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May 21, 1981

TO: R. I. WEVODAU, JR.
WILMINGTON - L13W26
A.R. Behnke 21 MAY 81
FROM: A. R. BEHNKE
WASHINGTON WORKS

C-8 CONCENTRATIONS AND REQUIRED EXHAUST STACK HEIGHTS - FEP

The height of our existing exhaust stacks from the coagulator and wet finishing bag filters and the blender pit exhaust are low and fail to meet the normal exhaust requirement of being 1.3 to 2 times the building height (Industrial Ventilation). In addition, the stacks are lower than the tops of equipment pieces in the immediate area (See Attachment 1) and the prevailing wind direction, from the National Climatic Center, would carry the exhausts toward our H & V intakes (See Attachment 2). From our area air sampling, we are suspicious of recycling exhausted C-8 back into the building. This is in addition to any C-8 which we would receive from the Fine Powder Dryer exhausts (since the normal prevailing wind direction is from FEP to Fine Powder).

We have just completed a series of exhaust stack discharge samples. The bag filter exhausts were sampled directly while the blender pit exhaust level is based on values measured in the pit.

To be conservative, the recent C-8 exhaust samples have been multiplied by a safety factor to insure adequate dispersion in the future. The highest experimental value for Teflon® FEP 100 in the wet finishing bag filter exhaust has been multiplied by a factor of 2 (Table ARB-I). The average of the coagulator bag filter exhaust samples has been multiplied by a factor of 2 (Table ARB-I).

The additional data required to do the dispersion calculations is also contained in Table ARB-I.

There's a world of things we're doing something about

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MAY 21, 1981

Our initial goal is to recycle less than 0.05 MPB C-8 (1/10 AEL) back into the building through our H & V system. The low recycle along with other engineering controls within the building must reduce our C-8 levels to 1/2 AEL (0.27 MPB) by 1/1/82 in FEP.

The selection of the 41' 0" elevation for calculation purposes is based on this level being the lowest elevation above all but one H & V inlets in the FEP Area. Our largest unit is located on the 16' 0" roof with the top of its inlet at approximately 26' 0" above grade (See Attachment #2).

Please calculate the following cases assuming the worst wind and weather conditions using the C-8 concentrations given in Table ARB-I and provide C-8 isopleths for each case:

CASE I - C-8 concentration at 41' 0" above grade (top of all H & V inlets except Clean Room Make-Up Air) with present stack heights realizing that the program cannot account for turbulence from building and equipment interferences. See Table ARB-I. Fine Powder Dryer exhausts not considered.

CASE II - Concentration at 41' 0" above grade with the existing exhaust stacks extended a nominal 6 feet above the tops of the individual bag filter houses and with discharge velocities increased to the 2500 - 3500 FPM range (See Table ARB-I). Fine Powder Dryer exhausts not considered.

CASE III - If CASE II concentrations are above 0.05 MPB at the 41' 0" elevation, determine the stack height required to achieve a C-8 concentration below 0.05 MPB at the 41' 0" elevation. Fine Powder Dryer exhausts not considered.

CASE IV - Please rerun Loschiavo's After May Shutdown Case for concentrations at 26' 0" and 41' 0" above grade using the exhaust contribution from the Fine Powder Dryers under the worst wind/weather conditions for FEP. (Wind from east).

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R. I. WEVODAU, JR.

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The low discharge velocity on the coagulator bag filter discharge and the blender pit exhaust will be increased to the ~3000 ft./min. advised in Industrial Ventilation by placing reducers at the discharge point or increasing volumetric air flow.

We would appreciate any other advise you would have to offer.

Please call me on 863-2291 if you have any problems or questions. We would appreciate getting the results within the next 2 - 3 weeks.

Thanks for your cooperation.

Attachment

ARB/nsw

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