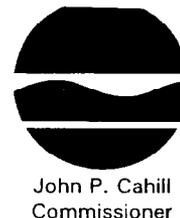


**New York State Department of Environmental Conservation**  
**Division of Environmental Remediation**  
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September 27, 1999

John Cofman  
Lead Engineer  
Northrop Grumman Corporation  
Mail Stop D08-001  
Bethpage, New York 11714

RE: Northrop Grumman and NWIRP Sites-  
Bethpage Facility, Nassau County Site  
No. 1-30-003A and 1-30-003B.

Dear Mr. Cofman:

Arcadis Geraghty and Miller Inc. (Geraghty and Miller), on behalf of the Northrop Grumman Corporation (Grumman), has submitted the revisions to Operable Unit 2 (OU2) Groundwater Feasibility Study (FS) on August 3, 1999. This FS covers groundwater issues for the Grumman and Naval Weapons Industrial Reserve Plant (NWIRP) Facilities. The FS revisions have been reviewed by the New York State Department of Environmental Conservation (NYSDEC), and the New York State Department of Health (NYSDOH). New York State comments regarding area 1 of Plant 3 have been forwarded by separate letter dated September 13, 1999, and have also been enclosed with this letter.

Based on the full review of the revised groundwater feasibility study, most of the comments appear to have been addressed. Several significant improvements have been made to the FS. Among these are the revision of "risk" language to exposure language, removal of most references to public supply well treatment as groundwater remediation, inclusion of a public supply well contingency plan, and inclusion of the Hydraulic and Groundwater Quality Monitoring Plan with the FS. Comments on the revised groundwater FS are included herein.

**1. Section 1.13, Last Paragraph, Available Data:** Recently, Dvirka and Bartilucci Consulting Engineers Inc. (D&B), on behalf of Grumman, submitted the "Delineation Phase II Site Assessment, Northrop Grumman Corporation, Plant 12," dated August, 1999 for New York State review. In addition, D&B has also submitted a work plan entitled "Remediation Plan, Plant 12 Property." Both the Phase II Site Assessment Report and the work plan identify trichloroethane (TCA) as a contaminant of concern for Plant 12 soils.

Geraghty and Miller has not included TCA, in pertinent sections of the text, as a contaminant of concern for the Grumman Site. For example, recent sampling by D&B in the resin waste pit soil

samples reveal current TCA levels above NYSDEC TAGM 4046 clean up objectives. Also, downgradient monitoring wells GM-9, GM-10 and production wells GP-6 and GP-14 reveal concentrations of TCA above MCLs. The monitoring wells upgradient of Plant 12 are non-detect for TCA. Apparently, Geraghty and Miller did not include this information in the evaluation of Grumman sources of contamination to the groundwater. Though by no means to the extent of total volatile organic compound (TVOC) loading from the OXY Hooker Ruco facility, the Plant 12 facility is a source of TCA groundwater contamination.

Therefore, the text in this section and throughout the report will be revised to include the information on Plant 12, TCA and the modeling figures B-4 through B-39 will remove the TVOC line at South Oyster Bay Road to include the groundwater beneath Plant 12. Based on the projected groundwater modeling particle tracking scenarios presented in the FS, it appears that groundwater from under plant 12 should be captured by the currently operating IRM. This would be confirmed by the long term monitoring program.

**2. Section 1, Page 1-14, 1-17 and section 3, Page 3-3:** The statements that "a portion of the TVOC-impacted groundwater that has affected the BWD supply originated on the RUCO Polymer site" is more definitive than the Grumman data allows. These must be changed to read "...*may have* originated on the RUCO Polymer site" or "*It is the opinion of Northrop Grumman that* a portion of the TVOC-impacted..." or similar.

**3. Geraghty and Miller Response to NYSDEC Comments 26, 27 and 31:** While there are presently no exposures to VOCs via drinking water, the risk of exposure remains in the event that current engineering controls fail. If treatment systems fail, VOC contaminants could be distributed through the public water supply. Such failure would be detected within one month's time through the routine monitoring system presently in place. If the monitoring systems were also to fail, the exposure durations could be longer. Consequently, although the historic "completed" exposure pathway has been eliminated ("management" of exposure/risk by wellhead treatment and monitoring), a "potential" exposure pathway will remain while contaminants exist in the source water aquifer.

By decreasing the mass of VOCs passing through some of the BWD supply wells and the time to achieve maximum contaminant levels (MCLs), the GM-38D2 option and OFCT-6 would provide better management of exposure pathways. (Note that this concept is consistent with the logic expressed in the first paragraph of Section 5.3.)

AGM strongly opposes wording that suggests the installation of supplemental off-site treatment systems will provide additional protection of human health. As an alternative, statements in the FS indicating that treatment at GM38D2 or OFCT-6 provide "no additional protection of human health" should be reworded to state that the systems provide "better management of exposure pathways" or "enhanced management of exposure pathways" or "increased management of exposure pathways" or similar.

**4. Section 4.2.2, Page 4-16, Second Paragraph:** Alternative 3 (GM-38D2 Area Treatment) was modeled for 15 years rather than the 30 year period used for other alternatives. If this is true, a rationale should be provided for the difference in time periods.

**5. Section 4.2.3, Section 4.2.4, Section 4.2.7 and Section 4.2.8, Time Until Remedial Action Objectives are attained:** Tables B-4 and B-5 indicates GM38D2 will shorten the time frames necessary to achieve MCLs in some cases. This needs to be reflected in the time frames discussions.

**6. Geraghty and Miller response to Comments 18, 28 and 30:** A significant factor in evaluating various alternatives is the "Time Until Remedial Action Objectives are Attained" (sections in Chapter 4 and summarized in Section 5.2). For this reason it was requested that the *existing* data, and not necessarily additional model runs, be presented in a more illustrative format. Based upon the June 17, 1999 teleconference, it was stated that a record existed from each model run indicating the day (numbered consecutively from t = 0) and the estimated TVOC concentration for each monitoring point. If this is true, it would seem relatively easy to prepare TVOC concentration plots versus time for Bethpage Wells 4-1, 4-2, 5-1, 6-1 and 6-2 for different alternatives. The three alternatives likely to illustrate the greatest difference in these wells would probably be Alternatives 1, 3 and 5.

A review of the groundwater quality monitoring data from the Baseline Monitoring Report Groundwater IRM, the First Quarter 1999 Hydraulic and Groundwater Quality Monitoring Report, and the Second Quarter 1999 Groundwater Monitoring Report indicates that TCE comprises approximately 84 to 100 percent of the TVOC values in the most significantly contaminated monitoring wells near the BWD supply wells. Thus it is reasonable to assume, for comparative purposes and within the limitations of a non-predictive model, that MCL concentrations would be approximated (at the latest) when estimated TVOC concentrations of 5 µg/L are attained.

**7.** Comparing the 5,300 pounds of VOCs removed at GM38D2 should not necessarily be a straight comparison with the 74,000 pounds removed from on-site groundwater (see, for example, page 5-8 and Section 5.7). The 5,300 pounds will be removed from the immediate vicinity of five public water supply wells, not from beneath a large industrial facility.

**8 Section 5.1, First Sentence and Section 5.5, Third Paragraph:** The word "equal" must be removed. The incremental increase of contaminant removal for each of the successive alternatives definitely provides additional protection to human health and that must be reflected in the FS.

**9.** It is the policy of NYSDOH not to rely on wellhead treatment for remediation of significant groundwater contaminant plumes. The statement (near the top of page 5-4) inferring that the Bethpage Water District (BWD) supply wells are part of the offsite contaminant plume containment/remediation strategy should be reworded.

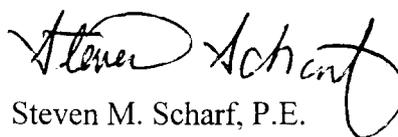
**10.** The statement near the top of page 5-7 that none of the alternatives will achieve ARARs (SCGs) within 30 years is not appropriate. A research of the modeling information in Appendix B suggests that the offsite GM38D2 containment alternative shortens the length of time to achieve MCLs in the

BWD wells. Alternatives which include offsite containment well OFCT-6 might actually prevent the MCLs from being exceeded at BWD Wellfield 5. Thus, if the "time to achieve SCGs" comparison is done on a local (per well) basis as opposed to a site-wide basis, the result is different: ARARs may be achieved in some locations after 30 years under some alternatives. This should be reflected here and in Section 5.2.

**11.** The current project schedule needs to be revised to allow for incorporation of the above listed comments, those of the NYSDEC September 13, 1999 comment letter concerning the air sparging and SVE system of plant 3 and completion of the record of decision (ROD) process.

If you have any questions, please contact Ms. Susan McCormick, or myself at (518)457-3395.

Sincerely,



Steven M. Scharf, P.E.  
Project Engineer  
Bureau of Eastern Remedial Action  
Division of Environmental Remediation

Enclosure

w/enc:cc:

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D. Breyak, Tetrattech  
B. Smith, Nassau County Dept of Health  
J. Molloy, H2M  
W. Gilday, NYSDOH

(Groundwateris2.wpd)