MEMORANDUM

To: Groundwater Advisory Council
From: H. Bokuniewicz
Re: Minutes of the meeting 25 October 2010
Date: October 26, 2010

PRESENT	**REGRETS**
M. Alarcon	L. Koppelman
R. Alvey	M. Nofi
N. Bartilucci	D. Paquette
H. Bokuniewicz	A. Rapiejko
S. Colabufo	J. Szabo
S. Jones	K. Willis
R. Liebe	
R. Mazza	
K. Roberts	
W. Spitz	
S. Terracciano	

1. There were no comments on the minutes of the last meeting (September, 20, 2010).

2. Steve Terracciano led a discussion concerning the USGS-EPA collaborative effort to construct a Long Island GIS and database for groundwater hydrology and chemistry. The 709-Atlas is to be incorporated on-line with data, including data on VOCs and some 300 other contaminants from a wide variety of sources. Nassau County was shown as a test case with a database compiled from information provided by the EPA, NYS DEC, USACE, USGS, Nassau County Department of Health, Nassau County Department of Public Works and various consultants from almost all public supply wells, numerous EPA and DEC superfund sites and various RCRA and Spills sites. The data was archived and presented, as is, without additional verification although, in some cases, inconsistencies among data sets were recognized. Water quality, hydraulic heads, core logs, lithology and geophysical logs are contained in the GIS. Geophysical logs, for example, are provided for 460 sites including but not limited to superfund sites. The basic GIS is three-dimensional, and show Towns, coastlines and major roads for reference. Screen elevations are shown in three-dimensions. A layer in the GIS, for example, depicts PCE, TCE, Vinyl Chloride, detections in three dimensions.

   The three-dimensional aspect of the GIS is particularly important and such data in this form are especially useful in addressing technical issues. At the Grumman Navy Facility, EPA had been asked to review the model results, for example. There are actually several models that have been used and the basic step is to examine the results against the empirical evidence such as those data contained in the GIS. Although the recent meeting with Senator Schumer seemed to focus on stopping the plume, well-head treatment is likely to be the more practical and economic approach. Going into the Lloyd to replace

impacted wells is not considered a viable option. At the Grumman Navy Facility, for example, the VOC plume can be seen overlapping in plan view with the contributing area of a supply well, however, the contributing area is based on surface recharge while the plume itself is several hundred feet below the surface. At the Grumman Navy site, in particular, the initial source was dispersed because of pumping on the site for cooling water etc. and other sources are found in the vicinity.

TCE also is of interest because there are some detects in supply wells. It can come from dry cleaners, body-shops that use it for degreasers. In any event, it is hard to clean-up even point sources let alone diffuse or multiple sources. It seems clear that regardless of remediation efforts, well-head treatment will be needed eventually if not immediately.

The GIS is not public but the data, taken from known sources, is public information and a substantial effort is needed just to stay current let alone to recover old data sets. Information from the Voluntary Clean-Up Programs has been hard to get, for example. Agencies with these data and others do not have the resources to provide them.

Some water districts try to limit cost of treatment by not pumping from treated wells but increasing pumpage from wells that do not require treatment. Sometimes, however, the additional pumping can draw in contaminants, like PCEs, that had not been seen before. The importance of continued consultation with the stakeholders and the contributors to the data base pointed out who would appreciate the opportunity to review public releases, like press-releases.

3. The Town of Brookhaven had established a Study Group headed by Dr. Koppelman whose mission it is to develop a long-range land-use plan for the Carmens River catchment basin. The plan is to be done in three months. Associated with the Study Group is a technical advisory committee with the initial task of defining the contributing area. The most expedient approach may be merely to increase the buffer because in some places the river is a losing stream and it may be that part of the contributing area on the eastern flank overlaps with that of the Peconic River. In any event, it is not a topographically-defined boundary. Almost all the base flow is groundwater maintained.

   Recently we have seen similar catchment-area issues in the Nissequogue driven by flooding problems, and in the Forge River due to pollution issues. It may be that more of these situations will arise in the future. There are standard procedures for evaluating catchments and, perhaps, a workshop might be done to review these options.

4. At the last meeting, we had a presentation by Caitlin Young, a LIGRI Ph.D. student, about the use of zero-valent iron (ZVI) for denitrification. Chemical experiments are underway here at Stony Brook to test this technique on the brines produced at the SCWA, well-head, denitrification plant in Northport. The current practice of disposal of these brines at local STPs is a concern, especially on the north shore where STPs are not only small, but also subject to LISS limits of nitrogen discharge. There could be additional problems introducing the waste brines into STPs due to sulfates which could produce H_2S and chlorides which affect settling in the plants treatment tanks.

   Now in addition to the chemical studies, we will have engineering design interns, under the supervision of Dr. Devinder Mahajan, look at methods of delivering ZVI treatment on site. This might include the use of high-pressure reaction columns, compositing, or fluidized beds. The students will meet with Joe Roccaro of the SCWA to examine the

active Northport denitrification plant. They will then meet with Roger Owen at Dvirka and Bartilucci who is an expert in fluidized beds; this technology is being applied at several airports to treat de-icing gycols which have a high BOD.

5. Incoming graduate students at the University will be searching for projects. In addition to the engineering students just mentioned, we have interns active under the supervision of Tim Glock and others working with David Tonjes. Other potential project concepts include:

    a. Recharge basins. We (SBU) had initiated a project last year but the student decided not to pursue it. There were two issues: contamination and the possibility of using landscaping to control contaminant recharge, and the role of recharge basins in controlling the local water table gradients (i.e. "mounding") and its impacts of regional flow. There may have been a site-specific study of a gasoline spill years ago that might make a relevant case study, or a more recent EPA water-budget done for Riverhead, MS4, that could be useful.

    b. The question of the carbon-footprint and cost-effectiveness of remediation versus well-head treatment has been discussed on several occasions (including this meeting, item 2, and the last meeting). It's not clear how this could be approached but, perhaps, a specific case might be examined in detail as an example.

    c. In the spring, there were several issues with uncontrolled, artesian wells being used by the public. Such wells exist in Cold Spring Harbor, Fire Island, Westmeadow Beach, Oyster Bay Park, the parking lot of Oyster Bay Town Hall (closed), perhaps, Strong's Neck, and some sites in New York City. The USGS has used GIS mapping to identify other areas as well as where flowing observations wells occur. These are not deep artesian wells, but most likely driven by high, water-table hydraulic heads on adjacent uplands. The health departments try to discourage people from drinking at unprotected, roadside springs and does not make a practice of monitoring them. Article 4, section 760-423 of Suffolk County Sanitary Code prohibits the use of natural springs as sources of drinking water for public use, as these are unregulated, unprotected and untreated. Technical guidance provided by the New York State Department of Health also recommends against the consumption of water from these sources. It should be noted that because these water features are prohibited under the sanitary code and are highly susceptible to contaminants. Apparently, a sample was collected and analyzed by H2M laboratories in early 2003 and revealed the presence of a volatile organic compound (1,2 dichloropropane) in concentrations that exceeded federal and state drinking water standards for public drinking water supplies. While there are concerns about the water quality of these wells, others have been tested and seem to have excellent water quality. Nassau County did some testing in the past and the SCWA tested the artesian well at Westmeadow Beach.

    There could also be a liability issue in the winter when flowing wells could cause road icing. On Fire Island, flowing wells apparently had established particular habitats that might be valued.

d. We had tried a proposal on water reuse but it was not successful. There is little incentive on Long Island for reuse because water is so plentiful, although there may be some appropriate situations. Car washes, for example, re-use water and, in fact, are required to have reuse systems in Nassau County. Laundromats generally do not recycle because of the problem to guarantee sufficiently clean water for washing, but the trend to "green" building includes water reuse especially for irrigation.

e. We had a student project on geothermal energy issues that had only marginal success. Both the DEC and Suffolk County Department of Health Services had been considering regulations for geothermal wells but neither effort has been brought to fruition and there seems to be no pressing interest. Because water is relatively inexpensive, that some homes in The Hamptons are apparently using public water in household geothermal systems.

f. The use of coal-tar products was suggested as another potential topic.

I would be grateful to learn of any other suggestions.

6. We had no new information about the DEC conference on Water Resources and Regional Economy (13 December, 2010 at SUNY New Paltz). We'll try to learn more about this meeting and pass it along.

7. The next meeting will be on Monday, November 29, 2010 at the SCWA offices in Oakdale.

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