

Section 9

Selected portions of NFPA 921 – 2011 Edition

NFPA 921 - 2011 EDITION

Selected Sections

4.3.6 Test the Hypothesis (Deductive Reasoning)

The investigator does not have a valid hypothesis unless it can stand the test of careful and serious challenge. Testing of the hypothesis is done by the principle of deductive reasoning, in which the investigator compares his or her hypothesis to all the known facts as well as the body of scientific knowledge associated with the phenomena relevant to the specific incident. A hypothesis can be tested either physically by conducting experiments or analytically by applying scientific principles in “thought experiments”.

18.5 Developing a Cause Hypothesis.

The investigator should use the scientific method (*see the Basic Methodology chapter*) as the method for data gathering, hypothesis development, and hypothesis testing regarding the consideration of potential ignition sequences. This process of consideration actually involves the development and testing of alternate hypotheses. In this case, a separate hypothesis is developed considering each individual competent ignition source at the origin as a potential ignition source. Systematic evaluation (hypothesis testing) is then conducted with the elimination of those hypotheses that are not supportable (or refuted) by the facts discovered through further examination.

18.6 Testing the Cause Hypothesis

Each of the alternate hypotheses that were developed must then be tested using the Scientific Method. If one remaining hypothesis is tested using the “scientific method” and is determined to be probable, then the cause of the fire is identified.

18.6.5 Inappropriate Use of the Process of Elimination

The process of determining the ignition source for a fire, by eliminating all ignition sources found, known or believed to have been present in the area of origin, and then claiming such methodology is proof of an ignition source for which there is no evidence of its existence, is referred to by some investigators as “negative corpus”. Negative corpus has typically been used in classifying fire as incendiary, although the process has also been used to characterize fires classified as accidental. This process is not consistent with the Scientific Method, is inappropriate, and should not be used because it generates un-testable hypotheses, and may result in incorrect determinations of the ignition source and first fuel ignited. Any hypothesis formulated for the causal factors (e.g. first fuel, ignition source, and ignition sequence), must be based on facts. Those facts are derived from evidence, observations, calculations, experiments, and the laws of science. Speculative information cannot be included in the analysis.

18.7.4 Undetermined Fire Cause

The final opinion is only as good as the quality of the data used in reaching that opinion. If the level of certainty of the opinion is only “possible” or “suspected”, the fire cause is unresolved and should be classified as “undetermined”. This decision as to the level of certainty in data collected in the investigation or of any hypothesis drawn from an analysis of the data rests with the investigator.

19.2.1 Classification of the Cause.

Classification of a fire cause may be used for assignment of responsibility (*See Section 18.6*), reporting purposes, or compilation of statistics. Different jurisdictions may have alternative definitions that should be applied as required. The cause of a fire may be classified as accidental, natural, incendiary, or undetermined.

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Fires in which the level of certainty is possible or suspected , or in which there is only suspicion of that cause, should be classified as undetermined. Determining the cause of a fire and classifying the cause of the fire are two separate processes that should not be confused with each other.