

Safety System Design and Overfill Protection for Loading Asphalt onto Trucks

Authors : Wendy Ampadu, Ray Diezmos, Hassan Malik, Jeremy Hyslob

Abstract : There are several technologies out there for use as high-level switches as part of a system for shutting down flow to a vessel. Given that the asphalt truck loading poses issues such as poor visibility, coating, condensation, and fumes, a solution that is robust enough to last in these conditions is often needed in industries. Furthermore, the design of the loading arm, rack, and process equipment should allow for the safety of workers. The objective of this report includes the redesign of structures for use at loading facilities and selecting an overflow technology protection from hot bitumen. The report is based on loading facilities at a Canadian bitumen production company. The engineering design approach was used to create multiple redesign concepts for the loading dock system. Research on overfill systems was also completed by surveying the existing market for technologies and securing quotes from over 20 Canadian and United States instrumentation companies. A final loading dock redesign and level transmitter for overfill protection solution were chosen.

Keywords : bitumen, reliability engineering, safety system, process safety management, asphalt, loading docks, tanker trucks

Conference Title : ICRESS 2021 : International Conference on Reliability Engineering and System Safety

Conference Location : New York, United States

Conference Dates : January 28-29, 2021