Gas Transmission Pipeline Potential Impact Zones (PIZs) & Corrosion Anomalies

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From information readably in the public domain

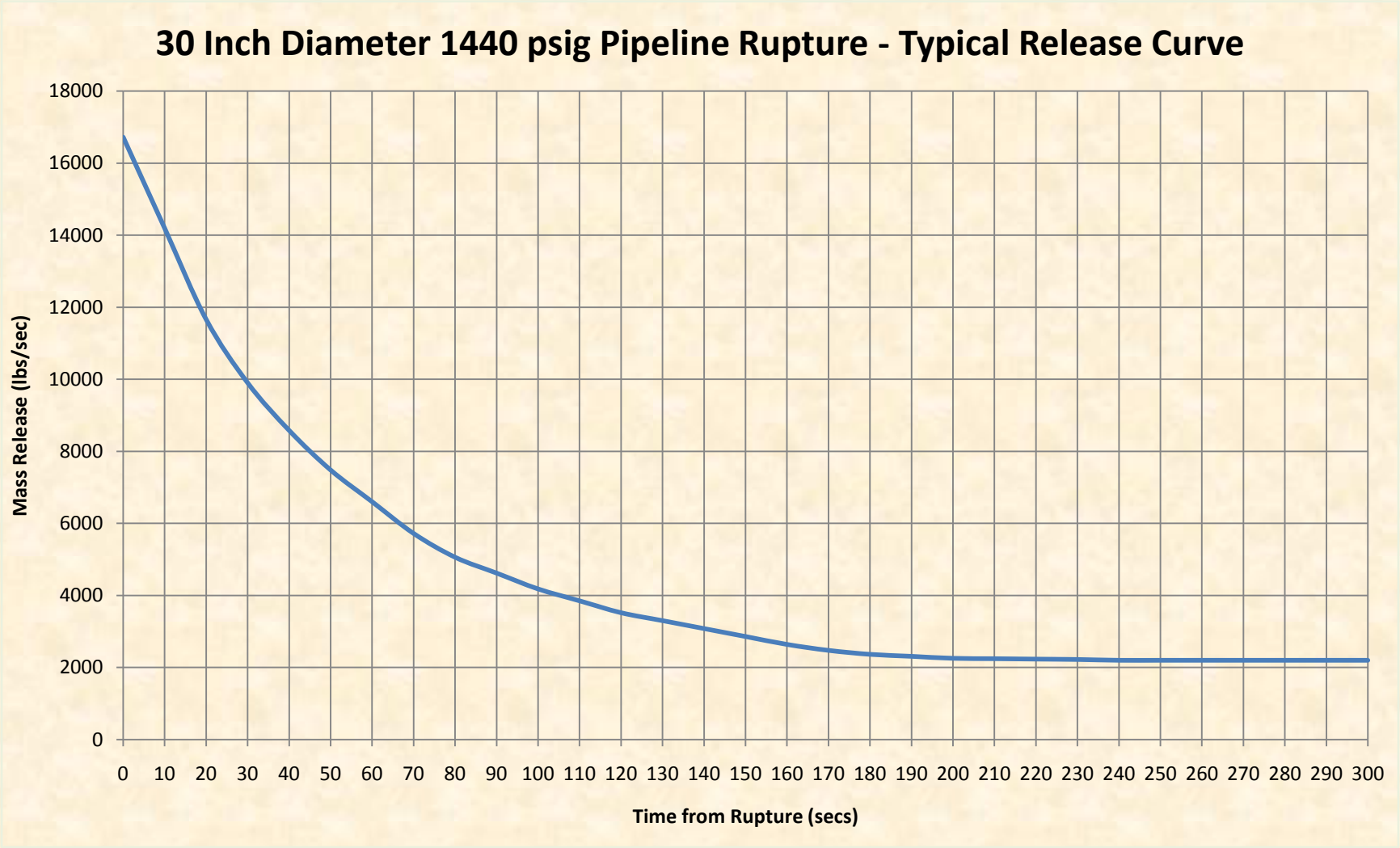
To CCOPS Meeting of 4/17/09

Gas Transmission PIZs

- C-Fer Correlation ($r = 0.685\sqrt{(pd^2)}$ does not define PIZs for many ruptures
  - Not a pipeline siting tool
  - Very rough empirical tool
    - Utilized limited empirical database
    - Does not apply to “exotic” pipelines
  - Time to detonation / ignition critical (Not part of C-fer report)
- U.S. does not require pipeline safety offset zones
  - For exotic pipelines there would be very large land areas
  - Pipeline right of way “taking” is already sensitive issue!

Gas Pipeline Rupture Release Curve

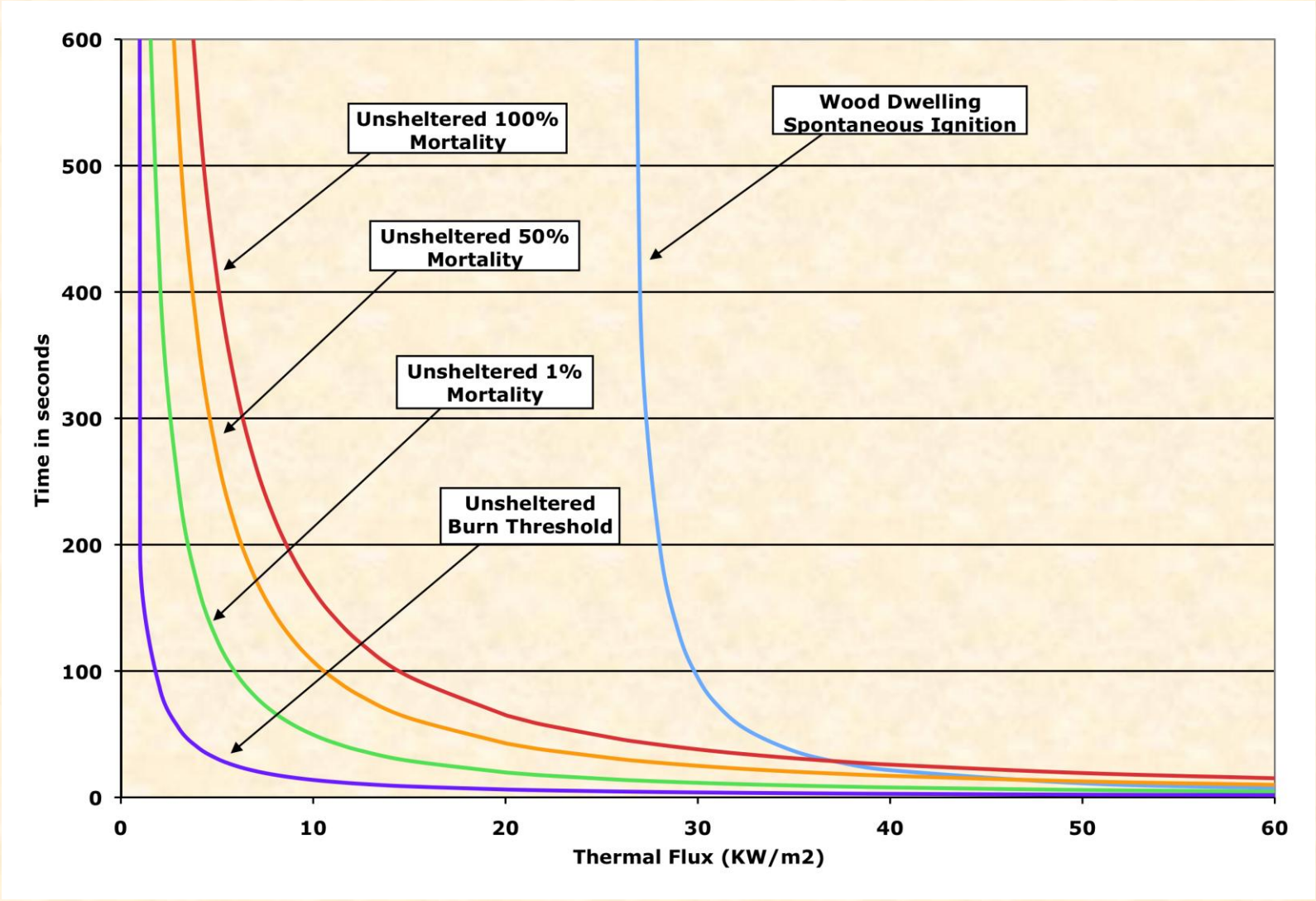
Based on Pipeline Company Testimony



Gas Transmission PIZs

- PIZ's Evaluation site specific
  - Heat Flux vs Blast Over Pressures
    - Heat Flux radiation carries quite some distance
      - Level of heat flux and time to exposure determines survivability
      - Structures buy time for survivability
    - Over pressure dissipates quickly with distance
      - Very low over pressure survivability even in open field
      - Nearby structures don't take explosion overpressure well
    - Some move to improve on "sensitive" structures near pipelines

Heat Flux Survivability Curves



Pipeline Corrosion Anomalies

- Major cause of gas transmission rupture failures
  - 12/4/08 Presentation "Assessment & Anomaly Reporting" (http://www.wutc.wa.gov/webimage.nsf/0/389A2B785410BC7E882573C6006BDE2C)
    - Reassessment intervals and new wall thickness reassessment "trigger"
    - Address non HCAs (under 49CFR192.485 & 192.613), as well as HCAs (49CFR 192, Subpart O)
- Outstanding Item for Committee
  - Advisory Letter to PHMSA?
    - Make more corrosion information available to Public
    - In format public can understand