


Incident Title		Chicken Processing Plant Fire													
Incident Type		Fire													
Date		3 rd September 1991													
Country		USA													
Location		Hamlet, NC													
Fatalities		Injuries	Cost												
25		54	Unknown												
Incident Description		<p>A major fire erupted at a gas-fired deep fat fryer in a chicken processing plant building. It spread rapidly, causing panic, and many workers were injured as they rushed to escape. Large quantities of dense smoke were produced by a combination of burning soybean oil and chicken, along with melting roof insulation. The smoke had the potential to disable a person after just a few breaths. Several gas pipes in the ceiling caught fire and exploded. 25 people died and a further 54 were injured, suffering after-effects including burns, blindness, respiratory diseases from smoke inhalation and post-traumatic stress disorder (PTSD). The plant owner received a prison sentence of almost 20 yrs, subsequently commuted to 4 yrs. The plant was never re-started.</p>													
 <p>Credit: Wikimedia Commons</p>		<p>Basic cause was failure of a pipe connector on a high pressure hydraulic oil feed line which powered a conveyor belt supplying a deep fat fryer (cooking vat). The pressurised oil release atomised and vapourised on hot surfaces, erupting into a fireball on contact with flames in the deep fat fryer.</p> <p>Critical factors included: 1) Open layout of plant to allow easy movement of product by fork lift truck (no smoke/heat barriers), 2) Fire doors were kept locked to prevent theft, vandalism and incursion of flies (workers trapped), 3) Hamlet was not connected to the “911” emergency telephone service (workers unable to immediately call for help), 4) Worker who drove to nearby fire station to report the factory fire did not mention trapped workers, 5) No safety inspections were carried out by the state or local authorities (locked fire doors and inadequate emergency lighting not reported).</p> <p>Root causes included: 1) Inadequate management of change (new hose trimmed), 2) Inadequate repair (old connector fitted to new hose and placed in service without pressure test), 3) Inadequate hazard analysis (atomisation and vapourisation of hydraulic oil), 4) Inadequate fire protection (automatic fire detection/suppression system), 5) Normalisation of deviance (failure to unlock fire doors after previous fires), 6) Inadequate safety management system (absence of evacuation plans, fire drills, fire training for workers), 7) Inadequate communication system (“911” emergency telephone), 8) Failure to enforce existing safety and fire protection regulations (inadequate funding for Occupational Health and Safety Administration [OSHA] safety inspectors yet US Department of Agriculture [USDA] poultry inspectors visited daily).</p>													
Incident Analysis		<p>Lessons Learned</p> <p>1) High pressure (HP) hydraulic oil system maintenance should only be carried out by specifically trained technicians, 2) HP hydraulic oil systems should incorporate automatic emergency shutdown systems (ESDs), 3) Cooking areas should be separated from other process areas, 4) Non-combustible materials should be used for construction of buildings (e.g. concrete, bricks or steel) and internal partitions should have time-rated fire resistance, 5) Federal and state inspectors from various departments should be cross-trained in hazard recognition.</p>													
Lessons Learned		<p>More Information</p> <p>1) “Chicken Processing Plant Fires; Hamlet, North Carolina and North Little Rock, Arkansas”, US Fire Administration, Technical Report USFA-TR-057. 2) “The Hamlet Chicken Processing Plant Fire - Outcomes and Good Practices for Avoiding a Recurrence”, T. Fishwick, IChemE Loss Prevention Bulletin 260 (2018): https://www.icheme.org/media/1991/lpb260_pg06.pdf. 3) “The Hamlet Fire; A Tragic Story of Cheap Food, Cheap Government and Cheap Lives”, B. Simon, The New Press, ISBN 978-1-62097-238-0 (2017).</p>													
More Information		<table border="1"> <tr> <td>Industry Sector</td> <td>Process Type</td> <td>Incident Type</td> </tr> <tr> <td>Food & Drink</td> <td>Food Processing</td> <td>Fire</td> </tr> <tr> <td>Equipment Category</td> <td>Equipment Class</td> <td>Equipment Type</td> </tr> <tr> <td>Mechanical</td> <td>Piping</td> <td>Hose Connection</td> </tr> </table>		Industry Sector	Process Type	Incident Type	Food & Drink	Food Processing	Fire	Equipment Category	Equipment Class	Equipment Type	Mechanical	Piping	Hose Connection
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