Emergency Operations

One of the initial tactical priorities for the incident commander of a structure fire is to secure the building utilities to insure the safety of the firefighters. This is typically a Truck function that will be assigned as “Secure the Utilities”. The firefighter given this assignment must be able to locate access and shut off the utilities as directed.

Locating Utilities

Locating utilities may often prove more challenging than first anticipated. Firefighters must use the resources available to them to assist in locating the utilities. These resources include Special Area Maps, Pre-Plans and responsible parties. If firefighters are unable to locate the utilities, a prompt request must be made to the appropriate utility for assistance with locating and shutting off the utilities.

Finding Circuit Breakers

If it is not possible to isolate the incident locally, or in the case of structure fires, firefighters should attempt to throw the switches and circuit breakers to turn off service. If no one is available to help you locate the circuit breakers or fuse box, follow the general guidelines below to find the units:

— On underground service, look for the meter and circuit breakers.

— On overhead electrical service look for a power pole and trace the wires running from the pole to the structure. These wires are connected to the structure by a metal mast that extends above the roofline and carries the wires to the meter. The electric meter is usually located on the mast beneath the drip loops. Do not confuse telephone and cable television wires for electric service.

— Circuit breakers in residential and small commercial buildings are usually located in the same box the meter is on. They may be located elsewhere, but will be in the general vicinity of the meter box.

— Residential meters are most commonly located on garages, service porches, closets and laundry rooms. Multi-family residences may have separate sub-panels located within each unit.

— In commercial structures, the service will usually terminate in an electrical junction box that is located within a locked utility room. This room may or may not be labeled on the outside door with an “SDG&E” or telephone company sticker indicating the utilities are found within. The meter is usually located on a separate junction box with the circuit breakers and fuses directly adjacent in another panel. Typically, the meter will be labeled to indicate the box does not contain fuses or circuit breakers.

Finding gas utilities

Natural gas meters will normally be located on the exterior of the structure near the street side. If the gas meter is not located in this general area then check the entire perimeter of the structure, underground parking areas and garages. Often times the meter is hidden by plants for esthetic reasons. Occasionally the meter will be located inside of the building. In these instances there will be an auxiliary valve located in the street or sidewalk on the exterior of the structure. The valve will be located under a metal or cement cover labeled “GAS”. This type of valve is called a curb valve due to its proximity to the curb. Curb valves are required at hospitals, schools, and many other structures of public assembly as a second gas shut off. In commercial or multi-family residences there may be several gas meters grouped together. In the case of liquid propane, look for the tank located away from the structure.

Finding Water Service Valves

Water service valves may be located in many different locations. Most service valves are located on the street side of the structure in a subterranean box that is easily accessible for the water company to read the meter monthly. Local valves may be located throughout the structure to control separate areas of service. When unable to locate the water service valve a prompt request should be made to the appropriate water district for their assistance.

Accessing Utilities

Accessing utilities may be as simple as opening a circuit breaker panel on a residential structure or as difficult as forcing entry through a steel clad door mounted in a steel frame to access the utility room of a commercial occupancy. When given the assignment to “Secure Utilities”, firefighters must perform a size-up of the structure and determine the anticipated tools needed to complete the assignment. As a guideline, the following tools should be considered for each occupancy type:

— Single-family residence:

- Pipe wrench to secure gas valve
- Bolt cutters to access padlocked gates electrical panels and gas valves

— Multi-family residence:

- Pipe wrench to secure gas valve
- Bolt cutters to access padlocked gates electrical panels and gas valves
- Forcible entry tools to access locked utility rooms

— Commercial occupancies:

- Pipe wrench to secure gas valve
- Forcible entry tools to access some of the most challenging doors that may be located on utility rooms. The tools needed may include: Halligan bar, sledgehammer, K-tool and circular saw. Be advised that forcing entry into commercial utility rooms may be very time consuming and require two or more firefighters to gain access. Early notification and request for the appropriate utility company to assist with securing the utilities should be considered when dealing with commercial occupancies.

Shutting Off Utilities

Once the utilities have been located and accessed they must be safely shut off as required.

Shutting off Electric Utilities

Before switching off a circuit breaker, firefighters should note the condition of the panel (i.e. circuit breakers in the “tripped” or “off” position, spent fuses, panels that have been tampered with, etc., which may aid the fire investigator in determining the cause of the fire). A quick visual inspection will usually suffice, but be wary of units that appear to have been tampered with or have exposed electrical wiring. When shutting off electric utilities care must be taken to avoid standing in wet locations and avoid any exposed wiring.

Shutting off a circuit breaker is a simple operation, move the circuit breaker switch from the “on” to the “off” position. Some electrical service panels will have a switch or breaker labeled “main”; switching this off, should shut off all power to the breakers in that panel.

Commercial occupancies will have different size service panels based upon the load they are designed to carry. Some of these service panels may have disconnects with large levers used to disconnect the power. When shutting off these services the potential for an electric arc exists. The following basic safety precautions should be utilized when securing these electrical services:

— Wear full personal protective equipment including eye protection

- Turn head and eyes away when switching off
- Stand to the side of the panel
- Assure you are standing in a dry location
- Notify SDG&E for assistance if all of these safety precautions can't be taken.

Photo illustrating proper technique for shutting off commercial electric disconnects.

Care must be exercised to avoid stranding escaping occupants (i.e. in elevators) or compromising fire operations when disconnecting the electrical service.

If difficulties are encountered while attempting to secure the electric utilities a prompt request for "S.D.G.&E" should be made through the incident commander.

Power should not be restored to occupancy without a utility company representative on-scene.

Shutting of Gas Utilities

The principal valve used for gas shut off, called a plug valve, will turn 1/4 turn in either direction to the off position. Often the plug valve has an indicator mark, which is in line with the pipe when the gas is on. When this mark line (wing) is across the pipe the gas is shut off. On some commercial services there may be a second shut off, a large valve on the low pressure or discharge side of the meter. It should only be used when you are unable to turn the gas off at the intake side of the meter. Turning this valve clockwise 1/4 turn, its maximum turning radius, will shut the service off. A large

adjustable wrench should be used to turn off gas service. Street mains may contain control valves as well, but firefighters should control gas from these valves under direct supervision of the utility company. It is more appropriate to allow the utility emergency crew to operate these valves if it is deemed necessary. LPG tanks have a valve that is turned off by turning counter clockwise until closed.

Photo illustrating a natural gas meter with an adjustable wrench on the ¼ turn shut off valve

Gas service must only be turned back on by a representative of the appropriate utility due to the necessity of relighting pilot lights.

Shutting off Water Utilities

The valve located at the water meter will generally be a quarter turn valve and may or may not have a handle on it. There may be other local valves located throughout the property used to isolate the water service. Commercial occupancies may have OS&Y or gate valves located near the street that can be used to isolate water service to the structure. Care must be exercised so as not to inadvertently shut off the fire sprinklers.

Contacting Utility Companies

When firefighters encounter utility emergencies and need assistance they should, in most cases, call Dispatch to request utility assistance. The information they need to relay includes:

- Type of utility service required (gas, electric, or water)
- Specific location including service address and cross streets. For electrical assistance include pole, vault or transformer number if available.
- A brief description of the problem and type of assistance that is needed. Be specific if there is an immediate life hazard so that the utility may assign an appropriate priority to the request.