State of New Jersey
Department of Environmental Protection

Christine Todd Whitman
*Governor*

Robert C. Shinn, Jr.
*Commissioner*

Mr. Joseph Fallon
Directorate of Public Works
Headquarters, U.S. Army Garrison Fort Monmouth
Fort Monmouth, NJ 07703 - 5101

DEC 03 1999

Re: Low Flow Sampling - Site M2
Fort Monmouth Main Post
Tinton Falls, Monmouth County

Dear Mr. Fallon:

The NJDEP is in receipt of your letter of October 7, 1999 requesting our review of the low-flow ground water sampling procedures determined necessary for accurate delineation of the contamination at the M2 landfill site located on the Main Post. NJDEP comments are summarized.

**COMMENTS**

1. Low Flow sampling should incorporate the use of a flow-through cell. The intent of a flow through cell is to minimize interaction of the purge water with the atmosphere, and to keep the metering probes constantly bathed in fresh well water. Since it is desirable to limit residence time within the vessel, the volume of the vessel must be relatively small. Depending on atmospheric conditions/temperature, this would generate a potential for temperature fluctuations to occur which would affect the accuracy of field measurements (especially for DO, Temp, pH, etc.). A diagram of a flow through cell is provided on page *two*. The exact type and construction of the flow-through cell may vary, but the basic principles must be met as described below:

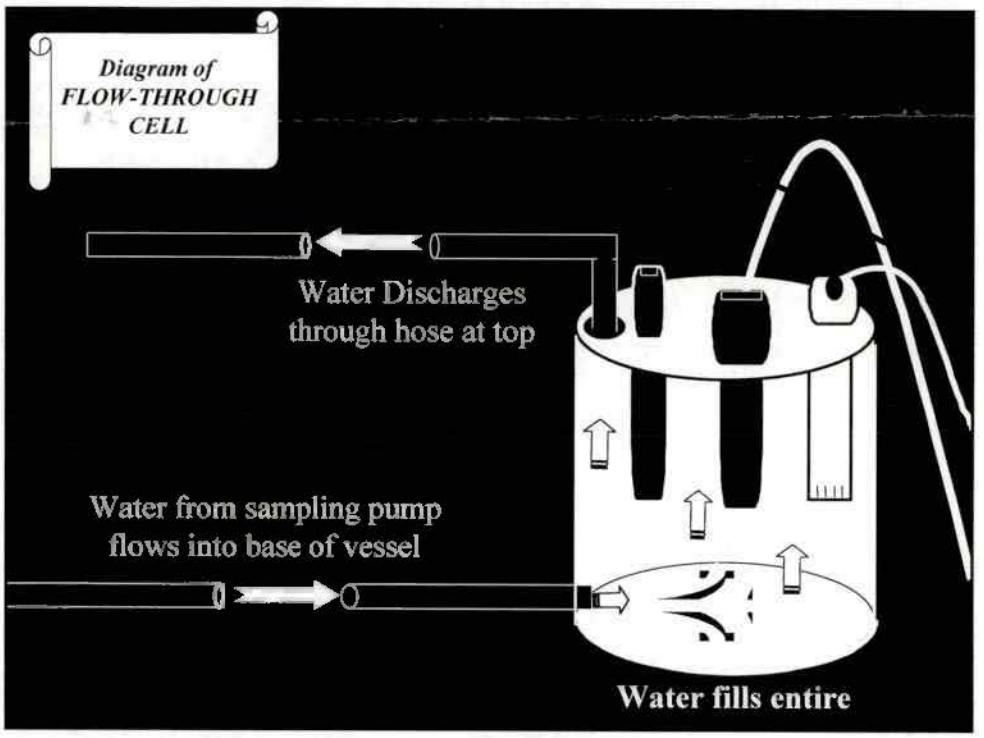
- Water enters from bottom and is forced out the top
- Metering probes are constantly bathed in fresh well water, and there is no significant headspace existing at the top of the vessel
- Cell should be relatively small to limit residence time.

2. The length of tubing between the well and the flow-through cell must be short to prevent heating or cooling of the sample prior to it entering the flow-through cell. In this respect, the flow-through cell and all metering devices should be situated in close proximity to the well.

3. Tubing diameter must be small (¼ to ⅜ inch) to prevent air bubbles from forming in the discharge line.

4. Ground water elevation measurements and total depth of well measurements must be obtained the day before sampling is actually conducted. The intent of this condition is to limit disturbance of the water column within the well, to obtain synoptic ground water elevation data, and to document well construction specifications prior to sampling (i.e., total depth of well).

5. No interruptions in flow, or adjustments to flow rate, should occur between purging and sampling once field parameters have stabilized.




Please note that due to the use of a peristaltic pump in the sampling process, the NJDEP only allows compounds with low volatility and metals to be sampled using this procedure.

If I can be of any further assistance, please do not hesitate to contact me at (609) 633-7232.

Sincerely,

Ian R. Curtis, Case Manager
Bureau of Case Management
ICURTIS@DEP.STATE.NJ.US