

# Slide Evacuation Test Method TSO C69A

**Dung Do**

**FAA Fire Safety Team**

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Bremen, GA

June 22 – 23, 2011



Federal Aviation  
Administration



# Slide Evacuation Test Method

- The Round Robin that was mentioned at the Georgia meeting is currently underway.
- The calorimeters of the participants were sent to the Technical Center for recheck and sent back to the participants.
- The data from the Round Robin will be presented at the next meeting.

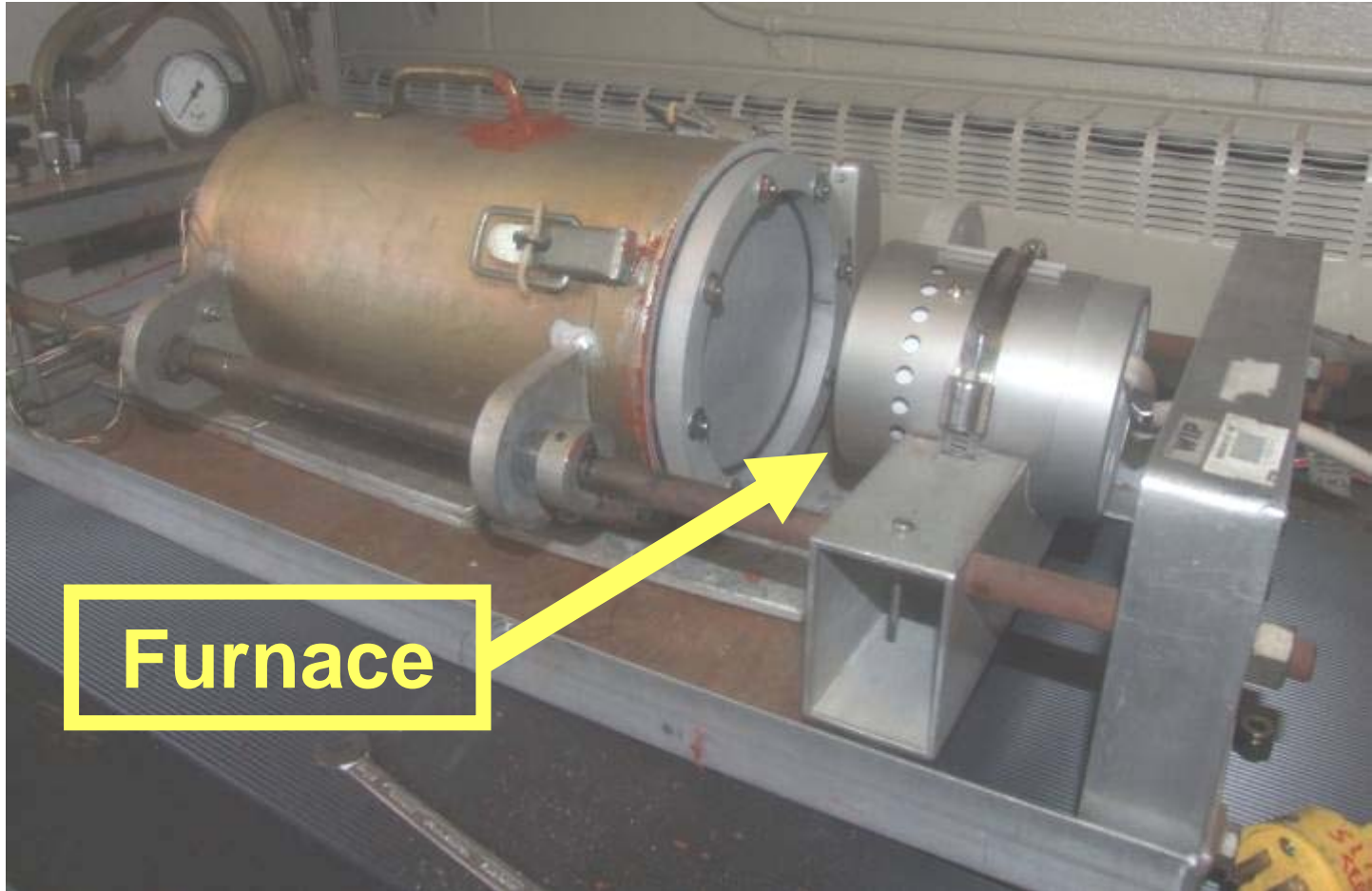


# Slide Evacuation Test Method

- Furnance Study
  - As mentioned in Georgia, the furnace used in this test has changed over the years.
  - Early versions used a wire coil and recent versions use either a “new” wire coil or a solid coil.



# Slide Evacuation Test Apparatus



# Slide Evacuation Test Furnace



**Original  
Wire Coil**

**Recent  
Wire Coil**

**Solid Coil**

# Slide Evacuation Test Method

- Furnance Study: In order to evaluate these three coils, tests were run with three different slide materials. Results:

Test #	Furnace Type	Material	Starting pressure (PSI)	Pressure at 90 seconds (PSI)	Pressure at 180 seconds (PSI)	Pressure at 240 seconds (PSI)	Pressure at 300 seconds (PSI)	Pass / fail
1	Early Version Wire Coil	Yellow/Gray	2.50	2.89	2.96	2.99	3.01	Pass
2	Early Version Wire Coil	Yellow/Gray	2.50	2.86	2.93	2.97	3.01	Pass
3	Early Version Wire Coil	Yellow/Gray	2.50	2.87	2.93	2.96	3.00	Pass
4	Early Version Wire Coil	Yellow/Gray	2.50	2.87	2.94	2.98	3.01	Pass
5	New Version Wire Coil	Yellow/Gray	2.50	2.87	2.93	2.96	2.99	Pass
6	New Version Wire Coil	Yellow/Gray	2.50	2.88	2.95	2.99	3.03	Pass
7	New Version Wire Coil	Yellow/Gray	2.50	2.88	2.94	2.97	3.00	Pass
8	New Version Wire Coil	Yellow Gray	2.50	2.91	2.97	2.99	3.01	Pass
9	New Version Solid Coil	Yellow/Gray	2.50	2.93	3.00	3.03	3.06	Pass
10	New Version Solid Coil	Yellow/Gray	2.50	2.91	2.97	3.01	3.05	Pass
11	New Version Solid Coil	Yellow/Gray	2.50	2.88	2.93	2.96	2.99	Pass
12	New Version Solid Coil	Yellow/Gray	2.50	2.91	2.97	3.01	3.03	Pass

# Slide Evacuation Test Method

- Furnance Study Results

Test #	Furnace Type	Material	Starting Pressure (PSI)	Pressure at 90 seconds (PSI)	Pressure at 180 seconds (PSI)	Pressure at 240 seconds (PSI)	Pressure at 300 seconds (PSI)	Pass / Fail
13	Early Version Wire Coil	Blue/Gray	3.50	3.83	3.89	3.92	3.96	Pass
14	Early Version Wire Coil	Blue/Gray	3.50	3.84	3.89	3.93	3.96	Pass
15	Early Version Wire Coil	Blue/Gray	3.50	3.85	3.92	3.97	4.00	Pass
16	Early Version Wire Coil	Blue/Gray	3.50	3.83	3.89	3.93	3.97	Pass
17	New Version Wire Coil	Blue/Gray	3.50	3.83	3.89	3.93	3.96	Pass
18	New Version Wire Coil	Blue/Gray	3.50	3.83	3.90	3.94	3.97	Pass
19	New Version Wire Coil	Blue/Gray	3.50	3.83	3.88	3.92	3.95	Pass
20	New Version Wire Coil	Blue/Gray	3.50	3.87	3.93	3.97	4.01	Pass
21	New Version Solid Coil	Blue/Gray	3.50	3.84	3.90	3.93	3.96	Pass
22	New Version Solid Coli	Blue/Gray	3.50	3.86	3.92	3.95	3.99	Pass
23	New Version Solid Coil	Blue/Gray	3.50	3.84	3.90	3.93	3.96	Pass
24	New Version Solid Coil	Blue/Gray	3.50	3.88	3.94	3.97	4.02	Pass



# Slide Evacuation Test Method

- Furnance Study Results

Test #	Furnace Type	Material	Pass/Fail	Comment –Time to Failure
25	Early Version Wire Coil	Beige Mustard	Fail	Pressure loss at 35 seconds
26	Early Version Wire Coil	Beige Mustard	Fail	Pressure loss at 34 seconds
27	Early Version Wire Coil	Beige Mustard	Fail	Pressure loss at 44 seconds
28	Early Version Wire Coil	Beige Mustard	Fail	Pressure loss at 87 seconds
29	Early Version Wire Coil	Beige Mustard	Fail	Pressure loss at 88 seconds
30	New Version Wire Coil	Beige Mustard	Fail	Pressure loss at 40 seconds
31	New Version Wire Coil	Beige Mustard	Fail	Pressure loss at 58 seconds
32	New Version Wire Coil	Beige Mustard	Fail	Pressure loss at 36 seconds
33	New Version Wire Coil	Beige Mustard	Fail	Pressure loss at 40 seconds
34	New Version Solid Coil	Beige Mustard	Fail	Pressure loss at 32 seconds
35	New Version Solid Coil	Beige Mustard	Fail	Pressure loss at 31seconds
36	New Version Solid coil	Beige Mustard	Fail	Pressure loss at 33 seconds
37	New Version Solid Coil	Beige Mustard	Fail	Pressure loss at 36 seconds
38	New Version Solid Coil	Beige Mustard	Fail	Pressure loss at 33 seconds
39	New Version Solid Coil	Beige Mustard	Fail	Pressure Loss at31 seconds





# Slide Evacuation Test Method

- Pass/Fail Requirements
  - The TSO states the average time to failure may not be less than 180 seconds with no value less than 90 seconds.
  - We are recommending that each test be evaluated individually instead of an average of three samples.
  - We are also recommending that in order to pass, each sample must be able to hold pressure at a minimum of 180 seconds.



# Slide Evacuation Test Method

- Next Steps:
  - One of the participating labs has sent their calorimeter back to the Tech Center for another recheck due to questionable data. This calorimeter will then be used to calibrate the FAA test apparatus. Three materials will be run in order to eliminate the calorimeter as the problem and then sent back to the participant.
  - The FAA Fire Test Handbook will be reviewed and revised.

