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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 3

AND THE

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF ENVIRONMENTAL QUALITY

AND THE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

In THE MATTER OF:	
The United States National Aeronautics and Space Administration Langley Research Center	Federal Facility Agreement Under CERCLA Section 120
	Administrative Docket Number: FCA-CERC-010

I hereby certify that the within is a true and correct copy of the original Agreement filed in this matter.

Clay Monroe

Attorney for EPA

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Based on the information available to the Parties on the effective date of this FEDERAL FACILITY AGREEMENT (Agreement) and without trial or adjudication of any issues of fact or law, the Parties agree as follows:

1. JURISDICTION

1.1 Each Party is entering into this Agreement pursuant to the following authorities:

a. The United States Environmental Protection Agency (EPA), enters into those portions of this Agreement that relate to Expanded Site Investigations (ESIs), and Remedial Investigations and Feasibility Studies (RIs/FSs) pursuant to Section 120(e)(1) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. Section 9620(e)(1), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), Pub. L. 99-499 (hereinafter jointly referred to as CERCLA), and the Resource Conservation and Recovery Act (RCRA) Sections 6001, 3008(h), 3004, 3005, and 7003, 42 U.S.C. Sections 6961, 6928(h), 6924, 6925, and 6973, as amended by the Hazardous and Solid Waste Amendments of 1984 (HSWA) (hereinafter jointly referred to as RCRA), and Executive Order (E.O.) 12580.

b. EPA enters into those portions of this Agreement that relate to remedial actions pursuant to CERCLA Section 120(e)(2), 42 U.S.C. Section 9620(e)(2), RCRA Sections 6001, 3008(h), 3004 and 3005, and 7003, 42 U.S.C. Sections 6961, 6928(h), 6924 and 6925, and 6973, and Executive Order 12580;

c. The National Aeronautics and Space Administration (NASA) enters into those portions of this Agreement that relate to the ESIs and RI/FSs pursuant to CERCLA Section 120(e)(1), 42 U.S.C. Section 9620(e)(1), RCRA Sections 6001, 3008(h) and 3004 and 3005, 42 U.S.C. Sections 6961, 6928(h), 6924 & 6925, Executive Order 12580, and the National Environmental Policy Act (NEPA), 42 U.S.C. Section 4321 et seq, and the National Aeronautics and Space Act of 1958, as amended, 42 U.S.C. Section 2451 et seq.;

d. NASA enters into those portions of this Agreement that relate to remedial actions pursuant to CERCLA Section 120(e)(2), 42 U.S.C. Section 9620(e)(2), RCRA Sections 6001, 3008(h), and 3004 and 3005, 42 U.S.C. Sections 6961, 6928(h), 6924 & 6925, Executive Order 12580, and the National Aeronautics and Space Act of 1958, as amended, 42 U.S.C. Section 2451 et seq.;

e. The Commonwealth of Virginia Department of Environmental Quality (VDEQ) enters into this Agreement pursuant to CERCLA Sections 120(f) and 121(f), 42 U.S.C. Sections 9620(f)

and 9621(f), Section 3006 of RCRA, 42 U.S.C. Sections 6926, and the Virginia Waste Management Act, Virginia Code Section 10.1-1400 et seq.

2. PARTIES

2.1 The Parties to this Agreement are EPA, NASA and the Commonwealth of Virginia (Commonwealth). The terms of the Agreement shall apply to and be binding upon EPA, NASA and the Commonwealth of Virginia. The Commonwealth intends to voluntarily comply with all terms of this Agreement and is committed to full participation in the remediation efforts to be conducted pursuant to this Agreement. The Parties recognize, however, that this Agreement is a statement of the intentions of the Commonwealth and does not create third party beneficiaries.

2.2 This Agreement shall be enforceable against EPA and NASA. This Section shall not be construed as an agreement to indemnify any person. NASA shall notify its agents, members, employees, response action contractors for the Site, and all subsequent owners, operators, and lessees of the Site, of the existence of this Agreement.

2.3 Each Party shall be responsible for ensuring that work performed by their contractor is in accord with this Agreement. Failure of NASA to provide proper direction to its contractors and any resultant noncompliance with this Agreement by a contractor shall not be considered a Force Majeure event or other good cause for extensions under Section 10 (Extensions). Each Party, upon selection of a contractor and when practicable in advance of the contract performance, shall notify the other parties of the identity and of the assigned tasks of said contractor.

2.4 The Commonwealth of Virginia has designated the Department of Environmental Quality (VDEQ) as the State Lead Agency for the purposes of this Agreement. When reasonably necessary to effectuate this Agreement, the Commonwealth may change the State Lead Agency during the performance of the Agreement. Such change of State Lead Agency is not subject to dispute resolution. The Commonwealth agrees to notify the other Parties of such change of State Lead Agency within fourteen (14) days after the decision is made.

3. DEFINITIONS

3.1 Except as noted below or otherwise explicitly stated, the definitions provided in CERCLA and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) shall control the meaning of terms used in this Agreement.

a. "Accelerated Operable Unit" or "AOU" shall mean a Remedial Action which prevents, controls, or responds to a release or threatened release of hazardous substances, pollutants, and contaminants where prompt action is necessary but a response under removal authorities is not appropriate or desirable.

b. "Agreement" shall refer to this document and shall include all Attachments to this document.

c. "ARARs" shall mean Federal and Commonwealth applicable or relevant and appropriate requirements, standards, criteria, or limitations, identified pursuant to Section 121 of CERCLA. ARARs shall apply in the same manner and to the same extent that such are applied to any non-governmental entity, facility, unit, or site, as defined in CERCLA and the NCP. See CERCLA Section 120(a)(1), 42 U.S.C. Section 9620(a)(1).

d. "CERCLA" shall mean the Comprehensive Environmental Response, Compensation and Liability Act, Public Law 96-510, 42 U.S.C. Sections 9601 et seq., as amended by the Superfund Amendments and Reauthorization Act of 1986, Public Law 99-499, and any subsequent amendments.

e. "Commonwealth" shall mean the Commonwealth of Virginia.

f. "Construction Completion Report" is a report which shall outline in specifics the Remedial Actions taken at an operable unit and shall detail, and provide an explanation for any activities that were not conducted in accordance with the final Remedial Design and/or the final Remedial Action (RA) work plan(s).

g. "Days" shall mean calendar days, unless business days are specified. Any submittal which under the terms of this Agreement would be due on Saturday, Sunday, or Federal or Commonwealth holidays shall be due on the following business day. References herein to specific numbers of days shall be understood to exclude the day of occurrence.

h. "EPA" shall mean the United States Environmental Protection Agency, its successors and assigns.

i. "Expanded Site Investigation" or "ESI" shall mean an investigation to provide more general data and information on Site characteristics, contaminant sources, or migration pathways. In situations where EPA determines that an expedited remedial response is necessary at an ESI, EPA, after consulting with the Commonwealth of Virginia and NASA, may designate the area as an AOU as defined under Section 3a of this Agreement.

j. "Expanded Site Investigation Areas" (ESI Areas) shall mean those geographical areas designated as such in Attachment B, and any additional areas identified by the Parties in the future. When the Parties agree, ESI Areas may expand or contract in size as information becomes available indicating the extent of contamination and the geographical area needed to be studied.

k. "Facility" shall mean that property presently owned by the National Aeronautics and Space Administration located in the City of Hampton, VA. The Facility consists of approximately 787 acres of land and is administered by the National Aeronautics and Space Administration's Langley Research Center (LARC). The Facility is bounded by State Route 172 on the West, by Brick Kiln Creek to the North and by Langley Air Force Base to the South and East. Such term does not include real property controlled by the U.S. Air Force which LaRC utilizes under lease or use permit. These areas will be addressed in a separate agreement between the Air Force and EPA. This definition is for the purpose of describing a geographical area and not a governmental entity.

l. "Facility Project Closeout Report" is a report which shall outline in specifics the Remedial Actions taken at the Facility and shall detail, and provide an explanation for, any activities that were not conducted in accordance with the final Remedial Design and/or the final RA Work Plan(s).

m. "Feasibility Study" or "FS" means a study conducted pursuant to CERCLA, the NCP and EPA guidance which fully develops, screens and evaluates in detail remedial action alternatives to prevent, mitigate, or abate the migration or the release of hazardous substances, pollutants, or contaminants at and from the Site. NASA shall conduct and prepare the FS in a manner to support the intent and objectives of Section 18 (Statutory Compliance/RCRA-CERCLA Integration).

n. The term "hazardous substance" is defined in Section 101(14) of CERCLA, 42 U.S.C. Section 9601(14), and shall have the same meaning when used herein. The elements, compounds, and hazardous materials designated as hazardous substances are found in 40 C.F.R. Section 302.4

o. "LaRC shall mean the NASA Langley Research Center located in Hampton, VA.

p. "Meeting" in regard to Project Managers, shall mean an in-person discussion at a single location or a conference telephone call of all Project Managers. A conference call will suffice for an in-person meeting at the concurrence of the Project Managers.

q. "NASA" shall mean the U.S. National Aeronautics and Space Administration, and its successors and assigns.

r. "Natural Resources Trustee(s)" or "Federal or State Natural Resources Trustee(s)" shall have the same meaning and authority as provided in CERCLA and the NCP.

s. "Natural Resource Trustee(s) Notification and Coordination" shall have the same meaning as provided in CERCLA and the NCP.

t. "National Contingency Plan" or "NCP" shall refer to the regulations contained in 40 C.F.R. Part 300, et seq. and any subsequent amendments.

u. "Operable Unit" shall mean a discrete action that comprises an incremental step toward comprehensively addressing Site problems. This discrete portion of a remedial response manages migration, or eliminates or mitigates a release, threat of release, or pathway of exposure related to the Site. Operable Units may address geographical portions of a Site, specific Site problems or initial phases of an action, or may consist of any set of actions performed over time or any actions that are concurrent but located in different parts of the Site. The cleanup of a Site can be divided into a number of Operable Units, depending on the complexity of the problems associated with the Site. The term "operable unit" is not intended to refer to the term "operating unit" as used in RCRA. All Operable Units shall be addressed in accordance with the NCP and the requirements of CERCLA.

v. "Operation and Maintenance" shall mean activities required to maintain the effectiveness of response actions.

w. "On-Scene Coordinator" or "OSC" shall have the same meaning and authority as provided in the NCP.

x. "Pollution Prevention" shall mean activities taken by NASA in accordance with the existing MOU with U.S. EPA, Region III. A copy of this MOU can be found in Section 42 of this Agreement (Attachments). The purpose of the activities are to reduce pollution at its source by any one of several methods including waste minimization, recycling, process changes and material substitutions.

y. "RCRA" or "RCRA/HSWA" shall mean the Resource Conservation and Recovery Act of 1976, Public Law 94-580, 42 U.S.C. Sections 6901 et seq., as amended by the Hazardous and Solid Waste Amendments of 1984, Public Law 98-616, and any subsequent amendments.

z. "Record(s) of Decision" or "ROD(s)" shall be the public document(s) that select(s) and explain(s) which cleanup alternative(s) will be implemented at the site, and includes the basis for the selection of such remedy(ies). The basis for any such remedy selection includes, but is not limited to, information and technical analyses generated during the RI/FS and consideration of public comments and community concerns. RODs shall be considered neither primary nor secondary documents and as such shall not be subject to dispute resolution.

aa. "Remedial Design" or "RD" shall have the same meaning as provided in the NCP.

bb. "Remedial Investigation" or "RI" means that investigation conducted pursuant to CERCLA and the NCP. The RI serves as a mechanism for collecting data for Site and waste characterization, and conducting treatability studies as necessary to evaluate the performance and cost of treatment technologies. The data gathered during the RI will also be used to conduct a baseline risk assessment, perform a feasibility study, and support the design of a selected remedy. NASA shall conduct and prepare the RI in a manner to support the intent and objectives of Section 18 of this Agreement (Statutory Compliance/RCRA-CERCLA Integration).

cc. "Remedy" or "Remedial Action" or "RA" shall have the same meaning as provided in Section 101(24) of CERCLA, 42 U.S.C. Section 9601(24), and the NCP, and may consist of Operable Units.

dd. "Remove" or "Removal" shall have the same meaning as provided in Section 101(23) of CERCLA, 42 U.S.C. Section 9601(23), and the NCP.

ee. "Remedial Project Manager" or "RPM" shall have the same meaning and authority as Project Manager (PM) as provided in Section 19 of this Agreement (Project Managers).

ff. "Respond" or "Response" shall have the same meaning as provided in Section 101(25) of CERCLA, and means remove, removal, remedy, or remedial action, including enforcement activities related thereto.

gg. "Site" shall include the "Facility" and any other areas in close proximity to the Facility where a hazardous substance, hazardous waste, hazardous constituent, pollutant, or contaminant from the Facility has been deposited, stored, disposed of, or placed, or has migrated or otherwise come to be located. The Site is a "facility" within the meaning of Section 101(9) of CERCLA, 42 U.S.C. Section 9601(9). This definition is not intended to include hazardous substances or wastes intentionally transported from the Facility by motor vehicle for

treatment, storage or disposal. This definition is for the purpose of describing a geographical area and not a government entity.

hh. "Solid Waste Management Unit" or "SWMU", as defined pursuant to RCRA, shall mean any discernible unit at which solid wastes have been placed at any time, irrespective of whether the unit was intended for the management of solid and/or hazardous waste. The units include any area at a facility at which solid wastes have been routinely and systematically released.

ii. "State Lead Agency" shall mean the VDEQ or other agency designated to act as a "State Lead Agency" pursuant to subsection 2.4.

jj. "Statement of Work" shall mean a summary of work required which is presented to the contractor to aid in the work plan development and to institute a remedial investigation, or feasibility study, remedial design or remedial action under each remedial or removal task.

kk. "VDEQ" shall mean the Commonwealth of Virginia Department of Environmental Quality, its authorized employees and authorized representatives.

4. PURPOSES

4.1 The general purposes of this Agreement are to:

a. Ensure that the environmental impacts associated with past and present activities at the Site are thoroughly investigated and appropriate response action is taken as necessary to protect the public health, welfare and the environment;

b. Establish a procedural framework and schedule for developing, implementing, and monitoring appropriate response actions at the Site in accordance with, but not limited to the following: CERCLA, the NCP, Superfund guidance and policy, RCRA, RCRA guidance and policy and applicable Federal and Commonwealth law;

c. Facilitate cooperation, exchange of information and participation of the Parties in such actions; and

d. Ensure the adequate assessment of potential injury to natural resources, and the prompt notification, cooperation, and coordination with the Federal and State Natural Resources Trustees necessary to guarantee the implementation of response actions to achieve appropriate cleanup levels.

e. Ensure NASA compliance with CERCLA and RCRA Corrective Action requirements in accordance with Section 18 (Statutory Compliance/RCRA-CERCLA Integration) of this Agreement.

4.2 Specifically, the purposes of this Agreement are to:

a. Provide for NASA cooperation in accelerating the cleanup of the Site, and to provide a means to determine responsibilities for required actions.

b. Identify Operable Units (OUs) that are appropriate at the Site prior to the implementation of final remedial action(s) for the Site and identify those OUs that can be considered as Accelerated Operable Units (AOUs) as defined in Section 3 of this Agreement (Definitions). OUs shall be identified and proposed to the Parties as early as possible.

c. Establish requirements for the performance of Expanded Site Investigations ("ESIs") and Remedial Investigations ("RI") to determine fully the nature and extent of the threat to the public health or welfare or the environment caused by the release and threatened release of hazardous substances, pollutants, or contaminants at the Site and to establish requirements for the performance of a Feasibility Study ("FS") for the Site to identify, evaluate, and select alternatives for the appropriate remedial action(s) to prevent, mitigate, or abate the release or threatened release of hazardous substances, pollutants, or contaminants at the Site in accordance with CERCLA and applicable Commonwealth law;

d. Identify the nature, objective, and schedule of response actions to be taken at the Site. Response actions at the Site shall attain that degree of cleanup of hazardous substances, pollutants or contaminants mandated by CERCLA, RCRA, applicable Records of Decision, this Agreement and applicable Commonwealth law;

e. Implement the selected response actions(s) in accordance with CERCLA, the NCP, RCRA and applicable Commonwealth law;

f. Assure compliance, through this Agreement, with RCRA and other Federal and Commonwealth laws and regulations for matters covered herein;

g. Coordinate response actions at the Site with the mission and support activities at LaRC.

h. Expedite the cleanup process as necessary to protect human health and the environment;

i. Provide for the Commonwealth to have involvement in the initiation, development, selection, and enforcement of remedial actions to be undertaken at the Site, including the review of all applicable data as it becomes available and the development of studies, reports, and action plans; and to identify and integrate Commonwealth ARARs into the remedial action process in accordance with CERCLA Section 121, 42 U.S.C. Section 9621; and

j. Provide for operation and maintenance of any remedial action selected and implemented pursuant to this Agreement.

5. FINDINGS OF FACT

5.1 For purposes of this Agreement, the following constitutes a summary of the findings upon which this Agreement is based. Nothing contained in this Agreement shall constitute an admission of any liability by NASA for any matters contained herein nor shall anything in this Agreement constitute an admission by NASA with respect to any findings of fact or any legal determination noted herein.

a. The Facility is a unique NASA facility specializing in aeronautical and space research and testing in numerous state-of-the art wind tunnels. The Facility is located in Hampton, VA and is operated under the authority of the United States National Aeronautics and Space Administration, Washington, DC. The Facility has been active since 1917 and assumed its current name in 1958.

b. The Facility consists of approximately 787 acres located in Hampton, Virginia. The facility is bounded by Brick Kiln Creek to the north, Route 172 to the west and Langley Air Force Base on the south and the east.

c. NASA is currently authorized to discharge wastewater under NPDES Permit No. VA002471 (hereinafter "Permit") issued by the Commonwealth of Virginia under the authority of State Law and the Clean Water Act (CWA), authorized by EPA pursuant to CWA Section 402(b), 33 U.S.C. Section 1342(b). This permit became effective on November 2, 1989, and will expire on November 2, 1994. The permit allows NASA to discharge certain pollutants from the Facility to Tides Mill Creek, Tabbs Creek, Brick Kiln Creek, and the Southwest Branch of Back River in accordance with the effluent limitations, monitoring requirements and other conditions set forth in the Permit.

d. NASA most recently submitted a Notification of Regulated Waste Activity to EPA on August 31, 1989. In this notification NASA identified LaRC as a greater than 1000 kg/mo (2,200 lbs.) generator of hazardous wastes. Wastes generated

include wastes having the following codes: D001, D002, D003, D004, D005, D006, D007, D008, D009, D011, U204, F006, P119, P120, F005, P029, F003, F002, P030, F001, U213, U228. Each of these wastes is a hazardous waste as that term is identified in VHWMR Sections 2.80, 3.06 through 3.09 and Appendix 3.1 of Section 3.00 of the VHWMR (40 C.F.R. Sections 261.3, 261.20, 261.21, 261.23, and 261.31). LaRC generates specifications and off-specification waste oil but does not market it. Off-specification oil is also disposed of as hazardous waste. The Facility was issued EPA Identification Number VA 2800005033.

e. In February 1988, a Preliminary Assessment (PA) of the Facility was conducted. During the PA, a total of 7 potentially contaminated sites were identified and examined. Of these sites, the PA recommended only 3 for further study. These sites were:

Construction Debris Landfill
Chemical Waste Pit
Area E Warehouse

f. In May 1989, LaRC completed a Site Investigation (SI) of the Facility as required by CERCLA. The Area E Warehouse site was confirmed by the SI to have contamination levels warranting further investigation. The Construction Debris Landfill and the Chemical Waste Pit were recommended for further action.

g. Pursuant to Section 309(a) of CWA, 33 U.S.C. Section 1319(a), EPA issued a Notice of Violation (NOV) to NASA dated September 20, 1990, finding NASA's LaRC in violation of Section 301(a) of CWA, 33 U.S.C. Section 1311(a), by discharging without a permit limitation Poly Chlorinated Biphenyls (PCBs) and Poly Chlorinated Triphenyls (PCTs) to waters of the United States.

h. NASA responded to the NOV by letter dated October 1, 1990.

i. A portion of the Facility's storm water collection system was identified as the pathway through which the PCB and PCT contamination entered the environment and contaminated a portion of Tabbs Creek. As a result, the Facility signed a Federal Facilities Compliance Agreement Docket No. III-FF-CWA-003 with the U.S. EPA in December 1990 to adress the PCB and PCT contamination.

j. PCB soil contamination discovered at the Stratton Substation site in 1984 and PCB contaminated soil was subsequently removed. Stratton Substation Area was found to comply with decontamination requirements of 40 CFR 761 in November 1987. The Stratton Substation Area was later

proposed for reevaluation because of possible groundwater contamination. Ground Water Sampling conducted in 1992 by NASA indicated no contamination.

k. In October 1991, the U.S. EPA Photographic Interpretation Center, a branch of the Advanced Modeling Systems Laboratory, in Las Vegas, Nevada at the request of U.S. EPA Region III conducted a Site Analysis of NASA Langley Research Center/Langley Air Force Base. The analysis included a review of aerial photography from which there were 7 additional sites identified which warrant further evaluation. These sites were identified as:

Building 1199
Building 1164
Open Storage Area
Fill Area
Treatment Area
Dump (Building 1250)
Dump (Building 1156)

l. In January 1993, the EPA completed, pursuant to CERCLA, a Hazard Ranking System (HRS) evaluation of Langley Research Center and Langley Air Force Base which resulted in a combined score of 50.0.

m. On May 10, 1993, the U.S. EPA proposed that LaRC and the Langley Air Force Base be promulgated to the National Priorities List for Uncontrolled Hazardous Waste Sites, Proposed Rule No. 14 [FRL-4653-2].

n. The following is a brief description of the areas where hazardous substances are located:

Construction Debris Landfill - Several Inorganic compounds such as arsenic, cadmium, selenium, vanadium detected in groundwater samples. Possible presence of organic compounds such as tetrachloroethene and toluene detected in soil samples. Polycyclic aromatic hydrocarbons found possibly resulting from material burned at the site.

Chemical Waste Pit - Methylene chloride and acetone and bis(2-ethylhexyl)phthalate detected in soil samples. Mercury, lead and vanadium detected in groundwater samples.

Area E Warehouse - Soil analysis shows the presence of lead, manganese, mercury and PCBs in surface and subsurface soils.

Stormwater System - PCB and PCT contamination detected in manholes and catch basins.

Tabbs Creek - PCB and PCT contamination detected in sediment.

Stratton Substation - PCBs detected in soil.

6. DETERMINATIONS

6.1 The following constitutes a summary of the determinations relied upon by the Parties to establish their jurisdiction and authority to enter into this Agreement. None of these determinations shall be considered admissions to any person, related or unrelated to this Agreement, for purposes other than determining the basis of this Agreement or establishing the jurisdiction and authority of the Parties to enter into this Agreement.

a. The U.S. National Aeronautics and Space Administration (NASA) is a "person" as defined in Section 101(21) of CERCLA, 42 U.S.C. Section 9601(21) and is the owner and operator of the Facility, as defined in Sections 101(20) and 107(a)(1) of CERCLA, 42 U.S.C. Section 9601(20) and 9607(a)(1). NASA is charged with fulfilling the obligations of the owner/operator under CERCLA.

b. LaRC is a "facility" as defined by Section 101(9) of CERCLA, 42 U.S.C. Section 9601(9).

c. There has been a release or a substantial threat of a release of hazardous substances, pollutants, contaminants, hazardous wastes or constituents at or from the Facility.

d. The actions provided for in this Agreement are consistent with the NCP.

e. The actions provided for in this Agreement are necessary to protect the public health, or welfare or the environment.

f. This Agreement provides for the expeditious completion of all necessary Response Actions.

7. WORK TO BE PERFORMED

7.1 The Parties recognize that a significant amount of background information exists and must be reviewed prior to developing the Statements of Work (SOWs) and Work Plans required by this Agreement. NASA need not halt currently ongoing work but may be obligated to modify or supplement work previously done to produce a final product which meets the requirements of this

Agreement. It is the intent of the Parties to this Agreement that work done and data generated prior to the effective date of this Agreement be retained and utilized as elements of the RI/FS to the maximum extent feasible without violating ARARs or guidelines and without risking significant technical errors.

7.2 The Parties agree to perform all tasks, obligations and responsibilities undertaken pursuant to this Agreement in accordance with federal law including, but not limited to, the following: CERCLA and CERCLA guidance and policy, the NCP, pertinent provisions of RCRA and RCRA guidance and policy, and Executive Order 12580; applicable Commonwealth laws and regulations; and all terms and conditions of this Agreement including documents prepared and incorporated in accordance with Section 8 of this Agreement(Consultation).

7.3 NASA agrees to undertake, seek adequate funding for, fully implement, and report on the following tasks, with participation of the Parties as set forth in this Agreement:

a. Expanded Site Investigations;

b. Remedial Investigations of the Site;

c. Federal and State Natural Resource Trustee Notification and Coordination for the Site;

d. Feasibility Studies for the Site;

e. All response actions, including Operable Unit identification and response actions, for the Site; and

f. Operation and maintenance of response actions at the Site.

7.4 The Parties agree to:

a. Make their best efforts to expedite the initiation of response actions for the Site, particularly for Operable Units; and

b. Carry out all activities under this Agreement so as to protect public health, welfare, and the environment.

7.5 Upon request, EPA and VDEQ agree to provide any Party with guidance documents or reasonable assistance in obtaining guidance documents relevant to the implementation of this Agreement.

7.6 Any Party may propose in writing that an Operable Unit (OU) be conducted as an Accelerated Operable Unit (AOU) as

defined in Section 3 of this Agreement (Definitions).

7.7 Any Party may propose that an area on the Facility that may be a threat, or potential threat, to public health, welfare, or the environment be addressed as an Expanded Site Investigation Area as defined in Section 3 of this Agreement (Definitions).

7.8 NASA will conduct ESIs to determine if there have been releases of hazardous substances, pollutants, contaminants, hazardous wastes or constituents to the environment from the ESI Areas. The scope of the ESIs shall be determined by the Parties.

a. NASA shall conduct the ESIs in accordance with CERCLA guidance for conducting Expanded Site Investigations.

b. Based on the review of the ESIs, the Parties shall, within forty-five (45) days following receipt of the studies, determine which (if any) of the ESIs will require an RI/FS.

8. CONSULTATION: Review and Comment Process for Draft and Final Documents

8.1 Applicability:

The provisions of this Section establish the procedures that shall be used by the Parties to provide each other with appropriate technical support, notice, review, comment, and response to comments regarding RI/FS and RD/RA documents, specified herein as either primary or secondary documents. In accordance with CERCLA Section 120, 42 U.S.C. Section 9620, NASA will normally be responsible for issuing primary and secondary documents to EPA and VDEQ. As of the effective date of this Agreement, all draft final and final primary and secondary documents identified herein shall be prepared and coordinated in accordance with Subsections 8.2 through 8.10 and subject to dispute in accordance with Section 13 of this Agreement (Dispute Resolution). The designation of a document as "draft" or "final" is solely for purposes of consultation with EPA and VDEQ in accordance with this Section. Such designation does not affect the obligation of the Parties to issue documents, which may be referred to herein as "final", to the public for review and comment as appropriate and as required by law or regulations.

8.2 General Process for RI/FS and RD/RA documents:

a. Primary documents include those reports that are major, discrete portions of ESI, RI/FS and/or RD/RA activities. Primary documents are initially issued by NASA in draft, subject to review and comment by EPA and VDEQ. Following receipt of comments on a particular draft primary document, NASA shall respond to the comments received and issue a draft final primary

document which is then subject to dispute resolution. The draft final primary document shall become the final primary document either thirty (30) days after the receipt by EPA and VDEQ of a draft final document if dispute resolution is not invoked or as modified by decision of the dispute resolution process.

b. Secondary documents include those reports that are discrete portions of the primary documents and are typically input or feeder documents. Secondary documents are issued by NASA in draft subject to review and comment by EPA and VDEQ. Although NASA will respond to comments received, the draft secondary documents may be finalized in the context of the corresponding primary documents. A secondary document may be disputed at the time the corresponding draft final primary document is issued.

8.3 Primary Documents:

a. All Primary Documents shall be prepared in accordance with the NCP and applicable EPA guidance. NASA shall complete and transmit drafts of the following primary documents for each Operable Unit and response action to EPA and VDEQ for review and comment in accordance with the provisions of this Section; provided, however, that NASA need not complete a draft primary document for an Operable Unit if: (i) the same primary document completed or to be completed with respect to another Operable Unit covers all topics relevant to the Operable Unit at issue; and (ii) the Parties agree in writing that such draft primary document need not be completed. The following documents, when applicable, shall be primary documents:

(1) ESI Work plans;
(2) RI/FS Work plans;
(3) Sampling and Analysis Plan which includes a Field Sampling Plan and a Quality Assurance Project Plan;
(4) Community Relations Plans (CRP) (May be amended as appropriate to address Operable Units. Any such amendments shall not be subject to the threshold requirements of Subsection 8.10. Any disagreement regarding amendment of the CRP shall be resolved pursuant to Section 13 (Dispute Resolution));
(5) ESI Reports
(6) RI Reports (including Risk Assessments);
(7) FS Reports;
(8) Proposed Remedial Plans;
(9) Remedial Design Work Plans;
(10) Preliminary Remedial Design;
(11) Final Remedial Design;
(12) Remedial Action Work Plan and Schedules for Remedial Actions;
(13) Contingency Plan;

(14) Construction Completion Report;
(15) Facility Project Closeout Report;
(16) Operation and Maintenance Plan; and
(17) Statement of Work (SOW)

The Parties may agree, in writing, to merge or combine multiple documents whenever appropriate and, if so, shall adjust deadlines accordingly.

b. Only draft final primary documents shall be subject to dispute resolution in accordance with Section 13 (Dispute Resolution) of this Agreement. NASA shall complete and transmit draft primary documents in accordance with the timetable and deadlines established in Section 9 (Deadlines) of this Agreement. These deadlines are enforceable and if not complied with can subject NASA to stipulated penalties.

c. Primary documents may include target dates for subtasks established as provided in Subsections 8.4b and 19.3. The purpose of target dates is to assist NASA in meeting deadlines, but target dates do not become enforceable by their inclusion in the primary documents and are not subject to Section 9 (Deadlines), Section 10 (Extensions) or Section 14 (Enforceability) of this Agreement.

8.4 Secondary Documents:

a. All secondary documents shall be prepared in accordance with the NCP and applicable EPA guidance. NASA shall complete and transmit drafts of the following secondary documents for each Operable Unit to EPA and VDEQ for review and comment, provided, however, that NASA need not complete a draft secondary document for an Operable Unit if: (i) the same secondary document or primary document completed or to be completed with respect to another Operable Unit covers all topics relevant to the Operable Unit at issue; and (ii) the Parties agree in writing that such draft secondary document need not be completed. The following documents, when applicable, shall be secondary documents:

(1) Site Characterization Summaries (part of RI);
(2) Sampling and Data Results;
(3) Treatability Studies (only if generated);
(4) Initial Screenings of Alternatives;
(5) Well closure methods and procedures;
(6) Detailed analyses of Alternatives (when not used in an FS);
(7) Post-Screening Investigation Work Plans;
(8) Preliminary Review Report;
(9) Sampling Visit Work Plan;
(10) Construction Quality Assurance Plan;
(11) Construction Quality Control Plan;
(12) Contingency Plan;

(13) 60% Remedial Design; and a
(14) 90% Remedial Design.

b. Although EPA and VDEQ may comment on the drafts for the secondary documents identified above, such documents shall not be subject to dispute resolution except as provided by Subsection 8.2 hereof. Target dates for the completion and transmission of draft secondary documents may be established by the Project Managers. The Project Managers also may agree upon additional secondary documents that are within the scope of the listed primary documents.

8.5 Meetings of the Project Managers (See also Subsection 19.3):

The Project Managers shall meet in person approximately every ninety (90) days, except as otherwise agreed by the Parties, to review and discuss the progress of work being performed at the Site, including progress on the primary and secondary documents. However, progress meetings may be held more frequently as needed upon request by any Project Manager. Prior to preparing any draft document specified in Subsections 8.3 and 8.4 of this Agreement, the Project Managers shall meet in an effort to reach a common understanding with respect to the contents of the draft document.

8.6 Identification and Determination of Potential ARARs:

a. VDEQ agrees to contact, in writing, those State and local government agencies that are a potential source of ARARs in a timely manner as set forth in Section 300.515(d) of the NCP, 40 C.F.R. Section 300.515(d)and provide the names and addresses to NASA. However, Parties recognize that the general protocol to be followed is for VDEQ to coordinate the initial identification of State ARARs with other State Agencies independent of other Parties.

b. Prior to the issuance of a draft primary or secondary document for which ARAR determinations are appropriate, the Project Managers shall meet to identify and propose all potential pertinent ARARs, including any permitting requirements that may be a source of ARARs. Within the time period described in Section 300.515(d)(1) of the NCP, 40 C.F.R. Section 300.515(d)(1), VDEQ and EPA agree to submit the proposed ARARs to NASA. When identifying a requirement as an ARAR, EPA and VDEQ shall include a citation to the statute or regulation from which the requirement is derived in accordance with Section 300.400(g)(5) of the NCP, 40 C.F.R. Section 300.400(g)(5).

c. NASA will prepare draft ARAR determinations in accordance with CERCLA Section 121(d)(2), 42 U.S.C. 9621(d)(2), the NCP and pertinent guidance issued by EPA. In subsequent

submission of draft RD workplans, NASA will provide explanation of how the response action proposed will meet the standards, requirements, criteria or limitations identified as ARARs.

d. In identifying potential ARARs, the Parties recognize that actual ARARs can be identified only on a site-specific basis and that ARARs depend on the specific hazardous substances, pollutants and contaminants at a site, the particular actions associated with a proposed remedy and the characteristics of a site. The Parties recognize that ARAR identification is necessarily an iterative process and that potential ARARs must be identified and discussed among the Parties as early as possible, and must be reexamined throughout the RI/FS process until a ROD is issued.

8.7 Review and Comment on Draft Documents:

a. NASA shall complete and transmit each draft primary document to EPA and VDEQ on or before the corresponding deadline established for the issuance of the document. NASA shall complete and transmit the draft secondary documents in accordance with the target dates established for the issuance of such documents.

b. EPA and VDEQ agree to review and comment on all draft documents within sixty (60) days. Timetables for review and comment on draft documents may include review periods of less than sixty (60) days if all Parties concur. At or before the close of the comment period, EPA and the VDEQ agree to transmit their written comments to NASA. EPA or the VDEQ may extend the comment period for an additional thirty (30) days by written notice to NASA prior to the end of the review and comment period. In appropriate circumstances, this period may be further extended in accordance with Section 10 of this Agreement (Extensions).

c. Review of any document by the EPA and VDEQ may concern all aspects of it (including completeness) and should include, but is not limited to, technical evaluation of any aspect of the document, and consistency with CERCLA, the NCP, applicable Commonwealth law, and any pertinent guidance or other applicable federal law or policy issued by the EPA or VDEQ. At the request of the VDEQ and EPA Project Managers, and to expedite the review process, NASA shall make an oral presentation of the document to the Parties, at the offices of VDEQ or EPA, following transmittal of the draft document or within twenty-one (21) days, or sooner following the request, unless the Parties agree to an alternative arrangement. Comments by EPA and VDEQ shall be provided with adequate specificity so that NASA may respond to comments and, if appropriate, make changes to the draft document. Comments shall refer to any pertinent sources of authority or references upon which the comments are based and, upon request of NASA, the EPA or VDEQ, as appropriate, shall provide a copy of the cited authority or reference.

d. Representatives of the Parties shall make themselves readily available during the comment period for purposes of informally responding to questions and comments on draft documents. Oral comments made during such discussions need not be the subject of a written response by NASA on the close of the comment period.

e. In commenting on a draft document which contains a proposed ARAR determination, EPA or VDEQ shall include a reasoned statement of whether it objects to any portion of the proposed ARAR determination. To the extent that EPA or VDEQ does object, the basis for the objection shall be explained in detail and shall identify and address any ARARs which it believes were not properly addressed in the proposed ARAR determination.

f. Following the close of the comment period for a draft document, NASA shall give full consideration to all written comments. On a draft secondary document, NASA shall, within sixty (60) days of the close of the comment period, transmit to the EPA and VDEQ its written response to the comments received. Time-tables for the response to comments on draft documents may be less than sixty (60) days if all Parties concur. Within sixty (60) days of the close of the comment period on a draft primary document NASA shall transmit to EPA and VDEQ a draft final primary document, responding to all written comments received within the comment period. Before issuance of a draft final report and within the sixty (60) day response to comment period, the Parties shall confer to informally attempt to resolve any disputes. While the resulting draft final document shall be the responsibility of NASA, it shall be the product of consensus to the maximum extent possible.

g. NASA may extend the sixty (60) day period, or other mutually agreed upon time frame, for either responding to comments on a draft document or for issuing the draft final primary document for an additional thirty (30) days by providing written notice to EPA and VDEQ. In appropriate circumstances, this time period may be further extended in accordance with Section 10 of this Agreement (Extensions).

8.8 Availability of Dispute Resolution for Draft Final Primary Documents:

a. Dispute resolution procedures shall be available to the Parties for draft final primary documents as set forth in Section 13 of this Agreement (Dispute Resolution). When dispute resolution is invoked on a draft final Primary Document, all elements of the work required by this Agreement which are not affected by the dispute shall continue and be completed in accordance with the applicable deadline or schedule.

b. When dispute resolution procedures are invoked on a draft final primary document, work may be stopped in accordance with the procedures set forth in Subsection 13.9 of this Agreement regarding dispute resolution.

8.9 Finalization of Documents:

The draft final primary document shall serve as the final primary document after appropriate opportunity for review and comment by EPA and VDEQ, if no Party invokes dispute resolution regarding the document or, if invoked, at completion of the dispute resolution process should NASA's position be sustained. If NASA's position is not sustained in the dispute resolution process, NASA shall prepare, within sixty (60) days of resolution of the dispute, a revision of the draft final document which conforms to the results of dispute resolution. In appropriate circumstances, the time period for this revision period may be extended in accordance with Section 10 of this Agreement (Extensions).

8.10 Subsequent Modification of Final Documents:

Following finalization of any primary document other than the Community Relations Plan pursuant to Subsection 8.9 of this Agreement, any Party may seek to modify the document including seeking additional field work, pilot studies, computer modeling or other supporting technical work, only as provided in subparagraphs (a) and (b) below. (These restrictions do not apply to the Community Relations Plan.)

a. Any Party may seek to modify a document after finalization by submitting a concise written request to the Project Managers of the other Parties. The request shall specify the nature of the requested modification and how the request is appropriate under subparagraphs 8.10b(1) and (2) of this Agreement.

b. In the event that a consensus is not reached by the Project Managers on the need for a modification, any Party may invoke the dispute resolution procedures to determine if such modification shall be conducted. Modification of a document shall be required only upon a showing that:

(1) The requested modification is based on information that is: new (i.e., information that becomes available or known after the document was finalized); and significant, and

(2) The requested modification could be of significant assistance in evaluating impacts on the public health or the environment, in evaluating the selection of remedial alternatives, or in protecting human health and the environment.

c. Nothing in this Section shall alter EPA's, or VDEQ's ability to request the performance of additional work which was not contemplated by this Agreement.

9. DEADLINES

9.1 Within forty-five (45) days after the effective date of this Agreement, NASA shall propose, and announce and make available for public comment in the same manner Section 39 specifies for this Agreement, proposed deadlines for completion of the following draft primary documents for each response action:

a. ESI Work Plans;

b. RI/FS Work Plans, including Sampling and Analysis Plans including Quality Assurance Project Plans;

c. Community Relations Plan;

d. ESI Reports;

e. RI Reports;

f. FS Reports.

9.2 Within thirty (30) days after finalization of the FS, NASA shall submit a draft Proposed Plan to EPA and the Commonwealth for review and comment as described in Section 8, (Consultation: Review and Comment Process for Draft and Final Documents), of this Agreement. EPA, in consultation with the Commonwealth, will review the draft Proposed Plan. Within ten (10) days after receiving EPA acceptance on the Proposed Plan, NASA shall publish its Proposed Plan for forty-five (45) days of public review and comment. During the public comment period NASA shall make the administrative record available to the public and distribute the Proposed Plan. NASA shall hold a public information meeting during the public comment period to discuss the alternatives, including the preferred alternative, for each Operable Unit. Copies of all written and oral public comments received will be provided to the Parties. Public review and comment shall be conducted in accordance with Section 117(a) of CERCLA, 42 U.S.C. Section 9617(a), and applicable EPA guidance.

a. Following the close of the public comment period, NASA, in consultation with EPA and the Commonwealth, will determine if the Proposed Plan should be modified based on the comments received. These modifications will be made by NASA and the modified documents will be reviewed by EPA and the Commonwealth. The Parties may recommend that additional public comment be solicited if modifications to the Proposed Plan substantially change the remedy originally proposed to the public.

b. NASA shall submit its draft ROD to EPA and the Commonwealth within thirty (30) days following the close of the public comment period on the Proposed Plan. The draft ROD will include a Responsiveness Summary, in accordance with applicable EPA Guidance. Pursuant to CERCLA Section 120(e)(4)(A), 42 U.S.C. Section 9620(e)(4)(A), EPA and NASA, in consultation with the Commonwealth, shall make the final selection of the remedial action(s) for each Operable Unit. EPA and NASA, in consultation with the Commonwealth, shall have no less than thirty (30) days in which to attempt to jointly select a remedy following NASA's submission of a draft ROD. During this thirty (30) day period the Parties agree to meet, if necessary, to prepare a final ROD.

c. Thereafter, if EPA and NASA, in consultation with the Commonwealth, are unable to reach agreement on the selection of the remedy, the EPA Regional Administrator or his/her duly delegated representative shall select the remedy. The selection of Remedial Action(s) by the EPA Regional Administrator or his/her duly delegated representative shall be final and not subject to Dispute Resolution by NASA or the Commonwealth. EPA shall then prepare and issue the final ROD.

d. If the proposed remedial action does not attain a legally applicable or relevant and appropriate standard, requirement, criteria or limitation, the Party issuing the ROD shall provide the Commonwealth with an opportunity at least thirty (30) days prior to the publication of the ROD to concur or not concur in accordance with CERCLA Section 121(f)(3)(A), 42 U.S.C. Section 9621(f)(3)(A). If the Commonwealth concurs or does not act within thirty (30) days of receipt of the notification of publication of the ROD, the remedial action may proceed. If the Commonwealth does not concur, and desires to have the remedial action conform to such standard, requirement, criteria, or limitation, it may act pursuant to Section 121(f)(3)(B) of CERCLA, 42 U.S.C. Section 9621(f)(3)(B).

e. Notice of the final ROD shall be published by the Party preparing it and shall be made available to the public prior to commencement of the remedial action, in accordance with Section 117(b) of CERCLA, 42 U.S.C. Section 9617(b).

9.3 Within twenty-one (21) days of issuance of the Record of Decision (ROD) for any Operable Unit or for the final remedy, NASA shall propose deadlines for completion of the following draft documents:

a. Remedial Design Work Plan;

b. Preliminary Remedial Design;

c. Final Remedial Design;

d. Remedial Action Work Plan (including plans and specifications for construction which incorporate operation and maintenance plans, and schedules for remedial action);

e. Construction Quality Assurance Plan;

f. Construction Quality Control Plan;

g. Contingency Plan;

h. Construction Completion Report (for each operable unit);

i. Project Closeout Report.

These deadlines shall be proposed, finalized and published using the same procedures set forth in Subsection 9.2 of this Agreement.

9.4 For any Operable Units not identified as of the effective date of this Agreement, NASA shall propose deadlines for all documents listed in Subsection 8.3a (with the exception of the Community Relations Plan) within forty-five (45) days of agreement on the proposed Operable Unit by all Parties. These deadlines shall be proposed, finalized, and published using the same procedures set forth in Subsection 9.2 of this Agreement.

9.5 The deadlines set forth in this Section, or to be established as set forth in this Section, may be accelerated or extended pursuant to Section 10 of this Agreement (Extensions). The Parties recognize that one possible basis for extension of the deadlines for completion of the Remedial Investigation and Feasibility Study Reports is the identification of significant new Site conditions during the performance of the Remedial Investigation.

9.6 NASA shall maintain as part of this Agreement, subject to Section 42 of this Agreement (Attachments), a list of deadlines, which shall be updated as deadlines are established or extended or accelerated in accordance with the terms and

conditions of the Agreement.

10. EXTENSIONS

10.1 Timetables, deadlines, and schedules, shall be extended if a Party submits a request for extension which the other Parties agree is timely and which demonstrates that good cause exists for the requested extension. Any request for extension by NASA shall be submitted to VDEQ and EPA in writing at least seven (7) days before the deadline from which an extension is sought and shall specify:

a. The timetable, deadline, or schedule that is sought to be extended;

b. The length of the extension sought;

c. The good cause(s) for the extension; and

d. The extent to which any related timetable and deadline or schedule would be affected if the extension were granted.

10.2 Good cause exists for an extension when sought in regard to:

a. An event of Force Majeure as defined in Section 11 of this Agreement (Force Majeure);

b. A delay caused by EPA's or VDEQ's failure to meet any relevant requirement of this Agreement;

c. A delay caused by the good faith invocation of dispute resolution or the initiation of judicial action;

d. A delay caused, or which is likely to be caused, by the grant of an extension in regard to another timetable, deadline or schedule;

e. Any work stoppage within the scope of Section 12 of this Agreement (Emergencies and Removals); or

f. Any other event or series of events mutually agreed to by the Parties as constituting good cause.

10.3 Absent agreement of the Parties with respect to the existence of good cause, a Party may seek and obtain a determination through the dispute resolution process that good cause exists.

10.4 Within fourteen (14) days of receipt of a request for an extension of a deadline or a schedule, the other Parties shall each advise the requesting Party in writing of its respective

position on the request. If a Party does not concur in the requested extension, it shall include in its statement of nonconcurrence an explanation of the basis for its position.

10.5 If there is consensus among the Parties that the requested extension is warranted, NASA shall extend the affected timetable, deadline or schedule accordingly. If there is no consensus among the Parties as to whether all or part of the requested extension is warranted, the timetable, deadline or schedule shall not be extended except in accordance with a determination resulting from the dispute resolution process. If there is consensus among the Parties that part of the requested extension is warranted, NASA shall extend the affected deadline or schedule in accordance with the consensus, and the remaining part of the requested extension shall not be extended except in accordance with a determination resulting from the dispute resolution process.

10.6 Within seven (7) days of receipt of a statement of non-concurrence with the requested extension, the requesting Party may invoke dispute resolution. If the requesting Party does not act within this time frame the right to invoke dispute resolution is waived.

10.7 A written, timely and good faith request by NASA for an extension shall toll any assessment of stipulated penalties or application for judicial enforcement of the affected timetable and deadline or schedule until a decision is reached on whether the requested extension will be approved. If dispute resolution is invoked and the requested extension is denied, stipulated penalties may be assessed and may accrue from the date of the original timetable, deadline, or schedule. Following the grant of an extension, an assessment of stipulated penalties or an application for judicial enforcement may be sought only to compel compliance with the timetable and deadline or schedule as most recently extended.

11. FORCE MAJEURE

11.1 A Force Majeure, for the purpose of this Agreement, shall mean any event arising from causes beyond the control of NASA that causes a delay in or prevents the performance of any obligation under this Agreement, including, but not limited to, acts of God; fire; war; insurrection; civil disturbance; explosion; unanticipated breakage or accident to machinery, equipment or lines of pipe despite reasonably diligent maintenance; adverse weather conditions that could not be reasonably anticipated; unusual delay in transportation; restraint by court order or order of public authority; inability to obtain, at reasonable cost and after exercise of reasonable diligence, any necessary authorizations, approvals, permits, or licenses due to action or inaction of any governmental agency or

13. DISPUTE RESOLUTION

13.1 Except as specifically set forth elsewhere in this Agreement, if a dispute arises under this Agreement, the procedures of this Section shall apply. Any Party may invoke this dispute resolution procedure. All Parties to this Agreement shall make reasonable efforts to resolve disputes informally at the Project Manager or immediate supervisor level. If resolution cannot be achieved informally, the procedures of this Section shall be implemented to resolve a dispute.

13.2 Within thirty (30) days after: (a) the receipt of a draft final primary document pursuant to Section 8 of this Agreement (Consultation); or (b) any action which leads to or generates a dispute; the disputing Party shall submit to the other Parties and Dispute Resolution Committee (DRC) a written statement of dispute setting forth the nature of the dispute, the work affected by the dispute, the disputing Party's position with respect to the dispute and the technical, legal, or factual information the disputing Party is relying upon to support its position, and an explanation of all steps taken to resolve a dispute.

13.3 Prior to any Party's issuance of a written statement of a dispute, the disputing Party shall engage the other Parties in informal dispute resolution among the Project Managers and/or their immediate supervisors. During this informal dispute resolution period the Parties shall meet as many times as determined necessary to discuss and attempt resolution of the dispute.

13.4 The DRC will serve as a forum for resolution of disputes for which agreement has not been reached through informal dispute resolution. The Parties shall each designate one individual to serve on the DRC. The individuals designated to serve on the DRC shall be employed at the policy level Senior Executive Service (SES) or equivalent, or be delegated the authority to participate on the DRC for the purposes of dispute resolution under this Agreement. The EPA representative on the DRC is the Director, Hazardous Waste Management Division (HWMD), EPA Region 3. NASA's designated member is the Director, Systems Engineering and Operations Directorate, LaRC. The VDEQ representative is the Director, Office of Superfund Programs, Department of Environmental Quality, Waste Division. Written notice of any delegation of authority from a Party's designated representative on the DRC shall be provided to all other Parties pursuant to the procedures of Section 22 of this Agreement (Notification).

13.5 Following elevation of a dispute to the DRC, the DRC shall have twenty-one (21) days to unanimously resolve the dispute and issue a written decision. If the DRC is unable

unanimously to resolve the dispute within this twenty-one (21) day period, the written statement of dispute shall be forwarded to the Senior Executive Committee (SEC), by the Party originally submitting the Statement of Dispute, for resolution within seven (7) days after the close of the twenty-one (21) day resolution period. The twenty-one (21) day resolution period may be extended by written agreement of the DRC members.

13.6 The SEC will serve as the forum for resolution of disputes for which agreement has not been reached by the DRC. The EPA representative on the SEC is the Regional Administrator, EPA Region 3. NASA's representative on the SEC is the Director of the NASA Langley Research Center. VDEQ's representative is the Director, Department of Environmental Quality. The SEC members shall, as appropriate, confer, meet, and exert their best efforts to resolve the dispute and issue a unanimous written decision signed by all Parties. If unanimous resolution of the dispute is not reached within twenty-one (21) days, the Regional Administrator, EPA Region 3, shall issue a written position on the dispute. NASA or the Commonwealth may, within fourteen (14) days of the Regional Administrator's issuance of EPA's position, issue a written notice elevating the dispute to the EPA Administrator for resolution in accordance with all applicable laws and procedures. In the event NASA or the Commonwealth elects not to elevate the dispute within the designated 14 day period, the decision will become final and work under this Agreement will proceed in accordance with the Regional Administrator's written position.

13.7 Upon escalation of a dispute to the Administrator of EPA pursuant to Subsection 13.6 above, the Administrator will review and attempt to resolve the dispute within twenty-one (21) days. Upon request, and prior to resolving the dispute, the EPA Administrator shall meet and confer with the VDEQ SEC representative and the NASA SEC representative to discuss the issue(s) under dispute. Upon resolution, the Administrator shall provide the Parties with a written final decision setting forth resolution of the dispute. The duties of the Administrator set forth in this Section shall not be delegated.

13.8 The pendency of any dispute under this Section shall not affect any Party's responsibility for timely performance of the work required by this Agreement, except as resolved through dispute resolution. All elements of the work required by this Agreement which are not affected by the dispute shall continue and be completed in accordance with the applicable timetable, deadline or schedule.

13.9 When dispute resolution is in progress, work affected by the dispute will immediately be discontinued if the VA/WV Federal Section Chief for Superfund, Hazardous Waste Management Division, EPA Region 3 requests, in writing, that work related to

the dispute be stopped because, in EPA's opinion, such work is inadequate or defective, and such inadequacy or defect is likely to yield an adverse effect on human health or the environment, or is likely to have a substantial adverse effect on the remedy selection or implementation process. The Commonwealth may request the Federal Facilities and Site Assessment Branch Chief for Superfund to order work stopped for the reasons set out above. To the extent possible, the Party seeking a work stoppage shall consult with the other Parties prior to initiating a work stoppage request. After the EPA Region III Superfund Federal Facilities and Site Assessment Branch Chief makes a decision concerning work stoppage and issues a work stoppage request, if a Party believes that the work stoppage is inappropriate or may have potential significant adverse impacts, the Party may meet with the other Parties to discuss the work stoppage. Following this meeting, and further consideration of the issue, the Federal Facilities and Site Assessment Branch Chief for Superfund will issue, in writing, a final decision with respect to the work stoppage. The final written decision of the Federal Facilities and Site Assessment Branch Chief for Superfund may immediately be subject to formal dispute resolution. Such dispute may be brought directly to either the DRC or the SEC, at the discretion of the Party requesting dispute resolution.

13.10 Within twenty-one (21) days of resolution of a dispute pursuant to the procedures specified in this Section, NASA shall incorporate the resolution and final determination into the appropriate plan, schedule, or procedures and proceed to implement this Agreement according to the dispute resolution.

13.11 The following modified dispute resolution procedure shall apply only to disputes arising under Subsection 12.6 of this Agreement, concerning a decision by NASA not to undertake a removal action as requested under Subsection 12.3f of this Agreement. This provision shall apply to such disputes in lieu of the procedures specified in Subsections 13.5, 13.6, and 13.7 of this Agreement.

a. For purposes of this modified dispute resolution procedure, the EPA, Commonwealth and NASA representatives on the Dispute Resolution Committee (DRC) and Senior Executive Committee (SEC) shall remain the same as in Subsections 13.4 and 13.6 of this Agreement.

b. After submission of a Subsection 12.6 matter to dispute, as described in Subsection 13.2 of this Agreement, the DRC shall handle the dispute under the procedure described in Subsection 13.5, except that the DRC shall have ten (10) days rather than twenty one (21) days to unanimously resolve the dispute, and shall forward an unresolved dispute to the SEC within four (4) days rather than seven (7) days. The Parties shall not extend the dispute resolution period.

c. If agreement is not reached by the DRC, the SEC members shall, as appropriate, confer, meet, and exert their best efforts to resolve the dispute and issue a written decision. If unanimous resolution of the dispute is not reached in seven (7) days, the NASA SEC member shall issue a written position on the dispute.

d. In the event EPA or the Commonwealth does not concur with the NASA SEC member's proposed resolution of the dispute, EPA and the Commonwealth retain any rights each possesses with regard to the issue raised in the dispute under Subsection 12.6 of this Agreement. Such nonconcurrence will be transmitted in writing to NASA's SEC member within seven (7) days of receipt of his/her issuance of the proposed resolution. Failure to transmit such nonconcurrence will be presumed to signify concurrence.

13.12 Subject to the terms of Subsections 12.6, 13.11 and 34.2 of this Agreement, resolution of a dispute pursuant to this Section of the Agreement constitutes a final resolution of any dispute arising under this Agreement. Subject to the Commonwealth's reservation of rights contained in Subsection 34.1, 34.4 and, 38.3 of this Agreement, all Parties shall abide by all terms and conditions of any final resolution of dispute obtained pursuant to this Section of this Agreement.

14. ENFORCEABILITY

14.1 EPA and NASA agree that:

a. Upon the effective date of this Agreement, any standard, regulation, condition, requirement, or order which has become effective under CERCLA and is incorporated into this Agreement is enforceable by any person pursuant to CERCLA Section 310, 42 U.S.C. Section 9659, and any violation of such standard, regulation, condition, requirement, or order will be subject to civil penalties under CERCLA Sections 310 and 109, 42 U.S.C. Sections 9659 and 9609;

b. All timetables, schedules or deadlines associated with the RI/FS shall be enforceable by any person pursuant to CERCLA Section 310, 42 U.S.C. Section 9659, and any violation of such timetables or deadlines will be subject to civil penalties under CERCLA Sections 310 and 109, 42 U.S.C. Sections 9659 and 9609;

c. All terms and conditions of this Agreement which relate to remedial actions, including corresponding timetables, deadlines, or schedules, and all work associated with remedial actions, shall be enforceable by any person pursuant to CERCLA Section 310, 42 U.S.C. Section 9659, and any violation of such terms or conditions will be subject to civil penalties under

CERCLA Sections 310 and 109, 42 U.S.C. Sections 9659 and 9609; and

d. Any final resolution of a dispute pursuant to Section 13 (Dispute Resolution) of this Agreement which establishes a term, standard, condition, timetable, deadline or schedule shall be enforceable by any person pursuant to CERCLA Section 310, 42 U.S.C. Section 9659, and any violation of such terms, standards, condition, timetable, deadline or schedule will be subject to civil penalties under CERCLA Sections 310 and 109, 42 U.S.C. Sections 9659 and 9609.

14.2 Nothing in this Agreement shall be construed as authorizing any person to seek judicial review of any action or work where review is barred by any provision of CERCLA including CERCLA Sections 113(h), 42 U.S.C. Section 9613(h).

14.3 Nothing in this Agreement shall be construed as a restriction or waiver of any rights or defenses, including sovereign immunity, that the EPA or the Commonwealth may have under CERCLA and applicable state law, including but not limited to any rights under Sections 113, 120, 121 and 310, 42 U.S.C. Sections 9613, 9620, 9621 and 9659. NASA does not waive any rights it may have under CERCLA Sections 120 and 121, 42 U.S.C. Sections 9620, 9621, and Executive Order 12580.

14.4 The Parties agree to exhaust their rights under Section 13 of this Agreement(Dispute Resolution) prior to exercising any rights to judicial review that they may have.

15. STIPULATED PENALTIES

15.1 In the event that NASA fails to submit a primary document referenced in Section 8 of this Agreement (Consultation) to EPA and VDEQ pursuant to the appropriate timetable or deadline established in accordance with the requirements of this Agreement or fails to comply with a term or condition of this Agreement which relates to an Operable Unit or remedial action, including the failure to comply with ARARs, EPA may assess a stipulated penalty against NASA. VDEQ may also recommend to EPA that a stipulated penalty be assessed. A dispute between EPA and VDEQ with regard to whether a stipulated penalty should be assessed shall be resolved in accordance with Section 13 of this Agreement (Dispute Resolution). A stipulated penalty may be assessed in an amount not to exceed $5,000 for the first week (or part thereof), and $10,000 for each additional week (or part thereof) for which a failure set forth in this Subsection occurs.

15.2 Upon determining that NASA has failed in a manner set forth in Subsection 15.1, EPA shall so notify NASA in writing. If the failure in question is not already subject to dispute resolution at the time such notice is received, NASA shall have

thirty (30) days after receipt of the notice to invoke dispute resolution on the question of whether the failure did in fact occur. If NASA does not act within 30 days, the right to invoke dispute resolution is waived. NASA shall not be liable for the stipulated penalty assessed by EPA if the failure is determined, through the dispute resolution process, not to have occurred. If NASA invokes dispute resolution, no assessment of a stipulated penalty shall be final until the conclusion of dispute resolution procedures related to the assessment of the stipulated penalty.

15.3 The annual reports required by CERCLA Section 120(e)(5), 42 U.S.C. Section 9620(e)(5), shall include, with respect to each final assessment of a stipulated penalty against NASA under this Agreement, each of the following:

a. The federal facility responsible for the failure;

b. A statement of the facts and circumstances giving rise to the failure;

c. A statement of any administrative or other corrective action taken at the relevant federal facility, or a statement of why such measures were determined to be inappropriate;

d. A statement of any additional action taken by or at the federal facility to prevent recurrence of the same type of failure; and

e. The total dollar amount of the stipulated penalty assessed for the particular failure.

15.4 Stipulated penalties assessed pursuant to this Section shall be payable only in the manner and to the extent expressly provided for in acts authorizing funds for, and appropriations to NASA. Stipulated penalties shall be payable to the EPA Hazardous Substance Superfund.

15.5 In no event shall this Section give rise to a stipulated penalty in excess of the amount set forth in CERCLA Section 109, 42 U.S.C. Section 9609.

15.6 This Section shall not affect NASA's ability to obtain an extension of a timetable, deadline, or schedule pursuant to Section 10 of this Agreement (Extensions).

15.7 Nothing in this Agreement shall be construed to render any member, employee, agent, or authorized representative of NASA personally liable for the payment of any stipulated penalty assessed pursuant to this Section.

16. FUNDING

16.1 It is the expectation of the Parties to this Agreement that all obligations of NASA arising under this Agreement will be fully funded. NASA agrees to seek sufficient funding through its budgetary process to fulfill its obligations under this Agreement.

16.2 In accordance with CERCLA Section 120(e)(5)(B), 42 U.S.C. Section 9620(e)(5)(B), NASA shall include, in its submission in the annual report to Congress, the specific cost estimates and budgetary proposals associated with the implementation of this Agreement.

16.3 Any requirement for the payment or obligation of funds, including stipulated penalties, by NASA established by the terms of this Agreement shall be subject to the availability of appropriated funds, and no provision herein shall be interpreted to require obligation or payment of funds in violation of the Anti-Deficiency Act, 31 U.S.C. Section 1341. In cases where payment or obligation of funds would constitute a violation of the Anti-Deficiency Act, the dates established requiring the payment or obligation of such funds shall be appropriately adjusted.

16.4 If appropriated funds are not available to fulfill NASA's obligations under this Agreement, EPA and the Commonwealth reserve the right to initiate an action against any other person, or to take any response action, which would be appropriate absent this Agreement.

16.5 Funds authorized and appropriated by Congress to NASA will be the source of funds for activities required by this Agreement. However, should the appropriation be inadequate in any year to meet the total NASA CERCLA implementation requirements, NASA shall notify both EPA and VDEQ of the steps that it will pursue in order to assure the protection of the environment. NASA will also outline the steps that it will take in an attempt to acquire additional funds to meet its obligation under this Agreement.

17. EXEMPTIONS

17.1 The Parties recognize t
Executive Order, as needed to prc
at the Facility (or any areas the
120(j) of CERCLA, 42 U.S.C. Secti
Order may exempt such area(s) frc
a period of time not exceed one (
that Order. NASA shall obtain ac
required by this Agreement, withi
which are not the subject of any such Executive Order issued by

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To Sheila Briggs-Stanteville — From Sally Dalzell

Dept./Agency — Phone #

Fax # Sorry if I misspelled — Fax # — FROM: NASA IAG

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the President.

17.2 EPA and the Commonwealth reserve any statutory right they may have to challenge any Order or exemption specified in Paragraph 17.1 of this Agreement relieving NASA of its obligations to comply with this Agreement.

18. STATUTORY COMPLIANCE/RCRA-CERCLA INTEGRATION

18.1 The Parties intend to integrate NASA's CERCLA response obligations and RCRA corrective action obligations which relate to the release(s) of hazardous substances, hazardous wastes, pollutants or contaminants covered by this Agreement into this comprehensive Agreement. Therefore, the Parties intend that activities covered by this Agreement will: achieve compliance with CERCLA, 42 U.S.C. Section 9601 et seq.; satisfy the corrective action requirements set forth in Sections 3004 and 3005 of RCRA, 42 U.S.C. Sections 6924 and 6925 for a RCRA permit, and Section 3008(h) of RCRA, 42 U.S.C. Section 6928(h), for interim status facilities; and meet or exceed all applicable or relevant and appropriate Federal laws and regulations, to the extent required by Section 121 of CERCLA, 42 U.S.C. Section 9621.

18.2 Based upon the foregoing, the Parties intend that any remedial action selected, implemented and completed under this Agreement will be protective of human health and the environment such that remediation of releases covered by this Agreement shall obviate the need for further corrective action under RCRA (i.e., no further corrective action shall be required). The Parties agree that with respect to releases of hazardous waste covered by this Agreement, RCRA shall be considered an applicable or relevant and appropriate requirement pursuant to CERCLA Section 121, 42 U.S.C. Section 9621. Releases of Hazardous Constituents or other Hazardous Waste activities not addressed by this Agreement shall remain subject to all applicable Commonwealth and Federal Environmental Requirements.

18.3 The Parties recognize that the requirement to obtain permits for response actions undertaken pursuant to this Agreement shall be as provided for in CERCLA and the NCP. The Parties recognize that ongoing hazardous waste management activities subject to RCRA at the Site are subject to existing permits and/or requirements and may require the issuance of additional permits under Federal and Commonwealth laws. This Agreement does not affect the requirements, if any, to obtain such permits. However, if a permit is issued to NASA for ongoing hazardous waste management activities at the Site, the issuing party shall reference and incorporate in a permit condition any appropriate provision, including appropriate schedules (and the provision for extension of such schedules), of this Agreement into such permit. The Parties intend that any judicial review of any permit condition which references this Agreement shall, to

the extent authorized by law, only be reviewed under the provisions of CERCLA.

18.4 Federal Facilities Compliance Agreement (FFCA), Docket Numbers III-FF-TSCA-005/III-FF-CWA-003 dated December 31, 1990, between NASA and EPA shall remain in force during the execution of this Agreement.

18.5 NASA will submit copies of quarterly reports required by the FFCA to the EPA and Commonwealth Project Managers for informational purposes.

18.6 VPDES Permit Number VA0024741 between NASA and VDEQ shall remain in force during the execution of this Agreement.

19. PROJECT MANAGERS

19.1 On or before the effective date of this Agreement, EPA, VDEQ and NASA shall each designate a Project Manager and an alternate (each hereinafter referred to as Project Manager), for the purpose of overseeing the implementation of all work performed under the terms of this Agreement. The Project Managers shall be responsible on a daily basis for assuring proper implementation of all work performed under the terms of this Agreement. In addition to the formal notice provisions set forth in Section 22 of this Agreement (Notification), to the maximum extent possible, communications among EPA, VDEQ and NASA on all documents, including reports, comments, and other correspondence concerning the activities performed pursuant to this Agreement, shall be directed through the Project Managers.

19.2 EPA, VDEQ or NASA may change their respective Project Managers. The other Parties shall be notified in writing within five (5) days of the change.

19.3 The Project Managers shall meet to discuss progress as described in Subsection 8.5 of this Agreement. Although NASA has ultimate responsibility for meeting its respective deadlines or schedule, the Project Managers shall assist in this effort by compressing the review of primary and secondary documents whenever possible, and by scheduling progress meetings to review reports, evaluate the performance of environmental monitoring at the Site, review RI/FS or RD/RA progress, discuss target dates for elements of the RI/FS to be conducted in the following one hundred and eighty (180) days, resolve disputes, and adjust deadlines or schedules. At least one week prior to each scheduled progress meeting, NASA will provide to the other Parties a draft agenda and summary of the status of the work subject to this Agreement. Unless the Project Managers agree otherwise, NASA shall prepare minutes of each progress meeting. These minutes, along with the meeting agenda and all documents discussed during the meeting (which were not previously provided)

as attachments, shall constitute a progress report, which NASA shall send to all Project Managers within ten (10)business days after the meeting ends. If an extended period occurs between Project Manager progress meetings, the Project Managers may agree that NASA shall prepare an interim progress report and provide it to the other Parties. The report shall include the information that would normally be discussed in a progress meeting of the Project Managers. Other meetings shall be held more frequently upon request by any Project Manager.

19.4 The authority of the Project Managers shall include, but is not limited to:

a. Taking samples and ensuring that sampling and other field work is performed in accordance with the terms of any final work plan and Quality Assurance Project Plan (QAPP);

b. Observing, and taking photographs and making such other reports on the progress of the work as the Project Managers deem appropriate, subject to the limitations set forth in Section 26 (Access to Federal Facility) hereof;

c. Reviewing records, files and documents relevant to the work performed;

d. Determining the form and specific content of the Project Manager meetings and of progress reports based on such meetings;

e. Recommending and requesting minor field modifications to the work to be performed pursuant to a final work plan, or in techniques, procedures, or design utilized in carrying out such work plan; and

f. The authority vested by the NCP, 40 CFR 300.120(b)(2), in the NASA RPM as On-Scene Coordinator and Remedial Project Manager, which will be exercised in consultation with the EPA and VDEQ RPMs and in accordance with the procedures specified in this Agreement.

19.5 Any minor field modification proposed by any Party pursuant to this Section must be approved orally by all Parties' Project Managers to be effective. The NASA Project Manager will make a contemporaneous record of such modification and approval in a written log, and a copy of the log entry will be provided during the next progress meeting. Even after approval of the proposed modification, no Project Manager will require implementation by a government contractor without approval of the appropriate Government Contracting Officer.

19.6 The Project Manager for NASA shall be responsible for day-to-day field activities at the Site. The NASA Project

Manager or a designated employee of LaRC shall be present at the Site or reasonably available to supervise work during all hours of work performed at the Site pursuant to this Agreement. For all times that such work is being performed, the NASA Project Manager shall inform the necessary persons at the Site of the name and telephone number of the designated employee responsible for supervising the work.

19.7 The Project Managers shall be reasonably available to consult on work performed pursuant to this Agreement and shall make themselves available to each other for the pendency of this Agreement. The absence of EPA, VDEQ or NASA Project Managers from the Facility shall not be cause for work stoppage of activities taken under this Agreement.

20. PERMITS

20.1 NASA shall be responsible for obtaining all Federal, Commonwealth and local permits which are necessary for the performance of all work under this Agreement.

20.2 The Parties recognize that under Sections 121(d) and 121(e)(1) of CERCLA, 42 U.S.C. Sections 9621(d) and 9621(e) (1), and the NCP, upon final listing of the Site on the National Priorities List (NPL) portions of the response actions called for by this Agreement and conducted entirely on-site, where such response actions are selected and carried out in accordance with CERCLA, are exempt from the procedural requirement to obtain Federal, Commonwealth, or local permits. All activities must, however, comply with all the applicable or relevant and appropriate Federal and Commonwealth standards, requirements, criteria, or limitations which would have been included in any such permit. If there is a period of time following the effective date of this Agreement in which the Site is not yet listed on the NPL, the requirements to obtain a Federal, Commonwealth, or local permit will be at the discretion of the permitting authority(s).

20.3 When NASA proposes a response action, other than an emergency removal action, to be conducted entirely on site, which in the absence of Section 121(e)(1) of CERCLA and the NCP would require a Federal, Commonwealth or local permit, NASA shall include in its submittal to the other Parties:

a. Identification of each permit which would otherwise be required;

b. Identification of the standards, requirements, criteria, or limitations which would have had to have been met to obtain each such permit; and

c. An explanation of how the response action proposed will meet the standards, requirements, criteria or limitations identified immediately above.

20.4 Subsection 20.2 above is not intended to relieve NASA from the requirement(s), of obtaining a permit, whenever it proposes a response action involving the shipment or movement of a hazardous substance, pollutant, contaminant or hazardous waste off-site, or in any other circumstance where the exemption provided for at Section 121(e)(1)of CERCLA, 42 U.S.C. Section 9621(e), does not apply.

20.5 NASA shall notify EPA and VDEQ in writing of any permit(s) required for off-site activities NASA plans to undertake as soon as NASA becomes aware of the requirement. NASA agrees to obtain any permits necessary for the performance of anywork under this Agreement. Upon request, NASA shall provide EPA and VDEQ copies of all such permit applications and other documents related to the permit process. Copies of permits obtained in implementing this Agreement shall be appended to the appropriate submittal or progress report. Upon request by the NASA Project Manager, the Project Managers of EPA and VDEQ will provide guidance and technical information to assist LaRC to the extent feasible in obtaining any required permit.

20.6 If a permit or other authorization which is necessary for implementation of this Agreement is not issued, or is issued or renewed in a manner which is materially inconsistent with the requirements of this Agreement, NASA agrees to notify EPA and the Commonwealth of its intention to propose modifications to this Agreement to obtain conformance with the permit, or lack thereof. Notification by NASA of its intention to propose modifications shall be submitted within seven (7) calendar days of receipt by NASA of notification that: (1) a permit will not be issued; (2) a permit has been issued or reissued; or (3) a final determination with respect to any appeal related to the issuance of a permit has been entered. Within thirty (30) days from the date it submits its notice of intention to propose modifications to this Agreement, NASA shall submit to EPA and VDEQ its proposed modifications to this Agreement with an explanation of its reasons in support thereof.

20.7 EPA and the Commonwealth shall review NASA's proposed modifications to this Agreement in accordance with Section 32 (Amendment or Modification of Agreement) of this Agreement. If NASA submits proposed modifications prior to a final determination of any appeal taken on a permit needed to implement this Agreement, EPA and the Commonwealth may elect to delay review of the proposed modifications until after such final determination is entered.

20.8 During any appeal by any Party of any permit required to implement this Agreement or during review of any proposed modification(s) to the permit, NASA shall continue to implement those portions of this Agreement which can be reasonably implemented independent of final resolution of the permit issue(s) under appeal. However, as to work that cannot be so implemented, any corresponding deadline, timetable, or schedule shall be subject to Section 10 (Extensions) of this Agreement.

20.9 Nothing in this Agreement shall be construed to affect NASA's obligation to comply with any RCRA permit(s) it may already have or be issued in the future for the Facility.

21. QUALITY ASSURANCE

21.1 NASA shall use quality assurance, quality control, and chain of custody procedures throughout all field investigation, sample collection and laboratory analysis activities. A Quality Assurance/Quality Control (QA/QC) Project Plan shall be submitted as a component of each RI, FS/RA, and RA Work Plan(s) as appropriate. These work plans will be reviewed as Primary Documents pursuant to Section 8 (Consultation) of this Agreement. QA/QC Plans shall be prepared in accordance with applicable guidance issued by EPA.

21.2 In order to provide for quality assurance and maintain quality control regarding all field work and samples collected pursuant to this Agreement, NASA shall include in each QA/QC Plan submitted to EPA and the Commonwealth for review and comment all protocols to be used for sampling and analysis. NASA shall also ensure that any laboratory used for analysis is a participant in a quality assurance/quality control program that is consistent with guidance issued by EPA.

21.3 NASA shall ensure that laboratory audits are conducted as appropriate and are made available to EPA and the Commonwealth upon request. NASA shall ensure that EPA and/or the Commonwealth or their authorized representatives shall have access to all laboratories performing analyses on behalf of the LaRC pursuant to this Agreement.

22. NOTIFICATION

22.1 All Parties shall transmit primary and secondary documents, and comments thereon, and all notices required herein by next day mail, hand delivery, or facsimile. Time limitations shall commence upon receipt.

22.2 Notice to the individual Parties pursuant to this Agreement shall be sent to the addresses specified by the Parties. Initially these shall be as follows:

Ms. Stacie Morekas (3HW71)
U.S Environmental Protection Agency
Region III
841 Chestnut Street
Philadelphia, PA 19107
215-597-0984; FAX 215-597-9890

AND

Ms. Erica Dameron
Commonwealth of Virginia
Department of Environmental Quality
Waste Division
James Monroe Building, 11th Floor
101 North Fourteenth Street
Richmond, VA 23219
804-225-3257; FAX 804-225-4467

AND

Mr. Greg Sullivan
NASA Langley Research Center
M/S 429
Hampton, VA 23681-0001
804-864-3373; FAX 804-864-6327

22.3 All routine correspondence may be sent via first class mail to the above addressees.

23. DATA AND DOCUMENT AVAILABILITY

23.1 Upon request by any Party, each Party shall make the requested sampling results, test results or other data or documents generated through the implementation of this Agreement available to the other Parties. All requested quality assured data shall be supplied within sixty (60) days of its collection. If the quality assurance procedure is not completed within sixty (60) days, data or results without quality assurance shall be submitted within the sixty (60) day period and the requested quality assured data or results shall be submitted as soon as they become available. As soon as possible, but not later than sixty (60) days after the last sampling event of a group of samples, NASA shall, at a minimum, provide a quality assured data summary report citing all results which initially measure above detection. As soon as possible but not later than one hundred twenty (120) days after the last sampling event of a group of samples, NASA shall provide all requested quality assured data. If quality assurance procedures are not completed within the sixty (60) or one hundred twenty (120) day time frames, then reports without quality assurance shall be submitted within their respective time frames and quality assured data shall be submitted as soon as it becomes available. For the purpose of

this paragraph, a "group of samples" is intended to mean: (1) an established round of quarterly or monthly samples collected from a specified network of locations; or (2) a discrete sampling episode.

23.2 The sampling Party's Project Manager shall notify the other Parties' Project Managers not less than ten (10) days in advance of any sample collection. If it is not possible to provide ten (10) days prior notification, the sampling Party's Project Manager shall notify the other Project Managers as soon as possible after becoming aware that samples will be collected. Each Party shall allow, to the extent practicable, split or duplicate samples to be taken by the other Parties or their authorized representatives in accordance with final RI/FS Work Plans, QAPP and Field Sampling Plans (FSP).

24. RELEASE OF RECORDS

24.1 The Parties may request of one another access to or a copy of any record or document relating to this Agreement. If the Party that is the subject of the request has the record or document, that Party shall provide access to or a copy of the record or document; provided, however, that no access to or copies of records or documents need be provided if they are subject to claims of attorney-client privilege, attorney work product, deliberative process, enforcement confidentiality, or are properly classified for national security under law or executive order, or if their release is otherwise prohibited under Federal or Commonwealth law.

24.2 Records or documents identified by the originating Party as confidential pursuant to other non-disclosure provisions of the Freedom of Information Act, 5 U.S.C. Section 552, or pursuant to Commonwealth law, shall be released to the requesting Party, provided the requesting Party states in writing that it will not release the record or document to the public without prior approval of the originating Party or after opportunity to consult and, if necessary, contest any preliminary decision to release a document, in accordance with applicable statutes and regulations. Records or documents which are provided to the requesting Party and which are not identified as confidential may be made available to the public without further notice to the originating Party.

24.3 The Parties will not assert any of the above exemptions, including those available under the Commonwealth and Federal Freedom of Information Act, even if available, if no governmental interest would be jeopardized by access or release as determined solely by that Party.

24.4 Subject to Section 120(j)(2) of CERCLA, 42 U.S.C. Section 9620(j)(2), any documents required to be provided by

Section 8 of this Agreement (Consultation), and analytical data showing test results will always be releasable and no exemption shall be asserted by any Party.

24.5 This Section does not change any requirement regarding press releases in Section 28 of this Agreement (Public Participation and Community Relations).

24.6 A determination not to release a document for one of the reasons specified above shall not be subject to Section 13 of this Agreement (Dispute Resolution). Any Party objecting to another Party's determination may pursue the objection through the determining Party's appeal procedures.

25. PRESERVATION OF RECORDS

25.1 Despite any document retention policy to the contrary, EPA and NASA shall preserve, during the pendency of this Agreement and for a minimum of seven (7) years after its termination or for a minimum of seven (7) years after implementation of any additional action taken pursuant to Section 30 of this Agreement (Five Year Review), all records and documents in their possession which relate to actions taken pursuant to this Agreement. The Commonwealth shall preserve all records and documents in its possession that relate to actions taken pursuant to this Agreement in accordance with Commonwealth law and Commonwealth policy. After the seven (7) year period, or for the Commonwealth at the expiration of its document retention period, each Party shall notify the other Parties at least forty-five (45) days prior to the proposed destruction of any such documents or records. Upon the request by any Party, the requested Party shall make available such records or copies of any such records, unless withholding is authorized and determined appropriate by law. The Party withholding such records shall identify any documents withheld and the legal basis for withholding such records. No records withheld shall be destroyed until forty-five (45) days after the final decision by the highest court or administrative body requested to review the matter.

25.2 All such records and documents shall be preserved for a period of seven (7) years following the termination of any judicial action regarding the work performed under CERCLA, which is the subject of this Agreement.

26. ACCESS TO THE FEDERAL FACILITY

26.1 The EPA and the Commonwealth and/or their representatives shall have the authority to enter the Site at all reasonable times for the purposes consistent with provisions of this Agreement. Such authority shall include, but not be limited to: inspecting records, logs, contracts, and other documents

relevant to implementation of this Agreement; reviewing and monitoring the progress of NASA, its contractors, and lessees in carrying out the activities under this Agreement; conducting, with prior notice to NASA, tests which EPA or the Commonwealth deem necessary; assessing the need for planning additional Remedial Response Actions at the Site; and verifying data or information submitted to EPA and the Commonwealth. NASA shall honor all reasonable requests for access to the Site made by EPA or the Commonwealth, upon presentation of credentials showing the bearers identification and that he/she is an employee or agent of the EPA or the Commonwealth. The NASA Project Manager or his/her designee will provide briefing information, coordinate access and escort to restricted or controlled-access areas, arrange for Site passes, and coordinate any other access requests which arise. NASA shall use its best efforts to ensure that conformance with the requirements of this subsection do not delay access.

26.2 NASA shall provide an escort whenever EPA or the Commonwealth requires access to restricted areas of the Site for purposes consistent with the provisions of this Agreement. EPA and the Commonwealth shall provide reasonable notice (which may, if practical, be 48 hours advance notice) to the NASA Project Manager to request any necessary escorts for such restricted areas. NASA shall not require an escort to any area of this Site unless it is a restricted or controlled-access area. Upon request of the EPA or the Commonwealth, NASA shall promptly provide a written list of current restricted or controlled-access areas.

26.3 The EPA and the Commonwealth shall have the right to enter all areas of the Site that are entered by contractors performing work under this Agreement.

26.4 Upon a denial of any aspect of access, NASA shall provide an immediate explanation of the reason for the denial, including reference to the applicable regulations, and upon request, a copy of such regulations. Within forty-eight (48) hours, NASA shall provide a written explanation for the denial. To the extent possible, NASA shall expeditiously provide a recommendation for accommodating the requested access in an alternate manner.

26.5 NASA shall ensure that all response measures, ground water rehabilitation measures and remedial actions of any kind which are taken pursuant to this Agreement shall not be impeded or impaired in any manner by any transfer of title, or grant of real property interests.

26.6 Nothing herein shall be construed as limiting EPA's or the Commonwealth's statutory authority for access or information gathering.

26.7 If EPA or the Commonwealth obtains any samples before leaving the Site, it shall give the NASA Project Manager, or his or her designated representative, a receipt describing the sample obtained, and, if requested, a portion of each such sample. A copy of the results of any analysis made of such samples shall be provided to all Parties.

26.8 EPA and VDEQ shall provide reasonable notice to the NASA Project Manager to request any necessary escorts. EPA and VDEQ shall not use any camera, sound recording or other recording device at the Site without the permission of the NASA Project Manager. Such requirement shall not be applied so as to unreasonably hinder EPA or the VDEQ from carrying out their responsibilities and authority pursuant to this Agreement.

26.9 If EPA or VDEQ requests access in order to observe a sampling event or other work being conducted pursuant to this Agreement, and access is denied or limited, NASA agrees to reschedule or postpone such sampling or work if EPA or VDEQ so requests, until such mutually agreeable time when the requested access is allowed. NASA shall not restrict the access rights of EPA or VDEQ to any greater extent than NASA restricts the access rights of its contractors performing work pursuant to this Agreement.

26.10 All Parties with access to the Site pursuant to this Section shall comply with all Federal or State required health and safety plans.

26.11 To the extent the activities pursuant to this Agreement must be carried out on other than NASA property, NASA shall use its best efforts, including its authority under CERCLA Section 104, 42 U.S.C. Section 9604, to obtain access agreements from the owners which shall provide reasonable access for NASA, EPA, VDEQ and their representatives. NASA may request the assistance of EPA or VDEQ in obtaining such access, and upon such request, EPA or VDEQ will use its best efforts to obtain the required access. In the event that NASA is unable to obtain such access agreements, NASA shall promptly notify EPA and VDEQ.

26.12 With respect to non-NASA property on which monitoring wells, pumping wells, or other response actions are to be located, NASA shall use its best efforts to ensure that any access agreements shall provide for the continued right of entry for all Parties for the performance of such response activities. In addition, any access agreement shall provide that no conveyance to a Non-Party of title, easement, or other interest in the property shall be consummated without the continued right of entry of the Parties.

26.13 Nothing in this Section shall be construed to limit EPA's, and the Commonwealth's full right of access as provided in

Section 104(e) of CERCLA, 42 U.S.C. Section 9604(e), and Commonwealth Law except as that right may be limited by Section 120(j)(2) of CERCLA, 42 U.S.C. Section 9620(j)(2), Executive Order 12580, or other applicable national security regulations or federal law.

27. POLLUTION PREVENTION

27.1 Throughout the effective time period of this Agreement, NASA shall continue to participate in the Tidewater Interagency Pollution Prevention Program (TIPPP) in accordance with the Memorandum of Understanding between EPA and the participants currently in effect at the time of the execution of this Agreement.

27.2 Under the TIPPP, NASA has developed a Center Pollution Prevention Plan which establishes a baseline of facility activities and developed fifty-six (56) pollution prevention opportunity assessments which the Facility is proceeding to implement.

28. PUBLIC PARTICIPATION AND COMMUNITY RELATIONS

28.1 The Parties agree that work conducted under this Agreement and any subsequent proposed remedial action alternatives and subsequent plans for remedial action alternatives at the Site arising out of this Agreement shall comply with all the Administrative Record and public participation requirements of CERCLA, including Sections 113(k) and 117, 42 U.S.C. Sections 9613(k) and 9617, the NCP, and all applicable guidance developed and provided by EPA. This shall be achieved through implementation of the Community Relations Plan.

28.2 NASA shall develop and implement a Community Relations Plan (CRP) in accordance with EPA and Commonwealth guidance. This plan will respond to the need for an interactive relationship with all interested community elements, both on and off the Site regarding environmental activities conducted pursuant to this Agreement by NASA. Any revision or amendment to the Community Relations Plan shall be subject to the Dispute Resolution clause of this Agreement.

28.3 NASA shall establish and maintain an Administrative Record at a place at or near the Site, available to the public, and another copy at a central location, in accordance with CERCLA Section 113(k), 42 U.S.C. Section 9613(k), Subpart I of the NCP, and applicable guidance issued by EPA.

28.4 A copy of each document placed in the Administrative Record, not already provided, will be provided by NASA to the other Parties. The Administrative Record developed by NASA shall be updated and new documents supplied to the other Parties on at

least a quarterly basis. An index of documents in the Administrative Record will accompany each update of the Administrative Record.

28.5 Except in case of an emergency, requiring the release of necessary information, and except in the case of an enforcement action, any Party issuing a press release with reference to any of the work required by this Agreement shall advise the other Parties of such press release and the contents thereof at the time of such release.

28.6 The Parties agree to comply with all formally published EPA policy and guidance on community relations programs and public participation requirements of CERCLA, the NCP and other applicable, relevant and appropriate requirements, laws and regulations.

28.7 Community relations activities will be conducted by NASA for the selection of response actions for the Site, Operable Units, or AOUs.

28.8 Pursuant to 10 U.S.C. Section 2705(c) and Section 29 (Technical Review Committee) of this Agreement, NASA shall establish a Technical Review Committee (TRC) for the Site. The purpose of the TRC is to afford a forum for cooperation between the Parties, local community representatives, and natural resource trustees on action and proposed actions at the Site.

29. TECHNICAL REVIEW COMMITTEE

29.1 NASA shall establish a Technical Review Committee (TRC). The Parties shall participate as follows:

a. A NASA representative;

b. An EPA representative, and

d. A VDEQ representative.

The Parties shall encourage a representative from the following organization to serve as a member of the TRC:

e. A City of Hampton public representative.

29.2 TRC meetings shall be scheduled quarterly unless the TRC Members agree to meet less frequently. If possible, meetings shall be held in conjunction with the meetings of the Project Managers. Meetings of the TRC shall be for the purpose of reviewing progress under this Agreement. Special meetings of the TRC may be held at the request of the members.

30. FIVE YEAR REVIEW

30.1 Consistent with Section 121(c) of CERCLA, 42 U.S.C. Section 9621(c), and in accordance with this Agreement, if the selected remedial action results in any hazardous substance, pollutants or contaminants remaining at the Site, the Parties shall review the remedial action program for each Operable Unit at least every five (5) years after the initiation of the final remedial action to assure that human health and the environment are being protected by the remedial action being implemented. As part of this review, NASA shall report the findings of the review to EPA and the Commonwealth upon its completion. This report, Periodic Review Assessment Report, shall be a Secondary Document as described in Section 8 of this Agreement (Consultation).

30.2 If, upon such review, it is the conclusion of any of the Parties that additional action or modification of the remedial action is appropriate at the Site in accordance with Sections 104 or 106 of CERCLA, 42 U.S.C. Sections 9604 or 9606, NASA shall implement such additional or modified action in accordance with Section 7 (Work to be Performed) and Section 8 (Consultation) of this Agreement.

30.3 Any dispute by the Parties regarding the need for or the scope of additional action or modification to a remedial action shall be resolved under Section 13 (Dispute Resolution), of this Agreement and enforceable hereunder.

30.4 Any additional action or modification agreed upon pursuant to this Section shall be made a part of this Agreement.

30.5 The EPA reserves the right to exercise any available authority to seek the performance of additional work that arises from a Periodic Review, pursuant to applicable law.

30.6 The Commonwealth reserves the right to exercise any authority under Commonwealth law to seek the performance of additional work when it is determined that such additional work is necessary.

30.7 When the final ROD for an Operable Unit contains the requirement for the development and implementation of a Long-Term Monitoring Plan because the selected remedial action results in any hazardous substance, pollutants or contaminants remaining at the Site, the Long-Term Monitoring Plan is considered a Secondary Document in accordance with Section 8 of this Agreement (Consultation).

31. TRANSFER OF REAL PROPERTY

31.1 No change or transfer of any interest in the Facility or any part thereof shall in any way alter the status or

responsibility of the Parties under this Agreement. NASA agrees to give EPA and VDEQ sixty (60) days notice prior to the sale or transfer by the United States of America of any title, easement, or other interest in the real property affected by this Agreement. NASA agrees to include notice of this Agreement in any document transferring ownership of the Facility or any portion of the Facility to any subsequent owner in accordance with Section 120(h) of CERCLA, 42 U.S.C. Section 9620(h) and 40 C.F.R. Part 373.

31.2 In accordance with Section 120(h) of CERCLA, 42 U.S.C. Section 9620(h) and 40 C.F.R. Part 373, NASA shall include notice of this Agreement in any Host/Tenant Agreement or Memorandum of Understanding that permits any non-LaRC or non-NASA entity to function as operator on any portion of the Site.

32. AMENDMENT OR MODIFICATION OF AGREEMENT

32.1 Except as provided in Section 19 (Project Managers), this Agreement may be amended or modified solely upon written consent of all the Parties. Such amendments or modifications shall be in writing, and shall become effective on the third business day following the date on which EPA signs the amendments or modifications. The Parties may agree on a different Effective Date of modification.

32.2 The Party initiating the amendment of this Agreement shall provide in writing the amendment for review, approval and signature of the other Parties.

33. TERMINATION AND SATISFACTION

33.1 The provisions of this Agreement shall be deemed satisfied and terminated upon receipt by NASA of written notice from EPA, with concurrence of VDEQ, that NASA has demonstrated that all the terms of this Agreement have been completed. If EPA denies or otherwise fails to grant a termination notice within ninety (90) days of receiving a written request from NASA for such notice, EPA shall provide a written statement of the basis for its denial and describe for NASA actions which, in the view of EPA, would be a satisfactory basis for granting a notice of completion. Any disputes arising from this termination and satisfaction process shall be resolved pursuant to provisions of Section 13 (Dispute Resolution) of this Agreement.

33.2 This provision shall not affect the requirements for periodic review at maximum five (5) year intervals of the efficacy of the remedial actions.

33.3 Upon termination of this Agreement, NASA shall place a public notice announcing termination in two (2) major local newspapers of general circulation.

34. RESERVATION OF RIGHTS

34.1 Notwithstanding any other provision in this Agreement, EPA and the Commonwealth may initiate any administrative, legal or equitable remedies available to them, including requiring additional Response Actions by NASA in the event that: (a) conditions previously unknown or undetected by EPA or VDEQ arise or are discovered at the Site; or (b) EPA or VDEQ receive additional information not previously available concerning the premises which they employed in reaching this Agreement; or (c) the implementation of the requirements of this Agreement are no longer protective of public health and the environment; or (d) EPA or VDEQ discovers the presence of conditions on the Site which may constitute an imminent and substantial danger to the public health, welfare, or the environment; (e) NASA fails to meet any of its obligations under this Agreement; or (f) NASA fails or refuses to comply with any applicable requirement of CERCLA or RCRA or Commonwealth laws or related regulations.

34.2 The Parties agree to exhaust their rights under Section 13 of this Agreement (Dispute Resolution), prior to exercising any rights to judicial review that they may have.

34.3 The Parties, after exhausting their remedies under this Agreement, reserve any and all rights they may have under CERCLA, or any other law, where those are not inconsistent with the provisions of this Agreement, CERCLA, or the NCP.

34.4 Notwithstanding any other section of this Agreement, the Commonwealth of Virginia shall retain any statutory right it may have to obtain judicial review of any final decision of EPA including, without limitation, any authority the Commonwealth may have under Sections 113, 121(e)(2), and 310 of CERCLA, 42 U.S.C. Sections 9613, 9621(e)(2), and 9659; Section 7002 of RCRA, 42 U.S.C. Section 6972; Section 14 (Enforceability) of this Agreement, and Commonwealth law, except that the Commonwealth expressly agrees to exhaust any applicable remedies provided in Section 8 (Consultation) and Section 13 (Dispute Resolution) of this Agreement, prior to exercising any such rights.

35. OTHER CLAIMS

35.1 Subject to Section 18 of this Agreement (Statutory Compliance/RCRA-CERCLA Integration), nothing in this Agreement shall restrict the Parties from taking any action under CERCLA, RCRA, State law, or other environmental statutes for any matter not specifically part of the work performed under CERCLA, which is the subject matter of this Agreement.

35.2 Nothing in this Agreement shall constitute or be construed as a bar, or a discharge, or a release, from any claim, cause of action or demand in law or equity by or against any

person, firm, partnership, or corporation not a signatory to this Federal Agreement for any liability it may have arising out of, or relating in any way to the generation, storage, treatment, handling, transportation, release, or disposal of any hazardous substances, hazardous waste, pollutants, or contaminants found at, taken to, or taken from the Site.

35.3 This Agreement does not constitute any decision or preauthorization by EPA of funds under Section 111(a)(2) of CERCLA, 42 U.S.C. Section 9611(a)(2), for any person, agent, contractor or consultant acting for NASA.

35.4 EPA and the Commonwealth shall not be held as a party to any contract entered into by NASA to implement the requirements of this Agreement.

35.5 NASA shall notify the appropriate federal and Commonwealth natural resource trustees of potential damages to natural resources resulting from releases or threatened releases under investigation, as required by Section 104(b)(2) of CERCLA, 42 U.S.C. Section 9604(b)(2), and Section 2(e)(2) of Executive Order 12580. Except as provided herein, NASA is not released from any liability which it may have pursuant to any provisions of Commonwealth and Federal law, including any claim for damages for destruction of, or loss of, natural resources.

35.6 This Agreement does not bar any claim for:

(a) natural resources damage assessments, or for damage to natural resources;

(b) claims by EPA and the Commonwealth based on failure or refusal by NASA to meet a requirement of this Agreement;

(c) liability for disposal of any Hazardous Substances or waste material taken from the Site.

36. RECOVERY OF EPA EXPENSES

36.1 The Parties agree to amend this Agreement at a later date in accordance with any subsequent national resolution of the issue of cost reimbursement. Pending such resolution, EPA reserves any rights it may have with respect to cost reimbursement.

37. COMMONWEALTH SUPPORT SERVICES PROVIDED TO NASA

37.1 NASA agrees to request funding and reimburse the Commonwealth for all reasonable costs of response, as defined in 37.3 below, that the Commonwealth incurs in providing services in direct support of NASA's environmental restoration activities

pursuant to this Agreement. Such reimbursement will be accomplished in accordance with this section and shall constitute full settlement of any claims for Commonwealth response costs relative to NASA's environmental restoration activities under this Agreement.

37.2 NASA agrees to actively seek the funding necessary to reimburse the Commonwealth in accordance with the duties and limitations set forth in Section 16 of this Agreement (Funding).

37.3 Reimbursement for services shall be accomplished through an existing Purchase Order and subsequent Purchase Orders issued by the United States (NASA) to the Commonwealth of Virginia (VDEQ).

a. VDEQ and NASA will continually monitor the status of activities under existing Purchase Order(s) and shall cooperate in negotiation of new or amended Purchase Orders as may be necessary.

b. All Purchase Orders will be issued in accordance with applicable Federal procurement laws and regulations. Any disputes arising under any such Purchase Order will first be presented to the Federal Contracting Officer administering that order for issuance of a formal decision pursuant to the Contract Disputes Act, 41 U.S.C Section 603 et seq. The Contracting Officer's decision may be further appealed pursuant to other provisions of the Contract Disputes Act.

c. The Commonwealth expenses to be reimbursed through such Purchase Orders shall consist only of expenditures required to be made and actually made by the Commonwealth in providing the following assistance to NASA:

1. Technical review and substantive comment on reports or studies which NASA prepares in support of its response actions and submits to VDEQ;

2. Identification and explanation of State applicable or relevant and appropriate requirements (ARAR's);

3. Field visits to ensure investigations and cleanup activities are implemented in accordance with applicable or relevant and appropriate State requirements, or in accordance with agreed upon conditions between the VDEQ and NASA that are established in the framework of this Agreement.

4. Support and assistance to NASA in the conduct of public participation activities in accordance with Federal and State requirements for public involvement;

5. Participation in the review and comment functions of a NASA Technical Review Committee; and

6. Other services specified in this Agreement.

37.4 NASA shall not be responsible for issuing Purchase Orders to reimburse the Commonwealth for costs in excess of one percent (1%) of the NASA total lifetime project costs incurred through completion of the work to be performed under this Agreement.

a. It is recognized that fluctuations in the NASA estimates or actual final costs through the construction of the final remedial action create a situation wherein the Commonwealth costs and existing Purchase Orders exceed the one percent limit. Under these circumstances, the Commonwealth remains entitled to payment for services up to the amount provided in the then-current Purchase Order.

b. It is also recognized that significant upward or downward revisions in total lifetime project costs are possible and that a renegotiation of the one (1%) limitation may be appropriate. Either NASA or the Commonwealth may request a revision of the limitation. Any request will be handled in accordance with paragraphs "c," "d," and "e" of this paragraph below.

c. It is the intention of NASA and the Commonwealth that any discussions and disputes over the renegotiation of the one (1%) cost limitation be resolved at the lowest possible level of authority as expeditiously as possible. The NASA and VDEQ Project Managers shall be the initial points of contact for addressing such matters. If the NASA and VDEQ Project Managers are unable to renegotiate the limitation to the satisfaction of both parties within a reasonable period of time, either party may initiate formal resolution by providing written notice to the NASA and VDEQ DRC representatives identified in Section 13 (Dispute Resolution) of this Agreement.

d. If the NASA and VDEQ DRC Representatives are unable to reach agreement within ten (10) working days following the receipt of written notice, the matter shall be elevated to the Division Director, Waste Division of VDEQ and the Director of LaRC. If these individuals are unable to resolve the dispute within 15 days, the Commonwealth may pursue any legal and equitable remedies it may have to recover any expenses incurred

thereafter.

37.5 Nothing in this Agreement shall be construed a waiver of any claims by the Commonwealth for any expenses incurred prior to the effective date of this Agreement. The Commonwealth reserves any rights to reimbursement for costs not related to matters covered by this Agreement.

38. COMMONWEALTH PARTICIPATION CONTINGENCY

38.1 If the Commonwealth fails to sign this Agreement within thirty (30) days of notification of the signature by EPA and NASA, this Agreement will be interpreted as if the nonsigning agency was not a Party and any reference to such agency in this Agreement will have no effect. In addition, all other provisions of this Agreement notwithstanding, if the Commonwealth does not sign this Agreement within the said thirty (30) days, NASA shall only have to comply with any Commonwealth requirements, conditions, or standards, including those specifically listed in this Agreement, which NASA would otherwise have to comply with absent this Agreement.

38.2 In the event that the Commonwealth does not sign this Agreement:

a. NASA agrees to transmit all primary and secondary documents to VDEQ at the same time such documents are transmitted to EPA; and

b. EPA intends to consult with VDEQ with respect to the above documents and during implementation of this Agreement.

38.3 The Commonwealth may withdraw from this Agreement by providing fifteen (15) days written notice to NASA and EPA of its intent to do so.

39. PUBLIC COMMENT ON THIS AGREEMENT

39.1 Within fifteen (15) days after the execution of this Agreement (the date by which all Parties have signed the Agreement), EPA shall announce the availability of this Agreement to the public, including publication in at least two (2) major local newspapers of general circulation for review and comment. EPA shall accept comments from the public for forty-five (45) days after such announcement. Within twenty-one days, or as otherwise agreed to by the parties, of completion of the public comment period, EPA shall transmit copies of all comments received within the comment period to the other Parties along with a response to each comment in a Responsiveness Summary. Within thirty (30) days after the transmittal, the Parties shall review the comments and shall decide that either:

(a) the Agreement shall be made effective without modifications; or

(b) the Agreement shall be modified prior to being made effective.

39.2 If the Parties agree that the Agreement shall be made effective without any modifications, and if the Parties agree on the Responsiveness Summary, EPA shall transmit a copy of the signed Agreement to the other Parties and shall notify the other Parties in writing that the Agreement is effective. The Effective Date of the Agreement shall be the date of receipt by NASA of the signed Agreement from EPA.

39.3 If the Parties agree that modifications are needed and agree upon the modifications and amend the Agreement by mutual consent within sixty (60) days after the expiration of the public comment period, EPA and VDEQ, in consultation with NASA, will determine whether the modified Agreement requires additional public notice and comment pursuant to CERCLA. If EPA and VDEQ determine that no additional notice and comment are required, and the Parties agree on the Responsiveness Summary, EPA shall transmit a copy of the modified Agreement to NASA and the VDEQ and shall notify NASA in writing that the modified Agreement is effective as of the date of the notification. If the Parties amend the Agreement within the sixty (60) days and EPA and VDEQ determine that additional notice and comment are required, such additional notice and comment shall be provided consistent with the provisions stated in paragraph 39.1 above. If the Parties agree, after such additional notice and comment has been provided, that the modified Agreement does not require any further modification and if the Parties agree on the Responsiveness Summary, EPA shall send a copy of the mutually agreed upon modified Agreement to NASA and VDEQ and shall notify them that the modified Agreement is effective. In either case, the Effective Date of the modified Agreement shall be the receipt by NASA from EPA of notification that the modified Agreement is effective.

39.4 In the event that the Parties cannot agree on the modifications or on the Responsiveness Summary within the time period listed in Paragraph 39.2 above, the Parties agree to have at least one meeting within thirty (30) days following the comment period to attempt to reach agreement. The Parties agree to negotiate in good faith for at least a fifteen (15) day period before invoking Dispute Resolution.

39.5 If, thirty (30) days after the expiration of the forty-five (45) day comment period has expired, the Parties have not reached agreement on either:

(a) whether modifications to the Agreement are needed;

or

(b) what modifications to the Agreement should be made; or

(c) whether additional public notice and comments are required; or

(d) the contents of the Responsiveness Summary,

then the matters which are in dispute shall be resolved by the dispute resolution procedures of Section 13 (Dispute Resolution), above. For the purposes of this Section, the Agreement shall not be effective while the dispute resolution proceedings are underway. After these proceedings are completed, the Final Written Decision shall be provided to the Parties indicating the results of the dispute resolution proceedings. NASA reserves the right to withdraw from the Agreement by providing written notice to the other Parties within twenty (20) days after receiving from EPA the Final Written Decision of the resolution of the matters in dispute. VDEQ reserves the right to withdraw from this Agreement in accordance with Section 38.3 of this Agreement. If VDEQ withdraws, and EPA and NASA agree to proceed, the Agreement shall be effective as to EPA and NASA as modified to reflect the Commonwealth's withdraw from the Agreement. Failure by NASA to provide such a written notice of withdrawal to EPA within this twenty (20) day period shall act as a waiver of the right of that Party to withdraw from the Agreement, and EPA shall thereafter send a copy of the final Agreement to each Party and shall notify each Party that the Agreement is effective. The Effective Date of the Agreement shall be the date of receipt by NASA.

39.6 At the start of the public comment period, NASA will transmit copies of this Agreement to the appropriate Federal, State, and local Natural Resource Trustees for review and comment within the time limits set forth in this Section.

39.7 Existing records maintained by NASA which will be included in the Administrative Record such as reports, plans, and schedules, shall be made available by NASA for public review during the public comment period. The public notices announcing the public comment period shall include information advising the public as to availability and location of these records.

40. EFFECTIVE DATE

40.1 This Agreement shall be effective in its entirety among the Parties in accordance with Section 39 of this Agreement (Public Comment).

41. FACILITY CLOSURE

41.1 NASA does not currently plan to close Langley Research Center in Hampton, VA. However, in the event that LaRC is closed, such closure, except as is otherwise specifically provided by law, will not affect NASA's obligation to comply with the terms of this Agreement including but not limited to specifically ensure the following:

a. Continuing rights of access for EPA and the VDEQ in accordance with the terms and conditions of Section 26 (Access to Federal Facility);

b. Availability of a Project manager to fulfill the terms and conditions of the Agreement; and

c. Adequate resolution of any other issues identified by the Project Managers regarding the effect of facility closure on the implementation of this Agreement.

41.2 Facility closure will not of itself constitute a Force Majeure under Section 11 (Force Majeure) nor will it constitute good cause for extensions under Section 10 (Extensions), unless otherwise mutually agreed to by the Parties.

42. ATTACHMENTS

42.1 Attachments shall be for information only and shall not be enforceable parts of this Agreement. The information in these attachments is provided to support the initial review and comment upon this Agreement, and they are only intended to reflect the conditions known at the signing of this Agreement. None of the facts related therein shall be considered admissions by, nor are they legally binding upon, any Party with respect to any claims unrelated to, or persons not a Party to, this Agreement. They shall include:

a. Site map of LaRC;
b. List of Sites at LaRC;
c. Removal actions proposed by NASA;
d. Tidewater Interagency Pollution Prevention Program Memorandum of Understanding (TIPPP MOU);
e. Outline of key elements to be included in draft or draft final RI/FS;
f. List of reference documents.

43. SEVERABILITY

43.1 If any provision of this Agreement is ruled invalid, illegal, or unconstitutional, the remainder of the Agreement shall not be affected by such a ruling.

AUTHORIZED SIGNATURES

Each of the undersigned representatives of the Parties certified that he or she is fully authorized by the Party he or she represents to enter into the terms and conditions of this Agreement and to legally bind such Party to this Agreement.

IT IS SO AGREED:

By

OCT 04 1993
Date

Paul F. Holloway
Director
Langley Research Center
National Aeronautics and Space Administration

By

11/8/93
Date

Richard Burton
Director, Department of Environmental Quality
Commonwealth of Virginia

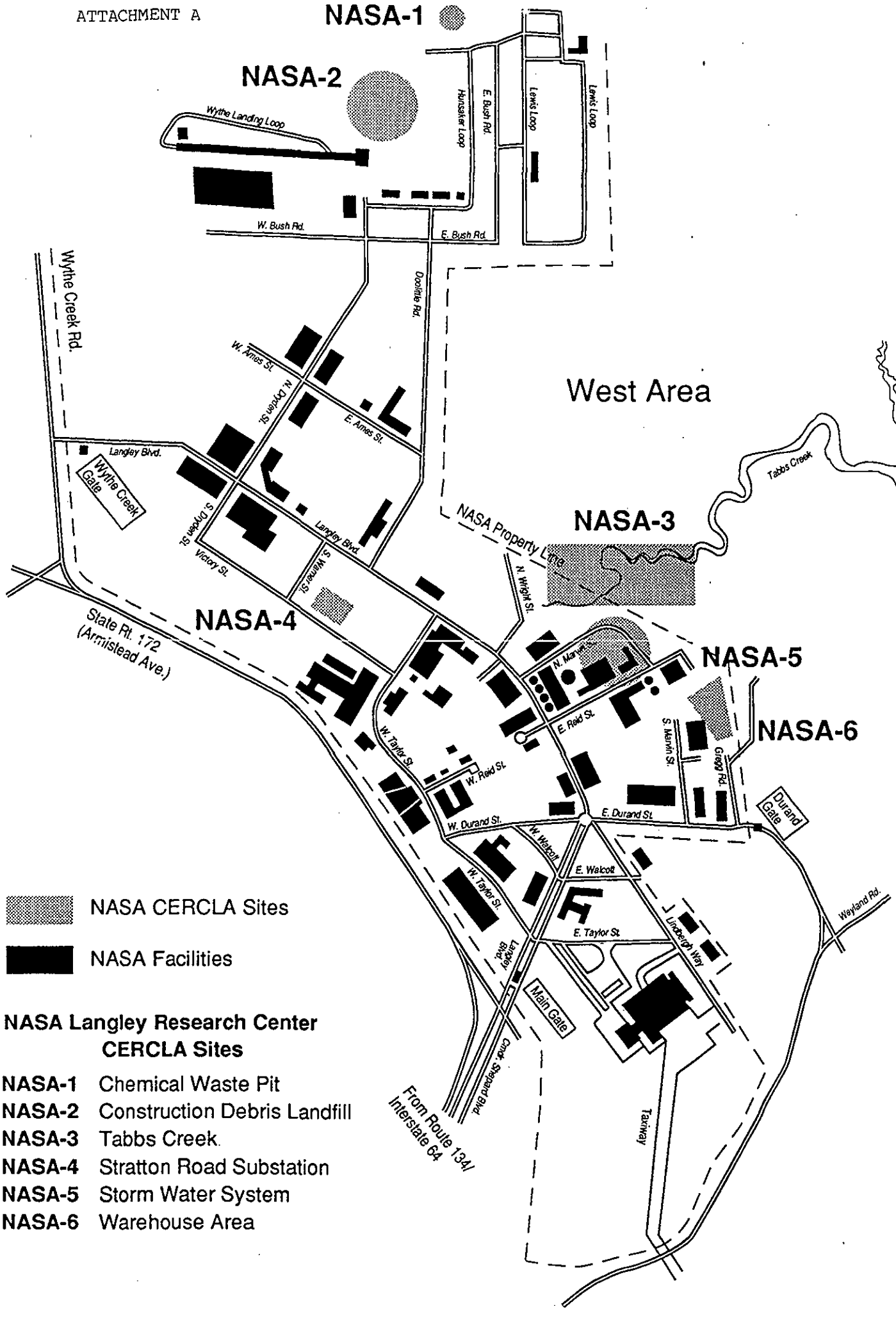
Mr. Burton signs this agreement as a statement of the intentions of the Commonwealth. The Commonwealth does not consider this agreement to be a contract and, as to the Commonwealth, this agreement creates no third party beneficiaries.

By

12/16/93
Date

Stanley L. Laskowski
Acting Regional Administrator
U.S. Environmental Protection Agency
Region III

ATTACHMENT A



NASA CERCLA Sites

NASA Facilities

NASA Langley Research Center
CERCLA Sites

NASA-1 Chemical Waste Pit
NASA-2 Construction Debris Landfill
NASA-3 Tabbs Creek
NASA-4 Stratton Road Substation
NASA-5 Storm Water System
NASA-6 Warehouse Area

ATTACHMENT B SITES AT LaRC

Area E Warehouse

Stratton Road Substation

Stormwater System

Tabbs Creek

Construction Debris Landfill (ESI Area)

Chemical Waste Pit

Also, the following sites which were identified by EPA Site Analysis:

Building 1199

Building 1164

Open Storage Area

Fill Area

Treatment Facility

Dump (Building 1250)

Dump (Building 1156)

ATTACHMENT C

Removal Actions Proposed
By NASA

1. NASA-1 Chemical Waste Pit

ATTACHMENT D

MEMORANDUM OF UNDERSTANDING
AMONG
THE DEPARTMENTS OF ARMY, NAVY, AND AIR FORCE
THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
AND
THE ENVIRONMENTAL PROTECTION AGENCY

PREFACE

This Memorandum of Understanding (MOU) establishes a policy of cooperation among the designated military services, NASA, and the EPA in the matter of the Tidewater Interagency Pollution Prevention Program (TIPPP). The TIPPP is a component of EPA's Model Community Pollution Prevention Program (MCPPP), and originated as part of the EPA/DoD Chesapeake Bay Agreement signed in April 1990.

PURPOSE

1. This MOU formalizes military service and agency roles and responsibilities and establishes a framework for developing, implementing and monitoring pollution prevention and energy conservation initiatives at TIPPP locations and agencies.

AUTHORIZATIONS

2.1 In the Pollution Prevention Act of 1990, the Congress declares it to be national policy of the United States that pollution "should be prevented or reduced at the source wherever possible." Further, the Act requires EPA to "promote source reduction practices in other Federal agencies, ... and to identify opportunities to use Federal procurement to encourage source reduction."

2.2 Executive Order 12088 directs each Executive Agency responsible for compliance with pollution control standards to take necessary actions for prevention, control, and abatement of environmental pollution from activities under its control.

2.3 DoD Pollution Prevention Directive, July 1989, emphasizes the primary objective of prevention at all levels within DoD.

2.4 In April 1990, EPA and DOD signed the Chesapeake Bay Agreement under which DoD agreed to "select a model community to demonstrate how pollution prevention techniques can be combined into an integrated pollution prevention plan.

2.5 NASA Management Instruction (NMI) 8800.13, Prevention, Abatement and Control of Environmental Pollution establishes pollution prevention policy for NASA.

DEFINITIONS

3.1 Participants as referenced in this MOU, are the Tidewater, VA installations: Fort Eustis, Norfolk Naval Base (Sewell's Point), Langley Air Force Base, and NASA Langley Research Center.

3.2 Pollution Prevention is the use of processes, practices, or products that reduce or eliminate the generation of pollutants and wastes, including those which protect natural resources through conservation or efficient energy sources. The primary focus is on source reduction or elimination, followed by recycling, treatment and disposal of wastes as last resort.

3.3 TIPPP Working Group includes TAC/DEV as chair, participants' environmental staffs, EPA Office of Pollution Prevention or representative, and EPA Region III. Meetings are normally held monthly at one of the TIPPP installations.

RESPONSIBILITIES

IT IS AGREED THAT:

4.1 The DoD selected the Air Force as lead agency for organizing and developing the TIPPP. The Air Force delegated "Lead Service" responsibility to HQ Tactical Air Command (TAC).

4.1.1 HQ TAC/DEV is the central point of contact with the EPA, including their consultant contractors, and all signatories to this agreement.

4.1.2 TAC will chair TIPPP Working Group meetings and coordinate a final EPA-funded strategic plan which integrates information from initiatives at TIPPP installations and the EPA. The final strategic plan will be coordinated through each federal agency and the EPA.

4.1.3 TAC will crossfeed information among the EPA and other TIPPP participants in matters which require a joint response to EPA or DoD. Such matters may include, but are not limited to, progress reports submitted to DoD and technology transfer reports submitted to EPA.

4.2 The EPA Office of Pollution Prevention will commit resources for contracting assistance to produce technical documents and perform technical and other support services.

4.2.1 EPA will participate in TIPPP meetings as appropriate and will continue to provide technical and other assistance for pollution prevention opportunities.

4.2.2 The EPA Office of Research and Development will participate in the TIPPP with technical assistance to each of the TIPPP members, including waste minimization opportunity assessments, pollution prevention audits, joint R&D efforts, and the Pollution Prevention Information Clearinghouse (PPIC) as appropriate.

4.2.3 EPA Region III, including the Chesapeake Bay Program Office, will coordinate the TIPPP for EPA.

4.3 Each participant is responsible for prioritizing and implementing programs and initiatives at its respective installation. These programs will be integrated only when it is more effective and economical than to implement at a single installation.

4.3.1 Each participant is responsible for gathering and compiling information on the successes and failures of its selected initiatives. This information shall be submitted to the lead agency every 90 days beginning 7 October 1991. The lead agency will consolidate this information and submit a report to DASD(E), the EPA Office of Pollution Prevention, and NASA Langley Research Center (SSQRD) every 90 days beginning 31 Oct 91.

4.3.2 Each participant will ensure representation at the monthly installation level meeting and at the quarterly Headquarters level meeting. Each participant will also provide representation and support as required for any meetings or requirements considered necessary by participant majority, to continue and promote progress and reporting for the program.

4.3.3 Each participant will establish its own priorities and manage it's own funding based on the respective pollution prevention plan within the framework of this agreement. Projects involving more than one participant will be coordinated as agreed upon by the TIPPP working group.

4.3.4 Each participant will be responsible for interaction with local or community agencies and groups. TAC will, in conjunction with participants, coordinate activities involving several participants as appropriate.

4.3.5 Each participant has the discretion to determine programs and initiatives for this program at its respective installation. However, the lead agency and the EPA, after discussing with the TIPPP Working Group, reserve the right to exclude from quarterly reporting, any initiative which has negligible application to program objectives.

MODIFICATION AND TERMINATION

5. This Agreement may be modified upon request of any party and with the concurrence of the others. The agreement may be terminated with 60 day notice of any party. Further, the agreement shall be evaluated after three years at which point the agreement may be renewed, modified or terminated after 60 days notice of any party, as to that party only.

IMPLEMENTATION

6. This Agreement becomes effective when signed by all parties named as participants and shall remain in effect for three years, unless sooner modified, renewed or terminated.

Lewis D. Walker

LEWIS D. WALKER
Deputy Assistant Secretary of the Army
(Environment, Safety and Occupational Health)

Jacqueline E. Schafer

JACQUELINE E. SCHAFER
Assistant Secretary of the Navy
(Installations and Environment)

GARY D. VEST
Deputy Assistant Secretary of the
Air Force (Environment, Safety and
Occupational Health)

Richard R. Petersen

RICHARD R. PETERSEN
Director
Langley Research Center
National Aeronautics and Space
Administration

for RICHARD D. MORGENSTERN
Assistant Administrator for Policy,
Planning, and Evaluation
EQ Environmental Protection Agency

Edwin B. Erickson

EDWIN B. ERICKSON
Regional Administrator
U.S. Environmental Protection Agency
Region III, Philadelphia PA

ATTACHMENT E

Topics to be addressed
in the Remedial Investigation/Feasibility Study
and related reports

The following are topics to be included at a minimum in the RI/FS Documents in Section 7.3(a)(2)-(4), (6)-(7) and 7.4(a) (3), as set forth in the most recent version of the Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (OSWER Directive 9355.3-01, interim Final, October, 1988) and applicable Commonwealth law. The documents shall also include additional topics and tasks, as appropriate, as set forth in the guidance.

Remedial Investigation and Feasibility Study Work Plan

1.0 Executive Summary
2.0 Introduction/Installation Description
  2.1 Facility Waste Generation and Manufacturing Process Description
3.0 Conceptual Site Model (Evaluation of existing data)
  3.1 Regional LaRC Setting
    -- Meteorology
    Topography (significant features that would affect surface water migration)
    -- Geology (include description of confining layers)
    -- Hydrogeology (include description of preferred migration pathways)
    -- Potential Exposure Points or Receptors (Preliminary Human Health and, Environmental Impacts)
    -- Potential Expedited Response Actions
  3.2 LaRC Setting
    -- Meteorology
    -- Topography
    -- Geology
    -- Hydrogeology
    -- Areas of Concern
    -- Types and Volumes of Wastes Present (Suspected Sources)
    -- Potential Exposure Points/Receptors
    -- Potential Expedited Response Actions
    -- Preliminary Identification of Operable Units or Study Zones
    -- Preliminary Identification of Remedial Action Objectives/Remedial Action Alternatives
  3.3 LaRC Remedial Investigation Objectives (Data Gaps) for each Operable Unit or Study Zone
    -- Data Quality Objectives (Stage 1 and Stage, 2)
    -- Site Characterization
    -- Baseline Risk Assessment
    -- Description of Sampling Strategy (Stage 3)

3.4 LaRC Feasibility Study Objectives (Data Gaps) for each Operable Unit or Study Zone
-- Treatability Study Needs
-- Applicable or Relevant and Appropriate Requirements (ARARs)

3.5 Work Plan Rationale (Site Management Strategy)
-- Description of phased approach
-- Criteria for obtaining additional data
-- Data Management
-- Redefining Operable Units

4.0 RI/FS Tasks

4.1 As mentioned in the RI/FS guidance
-- To include revisions to Community Relations Plan

4.2 Modification of Work Plan

4.3 Agency Coordination/Notification
-- ATSDR
-- Natural Resource Trustees
-- Others

5.0 Costs and Key Assumptions

6.0 Schedule (including Operable Units)

7.0 Project Management

QUALITY ASSURANCE PROJECT PLAN

Title Page
Table of Contents

1. Project Description
2. Project Organization and Responsibilities
3. QA Objectives for Measurement of Data
4. Sampling Procedures
5. Sample Custody
6. Calibration Procedures
7. Analytical Procedures
8. Data Reduction, Validation and Reporting
9. Internal Quality Control
10. Performance and Systems Audits
11. Preventative Maintenance
12. Data Assessment Procedures
13. Corrective Action
14. Quality Assurance Re2.2Site History
15. Nonconformance and Corrective Action Procedures

FIELD SAMPLING PLAN

1. Site Background
2. Sampling Objectives
3. Sample Location and Frequency
4. Sample Designation
5. Sampling Equipment and Procedures
6. Sample Handling and Analysis

COMMUNITY RELATIONS PLAN

1. Overview and Objectives of Community Relations Plan
2. Capsule Site Description
3. Community Background
4. Public Meetings and Press Releases
5. Highlights of Program
6. Techniques and Timing Appendices
7. Contents of Administrative Record
8. Technical Review Committee

RI REPORT

Executive Summary

1. Introduction
   - 1.1 Purpose of Report
   - 1.2 Site Background
     - 1.2.1 Site Description
     - 1.2.2 Site History
     - 1.2.3 Previous Investigations
     - 1.2.4 Facility Waste Generation and Manufacturing Process Description
   - 1.3 Report Organization
2. Study Area Investigation
   - 2.1 Includes field activities associated with site characterization. These may include physical and chemical monitoring of some, but not necessarily all, of the following:
     - 2.1.2 Surface Features (topographic mapping, etc.) (natural and manmade features)
     - 2.1.3 Contaminant Source Investigations
     - 2.1.4 Locations and Characteristics of Solid Waste Management Units (SWMU) and Other Potential Areas of Concern
     - 2.1.5 Surface-water and Sediment Investigations
     - 2.1.6 Geologic Investigations
     - 2.1.7 Soil and Vadose Zone Investigations
     - 2.1.8 Ground Water Investigations
     - 2.1.9 Human Population Surveys
     - 2.1.10 Ecological Investigations
   - 2.2 If technical memoranda documenting field activities were prepared, they may be included in an appendix and summarized in this chapter.
3. Physical Characteristics of the Study Area
   - 3.1 Includes results of field activities to determine physical characteristics. These may include some, but not necessarily all of the following:
     - 3.1.1 Surface Features
     - 3.1.2 Meteorology
     - 3.1.3 Surface Water Hydrology
     - 3.1.4 Geology
     - 3.1.5 Soils
     - 3.1.6 Hydrogeology
     - 3.1.7 Demography and Land Use
     - 3.1.8 Ecology

4. Nature and Extent of Contamination
   4.1 Presents the results of site characterization, both natural chemical components and contaminants in the following:
   - 4.1.1 Sources
     - 4.1.1.1 SWMU Information
     - 4.1.1.2 Waste Characteristics
     - 4.1.1.3 Evidence of Release
     - 4.1.1.4 Exposure Potential
   - 4.1.2 Soils and Vadose Zone
   - 4.1.3 Ground Water
   - 4.1.4 Surface Water and Sediments
   - 4.1.5 Air
   - 4.1.6 Biota
   - 4.1.7 Fish and Wildlife

5. Contaminant Fate and Transport
   - 5.1 Potential Routes of Migration (i.e., air, ground water, etc.)
   - 5.2 Contaminant Persistence
     - 5.2.1 If they are applicable (i.e., for organic contaminants), describe estimated persistence in the study area environment and physical, chemical, and/or biological factors of importance for the media of interest.
   - 5.3 Contaminant Migration
     - 5.3.1 Discuss factors affecting contaminant migration for the media of importance (e.g., sorption onto soils, solubility in water, movement of ground water, etc.).
     - 5.3.2 Discuss modeling methods and results if applicable.

6. Baseline Risk Assessment
   - 6.1 Human Health Evaluation
     - 6.1.1 Exposure Assessment
     - 6.1.2 Toxicity Assessment
     - 6.1.3 Risk Characterization
   - 6.2 Environmental Evaluation

7. Summary and Conclusions
   - 7.1 Summary
     - 7.1.1 Nature and Extent of Contamination
     - 7.1.2 Fate and Transport
     - 7.1.3 Risk Assessment
   - 7.2 Conclusions
     - 7.2.1 Data Limitations and Recommendations for Further Work
     - 7.2.2 Recommended Remedial Action Objectives

FS REPORT

Executive Summary

1. Introduction
   - 1.1 Purpose and Organization of Report
   - 1.2 Background Information (Summarized from RI)
     - 1.2.1 Site Description
     - 1.2.2 Site History
     - 1.2.3 Nature and Extent of Contamination
     - 1.2.4 Contaminant Fate and Transport
     - 1.2.5 Baseline Risk Assessment

2. Identification and Screening of Technologies
   - 2.1 Introduction
   - 2.2 Remedial Action Objectives - Presents the development of remedial action objectives for each medium of interest (ground water, soil, surface water, air, ecological, etc.). For each medium, the following should be discussed:
     - 2.2.1 Contaminants of Interest
     - 2.2.2 Allowable Exposure Based on Risk Assessment (Including ARARs)
     - 2.2.3 Development of Remedial Goals
   - 2.3 General Response Actions - For each medium of interest, describes the estimation of areas of volume to which treatment, containment, or disposal technologies may be applied.
   - 2.4 Identification and Screening of Alternatives
     - 2.4.1 Identification and Screening of Technologies
     - 2.4.2 Evaluation of Technologies and Selection of Representative Technologies

3. Development and Screening of Alternatives
   - 3.1 Development of Alternatives - Describes rationale for combination of technologies/media into alternatives. Note: This discussion may be by medium or for the site as a whole.
   - 3.2 Screening of Alternatives (if conducted)
     - 3.2.1 Introduction
     - 3.2.2 Alternative 1
       - 3.2.2.1 Description
       - 3.2.2.2 Evaluation of:
         - Effectiveness
         - Implementability
         - Cost
     - 3.2.3 Alternative 2
       - 3.2.3.1 Description
       - 3.2.3.2 Evaluation
     - 3.2.4 Alternative 3

4. Detailed Analysis of Alternatives
   - 4.1 Introduction
   - 4.2 Individual Analysis of Alternatives
     - 4.2.1 Alternative 1
       - 4.2.1.1 Description
       - 4.2.1.2 Assessment of:
         - Overall Protection
         - Compliance with ARARs
         - Long-term effectiveness and Permanence
         - Reduction of Toxicity, Mobility or Volume Through Treatment
         - Short-term Effectiveness
         - Implementability
         - Cost
         - State Acceptance
         - Community Acceptance
     - 4.2.2 Alternative 2
       - 4.2.2.1 Description
       - 4.2.2.2 Assessment
     - 4.2.3 Alternative 3
   - 4.3 Comparative Analysis

Bibliography
Appendices

TREATABILITY INVESTIGATIONS

The need for treatability testing should be identified as early in the RI/FS process as possible. The purpose is to provide information needed for the detailed analysis of alternatives and to allow selection of a remedial action with a reasonable certainty of achieving the remedial action objectives. In general, treatability testing will include the following:

1. A work plan for Branch or Pilot Scale - see Chapter 5 of the Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA (October, 1988), for example work plan outlines;
2. Performing field sampling, and/or bench testing or pilot testing;
3. Evaluating data from field studies and/or bench or pilot testing; and
4. Preparing a brief report documenting the results of the testing.

ATTACHMENT F REFERENCES

1. Ebasco Services Incorporated, 1989, National Aeronautics and Space Administration, Report of Site Inspection, Langley Research Center, NASA Contract No. NASW-4301, May.

2. Ebasco Services Incorporated, 1988, Preliminary Assessment Report for Langley Research Center (NASA), Hampton, VA.

3. Pollution Prevention Plan for NASA Langley Research Center

4. Federal Facilities Compliance Agreement (FFCA), Docket Numbers III-FF-TSCA-005/III-FF-CWA-003 dated December 31, 1990 between NASA and EPA Region III.

5. VPDES Permit VA0024741 between NASA and VDEQ.

6. Purchase Orders