



## Case Study - Property Coverage Kitchen Grease Fires

### Project Description: Residential Restoration/Cleanup

**Scope of Services:** Accredited Environmental Technologies, Inc. (AET) was contracted to evaluate the extent and effectiveness of cleanup operations following a grease fire in a residence. The grease fire occurred on top of a kitchen stove and lasted only 10 minutes when it was extinguished using a Halon fire extinguisher by the homeowner. Fire damage included approximately 100SF of wall/ceiling areas in the kitchen as well as several major appliances and cabinetry. A local restoration company was hired to formulate/implement the required cleanup plan. The homeowner moved from the home immediately after the fire and had not moved back into the home since the quality of work (cleaning/restoration activities) did not meet their standards.

**AET's Experience:** In the US, a fire starts every 16 seconds. The damage varies from total loss, to minor cosmetic damage. Cooking fires are the leading cause of fires resulting in more than 480 deaths per year and nearly 900 million dollars in property damage. Grease fires occur when oil or grease on a stove, oven or fryer get hot enough to start to boil, then start smoking and finally ignite. Most vegetable oils have a smoking point around 450°F, while animal fat starts smoking around 375°F.

A grease fire is burning liquid which is easily splashed and can quickly spread to cabinets or other flammable areas of the kitchen. Grease fires produce significant amounts of smoke, soot and odors which can travel throughout the entire structure. Professional decision-making is required prior to and during restoration to evaluate contaminants on non-porous and porous items/building surfaces.

### Do's and Don'ts of Grease Fires:

1. Never leave cooking surfaces unattended. If you need to leave the kitchen while cooking turn off the burner and remove the pan from the heat. Keep cooking surfaces clean to prevent grease buildup. Clip a thermometer to the side of the pan so you know the temperature of the oil.
2. Do not put water on a grease fire. Water will not extinguish the fire but will cause the burning oil to splash, spreading the grease fire.
3. In the event of a grease fire, turn off the heat. Don't try to move the pan and cover the pan with a metal lid.
4. Keep/learn to use a Class B dry chemical fire extinguisher in your kitchen. This extinguisher should be bracketed to a wall near an exit and not where flames would prevent you from getting to it. Improper use of a fire extinguisher can spread the grease and flames to a wider area.
5. If the fire does break out of control, get out of the house and call 911.

### AET's Investigative Approach:

1. **Interviews:** AET's staff professional interviewed the homeowner concerning the fire and the resulting cleanup activities. Reportedly, the homeowner activated the attic fan in the hopes of evacuating the smoke immediately after extinguishing the fire. The residence HVAC system was not operating during the fire but a return air grill was located less than 25' from the stove. The fire department was not contacted or responded; no water was used to extinguish the fire which could result in water damage/mold to interior building components and furnishings.
2. **Visual Inspection:** A slight smoke odor remains in the home. A white glove inspection of the walls, floors and other building surfaces was performed throughout the residence including hard to reach and infrequently cleaned areas.
3. **Review of the Restoration Work Plan:** AET's CIH staff professional evaluated the completeness of the work plan design and the extent/effectiveness of the cleaning performed under the work plan. Specific attention was also focused on the chemical products used during cleaning due to individual sensitivities and health considerations of the children who resided in the residence.

**Conclusion/Recommendations:** Specific conclusions regarding the effectiveness of the restoration process were provided. Missing items in the original restoration design were identified.

### General Requirements for Restoration/Cleanup following a Grease Fire include:

- Cleaning activities must include all building locations, rooms, and materials/contents even those far away from the site of the fire. This includes remote areas such as behind cabinets, inside attics and the HVAC system. All areas must be inspected.
- Cleaning must be performed by an experienced restoration contractor and the residence work area(s) placed under negative pressure relative to clean areas. Negative pressure should be established using air filtration devices equipped with HEPA filtration.
- Chemicals used during the cleaning process must be manufacturer recommended for the items/surfaces to be cleaned. These chemicals/products should be reviewed by the homeowners physicians when individuals with compromised health reside in the residence.
- Most porous materials/furnishings cannot be cleaned in-place. Cloth upholstered furniture, window treatments, etc. require special cleaning. Carpets/padding should be removed/replaced. Clothes should be laundered.
- The restoration work plan design should be performed by an experienced environmental professional such as a CIH. Following completion of the restoration process and prior to re-occupancy, independent site reconnaissance of the residence should be performed by an environmental consultant to document the efficacy of the restoration process.

When you need professional help or advice, email Alan Sutherland, CIH, CHMM at [a.sutherland@aetinc.biz](mailto:a.sutherland@aetinc.biz) or call 610-891-0114. We provide nationwide services; phone consultations are free. Check out the full range of environmental contracting/consulting services we provide at our website [www.aetinc.biz](http://www.aetinc.biz).