

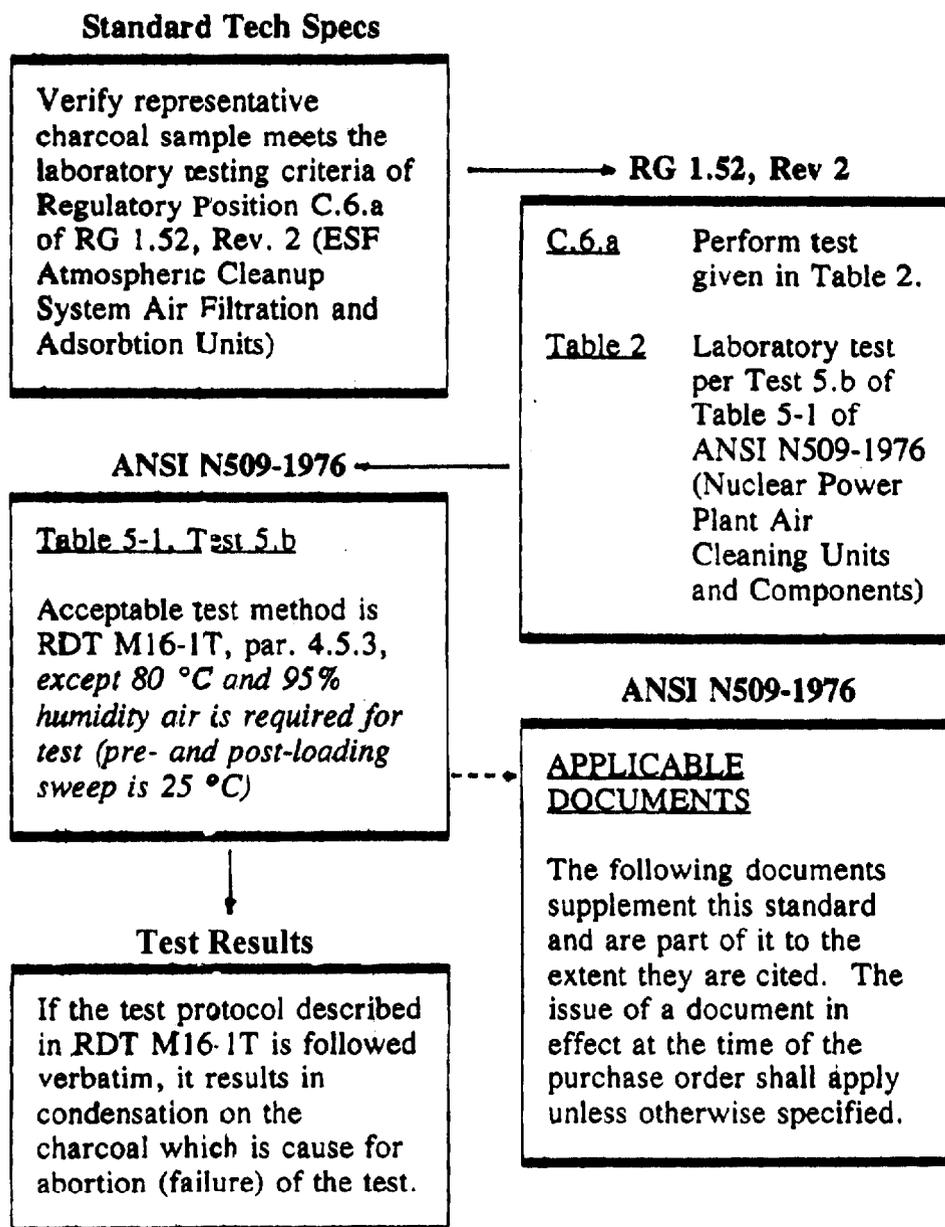
CHARCOAL FILTER TESTING

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Yesterday Dr. Kovach was saying that he could count on two fingers the number of NRC personnel who had experience in air cleaning. I will admit that I am not one of those two, this is certainly not my field of expertise. I have been involved in this for about a year. At Plant Systems Branch we are in charge of the systems aspects of all the ventilation systems. We have inherited the issue of charcoal filter testing and have been working closely with Jack Hayes, who has been involved with it for a number of years. Earlier this year a couple of plants went through this process. If you start stepping through the standard Tech Specs, and a lot of plants only reference Reg. Guide 1.52, Rev 2, what you end up doing is taking yourself there. Figure 1 is somewhat confusing. In fact, I tried to make it this way because as I go forward to talk to my management, one of the things that I want to do is convince them that this is a confusing process. When you go to Reg Guide 1.52, section C.6.a, it says perform the test according to Table 2. When you go to Table 2, it says to do your laboratory test per Test 5.B of Table 5.1 of ANSI N-509-1976. When you go there, it says an acceptable test method is RDT-M16-1T, paragraph 4.5.3, except that 80°C and 95% RH is required for the test, but the pre- and post-loading sweep is at 25°C. That leads you to a test as we all know, that is going to fail. This problem has been around for quite a while. As Ron Bellamy discussed earlier, one of the problems we have is that in the current climate at the NRC verbatim compliance with Tech. Specs. is required. It does not matter that the tests you are performing actually give you a better picture of what your charcoal can do than the test that would be required by your Tech. Specs. This is what I am trying to correct. That is my goal, or one of my goals, right now and I have a couple of other issues that I am working on, too. Basically, what I am going forward with to my management is that, because of the confusion that surrounds the requirement for testing carbon, it takes you through this torturous path, and some plants are not in verbatim compliance with their Tech. Specs. However, in most cases, the tests that people are doing, (I think in all cases, but I have not been able to go through and actually check this to make sure) are more accurate than if they did the test in accordance with their Tech. Specs. We processed emergency Tech. Specs. changes for three plants, Davis Besse, Onconee, and Summer. Summer was the first. Also, Brunswick, in order to restart, flew a test sample up to Ohio to be tested in accordance with their Tech. Specs., because they wanted to be able to start up. We are trying to get around that. There is a second issue here, as far back as '87, through work that CONAGT and INEL did for the NRC, it was determined that there were some problems with the testing protocol of the '79 version of ASTM D 3803. We put out an informational notice that recommended that when the revision to D 3803 came out, which was the '89 revision, that people should start using that test protocol. We see that some people have gone to that test protocol, but a number have not. I see two issues that I would like to correct. One, is this verbatim compliance with Tech. Specs. and, two, is to get everybody testing to D 3803 - 1989. I am working on a paper that will tell the Commission what is going on and to see which way the wind is blowing when that floats up there. Eventually, what I want to do is put out some sort of generic communication, either a generic letter, or an administrative letter. I really think a generic letter is probably the best way to go. That would give the agency's position on this issue. As part of the generic letter process we would have to issue it for public comment. When you see the generic letter you will have an opportunity to comment on it. Your first indication of where we are going will be when the Commission paper is issued; it will probably be within the next month. As we worked on how to resolve this issue, we met with NHUG in April. They provided some good

information and were very supportive of going to the D 3803-1989 standard. It has been really good to work with a group that is proactive in trying to solve some of the problems we are having in this area. Maybe utility representatives that are here that are not part of NHUG, or not supporting their meeting, which is next week, might want to think of trying to support that group. It is a very good group. Another thing that I am working on is improved standard Tech. Specs. We are going to add a reviewer's note that will explain this issue very briefly to the Tech. Spec. reviewer at the NRC and, at the same time, will tell industry that we would like to see people go to D 3803-1989. One of the things we are looking at doing is to change the safety factor of 5-7 to determine the penetration, back down to a safety factor of about two. That may help people go to the standard. A lot of talk has been about fixing Reg. Guide 1.52 Rev 2, why we don't update it and put out Rev 3. There was a draft Rev 3 that the NRC put together a few years ago, but it did not go very far because of priorities. I do not know what it takes to get it to a higher level of priority. Maybe, as a result of this Commission paper and the actions that I am working on the effort might be able to be revived and we might be able to move forward on it. I can not guarantee anything, but I would hope to get out an updated version of the Reg. Guide, so that we do not have an agency position that is not right.

Figure 1



**DISCUSSION**

**KOVACH:** One of the reasons why I was upset with the hassle that we went through on charcoal testing was not the question of violating technical specifications. I expect that when you set technical specifications, people should be paying attention to them and they should be following them, I have no argument with that aspect of it. My major technical heartache related to the regulatory guide changing the standards and values for temperature and humidity, and therefore the NRC expecting that a temperature change from 80°C to 25°C, at the exact same relative humidity, would be technically feasible. Certainly you can run a test at 25°C and 95% RH but you have to have the carbon come to thermal and humidity equilibrium and maintain them throughout the test period. But I can't see why anybody who has a basic physical chemistry understanding of relative humidity and its dependence on temperature, would expect an instantaneous change from 25°C, 95% RH to 80°C, 95% RH and then back again to occur without condensing water in the bed. This is where I have a problem. Certainly you can run tests under three different conditions, but there has to be a time for change of equilibrium in between, you can't just make a turn on a switch and suddenly change from 25°C to 80°C and back to 25°C while maintaining the same relative humidity. This is a physical impossibility.

**LYONS:** I agree with that. In defense of the NRC we were referencing the standard.

**KOVACH:** But the standard does not tell you that you have to do it instantaneously.

**LYONS:** The words are directly out of the table in the standard.

**KOVACH:** I understand that, but how can you end up with the intent of the latest version of D3803 if you start interpreting the wording in your own way. Even though there is a code of federal regulation that contains an acceptable test, that does not exclude other acceptable tests that are more appropriate from a scientific standpoint than the exact wording as it reads now.

**LYONS:** It does not. In fact, people that have Tech. Specs., that either call for specific temperatures or cite other standards are the ones that don't get involved with D-3803. It is a problem with the wording that then becomes involved with a legal interpretation. N-509 leaves you with 80°C and 95% RH with a pre- and post- setting of 25°C. We have to fix it.

**KOVACH:** Another thing the industry's regulations writers have to understand is that when you cite standards that are in draft form, such as RDT M161-T, the T stands for tentative, because it is still evolving. There may be technical mistakes that have not been corrected. It is very hazardous to cite draft documents and then enforce them years later. The last issue of RDT M161-T looks very different from the original issue.

**LYONS:** What I have learned as I walk myself through some of these documents is that both the industry's and the staff's position on what is an appropriate test, and what conditions produce the most conservative results, have changed over the years. We have tended to flip-flop and that got us into this problem. When we issued Information Notice 87-32, the staff was trying to correct the problem. However, I do not think we were able to correct it as forcefully as we would have liked to have done and even then we would have been in the same predicament that you are pointing out. However, it would have probably worked out okay at that point.