

vulnerable to debris from the collapse of WTC 1, contributing up to 10 MW to the fire along the west side of Floor 9; however, there was no evidence of a fire on Floor 9 until late in the day.

The day tanks themselves on Floors 7 and 9 contained a total of 325 gal of diesel fuel, roughly equivalent to 975 kg (2,167 lb) of combustible furnishings. If spread evenly over the areas of the 7th and 9th floors, this amount of fuel was equivalent to one percent of the estimated combustible material on these floors.

9.2.3 Summary

A broad range of hypothetical, extreme fires on the 5th floor did not produce a fire scenario that was consistent with the visual evidence that would have threatened the load bearing capacity of Columns 79, 80, or 81. Additionally, these hypothetical fires were likely to have caused collateral damage to the electrical and fuel supplies. This conclusion was also consistent with the information from interviews that sometime after 1:00 p.m., OEM and FDNY staff climbed the east stairway of WTC 7 and did not see much damage on the lower floors from their viewing location (Chapter 6). They made no mention of fire, heat or smoke.

The possible contribution of diesel fuel to the fires that were observed on Floors 7 and 9 was also considered. The amount of fuel available within the day tanks was insignificant compared to the normal combustible load on these floors, but the diesel fuel could have contributed to the initial ignition and spread of the fires on the south side of Floor 7 and on the west side of Floor 9. Had a rupture occurred in the horizontal runs of the fuel supply line, and had the base emergency generators on the 5th floor operated as designed, a significant fire on the south side of Floor 7 could have occurred without being distinguishable within the smoke and dust plume. Lesser fires on the west and southwest portions of the 9th floor might also have been possible under very special circumstances. These fires would have been well away from critical structural systems on the east side of WTC 7.

Based on the result of these analyses and the review of the numerous interview transcripts, the Investigation Team concluded that it was highly unlikely that any fires on the 5th floor contributed significantly to the collapse of WTC 7. Accordingly, in the structural modeling of the collapse initiation (Chapter 11), it was assumed that the temperatures on Floors 5 and 6 began at ambient values and only rose due to conductive heating from the fires on the floors above. For the reasons discussed above, the Investigation Team concluded that it was appropriate not to include diesel fuel explicitly in the simulation of the fires on Floors 7 and 9.

9.3 SIMULATION OF FIRES ON FLOORS 7 THROUGH 13

9.3.1 Model Input

Numerical Grid

As discussed in Section 9.1, independent fire simulations were carried out for the 7th, 8th, and 12th floors. The layouts of these floors can be found in Chapter 3 of this report.

The numerical grid dimensions for each floor of WTC 7 were the same as for the WTC towers. Grid cells of 0.5 m by 0.5 m by 0.4 m (vertical) were used, with a slab-to-slab height of 3.6 m. Although this grid