NFPA-11 Technical Committee Meeting
March 14 – 15, 2001
Austin, Texas

Following are notes from the subject meeting

01. **Attendance**:

Chris Hanauska – Chair – Hughes Associates
Keith Olsen – Ansul/Tyco
Ed Norman – consultant, Aqueous Foam Technology
Dave Cochran – Verde Enviro
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Eric LaVergne – Williams Fire & Hazard Control
Dick Ottman – 3M
John Krembs – Marsh USA
Jim Urban – UL, US (Zastrow reports to him)
Randy Hendrickson – Chemguard
Rue Dooley – Dooley Tackaberry, Inc,
Fay Purvis – Vector Fire Tech., (prev. National Foam)
Robert Merrill – FM Global (Factory Mutual)l
Klaus Wahle – U. S. Coast Guard
Frank ---------- - National Foam
Davis Hague – Staff Liaison – NFPA
Mitch Hulbert – Ansul/Tyco
Michel Williams – Ultramar Canada,.
David White – NFPA-1901 TC
Tom Reser – Edwards Mfg. – pumps
John McConnel – Williams Fire
Eldon Jackson – Viking Pumps
Ken Zastrow – UL, US
Kirtland Clark, Chemguard (research)
Tom Stephens – pump manufacturer
Sal Chines – Industrial Risk Insurers
Dan Diehl – Alaska State Fire Marshall
Mike Pierson – CSC Advanced Marine, Navy contractor

02. **Fluorinated Surfactant Issue**

Hanauska started off the meeting with *"the current controversy surrounding fluorinated hydrocarbons threatens to have a large impact on this committee and standard, NFPA-11. The magnitude of this threat should be decided within the next 12 to 18 months. In view of this, consideration should be given to delaying submission of a revised NFPA-11. It is probable that we will, at the very least, need to make substantial changes in the text in the very near future."* This statement appeared to put the attending foam manufacturers (Ansul, Chemguard and National) on the defensive throughout the remainder of the meeting. (Ansul people were quite glum throughout.

Dick Ottman, Foam Marketing Manager for 3M, discussed their May 16, 2000 decision to discontinue Scotch-Gard, Scotch-Ban (used in paper coatings) and other fluorinated surfactant applications including Class B foams which was a $300M business. He claimed that the decision was made because of the " proven persistence, pervasiveness and toxicity"of the products. 3M discontinued 85% of their production by during 2000 and will be totally out of production by year-end 2001. According to Ottman, 3M has "*no intention to ever get back into the foam business*". He read a letter from the Under-Secretary of Defense which described 3Ms fluorinated surfactants which degrade to PFOS (perfluoro-octylsulphonate) as "persistent, bioaccumulating and toxic". That letter also described telomer based fluorinated surfactants (what everyone except 3M uses), which degrade to PFOA (perfluoro-octyl acid) as being persistent and more toxic than and the action EPA is taking to determine hazard level. The letter announced a March 16, 2001 meeting at DoD to discuss what actions they should take in the interim.

Hanaska made a presentation entitled "The Problem with Foam". He presented the immediate problem as emanating from (1) perceptions from within the Fire Community and Governmental Agencies, (2) an information gap relative to the safety of the PFOA forming products and a general

understanding by all and (3) negative competitive marketing activities. He pointed to the similarity of the situation today with the halon situation (perfluorohydrocarbons) before their ban.

PFOS has been found in human blood, birds, and fish. Since it is bioaccumulating, the amount in the blood steam increases with their position in the food chain. The characteristics of persistence, bioaccumulative, toxic are referred to as PBT traits. Exhibition of one of these traits is bad, two makes its use questionable and, when all three are present, it is a death warrant. PFOS has all three. PFOA is persistent and toxic and current research is directed toward establishing whether or not it is bioaccumulative. A preliminary assessment is due by June 2001 with a final decision in 2002. The problem is not just in the US. The OECD which includes Europe and Japan is now involved as well.

Ansul was unhappy with the discussion saying that "conversations like this will contribute to the demise of all fluorinated surfactants. They claim that their surfactant suppliers tell them that telomer produced surfactants exhibit only $1/10^{th}$ to $1/100^{th}$ the toxicity of PFOS yielding products and that we should wait until current research data is in hand before discussing it further. They pointed out, also, that DuPont is currently building additional telomer based production capacity and that they certainly wouldn't do that unless they thought they were on firm ground. The response was that, if DuPont has data which proves this, they have a responsibility to pass it on to EPA and that would be the end of it. That has not happened.

During conversations outside the meeting, Ansul and Chemguard people speculated that 3M continues to work diligently to produce a Class B foam from C_4 hydrocarbons and believe that 3M is also investigating the possible acquisition of telomer based fluorinated C_8 hydrocarbons. According to Ansul, 3Ms Australian and European representatives are telling their customers that 3M's US decision will not impact ex-US businesses. This is consistent with what I was told last fall in Adelaide, South Australia as well.

During later discussions with Ottman, he said that 3Ms U.S. Class A foam is a modified version of the one they have been selling in Australia for some time. I asked him how they could justify bringing the product on board if they were getting out of the foam business. He said that it is being sold by their Public Safety Group which also markets non-fluorinated medium and high expansion foams, intumescent wrap and a new "clean" halon replacement. He said that they have experimented with fluorinated C_4 hydrocarbon as a replacement for the fluorinated C_8 chemistry which they just abandoned. The shorter chains do not exhibit the same persistence of the longer chains, however, they also do not reduce surface tension to the same extent as the C_8 chains either. For this reason, they are non-competitive in the market. According to Ottman, they have found nothing that is both safe and suitable.

Kirt Clark is a former Ciba-Geigy researcher who is now heading up Chemguard's R&D. Chemguard and 3M were unique in that they were the only Class B foam manufacturer who produced their own fluorinated surfactants; 3M by their patent protected electrochemical process and Chemguard via the telomer process. Clark appears to be very technically competent. He claims to be in contact with Ciba Geigy who is not concerned with the safety issues of telomer made F surfactants but are very concerned with possible over-reaction by the EPA. He pointed out that the primary route for environmental contamination from the F surfactants is via the discard of treated paper and textiles, i.e., foam use is extremely small in comparison. Unfortunately, this market decline would result in production closure and extremely high prices for any remaining material. He pointed out, also, that a significant reduction in F surfactant content could be made if Mil. SPEC requirements which require the product to perform when mixed over the range of 0.5 to