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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

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AR226-0609

Confidential

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

July 18, 2000

NOTE TO FYI FILE by Terry O'Bryan/RAD/OPPT

Reference: FYI-0600-01378

Submission Date: June 14, 2000

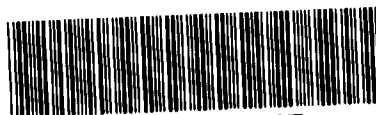
The above referenced FYI submission is 3M's response to EPA regarding three reports that appeared to be missing from their 5/4/00 submission (also FYI-01378). All three items were listed in an attachment identified as "Ongoing Environmental Studies on Perfluorooctanesulfonates".

1 - "Biodegradation Studies" is the same as the report in this same submission titled "3M Microbial Metabolism Program" according to 3M.

2 - "Phytotoxicity - Seedling Emergence, Wildlife International, Ltd. Expected Completion: July 2000. Protocol in progress" - 3M has confirmed that nothing has yet been submitted on this item.

3 - "Global Environmental Sampling Plan, Michigan State University. Expected completion: Dec. 2000" is the same as the one-page summary attached to the Environmental Monitoring reports in this same submission according to 3M. There are two of these one-page summaries, corresponding to Part One and Part Two of the Environmental Monitoring reports (attached here). As 3M has indicated, these summaries were also provided subsequently in their 5/15/00 submission of FYI-01378.

Attachments



FYI-00-001378



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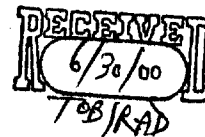
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3M



FYI-00-001378



June 14, 2000

M237076

Dr. Charles Auer
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85000000019

Contain NO CBI

Dear Charlie:

This letter responds to the May 25, 2000 letter received from Richard H. Hefter, Chief of the High Production Volume Chemicals Branch of EPA, requesting certain information from 3M.

The May 25th letter requests copies of certain studies -- highlighted on an attachment to the letter -- that were "not included with other listed studies" provided in 3M's May 4, 2000 submittal. All of the highlighted studies on the attachment to the letter are studies in progress for which 3M does not yet have any final reports. As indicated in 3M's May 4th submittal cover letter, we did provide protocols and study plans, where available, for these studies in progress. We have reviewed our files and determined that the May 4th submittal did, in fact, contain copies of these protocols and study plans, where available.

The summary study plan for the "Biodegradation Studies" (referenced as 2a on the attached sheet by Mr. Hefter) was provided. It is the same summary plan that is entitled "3M Microbial Metabolism Program." There are not two different study plans. We provided the study plan because the study is not yet complete.

The protocol for phytotoxicity (referenced as 7 on the attached sheet by Mr. Hefter) is still in the development stage and was not provided in the May 4th submittal.

The summary sheet for the Global Environmental Sampling Plan (referenced as 8 on the attached sheet by Mr. Hefter) was provided. It is the one page summary sheet that was attached to the files discussing studies on environmental monitoring. It has also been subsequently provided as part of the May 15, 2000 follow-up submittal to you.

2000 JUN 30 AM 8:30

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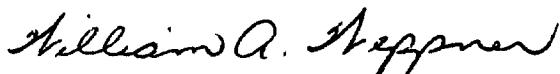
Page 2
Dr. Charles Auer

Mr. Hefter's letter of May 25, 2000 also makes reference to a New York Times article that indicated that some Scotchgard products – Scotchgard Cleaner for Rugs and Carpet, Scotchgard Cleaner for Fabric & Upholstery, and Scotchgard Heavy Duty Water Repellent -- would remain in production. The letter requests confirmation that these products will remain in production and requests complete chemical compositions for these products and for any other Scotchgard products that will remain in commerce.

As 3M indicated when we first informed EPA of the plan to phase out production of perfluorooctanyl chemistry substantially by the end of the year, this phase out would cover some – but not all – of 3M's Scotchgard products for the reason that not all of 3M's Scotchgard products are based on perfluorooctanyl chemistry. With what we have already told EPA in mind, 3M can confirm that the products mentioned in the May 25th letter would remain in production. We are hesitant, however, to provide the chemical composition for these products due to the sensitive confidentiality issues and the lack of relevance of these compositions given that the products are not based on the perfluorooctanyl chemistry being phased out by 3M, but instead, are comprised of non-perfluorochemical formulations. We would be pleased to discuss our position with the Agency further and to answer any questions.

Please let me know if you or Mr. Hefner has questions regarding this response.

Very truly yours,



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**ATTACHMENT TO LETTER TO C. AUER DATED MAY 4, 2000: ONGOING
ENVIRONMENTAL STUDIES ON PERFLUOROOCTANESULFONATES**

Physical/Chemical Properties

Potential Fluorochemical Combustion By-Products (involves review of results of literature search regarding potential for formation of fluorinated dioxins and furans), 3M Environmental Laboratory. Expected completion: Sept. 2000. Study paper in progress.

Fluorochemical Decomposition Process: Quantification and Assessment (involves computational chemistry calculations of bond-breaking strengths of sulfonated perfluorochemicals), Battelle Memorial Institute. Expected completion: Aug. 2000. Study paper in progress.

Environmental Fate and Transport

Abiotic Degradation Studies (hydrolysis and indirect photolysis), 3M Environmental Laboratory.
1 - Expected completion: June 2000 (hydrolysis); Aug. 2000 (indirect photolysis). (Summary study plan and screening results summary being provided to EPA)

Missing 2a - Biodegradation Studies (aerobic acclimated closed bottle biodegradation, aerobic soil/sediment biodegradation, pure culture aerobic, and fluorochemical decomposition process, stability in water, photodegradation), Springborn Laboratories, Inc. Expected completion: Aug. 2000. (Summary study plan being provided to EPA)

2b - Study Designs - 3M Microbial Metabolism Program
Ecotoxicity Elements

3 - PFOS: A 96-Hour Toxicity Test with the Freshwater Alga (*Anabaena flos-aquae*), Wildlife International, Ltd. Expected completion: July 2000. (Protocol being provided to EPA)

4 - PFOS: A 96-Hour Toxicity Test with the Freshwater Diatom (*Navicula pelliculosa*), Wildlife International, Ltd. Expected completion: July 2000. (Protocol being provided to EPA)

5 - PFOS: A 96-Hour Toxicity Test with the Marine Diatom (*Skeletonema costatum*), Wildlife International, Ltd. Expected completion: July 2000. (Protocol being provided to EPA)

6 - PFOS: A 7-Day Toxicity Test with Duckweed (*Lemna gibba*), Wildlife International, Ltd. Expected completion: July 2000. (Protocol being provided to EPA)

Missing 7 - Phytotoxicity - Seedling Emergence, Wildlife International, Ltd. Expected completion: July 2000. Protocol in progress.

Environmental Monitoring

Missing 8 - Global Environmental Sampling Plan, Michigan State University. Expected completion: Dec. 2000. (Summary being provided to EPA)

9 - Determination of PFOS, PFOSA, and POAA in water by Liquid-Solid Extraction and High-Performance Liquid Chromatography/Tandem Mass Spectrometry (no date) 17 pp

10 - Compound-specific quantitative characterization of Organic Fluorochemicals in Biological Matrices, K.J. Hanson et al. (no date), 22 pp.

ENVIRONMENTAL MONITORING:
PART ONE – MULTI-CITY STUDY

The multi-city study was designed to obtain preliminary data about dispersion of fluorochemicals in the environment, uptake into foods and presence in drinking water to understand the potential sources of human and environmental exposures that might result from this type of dispersion. The multi-city study paired a city having manufacturing or commercial use of fluorochemical products based on customer sales with a city that does not. Initially six cities, (three pairs) are being examined. The study may be expanded depending on further results.

The multi-city study will yield environmental distribution data as well as data on potential sources of human exposure. The cities were selected to represent urban locations with various levels of fluorochemical releases and various types of municipal water supplies. The samples to be obtained, where possible, include: urban air, surface water column and surface microlayer, sediment, river fish, drinking water intake, treated drinking water, tap water, the influent to and effluent from publicly-owned waste treatment works, sludge, and municipal landfill leachate. Additionally, a "market basket" of several food products will be sampled. These include: beef, pork, chicken, hot dogs, catfish, eggs, milk, bread, green beans, apples from grocery stores and, if possible, produce from local farmers' markets.

The attached material data provides more detail on the design and structure of the study and represents the first results from the multi-city study. Included are reports on the quality assurance plan and field sampling procedures used and the results of the drinking water samples taken from the six cities. The results indicate that drinking water in four cities (Decatur, Alabama; Cleveland, Tennessee; Mobile, Alabama; and Port St. Lucie, Florida) did not contain detectable levels of fluorochemicals. Only two cities (Columbus, Georgia, and Pensacola, Florida) contained detectable levels of sulfonated fluorochemicals in the drinking water. The results show that the levels are in the range of 40-60 parts per trillion of perfluorooctane sulfonate. Only one city, Columbus, Georgia, showed very low detectable levels of perfluorooctanoate.

Also included is a copy of a draft "lifetime" drinking water health advisory developed for PFOS. This advisory reflects a very conservative approach based on application of "safety factors." The advisory level of 1 part per billion should not be misconstrued as threshold for danger or concern, but only a reference point based on application of conservative methods and the information available to date. A comparison of the drinking water data from the multi-city study indicates that there are two orders of magnitude of safety between the draft drinking water advisory and the results from these two cities in the multi-city study.

ENVIRONMENTAL MONITORING: PART TWO – BIOSPHERE SAMPLING AND ANALYSIS

A plan to assess potential environmental exposure to perfluorooctanesulfonate and other fluorochemical substances has been developed by 3M and outside experts. One component of this plan involves characterization of the geographic distribution of fluorochemicals in biotic and abiotic receptors. Two studies are in progress, one focused in the vicinity of the 3M Decatur, Alabama manufacturing facility, and the other a much more comprehensive global biosphere monitoring program. The preliminary results obtained to date have been reported in the 3M Environmental White Paper entitled "Sulfonated Perfluorochemicals in the Environment: Sources, Dispersion, Fate and Effects."

The study in the Decatur, Alabama area is being designed to understand the impact, if any, of production operations in the local environment. Samples of the groundwater, surface water, sediments and fish and bird species will be collected in May and June, 2000 for analyses. This data will be used to evaluate the environmental presence of fluorochemicals and to assess the potential of any effects using ecotoxicological test results.

The Biosphere monitoring program was designed in consultation with Dr. John Geisy of Michigan State University. This plan is being viewed as an iterative process to assess global distribution of fluorochemicals. As results are obtained from the global environment, the plan is to concentrate on those areas where fluorochemicals are detected in samples and focus on additional sampling and analyses in those specific locations.

Initially, samples of tissues and blood plasma are being collected from archived specimens covering different species and locations. Areas of focus include North America (Great Lakes and coastal marine locations), the arctic region, and Europe. Species to be studied include lake trout, walleye, salmon, catfish, and brown trout; cormorants, eagles and albatross; mussels and shellfish; marine mammals; and other species. This sampling plan is in progress and as data is obtained and reports generated, additional submissions will be made to EPA.

Included in this section are the following documents:

1. LCMSMS Analysis of Extracts reported in: "Preliminary Report Analysis of Perfluorinated Compounds in Environmental Samples" by P. Jones and K. Kannan - 4/7/99
2. Final Laboratory 3M Reports on Analysis of Fluorochemicals in Wild Bird Livers – 4/28/99
3. Screening of PFOS levels in Eagle and Albatross - 5/8/98