

Case Study: Foundry Sand in Land Application

Indianapolis Castings Corporation: Marion County Fairgrounds Project

Indianapolis Castings Corporation (ICC), a wholly owned subsidiary of International Truck and Engine Corporation, is a dedicated high production volume grey iron foundry located in Indianapolis, Indiana. ICC has manufactured grey iron engine blocks and heads since 1938, and its primary customers are Ford Motor Company, General Motors, and International Truck and Engine Corporation. ICC has the capacity to pour 1,000 tons per day of grey iron, which generates 350-400 tons per day of spent sand. ICC's active beneficial reuse program ensures that the foundry reuses 80 to 85 percent of the sand that it produces. Dozens of customers across the midwestern United States use the spent foundry sand in various applications.

Residual Management, a subcontractor to ICC, assists with the management of ICC's beneficial reuse program. Residual Management facilitates the sourcing and daily project management of ICC's beneficial reuse programs that use ICC's spent foundry sand. One characteristic that is commonly required for successful beneficial reuse projects is a location within a 25-mile radius of ICC's site. Otherwise, the transportation costs are prohibitive and would exceed the cost to landfill the sand.

One example of ICC's successful beneficial reuse projects is the Marion County Fairgrounds Project. Marion County largely encompasses The City of Indianapolis, Indiana. The Marion County Fairgrounds initially consisted of an open area with bleachers on one side of an arena and an open field on the other side that bordered I-74, a heavily traveled interstate highway. The Marion County Fairgrounds Project team thought that multiple benefits could be gained from a sight and sound berm in the open field. Some of the benefits included preventing the interstate's sights and

sounds from entering the arena, eliminating dangerous driver distraction on I-74 during fair events, and containing the sounds of arena, a benefit to the Fairgrounds' neighbors. The berm also would provide an additional seating area so that Fairgrounds events could be viewed from both sides of the arena. Production of the berm began during the summer of 2006 after receiving approval from the Marion County Fairgrounds Board and the Indiana Department of Environmental Management (IDEM) and was completed in the summer of 2007.

The berm was made exclusively from approximately 75,000 tons of ICC's spent foundry sand, over which ICC placed a layer of native soil. The vertical structure ranged from 12 to 15 feet tall and included a side slope for arena seating.



Figure 1. View from inside arena (berm on left)

This project provided benefits to all stakeholders. ICC was able to reuse its spent foundry sand, reduce its impact on the environment, and forgo more than \$100,000 in additional costs associated with the landfill of spent sands. In addition, the Marion County Fairgrounds received a no-cost enhancement valued at approximately \$250,000. Fairgrounds neighbors received insulation from arena noise, and driver safety was greatly increased along I-74 due to the elimination of arena distractions along the interstate. The project also had

environmental benefits, as it used recycled foundry sand instead of virgin sand that would have been excavated from a gravel pit. Aesthetically, the berm blocked the view to I-74, thereby creating a more attractive area in the Fairgrounds.



Figure 2. View from outside arena

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Personnel	<p>Foundry: Indianapolis Castings Corporation (ICC)</p> <p>Contractor: Residual Management</p> <p>End User: Marion County Fairgrounds, IN</p> <p>Regulatory Agency: Indiana Department of Environmental Management (IDEM)</p>
Site	<p>Recycling Location: Indianapolis, IN</p> <p>Site Description: ICC and Residual Management used spent foundry sand to create a sight and sound berm at the Marion County Fairgrounds.</p>
Materials Utilized	75,000 tons of spent foundry sand in the form of spent green sands and sand cores.
Project Costs and Benefits	<p>Costs Include:</p> <ul style="list-style-type: none"> • Transportation of the foundry sands to the project site and daily project management by the contractor. <p>Benefits Include:</p> <ul style="list-style-type: none"> • ICC avoided the cost to landfill spent sand. • Marion County received a no-cost enhancement to its Fairgrounds. • Spent sand replaced naturally occurring virgin sand as berm fill material. • Berm provided a noise barrier. • Berm created aesthetic benefits by blocking view of the interstate. • Driver Safety was greatly increased along a major Interstate.