DEAD AND DOWN FUEL MOISTURE SAMPLING 7823

(July 2015)

(Policy 7821 – Live Fuel Moisture Sampling)

The Weather Information Management System (WIMS) is used to calculate the Fuel Moistures of 1000 hour, 100 hour, 10 hour, and 1 hour timelag fuels. The calculations are algorithms based upon weather data obtained from Remote Automated Weather Stations (RAWS). To validate the calculated WIMS data and for use with specific project needs, physical fuel moisture sampling for dead and down fuels may be applicable. Specific requirements for dead and down fuel moisture sampling vary with each CAL FIRE Unit. Sampling needs are based upon fuel types, fire problem areas, and fire behavior problems identified within a Unit. For example, Units with large areas dominated by timber and/or fuels such as slash or blow-down will want a sampling program to track the longer timelag fuel moistures. Procedures for sampling can be found in the documents referred to in Policy 7821 - Live Fuel Moisture Sampling.

10000 HOUR TIMELAG FUELS 7823.1

(July 2015)

Fuels in the 10000-hour timelag class include those fuels generally greater than 8” in diameter when referring to down logs or branches. The purpose to sample these fuels is for specific special applications since they are not calculated in WIMS. Physical field sampling of 10000 hour fuels are not commonly performed by CALFIRE. These fuels gain and lose moisture over periods of years and can be a long term drought indicator if tracking below average. They are not regularly used in assessing fire danger potential.

1000 HOUR TIMELAG FUELS 7823.2

(July 2015)

Fuels in the 1000-hour timelag class include those fuels generally 3-8” in diameter when referring to down logs or branches. This fuel class is calculated in WIMS and used as part of the Energy Release Component and Burning Index, and are commonly used as an index alone in National Fire Danger Rating System (NFDRS) Fire Danger calculations. Physical field sampling of 1000-hour fuels are not commonly performed by CAL FIRE. These fuels gain and lose moisture over periods of months and can be a short term drought indicator if tracking below average, or can be an indicator of easing conditions at the end of fire season if trending above average. 1000-hour timelag fuel moistures are commonly calculated and used to assess seasonal fire danger.

100 HOUR TIMELAG FUELS 7823.3

(July 2015)

Fuels in the 100-hour timelag class include those fuels generally 1-3” in diameter when referring to standing or down branches. This fuel class is calculated in WIMS and is used as part of the Energy Release Component and Burning Index, which are commonly used as an index alone in midrange (weekly) NFDRS Fire Danger calculations. Physical field sampling of 100-hour fuels are not commonly performed by CAL FIRE. These fuels gain and lose moisture over periods of days and can be an indicator of increasing severity of fire danger and potential fire behavior conditions if tracking below average, or can be an indicator of easing conditions if trending above average.

10 HOUR TIMELAG FUELS 7823.4

(July 2015)

Fuels in the 10-hour timelag class include those fuels from ¼” to 1” in diameter when referring to standing dead or down brush. This fuel class is calculated in WIMS and used as part of the Energy Release Component and Burning calculations. Physical field sampling is commonly measured by CAL FIRE Units using the 10-hour analog sticks at weather stations or prescribed-fire or wildfire incidents. Set-up and maintenance of these analog sticks should follow the NWCG PMS 426 “Interagency Wildland Fire Weather Station Standards and Guidelines. Scales used to measure the weight of the analog sticks should also be calibrated on a regular schedule.

1 HOUR TIMELAG FUELS 7823.5

(July 2015)

Fuels in the 1-hour timelag class, also called the fine dead fuel moisture, include fuels less than ¼” in diameter and are generally the primary carrier of the fire. This fuel class is calculated in WIMS and is the primary driver in NFDRS Spread and Ignition Component calculations. All of the Fire Behavior Prediction models in current use are heavily weighted to the 1-hour fuels in their internal calculations.

1-hour fuels can be sampled and measured using procedures similar to live fuel moisture sampling; however the range of value is very small, usually only a few percent of dry weight.

1-hour fuels can be estimated using the tables in the NWCG Fireline Handbook Appendix B , as shown in S-290 through S-490 skills classes. The tables take into account variations in 1-hour fuel moisture due to time of year, time of day, aspect, etc.

PROBABILITY OF IGNITION P(IG) 7823.6

(July 2015)

The Probability of Ignition (P(IG)) is an important estimate of the chance for a new ignition or a spot fire from an existing fire given the fine dead fuel moisture and temperature and shading. It is similar to the Ignition Component (IC) of the National Fire Danger Rating System, but does not include wind velocity in the calculations like the IC does. The tables to calculate the P(IG) are also in the NWCG Fireline Handbook Appendix B and are also used in S-290 through S-490 skills classes.

(see Next Section)

(see Handbook Table of Contents)

(see Forms and Form Samples)