TVA Coal Ash Recycled in Building Materials

Long before a coal ash spill deluged a rural neighborhood, the Tennessee Valley Authority was spreading million of tons of waste byproducts from its coal-fired power plants across the landscape — as recycled building materials. "Yes, we are taking these materials and we are reducing the amount that goes into disposal and beneficially reusing them. They are good products in the manufacturing process," said Mike Sutton, who heads TVA's coal byproducts marketing group. Reports that it sells about a third of the 7 million tons of fly ash, bottom ash, gypsum and boiler slag generated by its 11 coal plants each year. Another 20 percent is reused in construction projects on TVA sites.

Over the years, TVA's coal byproducts have ended up in concrete for roads and bridges, concrete blocks for buildings, gypsum for wallboard, granules for roofing shingles and grit for sandblasters. The ash also has become filler material for recreation areas, ball fields and industrial parks. One marketer, Columbia, S.C. based SEFA Group, buys fly ash from TVA and sells it to ready mix concrete companies from Alabama to Kentucky. "It is one of the few things in life that can reduce the cost and improve the quality" of concrete, said Jimmy Knowles, the company's vice president for marketing.

Environmental groups and plaintiffs' attorneys responding to the 1.1 billion-gallon spill of ash sludge and water that flooded homes and river inlets near the Kingston Fossil Plant last Dec. 22 have raised fears of toxic metals in the grayish muck. But Sutton counters that up to 70 percent of the ash is silica or sand, roughly 20 percent is aluminum compounds and about 10 percent is sulfur and iron. "So when they talk about the metals, they are talking about trace metals ... because they are in such small concentrations," Sutton said. Coal ash "is about as toxic as dirt," said Mike McDonald with the American Coal Ash Association.

TVA has been selling coal byproducts for about two decades and actually makes a profit disposing of the stuff. Sutton said TVA received $4.2 million for these materials last year, about twice as much as the cost of marketing efforts to sell it. Still, TVA can only find a place for so much of it. About half the material, some 3.4 million tons, continues to accumulate each year in onsite ponds, dredge areas and landfills at TVA's coal plants in Tennessee, Alabama and Kentucky.

Sutton said TVA achieved an industry high of 70 percent sales or reuse of these byproducts in 2005 before construction activity subsided with the economy. The industry average for beneficial sales or reuse of these byproducts was 43 percent in 2007, said McDonald with the coal ash association. He said the Environmental Protection Agency and coal utilities want to push that to 50 percent by 2011 and 54 percent by 2014.

The level of recycling varies from one TVA plant to another depending on the type of coal they burn, how they burn it and the level of pollution controls. For instance, the Allen plant in Memphis and Paradise plant in Drakesboro, Ky., are able to sell most of their slag for roofing materials and sand-blasting grit. The Bull Run plant in Oak Ridge can sell most of its bottom ash for concrete blocks. But as many as a third of TVA's plants struggle to unload their byproducts, including Kingston, where the ash pile reached 60 feet high.

Sutton said he is talking with the Tennessee Department of Transportation about putting more TVA ash into their projects. The most likely use will be fill material for highway embankments in which ash is contained to prevent leaching into groundwater.