

A Predictive Approach to Loss Prevention in the Energy Industry

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Quite a number of petrochemical plants in Korea has more than 30 year's history and is exposed to incidents. A preventive approach was conducted by analyzing equipment failure and human reliability. As a result of the National Research Laboratory (NRL) for 5 years, the APoLo (Assessment & Prevention of Loss) program for the chemical process plant has been demonstrated in prototype.

The APoLo program consists of 3 modules, AFTA, AERA, and AHRA. AFTA (Advance fault tree analyzer) is to analyze incidents having more than 5 hundreds of incidents collected by 11 member companies. The AFTA additionally equipped with layer of protection analysis (LOPA) function, which enables analyze risk semi-quantitatively. The AERA (Advanced equipment reliability analyzer) has more than 3 thousands inventory of reliability data on equipments and suggests failure rate of equipment in individual plant level as well as generic level. The AHRA (Advanced human reliability analyzer) is a module to analyzer human reliability and give answer quantitatively.