UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION II

IN THE MATTER OF THE HOOKER CHEMICAL/RUCO POLYMER SUPERFUND SITE Occidental Chemical Corp., Ruco Polymer Corp., Respondents. Proceeding Under Section 106(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (42 U.S.C. § 9606(a)).	U.S. EPA INDEX NO. CERCLA-02-2001-2018

ADMINISTRATIVE ORDER
FOR REMEDIAL DESIGN AND REMEDIAL ACTION

TABLE OF CONTENTS

ADMINISTRATIVE ORDER
FOR REMEDIAL DESIGN AND REMEDIAL ACTION

I. INTRODUCTION AND JURISDICTION

1. This Order directs Occidental Chemical Corporation and Ruco Polymer Corporation, (hereinafter referred to as "Respondents") to perform the remedial design and implement the remedy described in the September 29, 2000 Record of Decision ("ROD") issued by the United States Environmental Protection Agency ("EPA") for the Hooker Chemical/Ruco Polymer Superfund Site (the "Site"). The Site is located in Hicksville, Nassau County, New York. This Order is issued to Respondents by EPA under the authority vested in the President of the United States by Section 106(a) of the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"), 42 U.S.C. § 9606(a). This authority was delegated to the Administrator of EPA on January 23, 1987, by Executive Order 12580 (52 Fed. Reg. 2926, January 29, 1987), and was further delegated to EPA Regional Administrators on September 13, 1987 by EPA Delegation No. 14-14-B.

II. FINDINGS OF FACT

2. The Site is located in Hicksville, Town of Oyster Bay, Nassau County, New York, approximately 25 miles east of New York City. See Site Map attached hereto as Figure 1. The Site includes an active chemical manufacturing facility ("Facility") which is located on a 14-acre tract of land within an Industrial Park. The Facility, which is currently owned and operated by Ruco Polymer Corporation ("Ruco Polymer"), contains six buildings which are used for the manufacture and storage of chemical products (Plants 1,2,3, the Pilot Plant, a warehouse, and an administration building). See Facility Map attached hereto as Figure 2. The remainder of the complex contains parking areas, chemical storage tanks, four recharge basins (sumps) and small ancillary buildings.

3. A residential area is situated directly west of the Site. The water table is approximately 50 feet below the ground surface. In the area surrounding the Site, water is supplied by several water districts. There are six public supply wells within a 1-mile radius of the Site. There are no significant surface water bodies at or in the vicinity of the Site.

4. The Site was used for industrial purposes, including latex production, beginning in 1945. At this time, two companies operated at the Facility, the Insular Chemical Company and the Rubber Corporation of America. In 1956, a polyvinyl chloride ("PVC") plant was built and was initially operated by the Insular Chemical Corporation. The two companies eventually merged into the Rubber Corporation of America. In 1965, the company was purchased by the Hooker Chemical Company ("Hooker") and

was known and operated as the Ruco Division. Hooker later changed its name to the Occidental Chemical Corporation ("OCC").

5. In March 1982, the employees of the Ruco Division purchased, inter alia, the manufacturing facilities at the Site, and surrounding property. The operation became known as Ruco Polymer. In 1998, Sybron Chemicals, Inc. purchased Ruco Polymer. The Facility currently employs approximately 100 personnel and manufactures polyester, polyols and powder coating resins.

6. During Site operations between 1956 and 1975, industrial wastewaters containing such substances as vinyl chloride, trichloroethylene ("TCE"), barium and cadmium were disposed of into the soils through a number of recharge basins, resulting in groundwater contamination underlying and downgradient from the Facility and soil contamination at the Facility. In addition, drums containing chemicals were also stored on-Site, where occasional spills would occur.

7. From 1946 to 1978, the pilot plant at the Site utilized a heat transfer fluid called Therminol, which contained polychlorinated biphenyls ("PCBs"), which are hazardous substances as defined in Section 101(14) of CERCLA, 42 U.S.C. §9601(14). PCBs have been released into the soils adjacent to the pilot plant and within the Site. Some of the contaminated soil spread to surrounding areas by surface water run-off and truck traffic.

8. OCC was an owner and operator of the Facility at the time of the disposal of hazardous substances at the Site. OCC is a corporation organized and existing under the laws of the State of Delaware.

9. Ruco Polymer is the current owner and operator of the Facility. Ruco Polymer is a corporation organized and existing under the laws of the State of New York.

10. The Site is included on the National Priorities List ("NPL"). The NPL, codified at 40 CFR Part 300, Appendix B, has been promulgated pursuant to Section 105(a)(8)(B) of CERCLA, 42 U.S.C. §9605(a)(8)(B).

11. On July 20, 1987, EPA sent special notice letters to Respondents pursuant to Section 122(e) of CERCLA, notifying them of their potential liability, and inviting them to agree to perform a Remedial Investigation and Feasibility Study ("RI/FS") at the Site. OCC agreed to perform the RI/FS, pursuant to an Administrative Order on Consent ("AOC") (Index No. II CERCLA-80216) which was issued by EPA on September 21, 1988.

12. Following commencement of the RI in 1989, EPA determined that the remediation of the Site should be accomplished by dividing the Site into two operable

units. The first operable unit ("OU1") would address the soil and groundwater at and beneath the Facility that were contaminated with volatile organic compounds ("VOCs"), semi-volatile organic compounds ("SVOCs") and tentatively identified compounds ("TICs"). The second operable unit ("OU2") focused on the PCB-contaminated soils surrounding the Pilot Plant at the Site.

13. On September 28, 1990, EPA issued a Record of Decision ("ROD") for OU2 which described the remedy selected to remediate the PCB-contaminated soils surrounding the Pilot Plant at the Site. The major components of the selected remedy included: 1) the excavation of PCB-contaminated soils; 2) the disposal of those soils off-Site; 3) the backfilling of the excavated areas with clean soil; and paving with asphalt as appropriate.

14. On June 27, 1991, EPA issued a Unilateral Administrative Order ("UAO") (Index No. II-CERCLA-10216) directing the Respondents to perform the remedial design ("RD") and remedial action ("RA") for the remedy selected in the OU2 ROD.

15. On January 28, 1994, EPA issued a ROD for OU1 which describes the remedy selected to remediate the contaminated soils and groundwater at the Site. The major components of the selected remedy included: 1) the pumping and treating of contaminated groundwater in the vicinity of the Facility (as a source control measure); 2) the flushing of deeper soil contaminants; and 3) the excavation of shallow contaminated soils. The selected remedy also includes additional TIC analysis, the performance of treatability studies, monitoring of the groundwater extraction and treatment systems, and the implementation of institutional controls.

16. On June 30, 1994, EPA issued Administrative Order No. II-CERCLA-94-0210, directing the Respondents to perform the RD and RA for the remedy selected in the OU1 ROD.

17. In April 1994, EPA directed OCC, pursuant to the 1988 RI/FS AOC, to initiate a program to investigate groundwater conditions beyond the Facility which involved collecting additional groundwater data around and primarily west of the Facility. The activities were described in the document entitled "Work Plan for Groundwater Investigations Beyond the Hooker/Ruco Facility, August 1994" and in a subsequent Addendum, dated September 1995. This groundwater contamination along with the contaminated groundwater beneath the Facility was later designated as operable unit three ("OU3") at the Site.

18. The groundwater contamination associated with the Facility has commingled with groundwater contamination from two adjacent NYSDEC hazardous waste sites (the Northrop Grumman Aerospace Corporation ("Northrop") and Naval Weapons Industrial Reserve Plant ("NWIRP") sites). Based on the available data, the Northrop, NWIRP and Hooker/Ruco Facilities are sources of TCE, perchloroethylene ("PCE"), vinyl

chloride, SVOCs and inorganics. The main source of vinyl chloride, however, is attributed to historic wastewater discharges from the Ruco Facility. In 1995, EPA and NYSDEC agreed to proceed with a coordinated effort to evaluate and develop remedial alternatives to address the commingled plume.

19. Northrop has been identified as a potentially responsible party ("PRP") for the Northrop site and the National Division Naval Facilities Engineering Command (the U.S. Navy) as a PRP for the NWIRP site (see Figure 1). Northrop has signed a Consent Order and the U.S. Navy has signed a Memorandum of Understanding for their respective facilities with NYSDEC for the performance of an RI/FS. The RIs for the Northrop and NWIRP sites were completed in September 1994 and October 1993, respectively. Based on the findings of these reports, Northrop and the U.S. Navy implemented two groundwater interim remedial measures ("IRMs"). One measure provides for VOC removal and treatment at the Bethpage Water District wells downgradient of the three sites (Hooker/Ruco, Northrop and NWIRP). The second measure consists of pumping and treatment of groundwater from four wells within the VOC plume and includes a long-term groundwater monitoring program.

20. In November 1998, EPA directed OCC, pursuant to the 1988 RI/FS AOC, to prepare an FS which addressed the vinyl chloride subplume within the regional groundwater plume. NYSDEC directed Northrop and NWIRP to prepare an FS to address the remainder of the regional VOC groundwater plume.

21. The RI/FS reports for OU3 at the Site were approved in July of 2000. EPA's Proposed Plan, dated July 28, 2000, clarified the scope of the two ongoing operable units (OU1 and OU3) at the Site. The scope of OU1 was modified to address only the contaminated soils at the Hooker/Ruco Facility as the State's IRM and EPA's proposed remedy together would obviate the need to perform any additional groundwater action selected in the OU1 ROD. The downgradient commingled contaminated groundwater plume beyond the Hooker/Ruco Facility and the contaminated groundwater beneath the Hooker/Ruco Facility which was previously included under OU1, will be addressed under OU3.

22. EPA solicited public comments on the Proposed Plan for OU3. Subsequently, on September 29, 2000, EPA issued a ROD for OU3 for the Site. The major components of the selected remedy include: 1) the use of biosparging technology in an in-situ application to enhance the vinyl chloride degradation; 2) the installation of vertical injection wells in the area of the vinyl chloride subplume and the forcing of various additives (air/oxygen, nutrients) into the formation; 3) the use, if necessary, of a supplemental aerobic bioremediation technology following the biosparging treatment; and 4) the development of a long-term monitoring program to monitor groundwater quality in the area of the vinyl chloride subplume. The OU3 ROD is attached to this Order as Appendix 1 and is incorporated herein by reference. The OU3 ROD is

supported by an administrative record that contains the documents and information upon which EPA based the selection of the response action.

23. On December 21, 2000, OCC informed EPA that it did not intend to negotiate a consent decree to implement the remedy called for by the OU3 ROD.

24. Actual or threatened releases of hazardous substances at and from the Site, if not addressed by implementing the response actions selected in the OU3 ROD, may present an imminent and substantial endangerment to the public health, welfare or the environment.

III. CONCLUSIONS OF LAW

25. The Site and the Facility each constitute a "facility" as defined in Section 101(9) of CERCLA, 42 U.S.C. § 9601(9).

26. Each Respondent is a "person" as defined in Section 101(21) of CERCLA, 42 U.S.C. § 9601(21).

27. Respondents are liable parties as defined in Section 107(a) of CERCLA, 42 U.S.C. § 9607(a), and are subject to this Order under Section 106(a) of CERCLA, 42 U.S.C. § 9606(a).

28. The substances listed in Paragraphs 6 and 7 are found at the Site and are "hazardous substances" as defined in Section 101(14) of CERCLA, 42 U.S.C. § 9601(14). These hazardous substances have been released at and from the Site into the environment.

29. Releases of hazardous substances are ongoing at the Site and there is a continuing threat of further release of hazardous substances at and from the Site into the environment, as the term "release" is defined at Section 101(22) of CERCLA, 42 U.S.C. § 9601(22). The disposal of hazardous substances at the Facility, the continued leaching of hazardous substances through the soils at the Site, and the continued migration of hazardous substances in the groundwater at the Site, each constitute a "release" as the term is defined in Section 101(22) of CERCLA, 42 U.S.C. § 9601(22).

30. The actions required by this Order are necessary to protect the public health, welfare, and the environment.

IV. NOTICE TO THE STATE

31. Notice of this Order has been given to NYSDEC in accordance with Section 106 of CERCLA, 42 U.S.C. § 9606.

V. DETERMINATION

32. Based on the FINDINGS OF FACT and CONCLUSIONS OF LAW set forth above and the entirety of the administrative record, the Regional Administrator has determined that the release or threatened release of hazardous substances at the Site may present an imminent and substantial endangerment to the public health or welfare or the environment.

VI. ORDER

33. Based on the foregoing, Respondents are hereby ordered to comply with the following provisions, all documents incorporated by reference into this Order, and all schedules and deadlines in this Order, attached to this Order, or incorporated by reference into this Order.

VII. DEFINITIONS

34. Unless otherwise expressly provided herein, terms used in this Order which are defined in CERCLA or in regulations promulgated under CERCLA shall have the meaning assigned to them in CERCLA or its implementing regulations. Whenever terms listed below are used in this Order, or in attachments to or documents incorporated by reference into this Order, the following definitions shall apply:

a. "CERCLA" means the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. § 9601, *et seq*.

b. "Day" means a calendar day unless expressly stated to be a working day. "Working day" means a day other than a Saturday, Sunday, or federal holiday. In computing any period of time under this Order, where the last day would fall on a Saturday, Sunday, or federal holiday, the period shall run until the close of business on the next working day.

c. "EPA" means the United States Environmental Protection Agency and any successor departments or agencies of the United States.

d. "Facility" means the Ruco Polymer chemical manufacturing facility located on New South Road, in Hicksville, Town of Oyster Bay, Nassau County, New York. The Facility includes six buildings which are used for the manufacture and storage of chemical products and surrounding property. See Facility Map attached hereto as Figure 2.

e. "Hazardous substance" shall have the meaning provided in Section 101(14) of CERCLA, 42 U.S.C. § 9601(14).

f. "National Contingency Plan" or "NCP" means the National Oil and Hazardous Substances Pollution Contingency Plan promulgated under Section 105 of CERCLA, 42 U.S.C. § 9605, published at 55 Fed. Reg. 8666 (1990), and codified at 40 C.F.R. Part 300, including any amendments thereto.

g. "NYSDEC" means the New York State Department of Environmental Conservation.

h. "OU3 ROD" mean the Record of Decision issued by EPA on September 29, 2000 for OU3 at the Site, attached hereto as Appendix 1.

i. "Party" or "Parties" means the United States of America and/or Respondents.

j. "Performance Standards" means those cleanup standards, standards of control, and other substantive requirements, criteria or limitations set forth in or referenced in the OU3 ROD, attached hereto as Appendix 1 which is incorporated by reference herein, in the Statement of Work ("SOW"), attached hereto as Appendix 2, or which are otherwise approved by EPA in writing during the course of the Work. Requirements promulgated or modified after the issuance of the ROD may become Performance Standards pursuant to Section 300.430(f)(1)(ii)(B) of the NCP.

k. "Remedial Action" or "RA" means the remedy authorized by the OU3 ROD, as further delineated in this Order and the SOW, and in the various EPA-approved plans referred to below.

l. "Remedial Design" or "RD" means those activities to be undertaken by Respondents to develop the final "Remedial Design Report" or "RD Report", including, but not limited to, the final plans and specifications and other components and requirements for the RA pursuant to the EPA-approved plans referred to below.

m. "Respondents" mean OCC and Ruco Polymer.

n. "Site" means the Hooker Chemical/Ruco Polymer Superfund Site, located in the Town of Hicksville, Nassau County, New York. The Site includes the Ruco Polymer Facility and all areas to which or from which contamination from the Facility has migrated. The location of the Facility and the Site are shown on the map attached hereto as Figure 1.

o. "State" means the State of New York.

p. "Statement of Work" or "SOW" means the Statement of Work attached hereto as Appendix 2.

r. "Waste Material" means (1) any "hazardous substance" under Section 101(14) of CERCLA, 42 U.S.C. § 9601(14); (2) any "pollutant or contaminant" under Section 101(33) of CERCLA, 42 U.S.C. § 9601(33); (3) any "solid waste" under Section 1004(27) of the Resource Conservation and Recovery Act ("RCRA"), 42 U.S.C. § 6903(27); and (4) any mixture containing any of the constituents noted in (1), (2) or (3), above.

s. "Work" means all work and other activities required by and pursuant to this Order, including, but not limited to, implementation of the RA, post-remedial monitoring, and the preparation of the schedules, plans and reports required hereunder to be submitted in connection therewith.

VIII. NOTICE OF INTENT TO COMPLY

35. Respondents shall provide, not later than ten (10) days after the effective date of this Order, written notice to the EPA addressees listed in Paragraph 67 below stating whether they will comply with the terms of this Order. If Respondents do not unequivocally commit to perform the Work as provided by this Order, they shall be deemed to have violated this Order and to have failed or refused to comply with this Order. Respondents' written notice shall describe, using facts that exist on or prior to the effective date of this Order, any "sufficient cause" defenses asserted by Respondents under Sections 106(b) and 107(c)(3) of CERCLA, 42 U.S.C. §§ 9606(b) and 9607(c)(3). The absence of a response by EPA to the notice required by this Paragraph shall not be deemed to be an acceptance of Respondents' assertions.

IX. PARTIES BOUND

36. This Order shall apply to and be binding upon Respondents and their directors, officials, employees, agents, successors and assigns. Respondents are jointly and severally responsible for carrying out all activities required by this Order. No change in the status or control of a Respondent shall alter any of Respondents' responsibilities under this Order.

37. Respondents shall provide a copy of this Order to any prospective owners or successors before a controlling interest in Respondents' assets or property rights is transferred to the prospective owner or successor. Respondents shall provide a copy of this Order to each contractor, subcontractor, laboratory or consultant retained to perform any Work under this Order, within five (5) days after the effective date of this Order or on the date such entity is retained, whichever date occurs later. Respondents shall also provide a copy of this Order to each person representing Respondents with respect to the Site or the Work and shall condition all contracts and subcontracts entered into hereunder upon performance of the Work in conformity with the terms and conditions of this Order. With respect to the activities undertaken pursuant to this Order, each contractor and subcontractor shall be deemed to be related by contract to Respondents within the meaning of Section 107(b)(3) of CERCLA, 42 U.S.C. § 9607(b)(3). Notwithstanding the terms of any contract, Respondents are responsible to the United States for compliance with this Order, for ensuring that their contractors, subcontractors and agents comply with this Order, and for performance of any Work in accordance with this Order.

X. WORK TO BE PERFORMED

38. Respondents shall give EPA fourteen (14) days advance notice of all field activities to be performed pursuant to this Order.

39. a. All of the Work performed by Respondents pursuant to this Order shall be performed under the direction and supervision of a professional engineer licensed in the State of New York (hereinafter, the "Supervising Contractor"), the selection of which shall be subject to approval by EPA. The Supervising Contractor, as well as all other contractors and subcontractors who engage in the "practice of engineering" at the Site on behalf of Respondents, as the "practice of engineering" is defined at Section 7201 of the New York State Education Law, must comply with all applicable New York State legal requirements regarding the practice of professional engineering within the State of New York, including, but not limited to, all applicable requirements of the New York State Education Law and Business Corporation Law.

b. Within ten (10) days of the effective date of this Order, Respondents shall notify EPA in writing of the name, title, and qualifications of the Supervising Contractor proposed to be used in carrying out the Work. If some or all of the functions of directing and supervising the Work are proposed to be performed by Respondents' Project Coordinator, Respondents shall so notify EPA in writing, also within ten (10) days of the effective date of this Order, and shall specify the functions that will be performed by the Project Coordinator and his/her qualifications with respect to the performance of such functions. If at any time Respondents propose to change the Supervising Contractor, Respondents shall notify EPA, in writing, and shall obtain approval from EPA before the new Supervising Contractor performs, directs or supervises any work under this Order.

c. EPA will notify Respondents in writing of its approval or disapproval of a proposed Supervising Contractor. If EPA disapproves of the selection of the Supervising Contractor, Respondents shall submit to EPA a list of contractors (which does not include the contractor previously disapproved by EPA), including the qualifications of each contractor, that would be acceptable to Respondents within thirty (30) days of receipt of EPA's disapproval of the contractor previously selected. EPA will provide written notice of the names of the contractor(s) that it approves. Respondents may select any approved contractor from that list and shall notify EPA of the name of the contractor selected within twenty-one (21) days of EPA's designation of approved contractors.

40. Scope of Work

a. The Work to be performed by Respondents pursuant to this Order shall include, but is not limited to:

i. Pre-remedial design activities associated with the selected remedy, as set forth in the OU3 ROD;

ii. Remedial Design ("RD") of the selected remedy, as set forth in the OU3 ROD;

iii. Remedial Action ("RA") of the selected remedy, as set forth in the OU3 ROD; and

iv. Groundwater monitoring in the area of the vinyl chloride subplume, as set forth in the OU3 ROD.

b. Respondents shall implement the SOW which is attached hereto as Appendix 2 and incorporated herein by reference. The Work to be performed by Respondents pursuant to this Order shall at a minimum achieve the requirements of the

SOW and be performed in a manner consistent with the OU3 ROD, the SOW, and this Order. Nothing in this Order or the plans or other documents required to be submitted pursuant to this Order, or EPA's approval of those plans or other documents, constitutes a warranty or representation of any kind by EPA that compliance with those plans and this Order will achieve the requirements of the OU3 ROD and the SOW, and such compliance shall not foreclose EPA from seeking performance of additional work to achieve the Performance Standards in the SOW or other requirements of the OU3 ROD.

41. Authorization to Proceed. Written approval by EPA of the Supervising Contractor shall constitute EPA's issuance of an authorization to proceed with the pre-RD/RD activities described in the SOW.

42. Certification of Completion of the Remedial Action. If EPA concludes, based on the EPA-approved Final Remedial Action Report submitted pursuant to the SOW and after reasonable opportunity for review and comment by the State, that the remedy has been performed in accordance with this Order and that the Performance Standards have been achieved, EPA will so notify Respondents in writing. EPA's notification shall be based on present knowledge and Respondents' certifications to EPA pursuant to the SOW, and shall not limit EPA's right to perform periodic reviews pursuant to Section 121(c) of CERCLA, 42 U.S.C. § 9621(c), or to take or require any action that in the judgment of EPA is appropriate at the Site, in accordance with Sections 104, 106, and/or 107 of CERCLA, 42 U.S.C. §§ 9604, 9606, and 9607, or any other provision of law.

XI. FAILURE TO ATTAIN PERFORMANCE STANDARDS

43. In the event that EPA determines that additional response activities are necessary to meet applicable Performance Standards, EPA may notify Respondents that additional response actions are necessary.

44. Unless otherwise stated by EPA, within thirty (30) days of receipt of notice from EPA that additional response activities are necessary to meet any applicable Performance Standards, Respondents shall submit for approval by EPA a work plan for the additional response activities. The plan shall conform to the applicable requirements of Sections X, XVII, and XVIII of this Order. Upon approval by EPA, the work plan shall be deemed incorporated into this Order as a requirement of this Order and shall be an enforceable part of this Order. Upon EPA's approval of the work plan pursuant to Section XV, Respondents shall implement the plan for additional response activities in accordance with the provisions and schedule contained therein.

XII. EPA PERIODIC REVIEW

45. Under Section 121(c) of CERCLA, 42 U.S.C. § 9621(c), and any applicable regulations, EPA may review the Site to assure that the Work performed pursuant to this Order adequately protects human health and the environment. Until such time as EPA certifies completion of the Work, Respondents shall conduct the requisite studies, investigations, or other response actions as determined necessary by EPA in order to permit EPA to conduct the review under Section 121(c) of CERCLA, 42 U.S.C. §9621(c). As a result of any review performed under this Paragraph, Respondents may be required to perform additional Work or to modify Work previously performed.

XIII. ADDITIONAL RESPONSE ACTIONS

46. EPA may determine that in addition to the Work identified in this Order and attachments to this Order, additional response activities may be necessary to protect human health and the environment. If EPA determines that additional response activities are necessary, EPA may require Respondents to submit a work plan for additional response activities. EPA also may require Respondents to modify any plan, design, or other deliverable required by this Order, including any approved modifications.

47. Not later than thirty (30) days after receiving EPA's notice that additional response activities are required pursuant to this Section, Respondents shall submit a work plan for the response activities to EPA for review and approval in accordance with Section XV below. Upon approval of the work plan by EPA, Respondents shall implement the work plan according to the standards, specifications, and schedule in the approved work plan. Respondents shall notify EPA of their intent to perform such additional response activities within seven (7) days after receipt of EPA's request for additional response activities.

XIV. ENDANGERMENT AND EMERGENCY RESPONSE

48. In the event of any action or occurrence during the performance of the Work which causes or threatens to cause a release of a hazardous substance or which may present an immediate threat to public health or welfare or the environment, Respondents shall immediately take all appropriate action to prevent, abate, or minimize the threat, and shall immediately notify the Remedial Project Manager ("RPM") or, if the RPM is unavailable, the Chief of the Western New York Remediation Section, New York Remediation Branch of the Emergency and Remedial Response Division, EPA Region II. Respondents shall take such action in consultation with the

RPM and in accordance with all applicable provisions of this Order, including but not limited to the Health and Safety Plan.

49. Nothing in the preceding Paragraph shall be deemed to limit any authority of the United States to take, direct, or order all appropriate action to protect human health and the environment or to prevent, abate, or minimize an actual or threatened release of hazardous substances on, at, or from the Site.

XV. EPA REVIEW OF SUBMISSIONS

50. After review of any deliverable, plan, report or other item which is required to be submitted for review and approval pursuant to this Order, EPA may: (a) approve the submission; (b) approve the submission with modifications; (c) disapprove the submission and direct Respondents to resubmit the document after incorporating EPA's comments; or (d) disapprove the submission and assume responsibility for performing all or any part of the response action. As used in this Order, the terms "approval by EPA," "EPA approval," or a similar term means the action described in subparagraphs (a) or (b) of this Paragraph.

51. In the event of approval or approval with modifications by EPA, Respondents shall proceed to take any action required by the plan, report, or other item, as approved or modified by EPA.

52. Upon receipt of a notice of disapproval or a request for a modification, Respondents shall correct the deficiencies and resubmit the plan, report, or other item for approval within twenty-one (21) days or such other time as may be specified by EPA in its notice of disapproval or request for modification. Notwithstanding the notice of disapproval, or approval with modifications, Respondents shall proceed, at the direction of EPA, to take any action required by any non-deficient portion of the submission.

53. If upon the first resubmission or upon any subsequent resubmission, the plan, report or other item is disapproved by EPA, Respondents shall be deemed to be out of compliance with this Order. In the event that a resubmitted plan, report or other item, or portion thereof, is disapproved by EPA, EPA may again require that Respondents correct the deficiencies, in accordance with the preceding Paragraphs of this Section. In addition, or in the alternative, EPA retains the right to amend or develop the plan, report or other item.

54. All plans, reports, and other submittals required to be submitted to EPA under this Order shall, upon approval by EPA, be deemed to be incorporated in and an enforceable part of this Order. In the event EPA approves a portion of a plan, report, or

other item required to be submitted to EPA under this Order, the approved portion shall be deemed to be incorporated in and an enforceable part of this Order.

XVI. REPORTING REQUIREMENTS

55. a. In addition to any other requirement of this Order, Respondents shall prepare and provide to EPA written monthly progress reports which: (1) describe the actions which have been taken toward achieving compliance with this Order during the previous month; (2) include all results of sampling and tests and all other data received by Respondents during the previous month in the implementation of the Work; (3) describe all actions, data and plans which are projected to be commenced or completed during the next month and provide other information relating to the progress of design and/or construction; (4) include information regarding percentage of completion, all delays encountered or anticipated that may affect the future schedule for completion of the Work and a description of all efforts made to mitigate those delays or anticipated delays. These reports are to be submitted to EPA by the fifteenth day of every month following the effective date of this Order.

b. Upon the occurrence of any event during performance of the Work which, pursuant to Section 103 of CERCLA, 42 U.S.C. §9603, requires reporting to the National Response Center, Respondents shall, within twenty-four (24) hours, orally notify the EPA RPM, or, in the event of the unavailability of the EPA RPM, the Chief of the Western New York Remediation Section, New York Remediation Branch of the Emergency and Remedial Response Division, EPA Region II, in addition to the reporting required by CERCLA Section 103. Within twenty (20) days of the onset of such an event, Respondents shall furnish EPA with a written report setting forth the events which occurred and the measures taken, and to be taken, in response thereto.

c. All reports and other documents submitted by Respondents to EPA (other than the monthly progress reports discussed above) which purport to document Respondents' compliance with the terms of this Order shall be signed by a responsible official of one or more of the Respondents.

d. On request of EPA and subject to any claims of applicable privilege(s), Respondents shall submit to EPA all documents in its possession, custody, or control relating to Respondent's performance of the Work required by this Order.

XVII. QUALITY ASSURANCE, SAMPLING AND DATA ANALYSIS

56. Any Quality Assurance/Quality Control ("QA/QC") plan(s) submitted by Respondents pursuant to this Order shall be completed in accordance with the

following EPA publications: "Test Methods for Evaluating Solid Wastes" ("SW-846") (3rd Ed.), the "Region II CERCLA Quality Assurance Manual" (October 1989), and "EPA Requirements for Quality Assurance Project Plans for Environmental Data Operation" (EPA QA/R-5 QAPP, October 1997), or any revised versions thereof.

57. Respondents shall use QA/QC procedures in accordance with the QA/QC Plan(s) submitted and approved by EPA pursuant to this Order, and shall use standard EPA Chain of Custody procedures, as set forth in the "National Enforcement Investigations Center Policies and Procedures Manual" (November 1984), the "National Enforcement Investigations Center Manual for the Evidence Audit" (September 1981), and Section 1.3 of SW-846, or any amended versions thereof, while conducting all sample collection and analysis activities required pursuant to this Order. To provide quality assurance and maintain quality control, Respondents shall:

a. Ensure that all contracts with laboratories used by Respondents for the analysis of samples taken pursuant to this Order provide for access of EPA personnel and EPA-authorized representatives to assure the accuracy of laboratory results related to the Site;

b. Ensure that the laboratories utilized by Respondents for the analysis of samples taken pursuant to this Order perform all analyses according to accepted EPA methods. Accepted EPA methods consist of those methods which are documented in the "Contract Lab Program Statement of Work for Inorganic Analysis" (Revision No. 11, 1992) and the "Contract Lab Program Statement of Work for Organic Analysis," (Revision 9, 1994), and any amendments thereto (including amendments made during the course of the implementation of this Order);

c. Ensure that all laboratories used by Respondents for analysis of samples taken pursuant to this Order participate in an EPA or EPA-equivalent QA/QC program; and

d. Ensure that the laboratories used by Respondents for the analysis of samples taken pursuant to this Order analyze samples that EPA may submit to those laboratories for purposes of ensuring that the laboratories meet EPA-approved QA/QC requirements.

58. Respondents shall notify EPA not less than fourteen (14) days in advance of any sample collection activity. At the request of EPA, Respondents shall allow split or duplicate samples to be taken by EPA or its authorized representatives, of any samples collected by Respondents with regard to the Site or pursuant to the implementation of this Order. In addition, EPA shall have the right to take any additional samples that EPA deems necessary.

XVIII. COMPLIANCE WITH APPLICABLE LAWS

59. All activities performed by Respondents pursuant to this Order shall be performed in accordance with the requirements of all federal and State laws and regulations. EPA has determined that the activities contemplated by this Order are consistent with the NCP.

60. Except as provided in Section 121(e) of CERCLA and the NCP, no permit shall be required for any portion of the Work conducted entirely on-Site. Where any portion of the Work requires a federal or State permit or approval, Respondents shall submit timely applications and take all other actions necessary to obtain and to comply with all such permits or approvals.

61. This Order is not, and shall not be construed to be, a permit issued pursuant to any federal or State statute or regulation.

62. a. All off-Site transfer, treatment, storage, or disposal of Waste Material by Respondents must be in compliance with the applicable requirements of the Resource Conservation and Recovery Act, ("RCRA") 42 U.S.C. § 6901, et seq., Section 121(d)(3) of CERCLA, 42 U.S.C. § 9621(d)(3), the Toxic Substances Control Act, 15 U.S.C. § 2601, et seq., as well as their implementing regulations, and all other applicable laws, including, but not limited to, 40 CFR Parts 262 and 263 and 6 NYCRR Part 372. Furthermore, Respondents shall provide notice to EPA of any facilities that Respondents propose to use for such off-Site transfer, storage, treatment, or disposal at least five (5) business days prior to the commencement of any such use, and shall obtain approval by EPA's RPM of the use of such facilities. Any and all off-Site disposal activities conducted by Respondents under this Order shall be performed in conformance with the NCP (including Section 300.440 of the NCP, 40 C.F.R. § 300.440) and any amendments thereto.

b. If Waste Material from the Site is to be shipped to a waste management facility outside of New York State, Respondents shall provide prior written notification of such shipment of Waste Material to the appropriate state environmental official in the receiving facility's state (with a copy to the EPA RPM). However, this notification requirement shall not apply to any off-Site shipments when the total volume of all such shipments will not exceed 10 cubic yards. Respondents shall include in the written notification the following information: (i) the name and location of the facility to which the Waste Material is to be shipped; (ii) the type and quantity of the Waste Material to be shipped; (iii) the expected schedule for the shipment of the Waste Material; and (iv) the method of transportation. Respondents shall provide such notification to the receiving facility's state and to EPA in writing as soon as practicable, but in any event at least ten (10) business days prior to the said shipments. Respondents shall notify

the receiving facility's state of major changes in their shipment plan, such as a decision to ship the Waste Material to another facility within the same state.

XIX. REMEDIAL PROJECT MANAGER, NOTIFICATION

63. EPA has designated the following individual as its RPM for the Site:

Syed M. Quadri
Remedial Project Manager
Emergency and Remedial Response Division
U.S. Environmental Protection Agency
290 Broadway, 20th Floor
New York, NY 10007-1866

Telephone: (212) 637-4233; Telefax: (212) 637-4284
E-Mail: quadri.syed@epa.gov

64. EPA has the unreviewable right to change its RPM. If EPA changes its RPM, EPA will inform Respondents in writing of the name, address, and telephone number of the new RPM.

65. The RPM shall have the authority lawfully vested in an RPM and On-Scene Coordinator by the NCP. The RPM shall have authority, consistent with the NCP, to halt any work required by this Order and to take any necessary response action.

66. Within ten (10) days after the effective date of this Order, Respondents shall designate a Project Coordinator and shall submit the name, address, telephone number, and qualifications (see Paragraph 39) of the Project Coordinator to EPA for review and approval. Respondents' Project Coordinator shall be responsible for overseeing Respondents' implementation of this Order. If Respondents wish to change their Project Coordinator, they shall provide written notice to EPA five (5) days prior to changing their Project Coordinator, identifying the name and qualifications of the new Project Coordinator. Respondents' selection of a Project Coordinator shall be subject to EPA approval.

67. All plans, reports, notices and other documents required to be submitted to EPA under this Order shall be directed to the following individuals at the addresses specified below:

Seven (7) copies of all work plans, design documents, and technical reports and one (1) copy of all other required written communications shall be sent to:

Chief, Western New York Remediation Section
Emergency and Remedial Response Division

U.S. Environmental Protection Agency, Region II
290 Broadway, 20th Floor
New York, N.Y. 10007-1866
Attn: Hooker/Ruco Superfund Site Remedial Project Manager

One copy of all required written communications other than work plans, design documents, and technical reports shall also be sent to:

Chief, New York/Caribbean Superfund Branch
Office of Regional Counsel
U.S. Environmental Protection Agency, Region II
290 Broadway, 17th Floor
New York, N.Y. 10007-1866
Attn: Hooker/Ruco Superfund Site Attorney

68. When submitting to EPA any written communication required hereunder, Respondents shall simultaneously submit one (1) copy of that communication (unless the given document is a plan or report, in which case six (6) copies shall be submitted) to:

Director, Division of Environmental Remediation
New York State Department of Environmental Conservation
50 Wolf Road
Albany, N.Y. 12233-7010
Attn: Hooker/Ruco Superfund Site Project Manager

or to such other addressee or addressees at the State as EPA or the State shall specify by notice to Respondent's Project Coordinator.

XX. OVERSIGHT

69. During the implementation of the requirements of this Order, Respondents and their contractors and subcontractors shall be available for such conferences and inspections with EPA as EPA may determine are necessary for EPA to adequately oversee the Work being carried out and/or to be carried out.

70. Respondents and their employees, agents, contractors, representatives and consultants shall cooperate with EPA in its efforts to oversee Respondents' implementation of this Order.

XXI. COMMUNITY RELATIONS

71. Respondents shall cooperate with EPA in providing information regarding the Work to the public. As requested by EPA, Respondents shall participate in the preparation of such information for distribution to the public and in public meetings which may be held or sponsored by EPA to explain activities at or relating to the Site.

XXII. SITE ACCESS, INSTITUTIONAL CONTROLS AND DATA/DOCUMENT AVAILABILITY

72. If the Site, or any other property where access and/or land/water use restrictions are needed to implement this Order, is owned or controlled by a Respondent, said Respondent shall:

a. commencing on the effective date of this Order, provide EPA, NYSDEC, and their representatives, including their contractors, with access at all reasonable times to the Site, or such other property, for the purpose of conducting any activity related to this Order, including the following activities:

i. Monitoring the Work;
ii. Verifying any data or information submitted to EPA;
iii Conducting investigations relating to contamination at or near the Site;
iv. Obtaining samples;
v. Assessing the need for, planning, or implementing additional response actions at or near the Site;
vi. Implementing any Work pursuant to Paragraph 87 of this Order;
vii. Inspecting and copying records, operating logs, contracts, or other documents maintained or generated by Respondents or their agents, consistent with Section XXII (Record Preservation);
viii. Assessing Respondents' compliance with this Order; and
ix. Determining whether the Site or other property is being used in a manner that is prohibited or restricted, or that may need to be prohibited or restricted, by or pursuant to this Order;

b. commencing on the effective date of this Order, refrain from using the Site, or such other property, in any manner that would interfere with or adversely affect the integrity or protectiveness of the remedial measures to be implemented pursuant to this Order;

c. if EPA so requests, execute and record in the Recorder's Office or Registry of Deeds or other appropriate land records office of Nassau County, State of New York,

an easement, running with the land, that (i) grants a right of access for the purpose of conducting any activity related to this Order, including, but not limited to, those activities listed in Paragraph 72.a. of this Order, and (ii) grants the right to enforce any land/water use restrictions mandated under Paragraph 72.b. of this Order, or other restrictions that EPA determines are necessary to implement, ensure non-interference with, or ensure the protectiveness of the remedial measures to be performed pursuant to this Order. Said Respondent shall grant the access rights and the rights to enforce the land/water use restrictions to one or more of the following persons, as determined by EPA: (i) EPA and its representatives, (ii) the State and its representatives, (iii) the other Respondent, and/or (iv) other appropriate grantees. Said Respondent shall, within forty-five (45) days of EPA's request, submit to EPA for review and approval with respect to such property:

i. A draft easement that is enforceable under the laws of the State of New York, free and clear of all prior liens and encumbrances (except as approved by EPA), and acceptable under the Attorney General's Title Regulations promulgated pursuant to 40 U.S.C. § 255; and

ii. a current title commitment or report prepared in accordance with the U.S. Department of Justice "Standards for the Preparation of Title Evidence in Land Acquisitions by the United States" (1970) (the "Standards").

Within fifteen (15) days of EPA's approval and acceptance of the easement, said Respondent shall update the title search and, if it is determined that nothing has occurred since the effective date of the commitment or report to affect the title adversely, record the easement with the Recorder's Office or Registry of Deeds or other appropriate office of Nassau County. Within thirty (30) days of recording the easement, said Respondent shall provide EPA with final title evidence acceptable under the Standards, and a certified copy of the original recorded easement showing the clerk's recording stamps.

73. If the Site, or any other property where access and/or land/water use restrictions are needed to implement this Order, is owned or controlled by persons other than Respondents, Respondents shall use best efforts to secure from such persons:

a. an agreement to provide access thereto for Respondents, as well as for EPA, the State, and their respective representatives (including contractors), for the purpose of conducting any activity related to this Order, including those activities listed in Paragraph 72.a. of this Order;

b. an agreement, enforceable by Respondents and EPA, to abide by the obligations and restrictions established by Paragraph 72.b. of this Order, or that are

otherwise necessary to implement, ensure non-interference with, or ensure the protectiveness of the remedial measures to be performed pursuant to this Order; and

c. if EPA so requests, the execution and recordation in the Recorder's Office or Registry of Deeds or other appropriate land records office of Nassau County, State of New York, of an easement, running with the land, that (i) grants a right of access for the purpose of conducting any activity related to this Order, including those activities listed in Paragraph 72.a. of this Order, and (ii) grants the right to enforce the land/water use restrictions listed in Paragraph 72.b. of this Order, or other restrictions that EPA determines are necessary to implement, ensure non-interference with, or ensure the protectiveness of the remedial measures to be performed pursuant to this Order. The access rights and/or rights to enforce land/water use restrictions shall be granted to one or more of the following persons, as determined by EPA: (i) EPA and its representatives, (ii) the State and its representatives, (iii) the Respondents and their representatives, and/or (iv) other appropriate grantees. Within forty-five (45) days of the request by EPA, Respondents shall submit to EPA for review and approval with respect to such property:

i. A draft easement that is enforceable under the laws of the State of New York, free and clear of all prior liens and encumbrances (except as approved by EPA), and acceptable under the Attorney General's Title Regulations promulgated pursuant to 40 U.S.C. § 255; and

ii. a current title commitment or report prepared in accordance with the Standards.

Within fifteen (15) days of EPA's approval and acceptance of the easement, Respondents shall update the title search and, if it is determined that nothing has occurred since the effective date of the commitment or report to affect the title adversely, the easement shall be recorded with the Recorder's Office or Registry of Deeds or other appropriate office of Nassau County. Within thirty (30) days of the recording of the easement, Respondents shall provide EPA with final title evidence acceptable under the Standards, and a certified copy of the original recorded easement showing the clerk's recording stamps.

74. For purposes of Paragraph 73 of this Order, "best efforts" includes the payment of reasonable sums of money in consideration of access, access easements, land/water use restrictions, and/or restrictive easements. If any access or land/water use restriction agreements required by Paragraphs 73.a. or b. of this Order are not obtained within forty-five (45) days of the effective date of this Order, or any access easements or restrictive easements required by Paragraph 73.c. of this Order are not submitted to EPA in draft form within forty-five (45) days of the date of EPA's request therefor, Respondents shall promptly notify EPA in writing, and shall include in that

notification a summary of the steps that Respondents have taken to attempt to comply with Paragraph 73 of this Order. EPA may, as it deems appropriate, assist Respondents in obtaining access or land/water use restrictions, either in the form of contractual agreements or in the form of easements running with the land.

75. If EPA determines that land and/or water use restrictions in the form of state or local laws, regulations or ordinances are needed to implement the remedy selected in the OU3 ROD, ensure the overall integrity and protectiveness thereof, or ensure non-interference therewith, Respondents shall cooperate with EPA's efforts to secure such governmental controls.

76. Notwithstanding any provision of this Order, EPA retains all of its access authorities and rights, including enforcement authorities related thereto, under CERCLA, RCRA and any other applicable statute or regulation.

77. Respondents may assert a claim of business confidentiality covering part or all of the information submitted to EPA pursuant to the terms of this Order under 40 C.F.R. § 2.203, provided such claim is not inconsistent with Section 104(e)(7) of CERCLA, 42 U.S.C. § 9604(e)(7), or other provisions of law. This claim shall be asserted in the manner described by 40 C.F.R. § 2.203(b) and substantiated by Respondents at the time the claim is made. Information determined to be confidential by EPA will be given the protection specified in 40 C.F.R. Part 2. If no such claim accompanies the information when it is submitted to EPA, it may be made available to the public by EPA or the State without further notice to Respondents. Respondents shall not assert confidentiality claims with respect to any data related to Site conditions, sampling, or monitoring.

78. Respondents shall maintain for the period during which this Order is in effect an index of documents that Respondents claim contain confidential business information. The index shall contain, for each document, the date, author, addressee, and subject of the document. Upon written request from EPA, Respondents shall submit a copy of the index to EPA.

XXIII. RECORD PRESERVATION

79. Respondents shall provide to EPA upon request, copies of all documents and information within its possession and/or control or that of its contractors or agents relating to activities at the Site or to the implementation of this Order, including but not limited to, sampling, analysis, chain of custody records, manifests, trucking logs, receipts, reports, sample traffic routing, correspondence, or other documents or information related to the Work. Respondents shall also make available to EPA, for purposes of investigation, information gathering, or testimony, its employees, agents, or

representatives with knowledge of relevant facts concerning the performance of the Work.

80. Until ten (10) years after EPA provides notice pursuant to Paragraph 97, below, of the satisfactory completion of the Work, Respondents shall preserve and retain, and shall instruct its contractors, subcontractors, and anyone else acting on Respondents' behalf with respect to the Site to preserve and retain, all records, documents, and information of whatever kind, nature, or description now in their possession or control or which come into their possession or control that relates in any manner to the Site or the Work conducted at the Site. At the conclusion of this document retention period, Respondents shall notify EPA at least ninety (90) days prior to the destruction of any such records, documents or information, and upon request by EPA, Respondents shall deliver all such records, documents and information to EPA.

XXIV. DELAY IN PERFORMANCE

81. Any delay in performance of this Order that, in EPA's judgment, is not properly justified by Respondents under the terms of this Section shall be considered a violation of this Order. Any delay in performance of this Order shall not affect Respondent's obligations to perform all obligations fully under the terms and conditions of this Order.

82. Respondents shall notify EPA of any delay or anticipated delay in performing any requirement of this Order. Such notification shall be made by telephone to EPA's RPM within forty-eight (48) hours after Respondents first knew or should have known that a delay might occur. Respondents shall adopt all reasonable measures to avoid or minimize any such delay. Within five (5) business days after notifying EPA by telephone, Respondents shall provide written notification fully describing the nature of the delay, any justification for the delay, any reason why Respondents should not be held strictly accountable for failing to comply with any relevant requirements of this Order, the measures planned and taken to minimize the delay, and a schedule for implementing the measures that have been or will be taken to mitigate the effect of the delay. Increased costs or expenses associated with implementation of the activities called for in this Order is not a justification for any delay in performance.

XXV. ASSURANCE OF ABILITY TO COMPLETE WORK

83. Respondents shall demonstrate their ability to complete or fund the Work and to pay all claims that arise from the performance of such Work, by obtaining and presenting to EPA, within ninety (90) days of the effective date of this Order, one of the following: (1) a performance bond; (2) a letter of credit; (3) a guarantee by a third party; or (4) internal financial information to allow EPA to determine that Respondents have

sufficient assets available to perform such Work and to pay such claims. Respondents shall demonstrate financial assurance in an amount of at least 8.5 million dollars. If Respondents seeks to demonstrate their ability to complete the Work by means of internal financial information, or by a guarantee of a third party, they shall resubmit such information annually, on the anniversary of the effective date of this Order. If EPA determines that such financial information is inadequate, Respondents shall, within thirty (30) days after receipt of EPA's notice of determination, obtain and present to EPA for approval one of the other three forms of financial assurance listed above.

84. At least seven (7) days prior to commencing any work at the Site pursuant to this Order, Respondents shall submit to EPA a certification that Respondents or their contractors and subcontractors have adequate insurance coverage or have indemnification for liabilities for injuries or damages to persons or property which may result from the activities to be conducted by or on behalf of Respondents pursuant to this Order. Respondents shall ensure that such insurance or indemnification is maintained for the duration of the Work required by this Order.

XXVI. UNITED STATES NOT LIABLE

85. The United States, by issuance of this Order, assumes no liability for any injuries or damages to persons or property resulting from acts or omissions by Respondents, or their directors, officials, employees, agents, representatives, successors, assigns, contractors, or consultants in carrying out any action or activity pursuant to this Order. Neither EPA nor the United States may be deemed to be a party to any contract entered into by Respondents or their directors, officers, employees, agents, successors, assigns, contractors, or consultants in carrying out any action or activity pursuant to this Order.

XXVII. ENFORCEMENT AND RESERVATIONS

86. EPA reserves the right to bring an action against Respondents under Section 107 of CERCLA, 42 U.S.C. § 9607, for recovery of any response costs incurred by the United States in connection with the Site. This reservation shall include, but not be limited to, past costs, future costs, direct costs, indirect costs, the costs of oversight, as well as accrued interest as provided in Section 107(a) of CERCLA.

87. Notwithstanding any other provision of this Order, at any time during the response action, EPA may perform its own RD/RA, complete the RD/RA (or any portion thereof) as provided in CERCLA and the NCP, and seek reimbursement from Respondents for its costs, or seek any other appropriate relief.

88. Nothing in this Order shall preclude EPA from taking any additional enforcement actions, including modification of this Order or issuance of additional orders, and/or additional remedial or removal actions as EPA may deem necessary, or from requiring Respondents in the future to perform additional activities pursuant to CERCLA, or any other applicable law.

89. Notwithstanding any provision of this Order, the United States hereby retains all of its information gathering, inspection and enforcement authorities and rights under CERCLA, RCRA and any other applicable statutes or regulations.

90. Respondents shall be subject to civil penalties under Section 106(b) of CERCLA, 42 U.S.C. § 9606(b), in the event that Respondents willfully violate, or fail or refuse to comply with this Order without sufficient cause. Such civil penalties shall be in an amount not greater than $27,500 per day, subject to possible further adjustments of this penalty maximum consistent with the Debt Collection and improvement Act of 1996, Pub. L. No. 104-134, 110 Stat. 1321 (1996), and the regulations promulgated thereunder, including the Civil Monetary Penalty Inflation Adjustment Rule, 61 Fed. Reg. 69360 (December 31, 1996). In addition, failure to properly carry out response actions under this Order, or any portion hereof, without sufficient cause, may result in liability under Section 107(c)(3) of CERCLA, 42 U.S.C. § 9607(c)(3), for punitive damages in an amount at least equal to, and not more than three (3) times the amount of any costs incurred by EPA as a result of such failure to take proper action.

91. Nothing in this Order shall constitute or be construed as a release from any claim, cause of action or demand in law or equity against any person for any liability it may have arising out of or relating in any way to the Site.

92. If a court issues an order that invalidates any provision of this Order or finds that Respondents have sufficient cause not to comply with one or more provisions of this Order, Respondents shall remain bound to comply with all provisions of this Order not invalidated by the court's order.

XXVIII. EFFECTIVE DATE AND COMPUTATION OF TIME

93. This Order shall be effective fourteen (14) days after receipt by Respondents, unless a conference is timely requested pursuant to Paragraph 94, below. If such conference is timely requested, this Order shall become effective three (3) days following the date the conference is held, unless the effective date is modified by EPA. All times for performance of ordered activities shall be calculated from this effective date.

XXIX. OPPORTUNITY TO CONFER

94. Within ten (10) days after receipt of this Order, Respondents may request a conference with EPA to discuss this Order. If requested, the conference shall occur within seven (7) days of Respondents' request for a conference.

95. The purpose and scope of the conference shall be limited to issues involving the implementation of the Work required by this Order and the extent to which Respondents intend to comply with this Order. This conference is not an evidentiary hearing, and does not constitute a proceeding to challenge this Order. It does not give Respondents a right to seek review of this Order, or to seek resolution of potential liability, and no official stenographic record of the conference will be made. At any conference held pursuant to Respondents' request, Respondents may appear in person or by an attorney or other representative.

96. A request for a conference must be made by telephone to Marla E. Wieder, Assistant Regional Counsel, Office of Regional Counsel, EPA Region II, telephone (212) 637-3184, followed by written confirmation mailed that day to Ms. Wieder and the RPM at the addresses set forth in Section XIX of this Order.

XXX. TERMINATION AND SATISFACTION

97. This Order will be terminated by EPA if Respondents demonstrate in writing and certify to the satisfaction of EPA that all Work and activities required under this Order, including any additional work required by EPA, have been performed fully in accordance with this Order and EPA has approved the certification in writing. Such an approval by EPA, however, shall not relieve Respondents of any remaining obligations under the Order, including those requirements set forth in Section XXIII regarding record preservation. Respondents' written submission under this paragraph shall include a sworn statement by a responsible corporate official of Respondents as described in the SOW.

So Ordered, this 26 day of April, 2001.

BY: Kathleen C Callahan
for William J. Muszynski, P.E.
Acting Regional Administrator
U.S. Environmental Protection Agency, Region II

STATEMENT OF WORK

HOOKER CHEMICAL/RUCO POLYMER SUPERFUND SITE
TOWN OF OYSTER BAY, HICKSVILLE, NASSAU COUNTY, NEW YORK

I. WORK TO BE PERFORMED

Unless otherwise stated, capitalized terms set forth in this Statement of Work (SOW) shall have the meanings attributed to them in the Administrative Order, Index No. CERCLA-02-2001-2018 (Administrative Order)

All requirements for review, approval or other action by EPA or Respondents pursuant to this SOW shall be performed in accordance with the requirements set forth in the Administrative Order. This SOW shall not alter, change or affect the rights of the parties set forth in the Administrative Order.

The Work to be performed by Respondents pursuant to the Administrative Order for Operable Unit 3 at the Hooker Chemical Ruco Polymer Superfund Site (Site) shall, at a minimum, achieve the requirements of the Record of Decision issued on September 29, 2000 (2000 ROD) and be conducted in a manner consistent with the 2000 ROD, including its stated Remedial Action Objectives (RAOs).

RAOs are EPA's goals to protect human health and the environment. The following RAOs were established for the Site:

Protect human health from exposure (via ingestion, inhalation, and dermal contact) to contaminants in groundwater including vinyl chloride monomer (VCM), trichloroethylene (TCE), perchloroethylene (PCE) and tentatively identified compounds (TICs) in groundwater at concentrations in excess of New York State groundwater standards and Federal Maximum Contaminant Levels (MCLs).

Restore the aquifer to meet New York State Groundwater Standards and New York State and Federal MCLs in a timely manner.

The selected remedy, as documented in the 2000 ROD, addresses the downgradient commingled contaminated groundwater plume beyond the Hooker/Ruco Facility and also the contaminated groundwater beneath the Hooker/Ruco Facility which was previously included as part of the Operable Unit 1 1994 ROD at the Site. The selected remedy in the 2000 ROD includes in-situ treatment of the vinyl chloride monomer (VCM) subplume by bioremediation using biosparging (and supplemental nutrient addition, if necessary) to achieve Federal MCLs and prevent the need for supplemental treatment at the downgradient Northrop Treatment System.

The major components of the remedy include:

- The use of biosparging technology in an in-situ application to enhance the VCM degradation with the goal of achieving State drinking water standards or Federal maximum contaminant levels (MCLs). Biosparging is a form of bioremediation that involves the introduction of air/oxygen into the aquifer to increase the dissolved oxygen content in the aquifer, which will enhance aerobic degradation of the VCM subplume.

- Vertical injection wells will be installed in the area of the VCM subplume to a depth of 200 to 400 feet. Additives (air/oxygen, nutrients) will be forced into the formation using either static head within the well or using pump-supplied pressure.

- Vadose zone or unsaturated zone monitoring program will be implemented to ensure that air stripping of VOCs, particularly VCM, is not occurring as a result of biosparging.

- If necessary, the selected remedy will also utilize a supplemental aerobic bioremediation technology following the biosparging treatment. Supplemental bioremediation would involve the injection of nutrients (potentially including nitrogen and phosphorus along with suitable carbon sources such as methane) to enhance the growth and metabolic activities of indigenous microbial populations to effect the degradation of VCM in the aquifer. Supplemental bioremediation technology will also enhance the degradation of TCE, PCE and TICs.

- A monitoring program will be implemented to monitor groundwater quality in the area of the VCM subplume and to evaluate the fate and migration of VOCs southward and westward beyond the VCM subplume. New monitoring wells will be added to the existing network of monitoring wells to increase the network's area of coverage. The objective of the long-term monitoring program is to evaluate the effectiveness of the selected remedy.

The selected remedy is also based on the recognition that an existing groundwater extraction and treatment system (Northrop Treatment System) which is operating as an On-Site Containment System (ONCT) (formerly known as the Interim Remedial Measure) at the downgradient Northrop/Grumman Aerospace Corporation (Northrop) Site is containing and remediating a commingled plume of TCE and PCE contamination from the Northrop, Naval Weapons Industrial Reserve Plant and the Hooker/Ruco sites.

If it is determined during the implementation and monitoring of the selected remedy that the technology selected is not effective in adequately reducing the VCM concentrations in a reasonable time frame, then VCM subplume extraction and treatment would be implemented as a contingency remedy. Further, if either the Northrop treatment system or the VOC removal system ceases operation before the regional aquifer is restored, or if the Northrop Treatment

System is not capturing contaminants emanating from the Hooker/Ruco Facility, EPA will re-evaluate the protectiveness of the selected remedy.

As part of a groundwater monitoring program, groundwater samples will be collected and analyzed quarterly in order to verify that the level and extent of groundwater contaminants are declining and that conditions are protective of human health and the environment. In addition, biodegradation parameters (*e.g.*, oxygen, nitrate, sulfate, methane, ethane, ethene, alkalinity, redox potential, pH, temperature, conductivity, chloride, and total organic carbon) will be used to assess the progress of the degradation process.

If EPA determines, upon review of groundwater monitoring results, that there is not sufficient improvement in groundwater quality in a reasonable time frame, then the contingency remedy of extraction and treatment of groundwater may be implemented. The goal of the contingency remedy will be to achieve State drinking water standards or Federal MCLs within the area of the VCM subplume.

The components of the contingency remedy include:

- Extraction and treatment of groundwater within the area of the VCM subplume with a goal of achieving State drinking water standards or Federal MCLs.

- Extraction wells placed in the area of highest concentration of VCM and at the leading edge of the VCM subplume.

- Treatment of extracted water in an air stripping treatment system, which will be constructed within the vicinity of the Hooker/Ruco Facility.

- The treated effluent would be discharged to a recharge basin on the Hooker/Ruco Facility.

- A monitoring program will be developed to monitor groundwater quality in the area of the VCM subplume and to evaluate the fate and migration of VOCs southward and westward beyond the VCM subplume. New monitoring wells would be added to the existing network of monitoring wells to increase the network's area of coverage. The objective of the monitoring program would be to evaluate the effectiveness of the selected contingency remedy.

The Work to be performed by Respondents shall be designed to achieve the RAOs stated above. As described in greater detail below, the Work shall include, without limitation, the following elements:

1. Pre-remedial design (pre-RD) activities for the selected remedy;

2. Remedial Design (RD) of the selected remedy set forth in the 2000 ROD;

3. Remedial Construction of the selected remedy;

4. Continued Operation of the Remedial Action (RA) for the remediation of the groundwater;

5. Implementation of a groundwater monitoring program; and

6. Remedial Design and implementation of the contingency remedy, if necessary.

II. PERFORMANCE STANDARDS

Performance Standards are the cleanup standards and other measures to achieve the goals of the Remedial Action set forth in the 2000 ROD.

The remedy shall comply with all Applicable or Relevant and Appropriate Requirements (ARARs) as set forth herein and in the ROD. Specifically, the Performance Standards for aquifer restoration at the Site include, but are not limited, to the following:

- Federal and New York State Maximum Contaminant Levels (MCLs).
- New York State Water Classification and Quality Standards

Accordingly, the remedy will eliminate and reduce the risk to human health and the environment at the Site. Since the selected remedy is considered as an innovative technology, the Respondents shall develop performance criteria to measure the effectiveness of this technology at the Site during the remedial design phase.

III. PROJECT SUPERVISION/MANAGEMENT, PROJECT COORDINATOR

The pre-RD, RD, RA, operation and maintenance (O&M), and monitoring, and any other activities performed related to the Site will be under the direction and supervision of a qualified New York State-licensed professional engineer (hereinafter, Supervising Contractor) and will meet any and all requirements of applicable Federal, State and local laws. Within ten (10) days of the effective date of the Order, the Respondents shall notify EPA and the New York State Department of Environmental Conversation (NYSDEC), in writing, of the names, titles, and qualifications of the Supervising Contractor proposed to be used in the development and implementation of the work to be performed. Selection of any such engineer, contractor, or subcontractor shall be subject to approval by EPA.

IV. PRE-REMEDIAL DESIGN ACTIVITIES

The pre-RD activities to be performed in the implementation of the selected remedy for the Site include the following:

A. Refine the delineation of the VCM subplume and the geologic and hydrogeologic conditions in the area of the VCM subplume; and

B. Develop and initiate a monitoring program prior to the implementation of the selected remedy. This monitoring program will be implemented to monitor groundwater quality in the area of the VCM subplume and to evaluate the fate and migration of volatile organic compounds (VOCs) southward and westward beyond the VCM subplume.

V. REMEDIAL DESIGN ACTIVITIES

The RD activities to be performed in the implementation of the selected remedy for the Site include the following:

A. Develop plans and specifications for the installation of the in-situ bioremediation treatment system using biosparging and supplemental nutrient addition.

B. Determine the number, depth, injection rates, and location of the injection wells.

C. Determine the types and rate of additives (air/oxygen, nutrients) and the addition method (static head or pump-supplied pressure).

D. Develop the performance criteria for measuring the effectiveness of biosparging technology and supplemental nutrient addition.

E. Develop plans for the performance of air monitoring during implementation of the selected technology and for ensuring that air emissions resulting, if any, from the biosparging activities meet applicable or relevant and appropriate air emission requirments.

F. Make provisions for operating and maintaining the groundwater biosparging and supplemental nutrient addition technology.

G. Develop a monitoring program to monitor groundwater quality and to evaluate the effectiveness of the selected technology. The monitoring program should include the monitoring of the VCM subplume to evaluate the fate and migration of VOCs southward and westward beyond the VCM subplume.

VI. REMEDIAL DESIGN WORK PLAN

Within thirty (30) days of the date on which Respondents receives written notification from EPA of the approval of the Supervising Contractor, Respondents shall submit a detailed Remedial Design Work Plan (RD Work Plan) for the design of the selected remedy to EPA for review and

approval. The RD Work Plan shall provide for the collection of all data needed for performing the pre-RD and the necessary RD activities.

The Work Plan shall comply with CERCLA and relevant EPA guidance, including the EPA document entitled *Guidance on Oversight of Remedial Designs and Remedial Actions performed by Potentially Responsible Parties*, (OSWER directive 9355.5-01, EPA/540/g-90-001), dated April 1990 and shall be in conformance, *inter alia*, with the *Superfund Remedial Design and Remedial Action Guidance*, dated June 1986, and other EPA guidance documents.

The Field Sampling Plan (FSP) or Work Plan (WP), Quality Assurance Project Plan (QAPP), and Health and Safety Plan (HSP) approved by EPA for the RI/FS may be utilized with appropriate addenda or revisions to these plans, as necessary, to accomplish the pre-RD and RD tasks and be consistent with the following requirements. The RD Work Plan shall include plans and schedules for implementation of pre-RD and RD tasks, and shall include, but not be limited to, the following items, or as necessary, an FSP Addendum, a QAPP Addendum, and an HSP Addendum, and shall comply with the following requirements:

A. Quality Assurance/Quality Control Project Plan

A Quality Assurance/Quality Control Project Plan (QAPP) shall be prepared consistent with EPA *Requirements for Quality Assurance Project Plans for Environmental Data Operations*, (EPA QA/R-5, October 1998), and shall include the following elements:

1. A detailed description of the sampling, analysis, and monitoring that shall be performed during the pre-RD and RD phases and consistent with this SOW, the ROD, and the Administrative Order. At a minimum, the QAPP shall provide the following:

   a. A plan for the performance of air monitoring, including air monitoring prior to and during construction at the Site, as necessary, to ensure that any air emissions resulting from the installation of the biosparging and supplemental nutrient addition system meets applicable or relevant and appropriate air emission requirements; and

   b. A plan for the delineation of the VCM subplume and the geologic and hydrogeologic conditions in the area of the VCM subplume (see Section IV. A., above).

   c. A plan to develop and initiate a monitoring plan prior to the implementation of the selected remedy (see Section IV. B., above).

2. All sampling, analysis, data assessment, and monitoring shall be performed in accordance with the *Region II CERCLA Quality Assurance Manual*, Revision 1, EPA Region 2, dated October 1989, and any updates thereto and the guidelines set forth in the Administrative Order. All testing methods and procedures shall be fully documented and referenced to established methods or standards.

3. The QAPP shall also specifically include the following items:

   a. An explanation of the way(s) the sampling, analysis, and monitoring will produce data for the pre-RD and RD phase;

   b. A detailed description of the sampling, analysis, and testing to be performed, including sampling methods, analytical and testing methods, sampling locations and frequency of sampling;

   c. A map depicting sampling locations; and

   d. A schedule for performance of specific tasks.

4. In the event that additional sampling locations and analyses are utilized or required, Respondents shall submit to EPA an addendum to the QAPP for approval by EPA.

5. The QAPP shall address the following elements:

   Project Management

   a. Title and Approval Sheet
   b. Table of Contents and Document Control Format
   c. Distribution List
   d. Project/Task Organization and Schedule
   e. Problem Definition/Background
   f. Project/Task Description
   g. Quality Objectives and Criteria for Measurement Data
   h. Special Training Requirements/Certification
   i. Documentation and Records

   Measurement/Data Acquisition

   j. Sampling Process Design
   k. Sampling Methods Requirements
   l. Sample Handling and Custody Requirements
   m. Analytical Methods Requirements
   n. Quality Control Requirements

o. Instrument/Equipment Testing, Inspection, and Maintenance Requirements
p. Instrument Calibration and Frequency
q. Inspection/Acceptance Requirements for Supplies and Consumables
r. Data Acquisition Requirements (Non-Direct Measurements)
s. Data Management

Assessment/Oversight

t. Assessments and Response Actions
u. Reports to Management

Data Validation and Usability

v. Data Review, Validation, and Verification Requirements
w. Validation and Verification Methods
x. Reconciliation with Data Quality Objectives

6. In order to provide quality assurance and maintain quality control with respect to all samples to be collected, Respondents shall ensure the following:

   a. Quality assurance and chain-of-custody procedures shall be performed in accordance with standard EPA protocol and guidance, including the *Region II CERCLA Quality Assurance Manual, Revision 1*, EPA Region 2, dated October 1989, and any updates thereto, and the guidelines set forth in this Administrative Order.

   b. The laboratory to be used must be specified. If the laboratory participates in the Contract Laboratory Program (CLP) for the analysis to be performed for this investigation, then project specific Performance Evaluation (PE) samples will not be required, as CLP laboratories run EPA PEs on a quarterly basis. If the proposed laboratory does not participate in the CLP for the analyses required, PE samples must be analyzed to demonstrate the capability to conduct the required analysis prior to being approved for use. Once a non-CLP laboratory has been selected, the laboratory should submit a copy of its Laboratory Quality Assurance Program Plan to EPA for review and approval.

      For any analytical work performed, including that done in a fixed laboratory, in a mobile laboratory, or in on-Site screening analyses, Respondents must submit to EPA a "Non-CLP Superfund Analytical Services Tracking System" form for each laboratory utilized during a sampling event, within thirty (30) days after acceptance of the analytical results. Upon completion, such documents shall be submitted to the EPA Project Coordinator, with a copy of the form and transmittal letter to:

Regional Sample Control Center Coordinator
U.S. EPA, Region 2
Division of Environmental Science & Assessment
2890 Woodbridge Avenue, Bldg. 209, MS-215
Edison, NJ 08837

c. The laboratory utilized for analyses of samples must perform all analyses according to accepted EPA methods as documented in the *Contract Lab Program Statement of Work for Organic Analysis*, (OLM04.2) or the latest revision, and the *Contract Lab Program Statement of Work for Inorganic Analysis*, (ILM04.0) or the latest revision, or other EPA approved methods.

d. Unless indicated otherwise in the approved QAPP, all data will be validated upon receipt from the laboratory.

e. Submission of the validation package (checklist, report, and Form I containing the final data) to EPA, prepared in accordance with the provisions of Subparagraph g., below.

f. Assurance that all analytical data that are validated as required by the QAPP are validated according to the procedures stated in the *EPA Region II Contract Lab Program Organics Data Review and Preliminary Review* (SOP #HW-6, Revision 11), dated June 1996, or the latest revision, and the *Evaluation of Metals Data for the Contract Laboratory Program* (SOP #HW-2, Revision 11), dated January 1992 or the latest revision, or EPA-approved equivalent procedures. Region 2 Standard Operating Procedures are available at: http://www.epa.gov/region02/smb/sops.htm

g. Unless indicated otherwise in the approved QAPP, Respondents shall require deliverables equivalent to CLP data packages from the laboratory for analytical data. Upon the EPA's request, Respondents shall submit to the EPA the full documentation (including raw data) for this analytical data. EPA reserves the right to perform an independent data validation, data validation check, or qualification check on generated data.

h. Respondents shall insert a provision in its contract(s) with the laboratory utilized for analyses of samples, which will require granting access to EPA personnel and authorized representatives of the EPA for the purpose of ensuring the accuracy of laboratory results related to the Site.

B. Health and Safety Contingency Plan

A Health and Safety Contingency Plan (HSCP) for all activities performed under the Administrative Order shall be developed by Respondents to address the protection of public health and safety and the response to contingencies that could impact public health, safety, and the environment. The HSCP shall satisfy the requirements of the *Occupational Safety and Health Guidance for Hazardous Waste Site Activities*, (June 1990, Department of Health and Human Services, (DHHS) National Institute for Occupational Safety and Health (NIOSH) Publication No. 90-117), and the Occupational Safety and Health Administration, U.S. Department of Labor (OSHA) requirements cited below:

1. All Site activities shall be performed in such a manner as to ensure the safety and health of personnel so engaged. All Site activities shall be conducted in accordance with all pertinent general industry (29 CFR Part 1910) and construction (29 CFR Part 1926) OSHA standards, and EPA's *Standards Operating Safety Guides* (OSWER, 1988), as well as any other applicable State and municipal codes or ordinances. All Site activities shall comply with those requirements set forth in OSHA's final rule entitled *Hazardous Waste Operations and Emergency Response*, 29 CFR Part 1910.120, Subpart H.

2. The HSCP shall include, at a minimum, the following items:

   a. Plans showing the location and layout of any temporary facilities to be constructed on or near the Site;

   b. Description of the known hazards and evaluation of the risks associated with the Site and the potential health impacts related to the Site activities;

   c. List of key personnel and alternates responsible for Site safety, response operations, and protection of the public;

   d. Description of levels of protection (based on specified standards) to be utilized by all personnel;

   e. Delineation of Work, decontamination, and safe zones, and definitions of the movement of zones;

   f. Description of decontamination procedures for personnel and equipment, and handling and removal of disposable clothing or equipment;

   g. Incidental emergency procedures which address emergency care for personnel injuries and exposure problems, and containment measures. These procedures shall include: evacuation routes; internal and external communications

procedures for response to fire, explosion, or other emergencies; and the name of the nearest hospital and the route to that hospital; local agencies with the capability to respond to emergencies shall be identified and their capabilities shall be described. A description of the procedures for informing the community of these measures shall also be outlined;

h. Description of the personnel medical surveillance program in effect;

i. Description of monitoring for personnel safety;

j. Description of routine and special personnel training programs; and

k. Description of an air monitoring program to determine concentrations of airborne contaminants to which workers on-Site and persons near the Site boundary may be exposed. The results of work-zone air monitoring may be used as a trigger for implementing Site-boundary air monitoring.

C. Description of Pre-Remedial Design and Remedial Design Tasks

The RD Work Plan shall include a detailed description of all other pre-RD and RD tasks (see Sections IV. and V., above) to be performed, along with a schedule for performance of those tasks. Such tasks shall include, at a minimum, the preparation of the RD Reports required by Section VIII., below, and tasks necessary to ensure compliance with ARARs, as outlined herein and in the ROD. The Remedial Design Work Plan shall include an outline of the requirements of the RD Reports.

1. Access and Other Approvals

The RD Work Plan shall include descriptions of any approvals which Respondents will need to comply with the Administrative Order, with the exception of those approvals needed from the EPA. This description shall detail how such approvals will be sought, and shall include a schedule for obtaining all necessary approvals. Such approvals shall include the consent of owners of property at or near the Site regarding access to conduct sampling, monitoring or other activities, in accordance with the Administrative Order, and approval from any off-Site facility accepting waste materials from the Site. This description shall be amended if subsequent approvals are required.

2. RD Schedules, Draft Schedule for Remedial Action, O&M, and Monitoring

The RD Work Plan shall include a schedule covering all pre-RD and RD activities, including but not limited to, the submittal of the RD Reports listed in Section VIII., below. The RD Work Plan shall also include a draft schedule for Remedial Action (RA), O&M, and monitoring activities. The schedule shall be in

the form of a task/subtask activity bar chart or critical path method sequence of events. The schedules are dependent on EPA approval of project documents.

3. The draft schedule for RA and monitoring activities may be revised during the remedial process, subject to the EPA's approval.

4. The RD schedule shall provide for the completion and submittal to EPA of the Final Design Report within twelve (12) months of EPA's written notification of approval of the RD Work Plan .

5. The draft schedule for the RA shall provide for the completion of the construction of the full-scale biosparging system within six (6) months of EPA approval of the RA Work Plan (RAWP).

VII. APPROVAL OF RD WORK PLAN

EPA will either approve the RD Work Plan, or will require modification of such plan, in accordance with the procedures set forth in the Administrative Order. Respondents shall implement the EPA-approved RD Work Plan in accordance with the schedules contained therein.

VIII. REMEDIAL DESIGN

Respondents shall perform the pre-RD and RD activities in conformance with the RD Work Plan approved by the EPA and within the time frames specified in the RD schedule contained therein. The RD shall include the preparation of a Preliminary RD Report (35%), a pre-final RD Report (95% completion) and a Final RD Report (100% completion).

A. Remedial Design Reports

The RD Reports shall be submitted to the EPA and NYSDEC in accordance with the schedule set forth in the approved RD Work Plan. Each RD Report shall include a discussion of the design criteria and objectives, with emphasis on the capacity and ability to meet design objectives successfully. Each Report shall also include the plans and specifications that have been developed at that point in time, along with a design analysis. The design analysis shall provide the rationale for the plans and specifications, including results of all sampling and testing performed, supporting calculations and documentation of how these plans and specifications will meet the requirements of the ROD and shall provide a discussion of any impacts these findings may have on the RD. Each of the RD Reports shall also include the following items (to the extent that work has been performed regarding the items), as appropriate:

1. A technical specification for photographic documentation of the remedial construction work;

2. A discussion of the manner in which the RA will achieve the Performance Standards; and

3. A draft schedule for RA activities, and a preliminary schedule for monitoring activities.

B. Additional Preliminary Remedial Design Report Requirments

The Preliminary (35%) RD Report shall include the following:

1. Preliminary drawings showing general arrangement of all work proposed;

2. A discussion of the manner in which the pre-design components detailed in Section IV., above, for the Remedial Action will be considered;

3. Piping and instrumentation diagrams, as necessary, showing all equipment and control systems;

4. Table of Contents for the specifications, including a listing of items from the Construction Specifications Institute master format that are expected to be included in the construction specifications. This master format is presented in the Construction Specifications Institute's *Manual of Practice*, 1985 edition, available from the Construction Specifications Institute, 601 Madison Street, Alexandria, Virginia 22314;

5. Engineering plans representing an accurate identification of existing Hooker Ruco Facility conditions and an illustration of the work proposed. Typical items to be provided on such drawings include, at a minimum, the following:

   a. Title sheet including at least the title of the project, a key map, the name of the designer, date prepared, sheet index, and EPA/NYSDEC Project identification numbers;

   b. All property data including owners of record for all properties within 200 feet of the Hooker Ruco Facility;

   c. A Site survey including the distance and bearing of all property lines that identify and define the Hooker Ruco Facility;

   d. All easements, rights-of-way, and reservations for the Hooker Ruco Facility;

e. All buildings, structures, wells, facilities, and equipment (existing and proposed) if any on the Hooker Ruco Facility;

f. A topographic survey, including existing and proposed contours and spot elevations for all areas that will be affected by the remedial activities, based on U.S. Coast and Geodetic Survey data;

g. All utilities, existing and proposed;

h. Location and identification of all significant natural features including, *inter alia*, wooded areas, water courses, wetlands, flood hazard areas, and depressions;

i. Flood hazard data and 100-year and 500-year flood plain delineation;

j. North arrow, scale, sheet numbers and the person responsible for preparing each sheet;

k. Decontamination areas, staging areas, borrow areas and stockpiling areas;

l. Miscellaneous detail sheets;

m. Definitions of all symbols and abbreviations; and

n. A specification for a sign at the Site. The sign should describe the project, the name of the contractor performing the RD/RA work or the Respondents, state that the project is being performed under EPA oversight, and provide an EPA contact number for further information.

6. Survey work that is appropriately marked, recorded and interpreted for mapping, property easements and design completion;

7. Drawings of all proposed equipment, improvements, details and all other construction and installation items to be developed in accordance with the current standards and guidelines of the New York State Board of Professional Engineers and Land Surveyors. Drawings shall be of standard size, approximately 24" x 36". A list of drawing sheet titles will be provided;

8. Engineering plans (as necessary) indicating, at a minimum, the following:

   a. Site security measures;

   b. Roadways; and

   c. Electrical, mechanical, structural, and HVAC drawings, if required.

9. Any value engineering proposals.

C. Additional Pre-Final/Final RD Report Requirements

The pre-final and final RD reports shall also include the following:

1. Final plans and specifications;

2. An RA Operation and Maintenance (O&M) Plan shall be prepared in accordance with the *Superfund RD and RA Guidance*, dated June 1995, OSWER Directive 9355.0-4A. The RA O&M Plan shall include, but not be limited to, the following:

   a. a description of the personnel requirements, responsibilities, and duties, including a discussion for training, lines of authority;

   b. a description of all construction-related sampling, analysis, and monitoring to be conducted under the Administrative Order; and

   c. a description of all RA-related monitoring requirements associated with the biosparging and supplemental nutrient addition system.

3. A Construction Quality Assurance Project Plan (CQAPP), which shall detail the approach to quality assurance during construction activities at the Site, shall specify a quality assurance official (QA Official), independent of the Supervising Contractor, to conduct a quality assurance program during the construction phase of the project. The CQAPP shall address sampling, analysis, and monitoring to be performed during the remedial construction phase of the Work. Quality assurance items to be addressed include, at a minimum, the following:

   a. Inspection and certification of the Work;

   b. Measurement and daily logging;

   c. Field performance and testing;

   d. As-built drawings and logs;

   e. Testing of the Work to establish whether the design specifications are attained; and

   f. Testing methods appropriate to remedial construction including, at a minimum, testing of remedial construction materials, as necessary, prior to

use, and testing of constructed remedial components to ensure that they meet design specifications.

4. A report describing those efforts made to secure access and obtain other approvals and the results of those efforts (see Section VI. C., above). Legal descriptions of property or easements to be acquired shall be provided.

5. A final engineer's construction cost estimate, which may be provided under separate cover concurrent with submittal of the Final RD Report.

6. A plan for implementation of construction and construction oversight.

7. A method for selection of the construction contractor(s).

8. A proposed schedule for implementing all of the above.

IX. APPROVAL OF RD REPORTS

A. EPA will review and comment on the RD Reports. Respondents shall make those changes required by the EPA's comments/modifications in accordance with the procedures set forth in the Administrative Order.

B. Changes required by EPA's comments on the Preliminary Remedial Design Report shall be made in the subsequent RD Report. Changes required by EPA's comments on the pre-Final Remedial Design Report shall be made in the Final RD Report

C. EPA will either approve the Final RD Report or require modification of it, in accordance with the procedures set forth in the Administrative Order. The EPA-approved Final Design Report shall also be referred to as the "Final Design Report."

X. REMEDIAL ACTION

A Within twenty-one (21) days after approval of the Final Design Report by EPA, Respondents shall award a contract for the RA.

B. Within thirty (30) days of the award of the RA contract, Respondents shall submit a RAWP for remedial construction activities. The RAWP shall include, at a minimum, the following items:

1. If applicable, a "Request for Modification of Approved Final RD Report," including any requests for modification of the approved Final Design Report, based on construction methods identified by the contractor(s), or proposed modification of the construction schedule developed under Section VIII., above,

or any other requests for modification, subject to EPA approval in its sole discretion.

2. A Site Management Plan (SMP) for RA activities. The SMP for RA shall include, at a minimum, the following items:

   a. Tentative identification of the RA Project Team (including, but not limited to the Construction Contractor).

   b. A final schedule for the completion of the RA and all major tasks therein, as well as a schedule for completion of required plans, and other deliverables (see Section VI. C., above).

   c. Methodology for implementation of the Construction Quality Assurance Plan (developed during the RD).

   d. Methodology for implementation of the RA O&M Plan.

   e. Procedures and plans for the decontamination of construction equipment and the disposal of contaminated materials.

   f. Methods for satisfying any permitting requirements.

   g. Discussion of the methods by which construction operations shall proceed. Discussion shall include the following:

      (1) Timing of and manner in which activities shall be sequenced;

      (2) Preparation of the Site including security, utilities, decontamination facilities, construction trailers, and equipment storage;

      (3) Coordination of construction activities;

      (4) Site maintenance during the RA;

      (5) Coordination with local authorities regarding contingency planning and potential traffic obstruction; and

      (6) Entry and access to the Site during the construction period(s) and periods of inactivity, including provisions for decontamination, erosion control, and dust control.

   h. Discussion of construction quality control, including:

(1) Methods of performing the quality control inspections, including when inspections should be made and what to look for;

(2) Control testing procedures for each specific test. This includes information which authenticates that personnel and laboratories performing the tests are qualified and the equipment and procedures to be used comply with applicable standards;

(3) Procedures for scheduling and managing submittals, including those of subcontractors, off-Site fabricators, suppliers, and purchasing agents; and

(4) Reporting procedures including frequency of reports and report formats.

3. A Quality Assurance/Quality Control Project Plan (QAPP) shall be prepared consistent with EPA *Requirements for Quality Assurance Project Plans for Environmental Data Operations*, (EPA QA/R-5, October 1998) (see Section VI. A., above, for these requirements).

4. An updated HSCP for the Remedial Construction phase of the Work (see Section VI. B., above, for these requirements). The HSCP shall address health and safety measures to be implemented and observed by construction personnel, as well as recommended health and safety measures for the adjacent community and general public, together with a description of the program for informing the community of these recommendations. The HSCP shall include the name of the person responsible in the event of an emergency situation, as well as the necessary procedures that must be taken in the event of an emergency, as outlined in the Administrative Order.

C. Approval of Remedial Action Work Plan

EPA will either approve the RAWP or require modification of it in accordance with the procedures set forth in the Administrative Order.

D. Performance of Remedial Construction

1. Upon EPA's written approval of the RAWP, Respondents shall initiate the remedial construction in accordance with the RAWP and the approved Final Design Report, which includes the approved remedial construction schedule.

2. During performance of the remedial construction, Respondents may identify and request EPA approval for field changes to the approved RAWP, Final Design Report and construction schedule, as necessary, to complete the work. EPA will either approve, disapprove, or require modification of any requests for field changes in accordance with the procedures set forth in the Administrative Order.

E. Operation and Maintenance Manual

1. No later than ninety (90) days prior to the scheduled completion date of the remedial construction phase, Respondents shall submit to the EPA an O&M Manual. The O&M Manual shall conform to the EPA guidelines contained in *Considerations for Preparation of Operation and Maintenance Manuals*, EPA 68-01-0341.

2. The O&M Manual shall include, at a minimum, the following:

   a. An amended QAPP consistent with Section VI.A., above.

   b. An HSCP for O&M activities consistent with Section VI.B., above.

   c. A discussion of potential operating problems and remedies for such problems.

   d. A discussion of alternative procedures in the event of system failure.

   e. A schedule for equipment replacement.

   f. An O&M and monitoring schedule.

3. EPA will either approve the O&M Manual or require modification of it, in accordance with the procedures set forth in the Administrative Order.

4. Proposed modifications to the approved O&M Manual may be submitted to EPA for consideration upon completion of construction or thereafter if Respondents can demonstrate that such modifications would enhance and/or maintain the environmental monitoring programs.

XI. PRE-FINAL AND FINAL INSPECTIONS, REMEDIAL ACTION REPORTS, NOTICE OF CONSTRUCTION COMPLETION

A. At least fourteen (14) days prior to the completion of construction, Respondents and their contractor(s) shall be available to accompany EPA personnel and/or their representatives on a pre-final inspection. The pre-final inspection shall consist of a walkover of the Site to determine the completeness of the construction and its consistency with the RD Reports, the Administrative Order, the ROD and applicable federal and state laws, rules, and regulations.

B. Following the pre-final inspection, EPA will either specify the necessary corrective measures to the construction phase of the Remedial Action, as appropriate, or determine that construction is complete. If EPA requires corrective measures, Respondents shall undertake the corrective measures according to a schedule approved by EPA. Within fourteen (14) days after completion of the construction of

the corrective measures, Respondents and their contractor(s) shall be available to accompany EPA personnel or their representatives on an inspection as provided for in the preceding paragraph. Said inspection will be followed by further directions and/or notifications by EPA as provided above in this paragraph. The Respondents shall submit a Draft Interim Remedial Action Report within thirty (30) days of the final inspection.

C. The Draft Interim Remedial Action Report and Draft Remedial Action Report set forth in Subsection B above, shall include the following sections:

1. Introduction

   a. Include a brief description of the location, size, environmental setting, and operational history of the Site.

   b. Describe the operations and waste management practices that contributed to contamination of the Site.

   c. Describe the regulatory and enforcement history of the Site.

   d. Describe the major findings and results of Site investigation activities.

   e. Describe prior removal and remedial activities at the Site.

2. Background

   a. Summarize requirements specified in the ROD. Include information on the cleanup goals, monitoring requirements, O&M requirements, and other parameters applicable to the design, construction, operation, and performance of the RA.

   b. Provide additional information regarding the basis for determining the RAOs, including planned future land use.

   c. Summarize the RD, including any significant regulatory or technical considerations or events which occurred during the preparation of the RD. Report

   d. Identify and briefly discuss any ROD amendments, explanation of significant differences, or technical impracticability waivers.

3. Construction Activities

a. Provide a step-by-step summary description of the activities undertaken to construct and implement the RA (*e.g.*, mobilization and Site preparatory work; construction of the treatment system; associated Site work, such as fencing, access and control; system operation and monitoring; and sampling activities).

b. Refer the reader to the Appendices for characteristics, Site conditions, and operating parameters for the system.

4. Chronology of Events

a. Provide a tabular summary that lists the major events for the remedial work, and associated dates of those events, starting with ROD signature.

b. Include significant milestones and dates, such as: remedial design submittal and approval; ROD amendments; mobilization and construction of the remedy; significant operational events, such as treatment system, application start-up, monitoring and sampling events, system modifications, operational down time, variances or noncompliance situations, and final shutdown or cessation of operations; final sampling and confirmation-of-performance results; required inspections; demobilization; and completion or startup of post-construction O&M activities.

c. Indicate when cleanup goals are projected to be achieved for the groundwater restoration.

5. Performance Standards and Construction Quality Control

a. Describe the overall performance of the technology in terms of comparison to the cleanup goals.

b. For treatment remedies, identify the quantity of material treated, the strategy used for collecting and analyzing samples, and the overall results from the sampling and analysis effort.

c. Provide an explanation of the approved construction quality assurance and construction quality control requirements or cite the appropriate reference for this material. Explain any substantial problems or deviations.

d. Provide an assessment of the performance data quality, including the overall quality of the analytical data, with a brief discussion of QA/QC procedures followed, use of a QAPP, comparison of analytical data with data quality objectives.

6. Final Inspection and Certifications

   a Report the results of the various RA contract inspections and identify noted deficiencies.

   b. Briefly describe adherence to health and safety requirements while implementing the RA. Explain any substantial problems or deviations.

   c. Describe results of pre-certification inspection.

   d. Include a certification statement, signed by a responsible corporate official of one or more of the Respondents or by the Respondent's Project Coordinator (s), which states the following:

      "To the best of my knowledge, after thorough investigation, I certify that the information contained in or accompanying this submission is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

7. Continued Operation and Maintenance Activities

   a Describe the general activities for post-construction O&M activities, such as monitoring, Site maintenance, and closure activities.

   b. Identify potential problems or concerns with such activities.

   c. Describe the future groundwater restoration activities to meet cleanup goals.

8. Summary of Project Costs

   a. Provide the actual final costs for the project. If actual costs are not available, provide estimated costs.

   b. Provide the costs previously estimated in the ROD for the selected remedy, including, as applicable, RA capital costs, RA operating costs, and number of years of operation. Adjust the estimates to the same dollar basis year as the actual project costs, and provide the index used.

   c. Compare actual RA costs to the adjusted ROD estimates. If the difference is outside the range of -30 to +50 percent, explain the reasons for such differences.

d. For treatment remedies, calculate unit costs based on the sum of the actual RA capital and RA operating costs divided by the quantity of material treated.

e. Refer the reader to the Appendix for a detailed breakdown of costs.

9. Observations and Lessons Learned

Provide Site-specific observations and lessons learned from the project, highlighting successes and problems encountered and how they were resolved.

10. Contact Information

Provide contact information (names, addresses, phone numbers, and contract/reference data) for the major design and remediation contractors, as applicable.

11. Appendices: Cost and Performance Summary

a. The specific parameters for documenting cost and performance information are presented in the *Guide to Documenting and Managing Cost and Performance Information for Remediation Projects*, EPA 542-B-98-007.

b. Identify the matrix characteristics and Site conditions that most affected the cost and performance, the corresponding values measured for each characteristic or condition, and the procedures used for measuring those characteristics or conditions.

c. Identify the operating parameters specified by the remediation contractor that most affected the cost and performance, the corresponding values measured for each parameter, and the procedures used for measuring those parameters.

d. Provide a detailed breakout of the actual RA capital costs, estimated RA operating costs (costs to operate and maintain the biosparging and supplemental nutrient addition treatment process).

e. Provide supplemental information in the appendices to the RA Report. This information could include a map of the Site and operable unit, a schematic of the treatment system, supplemental performance information, and a list of references.

D. EPA will either approve the Draft Interim RA Report and Draft RA Report, thus making them the Interim RA Report and the Final RA Report, require modifications of reports, and/or require corrective measures to fully and properly implement the Remedial Action, in accordance with Subsection B above, or XII B below.

XII. PERFORMANCE OF CONTINUED OPERATION OF THE REMEDIAL ACTION

A. Upon EPA's approval of the Interim RA Report in accordance with Section XI. D above, Respondents shall continue remedial action and monitoring activities in accordance with the approved O&M Manual.

B. Notice of Completion and Final Remedial Action Report for Remedial Work

1. Within thirty (30) days of the date that Respondents conclude that they have met the Performance Standards as specified in the ROD and this SOW for the third consecutive year (or a shorter period if approved by EPA in its sole discretion), or, if Alternative Remedial Strategies are authorized by EPA, within thirty (30) days of completion of those strategies, Respondents shall a schedule and conduct a final inspection to be attended by Respondents, EPA, NYSDEC, and/or their respective representatives. The final inspection will consist of a walk-through of the project to determine the completeness of the Remedial Action and its consistency with the ROD, this SOW, and the Administrative Order. EPA may direct Respondents to correct any deficiencies identified during the inspection. Respondents shall implement the tasks necessary to correct any deficiencies in accordance with the specifications and schedules established by EPA. Within fourteen (14) days of completion of the tasks, Respondents shall be available to accompany EPA and NYSDEC personnel and/or their respective representatives on a follow-up inspection. If, after the final inspection for Remedial Action (or the follow-up inspection, if required) Respondents still believes that the Remedial Action Performance Standards have been attained, within thirty (30) days of the final inspection (or the follow-up inspection, if required), Respondents shall submit a Notice of Completion and Draft Remedial Action Report (Refer to Subsection XI. C., above).

2. EPA will determine whether the RA (including any Alternative Remedial Strategies) has been completed in accordance with the standards, specifications and reports required by the Administrative Order. If EPA determines that they have not been so completed, EPA will notify Respondents in writing of those tasks which must be performed to complete the RA (including any Alternative Remedial Strategies). Respondents shall then implement the specified activities and tasks in accordance with the specifications and schedules established by EPA and shall then submit a further report on the specified activities and tasks and certification signed by a licensed professional engineer, within thirty (30) days after completion of the specified activities and tasks. Any modifications to the Draft RA Report for the RA required by EPA shall be in accordance with the procedures set forth in the Administrative Order.

3. Upon EPA's certification of completion of the RA (including any Alternative Remedial Strategies), Respondents shall perform post-remediation monitoring in accordance with the Post-Remediation Monitoring Plan, as set forth in Section XV., below.

C. Goal for Aquifer Restoration

1. As set forth in the ROD, the Performance Standards are designed to protect human health from exposure (via ingestion, inhalation, and dermal contact) to VCM, TCE, PCE and TICs in groundwater at concentrations in excess of New York State groundwater standards and Federal MCLs. In addition, the performance standard is designed to restore the aquifer to meet New York State Groundwater Standards and New York State and Federal MCLs in a timely manner and to eliminate the need for supplemental treatment for VCM at the Northrop Treatment System.. Respondents shall continue the remedial action related to the groundwater remediation system until the Performance Standards have not been exceeded for a period of three (3) consecutive years, or a shorter period if approved by EPA in its sole discretion.

2. Respondents may petition EPA in writing for authorization to amend the groundwater O&M Manual if, based on the results of groundwater monitoring, Respondents believe that some or all of the Performance Standards specified in the ROD will not be reached in the time period projected in the approved O&M Manual. Respondents shall not submit such a petition until they have performed O&M of the groundwater remediation system for at least three (3) years from the date of EPA's approval of the Interim RA Report, as set forth in Section XI. D., above, or a shorter period if approved by EPA in its sole discretion.

3. Respondents' petition for authorization to amend the groundwater O&M Manual shall include, at a minimum, the following information, as well as any other information and analyses EPA requests prior to or following submission of the petition:

   a. a list identifying each Performance Standard that has not been met along with an explanation of why;

   b. a description of any changes in the conceptual model for Site contamination since issuance of the ROD, including geological, hydrogeologic, and geochemical characterizations;

   c. comprehensive groundwater monitoring data relevant to the groundwater remedy implemented;

d. an analysis of the performance of the groundwater remedy which describes the spatial and temporal trends in groundwater contaminant concentrations within the groundwater plume (*e.g.*, whether contaminant migration has been effectively prevented, as well as any reduction or changes in the overall size or location of the groundwater plume, or stabilized (or very slow decreases in contaminant concentrations);

e. a description of any proposed contingency measures; and

f. a predictive analysis of the approximate time frame required to achieve the Performance Standards with both the existing groundwater remediation system and that to be implemented with any proposed contingency measures using methods appropriate for the data and Site-specific conditions. Such analysis shall also address the uncertainty, if any, inherent in these predictions. The petition shall not be deemed complete until all information and analyses required and/or requested by EPA are submitted by the Respondents.

D. If, based on the results of groundwater monitoring, EPA believes that one or more of the Performance Standards specified in the ROD will not be reached in the time period projected in the approved O&M Manual, EPA may require Respondents to implement contingency measures and to submit a Contingency Measures Plan (see Section XII E., below).

E. A Contingency Measures Plan shall be submitted to EPA by Respondents within sixty (60) days of receipt of EPA's written determination that contingency measures are appropriate. The Contingency Measures Plan sha[illegible]

1. Address design, construction, and O&M of the contingency measures, as appropriate;

2. Include an amended QAPP and HSCP for O&M activities, as appropriate; and

3. Include a schedule for the implementation of the contingency measures

F. EPA will either approve the Contingency Measures Plan or disapprove and/or require modification of such plan, in accordance with the procedures set forth in the Administrative Order.

G. Respondents shall commence implementation of the Contingency Measures Plan within thirty (30) days of receipt of EPA's written approval of the Contingency Measures Plan.

H. No action taken by EPA pursuant to this Section of the SOW, including EPA's decision on Respondents' petition(s), shall be subject to dispute resolution or judicial review.

XIII. CONTINGENCY REMEDY FROM THE ROD

A. If EPA determines during the implementation and long-term monitoring of the selected remedy that the technology selected is not effective in adequately reducing the VCM concentrations in a reasonable time frame, then Respondents shall implement a VCM subplume extraction and treatment as a contingency remedy as indicated in the ROD in order to achieve Federal and State MCLs. Further, if either the ONCT or the VOC removal system ceases operation before the regional aquifer is restored, or if the Northrop Treatment System is not capturing contaminants emanating from the Hooker/Ruco Facility, EPA will re-evaluate the protectiveness of the selected remedy.

B. If EPA determines that a groundwater extraction and treatment system is necessary, EPA will notify Respondents in writing. Within 30 days of receipt of EPA's notification, Respondents shall submit a RD Work Plan for the contingency remedy consistent with requirement of Section VI. Upon EPA's approval of the RD Work Plan for the contingency remedy, Respondents shall implement the remaining requirements of this SOW for the contingency remedy.

XIV. POST REMEDIATION MONITORING PLAN

A. Within thirty (30) Days of the date on which all designated groundwater monitoring points have recorded readings less than or equal to the Performance Standards specified in the ROD and this SOW for the third consecutive year (or a shorter period if approved by EPA in its sole discretion), or within sixty (60) days of the date that EPA determines, in its sole discretion, that one or more ARAR waivers have been granted and all other groundwater ARARs have been met and/or waived, Respondents shall submit to EPA a Post-Remediation Monitoring (PRM) Plan.

B. The PRM Plan shall include, at a minimum, the following:

1. A QAPP for PRM activities consistent with Section VI.A., above;

2. An HSCP for PRM activities consistent with Section VI.B., above;

3. A description of work to be performed under PRM activities; and

4. A PRM schedule that identifies the frequency of monitoring and when these activities will commence.

C. EPA will either approve the PRM Plan, or require modification of it, in accordance with the procedures set forth in the Administrative Order.

XV. POST-REMEDIATION MONITORING

A. Upon EPA's approval of the PRM Plan, Respondents shall commence with the PRM program for a period of three (3) years, in accordance with the PRM Plan, which includes the PRM schedule.

B. If groundwater contaminant concentrations increase above the Performance Standards (as specified in the ROD and this SOW), during post-remediation monitoring, EPA will evaluate the need, and may require Respondents to reinstate the remediation system.

C. Notice of Completion and Final Report for Post-Remediation Monitoring

1. Within five (5) days of the completion of post-remediation monitoring, Respondents shall submit to EPA a Notice of Completion for Post-Remediation Monitoring. The Notice of Completion for Post-Remediation Monitoring shall be signed by a licensed professional engineer meeting any and all requirements of applicable Federal, State, and local laws, and shall certify that the PRM activities have been completed in full satisfaction of the requirements of the Administrative Order, this SOW, and all plans, specifications, schedules, reports and other items developed hereunder.

2. Within thirty (30) days of the completion of post-remediation monitoring, Respondents shall submit to EPA a Final Report for Post-Remediation Monitoring. The Final Report for Post-Remediation Monitoring shall summarize the Work performed under the PRM Plan and the data so generated. Deliverables under the Final Report for Post-Remediation Monitoring shall be signed by a licensed professional engineer meeting any and all requirements of applicable Federal, State, and local laws, and shall certify that the PRM activities and report deliverables have been completed in full satisfaction of the requirements of the Administrative Order, this SOW, and all plans, specifications, schedules, reports and other items developed hereunder. Any modifications to the Final Report for Post-Remediation Monitoring required by EPA shall be in accordance with the procedures set forth in the Administrative Order.

3. EPA will determine whether the PRM activities or any portions(s) thereof have been completed in accordance with the standards, specifications, and reports required by the Administrative Order. If EPA determines that PRM activities have not been so completed, EPA will notify Respondents in writing of those tasks which must be performed to complete the post-remediation monitoring. Respondents shall then implement the specified activities and tasks in accordance

with the specifications and schedules established by EPA and shall then submit a further report on the specified activities and tasks, certified by a licensed professional engineer, within thirty (30) days after completion of the specified activities and tasks. EPA will notify Respondents in writing when PRM activities have been completed in accordance with the requirements of the Administrative Order.

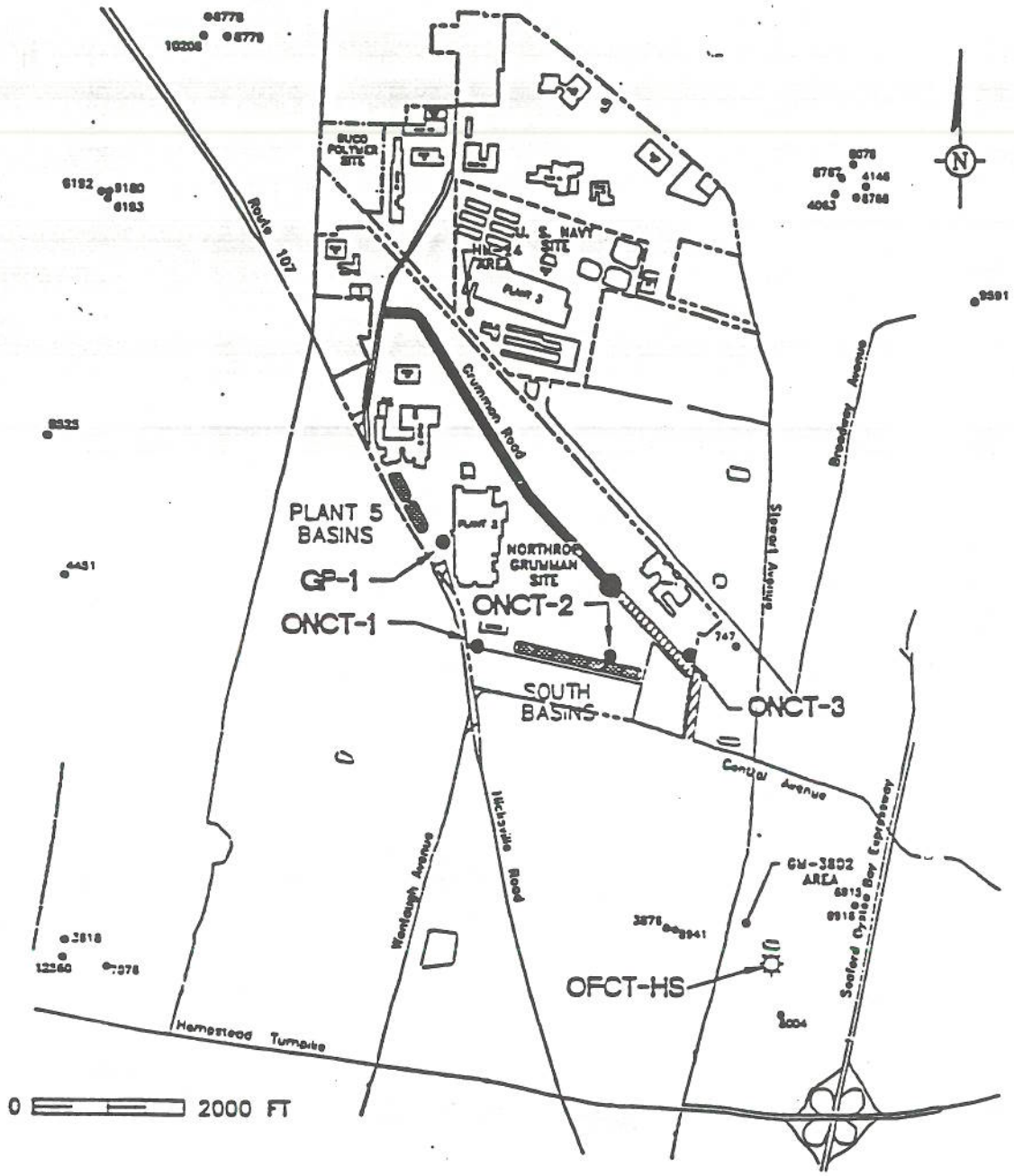
XVI. CERTIFICATION OF COMPLETION OF THE WORK

Within thirty (30) Days after Respondents conclude that all phases of the Work required by the Administrative Order have been fully performed, Respondents shall schedule and conduct a pre-certification inspection to be attended by Respondents and EPA. If, after the pre-certification inspection, Respondents still believe that the Work has been fully performed, Respondents shall submit a written report by a New York State registered professional engineer stating that the Work has been completed in full satisfaction of the requirements of the Administrative Order. If, after review of the written report, EPA, after reasonable opportunity for review and comment by the State, determines that any portion of the Work has not been completed in accordance with the Administrative Order, EPA will notify Respondents in writing of the activities that must be undertaken by Respondents pursuant to the Administrative Order to complete the Work.

If EPA concludes, based on the initial or any subsequent request for Certification of Completion by Respondents and after a reasonable opportunity for review and comment by the State, that the Work has been performed in accordance with the Administrative Order, EPA will so notify Respondents in writing.

FIGURE 1

Hooker/Ruco Site Map

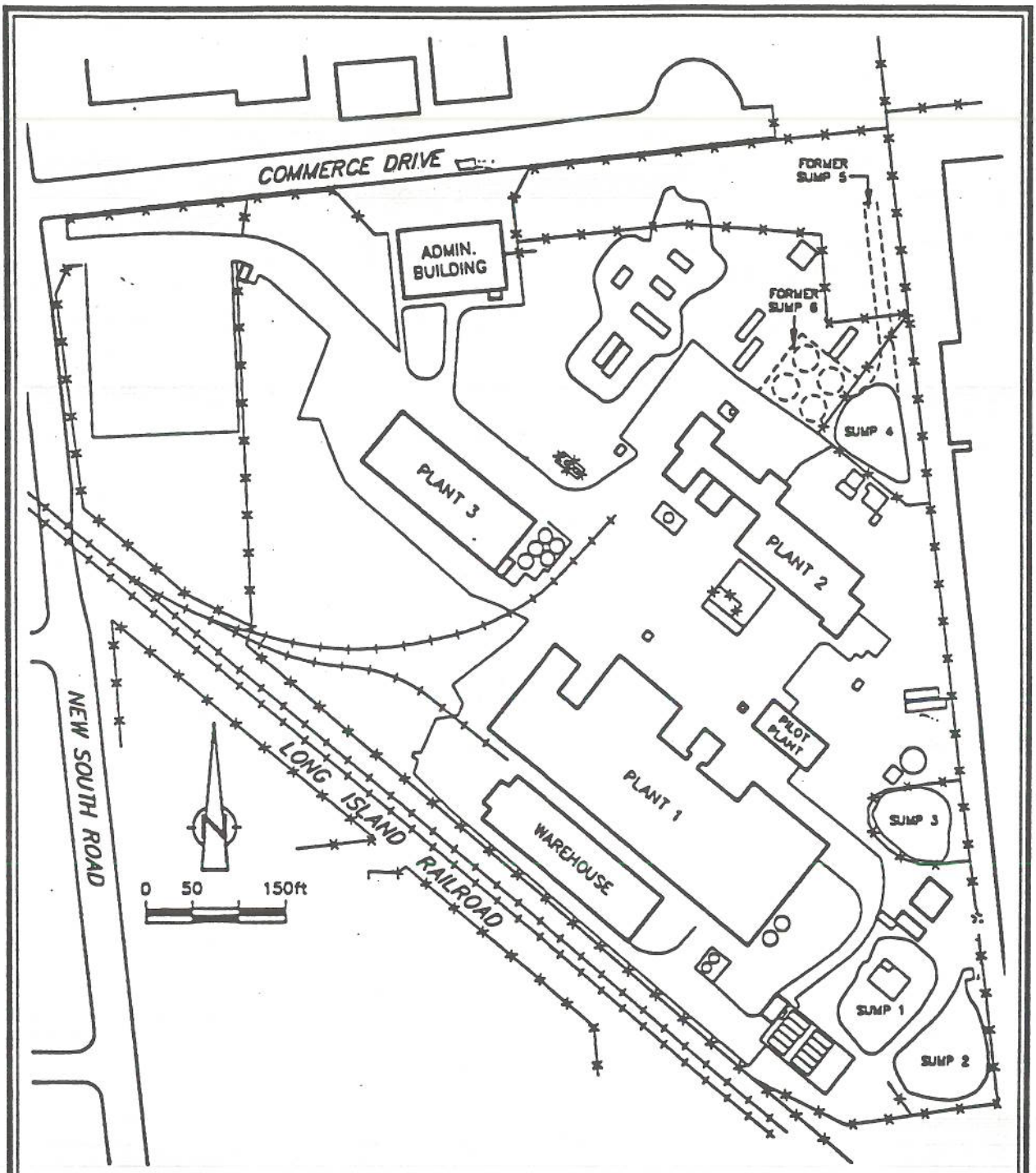


NORTHRUP/GRUMMAN AEROSPACE CORPORATION, HOOKER CHEMICAL/RUCO POLYMER SITE AND AND NAVAL WEAPONS INDUSTRIAL RESERVE PLANT SITES

Modified from ARCADIS Geraghty & Miller

FIGURE 2

Hooker/Ruco Facility Map



HOOKER CHEMICAL/RUCO POLYMER
SITE LOCATION MAP

Modified from Conestoga-Rovers & Associates (11/99)