NWIRP Bethpage - Site 1 OU2 Offsite Groundwater Investigation Overview

February 6, 2014

Current Investigative Program (see attached figure)

* 14 VPBs (140-153)
* Estimated 28 wells (2 per VPB)
* Intended to expand the delineation of lateral and vertical extent of contamination
* Determine the efficacy of ONCT
* Provide early warning outpost wells
* Expand monitoring network

Conceptual Model of Physical Transport

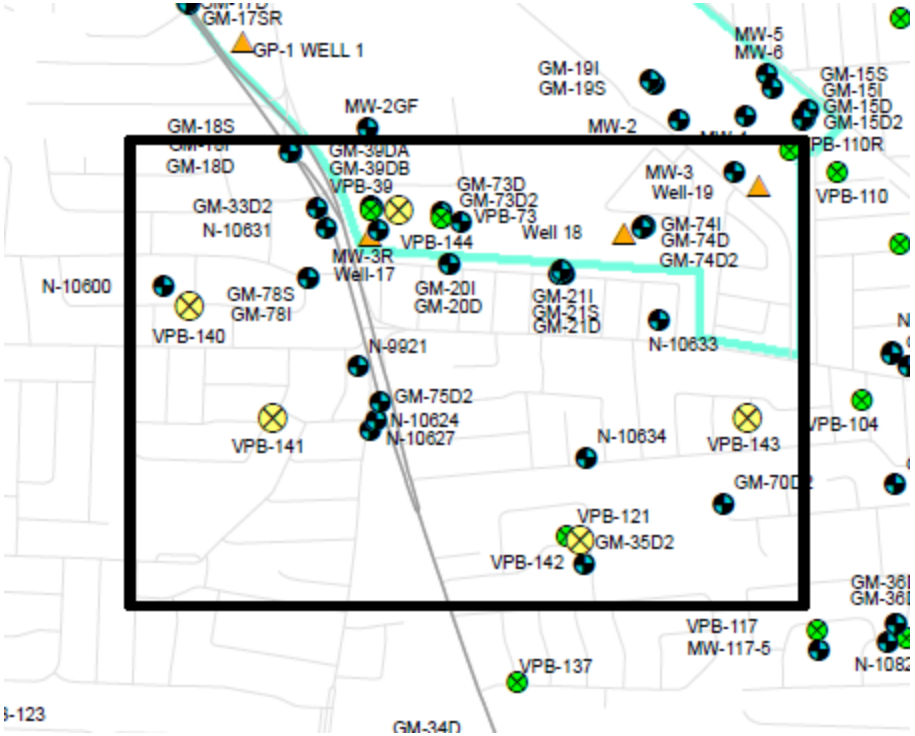
* Migration is being dominated by sand/gravel units that trend N/NW to S/SE
* These units appear to be linear, and likely represent fluvial paleochannels within Magothy sediments (resulting in penciling of plume morphologies)
* These channels incise into finer grained materials, and connect laterally and vertically; facies models suggest coarser material deposited near the top of the Raritan
* Outside pumping stress can cause side dispersion of the plume, but longitudinal advective transport within these paleochannels is the dominant transport mechanism; pumping stresses within these paleochannels (if a well is located within or proximal) can decrease travel times to pumping well(s).

Conceptual Integration

* Investigative strategy is to utilize an understanding of the conceptual model in placing VPBs and wells;
* Work is being performed in "work packages" – groupings of VPBs and wells that are intended to serve specific purposes in areas of the plume;
* The data from these groupings will then be integrated to form an overall model of the site for the best and most realistic path forward
* The integration of the data from these form an overall strategy for investigation and remediation - because of the logistics (scale and hydrogeologic complexity), installation of VPBs and wells (numbers and locations) will be phased and can be expected to be modified as the program progresses.

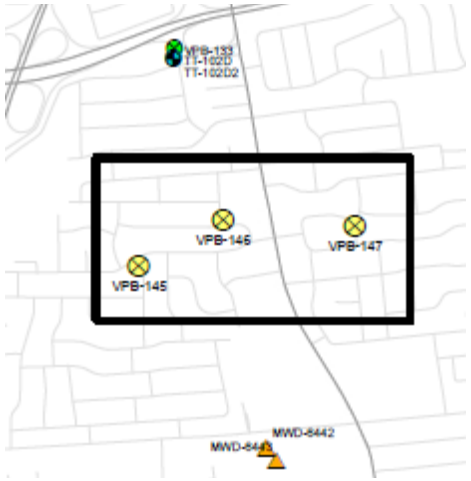
Current Work Group 1 - VPBs 140-144 (ONCT Area)

* Rationale: provide data to evaluate efficacy of ONCT system



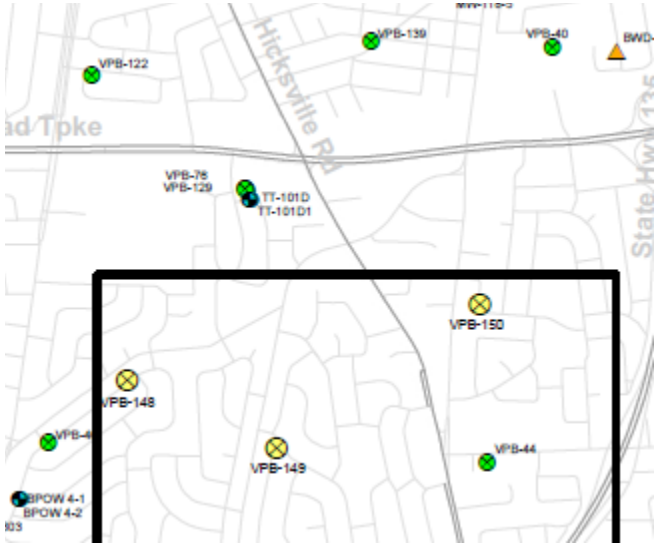
Current Work Group 2 – VPBs 145-147 (MWD Area)

* Rationale: provide optimal outpost locations for MWD wells 6442 and 6443



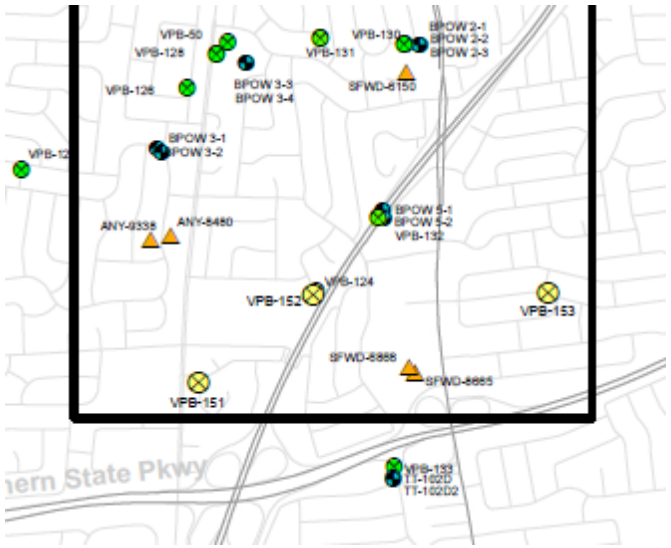
Current Work Group 3 - VPBs 148-150 (South Farmingdale Area)

* Rationale: Better define the southern extent of elevated concentration at 139, in sand intervals at 500-700 ft, and in gravel units between 700-800.



Current Work Group 3 – VPBs 151-153 (South Farmingdale Area)

* Rationale: Delineate the plume at 500-700 ft (same as NYAW sand interval) and deep gravel zone (700-800 ft) above Raritan



Following VPB Installation

* Gamma logging
* TVOC profile/geo log/gamma log integrated and reviewed
* Screen intervals for wells determined typically within 72 hours of VPB borehole completion
* Work package wells sampled synoptically