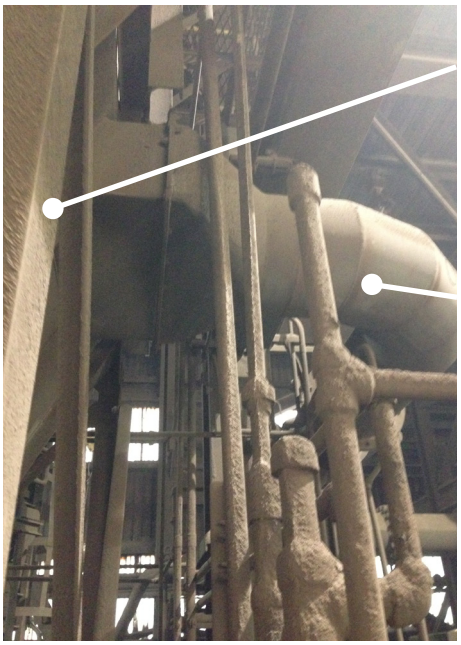
Case Study

West Coast plant reduced bottom bag abrasion & extended filter life by installing ladder vane baffles in their pulse jet dust collector

Challenge

Customer was getting three month bag life directly related to bottom bag abrasion. The ductwork design with its sharp right hand turn forces the majority of the air to hug the outer side of the ductwork. Currently, there is no baffle to disperse the air. As the gas stream enters the collection system, it strikes the filters & rear wall of the hopper and creates an undesirable turbulence at a point below the filter bags.

Rear wall deflection can direct the gas stream downward, forcing previously collected dust in the hopper back into the filtration system for the bags to filter again. Also, an unacceptably high air velocity created by this turbulence does not allow the dust to be evenly distributed into the compartment and sand blasting occurs on the bags. The end result is an overworked collection system that will lead to prematurely worn, blinded bags.



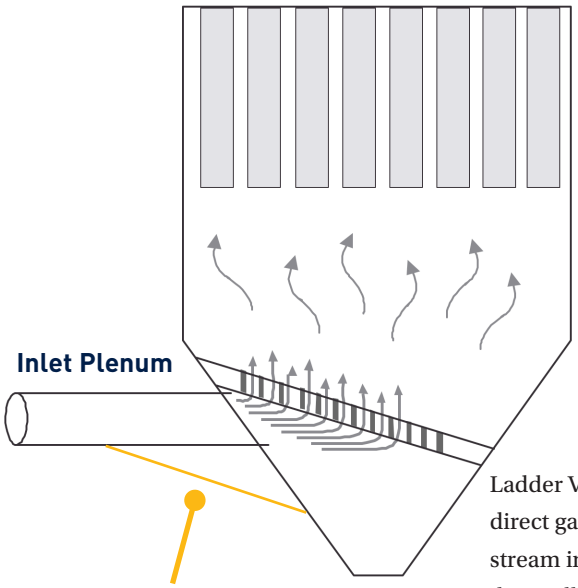
Ductwork inlet design forces air to left side of the baghouse

Air travels on outside of the ductwork

Gas stream is distributed evenly; bag life is increased.

Solution

Ladder vane baffles (in conjunction with improved inlet duct arrangement) can progressively deflect the inlet gas stream into the collection system to prevent the rear wall turbulence & direct dust striking the bag. The open vertical design does not allow dust to build on the vanes during the cleaning cycle preventing re-entrainment into the collection system. If room permits, you can open the inlet duct and expand downward into the hopper which slows the air down and increases dust drop out in the air stream.



Result

- The dirty air distributes more evenly, reduces inlet abrasion of the filters and bags perform as they should because they don't filter the same dust more than once.
- Less dust to filter promotes increased bag life and as a result collection system maintenance costs typically decrease.
- The air to cloth ratio dropped to 1.5 to 1, and increased airflow through the baghouse
- Bottom bag abrasion is longer a problem.

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