

CPU-YMP-8924A

July 25, 1989

TO: All Sites and FE Regional Offices

FROM: Doug Maniak

SUBJECT: DEW POINT MONITOR

DEW POINT MONITOR:

There are two dew point monitor boxes per machine. These dew point monitors are connected to the WAC panel on the Y-MP, and WAC panel of the new style PDU's for the X-MP/EA, I/OS and SSD. Of the two monitor boxes per machine, one is connected to scanner A (primary) and one to scanner B (backup). Each box is equipped with a dew point sensor which contains a cylindrical shaped sub-micron filter and a measurement cavity which houses a small reflective mirror (used to measure the thickness of the dew layer).

The filter is effective in removing particulate contaminants and small quantities of oils or other condensing hydrocarbons. Even after removing most airborne particulates, contamination of the mirror occurs due to salts and other ultra fine molecular contamination carried in the sample stream. When sufficient quantities of these contaminants accumulate on the mirrors surface, its' reflective properties decrease, and beyond a certain point, the accuracy of the measurement is degraded. For this reason an essential maintenance function is required for this class of sensor. (Ref. MIRROR CLEANING AND BIAS ADJUSTMENT).

The dew point is based on the ambient room temperature and the percent of room humidity. On Y-MP and X-MP/EA systems, the dew point is monitored relative to the temperature of the machine. For the X-MP/EA, I/OS and SSD the temperature is monitored at the columns. On the Y-MP, it is monitored at the inlet fluorinert manifold to the Y-MP cabinet. Dew point warnings and faults will be indicated by "COLUMN or INLET NERT" indicators. Presently, if the perceived dew point and machine temperature reading should reach to within 5 degrees of each other a "COLUMN or INLET NERT" low temperature warning will be issued. If the perceived dew point and machine temperature reading should reach to within 2 degrees of each other, a "COLUMN or INLET NERT" low temperature fault will be issued and a power-down of the machine (machines if PDU's are ganged together) will occur. This power-down is to prevent condensation from forming in the machine which could result in a loss of system performance.

Although the warning or fault conditions issued by the dew point monitor are implying that unsafe levels have been or are being

reached, the way this is displayed on the WAC panel can be falsely interpreted as a "COLUMN or INLET NERT" low temperature problem, when in fact the problem could be with the room temperature or humidity. Therefore, the room temperature and humidity should always be considered as a possible cause.

Also to note: Presently the actual dew point warning/fault lights on the WAC panels will only be activated if there should be a failure in the circuitry of the dew point monitor system itself. A good indication of this condition would be a dew point reading of below 20 degrees on the WAC panel.

Because of the confusion in the way these warnings and faults are presently being displayed, a more accurate representation of dew point detected problems is being looked into.