Personal Computer Historic Analysis
For Fire Program Analysis System

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The Personal Computer Historic Analysis (PCHA) program is a tool to analyze historical wildland fire occurrence and weather for wildland fire planning. PCHA allows users to import fire and weather data for each Fire Management Unit FMU) within the Fire Planning Unit (FPU), review and edit the data, generate fire summaries for further fire planning, and use the data in various other ways. PCHA offers for a detailed look at local fire occurrence and weather data that you can carefully review and the accuracy verified.

The role of PCHA in the Fire Program Analysis – Preparedness Module is to allow planners to prepare some of the inputs required by the Data Transformer.

PCHA will provide the capability to import historic fire occurrence records for all five federal wildland fire agencies as well as some States.. States where a specific import routine has been developed within PCHA will need to have their electronic fire occurrence records transformed into one of the existing import formats with the BLM format the most appropriate. Fire weather observation records will be imported from the federal agencies databases that achieve these observations as well as from NOAA National Weather Service stations and/or a GRID weather source.

Both fire occurrence and weather records can be edited to correct errors once they have been imported into PCHA. Some agencies will have the capability to export these edited records back into their agency's specific database.

PCHA will provide analytical capability to demonstrate when the staffing of preparedness fire resources should occur based upon historical fire occurrence records and National Fire Danger Rating System (NFDRS) indices.

Specific information passed to the Data Transformer in FPA-PM by PCHA includes a Fire Event Scenario consisting of Fire Events and Simultaneous Fire Groups with their specific attributes.

Final Fire Size for Fire Events that have not been contained within the 18-hour (modeled) initial response period will be calculated based upon similar but varying processes. These processes will vary based on the management action designated for the fire. Options include initial attack (Wildfire) or management (Wildland Fire Use (WFU) or Appropriate Management response (AMR)). All processes utilize a random draw of

weather records, topographic conditions and fuels to estimate fire behavior on days the fire burns. The length of time the fire is expected to burn is based on waiting time distributions. Fore wildfires, it is the waiting time distribution until fire containment based on historic records. Fire WFU and AMR fires, the waiting time distribution for the fire ending rain event is based on the TERM Module process that in contained in the Rare Event Risk Assessment Process (RERAP).

Fire discovery time for each FMU will be calculated by PCHA using historical fire occurrence records. Fire discovery time per FMU will be averaged and utilized for fire spread duration the first day.

The Workload Point for each FMU will be calculated by PCHA utilizing the point of origin of each historic fire occurrence record that has been assigned to the FMU.

There are two Fire Event Scenario generation processes. These are a probability –based process and a historic-fire occurrence based process.

The historic-based process allows the use to define a specific historic fire season such as 1988 to define the Fire Event Scenario.

The probability-based process is based upon a series of stochastic draws for inputs to assist in the calculation of the attributes of the Fire Event such as date, fire spread rate, fire intensity and final fire size. The probability of a fire or multiple fires on a day is based on a probability distribution of the NFDRS Energy Release Component (ERC) using the NFDRS fuel model G. This value's acronym is ERCg. Random draws are used to determine the number of fires per day per FMU. For each fire, its cause (human or natural), resultant type (wildfire, WFU or AMR), topographic conditions. and fuel type are also based on random draws. Fire size and duration are based on fire spread modeling and relationships between rate of fire spread and final fire size based upon containment modeling.

The following attributes will be passed from PCHA to the FPA-PM Data Transformer:

- Fire type – wildfire, Wildland Fire Use or unsuccessful Wildland Fire Use
- Fire Management Unit (FMU)
- Sensitivity period
- Slope Class
- Elevation (feet)
- Fire discovery time
- Fire Behavior Prediction System (FBPS) surface fuel model
- Fire Intensity Level – FIL
- Rate Of Spread (chains per hour)
- Final fire size if a wildfire escapes initial response
- Final fire size for managed Wildland Fire Use fires
- Fire duration for managed Wildland Fire Use fires
- Final fire size for managed Appropriate Management Response fires

- Fire duration for managed Appropriate Management Response fires
- Acres burned for a unsuccessful Wildland Fire Use fire when in Wildland Fire Use status
- Fire duration for unsuccessful Wildland Fire Use fires

Users will be able to refer to the FPA-PM Reference Guide (technical documentation) and the PCHA Users' Guide as well as the FPA website at the following http://fpa.nifc.gov for detailed information.

Even though PCHA allows for the use of fire occurrence and weather data on local computers, the main data repositories will be in national databases. Forest Service data is stored in NIFMID at Kansas City, and Department of Interior agencies store their fire occurrence on their agency specific databases at the National Interagency Fire Center. If your agency has a process to correct errors found in the data, you should request details of that process from your agency support personnel. Keep in mind, however, that PCHA exists for one primary purpose which is to help the fire planner do your Historical Analysis work required as part of the Fire Program Analysis process.