CANADIAN FOAM EFFECTIVENESS STUDY

by C.J. Ogilvie, Forestry Canada

Over the last few years, firefighting foam has become an important component in the Canadian aerial forest fire suppression arsenal. The basic question of whether or not foam is effective seems to have been largely confirmed by the users. The field use of foam has, however, raised a number of other questions that should be answered. These questions include: What consistency of foam is desirable for different fuel parameters and weather conditions? How do factors such as mixing rations, water conditions, tank and gating systems, drop heights, and drop speeds affect foam consistency? What strategy and tactics should be employed?

In an attempt to answer these questions, a study has been initiated by the Northern Forestry Centre of Forestry Canada, and the Alberta Forest Service with cooperation from the Government of the Northwest Territories Department of Natural Resources (DNR), the Saskatchewan Department of Parks and Renewable Resources, and Chemonics Industries (Canada), Ltd. The study is closely patterned after the USDA Forest Service, Operational Retardant Effectiveness (ORE) study conducted by Chuck George and colleagues at the Intermountain Fire Sciences Laboratory Missoula, Mont., in cooperation with the USDI Bureau of Land Management, and the California Department of Forestry and Fire Protection. The purpose of the ORE study is to provide detailed information on optimum tank and gating systems; the most effective chemical and physical retardant properties; and the selection, allocation, and deployment of airtankers.

The Canadian study is primarily concerned with foam applied with the Canadair CL 215 airtanker (fig. 3). Field data are collected by a four-man team transported by an infrared (FLIR)-equipped helicopter (Bell 206L). The team consists of an aerial attack person and a foam evaluation person who are put down near the fire to conduct ground evaluations, while an infrared scanner operator and the pilot conduct aerial observations.

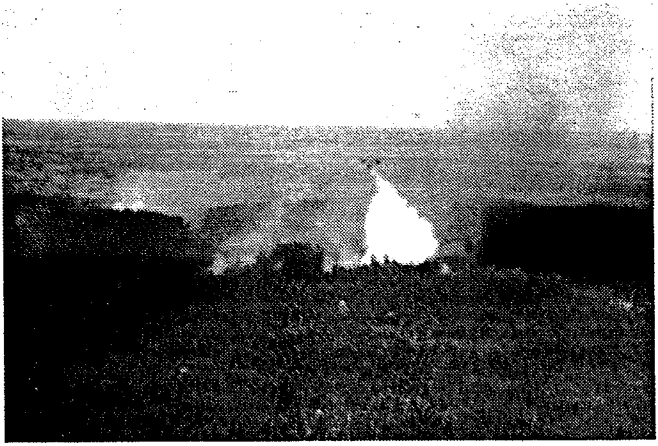

Figure 3. CL 215 dropping foam.

The ground evaluations include collecting fuel type and fuel moisture information, weather observations, topographic information, fire behavior characteristics, and foam performance data. Collecting the foam performance data includes sampling the foam to determine expansion ratios, measuring foam depth and penetration over time, and estimating foam coverage over the area covered by the drop.

The aerial observations are made with a FLIR scanner and a 35-mm still camera with data back. The infrared capability enables through-the-smoke evaluation of a foam drop with regard to its placement and effectiveness, over time, in stopping or slowing the fire. The results of the study will be summarized in the form of a guideline for aerial application of foam from a CL-215, and a case study report containing a pictorial and written record of each fire documented.

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FOAM APPLICATIONS FOR WILDLAND & URBAN FIRE MANAGEMENT

Prepared by: **NWCG Fire Equipment Working Team's Task Group for International/Interagency Foams and Applications Systems**

Canadian Committee on Forest Fire Management
Comité canadien de gestion des feux de forêt

USE OF FOAM IN HAWAII VOLCANOES NATIONAL PARK

by Jack Minassian, Pacific Area Fire Management Officer, Hawaii Volcanoes National Park

Since 1983, Hawaii Volcanoes National Park has had, just outside its eastern boundary, an active surface lava flow. This flow can ignite fuels at any time of the day during any time of the year. These fuels are grasses that behave similar to fuel model No. 3. To protect the National Park's resources from wildland fires, we have adopted a containment strategy with the help of Class A foam. It is important to note here that foam does not work on lava.

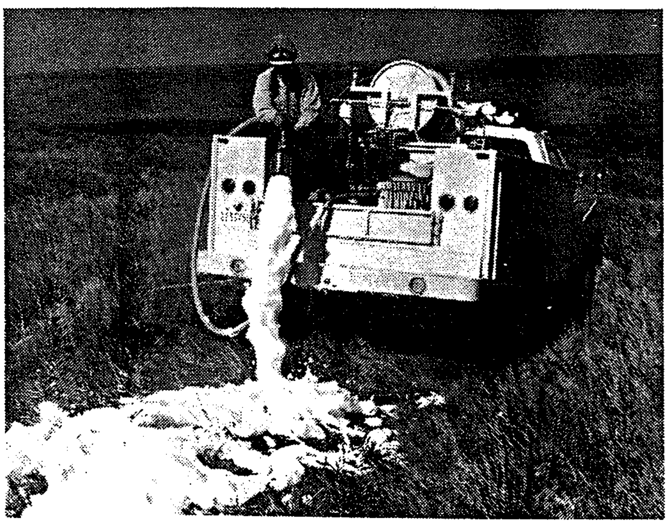

Figure 1. Hawaii National Park fire engine laying a foam wet line.

First we put in a wet line with foam (fig. 1), then we start a back fire (fig. 2) to the desired width along the 2-mile border from the Pacific Ocean to an inactive lava flow. For a portion of the black line we use Class A foam delivered by a foam proportioner system with a medium expansion nozzle on one of our engines. The remaining portion of the black line is a foam solution delivered by helicopter with a Bambi bucket. The foam allows us to construct the 2 miles of black line within 4 hours with a minimum of personnel.

Figure 2. Park Service crew burning a black line into a foam control line.

This strategy has proved successful by stopping a wildland fire that was ignited by lava during the night but was extinguished when it reached the black line. Thus, we prevent fires ignited by lava from entering the National Park. In addition,