

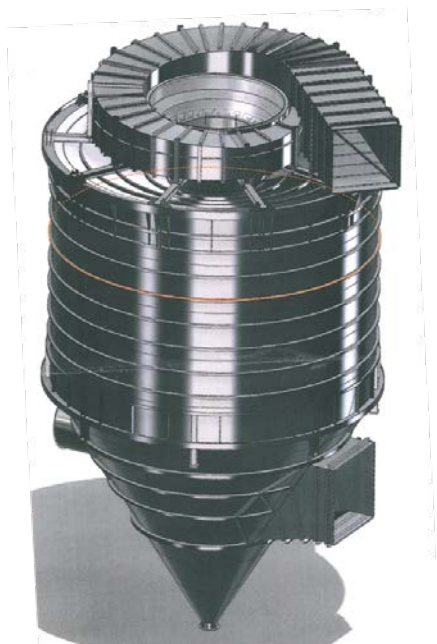
TECHNICAL SERVICE BULLETIN

Purpose

This Technical Service Bulletin advises owners and operators of Babcock & Wilcox (B&W) and Joy Niro Dry Flue Gas Desulfurization (FGD) systems of an extremely dangerous condition that was found and the need to **immediately inspect and evaluate** their Spray Dryer Absorber (SDA) vessels for wall thinning and to **take immediate action** to correct any structural weakening on the vessel walls that may exist.

Background

In the mid 1990s, B&W acquired the licensing rights to the Joy Niro technology and began marketing this technology to utility and industrial users of fossil-fueled boilers for flue gas desulfurization cleaning. In 1997, a Joy Niro dry FGD system experienced a catastrophic failure to an SDA vessel and B&W released a Technical Service Bulletin in February 1998 to advise other users to take immediate action to assess the structural condition of their equipment. Since then, B&W has supplied many similar systems and has provided assistance to a number of customers in that regard. Newer designs and upgrades incorporate vertical stiffeners to reduce the risk of failure compared with older vessels.



With changes in the clean air regulations to further clean flue gases of certain chemical compounds before being released into the atmosphere, mercury is now being captured and many users are adding chemicals to their fuel or exhaust gases to capture this pollutant.

Problem

It is normal for owners of dry FGD technology to periodically inspect their systems to assess any deterioration of their equipment to help assure reliable and efficient operation. Following normal operating cycles, equipment is removed from service to make necessary repairs and to inspect for changing conditions. History of past inspection results often dictate the frequency and scope of future outage inspections.

With the recent use of some additives in the operating process to capture mercury, owners are now experiencing high rates of corrosion to their SDA vessels. The location of the increased corrosion has mostly been at the mid height of the SDA vessel shell walls where the atomized slurry sprays into and mixes with the incoming flue gases. The increased corrosion rates appear to be occurring without any significant changes to how the equipment is operated but may be exacerbated by increased load cycling. Though corrosion rates appear to be increasing since the use of chemical additives were introduced into the operating process, how and why it is affecting corrosion rates and shell metal loss is not yet completely understood.

Some owners are finding significant increases in metal loss on the interior surfaces of the SDA vessel walls. Inspection of their equipment for wall metal loss since the last inspection has found significant increases of wall thinning and weakening of the vessel structure. In one case, the damage was significant enough that the SDA vessel partially collapsed at the thinned area.

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Recommendation

Because of the nature of this failure and the potential for personal injury or death and property damage, it is absolutely imperative that dry FGD operators assess the condition of their SDA vessels as soon as possible.

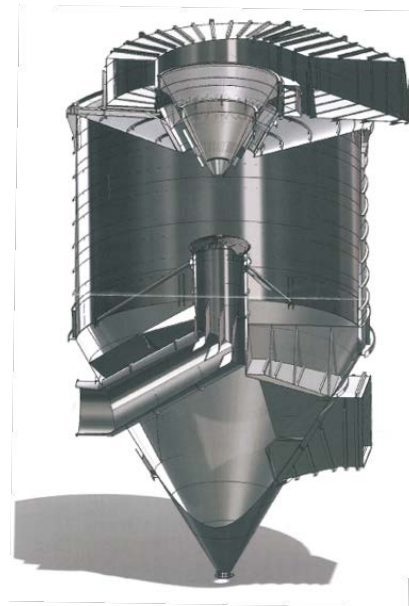
Owners and operators of dry FGD systems should plan to immediately check their SDA vessels for wall thickness. If the unit is in operation, the SDA vessel shell can be accessed through small openings in the exterior insulation and lagging where reasonable access is available. The more data points that can be collected, the more accurate the information will be to evaluate the current condition of the vessel. Special attention should be given to any area where wall deposits have been observed during unit operation as well as the elevations between the central gas disperser and the atomizer. This information should be compared to any historical shell thickness data to evaluate if the corrosion rates have increased and how structurally sound the vessel currently is based on the original design conditions.

B&W requests that you provide the results of your vessel inspection and data to the B&W district service engineer in your area. Consider having B&W Engineering evaluate the structural soundness of the existing SDA vessel with the current and expected future metal thicknesses and to offer solutions to return the thinned vessel shell to its original design strength or to a satisfactory level of safety to the owner. Structural reinforcement of the SDA vessel, if required, will give confidence to the owner that the vessel will not collapse or force the unit offline.

Some owners have installed a corrosion-resistant protective coating on the inside surface of the SDA vessel walls in the higher metal loss areas to slow the thinning due to corrosion of the carbon steel vessel walls. Early indications of these protective products indicate that metal loss has been significantly reduced once applied and in service.

Support

Contact B&W Field Engineering Services through your local district service office for assistance in your SDA investigation and inspection efforts or if you have any questions. B&W is prepared to address any questions you may have concerning wall thinning and to provide you with all the inspection, engineering and construction services you may need to understand, design and install any repairs to restore the condition of your equipment.



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