

Test Your Knowledge

PROMOTIONAL SCENARIOS FOR THE COMPANY OFFICERS

Oil Burner Emergencies—Delayed Ignition

Responding and operating at an oil burner incident is a common, everyday occurrence for many in the fire service. During the colder weather months, firefighters will respond to numerous emergencies that involve oil-fired heating systems. Fire departments will often experience challenges from oil fire heating systems; therefore, fire officers need to be prepared to deal with the common ‘delayed ignition’ and the not so common ‘white ghost’. This training exercise is not designed to turn you into a heating system technician. It is designed to provide the firefighter and fire officer with a few operational tips with oil burner incidents.

Delayed Ignition: Delayed ignition, puff backs, kick backs, or as they are also called, blow backs, can occur in a heating system when unburned atomized fuel is ignited at the start of a burner cycle resulting in an explosion. The explosion itself can vary in size and effect. It can be as minor as a small thud quickly followed by a puff of smoke. This is the most common. It could also be more intense resulting in the dislodging of the heating units flue pipes filling the basement with smoke, or it can blow open the fire box door sending fire across the room. Well-maintained systems have protective systems in place to prevent such occurrences, but as in any mechanical system, faulty or poor maintenance is a high possibility. With a delayed ignition, there is often a distinct odor that identifies the incident. Also be aware of heavy smoke coming from the chimney, or smoke that may indicate more than a simple puff back. Be prepared, because you may actually be entering into a basement/structure fire.

Read the test question below and provide your answers in the workspace. The answer key can be found on page two.

Test Question: As the first due Company/Chief Officer, you respond to a report of smoke in the basement of a private dwelling. With the cold weather settling in, you give early considerations to the possibility of an oil burner emergency. Your initial investigation leads you to believe this is a delayed ignition. With this thought in mind, what steps/actions will you take at the incident?



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Delayed Ignition; Answer Key

- Upon arrival, ensure all members are in full PPE/SCBA – delayed ignition incidents have the potential to be dangerous to say nothing of the hazards of the oil-saturated smoke.
- Assign members to bring in a few fire extinguishers – Extinguisher options should include a CO₂, dry chemical, and/or AFFF extinguisher.
- Order a hose line stretched – Fire extinguishers by themselves are not enough. Stretch a 1-3/4” hose line as a backup.
- Prior to entering the basement/cellar area, shut the remote control switch to the heating unit. This is usually identified as a red electrical switch/box installed outside the burner room.
- Ventilate the affected area.
- Shut off the fuel supply from the oil tank into the burner. If approachable, this will generally be a copper hose line that goes directly from the tank to the burner. It can be strung along the wall, floor, or attached to the underside of the first floor joists. Trace out the line and find the shutoff valve.
- Avoid operating in front of or near the burner unit – the heating unit can violently pulsate and force the firebox door open, injuring a firefighter.
- Extinguish any fire outside the burner.
- Monitor any fire in the firebox and allow it to burn itself out - Applying any water in the fuel box can result in devastating steam/oil burns to your firefighters.
- Search all floors for any overcome building occupants.
- Check for any fire extension – Thoroughly check and remove any affected combustibles in the basement and around structural members in the basement area.
- Check for any fire extension in and around the flue pipe.
- Check for a possibly chimney fire.
- Check for fire extension on the floor directly above.
- Always use utilize thermal imaging cameras when checking for fire extension.
- Once the fire is under control – advise the homeowner of your findings and the service needs of the heating system.
- Check CO levels prior to allow occupants and owner to re-occupy the building.
- If the building cannot be reoccupied due to a loss of heat, assist the building owner/tenants with relocation to a warm shelter. (Red Cross, etc.)



Michael Terpak is a 35 year veteran of the fire service and a Deputy Chief with the Jersey City Fire Department. Terpak travels extensively around the country lecturing on fire related topics. He is the founder of Promotional Prep, a NJ based consulting firm designed to prepare firefighters and officers for promotional exams. He is the author of three bestselling books including Fireground Operational Guides (with DC Frank Viscuso, PennWell 2011). The book features a universal tactical worksheet for structure fires and operational guides for over 70 incidents that range from water, gas and electrical emergencies to multiple-alarm structure fires. (available at FireOpsOnline.com)