

Technical challenges and abatements of a mass burn waste-to-energy plant co-incinerating municipal solid waste and industrial waste

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Abstract

The application of mass burn waste-to-energy (WTE) plants is becoming more popular in Asia, not just for proper disposal of municipal solid waste (MSW) like most plants in the western world do but stretched by many Asian plants to co-incinerate non-hazardous industrial waste (IW) in order to maximize the use of the plant facilities, hence to save costs from building facilities specifically for treating IW. As the plants are designed with conventional considerations practiced in the western world and the original designs are not oriented towards co-incinerating large percentages of IW, plant operators frequently face challenges such as unstable combustion quality, frequent boiler tube rupture amplified by co-incineration, inadequacy of the conventional control systems and other facilities to handle the co-incineration application. One co-incineration WTE plant in Taiwan is used as an example to illustrate the significance of these challenges, some measures taken to abate the problems and the cost impacts. Suggestions are also provided for technical management of co-incineration plants.

Key words: boiler tube rupture, co-incineration, flame impingement, mass burn, steam flow fluctuation