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# ***Pantex Flood Event 2010***

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Do You Know Where  
To Buy 60-Million  
Cubits of Gopher  
Wood?

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Title Sr. Emergency Hazards Analyst



# ***NOTE:***

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- **This is an unclassified presentation.**
- **Questions are welcome. However, some answers may require review before release.**
- **Some answers to questions may be vague.**



# The Event

- July 7-8, 2010, rain showers produced flash flooding across several counties in the Texas Panhandle

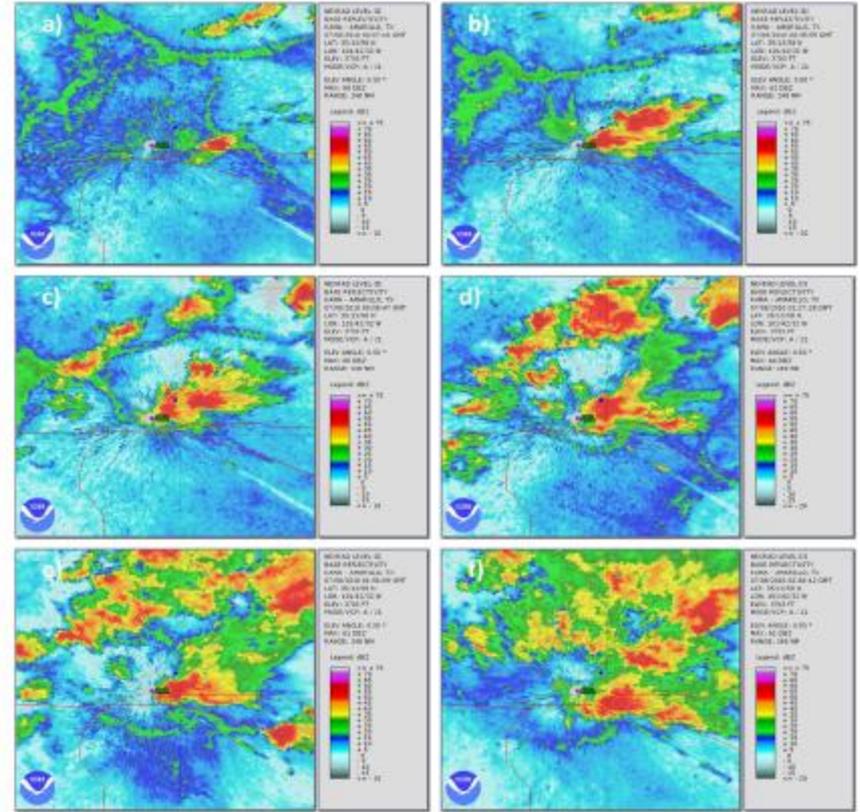


Figure 3: KAMA Base Reflectivity a) 0007Z (707 PM), b) 0035Z (735 PM), c) 0058 Z (758 PM), d) 0127Z (827 PM), e) 0156 (856 PM), f) 0236Z (936 PM).

# ***Approved for public release:***

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- A number of plant personnel who were on-site during the deluge immediately responded to the facilities that were flooding to sand bag and divert water to prevent the damage from being even more extensive.



# ***Previous EPHA statement***

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- The Pantex Plant's location is on the High Plains and is considerably higher in elevation than nearby rivers and creeks. As a result, river or stream flooding, tidal surges, tsunamis, dam failures, ice jams, etc., are not plausible for the plant.
- Only an extreme event flood (one might even say biblically proportioned) would generate emergency conditions at Pantex.
- The hazard that floods present is primarily the disruption of operations in the affected area. Localized flooding will not create conditions prone to initiating hazardous material releases.
- Some nuisance water accumulation has occurred at times at the Pantex Plant, but no actual flooding (in an "emergency" sense of the term) has been recorded. Nuisance localized flooding could however, impair emergency response capabilities by making roadways impassible.

# ***Precursors***

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- **A combination of weak low level flow, a moist and unstable environment, and a stalled cold front played contributing factors in slow moving convection behavior.**



# ***In Nearby Amarillo***

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- **Streets became impassable, stalling numerous cars in rising waters**
- **Local emergency response personnel performed 32 swift-water rescues.**
- **The basement of the Airport Terminal Flooded - completely**
- **Highland Park School (near Pantex) reported 2-4 FEET of water in the school building**



# ***Time to Gather Animals***

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- **Total of 11.04 inches**
  - Rank it as one of the top flash flooding events in the Texas Panhandle region.
- **Maximum Rainfall Rate 8.76 inches per hour**
- **Broke record for daily rainfall for July**
- **Broke record for monthly rainfall**



# ***Site Factors***

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- **Pantex is very flat with shallow and gentle slopes for drainage**
- **Construction and urbanization on site interrupts what drainage is possible**
- **Drainage and ditch maintenance have not competed well for limited infrastructure and maintenance budgets**



# ***Impacts to the Site***

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- **Early estimate: \$60 Million Dollars**
- **A damage survey determined 60 nuclear explosive, nuclear material and explosive operating and staging facilities and 22 access ramps were subjected to varying levels of flood water up to about a foot.**
- **Multi-disciplined teams systematically assessed the condition of facilities, infrastructure, Systems Structures and Component condition, weapons and weapons related materials, and the safety basis.**



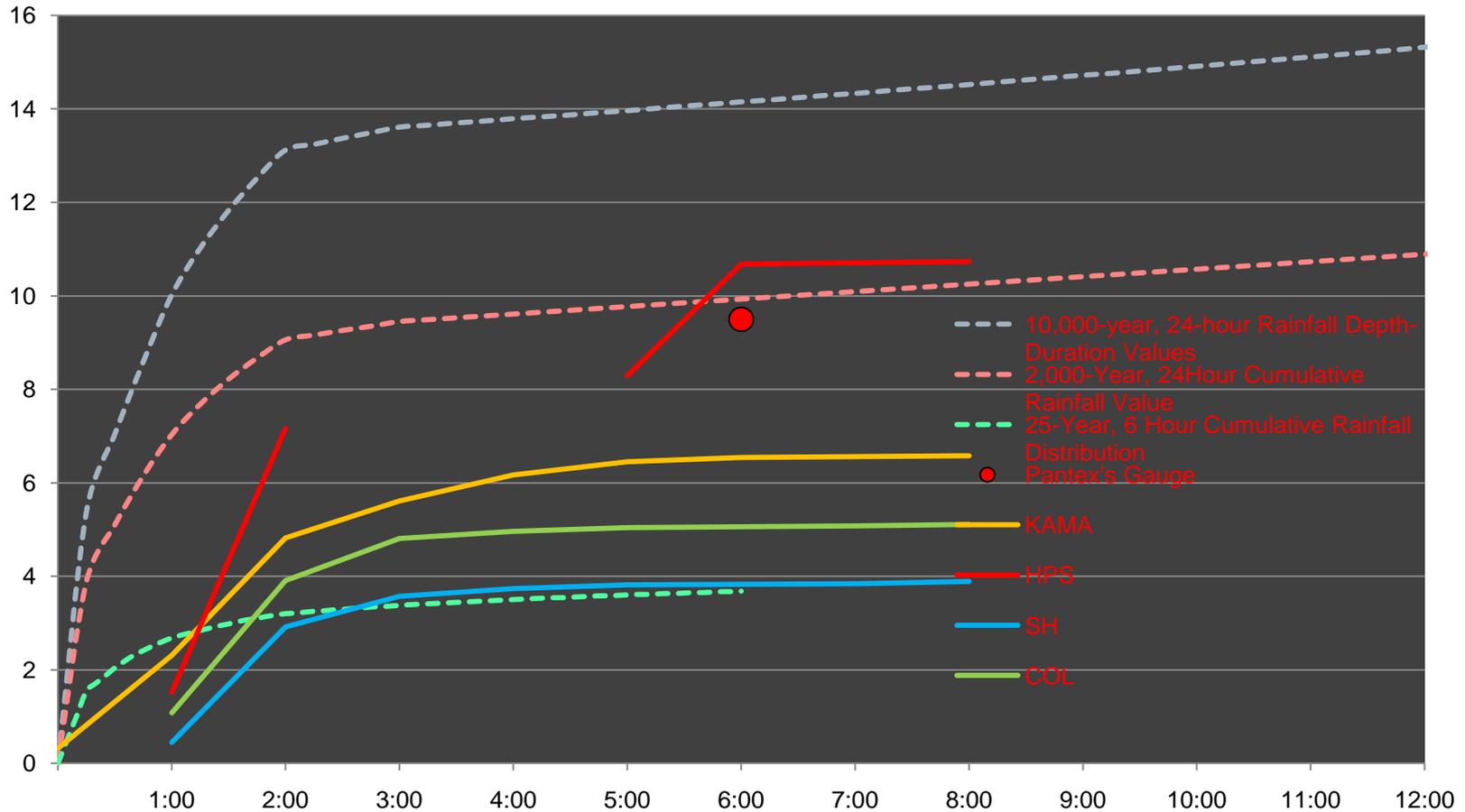
# ***This Water Hazard Really Adds Strokes to your Golf Game***



Initial Responders during rain event

UNCLASSIFIED

# Rainfall Accumulation



# ***\$60 Million Lost and You Didn't Declare an OE?!***

Events or conditions that cause economic loss or result in a degradation of safeguards or security conditions, but have no actual or potential health and safety or environmental impacts, are **NOT OEs.**

DOE G151.1-4 §4.3  
Operational Emergency  
Definition

*We're not saying it's not an "emergency" . . . We're saying it's not an OPERATIONAL Emergency.*

# ***We Thought about Calling it an ALERT***

An actual or potential substantial degradation in the level of safety or security of a nuclear weapon, component, or test device that would not pose an immediate threat to workers or the public.

DOE O 151.1C CRD §11.b.(1).(a).2

# ***It's nice to have company***

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- **AWE Burghfield Site Flood – 2007**
  - The UK's Pantex
- **Y-12 Flood - 1997**



# ***Changes Afterward***

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- **Infrastructure Changes**
  - Clean out some ditches
  - Fix some buildings
- **Response plans**
  - Sandbags, portable dams, etc.
- **Emergency Action Level (a sort of fine tuned discretionary EAL.)**

# ***Categorization & Classification***

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- In and of itself, a flood isn't an OE
- Instead, we're looking at what else a flood might cause
  - Structural issues
  - Hazmat Release
  - Inability to identify other emergency signals as false alarms

# ***New EAL Triggers***

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- **Alarms where Emergency Responders can not access to flooding**
  - Assume that the signal is real
- **Evidence of potential structural failure**
- **Weight of evidence –**
  - Multiple concurrent emergencies that do not individually constitute an OE
  - Totality of circumstances makes the OE resources and tools necessary

# ***Even If We Do Not Declare An OE***

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- **Nothing prevents us from using tools from the OE program for lesser events**
  - Communications
  - Recovery template and format
  - EOC
  - Specialized Teams

# Questions

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