Product Description Document for the
Grassland Fire Danger Index for the Kansas Plains

Part 1 – Mission Connection

1. Product/Service Descriptions:
   The Grassland Fire Danger Index (GFDI) product/service is a text and graphical representation of the Grassland Fire Danger Index values that correspond to the likelihood that fires will get out of control. 3-hourly GFDI values are represented in the text product and 6-hourly values on the graphic, giving customers a clear indication of not only the index value but also the time and duration of the values at a specific grid location.

2. Purpose/Intended Use:
   The GFDI forecast is used as a fire weather planning aid for decision-making on issuing burn permits. Predictive Services meteorologists use the output in resource planning for the following week. The index values for days 2 through 6 are intended to be a planning guideline.

3. Audience/Users:
   The NWS graphic forecasts are intended for government emergency managers for guidance when issuing burn permits, Predictive Services meteorologists for resource planning purposes, and anyone in the general public who wishes to do any burning.

4. Presentation Format:
   The product is issued once per day; by 6am and is available on the issuing WFO's website (ICT). On the fire weather section of the LDFD page for the ICT forecast area, a graphical LDFD image is shown with the GFDI values. The GFDI values are color-coded to indicate the value of the index. The colors are as follows:

   Dark Green – Low
   Green – Moderate
   Blue – High
   Yellow/Orange – Very High
   Red - Extreme

   A tabular version of the product is also available on the WFO's website with a 24-hour index and 3-hourly indices for each county for 6 days.

Part 2. – Technical Description

1. Format and Science Basis:

The GFDI uses a continuous, non-binned function that will allow for a much higher temporal and spatial resolution. The formula is

$FDI = 10^{\wedge} (0.009254 – 0.004096 * (100-C)^{1.536} + 0.01201 * T + 0.2789 * (V)^{0.5} - 0.09577 * (RH)^{0.5})$

Where

- T = Temperature (*T* ºC)
- RH = Relative Humidity (*RH* %)
- V = Wind Speed (*V* km/h) (10 m, mean of sustained wind and gust)
- C = Curing (*C* %)

The graphical fields are created in IFPS/GFE using standard grid-editing tools.

2. Training:
   A training packet has been prepared for the curing observers. This packet includes photographic examples of various curing levels that the observer can compare to the current conditions.

3. Availability:
   The graphics and tabular product is available 24/7 and updated by 6am daily and as needed.