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MEMO - TELEPHONE CONVERSATION - V. C.

HAMILTON, AUGUST 22, 1952

TO

JJ Cadwell

FROM

LP Bupp

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HW-25502

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September 2, 1952

J. J. Cadwell, Head
Pile Materials Sub-Unit
Pile Technology Unit

MEMO - TELEPHONE CONVERSATION - V. C. HAMISTER
AUGUST 22, 1952

Several subjects of technical interest were discussed during a telephone conversation with V. C. Hamister, National Carbon Company, on August 22, 1952, which warrant some record of their context.

After transmitting the dih results on XGBF run 19, which was the purpose of the call, Mr. Hamister relayed some further information on chemical studies that have been made on Whiting coke graphite. He is still concerned about the difficulty experienced in attempts to purify the WSGBF graphite to the level achieved by TSGBF. He stated that a specimen of Whiting graphite returned by us from run 16, when ashed, showed a considerable gradient of ash through the 4 x 4 cross section of the bar. Analyses indicated that 192 ppm vanadium remained in the core of the bar. National Carbon is concerned because Whiting coke will be the alternate material available if supplies of Texas coke should fail. In view of the fact that about 1000 tons of material are in process during production, National Carbon is anxious to establish some control procedure which will give them an indication of dih quality prior to the final tests here at Hanford. Mr. Hamister believes that it may be possible through ashing tests or a study of oxidation rates (for which vanadium oxide is a catalyst) to obtain an indication of dih purity. To test for such a correlation, National Carbon wants us to send a 2-inch transverse cross sectional slice from the center of piece 4 for every heat made in the G-3 furnace except runs 1 and 2. We have indicated that it may be possible to obtain dih values for these individual bars before the slice specimen is removed. This will give them more representative dih values than the normal three-bar groupings did. Upon receipt of these specimens, National Carbon will

conduct ashing studies in an attempt to correlate such techniques with observed dih values. If this is significant, an additional correlation tieing in with the gas baked bar properties will be necessary to control the raw material input to the production effort. It appears that any information along this line will be of value to our understanding the variables influencing the purification of graphite. We indicated that we would cooperate in this program by sending the specimens as soon as possible. It was agreed that in all future runs National Carbon will cut their own 2-inch transverse cross sectional slices from piece 4 prior to shipment to Hanford.

We indicated that the Graphite Studies groups are interested in the chemical purity of these specimens and have discussed the possibility of some analysis work being done at this site by chemical and radiochemical techniques. Mr. Hamister was enthusiastic about such a program and agreed to send us 3 half bars (4 x 4 x 9) of each of Whiting, Texas, and Cleves coke graphite prior to the purification step and following the second gas bake after impregnation. The remaining half of these bars, which will be saw cut in order to indicate where the junction was made, will be purified in the standard manner. Comparison of the two bar halves should allow study of the effectiveness of the purifying technique. Study of the purified half bars should allow information on the absolute magnitude of impurities remaining. In addition to these specimens, Mr. Hamister agreed to send uncalcined samples of Whiting, Cleves, and Texas coke if possible.

The attempts to purify graphite to a comparable level with less quantities of X gas and greater amounts of chlorine gas have not been satisfactory. Mr. Hamister stated that the alternate approach of attempting to get higher purities by increasing the concentration of fluorine during the purifying stage will now be attempted. Freon 14, hydrofluoric acid, and sulphur hexafluoride will be used to replace the regular Freon 12 supply in an attempt to find a superior purifying agent.

ORIGINAL SIGNED BY L. P. BUPP

Assistant Head, Pile Materials
PILE TECHNOLOGY UNIT
ENGINEERING DEPARTMENT

LP Bupp:ms