July 18, 2015

Mr. James Harrington
Director, Remedial Bureau A
NYS Dept. of Environmental Conservation
Division of Environmental Remediation
625 Broadway, 12th Floor
Albany, NY 12233-7012

Re: NYSDEC Standby Engineering Contract D007625-23
WA # 23 Grumman Aerospace- Bethpage Facility
NYSDEC Site #130003
Work Assignment Status Report

Dear Mr. Harrington:

As requested Henningson, Durham & Richardson Architecture and Engineering, P.C. (HDR) has prepared this Work Assignment Status Report, for the Grumman Aerospace- Bethpage Facility, located in Bethpage, Nassau County, NY. The scope of work for this assignment includes assisting the NYSDEC with the research and development of a report consistent with the intent of Chapter 543 of the Laws of 2014, Grumman Plume Review. Current progress on the various tasks is outlined below:

Task 1 - Preliminary Activities

HDR has completed all activities associated with this task including: a file review of historic site information, scoping meeting, and development of the budget and schedule. An initial group of 45 electronic files including historical reports and data were provided on May 21 and June 8, 2015. Additional groundwater quality data for recent vertical profile borings and groundwater sampling was provided on July 15 and 16, 2015. The Work Assignment was approved on August 4, 2015 and this task has been completed.

Task 2 – Remedial Options Evaluation

This task is in progress to evaluate remedial options for the groundwater plume with a focus on those options that will hydraulically contain and stop the continued migration of the plume towards sensitive receptors.

As part of the detailed data analysis a regional CSM has been developed to integrate the site information and data provided to HDR. Since it is beyond the scope of this Work Assignment to reinterpret all of the existing data we have

focused on a better understanding of the horizontal and vertical limits of the plume. In discussions with NYSDEC we are initially adopting a conservative strategy of containing/remediating the contaminated groundwater that exhibits a total chlorinated volatile organic compound (cVOCs) concentration of 5 ug/l. We are currently preparing a figure to illustrate the plume limits based on this strategy and would like to discuss this further. The detailed data analysis/CSM indicates that data gaps exist in defining the horizontal and vertical limits of the plume along the downgradient edge. The reproducibility of some of the vertical data could be considered questionable in the very low concentration zones. Since the vertical extent of the plume tends to drive the amount of pumping required to contain the plume consideration should be given to collecting additional data with depth and establishment of a permanent groundwater monitoring well network.

An initial screening process was conducted to outline potential remedial practices and applicability to this type of deep groundwater plume. Many of the state of the art remedial technologies to remove cVOCs from groundwater were found to fail to pass through the screening process due to the size, depth, and location of this groundwater plume. Although the urban nature of this area presents challenges in implementing a system that covers such a large area it is our opinion that the depth of the plume is the primary characteristic that screens out many of the current remedial technologies.

Our preliminary list of remedial options includes the following:

Alternative 1: No Action- It is recognized this option will not meet the intent of the law but it was retained for comparison purposes. It is also our understanding that a series of institutional controls with natural attenuation are not viewed as a viable option and should not be included in our analysis.

Alternative 2: Hydraulic Control – Groundwater Containment to 5 ug/l, Ex-situ Treatment to NYS Class GA WQS, and Discharge to Massapequa Creek (includes LTM and ICs). Hydraulic containment will be will be accomplished by installing up to eight extraction wells on land along the Southern State Parkway (SSP). This option assumes eight wells pumping at 1 mgd (700 gpm) per well could effectively hydraulically control or capture groundwater containing VOCs greater than the NYS Class GA GWQS. The preliminary pumping rates are derived from analytical capture zone modeling with an assumed aquifer thickness based on the limited data and a conservative value for the hydraulic conductivity. This option would include construction of a centralized treatment facility prior to discharge.

Alternative 3: Hydraulic Control – Groundwater Containment to 5 ug/l, and Discharge to POTW (includes LTM and ICs). Hydraulic containment will be will be accomplished by installing up to five extraction wells at Nassau County

recharge basins near the SSP. Similar analytical capture modeling shows that five wells pumped at 1.75 mgd (1,200 gpm) per well could effectively hydraulically contain or capture groundwater containing VOCs greater than the NYS Class GA GWQS. This option would require waste water treatment plant upgrades to handle the additional flow and likely also require upgrades to the local waste water conveyance system.

Since it is possible to assemble variations on the two main options we would like to discuss them in more detail prior to developing the costs to implement them. Draft figures and additional text are available to support this discussion.

HDR intends to initiate work on the development of the timetable to implement the various options. Our detailed analysis of the data suggests that significant data gaps remain that should be closed prior to design and construction of any remedial system intended to hydraulically contain the plume. Our timetable for implementation will assume that certain required steps in this process can be completed concurrently in order to minimize the length of time required.

The final activities under this task include the preparation of a draft and final Remedy Description Report. Currently the draft sections outlining the site background and remedial screening are in preparation. The detail analysis of the options and a comparison of the options will be completed once the various alternatives have been finalized and discussed with the NYSDEC.

Task 3 – Technical Support & Meeting Attendance

The final task of this assignment includes technical support and meeting attendance as requested. HDR participated in the quarterly status meeting by teleconference and one progress meeting at NYSDEC to discuss our preliminary assessment of the data and potential remedial options.

Please contact me if you have any questions.

Sincerely,

Michael Lehtinen
Project Manager

cc: H. Wilke, NYSDEC
D. St. Germain, HDR
E. Zimmerman, HDR