# Class E Cargo Compartment Fire Suppression

Federal Aviation Administration

Presented to: International Aircraft Systems Fire Protection Working Group. London, UK

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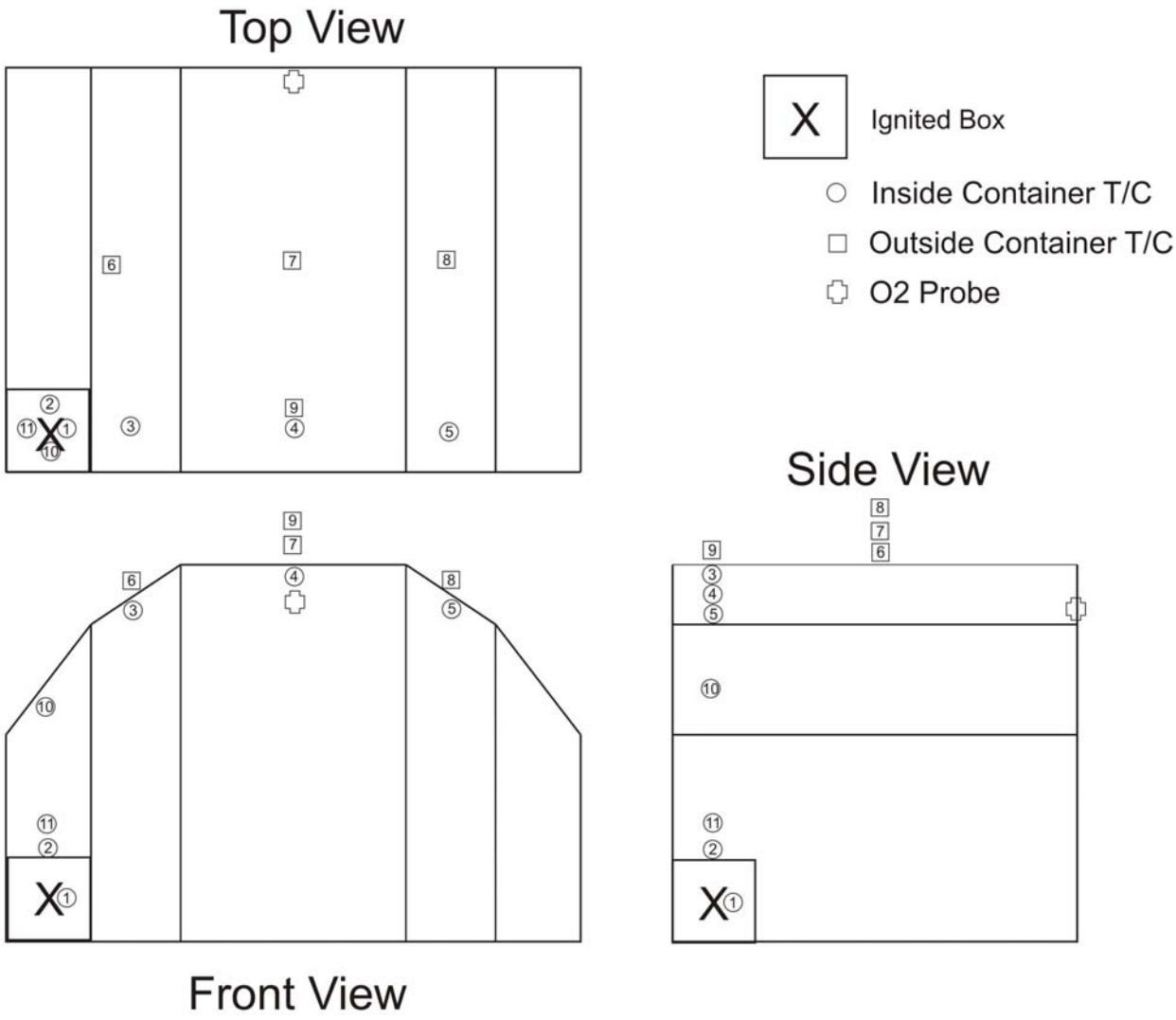
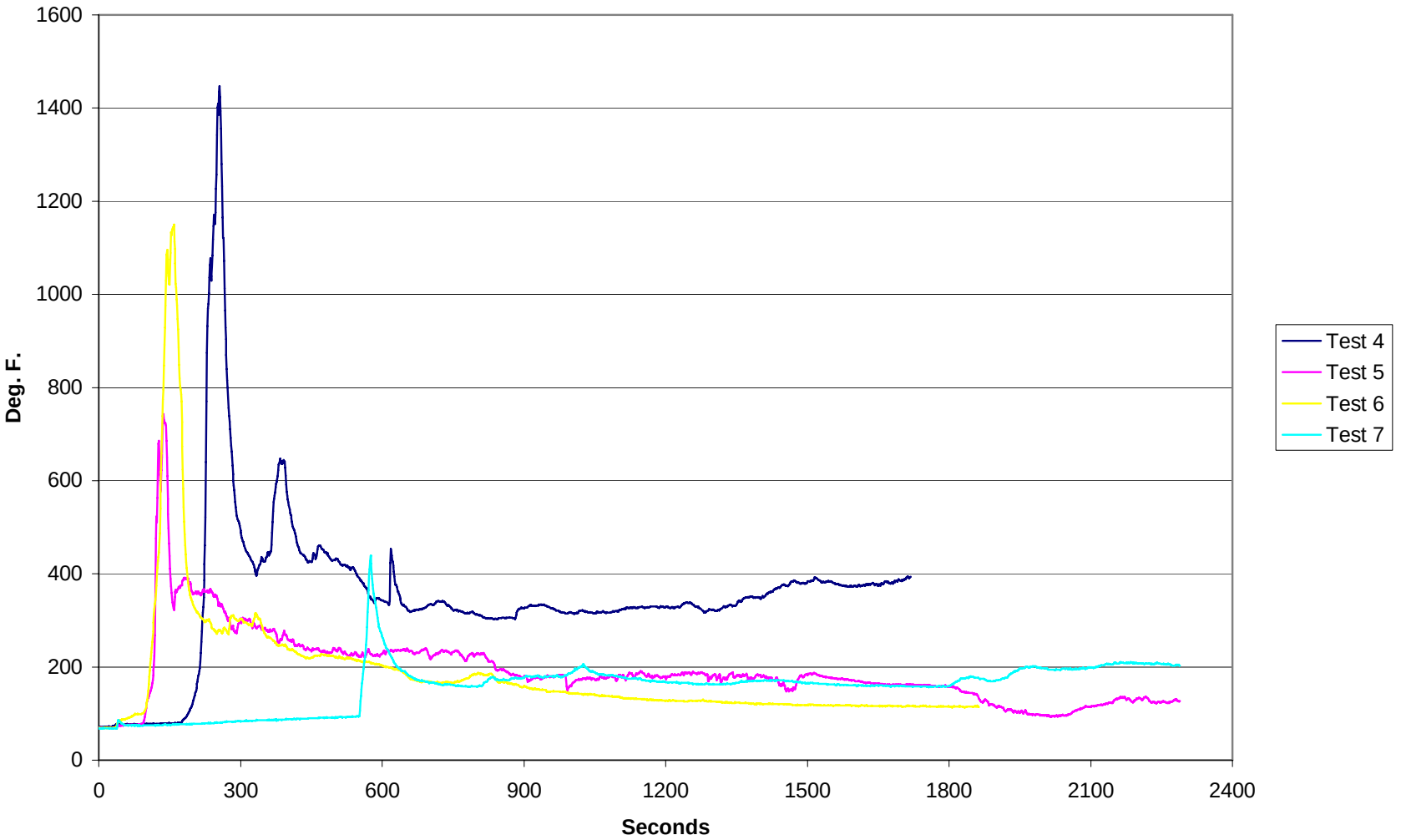
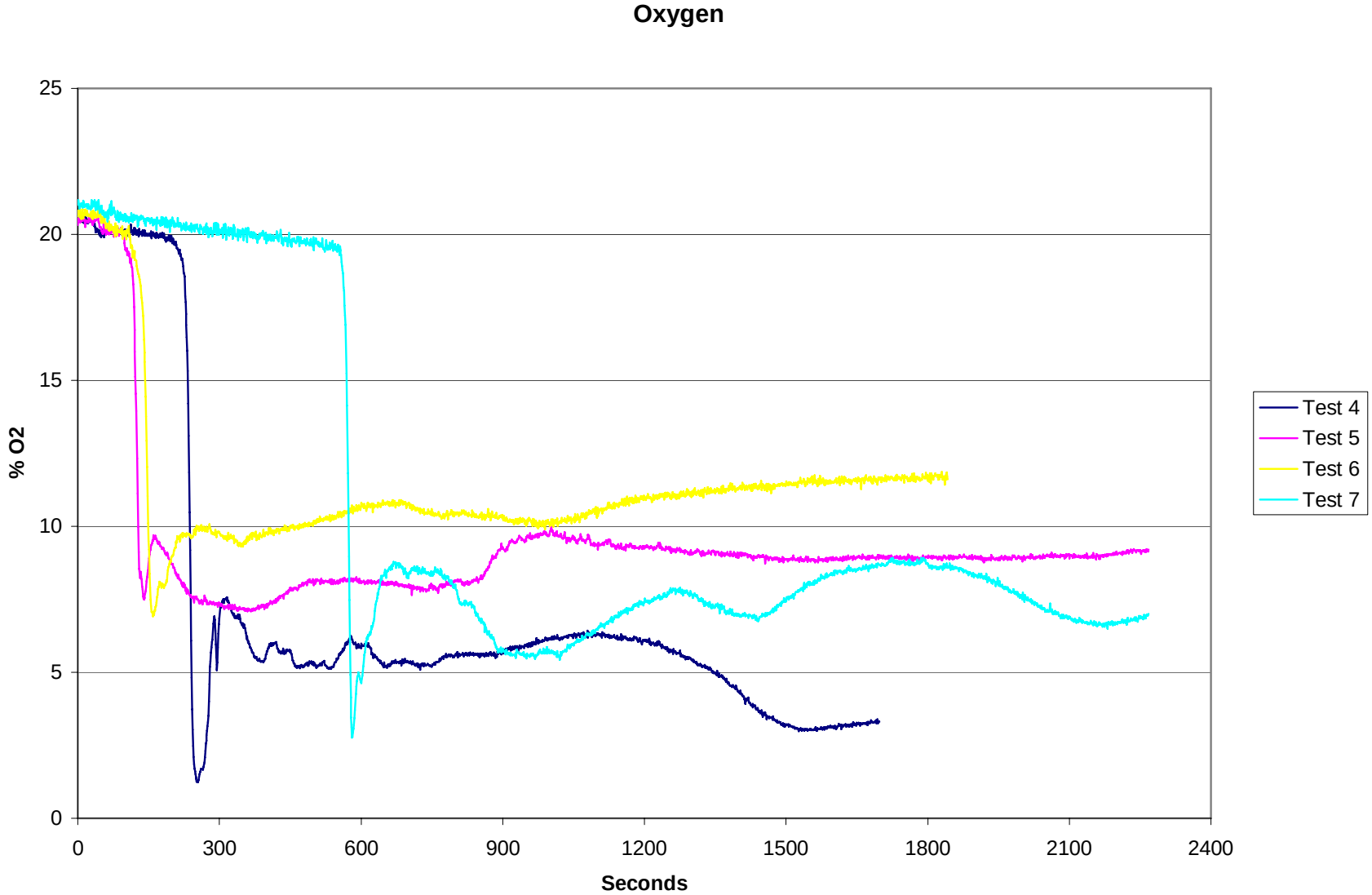
# Galvanized Steel Test Container 470 $ft^3$ (13.3 $m^3$)

## Water Mist Tests with 4 Nozzles

- Test 4. Baseline. No water
- Test 5. 0.072” Orifice, 150 psi, 3.7 gals/min
- Test 6. 0.072” Orifice, 30 psi, 1.8 gals/min
- Test 7. 0.042” Orifice, 30 psi, 0.5 gals/min


Top View
X
Ignited Box
Inside Container T/C
Outside Container T/C
O2 Probe
Side View
Front View


TC3
1600
1400
1200
1000
800
600
400
200
0
Deg. F.
0
300
600
900
1200
1500
1800
2100
2400
Seconds
Test 4
Test 5
Test 6
Test 7

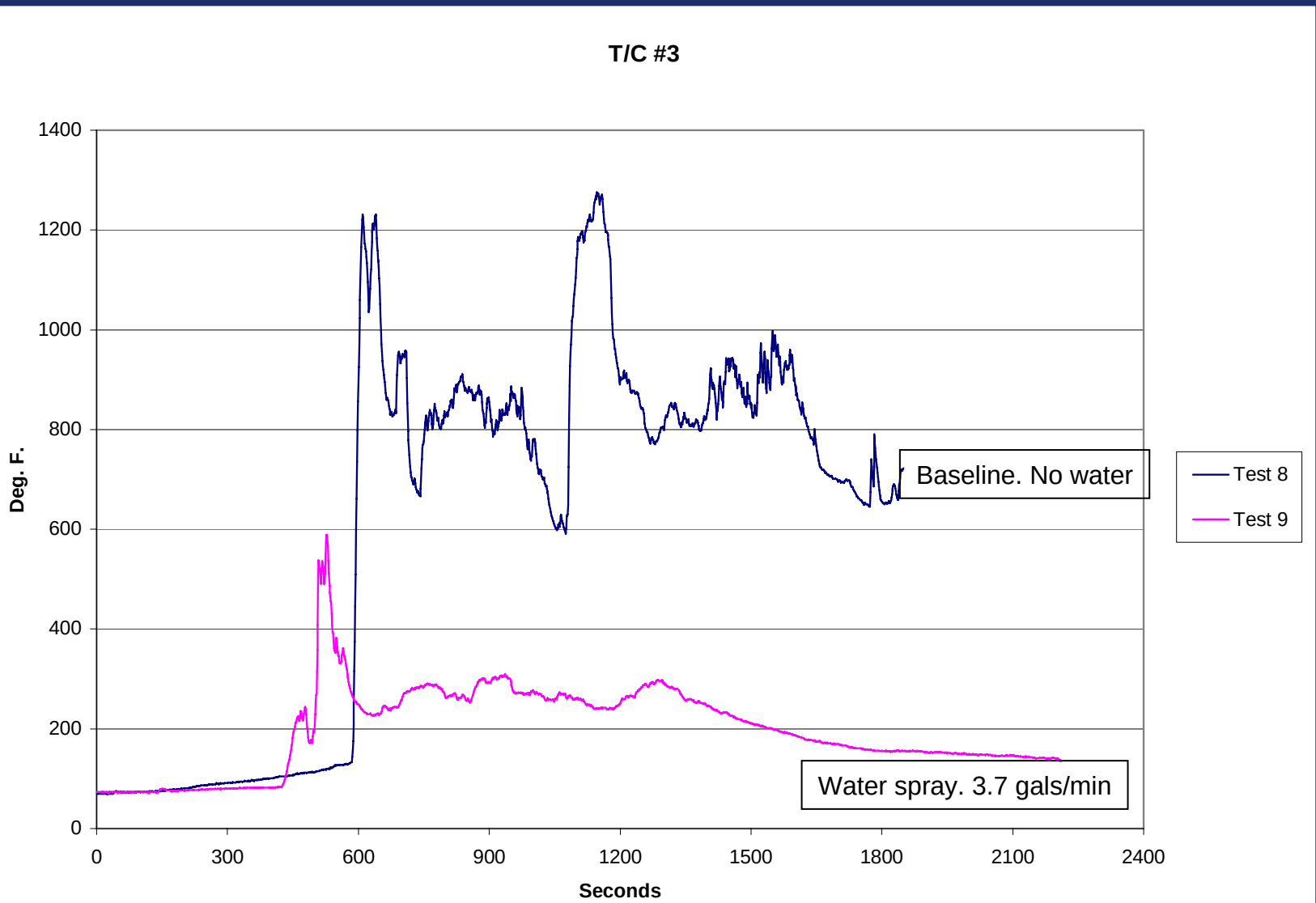

Oxygen
% O2
25
20
15
10
5
0
0
300
600
900
1200
1500
1800
2100
2400
Seconds
Test 4
Test 5
Test 6
Test 7

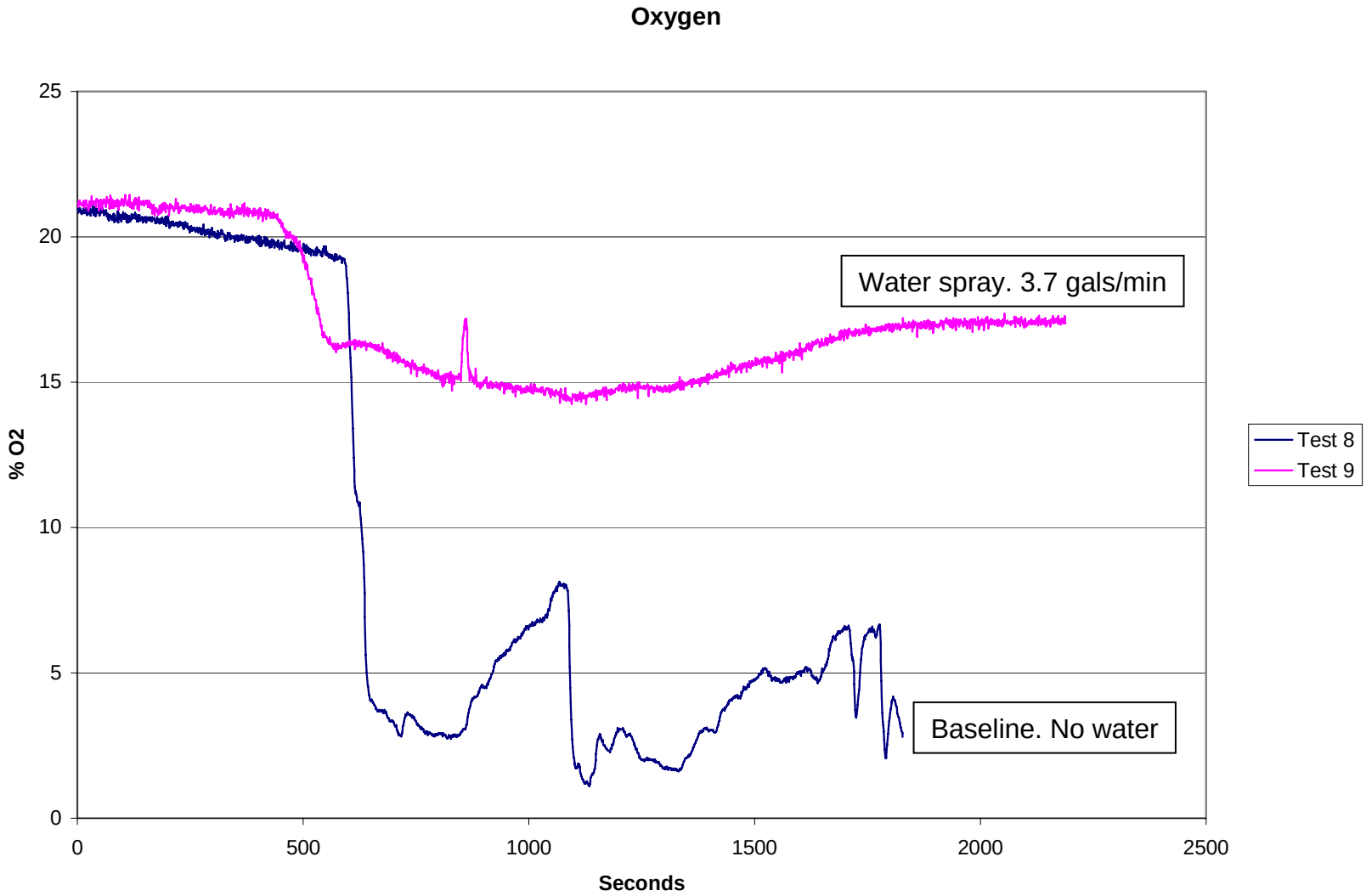
**1.25” by 43” slot cut into container wall.**

**Same size and location as opening for roll up door in typical main deck cargo container**

**Test 8. Baseline. No water**

**Test 9. 0.072” Orifice, 150 psi, 3.7 gals/min**


T/C #3
1400
1200
1000
800
600
400
200
0
Deg. F.
0
300
600
900
1200
1500
1800
2100
2400
Seconds
Baseline. No water
Water spray. 3.7 gals/min
Test 8
Test 9


Oxygen
25
20
15
10
5
0
% O2
0
500
1000
1500
2000
2500
Seconds
Water spray. 3.7 gals/min
Baseline. No water
Test 8
Test 9

# Other Suppression Options to be Tested:

- **Other Fluids**

  **Novec 1230 (Boiling Point 120°F)**

  **2-BTP (Boiling Point 93°F)**

- **Passive Systems.**

**Pressurized agents stored in containers that will rupture or mechanically release agent when exposed to heat. Stored in every ULD.**

- **Fire resistant containers.**

- Looking for input from industry
- Task group formation possible in the future