

Safe Handling and Storage of Biomass within RWE Generation

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Abstract

RWE has over 25 years of experience with the use of biomass fuels in its power stations. A wide variety of fuels have been processed in its converted coal fired stations as well as in dedicated biomass BFB/CFB boilers and gasification plants in the UK and the Netherlands. During the years, safe unloading, storage and handling of biomass fuels has been one of the most challenging aspects of plant operation. Despite preventive efforts, several fire and explosion incidents have occurred in the past.

Mitigation of fire and explosion risks in handling and storage systems for biomass starts with a process design incorporating industry guidelines and best practices. Process safety studies must be performed by balanced teams with a high level of experience and expertise. System design, control and procedures for operations and maintenance should be ‘dummy-proof’ and understandable.

During the operation phase of projects, the way these procedures are followed must be frequently audited. Safety incidents should be followed up properly and complex incidents should be subject to a root cause analysis to prevent similar incidents in the future. Reflecting with industry peers and openly sharing information on safety related incidents and best practices contributes to the safety level in the industry. The same applies for continuous evaluation of effectiveness of the implemented measures to mitigate safety risks.

Recently, RWE has made a comparison between internal and external (UK Energy Institute) guidelines on safe handling and storage of biomass. In parallel, the safety record of the RWE biomass fleet has been evaluated to identify the effectiveness of measures taken in the past. These two initiatives provide guidance for biomass projects in both the operational as well as in the development phase.