MEMORANDUM

To: Groundwater Advisory Council
From: H. Bokuniewicz
Concerning: Minutes of the meeting of 3 May 2004
Date: May 5, 2004

PRESENT

N. Bartilucci
H. Bokuniewicz
S. Jones
R. Liebe
R. Mazza
J. Milazzo
B. Nemickas
D. Paquette
G. Proios
S. Robbins
K. Roberts
S. Sanudo-Wilhelmy
W. Spitz

REGrets

M. Alarcon
L. Koppelman
M. Nofi
P. Ramirez
K. Willis
P. Witkowski

1. The corrected minutes of the meeting of 1 March were distributed. Also distributed were the proceedings of last year’s (6 June) Groundwater Symposium.

2. Several council members were able to attend Dr. Ed Furlong’s (USGS) seminar on pharmaceuticals and personal care products last week. Ed will serve on the Ph.D. thesis committee of Mark Benotti who spoke to us two meetings ago. Mark is working with both the Suffolk County Department of Health Services and the USGS sampling on Long Island.

3. Dr. Sergio Sanudo-Wilhelmy discussed the research analytical facility at Stony Brook. The Trace Element Laboratory is also described on the web site for the Marine Sciences Research Center. The analytical instruments are housed in a class 100 clean lab, which means, among other things, that all the air in the lab is filtered three times, all fixtures are plastic to prevent metal contamination and nothing (bottles, etc.) leave the lab.

The facility houses a High Resolution Magnetic Sector I CPMS. The magnetic sector provides better higher resolution than the quadruple instruments such as those in routine use by the USGS and the SCWA. Standards are run before each set of analyses and the instrument is calibrated every week (a three-hour procedure). About 100 samples can be run per day and the sample size can be as small as 200
The facility includes an Ultrasonic Nebulizer for eliminating matrix contamination; salts or organics can be removed before analysis by membrane separation. Almost all elements in the periodic table can be analyzed in two minutes from 0.5 ml of water, most to the ppb or ppt (trillion) range. (By way of illustration, a “ppb” is a single one-millimeter square in 22,222 pages of graph paper, and a “ppt” is a one-millimeter square in over 22 million pages of paper). Vitamins are also run of groundwater samples.

The facility includes a laser ablation system. This instrument can analyze the composition of a surface area as little as 20 or 30 microns across (for comparison, a human hair is 100 microns across). There is also an atomic absorption Spectrometer (AA). Samples are usually run through this first to ensure that, for example, concentration of iron are not too high and for the analysis of some other metals like Mn and Cr. Freshwater (groundwater) samples cost $50/sample for about 30 elements. Seawater samples start at about $130/sample plus $20/metal.

Total mercury can be analyzed and we have the instrumentation (although it is not set up yet) to do methylmercury. Methylmercury is an important topic. Mercury may be added to Long Island from atmospheric plume from mid-west power plants (e.g. look at the EPA web site for Hg deposition). The conversion of Hg to methyl mercury requires organic material and vitamin B\textsuperscript{12}, a compound for which analytical procedures were only recently developed. Hg, like Pb, is retained in the environment; there may be enough Hg already in our soils to provide the element for methylation for the next 50 or 100 years.

There was some discussion of trying to find a “fingerprint” of Hg from Midwest plumes as opposed to Hg from, say, BNL. Perhaps, isotopes of Hg or other elements or a budget based on pH (acid rain) might be tried. A new graduate student, Jonathan Thompson, may be interested in an Hg/Methyl mercury project. He is being supervised by Sergio and Bruno (USGS). The instrumentation is available and just needs to be set-up and we also have air collectors for use in an atmospheric-plume study, but methylmercury is extremely toxic; one drop of the standard has been proven to be fatal.

4. Sy discussed the SWAP statement provided by the NYS-DOH. These had gone through several iterations and are required to be included in the Consumer Confidence Report. Statements from BNL (attachment I) and additional text from the SCWA (attachment 2) were distributed.

SWAP results can be “seductively simple”. Managers and regulators need to be aware of the situation. For example, the results do not include all the wells now active nor do they examine any future well scenarios. We have already discussed the “caveats” due to assumptions of continuous pumping and the establishment of equilibrium conditions, but the concern is that these are not fully appreciated by those applying the results.

Groundwater issues are still not completely considered in zoning and towns need to be made aware of the SWAP results, potential implications and cautions on their application. In the scope-of-work for the planned Comprehensive Management Plan provisions are made for meeting with towns in Suffolk County at which this could be done. It is less important in Nassau County where buildout is more-or-less complete
but rebuilding continuously occurs and may be an opportunity to reconsider groundwater impacts. For example, in zoning for light industry (L1 and L2) it might be appropriate to consider locations where groundwater susceptibility is especially high.

EPA seems to be interested in moving SWAP to the next step of protection and has apparently co-sponsored forums in other places on this topic. One of the original concerns was the need for disinfection on monitoring waivers based on SWAP results.

5. There are three proposals being considered in response to the RFP for the Comprehensive Management Plan in Suffolk County. The Department of Health Services will arrange for presentations later this month and hope to have work started by the fall. The funding for this effort is already in place.

In addition to the Town meetings already mentioned, pumping out of the Pine Barrens is to be another specific issue. At this stage, the more likely scenario is pumping from the Pine Barrens five or six miles south toward Speonk, but transmission both east and west is to be considered.

6. CDM is converting the model input into GIS “shape” files. We now have the rainfall data in the same format. When the CDM files are available, we will review the product here and consider a presentation to the LI-GIS group.

7. The next meeting before we break for the summer will be on 7 June (Monday) at the offices of Dvirka and Bartilucci in Woodbury. We will ask someone from that office to talk about the new project for pollution assessment being initiated by Dvirka and Bartilucci.