Layer of Protection Analysis on a Natural Gas Storage Facility

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Abstract

Layer of Protection Analysis (LOPA) has been conducted on a large scale natural gas storage facility. Accident scenarios were also constructed based on the HAZOP study of butane storage tank which was supposed to increase its capacity. The most fatal accident is considered to be by tank explosion, and control of pressure and liquid level are the most important operating parameter. Deviation by pressure in one of the most effective factors to be analyzed in detail and LOPA was applied to the scenarios. Independent protection layers (IPLs) were also studied on some scenarios, which prove to have much improved results against accidents, i.e., improve consequences very much.