

DATE: April 30, 1980

TO: All Division Engineers

FROM: Allen R. Hammer, P.E., Director
Bureau of Water Supply Engineering

THROUGH: Eric H. Bartsch, P.E., Director
Division of Water Programs

SUBJECT: Water - Design - Replacement of Filter Sand with Granular
Activated Carbon (GAC)

If a waterworks owner proposes to replace the filter sand with GAC, he must be advised that at least 6" of sand will be required below the GAC.

Also, most WTPs were not designed to utilize GAC in their sand beds. This means that equipment is generally not provided to install or remove GAC rapidly or efficiently. Also, the optimum empty bed contact time (EBCT) for GAC is 15-20 min. Most sand filters provide considerably less than this (EBCT is not a function of sand bed design).

We cannot prevent the conversion to GAC, but we need to explain our concern and express that this is not a panacea for every organic (including taste and odor) problem.

Also, it is important to review the effective size and uniformity coefficient of the GAC to be installed. Also, calculations should be made on bed expansion during filter backwash to check for GAC wash-out.

Contact Bob Taylor if you have any questions.

ARH/djv