

U.S. Fire Administration/Technical Report Series

Sherwin-Williams Paint Warehouse Fire

Dayton, Ohio

With Supplement on Sandoz Chemical Plant Fire

Basel, Switzerland

USFA-TR-009/May 1987



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U.S. Fire Administration Fire Investigations Program

The U.S. Fire Administration develops reports on selected major fires throughout the country. The fires usually involve multiple deaths or a large loss of property. But the primary criterion for deciding to do a report is whether it will result in significant “lessons learned.” In some cases these lessons bring to light new knowledge about fire--the effect of building construction or contents, human behavior in fire, etc. In other cases, the lessons are not new but are serious enough to highlight once again, with yet another fire tragedy report. In some cases, special reports are developed to discuss events, drills, or new technologies which are of interest to the fire service.

The reports are sent to fire magazines and are distributed at National and Regional fire meetings. The International Association of Fire Chiefs assists the USFA in disseminating the findings throughout the fire service. On a continuing basis the reports are available on request from the USFA; announcements of their availability are published widely in fire journals and newsletters.

This body of work provides detailed information on the nature of the fire problem for policymakers who must decide on allocations of resources between fire and other pressing problems, and within the fire service to improve codes and code enforcement, training, public fire education, building technology, and other related areas.

The Fire Administration, which has no regulatory authority, sends an experienced fire investigator into a community after a major incident only after having conferred with the local fire authorities to insure that the assistance and presence of the USFA would be supportive and would in no way interfere with any review of the incident they are themselves conducting. The intent is not to arrive during the event or even immediately after, but rather after the dust settles, so that a complete and objective review of all the important aspects of the incident can be made. Local authorities review the USFA’s report while it is in draft. The USFA investigator or team is available to local authorities should they wish to request technical assistance for their own investigation.

For additional copies of this report write to the U.S. Fire Administration, 16825 South Seton Avenue, Emmitsburg, Maryland 21727. The report is available on the Administration’s Web site at <http://www.usfa.dhs.gov/>

**Sherwin-Williams Paint Warehouse Fire
Dayton, Ohio**

**With Supplement on
Sandoz Chemical Plant Fire
Basel, Switzerland**

Investigated by: Tom D. Copeland
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This is Report 009 of the Major Fires Investigation Project conducted by TriData Corporation under contract EMW-86-C-2277 to the United States Fire Administration, Federal Emergency Management Agency.



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Department of Homeland Security
United States Fire Administration
National Fire Data Center

U.S. Fire Administration

Mission Statement

As an entity of the Department of Homeland Security, the mission of the USFA is to reduce life and economic losses due to fire and related emergencies, through leadership, advocacy, coordination, and support. We serve the Nation independently, in coordination with other Federal agencies, and in partnership with fire protection and emergency service communities. With a commitment to excellence, we provide public education, training, technology, and data initiatives.



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SHERWIN-WILLIAMS PAINT WAREHOUSE FIRE
Dayton, Ohio
May 27, 1987

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OVERVIEW

The Dayton, Ohio Fire Department avoided a double disaster by not attempting to extinguish a massive fire in a paint warehouse. The fire started on May 27, 1987, and completely destroyed the Sherwin-Williams Paint Warehouse. The dollar loss was \$32 million, but only one employee was seriously injured and one firefighter sprained his leg. The noncombustible, sprinklered warehouse contained over 1.5 million gallons of paints and other products and was located over the aquifer from which wells provided the water supply for about one-third of the area's 400,000 people. Uncontained water and chemical run-off from firefighting could have contaminated this water supply and caused a greater loss than the fire itself, as occurred in Switzerland after the Sandoz Chemical Warehouse fire in 1986 contaminated the Rhine.

SUMMARY OF KEY ISSUES

| Issues | Comments |
|-------------------------|--|
| Cause | Spark from lift truck ignited spilled contents of cans. |
| Industrial Firefighting | Ineffective; could not stop initial fire. |
| Sprinkler Systems | Overwhelmed Helped save office building adjoining warehouse. Question whether standard is adequate for this occupancy. |
| Firewall | Failed. |
| Incident Command | Highly effective. Quick, appropriate decision by first arriving district chief not to let crews in close. Courageous decision by Chief Glenn Alexander not to vigorously attack fire with water precluded environmental disaster to aquifer and city water supply. |
| Insurance | To be paid despite decision not to extinguish. |
| Municipal Liability | None apparent in this case but cannot generalize. |
| Prefire Plan | Did not address threat to aquifer. |
| Environmental Pollution | Apparently little to none. Tradeoff of air versus water pollution considered early, unlike Swiss Sandoz fire. Air and water experts on the scene early. |
| Firefighter Safety | A major factor in decision not to fight in close. Only one firefighter slightly injured in four-day fire. |
| Employee Safety | Difficulty in accounting for employees who escaped. Only one employee seriously injured. |

THE FACILITY

The Sherwin-Williams Paint Warehouse was a large one-story building with an attached office building. An adjoining roofed-over area was used for drum storage. Trailers, some loaded, were located at the docks and within the fenced-in area of the facility. Direct exposure to properties outside the storage complex was minimal. (For a diagram of the site see Figure 1 in Appendix B.)

The main building's outside walls were of "tilt-up" concrete construction with a fire division wall of similar construction dividing the warehouse into two areas. The roof was supported by unprotected steel bar joists and columns. The facility was built in 1977 and contained about 190,000 square feet with walls about 33 feet high.

The building had a sprinkler system and diesel fire pump. The 2,500 gpm fire pump was located in a small detached building. Fire department connections to supplement the system were located on the warehouse side of the pumphouse.

The pump was supplied by a 12-inch line connected to a 16-inch public water main. The pump supplied a 10-inch loop around the site with connections to various sprinkler risers, external exposure

