

MEDIA RELEASE

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Boral Resources Commences Marketing of Previously Disposed Fly Ash

September 13, 2018 – Boral Resources has commenced harvesting and making available approximately 2 million tons of high-grade Class F pozzolan from a fly ash monofill in central Pennsylvania. The fly ash was produced by a coal-fueled generating station in the 1980s and 1990s, with the material stored in a covered dry stack on a 30-acre site.

In preparation for harvesting and marketing the fly ash, Boral Resources sampled and tested the materials comprehensively. Samples were drawn from boring locations throughout the monofill and evaluated for chemical composition, carbon content, loss on ignition (LOI), particle size distribution, fineness, organic impurities (ASTM C40), foam index, and adsorption.

Testing of the fly ash boring samples has determined it to be of consistently higher quality than current-generation ash across a range of criteria. The harvested ash has a higher pozzolanic content than as-produced ash and far lower levels of LOI and sulfur. Foam index tests show that the ash's adsorption of air-entraining agents is extremely low—making the harvested ash particularly suitable for applications requiring freeze-thaw resistance. Samples also tested negative for organic contaminants. Chemical and physical analyses of a boring composite sample of the landfilled fly ash were also performed to assess it against both the ASTM C618 and AASHTO M295 standard specifications for coal fly ash and raw or calcined natural pozzolan for use in concrete. The sample met or exceeded the requirements of both standards.

Material and performance in concrete testing of borings composite and 14-ton samples were carried out and compared with that of an as-produced sample to determine suitability for concrete applications. The harvested fly ash was found to contain higher levels of alumino-silicates than the as-produced sample and is expected to outperform current-generation ash as a pozzolan.

"The Washingtonville project represents a leap forward in providing options for harvesting previously disposed fly ash," said Terry Peterson, Vice President, Boral Resources East Region. "This strategy will enable increased supplies of high-quality ash for use in concrete. It represents an important new arrow in



our quiver of technologies that will be used to supply ash markets affected by closures of coal-fueled power plants."

An on-site processing plant is used to dry and beneficiate the harvested fly ash. The quality product is tested to assure consistency for use in ready mixed concrete and other durable/high-strength applications.

Peterson also pointed out that, for lower-quality ashes and ash disposed in wet impoundments, Boral offers carbon burn-out technology as an additional harvesting option. In this process, residual carbon in fly ash is combusted to produce a consistent, low-carbon, high-quality pozzolan suitable for use in concrete and other high-value applications. Carbon burn-out can also be used to cost-effectively process ash that has been stored for long periods, converting it into a high-quality pozzolan for sale to concrete producers.

About Boral Resources: Servicing 135 locations in 45 states, Boral Resources is the nation's largest manager and marketer of coal combustion products. The company operates an extensive distribution network for fly ash and related products, as well as provides site services to power plants. Boral Resources also offers an array of proprietary technologies for improving ash quality and availability.

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