Case Study

Whiskey Distilling & Maturation

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Ireland’s Whiskey Distilling
Walsh Whiskey Distillery
Royal Oak Carlow

**Distilling**

- The Irishman
  - Original triple malt
- Writers Tears
  - Blend of
- Distilled on Site, Matured off Site in Warehouses
Fire Safety Application

• 2014 An application was made for a Fire Safety Certificate.
• B/C 14/20 – Application for “An Industrial Unit for Distillery Purposes”
  TGD “B”
  • Purpose Group 6 – Industrial (³)
  • (³) Appendix E “Assessment of Risk in Industrial & Storage Buildings”
    • Assessment of High Risk
      • E2
        a) Presence of Materials when ignited cause rapid fire spread
        b) Presence of highly flammable or explosive materials
        c) Manufacturing of highly flammable liquids
        d) Storage of hazardous Goods
        e) Manufacturing of a hazardous substance
  • E3 – Hazardous Materials
    (iii) Flammable Liquids with flash point below 65° including whiskey
Finding Guidance From other Sources

• Chemicals Act (Control of Major Accident Hazards Involving Dangerous Substances) (COMAH) Regulations – updated 2015

• Health & Safety Authority

• Dangerous Substances & Explosive Atmospheres Regulations

• Scotland
  • Storage & Handling of Medium & High Strength Potable Alcohol
  • Electrical Installations in potentially flammable atmospheres within the spirit industry
  • Dust, Explosive Atmospheres, Storage Vessels, Venting, Etc.

• In total over 60 Documentations were referenced within “The Management of Flammable & Explosive Atmospheres in the Scotch Whiskey Industry” “2nd Ed 2008.”
WHISKY MAKING HAZARDS

5 steps:

1. Malting
2. Mashing
3. Fermentation
4. Distillation
5. Maturation
WHISKY MAKING HAZARDS

• Steps 1 & 2 No alcohol, but 1 could have fire and dust explosion
• Step 3 Low alcohol but high CO2 levels (asphyxiiation hazard)
• Step 4 High alcohol liquid and vapors (fire/explosion hazard)
• Step 5 Storing flammable liquid (fire/explosion & enviro hazards)
Site Plan
Elevations
Glasgow 1960

- Britain's worst post war fire disaster
- 1 million gallons of Whiskey
- Exceeded boiling point and caused a massive Explosion
- 19 killed mostly Firefighters
- 450 firefighters battled the blaze
- 7 days to extinguish
2000 Kentucky

- 17,000 Barrels of Wild Turkey Bourbon
- Ignited neighbouring Forestry
- Run off entered the Kentucky River and killed an estimated 228,000 Fish along a 66 mile stretch
2010 – Langley Distillery UK

- 100 Firefighters
- No Fatalities
- Over 200 evacuated
- 16 homes destroyed
Pre Fire Planning

• Access
• Site familiarity
• Location of Hazardous Materials
• Water Sources For Firefighting
• Alarm Zones
• Manufacturing Process, Dust & Explosive Atmospheres
• Fire Safety Management – Scottish Guidance Document
• Fire Safety Inspections
• Development of Manufacturing Process.
Stage 2 of the Development

• The Construction of 2 Number Maturation Warehouses, each storing a Total of 20,250 Casks – Each Containing 200 Litres of Whiskey.

• Chemicals Act (Control of Major Accident Hazards Involving Dangerous Substances) (COMAH) Regulations 2015

• Lower & Upper Tier SEVESO Sites are Determined by the Above Regulations and are based on the type of dangerous substances and quantities stored

• Based on a factor < 1.0 for Lower Tier

• Found to be well in excess of Lower Tier.
Some Requirements For SEVESO Sites

• HAS are the Regulatory Body
• Explosion risk analysis
• Provision for emergency planning
• Policies and procedures aligned to the directive.
• Internal & external Emergency response
• Regular testing and exercising of the emergency plan
• Considerable High Running Costs
Current Situation

• Reduce the use of 1 warehouse to a storage maturation warehouse
• Convert the second warehouse to Visitor Experience Centre & Partial General Store
• Change from Bulk Storage LPG to Diesel Powered Boilers – combined risk reduction
• Reduced Power Factor to 0.89
• FSC Application - Purpose Group 7 – Storage (³)
  • Code of Practice on Fire Standards for Single – Storey Spirit Maturation Storages Within the Scotch Whiskey Industry (Scotch Whiskey Association)
Summary

• In the case of Both Applications, they were subject to the provisions of Appendix E of TGDB

• Therefore Who better to look to for further guidance and best practice than the people who, like ourselves have been distilling Whiskey for over 1,000 years.
Thank You