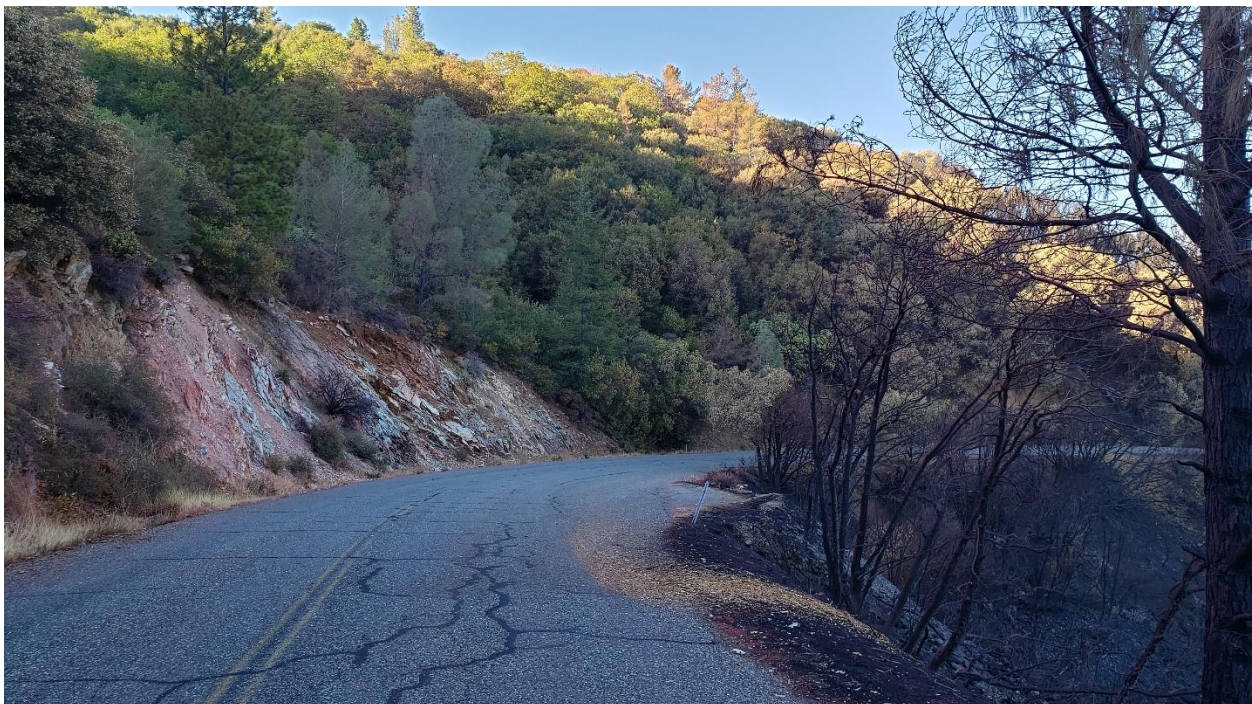**September 30, 2022**

Mosquito Fire

Figure 1: Mosquito Ridge Road (used as a containment line) - 2022 Mosquito Fire, CA, Photo: Jim Bartlett, PIO

Direct or Indirect Containment? What's the Difference?

In wildfire news you will hear the important term, "containment line." So what is it? A containment line is the fireline constructed around a fire intended to be used to stop the spread and intensity of fire on the ground. A fireline needs to be vegetation free to prevent ground spread of fire. It can be a wide path of dirt, a road, a body of water, a rock face, or other natural or man-made barrier. A containment line creates a division between burned and unburned areas. Before firefighters label a fireline as a containment line, they must be certain it will stop the fire.

There are two types of fireline, "direct" and "indirect." Direct line is on the fire's edge, and indirect is not.

Many factors must be taken into consideration before determining what type of fireline to build. Wind, fuel type(s), fire behavior, and accessibility are a few of these factors.

Firefighters must first determine a location for a proposed containment line. In most instances, the most effective line is constructed directly on the fire's edge…a direct containment line. These are created by hand-digging or bulldozing barriers on the ground.

Hand crews, bulldozers or water from a hose may be used to improve or widen the fireline after initial line construction. These methods are all designed to remove heat from the fire's perimeter.

When it is not possible to build line directly on the fire's edge, an indirect line is used. Steep terrain, high-intensity fires, and high rates of fire spread are all reasons a fireline may not be able to be constructed right at the fire's edge. After a line is constructed, the vegetation between the fireline and the approaching fire is burned, which will then slow the speed of the approaching fire.

Figure 2: Hand crews create containment line in steep, difficult terrain – 2022 Mosquito Fire, CA, Photo: Jim Bartlett, PIO

Extinguishing any heat source within the fire's perimeter is necessary to hold the fire under expected conditions.

Sometimes previous burn scars or areas treated in advance of wildfire (either by vegetation removal or by prescribed burns) are utilized to slow the fire's spread, giving firefighters more time to construct line.

Firefighters observe fire behavior to assess whether a line will contain the wildfire if wind pushes the fire in the direction of the line. They also watch over time, a few days or longer, to ensure the line will halt the wildfire's spread.

Figure 3: Dozer line south of Yuba Pass, 2022 Mosquito Fire, CA, Photo: Jim Bartlett, PIO

After firefighters are confident a constructed fireline will stop a wildfire from spreading, it is then labeled a containment line.

A constructed fireline is usually about 10 to 12 feet wide, but it depends on fuel type and the nature of the break…sometimes it is as wide as a creek crossing or highway. Because firelines are used to also stop crowing (treetop-to-treetop) fires, a general rule of thumb is to construct a fire line 1.5 times the height of the existing burning fuels.

Maps showing updated containment lines are produced daily during an active wildfire, providing a visual representation for incident managers, firefighters and the public alike to watch the successful progress of suppression activities. Data collection for mapping containment lines is accomplished in various ways, including through hand GPS devices, satellites, drones and aircraft.

The red outline on a wildfire map indicates uncontained fire perimeter, while a black line indicates contained.
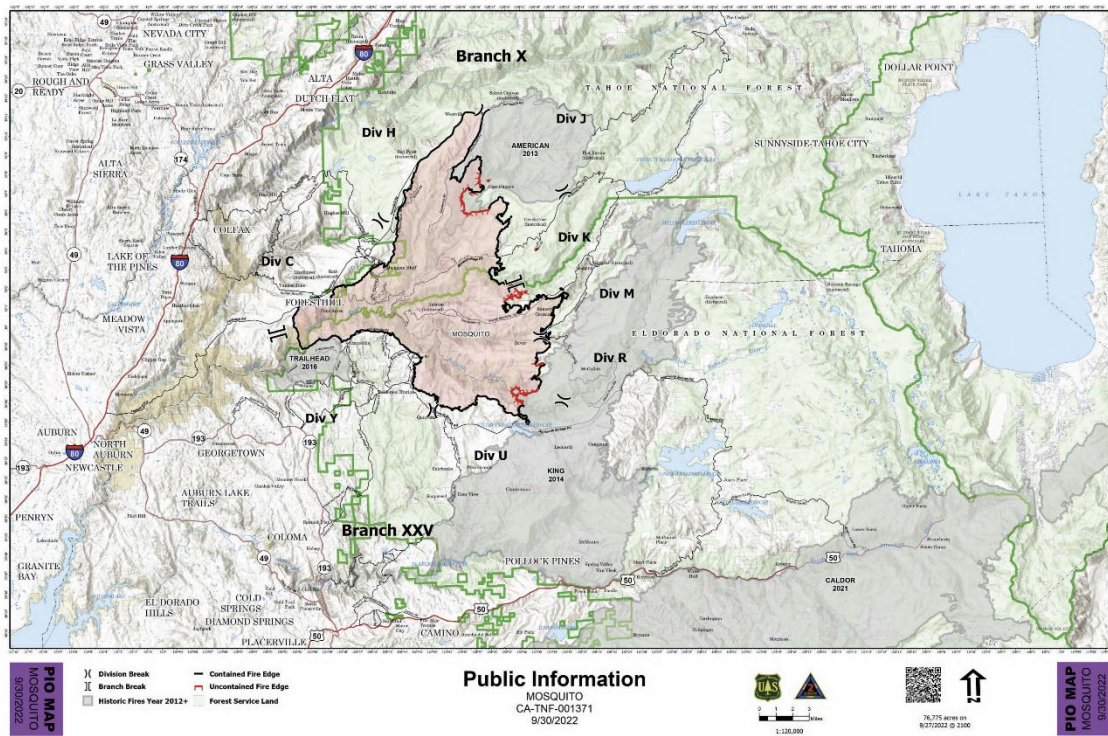

Figure 4: Incident Public Information Map, 2022 Mosquito Fire, CA

InciWeb Mosquito Post-Fire BAER Information

InciWeb Mosquito Fire

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