

CASE STUDY: USE OF CIRCULATING FLUIDIZED BED BOILER BYPRODUCT TO SOLIDIFY OILY SLUDGE

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ABSTRACT

A removal action was conducted at a former oil recycler in Jacksonville, Florida that had been inoperable for a number of years. No effort was made during shutdown of the facility to secure or remove the product in the 24 tanks used in the recycling operation. At the time of the removal action these tanks still contained varying quantities of liquid and sludge, with the largest tank on site containing on the order of 200,000 gallons of sludge. As part of removal action the liquid was sent off-site for treatment or recycling and the sludge was sent to a Subtitle D landfill for disposal. One of the landfill acceptance criteria was the sludge could not contain free liquid. The sludge was oily in nature and for the most part could not meet free-liquid requirement without the addition of solidification agents. Common solidifying agents are cement, kiln dust, and lime. For this project circulating fluidized bed boiler byproduct was available from a local power plant. At this plant limestone is added to the coal and petroleum coke fuel as part of the flue gas desulfurization process. The resulting byproduct is high in calcium oxide and calcium sulfate, and is an effective solidification agent. The paper will briefly describe the site and overall removal action activities with focus on the solidification process. The paper will discuss the chemical nature of the solidification agent, leaching studies performed on sludge samples, details of the solidification activities, and the time dependent behavior of the solidification agent.

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