


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>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			
Lessons Learned		<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 (eg. 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>	
More Information		<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), 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>	
Industry Sector		Process Type	Incident Type
Food & Drink		Food Processing	Fire
Equipment Category		Equipment Class	Equipment Type
Mechanical		Piping	Hose Connection