

Facility	Esso plant, Longford, Victoria, Australia
Date	25 <sup>th</sup> September 1998
Consequences	2 fatalities and 8 injured.
Description of accident	<p>A pump supplying heated lean oil to a heat exchanger stopped and was offline for several hours. There was no flow of warm lean oil though the heat exchanger causing the temperature to drop to a value which was estimated to be -48<sup>o</sup>C and well below the normal operating temperature (approximately 100<sup>o</sup>C). The low temperature resulted in the formation of ice on the heat exchanger nozzle.</p> <p>When the lean oil pump was restarted, it introduced a flow of warm lean oil into the exchanger. The temperature differential caused stress in the vessel resulting in its brittle fracture.</p> <p>A vapour cloud upwards of 10 tonnes of hydrocarbons was released, which was ignited by heaters 170m away leading to a series of explosions and vessel ruptures.</p>
Key Lessons Learnt	<ul style="list-style-type: none"> <li>• Assessment of hazards Procedures for identifying foreseeable failures with significant consequences should be developed and operators inculcated in these. At the Esso plant, a Hazard and Operability study (HAZOP) which would have identified the potential hazard was not carried out</li> <li>• Management of change There were significant changes in operating processes, staffing and procedures at the Esso plant without thorough risk assessments being carried out for the changes.</li> <li>• Training of personnel Personnel should be provided with training in the limitation of plant equipment.</li> <li>• Adequate engineering expertise and senior supervision should be provided on-site, allowing operators sufficient technical support.</li> <li>• Emergency response planning needs to be based on a review of the full spectrum of the risk profile, including alarm analysis.</li> </ul>
Reports & Links	<p>1) Learning from accidents, Kletz, T., 3<sup>rd</sup> edition, Gulf Professional Publishing, 2001.</p> <p>2) Lessons From Longford: The Esso Gas Plant Explosion, Hopkins, A., CCH Australia Limited, 2000.</p> <p>3) Report of the Longford Royal Commission: The Esso Longford Gas Plant Accident, Dawson, D., Brooks, B., Melbourne: Government Printer for the State of Victoria, 1999.</p>