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John P. Cahill
Commissioner

June 7, 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:

Northrop Grumman has submitted the Operable Unit 2 (OU2) Groundwater Feasibility Study (FS) dated February 25, 1999. This FS covers groundwater issues for the Northrop Grumman and Naval Weapons Industrial Reserve Plant (NWIRP) Facilities. The FS report has been reviewed by the New York State Department of Environmental Conservation (NYSDEC), the New York State Department of Health (NYSDOH), the Nassau County Department of Health (NCDH) and H2M, Inc. on behalf of the Bethpage Water District.

The purpose of this FS is to screen remedial alternatives for the groundwater contamination emanating from the Northrop Grumman and the NWIRP Bethpage Facilities. The remedies for the onsite soils have been dealt with either in the Onsite Soils Record of Decision (May 1995), the Resource Conservation and Recovery Act (RCRA) plant closure or the spills management group of NYSDEC for the underground storage tank issues. The OXY Hooker Ruco Site groundwater plume is being covered by the Operable Unit 3 Remedial Investigation and Feasibility Study (RI/FS) under administrative order with the United States Environmental Protection Agency (USEPA).

After a detailed review and taking into consideration the technical review of the local municipalities, this letter summarizes comments on the Northrop Grumman Groundwater FS.

1. Section 1.4.4, Page 1-9, Groundwater Use and Section 1.5.3.2: The South Farmingdale municipal wells N-07377, N-05148 and N-04043 are downgradient of the impending Northrop Grumman offsite plume. The groundwater model in the FS has made a prediction that groundwater contamination will not reach the South Farmingdale municipal wells in a thirty year time frame. However, the exact delineation of the downgradient edge of the Northrop Grumman plume is an estimation and the South Farmingdale wells are less than one mile from the leading edge of the Northrop Grumman contaminant plume.

Therefore, these municipal wells **must** be mentioned here in the groundwater use section as municipal wells that could possibly be affected by the offsite plume in the future.

2. Section 1.4.4, Page 1-10:

a. The text states the average flow for the Bethpage Water District is 2 million gallons per day. According to the District, the actual figure for the average daily pumpage is 3.5 million gallons per day. The text here and throughout the report needs to be corrected. Also, Geraghty and Miller needs to explain whether the actual pumpage alters the modeling results.

b. The statement that pretreated waste waters were discharged to the local POTW should be qualified; on-site disposal probably occurred prior to construction of the local POTW.

3. Section 1.5.3.2, Page 1-17 and throughout the text: The HN-24 area remedy will be modified to be the Plant 3 source area removal contingency plan. This will be included as a remedial process option in the FS with vertical profiling, monitoring well sampling and monitoring well installation, as necessary, with a treatment contingency for source area(s) identified below the water table (see also comment 16).

4. Page 1-17, Page 3-11, Page 5-3 and B-6: The statement "there is no risk to water supply users" needs to changed to say " there are no current exposures to VOCs, no future exposures are expected and/or anticipated."

5. Page 1-20 First Paragraph: A typographical error, GM-35D2 should read GM-38D2.

6. Section 1.5.3.2, Page 1-20, Last Paragraph: The large reduction in total volatile organic compounds (VOCs) to the onsite containment wells after 30 years of simulated remedial pumpage relies on the Northrop Grumman assumption that there are no dense non-aqueous phase liquid (DNAPL) sources on either the Northrop Grumman and/or the Navy NWIRP facility. The text must state this here and throughout the FS report wherever the 30 year simulated contaminant reduction is discussed.

7. Page 1-24 First Paragraph: Change the first sentence to read " BWD Well 4, 5 and 6 will continue to be impacted by TVOC contaminated groundwater."

8. Section 1.5.4, Conclusion: The first alternative of no further action must be evaluated as a requirement under the National Contingency Plan (NCP). However, the NYSDEC will select the remedy through the detailed analysis of the Proposed Remedial Action Plan (PRAP). Therefore, the NYSDEC is **requiring** Northrop Grumman to remove this conclusion section from the Groundwater Feasibility Study.

9. Section 2.2.2, Pathways of Exposure: Sometime in the future and within the CERCLA 30 year time frame, the South Farmingdale well fields may become affected with the offsite migration of the

Northrop Grumman plume. Therefore, the South Farmingdale municipal wells N-07377, N-05148 and N-04043 **must** be mentioned here as municipal wells that could be affected by the offsite plume in the future.

10. Section 2.4.4.4, Page 2-15, In-well Air Sparging: This technology **should not** be eliminated from further consideration. Even if it is not further screened in this FS for any of the compiled remedial alternatives, this requisite remedial technology can be evaluated during the design phase to replace and/or enhance a standard pump and treat scenario. Therefore, this technology will be retained for current and future consideration as a viable process option.

11. Section 2.4.4.8, In-Situ Treatment: In-Situ well stripping needs to be included as a viable technology that has been retained for further consideration as a requisite and/or comparable remedial technology.

12. Section 3-1, Alternatives 2, 4, 6 and 8: HN-24 area treatment needs to be modified to be called Plant 3 area treatment contingency.

13. Alternatives 1 through 8 will be modified as follows:

a. Treatment of off-site public supply wells must be modified to include a well head treatment contingency for any municipal well in the future that may become impacted by the offsite migration of the Northrop Grumman and NWIRP groundwater site related contaminants.

b. Groundwater monitoring will be modified to include plume tracking.

c. Outpost wells will be installed for any municipal well identified by the groundwater monitoring and plume tracking to be at risk from Northrop Grumman groundwater contamination.

14. Page 3-7, Second Paragraph: It is the Policy of the NYSDOH not to rely on the municipal wells for remediation of contaminant plumes. Therefore, All discussion of the Bethpage Water District wells being a limited offsite pump and treat remedy will be removed from here **and throughout the text.**

15. Page 3-8, First paragraph: Statements in the FS that additional municipal wells, such as the South Farmingdale municipal wells, located near Merritt Road and Boundary Avenue, will not be affected is a projection based on groundwater modeling only. Page 5 of Appendix B clearly states that the model was not used to predict whether downgradient municipal wells would be affected by the offsite migration of the Northrop Grumman contaminant plume.

It must be stated that a long term monitoring program with plume tracking and a wellhead treatment contingency will be put into effect upon the execution of the Record of Decision for the Northrop Grumman OU2 Groundwater FS.

16. Section 3.2.2, page 3- 10 and subsequent sections, HN-24 Area In-situ treatment: Recent

sampling of the HN-24I well has shown a dramatic decrease in the HN-24 concentrations of tetrachloroethylene (Cofman to Scharf correspondence, 5/24/99). The original concentration was 58 mg/l. However, the groundwater flow direction in the Navy RI/FS for December 1991, prepared by Halliburton NUS, (see attachment 1, figure 3-6) shows groundwater moving in the intermediate zone in a west, southwest direction. Over the last five years, all the pumping from production wells in the area of HN 24 has stopped, groundwater has returned to its natural southerly flow direction. It appears that the source area of HN-24-I is to the east, between HN-24 and HN-29.

Therefore, Northrop Grumman needs to include a treatment contingency in this FS based on the analytical results of vertical profiles, groundwater sampling and/or additional monitoring well installation.

17. Section 3.2, Alternatives 3,4,7 and 8: The GM-38D2 hotspot is approximately 1 mile upgradient from the South Farmingdale municipal wells located at Merrits Road and Boundary Avenue. The South Farmindale municipal wells are at a potential future risk from the Northrop Grumman plume. That must be stated here.

18. Section 4.2: If possible, a table to Appendix B should be added that shows the day when the MCL concentrations were achieved in the ONCT wells, the OFCT wells, the GM-38 D2 wells and the BWD wells.

19. Page 4-5, Section 4.2.1, Protection of Human Health and Environment: Some time in the future and within the CERCLA 30 year time frame, the South Farmingdale well fields may become affected with the offsite migration of the Northrop Grumman plume.

20. Page 4-7, Section 4.2.1, Long Term Effectiveness and Permenance: "There is no risk" needs to be changed to " there should be no risk."

21. Page 4-8, Section 4.2.1, Adequacy and Reliability of the Remedy and Further Sections: There is no documentation that the ONCT and GP-1 containment system is fully containing the onsite plume. It must be stated here and throughout the FS text that this will have to be demonstrated by the operation and maintenance and long term monitoring of the ONCT system. There is some possiblity that an additional extraction well(s) may ultimately be necessary to fully contain the offsite migration of Northrop Grummman related contaminants.

22. Page 4-9, Section 4.2.1, Alternative 1, Cost: The ONCT and GP-1 site remedy was installed as an IRM. Therefore, only costs from the implementation of the ROD forward shall be included in the FS.

23. Page 4-10, Section 4.2.2:

a. The HN-24 area treatment will be modified to be entitled "Plant 3 source area treatment continency remedy."

b. The Plant 3 source area contingency plan does provide some additional protection of human health by potentially decreasing the impacts on the IRM and potential IRM failure.

24. Page 4-12, Section 4.2.2, Time: The purpose of HN-24 area remediation is much more than the CERCLA 30 year time frame of aquifer restoration. It potentially removes a source area of dense non-aqueous phase liquid (DNAPL) on the Navy property and prevents concentrations in the ONCT system from reaching levels that may require additional treatment. Also, if DNAPL is present on the Navy property, the ONCT system will, for the foreseable future, never go off-line. This needs to be stated here and throughout the Groundwater FS report wherever time frames are discussed for HN-24 remediation ("plant 3 area treatment contingency").

25. Section 4.2, Alternatives 1, 2, 3, 4, 5, 6& 7, Long term Effectiveness and Permenance, Magnitude of residual Risk: All the detailed analyses of these alternatives state there is no risk to human health due to residual contamination. All these sections must state this there is no "anticipated" risk to human health.

26. Section 4.2 and Section 5.1 Alternatives 2, 3, 4, 6, 7 and 8, Protection of Human Health:

a. By decreasing the mass of VOCs passing through the Bethpage supply wells and the time frame to achieve maximum contaminant levels (MCLs), the GM 38D2 option would provide additional protection of human health. This must be stated in the FS.

b. HN-24 provides additional protection to human health by providing additional protection against marginal impacts in the event that the treatment systems of Alternative 1 fail and/or to prevent the ONCT system from overloading.

27. Sections 4.2 and 5.1, Alternatives 5, 6, 7, and 8: These alternatives would provide some additional protection of Human health for the reasons of the previous comment and the fact that OFCT 6 is upgradient of BWD-5. This needs to be stated in the FS.

28. Section 4.2, and Section 5.2, Alternatives 1, 2, 3, 4, 5, 6, 7 and 8, Time Until Remedial Action Objectives are Obtained and Appendix B: Table B-6 should be added that shows when MCL concentrations are achieved by the ONCT wells, the OFCT wells, GP-1 and the BWD wells. This would be useful information for the time until remedial objectives have been obtained discussions.

29. Section 4.2.2, Page 4-16, Second Paragraph: The rationale for limiting the GM-38 D2 remedial process option to 15 years, instead of 30 years used for the ONCT options, should be explained.

30. 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.

31. 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 relected in the FS.

32. Section 6, Recommended Remedial Alternative: The NYSDEC will recommend a remedial alternative in the proposed remedial action plan. Therefore, Northrop Grumman will remove this section from the RI/FS report.

33. Table 1.1: According to the Bethpage Water District (BWD), the BWD pumps about about 3.5 million gallons a day. Northrop Grumman needs to explain if this difference will cause any difference in the modelling and or location of extraction wells for remedial alternatives.

34. Table 2-2: This table should be entitled " State Standards, Criteria and Guidance."

35. Table 2-3: The NYS standard for thallium, 2 ug/l, should be included in Table 2-3.

36. Table 2-5, In-Situ Treatment, In-well Air Sparging: In-well air sparging needs to be retained for further evaluation. As a requisite remedial technology, in-well air sparging may need to be implemented during the design phase.

37. Figure 3-1and Figure B-2: This figure should show the approximate location of the municipal wells located in the area of these figures.

38. Figures B-3 through B-9: The top and bottom depths for each layer need to be included in the respective figures B-3 through B-37.

39. Appendix B:

a. Page B-7, Alternative 2: The removal of contaminant sources by the Plant 3 area source removal will reduce the loading to the ONCT system and prevent unacceptable levels from reaching the ONCT system. That must be stated along with the 30 year modeled results in paragraph 3.

b. Page B-8, Alternative 3: The GM 38D2 remedy will prevent the overload of the BWD municipal wells in addition to encouraging BWD to continue operating Well 5-1. This must be stated here along with the results of the 30 year modeling.

c. Page B-9, Alternative 4: See comment a and b above.

d. Page B-10, Alternative 6: See comment a above.

e. Page B-11, Alternative 8: See comments a and b above.

f. Page B-13 and B-14: The results section must incorporate comments a through e above.

g. Page B-14: See comment 1 about the South Farmingdale Water District wells.

39. Figure B-2: This figure needs to be revised to show the locations of the BWD wells and the offsite monitoring wells.

40: Appendix B, Figures B-10 through B-37: The layer depths need to be added on each legend.

41. Appendix E, Section E-1:

a. It must be clarified in the text that the volatilization process of natural attenuation applies only where significant VOC contamination, such as floating product, exists at the water table surface and usually grossly contaminated source areas, but not dissolved phase VOC groundwater plume that is relatively diluted and is deeper in the water table.

b. Any volatilization of VOC mass must be carefully monitored and controlled to ensure that fugitive soil vapors do not adversely affect indoor air quality in occupied structures.

The current project schedule calls for The NYSDEC to submit comments to Northrop Grumman on May 10, 1999. A four week delay has been incurred for several reasons. A meeting is scheduled for this Thursday, June 10, 1999 at the NYSDEC office in Albany to review comments. Hopefully, turn around time can be reduced for Northrop Grumman to address NYSDEC comments.

If you have any questions, please contact Ms. Susan D. 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:

M. Wolfert, Geraghty and Miller
C. Sangiovani, Geraghty and Miller
J. Colter, NAVY
D. Breyak, Tetratech
B. Smith, Nassau County Dept of Health
J. Molloy, H2M
W. Gilday, NYSDOH

(Groundwaterfs.wpd)

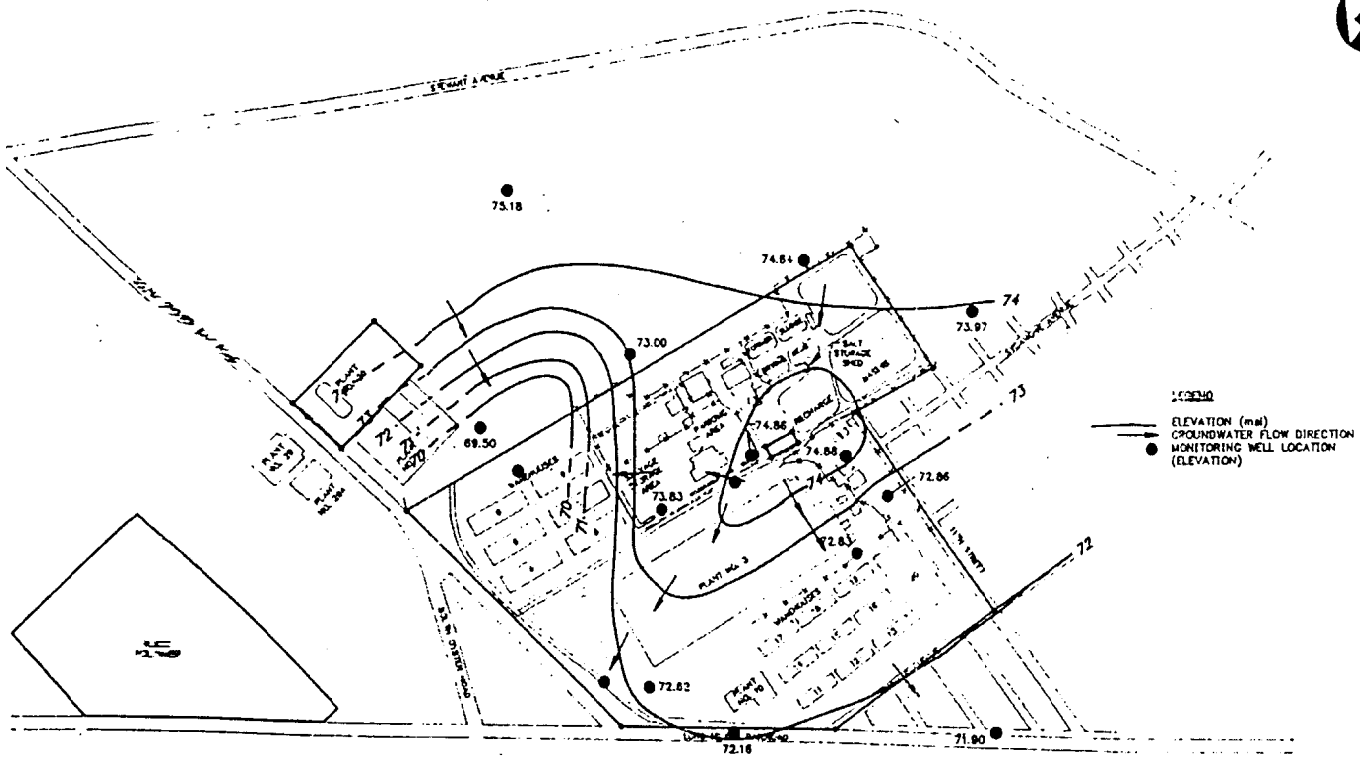

FIGURE 3-6

WAGOTHY AQUIFER (INTERMEDIATE WELLS) DECEMBER 18, 1991
REMEDIAL INVESTIGATION
NWIRP, BETHPAGE, NY

0 500 1000
SCALE IN FEET

HALLIBURTON NUS
Environmental Corporation