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Date: 19 August 1982

Memorandum

From: Ms. Betz, Quality Control Lab., Environmental Section, NREAB, BMaintDiv

To: Mr. Sharpe, Supervisory Ecologist, Environmental Section, NREAB, BMaintDiv

Subj: Grainger Laboratories Letter of 10 August 1982

Encl: (1) Subject Letter
(2) SNARL for Trichloroethylene
(3) SNARL for Tetrachloroethylene
(4) Suggested Action Guidance-Tetrachloroethylene

1. On 6 May 1982, Mike Hargett, of Grainger Labs, called and informed me that on 3 May 1982, while they were analyzing the first set of Trihalomethane samples received from us, interferences possibly from chlorinated hydrocarbons hindered analysis of samples from two systems, Tarawa Terrace and Hadnot Point.

2. It was determined that raw and treated samples from the treatment plants for the two systems would be taken for analysis of the interferring chlorinated hydrocarbons. On 28 July 1982, a raw water sample, #206, and a treated water sample, #207, were taken at the Tarawa Terrace water treatment plant. A raw water sample, #208, and a treated water sample, #209, were taken at the Hadnot Point water treatment plant, on 28 July 1982. The Trihalomethane samples for July were also taken on 28 July 1982, for these two systems. In Grainger's letter, of 10 August 1982, they erroneous report the samples as taken on 27 July 1982, they were collected and shipped on 28 July 1982.

3. Analysis of the above samples and some Grainger had preserved showed that in the Tarawa Terrace water treatment plant and system, the interferring chlorinated hydrocarbon is tetrachloroethylene, or otherwise known as perchloroethylene. Tetrachloroethylene is used as a dry cleaning and degreasing solvent, and heat-transfer medium, Analysis of the Hadnot Point water treatment plant and system samples showed Trichloroethylene and low levels of tetrachloroethylene. Trichloroethylene is used primarily as a metal degreaser. It is also used as a dry-cleaning solvent and a type of pesticide, fumigant.

4. Neither tri- or tetrachloroethylene are regulated contaminants under the Safe Drinking Water Act. However, EPA has a "SNARLS" program which provides some guidance on unregulated contaminants. A snarl is a suggested no adverse response level and is not a legally enforceable standard. Snarl values are usually provided for 1-day, 10-day, and longer-term exposure periods.

5. Tetrachloroethylene, in high doses, has been reported to produce liver and kidney damage and central nervous system disturbances in humans. EPA's snarls for tetrachloroethylene are 2300 ug/l for 1-day, 175 ug/l for 10-days, and 20 ug/l for longer-term where drinking water is the only source of exposure. On 9 April 1980, EPA came out with a Suggested Action Guidance on Tetrachloroethylene. This guidance was a result of possible tetrachloroethylene contamination of drinking water

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where coated A/C pipe was used. Their recommendations were (1) immediate corrective action(within 24 hours) if the tetrachloroethylene level exceeds 2.3 mg/1 (same as 1-day snarl) (2) corrective action within 10 days if the tetrachloroethylene level exceeds 0.13 mg/1 (same as 10 day snarl) (3) for extended periods the tetrachloroethylene level should not be greater than 0.04 mg/1.

6. Trichloroethylene, like tetrachloroethylene and other halogenated hydrocarbons (ie Trihalomethanes), at high levels , has been reported to produce liver and kidney damage and central nervous system disturbances in humans. EPA's snarls for trichloroethylene were determined to be 2 mg/1 for 1-day, 0.2 mg/1 for 10-day, and 75 ug/1 for a chronicsnarl. There is no Suggested Action Guidance on trichloroethylene.

7. Below is a table of the results received from Grainger labs.

Sample #	Sample Date	WTP	Sample Site	_chloroethylene, ug/1 Tri-	Tetra-
86	5-28-82	TT	Distribution Point, Bldg TT-2453	-	80
168	7-28-82	TT	Distribution Point, Bldg TT-2453	-	104
206	7-28-82	TT	Raw Water @ Plant	-	76
208	7-28-82	TT	Treated Water @ Plant	-	82
120	5-27-82	HP	Distribution Point, Bldg NH-1	1400	15
205	7-28-82	HP	Distribution Point, Bldg FC-530	No Data	100
208	7-28-82	HP	Raw Water @ Plant	19	<1
209	7-28-82	HP	Treated Water @ Plant	21	<1

What Grainger means by no data for trichloroethylene analysis for sample #205 is that Trihalomethane samples 201-205, from Hadnot Point, were analyzed qualititively for trichloroethylene, but exact quantities were not determined. According to a phone conversation on 19 August 1982, with Bruce Babson of Grainger Labs and myself, samples 201-205 were in the range of 208 and 209 for Trichloroethylene, and of samples 201-205, 205 had the most contamination.

8. The level of tetrachloroethylene for the Tarawa Terrace system samples averaged 0.09 mg/1, which exceeded the recommended level of 0.04 mg/1. The levels do not vary significantly between the raw and treated samples. The raw and treated samples were taken at the plant where the water had already traveled some distance in pipes. Therefore, with no significant difference between raw and treated samples and the high average of 0.09 mg/1, I would believe the tetrachloroethylene contamination is possibly do to the use of coated A/C pipe in the raw water lines at Tarawa Terrace.. Tetrachloroethylene, in the Hadnot Point system samples is at trace levels and well under recommended levels.

9. The level of trichloroethylene, at Hadnot Point, is presently averaging 20 ug/1, which is below all three recommended snarls; 1-day, 10-day, and chronic. No explaination is offered for the 1400 ug/1 level on 27 May 1982, or why it is now averaging only 20 ug/1.

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Special Testing of
TT + HP plants for
Trichloroethylene + Tetrachloroethylene
Both within limits. Recommend
sending Data to Plant Div.