

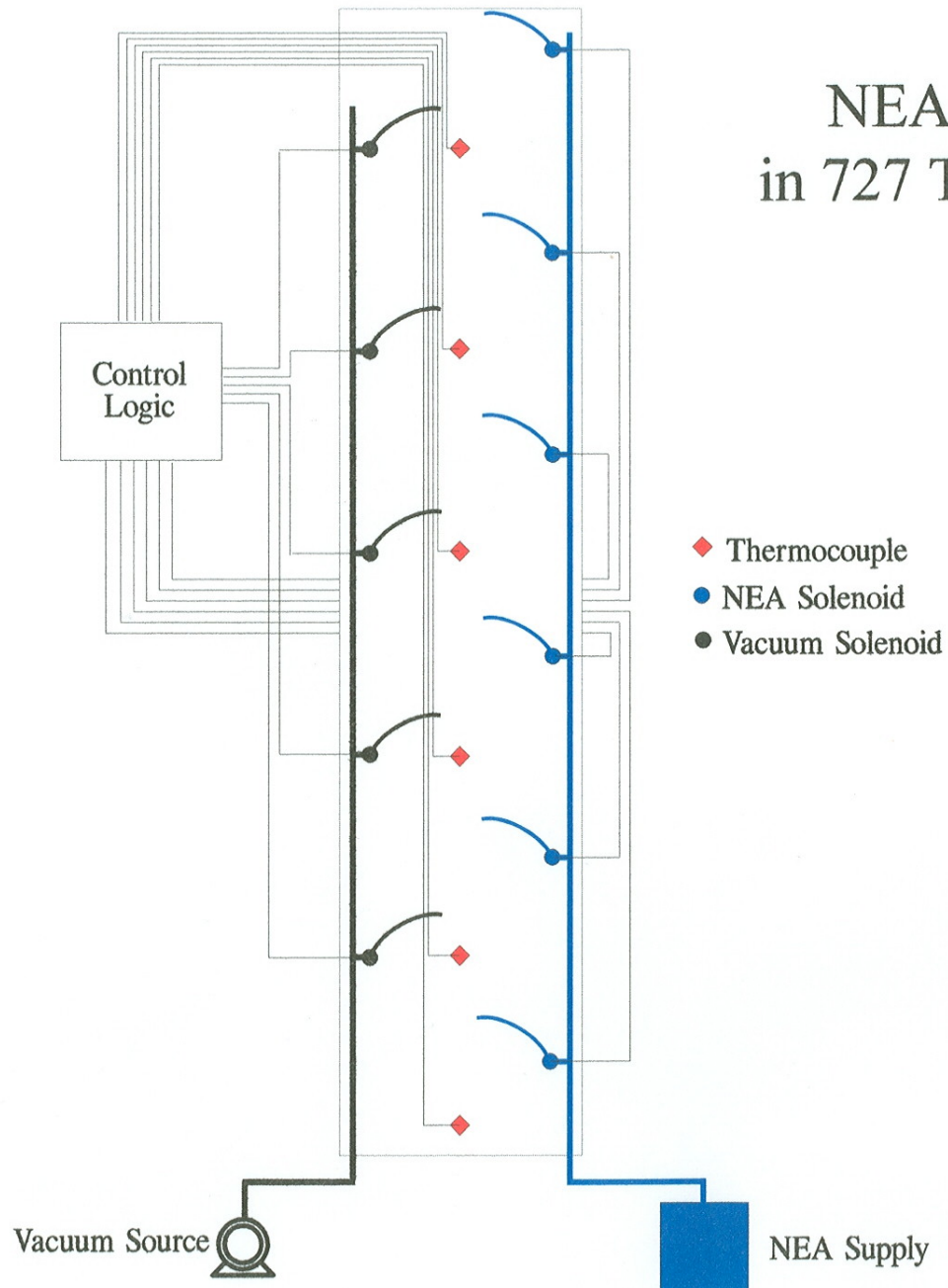
International Aircraft Systems Fire Protection Working Group
Atlantic City, NJ
October 25-26, 2006

Hidden Fire Testing



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NEA System in 727 Test Article





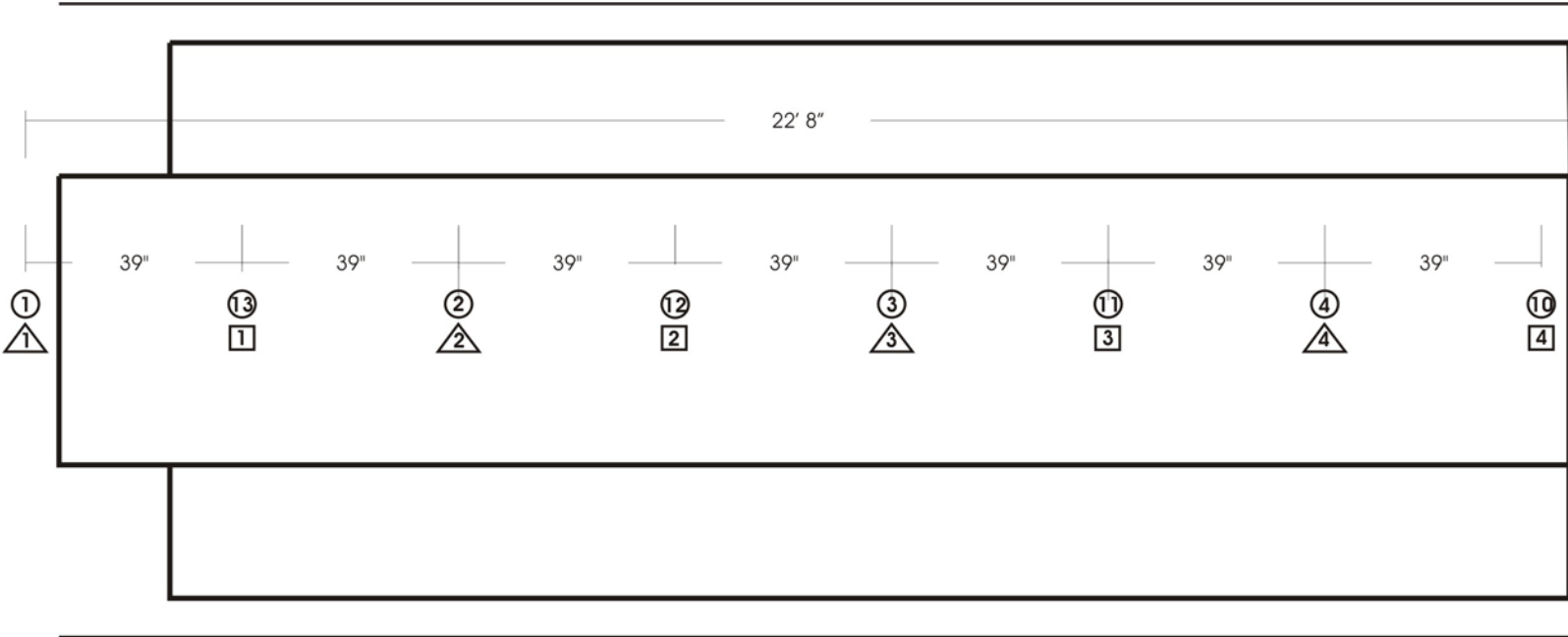
Currently limited to 10 ft³/min
of NEA at ~2.7% O₂





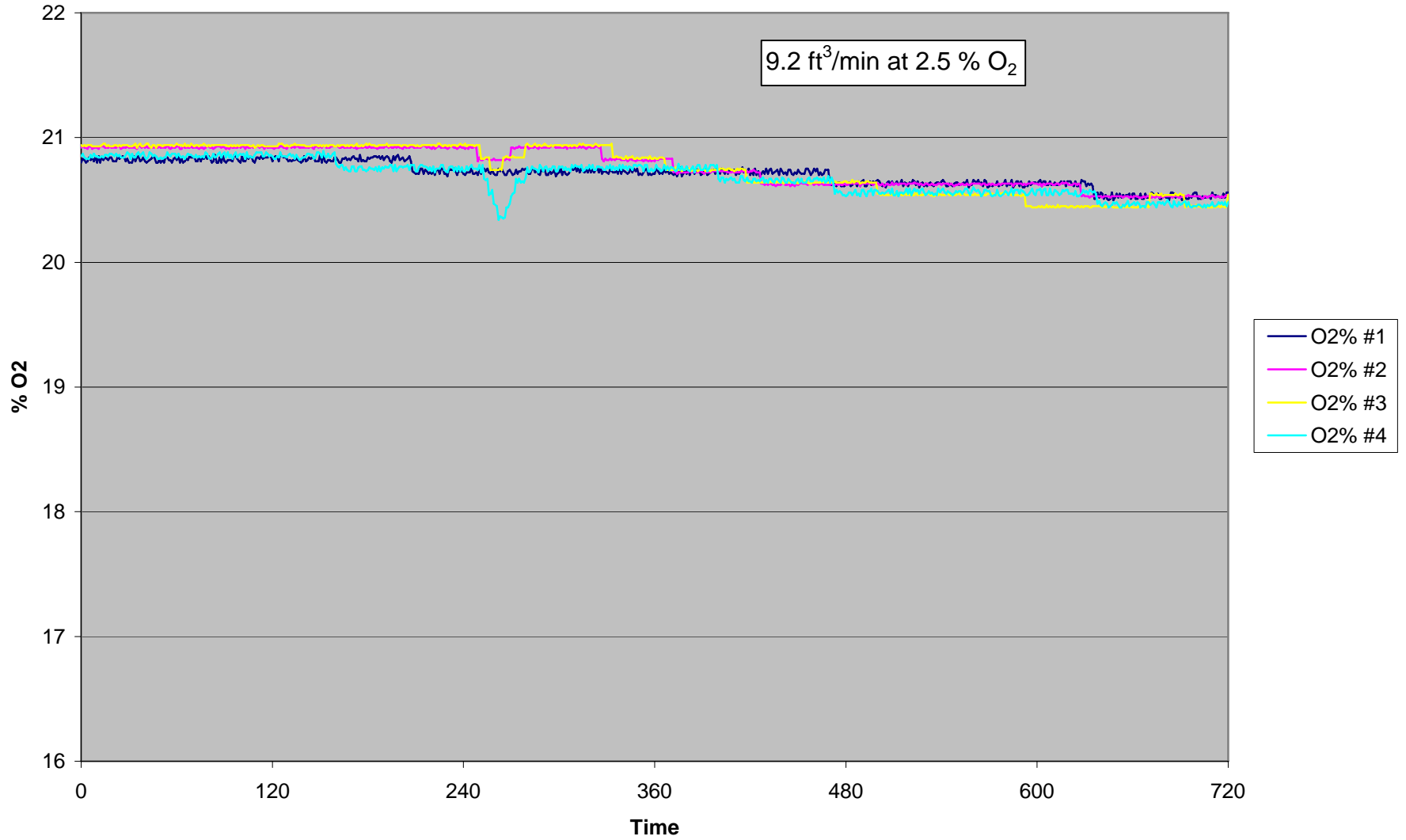


727 Instrumentation



- ① → ⑦ Air Extraction
- ⑧ → ⑬ NEA Insertion
- △ Oxygen Probe
- Thermocouple

Oxygen Concentration in Overhead



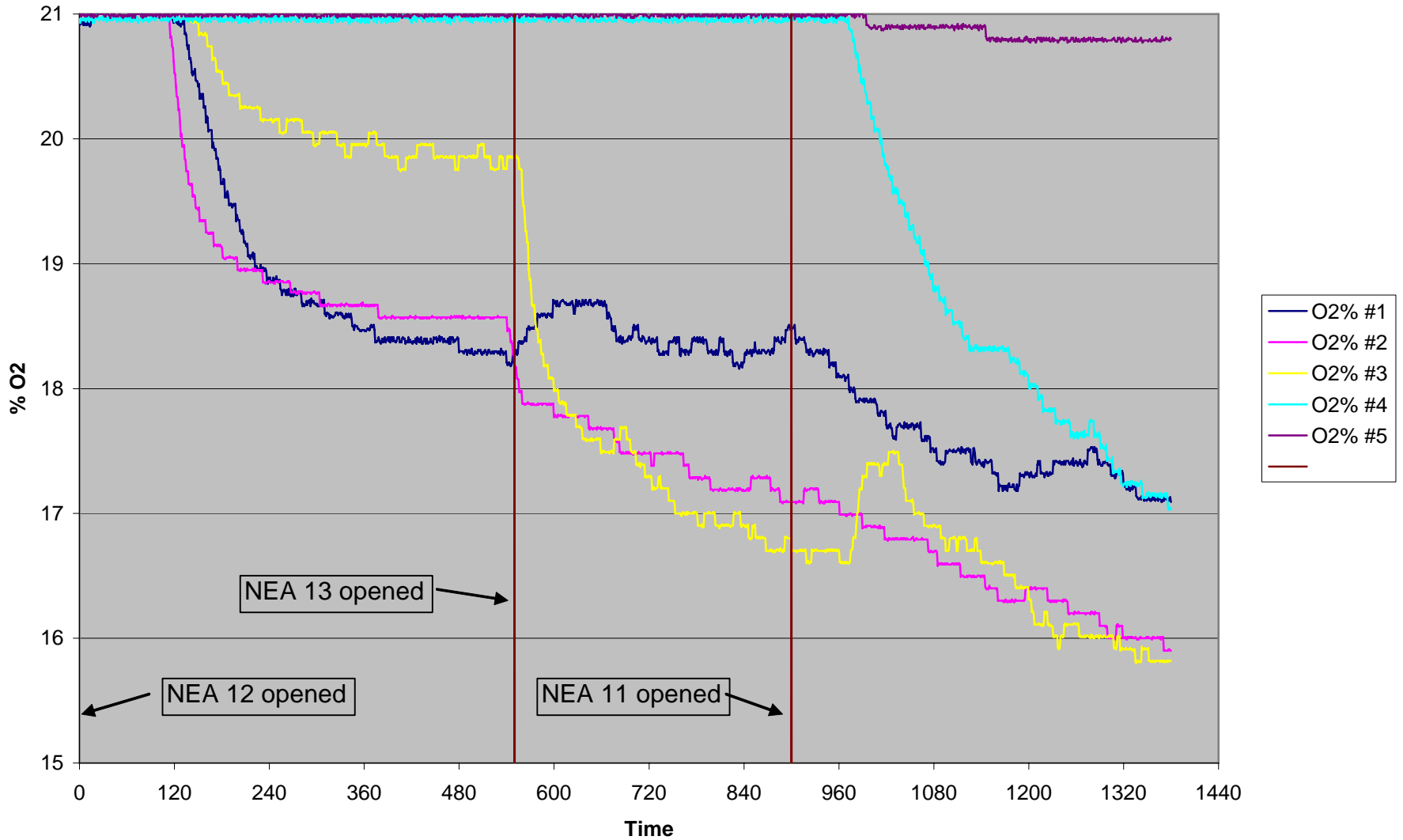


Diffuser nozzles

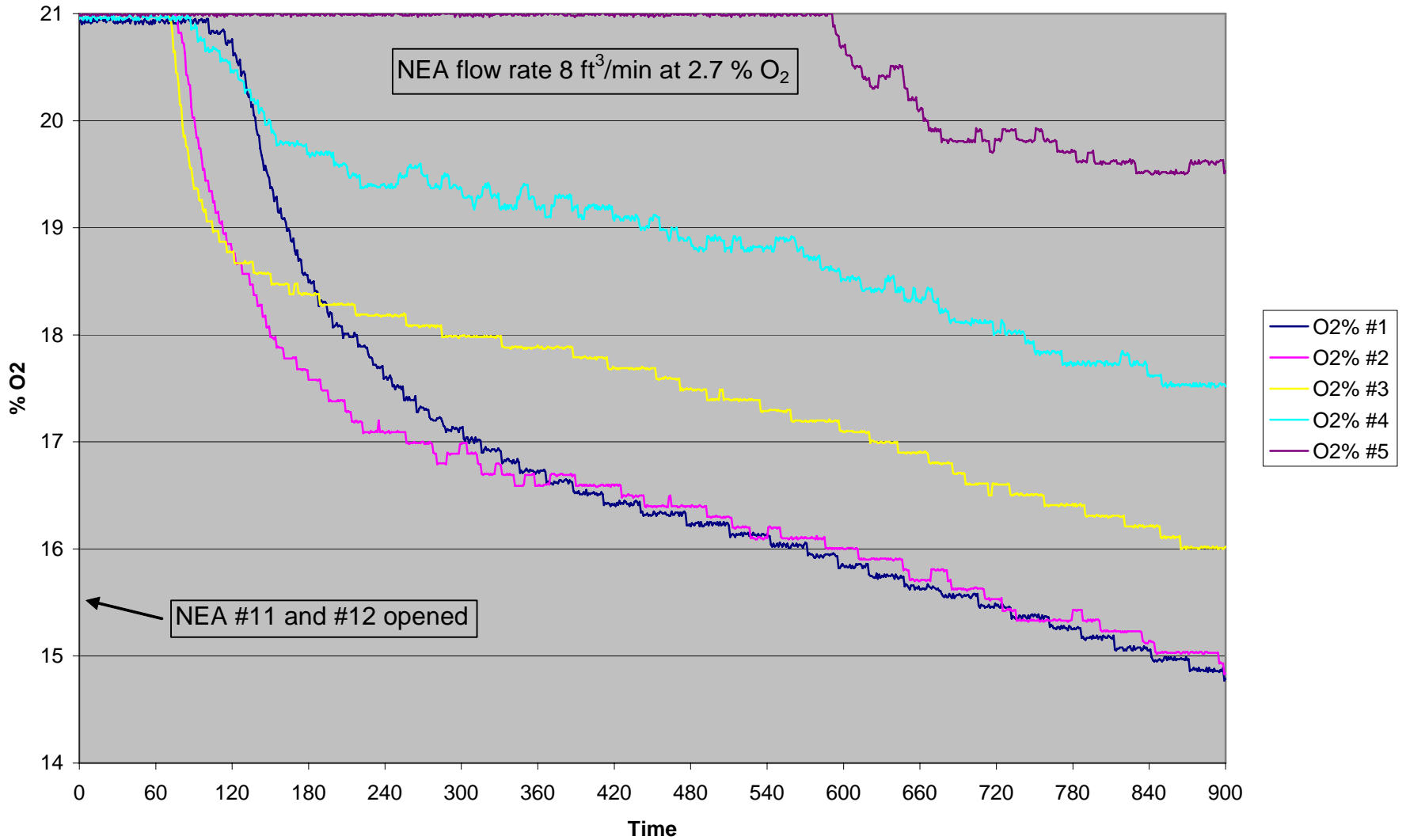
Sealed leaks



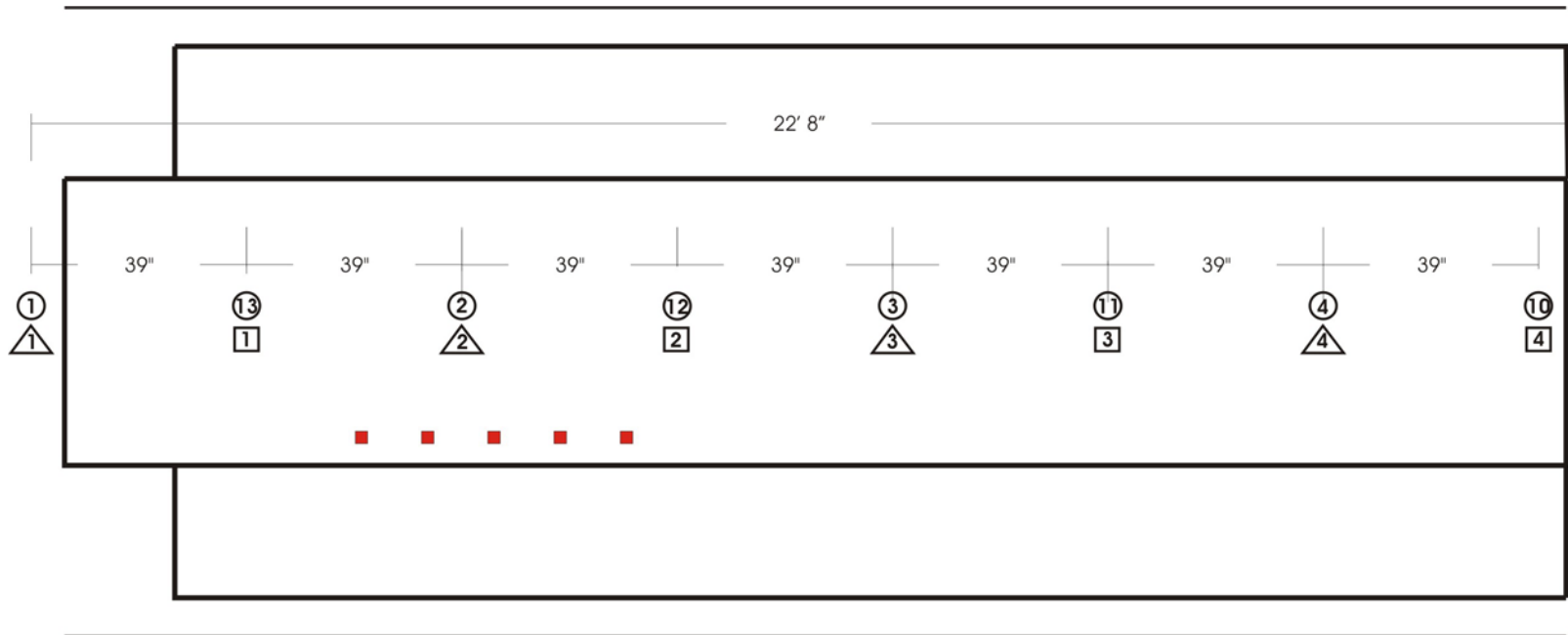
Oxygen Concentration in Overhead



Oxygen Concentration in Overhead

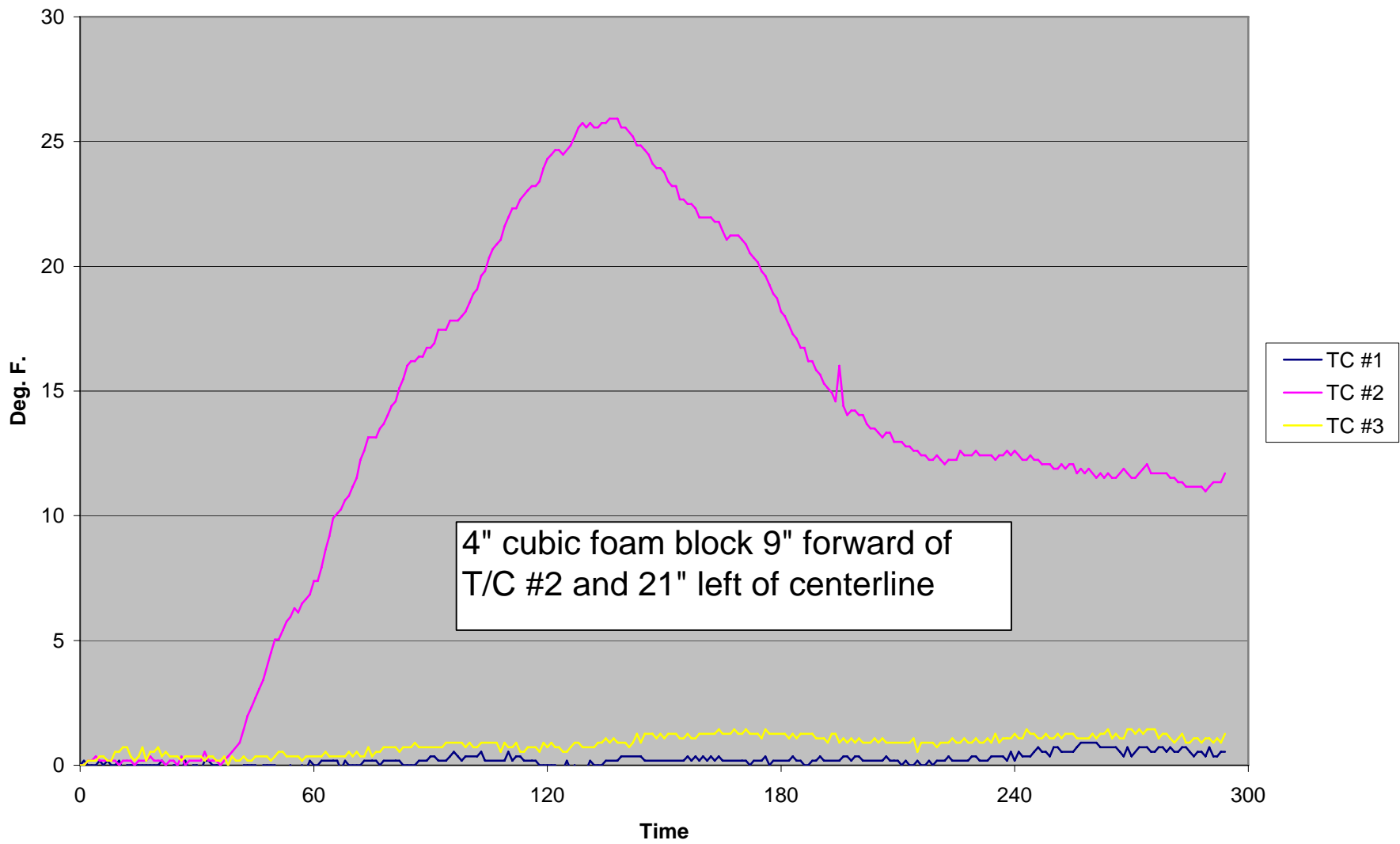


4" cubic foam blocks ignited above ceiling

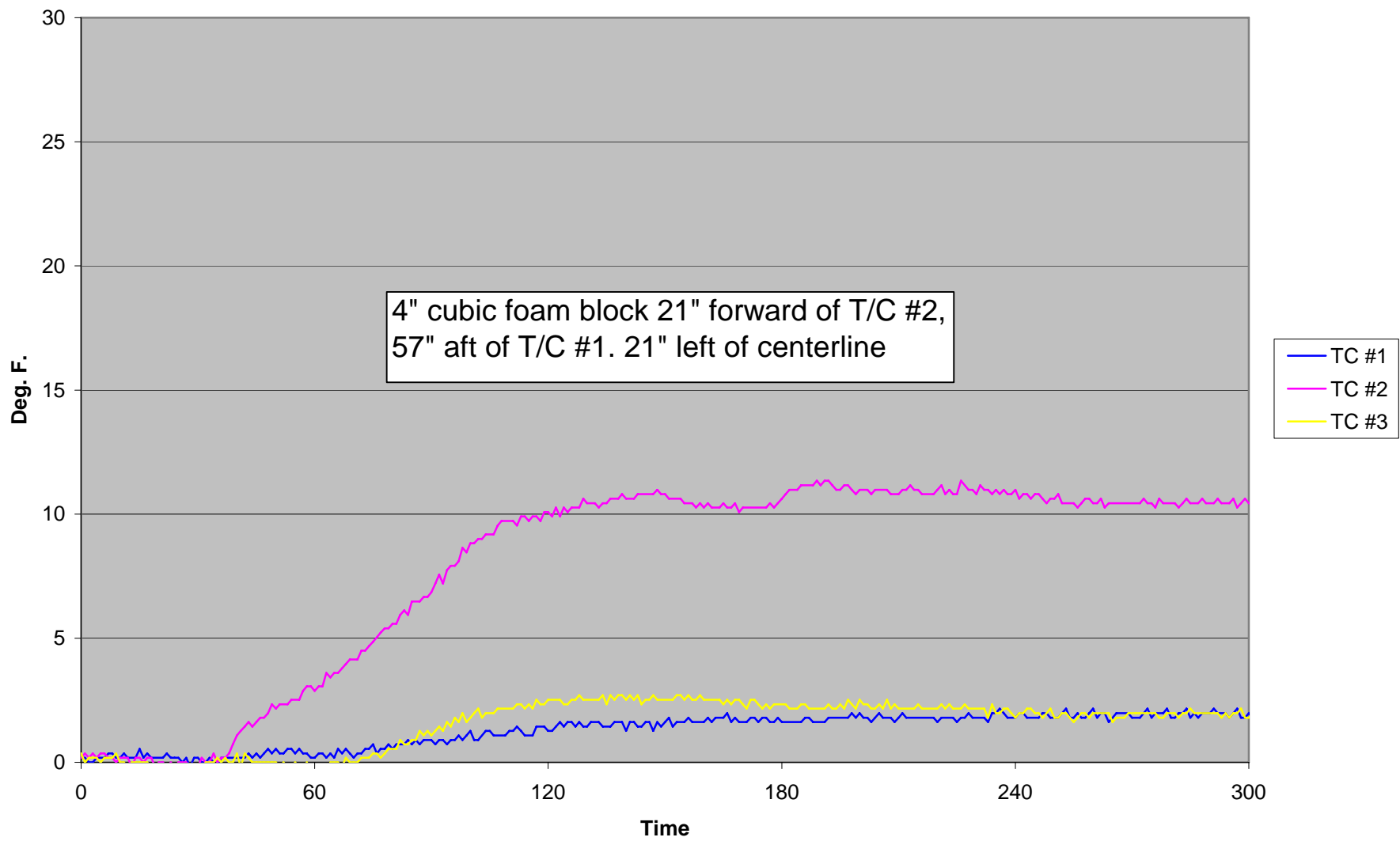


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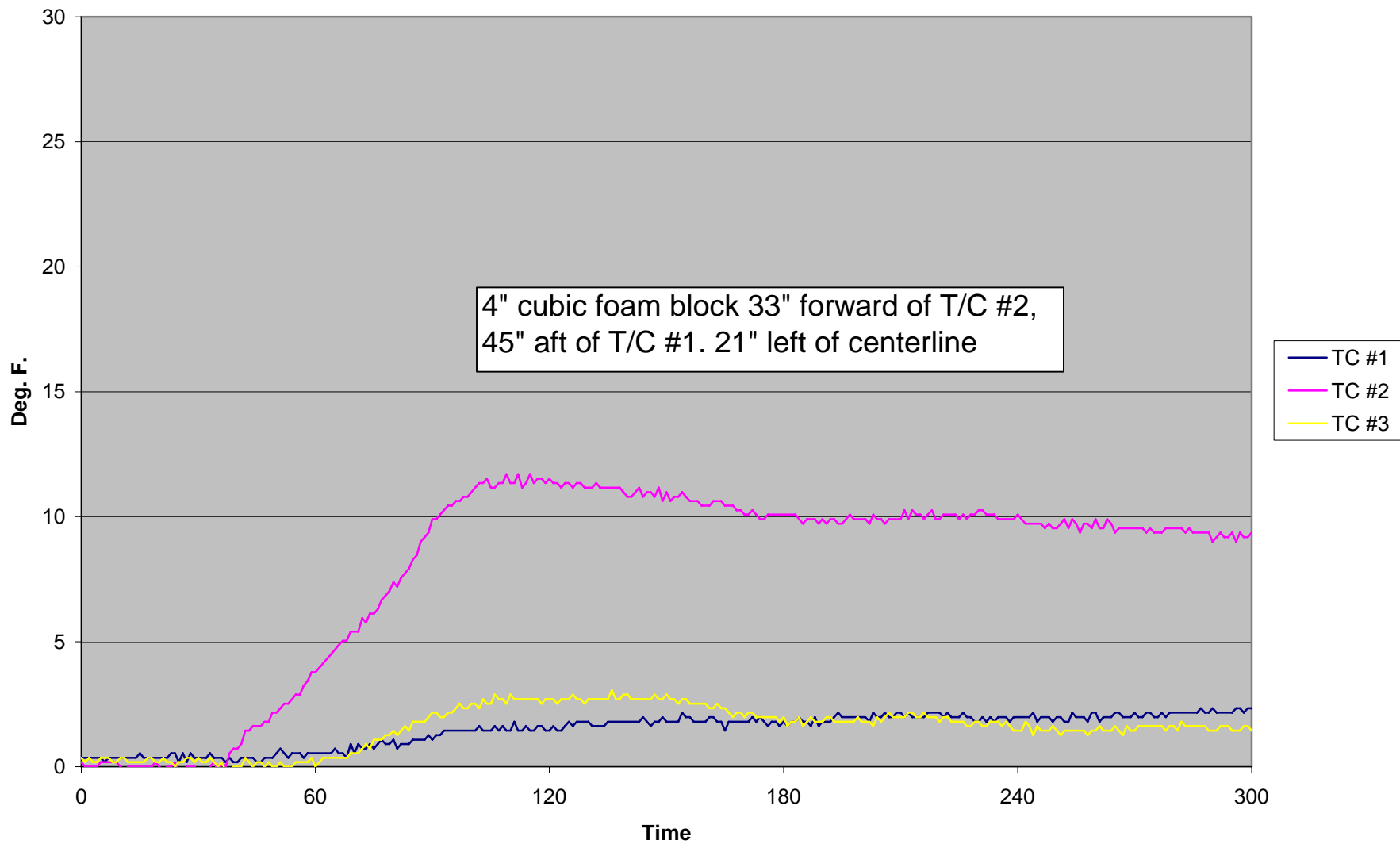
Above ceiling temperature rise



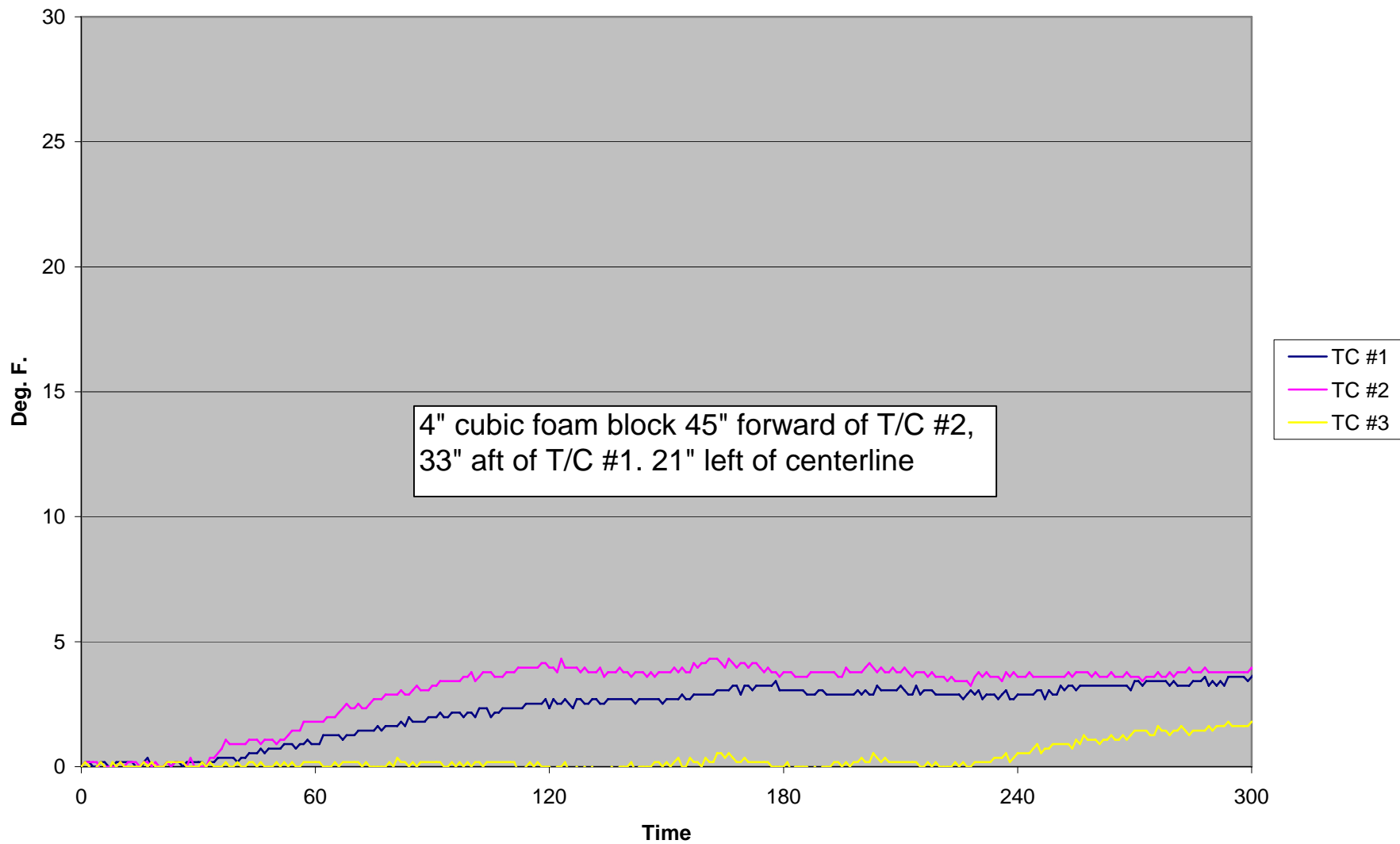
Above ceiling temperature rise



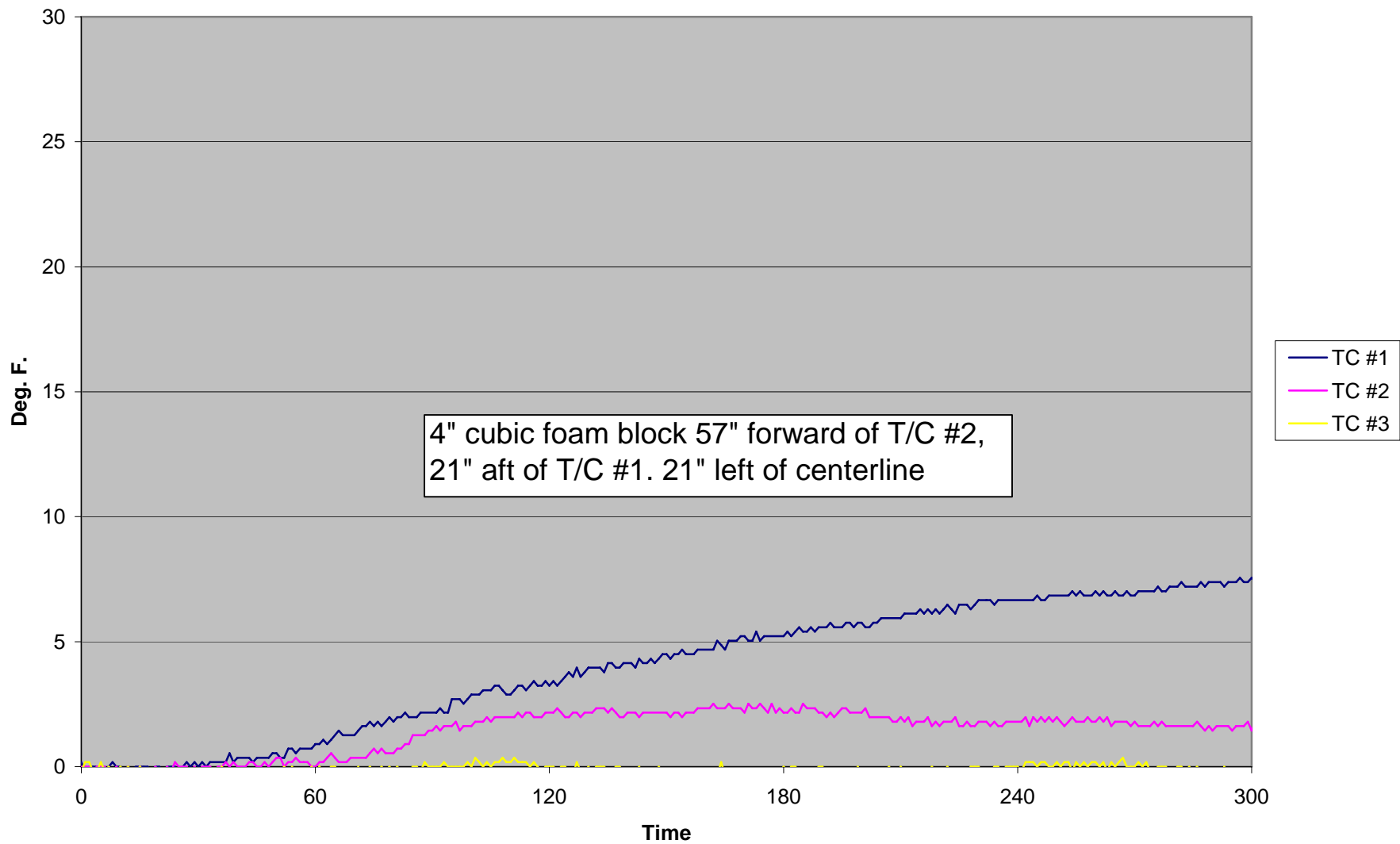
Above ceiling temperature rise



Above ceiling temperature rise



Above ceiling temperature rise



Future Work

- **Determine NEA flow rate requirements with higher capacity air compressor.**
- **Assess the requirements for the detection system and zone sizes when adequate NEA is available.**

Inflight Firefighting Training Video



AC 120-80

- Video will serve as visual guidance for illustrating the key points discussed in the AC for dealing with inflight fires.



Advisory Circular

Subject: IN-FLIGHT FIRES

Date: 1/8/04

AC No: 120-80

Initiated by: AFS-210

1. WHAT IS THE PURPOSE OF THIS ADVISORY CIRCULAR (AC)?

a. General. The National Transportation Safety Board (NTSB) conducted a review of commercial aviation accidents involving in-flight fires. The scope of the review was limited to transport category airplanes operated by U.S. and foreign air carriers during the period 1983 to 2000. That review prompted the NTSB to issue a number of safety recommendations to the FAA, including A-01-83 through A-01-87 (see Appendix 1). The NTSB recommended that an Advisory Circular (AC) be developed and issued by the FAA to address a number of issues linked to in-flight fires. The FAA agrees with the safety intent of those recommendations and has developed the guidance material that follows. Specifically, this AC:

- Discusses the dangers of in-flight fires, with particular emphasis on hidden fires that may not be visible or easily accessed by the crew. It discusses the importance of recognizing and quickly assessing the conditions that may be associated with hidden fires and the importance of taking immediate action to gain access to fires that are located behind interior panels.
- Provides guidance on how to deal with in-flight fires, emphasizing the importance of crewmembers taking immediate and aggressive action in response to signs of an in-flight fire while stressing the effectiveness of Halon extinguishing agents.
- Discusses the importance of appropriate crewmember training in dealing with hidden fires, the effective application of fire extinguishing agents behind interior panels, and the urgency of the crew's action in dealing with such fires.
- Complements guidance previously developed for crewmembers concerning the proper use of cabin fire extinguishers (AC 20-42C, Hand Fire Extinguishers for Use in Aircraft, and National Fire Protection Association (NFPA) 408, Standard for Aircraft Hand Portable Fire Extinguishers) and the most effective means of extinguishing fires that are readily accessible.
- Includes information from research conducted by the FAA's Technical Center. As additional information becomes available, it will be published in future revisions to this AC.

737



747



- **Script is written and scene details are complete for filming at Technical Center.**
- **Details of filming at Airbus cabin simulator not yet finalized.**
- **Final version of script has been reviewed by the Cabin Safety Research Technical Group.**
- **Final version is currently under review by the author of AC 120-80 in the FAA Flight Standards Service Office.**
- **FAA Technical Center filming will commence at the completion of the above review.**

