

**MEMORANDUM**

To: Groundwater Advisory Council  
From: H. Bokuniewicz  
Concerning: Minutes of the meeting of 25 February 2002  
Date: February 26, 2002

**PRESENT**

N. Bartilucci  
H. Bokuniewicz  
J. Milazzo  
B. Nemickas  
M. Nofi  
D. Paquette  
G. Proios  
W. Prospect  
P. Ramirez  
S. Robbins  
K. Roberts  
W. Spitz

**ABSENT**

S. Jones  
L. Koppelman  
M. Schoonen

1. Revisions were made to the minutes of the last meeting. A corrected version is attached.
2. Doug Paquette discussed the low-flow sampling used at BNL (overheads attached). Since 1989 when the site became a superfund site, the number of monitoring wells has increased substantially. There are some 900 monitoring wells, many deeper than 100 feet. During 2002, approximately 700 of these wells will be sampled either quarterly or semiannually. Historically, the standard procedure used by BNL and other sites had been to purge the wells by three casing volumes before sampling. At BNL, this could result in 40 gallons of purge water for a shallow well and 250 gallons for a deep well, but it could be as high as 450 gallons. Purge water with levels of contaminants above drinking water standards (volatile organic compounds above 5 micrograms per liter, tritium above 20,000 picocuries per liter and strontium-90 above 8 picocuries per liter) must be containerized and/or treated before disposal. Using the three casing volume purge method, approximately 150,000 gallons of purge water would have to be containerized and or treated per year. Offsite treatment costs for water containing tritium or strontium-90 is approximately \$9/gallon. In addition to treatment costs, long purge time increases labor and staff needed for sampling.

The residence time of water in the screened zone of BNL's monitoring wells is estimated to be less than a day. Since the early 1990s, BNL has installed dedicated bladder sample pumps in wells that are routinely sampled. These pumps are usually positioned in the mid-screen section of the monitoring wells. Studies by EPA and others have demonstrated that high quality samples (that are representative of aquifer pore water, and not affected by interactions with casing materials or air/water interface within the well) can be obtained after purging very small volumes of water from a well. In 1998, EPA (Region II) adopted a low-purge method for sampling at EPA regulated sites, in which groundwater samples could be drawn once the water quality parameters (pH, DD, conductivity etc.) stabilized. During 1995-1997, tests were run at BNL using dedicated bladder pumps, positioned at mid-screen level. Leaving the pumps in place prevents stirring of the stagnant water above the screen zone when sampling is done. Tests showed that VOC and tritium concentrations usually stabilized (within  $\pm 20\%$  as usually required for laboratory standards) after purging as little as 0.25 casing volumes or sometimes as little as two (bladder pump) discharge tubing volumes.

In the tests, however, contaminant concentrations did not stabilize in wells positioned in less homogenous portions of plumes. Sometimes concentrations were found to decrease as more water was purged (possible due to mixing with less contaminated water), or to increase as more water was purged (possibly due to mixing with more contaminated water). It is important to understand the plume position and concentration homogeneity/heterogeneity relative to the screen location when interpreting the sampling results. The problem may be especially acute in trying to determine the leading edge because of dilution around the contaminant front.

BNL's sampling procedure requires the removal of a minimum purge volume that is equivalent to twice the pump and tubing volume, then monitor water quality (T, conductivity, pH, DO) until the parameters are stable and sample. The maximum purge volume is set at 0.25 the casing volume. This methodology has resulted in a >92% reduction in purge water volume, saving approximately \$250,000 per year in water management costs, and \$175,000 in labor costs.

3. The modeling course set up with Paul Misut (USGS) had to be cancelled for the Spring (2002) because of low enrollment. It was announced in the geology classes but it was apparently too late to get into student's schedules. We have scheduled it for the Fall (2002) and will start publicizing it now.

We did offer a short course in January on MODFLOW run by Waterloo Hydrogeologic. It was sparsely attended but nicely done. We are looking into repeating that course (or one of their other offerings) over the summer. I have also been in contact with Joe Haas about bringing Jim Weaver (EPA, Atlanta) up for a short course on contaminant transport especially BTEX and MTBE and models like BIOSCREEN, HSSM and Domenico.

4. Kevin Dunn (SCDHS) has retired. The Institute will try to maintain the VEEP (Volunteer Environmental Educator Program) through the year with Kevin's help. This program has trained some 60 volunteers to present groundwater information in schools and at fairs. On a single school visit, they engage several classes probably 100 students so thousands of students are reached each year. The longer-term fate of

this worthwhile program is in question, but it's worth the effort now to keep it going while we search for mechanisms to continue it.

It was suggested that we contact Ms. Pat Pierson at the SC Farm. They were interested in educational programs perhaps, using the revenues from the quarter-percent tax.

5. SWAP. CDM has given an overview at the last SWAP meeting. One of the big problems is the large number of non-community wells. There was discussion at that meeting about reducing the number of contaminant categories into groups like metals with similar transport characteristics. Handling emerging issues (pharmaceuticals and personal care products) were also discussed. There is to be no testing for pharmaceuticals or microbiological components under SWAP. Bruce Brownawells' sampling program is continuing in collaboration with the USGS, but USGS funding has been reduced and Herb Buxton's program eliminated (so far). Sy has been reviewing the literature. While there doesn't seem to be any cause for alarm, there is little research available. In Germany, work has been done on bank recharge, which isn't very applicable here. There's been some work with non-ionic surfactants (whose degradation products mimic estrogen) in Cape Cod. Detergent also seems to be re-emerging as a management issue. As the topic continues to be discussed in the SWAP process, the issue of the proper way to communicate the risks becomes more important.

We might consider the problem of risk communication and public relations at a future meeting to have "something in reserve" when the issue arises.

6. The SCDHS's pesticide report has been returned from DEC, Albany with critical comments. They will not endorse the report. We have discussed the results before, but apparently, Ag and Markets' objects to the text implicating agricultural areas and the implication for surface water degradation. The report will eventually be issued as a public document from SCDHS without DEC endorsement.
7. We will redistribute the Newsletter on Drought. The DEC has issued a press release (attached) including Nassau and Suffolk in a drought "Watch". The drought only affects surface water supplies; it is not a problem on Long Island, but we are, nevertheless, included on the watch. They have based this watch on stream flow, soil moisture (?) and water levels in index wells. It's likely that similar conditions have existed at other times in the recent past, although a drought watch was not instituted. The drought watch does not require any action on the part of the water suppliers. We should not expect to have this go to the next level (drought warning) here on Long Island. The latest information can be found on the DEC website:

[www.dec.state.ny.us/website/dow/droughtfacts.html](http://www.dec.state.ny.us/website/dow/droughtfacts.html)

8. It was mentioned that NYC is reactivating some of the old Lloyd wells from the former Jamaica Water District. There is a public relations problem with acceptance of this water. Another problem is disposing of water from water withdrawal programs that pump water to control flooding. Apparently it cannot be discharged into the sewer system.

9. We're working on a newsletter on lawn maintenance. It was suggested that we should consider one on AEM (Agricultural Environmental Management). Funding for measures like concrete mixing pads might be possible if more attention was directed at the program.

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