
From: Kriens, Don
Sent: Wednesday, March 06, 2002 10:21 PM
To: Douglas, David; Rys, Mark
Cc: Hayes, Mary; Morgan, Stephanie; Silis, Ainars; White, Dann; Kimball, Gary
Subject: 3M-PFOS and related compounds in discharge

Mark/Dave:

Thanks for informing me regarding the recent discovery of PFOS (perfluorooctane sulfonate) in the wells/groundwater at the 3M Cottage Grove plant and the pending investigation. As I discussed I recently received an updated NPDES permit application (dated Feb 5, 2002) which lists PFOS and related fluoro compounds in the 3M discharge. This permit application was submitted because we are in the process of drafting the plant's reissued NPDES permit.

I know you have the data I received but I list it here for the other staff. The PFOS and related compounds were found in discharge 20100 which is the process discharge at the plant. This data is after treatment at the 3M wastewater treatment plant. The 20100 effluent discharges directly to a ravine adjacent to the plant and then directly to the Mississippi River. After discussing this data with 3M this afternoon I learned that 3M sampled and analyzed the discharge 20100 for these compounds during this past September-October 2001. I have asked 3M for information as to whether there is any other data 3M has compiled for PFOS and related compounds in the discharge, and what is the source of the compounds. A total of 3 samples were taken by 3M. Following are the results in ug/l:

Compound	Max. conc	Ave conc.	# of detect/samples
Perfluorooctanic acid (PFOA)	267	216	3/3
Perfluorooctane sulfonate (PFOS)	384	262	3/3
Perfluoroheptanoic acid	19	14	3/3
Perfluorohexanoic acid	32	29	3/3
Perfluorobutyric acid	643	346	3/3
Perfluoroheptane sulfonate	12	NA	3/1
Perfluorohexane sulfonate	12	11	3/3
Perfluorobutane sulfonate	138	64	3/3

Considering the seemingly high levels of PFOS, the extraordinary bioaccumulative nature of PFOS, the fact that it does not appear to break down or metabolized in animals including humans, the as yet unknown toxicological endpoints, and the unknown but increasing evidence of at least mammalian toxicity I believe we need to require monitoring of these compounds pursuant to the NPDES permit. It would also be prudent to look at effluent limitations, but as in the case of other past bioaccumulative organics, this is perhaps a ways off. However, I understand Dann W. may be investigating limitations development.

One thing we are trying to achieve at 3M Cottage Grove pursuant to this permit reissuance is to require granular activated carbon as a tertiary treatment process. Activated carbon may be needed to remove other organics now regulated by federal guidelines. Given the relatively large molecule it is likely activated carbon would easily remove PFOS and related fluorocarbons.

As I learn more from 3M I will let you know.
Thanks, Don