AES Agremax

Issue: The widespread land placement of "Agremax," an aggregate of ash generated by the AES coal fired power plant in Guayama, Puerto Rico, and sold as a product under a P.R. Environmental Quality Board (EQB) solid waste exemption, may present significant environmental concerns due to the potential for leaching of toxic heavy metals. The environmental group Earthjustice, along with several P.R environmental advocates, has urged the Region to address the issue through use of its imminent and substantial endangerment authority under RCRA Section 7003.

Current Status: In March 2012, EPA, accompanied by EQB, obtained a composite sample of recently manufactured Agremax (comprising 20 sampling locations) stored at the AES Guayama facility. The sample was analyzed by an EPA-ORD contract laboratory, using validated new test methods developed by ORD and slated for publication as official EPA methods. The analytical results were discussed in a power point presentation by ORD and gave us a clearer understanding of the heavy metals levels in Agremax under a range of pH conditions. ORD stated that "Agremax" had contaminate levels no different than observed in a" typical" coal ash. In order to better inform EPA Region 2 as to the potential threat posed by the disposal of this coal ash, ORD recommended follow-up analysis, which has been completed and confirm the initial findings. We are now working with OSWER to model the data to assess the potential impact to the underlying groundwater aquifer and nearby drinking water wells. We await a timeframe from OSWER, and are prepared to use contract funds to conduct the modeling if OSWER is unable to complete modeling by November 1, 2012.

A November 2011 EPA letter to EQB Chairman Nieves requested reconsideration of the Resolutions and Notifications that provide the solid waste exemption for Agremax, to incorporate, among other things, risk evaluation and engineering controls. In a January 2012 reply, Chairman Nieves requested to participate in our investigation, and stated that EQB was developing draft guidance for Agremax. EPA responded in February 2012, and indicated that while it welcomed EQB involvement it remained concerned with the ongoing use of Agremax in the absence of appropriate engineering controls. EQB subsequently gave us a draft guidance document to review, and we provided comments in a July 2012 letter, to which we have not had a reply. George Meyer spoke with EQB Charman Nieves on September 27, 2012, and was informed that the Chairman was unsure of the status of EQB's revision of the draft and would get back to us.

Background: In June 2011, EPA met with the coal combustion product manager for AES P.R., who informed us that the Guayama coal fired power plant mixes all of its bottom and fly ash with the spent limestone from its air pollution control equipment, to produce 4,000 tons/week of Agremax for use as a product in road bed construction, concrete manufacturing, and soil stabilization. EPA accompanied several P.R. environmental advocates on site visits to ten areas where Agremax had been placed on land in the municipalities of Arroyo, Guayama, and Salinas, and observed that Agremax had been used as fill material in great amounts over extensive areas, some in proximity to rivers, streams, and wetlands. In some instances, disposal, rather than beneficial reuse, appeared to have occurred. We met with the P.R. Department of Health to review their groundwater data, obtained from wells near the land placement sites (no

exceedences observed), and spoke at length with EQB, who subsequently provided us their aquifer ground water level data (no relevant contaminant analysis). We also reviewed ground water data from the P.R. Aqueduct and Sewer Authority (no exceedences observed).

In a September 2010 letter, representatives of the environmental group Earthjustice and a private citizen, Ms. Ruth Santiago, Esq., had requested that EPA look into the management of Agremax, stating that the relevant EQB beneficial use determination had been repealed, that Agremax had continued to be used as fill, and that such use posed environmental threats. On this basis, they urged that EPA conduct groundwater and other monitoring. Our investigation of this issue was also supported by the Office of Resource Conservation and Recovery (coal combustion residuals rulemaking work group lead Alex Livniat, PhD). We subsequently confirmed that the EQB Resolutions and Notifications providing the Agremax solid waste exemption have been, and remain, in effect.

We are aware of possibly analogous damage cases documented by EPA and others, involving coal ash disposal. A 2007 EPA report "Coal Combustion Waste Damage Case Assessments" documents known damage cases from the mismanagement of coal ash (as opposed to Agremax, which is made into an aggregate by the addition of calcium oxide and water) in unlined landfills and surface impoundments and the subsequent contamination of drinking water aquifers through the leaching and ground water transport of contaminants in the ash. Two EPA Orders, issued in 2003 and 2004 under the Comprehensive Environmental Response, Compensation, and Liability Act, and a subsequent 2004 citizen suit taken under Section 7002 of the Resource Conservation and Recovery Act, address aquifer contamination by the leaching of toxic constituents from an unlined coal ash landfill in Pines, Indiana.

The EQB Resolutions and Notifications are based on Agremax passing the RCRA toxicity characteristic leaching procedure (TCLP), as detailed in a 2007 study and report by the P.R. legislature. EPA has since developed four new test methods for evaluating leaching in the environment, called the leaching environmental assessment framework, or "LEAF", which are currently slated for publication as official EPA test methods (i.e., in EPA document SW-846). EPA has no plan to replace the regulatory uses of the TCLP (i.e., to make hazardous waste determinations) with the new test methods. Rather, once published as official EPA test methods, the LEAF will be used where TCLP is not required or best suited, in order to provide an estimate of contaminant release under various environmental conditions.

In May 2010, EPA published a proposed rule to ensure the safe disposal and management of coal ash. Under the proposed rule, the Agency would continue to promote the beneficial reuses of coal ash, in which coal combustion residuals are recycled as components of products instead of being placed in impoundments or landfills EPA has yet to issue a final rule, and, until a decision is made, EPA's prior determination that coal ash is a solid waste remains in force. However, no RCRA regulatory requirements for coal ash management currently exist, while states may, and in many cases have, made binding regulatory determinations on appropriate coal ash management practices.