FEWG – A WORKING GROUP FOR NCDFR MTM

NC SMP Technote 3 – October 10th, 2008

Vent Rate / Burning Category Interpretation Table

Afternoon Ventilation Rate*	Burning Category	Weather Event	Managers' Interpretation for Burning Period	Expected visibility / atmospheric conditions
0 - 33,499	1 **	Low level temperature inversion	No Burning Unless favorable spot forecast acquired.**	Air Stagnation conditions are present*** Afternoon airport visibility < 3 miles.
33,500 - 44,999	2	Inversion until early afternoon and very light transport wind (0 to 5 mph)	Mid afternoon burning or burn initiated when burn off temperature is reached. Favorable spot forecast acquired Day burning only if very poor or poor nighttime smoke dispersion.	Air Stagnation conditions present but last less than 36 hours. Afternoon airport visibility 3 to 5 miles in haze.
45,000 - 59,999	3	Inversion until late morning and light transport wind (5 to 10 mph)	Daytime burning only if very poor or poor night time smoke dispersion. Ignition initiated when inversion has burned off. Fire Weather Forecast to specify burn-off temperature	Night time and early morning inversions. Airport visibilities initially less than 3 miles in ground fog, haze or smoke in early morning but 5 to 7 miles in haze during the afternoon.
60,000 – 111,999	4	Little or no inversion and moderate transport wind (10 to 20 mph)	Burn anytime	Airport visibility 7 to 12 miles.
112,000 or greater	5	No inversions and strong gusty transport winds (20+ mph)	Unstable, windy. Excellent smoke dispersal but possible severe fire weather & behavior. Burn with caution. Favorable spot forecast acquired	Airport visibility 12 miles plus.

*__Ventilation Rate__ equals transport wind speed multiplied by mixing height.

** When specific environmental conditions are predicted for a 36 hour window, a ventilation rate that equates to a Burning Category 1 can be adjusted to Burning Category 2 where limited burning activities can take place operationally. This flow chart is depicted in NC SMP Technote 1.

Transport wind speed (TWS) is measured in mph, and mixing height (MHT) is measured in feet. Exercise caution when using fire with strong transport wind and low mixing height or light transport wind and high mixing height (This condition can cause smoke dispersion problems unless the burning is intense).

A TWS of less than or equal to 9 mph or a MHT of less than or equal to 1640 ft. is automatically a Burning Category 1 when operating under the Ventilation Index System (VIS). When utilizing Atmosphere Dispersion Models they facilitate a better assessment of smoke dispersion and can possibly provide information to support a “Go” decision to ignite a prescribed burn. However, whether operating under the VIS or ADM, the mixing height of ≥ 1640 ft. is necessary.

*** Mixing height less than 1640 ft., transport wind speed less than 9 mph, afternoon ventilation rate is less 17,220, and expected airport visibility less than 3 miles in haze.