10)]