

Damage Limiting Construction – Part 1 The Event



Damage Limiting Construction- Part 1. HCI Systems, Inc.

This photo does not depict a recent event. So no need to try to "Google" it. It was one of my experiences early on in my career. Some called it the Humpty Dumpty project. I have used this photo in many of my Damage Limiting Construction (DLC) seminars. It's an eye opener. It is **not** an example of how to design a structure for overpressure. Although, in this example, the combustible was coal dust, it is equally applicable for any dust that is combustible. This is the first article in a multi-part series that will discuss methods to reduce the risk of such an event including the technique of damage limiting construction.

At first glance the photo appears to suggest the event was limited to the building involved. But, as future articles will show, the event propagated throughout the plant. So what happened here? Well, apart from the presence of combustible dust above the LEL and an ignition source, the structure was not designed to fail in a predetermined way. The confinement of the fire ball by the siding resulted in an increasing internal pressure that



eventually overcame the siding fasteners. Just about all of them. The fire ball under that initial pressure made its way to other parts of the plant shaking structures as it propagated releasing additional dust to fuel the event.

So here are a couple of questions:

1. So what do you think happened to the stuff attached to the siding?
2. If the structure was constructed of masonry or brick, would that have made the event worse?

Can't wait for the next article? Contact us at richgehse@hcisoftware.biz.