ENTERED DIRECTOR'S JOURNAL
SEP 20 96
OHIO E.P.A.

Issuance Date SEP 2 0 1996

Effective Date SEP 2 0 1996

BEFORE THE

OHIO ENVIRONMENTAL PROTECTION AGENCY

In the Matter of	:	
THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION LEWIS RESEARCH CENTER 21000 Brookpark Road Cleveland, Ohio 44135	:	**DIRECTOR'S FINAL FINDINGS AND ORDERS**
Respondent.	:	

ADMINISTRATIVE ORDER ON CONSENT

I certify this to be a true and accurate copy of the official document as filed in the records of the Ohio Environmental Protection Agency.

By: Kara Yoder Date 9/20/96

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I. JURISDICTION

1. This Administrative Order on Consent ("Order") constitutes Director's Final Findings and Orders and is issued pursuant to the authority vested in the Director of the Ohio Environmental Protection Agency ("Ohio EPA") by Ohio Revised Code ("R.C.") Sections 3734.13, 3734.20, 6111.03, and 3734.01. Respondent National Aeronautics and Space Administration ("NASA") consents to and agrees not to contest Ohio EPA's jurisdiction to issue and enforce this Order.

II. STATEMENT OF PURPOSE

2. In entering into this Order, the mutual objectives of the Ohio EPA and NASA are (1) to complete a full investigation of the Site, (2) to determine the extent of contamination at the Site caused by the release of hazardous, industrial and/or other waste, (3) to develop and evaluate a program of appropriate remedial measures employing sound scientific, engineering and construction practices which shall be consistent with federal, state and local law, and (4) design, implement and monitor the remedy deemed appropriate. This Order is intended to require the completion of a Remedial Investigation/Feasibility Study, Remedial Design/Remedial Action, and Operation and Maintenance of the NASA site as provided in this Order.

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III. DEFINITIONS

3. As used in this Order, the following terms, words and abbreviations have the meanings provided below:

A. "Contractor" means a qualified contractor retained by NASA pursuant to this Order and any subcontractor, representative, agent, employee, or designee thereof.

B. "Days" shall mean calendar days, including weekends and holidays.

C. "Decision Document" means the document issued by Ohio EPA, setting forth the remedial action requirements for the Site, which is to be incorporated herein.

D. "Document" means any record, report, photograph, video tape, correspondence, computer disk or tape, recorded or retrievable information of any kind, including raw data, narrative reports and any and all documentary evidence, relating to treatment, storage, disposal and concerning the investigation and remediation of hazardous waste, hazardous substances, hazardous constituents, industrial waste or pollutants or other waste at the Site. "Document" shall be construed broadly to promote the effective sharing between NASA and Ohio EPA of information and views concerning the work to be done.

E. "Facility" as defined in O.R.C. 3734.01(N) refers to the areas of the Lewis Research Center, which have at any time been administered by NASA or occupied by NASA or any tenants within the locality of 21000 Brookpark Road, Cleveland, Ohio, where treatment, storage, placement or disposal of hazardous waste, hazardous substances, hazardous constituents, industrial waste and/or other waste were conducted, including any other area of the Lewis Research Center contaminated or threatened to be contaminated by hazardous waste, hazardous substances, hazardous constituents, and/or industrial waste and/or other waste migrating therefrom:

F. "Feasibility Study" ("FS") means the development, evaluation, and analysis of remedial alternatives for cleanup action conducted by NASA in accordance with applicable State and

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Federal environmental laws and regulations, the NCP and this Order.

G. "Hazardous Waste" shall have the same meaning as contained in RC §3734.01(J).

H. "Hazardous Substances" shall have the same meaning as defined in Section 101(14) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) as amended, 42 U.S.C. §9601.

I. "Hazardous Constituents" shall have the same meaning as contained in Rule 3745-50-10(A) of the Ohio Administrative Code.

J. "NCP" means the National Oil and Hazardous Substances Pollution Contingency Plan, referred to in CERCLA as the National Contingency Plan, and codified at 40 CFR Part 300 (1990) (as subsequently amended).

K. "NASA" means The National Aeronautics and Space Administration ("NASA") Lewis Research Center, Cleveland, Ohio, its directors, officers, employees, agents, subsidiaries, successors, designated representatives and assigns acting under, for or in concert with NASA.

L. "Ohio EPA" or "OEPA" means the Ohio Environmental Protection Agency and its designated representatives.

M. "Oversight Costs" shall mean all direct and indirect costs of oversight incurred by Ohio EPA in verifying the work to be performed by NASA pursuant to this Order, or otherwise implementing or enforcing this Order, including but not limited to the costs of payroll, fringe, contractors, travel, oversight, samples, laboratory analysis, data management, safety and general equipment, supplies, general maintenance, reviewing or developing work plans, reports, or other items pursuant to this Order. The oversight costs include but are not limited to the costs of performing the following activities:

1. Review and comment on workplans, reports, studies, and other documents submitted by NASA pursuant to this Decree;

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2. Identification and explanation of State requirements applicable to NASA activities performed pursuant to this Order;

3. Field visits to ensure that NASA activities are performed in accordance with State requirements and this Order, including but not limited to the review of draft data in order to analyze and guide fieldwork;

4. Public participation activities in accordance with State and Federal requirements for public involvement;

5. Preparation for and participation in technical meetings;

6. Sampling and laboratory costs incurred as a result of split sampling performed to validate NASA's investigations.

N. "Operation and Maintenance" means all activities required to ensure that the response actions remain operational and functional. These operation and maintenance activities shall be described in an operation and maintenance workplan submitted by NASA and approved by Ohio EPA.

O. "Party" or "Parties" means NASA and/or Ohio EPA.

P. "Preferred Plan" means the document prepared by the Ohio EPA, Division of Emergency and Remedial Response (DERR), which presents to the public, DERR's preferred alternative for cleanup at the Site. The Preferred Plan shall include a brief summary of the alternatives evaluated in the detailed analysis of the Feasibility Study, highlighting the key factors that led to the identification of the preferred alternative.

Q. "Remedial Investigation" ("RI") means the investigation conducted in accordance with applicable State and Federal environmental laws and regulations, the NCP, and this Order by NASA, to determine the nature and extent of the contamination at the Site, and includes the gathering of all necessary data to support the Feasibility Study.

R. "Remedial Investigation/Feasibility Study" ("RI/FS") means the Remedial Investigation and Feasibility Study together.

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S. "Remedial Design" means the preparation by NASA of detailed engineering plans, specifications and construction drawings deemed by Ohio EPA to be sufficient to implement the selected remedial action.

T. "Remedial Action" means any action selected by Ohio EPA that abates permanently a placement or disposal or threatened disposal of hazardous waste, hazardous substances, hazardous constituents, pollutants, industrial wastes and/or other wastes to prevent present or future harm to the public health or welfare or to the environment and is consistent with applicable local, State and Federal laws and regulations, the NCP, and this Order.

U. "RD/RA" means the remedial design and remedial activities including operation and maintenance of the Site to be performed under this Consent Order.

V. "Response Action" includes "remedial action" as defined above and "removal", as defined by Section 101(23) of CERCLA, 42 U.S.C. §9601 (23).

W. "Response Costs" means all costs of "removal" or "remedial action" as defined by Section 101(23), (24) and (25) of CERCLA, 42 U.S.C. §9601 (23), (24) and (25), including, but not limited to, oversight costs.

X. "Site" means the Facility and any area outside of the Facility contaminated or threatened to be contaminated by hazardous waste, hazardous substances, hazardous constituents, industrial waste and/or other waste from the Facility.

Y. "U.S. EPA" means the United States Environmental Protection Agency.

Z. "Workplan" means that document detailing the requirements for characterizing the Site and for support of the Remedial Investigation and Feasibility Study and the Remedial Design and Remedial Action. Each required Workplan shall include a detailed description of the proposed investigations and/or implementation activities; a time schedule for those actions; and personnel and equipment needs. For each Workplan, that includes sampling as an element, the workplan shall include a sampling plan together with the rationale for sampling activities; locations, quantity and frequency of sampling;

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constituents for analysis; and quality control/quality assurance procedures. The required content of the RI/FS Workplan is outlined in the Generic Statement of Work (SOW) for the RI/FS attached hereto and incorporated as Appendix A. The required content of the RD/RA Workplan is outlined in the Generic Statement of Work (SOW) for the RD/RA attached hereto and incorporated as Appendix B.

Except as otherwise defined in the preceding definitions or as defined below, the terms used in this Order and any document required by this Order shall have the same meaning as used in Chapters 3734 and 6111 of the Ohio Revised Code, and regulations promulgated under the foregoing statutes. Any dispute between the parties as to applicable laws or regulations, or conflicts between federal and state laws and regulations, shall be subject to the dispute resolution provisions in Section XII.

IV. FINDINGS OF FACT, DETERMINATION, AND CONCLUSIONS OF LAW

4. OEPA has determined that all findings of fact necessary for the issuance of this Consent Order pursuant to ORC Sections 3734.13(A), 3734.20 (B) and 6111.03(H) have been made and are outlined below. OEPA has determined the following:

A. The United States of America is the owner of the National Aeronautics and Space Administration Lewis Research Center (NASA) located at 21000 Brookpark Road, Cleveland, Cuyahoga County, Ohio.

B. NASA acquired ownership of that property in 1958 when it is replaced the former owner, the National Advisory Committee for Aeronautics (NACA). Activities conducted by NASA at the Site since 1958 include research and technology development in the areas of aircraft and space propulsion, space power, and satellite communication.

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C. NASA's property is bounded to the north by the Rocky River and the Rocky River Reservation Metropolitan Park. Abrams Creek flows across the western portion of NASA, and joins the Rocky River to the north. Residential properties lay southwest of NASA. Cleveland Hopkins International Airport and Brookpark Road abut the eastern side of NASA's property.

D. An unnamed tributary of Abrams Creek flow northwest across the southern portion of the Site. Rocky River, which receives all discharges and material from Abrams Creek and the unnamed tributary, flows 10.5 (ten and one half) river miles northeast into Lake Erie.

E. Situated at the Site are, at minimum, nine (9) localities, and their surrounding areas, contaminated by hazardous wastes, hazardous substances, hazardous constituents, industrial wastes, and/or other wastes. These localities are as follows: the flight research building, the altitude wind tunnel (building number 7), the underground storage tank farm (number 17), the combustion research laboratory (building number 35-10), the electrical substation E (building number 42), the electrical substation A (building number 200), the unnamed tributary to Abrams Creek, the South Forty Area, and the component's cleaning facility (building number 109).

F. Hazardous wastes, hazardous substances, hazardous constituents, industrial wastes and/or other wastes present at the Site include, without limitation, acetone, methylene chloride, benzene, dichlorodifluoromethane, 1,2-dichloroethane, ethylbenzene, styrene, toluene, xylene, PCB's , mercury, 1,1,1-Trichloroethane, anthracene, benzo(a)anthracene, benzo(b)fluoranthene, chrysene, fluoranthene, pyrene, chloroform, 1,1-Dichloroethane, cyanide, laboratory wastes and radioactive wastes. The releases of hazardous wastes, hazardous substances, hazardous constituents, industrial waste and/or other waste at the Site have been documented as impacting and contaminating the following media: air, ground water, surface waters and soils. Structures are underground utility conduits have also been documented as being contaminated with hazardous wastes, hazardous substances, hazardous constituents, industrial wastes and/or other wastes.

G. NASA is a "person" as defined under Section 3734.01(G) of the Ohio Revised Code.

H. Because of their quantity, concentration, or physical or chemical characteristics, the Director has determined that acetone, methylene chloride, benzene, dichlorodifluoromethane, 1,2-dichloroethane, ethylbenzene, styrene, toluene, xylene, PCB's mercury, 1,1,1-Trichloroethane, anthracene, benzo(a)anthracene, benzo(b)fluoranthene, chrysene, fluoranthene, pyrene, chloroform, 1,1-Dichloroethane, cyanide and other contaminations founds at the

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Site are "hazardous wastes" as defined under Section 3734.01(J) of the Ohio Revised Code.

I. The Site is a hazardous waste facility, solid waste facility, or other location where hazardous waste was treated, stored, or disposed.

J. Conditions at the Site constitute a substantial threat to public health or safety or are causing or contributing or threatening to cause or contribute to air or water pollution or soil contamination.

K. NASA is a "person" as defined under Section 6111.01(I) of the Ohio Revised Code.

L. Acetone, methylene chloride, benzene, dichlorodifluoromethane, 1,2-dichloroethane, ethylbenzene, styrene, toluene, xylene, PCB's mercury, 1,1,1-Trichloroethane, anthracene, benzo(a)anthracene, benzo(b)fluoranthene, chrysene, fluoranthene, pyrene, chloroform, 1,1-Dichloroethane, cyanide and other contaminants found at the Site are "industrial wastes" or "other wastes" as defined under Section 6111.01 of the Ohio Revised Code.

M. The ground water and surface water at the Site are "waters of the state" as defined under Section 6111.01(H) of the Ohio Revised Code.

N. The Work required by these Orders will contribute to the prohibition or abatement of the discharge of industrial wastes or other wastes into the waters of the state.

O. In issuing these Orders, the Director has given consideration to, and based his determination on, evidence relating to the technical feasibility and economical reasonableness of complying with these Orders and to evidence relating to conditions calculated to result from compliance with these orders, and their relation to benefits to the people of the state to be derived from such compliance.

P. The Director has determined the findings of fact and conclusions of law contained in this Consent Order. Nothing in this Consent Order or workplan is intended to be an admission by NASA of the findings of fact and conclusions of law made within this Consent Order. Specifically, NASA does not admit that the past or present conditions at the Site posed or pose an imminent and substantial endangerment to the public health, welfare or environment. NASA does agree to the Director's authority to issue this Consent Order, agrees to comply with the terms and conditions contained within this Consent Order, and agrees to undertake the actions in the Consent Order.

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V. PERSONS BOUND

5. The provisions of this Order shall apply to and be binding upon NASA, its successors in interest and assigns, and the United States of America.

6. NASA shall provide a copy of this Order to each contractor and consultant employed to perform any of the work itemized or referenced herein, and shall include in each contract with each general contractor a requirement that the general contractor shall provide a copy of this Order to each of its subcontractors for such work. NASA shall provide Ohio EPA with the names of all contractors and subcontractors performing activities required by this Order.

VI. CALCULATION OF TIME

7. Unless otherwise stated in this Order, where this Order requires actions to be taken within a specified period of time (e.g. "within thirty days"), this time period shall begin the day after the entry of this Order.

VII. DESIGNATION OF COORDINATORS

8. Within 10 days of the entry of this Order, NASA shall designate a coordinator to oversee and implement the work under Section VIII of this Order and to coordinate with the Ohio EPA coordinator. To the maximum extent practicable, communications between NASA and Ohio EPA concerning the activities performed under Section VIII of this Order shall be through the coordinators.

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9. NASA's designated coordinator or alternate shall be at the Site during all hours of work or on call, and shall make herself/himself available for the pendency of this Order. The absence of the Ohio EPA Coordinator from the Site shall not be cause for stoppage of work unless otherwise provided.

10. NASA may change its coordinator by notifying Ohio EPA in writing at least seven (7) days prior to the change.

11. Without limiting any authority conferred by law on Ohio EPA, the authority of the Ohio EPA coordinator includes, but is not limited to:

A. Taking samples in accordance with the terms of any Workplan required under Section VIII of the Order, and directing the type, quantity and location of samples to be taken by the Defendant;

B. Observing, taking photographs and/or taking audio/video tape and making such other reports on the progress of the work as the Ohio EPA deems appropriate;

C. Directing that work stop whenever Ohio EPA determines that activities at the Site may present an imminent and substantial danger to the public health, welfare or environment;

D. Reviewing records, files, historical data and documents relevant to this Order;

E. Directing actions taken at the Site pursuant to this Order; and

F. Reviewing and approving or disapproving all Workplans, reports, studies and other documents that NASA is required to submit to Ohio EPA pursuant to this Order.

VIII. WORK TO BE PERFORMED

12. All work to be performed by NASA pursuant to this Order shall be under the direction and supervision of a qualified environmental engineer,

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geologist or architect with expertise in hazardous waste site investigation and remediation. Prior to the initiation of work under this Order, NASA shall notify Ohio EPA in writing regarding the name, title, and qualifications of such engineer, geologist, or architect and of any contractors and/or subcontractors to be used in carrying out the terms of this Order.

13. NASA shall perform a Remedial Investigation/Feasibility Study in accordance with the following provisions:

A. Within seven (7) days, NASA shall provide Ohio EPA with a copy of all Workplans, reports, studies and other documents that NASA is required to submit to Ohio EPA pursuant to this Order and which have been completed prior to the entry of this Order. Within fourteen (14) days after Ohio EPA notifies NASA that its review of these documents is complete, Ohio EPA and NASA shall meet to discuss Ohio EPA's comments on these documents.

B. Within seven (7) days, unless otherwise agreed to by the parties, of the meeting required by Paragraph A above, NASA shall contact Ohio EPA to schedule a meeting and shall meet with Ohio EPA representatives to discuss the requirements for a Data Collection Quality Assurance Project Plan which is described in Task 2 of the generic RI/FS SOW.

C. Within twenty (20) days of the meeting required by Paragraph B above, NASA shall submit a Workplan for the implementation of the complete RI/FS at the Site. The RI/FS Workplan shall be developed in conformance with this Order, the Generic RI/FS Statement of Work (herein incorporated as Attachment A to this Order), state law, including R.C. Chapters 3734. and 6111. and the regulations promulgated thereunder, the National Contingency Plan, 40 CFR Part 300, and the most current version of the guidance documents specified in Attachment C to the Order. If Ohio EPA determines that any guidance documents in addition to those specified in Attachment C to this Order affect the work to be performed, Ohio EPA will notify NASA and any affected Workplan or reports shall be modified accordingly.

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D. The RI/FS Workplan or reports required by this Order or approved Workplan and any amendments to the Workplan shall be subject to the review, approval or disapproval by Ohio EPA in accordance with the provisions set forth in Sections IX and X of this Order.

E. Upon approval of the RI/FS Workplan, NASA shall implement the work detailed therein in accordance with the schedule contained in the approved RI/FS Workplan.

14. Based upon the approved RI/FS, the Preferred Plan for remedial action shall be prepared by the Ohio EPA for public review and comment. This Preferred Plan shall be prepared pursuant to Ohio EPA's policy titled "Preferred Plans and Decision Documents", #DERR-00-RR-013, herein incorporated as Attachment D. Following the public comment period, Ohio EPA may revise the Preferred Plan in response to those comments or may finalize the Preferred Plan without change.

15. The selection of a preferred alternative shall be recorded by the Ohio EPA in a Decision Document for the Site. This Decision Document shall include a summary of the RI/FS, a summary of the remedy selection decision and a responsiveness summary. The activities required in this paragraph shall be done pursuant to Ohio EPA's policy set forth in Attachment D.

16. NASA shall perform a Remedial Design/Remedial Action at the Site in accordance with the following provisions:

A. Within sixty (60) days of the date of receipt of the Decision Document, NASA shall submit a Workplan for the implementation of the complete RD/RA at the Site. The RD/RA Workplan shall be developed in conformance with this Order, the Generic RD/RA Statement of Work (herein incorporated as Attachment B to this Order), state law including R.C. Chapters 3734., 3704. and 6111. and the regulations promulgated thereunder, the NCP, 40 CFR Part 300, and the

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most current version of the guidance documents specified in Attachment C to the Order. If Ohio EPA determines that any guidance documents in addition to those specified in Attachment C to this Order affect the work to be performed, Ohio EPA will notify NASA and any affected Workplan or reports shall be modified accordingly.

B. The RD/RA Workplan or draft reports, or reports required by this Order or approved Workplan and any amendments to the Workplan shall be subject to the review, approval or disapproval by Ohio EPA in accordance with the provisions set forth in Sections IX and X of this Order.

C. Within thirty (30) days of Ohio EPA's approval of the RD/RA Workplan, NASA shall implement the work detailed therein in accordance with the schedule contained in the approved RD/RA Workplan.

17. NASA shall perform or shall ensure performance of all operation and maintenance measures and tasks necessary to achieve the effectiveness, implementation and long-term maintenance of the response actions which occur at the Site pursuant to this Order.

IX. ADDITIONAL WORK

18. If, prior to the termination of this Order, Ohio EPA determines that additional work is necessary to achieve the purposes of this Order, Ohio EPA may notify NASA of the need for such additional work. Within ten (10) days of receipt of such notification from Ohio EPA, NASA shall confirm their willingness to perform the additional work and shall provide a proposed schedule for Ohio EPA's approval for submitting a work plan for the performance of the additional work.

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19. If, prior to the termination of this Order, NASA determines that additional work is necessary to achieve the purposes of this Order, NASA shall submit to Ohio EPA for approval NASA's plan for performing such work.

20. In the event that additional work is necessary pursuant to paragraphs 18 and 19, above for any task described in this Order, the deadline for completing such task(s) shall be extended by the amount of time required to perform the additional work required, including the period for time required to plan and/or obtain approval from the Ohio EPA for the performance of such work.

X. REVIEW OF SUBMITTALS

21. Ohio EPA shall review and approve or disapprove each Workplan, report, study or other document that NASA is required under this Order to submit to Ohio EPA. Ohio EPA will attempt to review documents on an expedited basis as necessary to avoid delay in the implementation of any measures that may be required in accordance with the Work Plan. If Ohio EPA review of a document takes more than sixty (60) days, and NASA's ability to meet a subsequent deadline is dependent on the completion of Ohio EPA review of the document, the NASA deadline shall be extended by the amount of Ohio EPA review time exceeding sixty (60) days.

22. In the event NASA is notified that a document is disapproved in whole or in part, Ohio EPA shall include a statement in the notification as to the changes, deletions or additions that must be made to the document prior to

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approval, and an explanation as to why such changes, deletions or additions are necessary.

23. If Ohio EPA disapproves part or all of any submittal, or requires modification of a submittal, NASA shall resubmit the disapproved or modified portion to Ohio EPA in approvable form within 30 days of receipt of Ohio EPA's disapproval letter or requirement to modify. If NASA requires more than thirty (30) days to respond, the NASA shall, within fifteen (15) days of receipt of Ohio EPA's notice, notify Ohio EPA in writing of a reasonable new due date for completion of their response. Ohio EPA shall not unreasonably withhold approval of NASA's proposed new due date.

24. If NASA disputes any such disapproval or proposed modification the parties shall resolve the dispute in accordance with Section XII. Within thirty (30) days (unless Ohio EPA agrees to a longer period of time) of the resolution of any dispute under Section XII, NASA shall submit to Ohio EPA those revisions necessary to correct outstanding deficiencies or incorporate requested modifications.

25. Except for minor field changes agreed to by the coordinators for NASA and Ohio EPA, no modification or additional changes shall be made by NASA to any document, Workplan, report or study approved by Ohio EPA without prior written notification to, and written approval by, Ohio EPA. The notification required by this paragraph shall set forth the nature of and reasons for the desired modification. Upon agreement by Ohio EPA and NASA coordinators for minor field changes, the Ohio EPA coordinator shall document such an agreement by letter

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to the NASA coordinator setting forth the nature and extent of the changes to be made.

26. If NASA requires additional time to meet a deadline or satisfy a requirement specified in this Order, then NASA shall, in writing, notify Ohio EPA of the additional amount of time required and the reasons more time is needed. If Ohio EPA grants the extension, the new time for compliance under the Order shall be extended accordingly. Any dispute between the parties as to a request for more time shall be subject to the dispute resolution procedures in Section XII.

XI. ATTACHMENTS, SUBMISSIONS AND GUIDANCE DOCUMENTS

27. All final Workplans, reports and other documents approved by Ohio EPA under Section X of this Order shall become incorporated by reference into and be an enforceable part of this Order except for any portions of the documents subject to ongoing dispute resolution pursuant to Section XII of this Order. The following documents are appended to this Order and incorporated by reference at the time of entry of this Order, and are an enforceable part of this Order:

Attachment A - the Generic RI/FS Statement of Work;

Attachment B - the Generic RD/RA Statement of Work;

Attachment C - a list identifying specific Ohio EPA and U.S. EPA Guidance Documents;

Attachment D - the Ohio EPA Policy titled "Preferred Plans and Decision Documents."

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Except for any requirements of these attachments waived by Ohio EPA, NASA and Ohio EPA shall follow the terms of these attachments in undertaking the response actions required under this Order. If Ohio EPA or NASA determine that any additional or revised guidance documents in use by Ohio EPA or U.S. EPA after the effective date of these Orders affect the Work to be performed in implementing this Order, the Party discovering the new and/or revised guidance shall notify the other in writing, and any affected documents shall be modified accordingly. Tasks required under approved plans which have already been materially implemented shall not be required by these Orders to be redone pursuant to any revised or additional guidance documents without the NASA's consent, which consent shall not be unreasonably withheld, except for guidance documents which materially affect cleanup levels and exist prior to the Ohio EPA issuing the preferred plan.

XII. RESOLUTION OF DISPUTES

28. The Coordinators shall, whenever possible, operate by consensus, and in the event that there is a disapproval of any document required to be submitted by this Order or disagreement about the conduct of the work performed under this Order or Workplans, or modification or additional work or schedules required under this Order, or the accuracy of the billing statements prepared in accordance with Section XX, the Coordinators shall have seven (7) days to negotiate in good faith in an attempt to resolve the differences. Unless it is expressly stated that a

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particular section of this Order is subject to the provisions of Section XII, and/or dispute resolution, this section shall not be applicable.

29. In the event that the Coordinators are unable to reach consensus on the disapproval or disagreement in seven (7) days, then each Coordinator shall reduce his/her position to written form within seven (7) days of the end of the good faith negotiations referenced above. Those written positions shall be immediately exchanged by the Coordinators. Following the exchange of written positions, the parties, with the participation of the Group Leader and/or Unit Supervisor, Division of Emergency and Remedial Response (DERR), Northeast District Office, shall have an additional seven (7) days to resolve their differences. If Ohio EPA concurs with the position of NASA, Ohio EPA will amend the Workplans or modify the Consent Order to include necessary extensions of time or variances of required work. If Ohio EPA does not concur with the position of NASA, Ohio EPA's Site Coordinator shall notify NASA in writing. Upon receipt of such written notice, NASA shall have seven (7) days to forward a written statement of the dispute to the Division Chief of DERR, Central Office. The DERR Division Chief will resolve the dispute based upon and consistent with this Order, the Workplans, and State Law including R.C. Chapters 3734. and 6111. and the regulations promulgated thereunder, the NCP, 40 CFR Part 300 and any other appropriate state or federal law.

30. The pendency of dispute resolution set forth in this Section shall not affect the time period for completion of work to be performed under this Order, except that upon mutual agreement of the parties, any time may be extended as

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appropriate under the circumstances. Such agreement will not be unreasonably withheld by Ohio EPA. Elements of work not affected by the dispute will be completed in accordance with the schedules contained in the Workplans.

31. Within thirty (30) days of resolution of any dispute, NASA shall incorporate the resolution and final determination into the appropriate Workplan, schedule or procedures and proceed to implement this Order according to the amended Workplans, schedule or procedures.

32. Unless otherwise expressly provided for in this Order, the dispute resolution procedures of Section XII shall be the exclusive mechanism to resolve disputes arising under or with respect to this Order.

33. In any dispute subject to dispute resolution, the parties may, by written agreement, modify the procedures set forth in this section.

XIII. RESOLUTION OF INCONSISTENCIES

34. Should NASA identify any inconsistency between any of the laws, rules, regulations, guidance or orders which will affect any of the work required by this Order, NASA shall provide written identification to Ohio EPA of each such inconsistency, a description of its effect on the work to be performed, and NASA's recommendation, along with the rationale for each recommendation, as to which requirement should be followed. NASA shall implement the affected work in accordance with Ohio EPA's resolution of the inconsistency. Where Ohio EPA's resolution results in an inconsistency between federal and state requirements,

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NASA may initiate dispute resolution to resolve that inconsistency pursuant to the dispute resolution procedures in Section XII.

XIV. PERMITS AND APPROVALS

35. The State of Ohio will use its best efforts to review in a timely manner, following NASA's application, any permits necessary for NASA to carry out the work required pursuant to this Order.

XV. INSPECTIONS AND ACCESS

36. Ohio EPA, its employees and agents shall have full access to the Site at all times without the need for any type of warrant for inspection, monitoring, sampling, and any other oversight of NASA's activities undertaken pursuant to the terms of this Order or to assess NASA's compliance with this Order. Ohio EPA agrees that it will comply with all statutes, rules and regulations for personnel safety and facility security. This paragraph shall not be construed to eliminate or restrict or enlarge any State right to seek access to the Site which it may otherwise have under Federal or State law.

37. To the extent that the work required by this Order must be done on property not owned or controlled by NASA, NASA shall use its best efforts to obtain site access agreements for NASA and Ohio EPA access from the present owners of such property within 30 days of approval of any workplan for which site access is required. NASA shall provide Ohio EPA with copies of any access agreement or

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other document providing for access. "Best efforts" as used in this paragraph shall include, at a minimum, a certified letter from NASA to the present owners of such property requesting agreements to permit NASA and Ohio EPA access to property. NASA shall exercise whatever authority it may have pursuant to Section 104(e) of CERCLA, 42 U.S.C. § 9604(e), when necessary to obtain access. In the event that agreements for access are not obtained within 30 days of the approval of the appropriate Workplan, NASA shall notify Ohio EPA in writing, within 7 days thereafter, of its inability to obtain such agreements, and all efforts that have been exercised to obtain such agreements.

XVI. SAMPLING AND DOCUMENT AVAILABILITY AND RETENTION

38. NASA shall make available to Ohio EPA the results of all sampling, tests or other data, including raw data, generated by or on behalf of NASA from environmental media or hazardous waste, hazardous substances, hazardous constituents, industrial waste or other waste at the Site. NASA shall allow split or duplicate samples to be taken by Ohio EPA of all such samples collected by NASA. NASA shall notify the Ohio EPA Coordinator not less than 30 days in advance of any sample collection.

39. NASA shall preserve, until the termination of this Order, and for a minimum of 10 years after completion of work pursuant to this Order, whichever is later, copies of all records and documents within its possession or that of its divisions, employees, agents, accountants, contractors or attorneys which relate to

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work performed under this Order and its waste disposal practices, etc. After the 10 year period, NASA shall notify Ohio EPA within 30 days prior to the destruction of any such documents required to be kept pursuant to this Section. Upon request by Ohio EPA, NASA shall make available to Ohio EPA such records or copies of any such records.

40. NASA shall upon Ohio EPA's request submit all raw data and all original reports of analytical procedures and results to Ohio EPA by certified mail within five (5) days of receipt of such request.

41. NASA shall submit to Ohio EPA within five (5) days after NASA's receipt, any interpretive reports and written explanations concerning such raw data and original laboratory reports. Draft and final interpretive reports or explanations must be immediately submitted as generated.

42. Should NASA, following submission of any report or document pursuant to this Order, discover any error in any report or raw data, NASA shall within ten days of discovery, notify Ohio EPA of such discovery and provide to the Ohio EPA the basis for the error, and the corrected information.

43. Any action by any party required or authorized by, or undertaken pursuant to this Order, or any document or information required or authorized by, or generated or requested pursuant to this Order may be subject to national security requirements contained in Federal law, and to applicable attorney-client and work product privileges. The analytical data described in Paragraph 40 shall not be subject to any such security requirement or claim of work product or attorney-client

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privilege. NASA shall inform Ohio EPA in writing of any security requirement, work product exemption or attorney-client privilege claimed by NASA in response to any document or information requested by Ohio EPA, or otherwise required to be submitted or generated by this Order. Any disputes between the parties as to the validity of an asserted security requirement, work product exemption or privilege shall be subject to the dispute resolution procedures in Section XII.

XVII. DEED NOTICE, LAND USE AND CONVEYANCE OF TITLE

44. No portion of the Site shall be used in any manner which could adversely affect the integrity of any response action implemented pursuant to this Order. NASA shall not convey any title, easement or other interest without provision for continued operation and maintenance of any response action implemented pursuant to Sections VIII and IX of this Order. Before transferring any interest in the property, NASA shall assure that an appropriate notice shall be put in the deed as to the condition of the property in accordance with CERCLA Section 120(h), 42 U.S.C. Sec. 9620(h); the notice shall first be approved by Ohio EPA. NASA shall notify Ohio EPA of its intent to convey any interest in the Facility by certified mail at least 90 days prior to any conveyance.

XVIII. MONTHLY PROGRESS REPORTS

45. NASA shall submit written progress reports describing the activities which, pursuant to Section VIII and IX of this Order, have been undertaken during

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the previous month, and activities which are scheduled for the next month, to Ohio EPA by the twentieth day of every month after the entry of this Order. At a minimum, these reports shall:

1) Identify the Site and activity;

2) Describe the status of work at the Site and progress to date;
3) Demonstrate the percentage of work completed;

4) Describe difficulties encountered during the reporting period;

5) Describe actions taken to rectify problems;

6) Describe activities planned for the next month;

7) Identify changes in key personnel.

8) List target and actual completion dates for each element of activity, including the project completion;

9) Provide an explanation of any deviation from the milestones in the Workplan Schedules and corrective actions taken to correct the deviation from the milestones; and

10) Describe any data obtained during the reporting period which shows contamination of the Site with hazardous waste, hazardous substances, hazardous constituents, industrial waste or other waste.

11) Identify by media and quantity wastes(s) generated, treated and disposed.

XIX. NOTICE

46. Progress reports as required under Section XVIII and any other submissions, notifications and documents, including correspondence, submitted pursuant to this Order shall be sent by certified mail to the following:

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Ohio EPA (1 copy)
P. O. Box 1049
Columbus, Ohio 43266-0149
Attn: Technical and Program Support
Section, Division of Emergency and
Remedial Response

Ohio EPA (4 copies)
Northeast District Office
2110 East Aurora Road
Twinsburg, Ohio 44087
Attn: Nancy Zikmanis, Site Coordinator, or her successor

All correspondence to NASA will be directed to the following:

Peter W. McCallum, Chief
Office of Environmental Programs
NASA Lewis Research Center
MS 6-4
21000 Brookpark Road
Cleveland, OH 44135

NASA or Ohio EPA may change the person to whom notice shall be sent by providing written notification of the change to the other party.

XX. PAYMENTS AND REIMBURSEMENT OF COSTS

47. **PAST COSTS.** NASA is ordered and enjoined to pay within sixty (60) days from the entry of this Order $77,460.95 as reimbursement for past response costs incurred by the State. This payment shall be made in the following manner:

A. For those costs incurred prior to January 28, 1992, payment shall be made to "Treasurer of the State of Ohio" and shall be forwarded to Fiscal Officer, Ohio Environmental Protection Agency, P. O. Box 1049, 1800 WaterMark Drive, Columbus, Ohio 43266-0149, attention: Edith Long or successor. NASA shall send a copy of the transmittal letter and check to counsel for the Director;

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B. For those costs incurred on January 28, 1992 thru December 31, 1995 reimbursement shall be made via two payments: (1) for costs incurred by the Ohio Attorney General's Office, payment shall be made to the order of "Treasurer, State of Ohio" and shall be delivered to Matt Sanders, Administrative Assistant, or his successor, Environmental Enforcement Section, 30 East Broad Street, 25th Floor, Columbus, Ohio 43215-3428; and (2) for costs incurred by the Ohio EPA, payment shall be made to "Treasurer, State of Ohio" and forwarded to the above listed WaterMark Drive address.

C. Copies of all transmittal letters and checks shall also be delivered to the Ohio EPA Project Coordinator as identified in Paragraph 46, above.

48. **FUTURE COSTS.** NASA shall reimburse the State of Ohio for all oversight costs incurred subsequent to December 31, 1995, pursuant to the provisions of subparagraphs A and B below. Ohio EPA may submit to NASA an itemized statement of Ohio EPA's costs for the previous year, including, but not limited to, identification of employees and agents, including contractors and subcontractors, and an explanation of the tasks performed and/or the basis upon which such cost are claimed. The dispute resolution provisions of Section XII of this Order shall apply only to the accuracy of the itemized statements prepared in accordance with paragraph 48 of this section. Any Response costs that NASA must pay as a result of dispute resolution shall be paid within thirty (30) days of the resolution of the dispute.

A. For costs incurred by the Ohio Attorney General's Office, the Attorney General may submit to NASA an itemized statement of costs incurred for each calendar year following the end of that year. Within sixty (60) days of receipt of the itemized statements, NASA shall pay the Attorney General's costs. Payment shall be

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made to "Treasurer, State of Ohio" and in the same manner as set forth in paragraph 47 (B) and (C) above.

B. For costs incurred by the Ohio EPA, Ohio EPA may submit to NASA an itemized statement of costs incurred for each calendar year following the end of that year. Within sixty (60) days of receipt of the itemized statements, NASA shall pay the Ohio EPA costs. Payment shall be made to "Treasurer, State of Ohio" and shall be forwarded to the Fiscal Officer, Ohio EPA, in the same manner as set forth in paragraph 47 (B) and (C), above.

XXI. COMPLIANCE

49. Except as specifically set forth in this Order, NASA shall not be excused from compliance with any applicable federal and state laws in carrying out the provisions of this Order. NASA agrees to advise the Ohio EPA of its efforts to obtain the appropriated funding necessary to implement this Order. If appropriated funds necessary to fulfill an obligation under this Order are not available, the parties agree to utilize the dispute resolution procedures of Section XII of this Order to discuss whether the Ohio EPA will, in its sole discretion, agree to make appropriate adjustments to the action dates for obligations which require the payment or obligation of such funds. If no agreement is reached, the Ohio EPA and NASA agree that in any judicial proceeding seeking to enforce the terms of this Order for NASA's failure to comply or delay in compliance with such terms, NASA may raise as a defense that its failure or delay was caused by circumstances beyond its control or that such failure or delay was caused by the unavailability of appropriated funds. While the Ohio EPA disagrees that such defenses exist, the parties do agree and stipulate that it is premature at this time to raise and adjudicate the existence of such

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defenses. This paragraph does not constitute a waiver by NASA of its position that its obligations under this Order are subject to the provisions of the Anti-Deficiency Act, 31 U.S.C. §1341, nor does it constitute a waiver by the Ohio EPA of its position that NASA's obligations under this Order are not subject to the Anti-Deficiency Act.

XXII. SATISFACTION OF LAWSUIT AND RESERVATION OF RIGHTS

50. Except as otherwise provided for in this Order, full compliance with the terms of this Order shall constitute satisfaction of any civil liability of NASA to the Ohio EPA, based upon the allegations set forth in Section IV, above, for claims arising prior to the date of entry of this Order under: (1) R.C. Chapters 3734. and 6111., and the regulations promulgated thereunder; and (2) the Comprehensive Environmental Response, Compensation and Liability Act (42 U.S.C. §§ 9601-9675), and the regulations promulgated thereunder.

51. This Order shall not be construed to limit the authority of the Ohio EPA to seek relief for claims not arising from allegations in Section IV, above, or for releases which NASA does not perform response actions pursuant to this Order.

52. Nothing in this Order shall be construed to limit the authority of the Ohio EPA to seek relief for further violations of 3734. and 6111, including such violations occurring after the entry of this Order, whether or not such violations are based upon claims arising from the allegation in Section IV, above.

53. Nothing in this Order shall be construed to limit the authority of the Ohio EPA to undertake any action against any entity, including NASA, to eliminate

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or mitigate conditions which may present a threat to the public health, welfare or environment, or to seek cost reimbursement for any such action. Nothing in this Order shall be construed to limit the authority of Ohio EPA to seek relief for claims of damages to natural resources.

54. If the response actions performed pursuant to this Order result in any hazardous waste, hazardous substances, hazardous constituents, industrial wastes, or other wastes remaining at the Site, Ohio EPA may review the response actions at least once every five years after the initiation of the response actions in accordance with the guidance documents in Attachment C of this Order to assure that the response actions protect human health and the environment. NASA shall conduct any studies and investigations as requested by Ohio EPA in order to permit Ohio EPA to conduct reviews at least every five years. If upon such review it is the judgment of Ohio EPA that further action is appropriate to protect human health or the environment, nothing in this Order shall be construed to bar the Ohio EPA and/or the State of Ohio from exercising any authority or initiating any legal proceeding against NASA to require such further action.

55. Nothing in this Order shall relieve NASA of its obligation to comply with applicable federal, state or local statutes, regulations, or ordinances.

56. The Ohio EPA reserves the right to perform any of the response actions required of NASA by this Order in the event that NASA fails to fully perform any of them in accordance with the deadlines of this Order and to recover the costs of such response actions from NASA. The Ohio EPA also reserves the right to perform the

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response actions required of NASA by this Order in the event of Ohio EPA disapproval of any second submittal under Section VIII of this Order.

57. Notwithstanding any other provision of this Order, except for the waiver provision set forth in Section XXIV, below, NASA expressly reserves all rights and defenses NASA may legally raise in response to any future action taken by Ohio EPA pursuant to this Section XXII. Nothing in this order shall limit NASA's ability to challenge Ohio EPA's interpretation of these Orders in any subsequent action brought by the Ohio EPA.

XXIII. TERMINATION AND SATISFACTION

58. The provisions of this Order shall be satisfied when the NASA demonstrates in writing and certifies to Ohio EPA's satisfaction that all activities required under this Order, including any additional tasks required under Section IX, have been met and properly implemented.

IT IS SO ORDERED

SEP 20 1996

Donald R. Schregardus, Director
Ohio Environmental Protection Agency

Date

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XXIV. WAIVER OF CHALLENGE AND AUTHORITY TO ENFORCE

59. In order to resolve disputed claims, without admission of fact, violation, or liability, NASA hereby agrees that these Findings and Orders are lawful and reasonable, and agrees to comply with the requirements of these Orders.

60. NASA hereby waives the right to appeal the issuance, terms and conditions, and service of these Orders to the Environmental Board of Review or any other court of competent jurisdiction. In addition, NASA hereby waives any and all rights that it may have to seek judicial review of the issuance, terms and conditions, and service of these Orders either in law or equity.

61. Notwithstanding the limitations herein on NASA's right to appeal or seek judicial review, the Ohio EPA and NASA agree that in the event that these Orders are appealed by a third party to the Environmental Board of Review, or any court, NASA retains the right to intervene and participate in such appeal. In such event, NASA shall continue to comply with these Orders notwithstanding such appeal and intervention unless these Orders are stayed, vacated or modified.

62. Nothing in this Order shall be construed as a limitation on the Ohio EPA's authority to enforce the requirements of this Order.

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XXV. SIGNATORY

63. The undersigned NASA signatory to these Orders hereby certifies that he or she is fully authorized to enter into the terms and conditions of these Orders and to legally bind NASA to this document.

NASA Authorized Representative

Date 8/1/96

Director, Lewis Research Center
Title

Approved by:

BETTY D. MONGTOMERY
ATTORNEY GENERAL OF OHIO

TERRENCE S. FINN (0039391)
Assistant Attorney General
Environmental Enforcement Section
30 East Broad Street, 25th Floor
Columbus, Ohio 43266-0410
(614) 466-2766

Date 8/22/96

I certify this to be a true and accurate copy of the official document as filed in the records of the Ohio Environmental Protection Agency.

By: Kara Yoder Date 9/20/96

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National Aeronautics and
Space Administration
Lewis Research Center
Cleveland, OH 44135-3191

OHIO
ATTY GENERAL
AUG 8 9 31 AM '96
ENVIRONMENTAL
ENFORCEMENT

Reply to Attn of: 0540

August 2, 1996

Mr. Terrence Finn
Assistant Attorney General
Environmental Enforcement Section
Ohio Attorney General's Office
30 East Broad Street
Columbus, OH 43215-3428

Dear Mr. Finn:

Enclosed please find the signed, original version of the Director's Final Findings and Orders for NASA Lewis. Also, enclosed is a letter from Laura Henry, per your request, indicating that NASA has the authority to enter into this agreement. The signatory for Lewis is Donald J. Campbell, our Center Director. Mr. Campbell assumes responsibility for all NASA operations at Lewis.

We are providing this to you for forwarding to the Ohio EPA for the Director's signature. As we have discussed before, we would like to work with you if there is to be any press release or other publicity regarding the entry of this order. We would hope that any publicity recognize that NASA and the State have both been working to put this agreement in place and that we want to work cooperatively.

I would like to add my personal thanks to you for your efforts in getting this agreement completed. As you know, discussions had been going on for some time before you got involved. Your attention to the matter and your willingness to hear out concerns were the keys to reaching a conclusion.

Please inform Ohio EPA that we would like to host a kickoff meeting regarding the implementation of the Orders. I will be calling Ohio EPA directly to schedule a time.

Sincerely,

Peter W. McCallum

Peter W. McCallum

Enclosure

Issuance Date _____

Effective Date _____

BEFORE THE

OHIO ENVIRONMENTAL PROTECTION AGENCY

In the Matter of THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION LEWIS RESEARCH CENTER 21000 Brookpark Road Cleveland, Ohio 44135 Respondent.	: : : : : : : :	DIRECTOR'S FINAL FINDINGS AND ORDERS

ADMINISTRATIVE ORDER ON CONSENT

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I. JURISDICTION

1. This Administrative Order on Consent ("Order") constitutes Director's Final Findings and Orders and is issued pursuant to the authority vested in the Director of the Ohio Environmental Protection Agency ("Ohio EPA") by Ohio Revised Code ("R.C.") Sections 3734.13, 3734.20, 6111.03, and 3734.01. Respondent National Aeronautics and Space Administration ("NASA") consents to and agrees not to contest Ohio EPA's jurisdiction to issue and enforce this Order.

II. STATEMENT OF PURPOSE

2. In entering into this Order, the mutual objectives of the Ohio EPA and NASA are (1) to complete a full investigation of the Site, (2) to determine the extent of contamination at the Site caused by the release of hazardous, industrial and/or other waste, (3) to develop and evaluate a program of appropriate remedial measures employing sound scientific, engineering and construction practices which shall be consistent with federal, state and local law, and (4) design, implement and monitor the remedy deemed appropriate. This Order is intended to require the completion of a Remedial Investigation/Feasibility Study, Remedial Design/Remedial Action, and Operation and Maintenance of the NASA site as provided in this Order.

III. DEFINITIONS

3. As used in this Order, the following terms, words and abbreviations have the meanings provided below:

A. "Contractor" means a qualified contractor retained by NASA pursuant to this Order and any subcontractor, representative, agent, employee, or designee thereof.

B. "Days" shall mean calendar days, including weekends and holidays.

C. "Decision Document" means the document issued by Ohio EPA, setting forth the remedial action requirements for the Site, which is to be incorporated herein.

D. "Document" means any record, report, photograph, video tape, correspondence, computer disk or tape, recorded or retrievable information of any kind, including raw data, narrative reports and any and all documentary evidence, relating to treatment, storage, disposal and concerning the investigation and remediation of hazardous waste, hazardous substances, hazardous constituents, industrial waste or pollutants or other waste at the Site. "Document" shall be construed broadly to promote the effective sharing between NASA and Ohio EPA of information and views concerning the work to be done.

E. "Facility" as defined in O.R.C. 3734.01(N) refers to the areas of the Lewis Research Center, which have at any time been administered by NASA or occupied by NASA or any tenants within the locality of 21000 Brookpark Road, Cleveland, Ohio, where treatment, storage, placement or disposal of hazardous waste, hazardous substances, hazardous constituents, industrial waste and/or other waste were conducted, including any other area of the Lewis Research Center contaminated or threatened to be contaminated by hazardous waste, hazardous substances, hazardous constituents, and/or industrial waste and/or other waste migrating therefrom.

F. "Feasibility Study" ("FS") means the development, evaluation, and analysis of remedial alternatives for cleanup action conducted by NASA in accordance with applicable State and

Federal environmental laws and regulations, the NCP and this Order.

G. "Hazardous Waste" shall have the same meaning as contained in RC §3734.01(J).

H. "Hazardous Substances" shall have the same meaning as defined in Section 101(14) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) as amended, 42 U.S.C. §9601.

I. "Hazardous Constituents" shall have the same meaning as contained in Rule 3745-50-10(A) of the Ohio Administrative Code.

J. "NCP" means the National Oil and Hazardous Substances Pollution Contingency Plan, referred to in CERCLA as the National Contingency Plan, and codified at 40 CFR Part 300 (1990) (as subsequently amended).

K. "NASA" means The National Aeronautics and Space Administration ("NASA") Lewis Research Center, Cleveland, Ohio, its directors, officers, employees, agents, subsidiaries, successors, designated representatives and assigns acting under, for or in concert with NASA.

L. "Ohio EPA" or "OEPA" means the Ohio Environmental Protection Agency and its designated representatives.

M. "Oversight Costs" shall mean all direct and indirect costs of oversight incurred by Ohio EPA in verifying the work to be performed by NASA pursuant to this Order, or otherwise implementing or enforcing this Order, including but not limited to the costs of payroll, fringe, contractors, travel, oversight, samples, laboratory analysis, data management, safety and general equipment, supplies, general maintenance, reviewing or developing work plans, reports, or other items pursuant to this Order. The oversight costs include but are not limited to the costs of performing the following activities:

1. Review and comment on workplans, reports, studies, and other documents submitted by NASA pursuant to this Decree;

2. Identification and explanation of State requirements applicable to NASA activities performed pursuant to this Order;

3. Field visits to ensure that NASA activities are performed in accordance with State requirements and this Order, including but not limited to the review of draft data in order to analyze and guide fieldwork;

4. Public participation activities in accordance with State and Federal requirements for public involvement;

5. Preparation for and participation in technical meetings;

6. Sampling and laboratory costs incurred as a result of split sampling performed to validate NASA's investigations.

N. "Operation and Maintenance" means all activities required to ensure that the response actions remain operational and functional. These operation and maintenance activities shall be described in an operation and maintenance workplan submitted by NASA and approved by Ohio EPA.

O. "Party" or "Parties" means NASA and/or Ohio EPA.

P. "Preferred Plan" means the document prepared by the Ohio EPA, Division of Emergency and Remedial Response (DERR), which presents to the public, DERR's preferred alternative for cleanup at the Site. The Preferred Plan shall include a brief summary of the alternatives evaluated in the detailed analysis of the Feasibility Study, highlighting the key factors that led to the identification of the preferred alternative.

Q. "Remedial Investigation" ("RI") means the investigation conducted in accordance with applicable State and Federal environmental laws and regulations, the NCP, and this Order by NASA, to determine the nature and extent of the contamination at the Site, and includes the gathering of all necessary data to support the Feasibility Study.

R. "Remedial Investigation/Feasibility Study" ("RI/FS") means the Remedial Investigation and Feasibility Study together.

S. "Remedial Design" means the preparation by NASA of detailed engineering plans, specifications and construction drawings deemed by Ohio EPA to be sufficient to implement the selected remedial action.

T. "Remedial Action" means any action selected by Ohio EPA that abates permanently a placement or disposal or threatened disposal of hazardous waste, hazardous substances, hazardous constituents, pollutants, industrial wastes and/or other wastes to prevent present or future harm to the public health or welfare or to the environment and is consistent with applicable local, State and Federal laws and regulations, the NCP, and this Order.

U. "RD/RA" means the remedial design and remedial activities including operation and maintenance of the Site to be performed under this Consent Order.

V. "Response Action" includes "remedial action" as defined above and "removal", as defined by Section 101(23) of CERCLA, 42 U.S.C. §9601 (23).

W. "Response Costs" means all costs of "removal" or "remedial action" as defined by Section 101(23), (24) and (25) of CERCLA, 42 U.S.C. §9601 (23), (24) and (25), including, but not limited to, oversight costs.

X. "Site" means the Facility and any area outside of the Facility contaminated or threatened to be contaminated by hazardous waste, hazardous substances, hazardous constituents, industrial waste and/or other waste from the Facility.

Y. "U.S. EPA" means the United States Environmental Protection Agency.

Z. "Workplan" means that document detailing the requirements for characterizing the Site and for support of the Remedial Investigation and Feasibility Study and the Remedial Design and Remedial Action. Each required Workplan shall include a detailed description of the proposed investigations and/or implementation activities; a time schedule for those actions; and personnel and equipment needs. For each Workplan, that includes sampling as an element, the workplan shall include a sampling plan together with the rationale for sampling activities; locations, quantity and frequency of sampling;

constituents for analysis; and quality control/quality assurance procedures. The required content of the RI/FS Workplan is outlined in the Generic Statement of Work (SOW) for the RI/FS attached hereto and incorporated as Appendix A. The required content of the RD/RA Workplan is outlined in the Generic Statement of Work (SOW) for the RD/RA attached hereto and incorporated as Appendix B.

Except as otherwise defined in the preceding definitions or as defined below, the terms used in this Order and any document required by this Order shall have the same meaning as used in Chapters 3734 and 6111 of the Ohio Revised Code, and regulations promulgated under the foregoing statutes. Any dispute between the parties as to applicable laws or regulations, or conflicts between federal and state laws and regulations, shall be subject to the dispute resolution provisions in Section XII.

IV. FINDINGS OF FACT, DETERMINATION, AND CONCLUSIONS OF LAW

4. OEPA has determined that all findings of fact necessary for the issuance of this Consent Order pursuant to ORC Sections 3734.13(A), 3734.20 (B) and 6111.03(H) have been made and are outlined below. OEPA has determined the following:

A. The United States of America is the owner of the National Aeronautics and Space Administration Lewis Research Center (NASA) located at 21000 Brookpark Road, Cleveland, Cuyahoga County, Ohio.

B. NASA acquired ownership of that property in 1958 when it is replaced the former owner, the National Advisory Committee for Aeronautics (NACA). Activities conducted by NASA at the Site since 1958 include research and technology development in the areas of aircraft and space propulsion, space power, and satellite communication.

C. NASA's property is bounded to the north by the Rocky River and the Rocky River Reservation Metropolitan Park. Abrams Creek flows across the western portion of NASA, and joins the Rocky River to the north. Residential properties lay southwest of NASA. Cleveland Hopkins International Airport and Brookpark Road abut the eastern side of NASA's property.

D. An unnamed tributary of Abrams Creek flow northwest across the southern portion of the Site. Rocky River, which receives all discharges and material from Abrams Creek and the unnamed tributary, flows 10.5 (ten and one half) river miles northeast into Lake Erie.

E. Situated at the Site are, at minimum, nine (9) localities, and their surrounding areas, contaminated by hazardous wastes, hazardous substances, hazardous constituents, industrial wastes, and/or other wastes. These localities are as follows: the flight research building, the altitude wind tunnel (building number 7), the underground storage tank farm (number 17), the combustion research laboratory (building number 35-10), the electrical substation E (building number 42), the electrical substation A (building number 200), the unnamed tributary to Abrams Creek, the South Forty Area, and the component's cleaning facility (building number 109).

F. Hazardous wastes, hazardous substances, hazardous constituents, industrial wastes and/or other wastes present at the Site include, without limitation, acetone, methylene chloride, benzene, dichlorodifluoromethane, 1,2-dichloroethane, ethylbenzene, styrene, toluene, xylene, PCB's , mercury, 1,1,1-Trichloroethane, anthracene, benzo(a)anthracene, benzo(b)fluoranthene, chrysene, fluoranthene, pyrene, chloroform, 1,1-Dichloroethane, cyanide, laboratory wastes and radioactive wastes. The releases of hazardous wastes, hazardous substances, hazardous constituents, industrial waste and/or other waste at the Site have been documented as impacting and contaminating the following media: air, ground water, surface waters and soils. Structures are underground utility conduits have also been documented as being contaminated with hazardous wastes, hazardous substances, hazardous constituents, industrial wastes and/or other wastes.

G. NASA is a "person" as defined under Section 3734.01(G) of the Ohio Revised Code.

H. Because of their quantity, concentration, or physical or chemical characteristics, the Director has determined that acetone, methylene chloride, benzene, dichlorodifluoromethane, 1,2-dichloroethane, ethylbenzene, styrene, toluene, xylene, PCB's mercury, 1,1,1-Trichloroethane, anthracene, benzo(a)anthracene, benzo(b)fluoranthene, chrysene, fluoranthene, pyrene, chloroform, 1,1-Dichloroethane, cyanide and other contaminations founds at the

Site are "hazardous wastes" as defined under Section 3734.01(J) of the Ohio Revised Code.

I. The Site is a hazardous waste facility, solid waste facility, or other location where hazardous waste was treated, stored, or disposed.

J. Conditions at the Site constitute a substantial threat to public health or safety or are causing or contributing or threatening to cause or contribute to air or water pollution or soil contamination.

K. NASA is a "person" as defined under Section 6111.01(I) of the Ohio Revised Code.

L. Acetone, methylene chloride, benzene, dichlorodifluoromethane, 1,2-dichloroethane, ethylbenzene, styrene, toluene, xylene, PCB's mercury, 1,1,1-Trichloroethane, anthracene, benzo(a)anthracene, benzo(b)fluoranthene, chrysene, fluoranthene, pyrene, chloroform, 1,1-Dichloroethane, cyanide and other contaminants found at the Site are "industrial wastes" or "other wastes" as defined under Section 6111.01 of the Ohio Revised Code.

M. The ground water and surface water at the Site are "waters of the state" as defined under Section 6111.01(H) of the Ohio Revised Code.

N. The Work required by these Orders will contribute to the prohibition or abatement of the discharge of industrial wastes or other wastes into the waters of the state.

O. In issuing these Orders, the Director has given consideration to, and based his determination on, evidence relating to the technical feasibility and economical reasonableness of complying with these Orders and to evidence relating to conditions calculated to result from compliance with these orders, and their relation to benefits to the people of the state to be derived from such compliance.

P. The Director has determined the findings of fact and conclusions of law contained in this Consent Order. Nothing in this Consent Order or workplan is intended to be an admission by NASA of the findings of fact and conclusions of law made within this Consent Order. Specifically, NASA does not admit that the past or present conditions at the Site posed or pose an imminent and substantial endangerment to the public health, welfare or environment. NASA does agree to the Director's authority to issue this Consent Order, agrees to comply with the terms and conditions contained within this Consent Order, and agrees to undertake the actions in the Consent Order.

9. NASA's designated coordinator or alternate shall be at the Site during all hours of work or on call, and shall make herself/himself available for the pendency of this Order. The absence of the Ohio EPA Coordinator from the Site shall not be cause for stoppage of work unless otherwise provided.

10. NASA may change its coordinator by notifying Ohio EPA in writing at least seven (7) days prior to the change.

11. Without limiting any authority conferred by law on Ohio EPA, the authority of the Ohio EPA coordinator includes, but is not limited to:

A. Taking samples in accordance with the terms of any Workplan required under Section VIII of the Order, and directing the type, quantity and location of samples to be taken by the Defendant;

B. Observing, taking photographs and/or taking audio/video tape and making such other reports on the progress of the work as the Ohio EPA deems appropriate;

C. Directing that work stop whenever Ohio EPA determines that activities at the Site may present an imminent and substantial danger to the public health, welfare or environment;

D. Reviewing records, files, historical data and documents relevant to this Order;

E. Directing actions taken at the Site pursuant to this Order; and

F. Reviewing and approving or disapproving all Workplans, reports, studies and other documents that NASA is required to submit to Ohio EPA pursuant to this Order.

VIII. WORK TO BE PERFORMED

12. All work to be performed by NASA pursuant to this Order shall be under the direction and supervision of a qualified environmental engineer,

V. PERSONS BOUND

5. The provisions of this Order shall apply to and be binding upon NASA, its successors in interest and assigns, and the United States of America.

6. NASA shall provide a copy of this Order to each contractor and consultant employed to perform any of the work itemized or referenced herein, and shall include in each contract with each general contractor a requirement that the general contractor shall provide a copy of this Order to each of its subcontractors for such work. NASA shall provide Ohio EPA with the names of all contractors and subcontractors performing activities required by this Order.

VI. CALCULATION OF TIME

7. Unless otherwise stated in this Order, where this Order requires actions to be taken within a specified period of time (e.g. "within thirty days"), this time period shall begin the day after the entry of this Order.

VII. DESIGNATION OF COORDINATORS

8. Within 10 days of the entry of this Order, NASA shall designate a coordinator to oversee and implement the work under Section VIII of this Order and to coordinate with the Ohio EPA coordinator. To the maximum extent practicable, communications between NASA and Ohio EPA concerning the activities performed under Section VIII of this Order shall be through the coordinators.

geologist or architect with expertise in hazardous waste site investigation and remediation. Prior to the initiation of work under this Order, NASA shall notify Ohio EPA in writing regarding the name, title, and qualifications of such engineer, geologist, or architect and of any contractors and/or subcontractors to be used in carrying out the terms of this Order.

13. NASA shall perform a Remedial Investigation/Feasibility Study in accordance with the following provisions:

A. Within seven (7) days, NASA shall provide Ohio EPA with a copy of all Workplans, reports, studies and other documents that NASA is required to submit to Ohio EPA pursuant to this Order and which have been completed prior to the entry of this Order. Within fourteen (14) days after Ohio EPA notifies NASA that its review of these documents is complete, Ohio EPA and NASA shall meet to discuss Ohio EPA's comments on these documents.

B. Within seven (7) days, unless otherwise agreed to by the parties, of the meeting required by Paragraph A above, NASA shall contact Ohio EPA to schedule a meeting and shall meet with Ohio EPA representatives to discuss the requirements for a Data Collection Quality Assurance Project Plan which is described in Task 2 of the generic RI/FS SOW.

C. Within twenty (20) days of the meeting required by Paragraph B above, NASA shall submit a Workplan for the implementation of the complete RI/FS at the Site. The RI/FS Workplan shall be developed in conformance with this Order, the Generic RI/FS Statement of Work (herein incorporated as Attachment A to this Order), state law, including R.C. Chapters 3734. and 6111. and the regulations promulgated thereunder, the National Contingency Plan, 40 CFR Part 300, and the most current version of the guidance documents specified in Attachment C to the Order. If Ohio EPA determines that any guidance documents in addition to those specified in Attachment C to this Order affect the work to be performed, Ohio EPA will notify NASA and any affected Workplan or reports shall be modified accordingly.

D. The RI/FS Workplan or reports required by this Order or approved Workplan and any amendments to the Workplan shall be subject to the review, approval or disapproval by Ohio EPA in accordance with the provisions set forth in Sections IX and X of this Order.

E. Upon approval of the RI/FS Workplan, NASA shall implement the work detailed therein in accordance with the schedule contained in the approved RI/FS Workplan.

14. Based upon the approved RI/FS, the Preferred Plan for remedial action shall be prepared by the Ohio EPA for public review and comment. This Preferred Plan shall be prepared pursuant to Ohio EPA's policy titled "Preferred Plans and Decision Documents", #DERR-00-RR-013, herein incorporated as Attachment D. Following the public comment period, Ohio EPA may revise the Preferred Plan in response to those comments or may finalize the Preferred Plan without change.

15. The selection of a preferred alternative shall be recorded by the Ohio EPA in a Decision Document for the Site. This Decision Document shall include a summary of the RI/FS, a summary of the remedy selection decision and a responsiveness summary. The activities required in this paragraph shall be done pursuant to Ohio EPA's policy set forth in Attachment D.

16. NASA shall perform a Remedial Design/Remedial Action at the Site in accordance with the following provisions:

A. Within sixty (60) days of the date of receipt of the Decision Document, NASA shall submit a Workplan for the implementation of the complete RD/RA at the Site. The RD/RA Workplan shall be developed in conformance with this Order, the Generic RD/RA Statement of Work (herein incorporated as Attachment B to this Order), state law including R.C. Chapters 3734., 3704. and 6111. and the regulations promulgated thereunder, the NCP, 40 CFR Part 300, and the

most current version of the guidance documents specified in Attachment C to the Order. If Ohio EPA determines that any guidance documents in addition to those specified in Attachment C to this Order affect the work to be performed, Ohio EPA will notify NASA and any affected Workplan or reports shall be modified accordingly.

B. The RD/RA Workplan or draft reports, or reports required by this Order or approved Workplan and any amendments to the Workplan shall be subject to the review, approval or disapproval by Ohio EPA in accordance with the provisions set forth in Sections IX and X of this Order.

C. Within thirty (30) days of Ohio EPA's approval of the RD/RA Workplan, NASA shall implement the work detailed therein in accordance with the schedule contained in the approved RD/RA Workplan.

17. NASA shall perform or shall ensure performance of all operation and maintenance measures and tasks necessary to achieve the effectiveness, implementation and long-term maintenance of the response actions which occur at the Site pursuant to this Order.

IX. ADDITIONAL WORK

18. If, prior to the termination of this Order, Ohio EPA determines that additional work is necessary to achieve the purposes of this Order, Ohio EPA may notify NASA of the need for such additional work. Within ten (10) days of receipt of such notification from Ohio EPA, NASA shall confirm their willingness to perform the additional work and shall provide a proposed schedule for Ohio EPA's approval for submitting a work plan for the performance of the additional work.

19. If, prior to the termination of this Order, NASA determines that additional work is necessary to achieve the purposes of this Order, NASA shall submit to Ohio EPA for approval NASA's plan for performing such work.

20. In the event that additional work is necessary pursuant to paragraphs 18 and 19, above for any task described in this Order, the deadline for completing such task(s) shall be extended by the amount of time required to perform the additional work required, including the period for time required to plan and/or obtain approval from the Ohio EPA for the performance of such work.

X. REVIEW OF SUBMITTALS

21. Ohio EPA shall review and approve or disapprove each Workplan, report, study or other document that NASA is required under this Order to submit to Ohio EPA. Ohio EPA will attempt to review documents on an expedited basis as necessary to avoid delay in the implementation of any measures that may be required in accordance with the Work Plan. If Ohio EPA review of a document takes more than sixty (60) days, and NASA's ability to meet a subsequent deadline is dependent on the completion of Ohio EPA review of the document, the NASA deadline shall be extended by the amount of Ohio EPA review time exceeding sixty (60) days.

22. In the event NASA is notified that a document is disapproved in whole or in part, Ohio EPA shall include a statement in the notification as to the changes, deletions or additions that must be made to the document prior to

approval, and an explanation as to why such changes, deletions or additions are necessary.

23. If Ohio EPA disapproves part or all of any submittal, or requires modification of a submittal, NASA shall resubmit the disapproved or modified portion to Ohio EPA in approvable form within 30 days of receipt of Ohio EPA's disapproval letter or requirement to modify. If NASA requires more than thirty (30) days to respond, the NASA shall, within fifteen (15) days of receipt of Ohio EPA's notice, notify Ohio EPA in writing of a reasonable new due date for completion of their response. Ohio EPA shall not unreasonably withhold approval of NASA's proposed new due date.

24. If NASA disputes any such disapproval or proposed modification the parties shall resolve the dispute in accordance with Section XII. Within thirty (30) days (unless Ohio EPA agrees to a longer period of time) of the resolution of any dispute under Section XII, NASA shall submit to Ohio EPA those revisions necessary to correct outstanding deficiencies or incorporate requested modifications.

25. Except for minor field changes agreed to by the coordinators for NASA and Ohio EPA, no modification or additional changes shall be made by NASA to any document, Workplan, report or study approved by Ohio EPA without prior written notification to, and written approval by, Ohio EPA. The notification required by this paragraph shall set forth the nature of and reasons for the desired modification. Upon agreement by Ohio EPA and NASA coordinators for minor field changes, the Ohio EPA coordinator shall document such an agreement by letter

to the NASA coordinator setting forth the nature and extent of the changes to be made.

26. If NASA requires additional time to meet a deadline or satisfy a requirement specified in this Order, then NASA shall, in writing, notify Ohio EPA of the additional amount of time required and the reasons more time is needed. If Ohio EPA grants the extension, the new time for compliance under the Order shall be extended accordingly. Any dispute between the parties as to a request for more time shall be subject to the dispute resolution procedures in Section XII.

XI. ATTACHMENTS, SUBMISSIONS AND GUIDANCE DOCUMENTS

27. All final Workplans, reports and other documents approved by Ohio EPA under Section X of this Order shall become incorporated by reference into and be an enforceable part of this Order except for any portions of the documents subject to ongoing dispute resolution pursuant to Section XII of this Order. The following documents are appended to this Order and incorporated by reference at the time of entry of this Order, and are an enforceable part of this Order:

Attachment A - the Generic RI/FS Statement of Work;

Attachment B - the Generic RD/RA Statement of Work;

Attachment C - a list identifying specific Ohio EPA and U.S. EPA Guidance Documents;

Attachment D - the Ohio EPA Policy titled "Preferred Plans and Decision Documents."

Except for any requirements of these attachments waived by Ohio EPA, NASA and Ohio EPA shall follow the terms of these attachments in undertaking the response actions required under this Order. If Ohio EPA or NASA determine that any additional or revised guidance documents in use by Ohio EPA or U.S. EPA after the effective date of these Orders affect the Work to be performed in implementing this Order, the Party discovering the new and/or revised guidance shall notify the other in writing, and any affected documents shall be modified accordingly. Tasks required under approved plans which have already been materially implemented shall not be required by these Orders to be redone pursuant to any revised or additional guidance documents without the NASA's consent, which consent shall not be unreasonably withheld, except for guidance documents which materially affect cleanup levels and exist prior to the Ohio EPA issuing the preferred plan.

XII. RESOLUTION OF DISPUTES

28. The Coordinators shall, whenever possible, operate by consensus, and in the event that there is a disapproval of any document required to be submitted by this Order or disagreement about the conduct of the work performed under this Order or Workplans, or modification or additional work or schedules required under this Order, or the accuracy of the billing statements prepared in accordance with Section XX, the Coordinators shall have seven (7) days to negotiate in good faith in an attempt to resolve the differences. Unless it is expressly stated that a

particular section of this Order is subject to the provisions of Section XII, and/or dispute resolution, this section shall not be applicable.

29. In the event that the Coordinators are unable to reach consensus on the disapproval or disagreement in seven (7) days, then each Coordinator shall reduce his/her position to written form within seven (7) days of the end of the good faith negotiations referenced above. Those written positions shall be immediately exchanged by the Coordinators. Following the exchange of written positions, the parties, with the participation of the Group Leader and/or Unit Supervisor, Division of Emergency and Remedial Response (DERR), Northeast District Office, shall have an additional seven (7) days to resolve their differences. If Ohio EPA concurs with the position of NASA, Ohio EPA will amend the Workplans or modify the Consent Order to include necessary extensions of time or variances of required work. If Ohio EPA does not concur with the position of NASA, Ohio EPA's Site Coordinator shall notify NASA in writing. Upon receipt of such written notice, NASA shall have seven (7) days to forward a written statement of the dispute to the Division Chief of DERR, Central Office. The DERR Division Chief will resolve the dispute based upon and consistent with this Order, the Workplans, and State Law including R.C. Chapters 3734. and 6111. and the regulations promulgated thereunder, the NCP, 40 CFR Part 300 and any other appropriate state or federal law.

30. The pendency of dispute resolution set forth in this Section shall not affect the time period for completion of work to be performed under this Order, except that upon mutual agreement of the parties, any time may be extended as

appropriate under the circumstances. Such agreement will not be unreasonably withheld by Ohio EPA. Elements of work not affected by the dispute will be completed in accordance with the schedules contained in the Workplans.

31. Within thirty (30) days of resolution of any dispute, NASA shall incorporate the resolution and final determination into the appropriate Workplan, schedule or procedures and proceed to implement this Order according to the amended Workplans, schedule or procedures.

32. Unless otherwise expressly provided for in this Order, the dispute resolution procedures of Section XII shall be the exclusive mechanism to resolve disputes arising under or with respect to this Order.

33. In any dispute subject to dispute resolution, the parties may, by written agreement, modify the procedures set forth in this section.

XIII. RESOLUTION OF INCONSISTENCIES

34. Should NASA identify any inconsistency between any of the laws, rules, regulations, guidance or orders which will affect any of the work required by this Order, NASA shall provide written identification to Ohio EPA of each such inconsistency, a description of its effect on the work to be performed, and NASA's recommendation, along with the rationale for each recommendation, as to which requirement should be followed. NASA shall implement the affected work in accordance with Ohio EPA's resolution of the inconsistency. Where Ohio EPA's resolution results in an inconsistency between federal and state requirements,

NASA may initiate dispute resolution to resolve that inconsistency pursuant to the dispute resolution procedures in Section XII.

XIV. PERMITS AND APPROVALS

35. The State of Ohio will use its best efforts to review in a timely manner, following NASA's application, any permits necessary for NASA to carry out the work required pursuant to this Order.

XV. INSPECTIONS AND ACCESS

36. Ohio EPA, its employees and agents shall have full access to the Site at all times without the need for any type of warrant for inspection, monitoring, sampling, and any other oversight of NASA's activities undertaken pursuant to the terms of this Order or to assess NASA's compliance with this Order. Ohio EPA agrees that it will comply with all statutes, rules and regulations for personnel safety and facility security. This paragraph shall not be construed to eliminate or restrict or enlarge any State right to seek access to the Site which it may otherwise have under Federal or State law.

37. To the extent that the work required by this Order must be done on property not owned or controlled by NASA, NASA shall use its best efforts to obtain site access agreements for NASA and Ohio EPA access from the present owners of such property within 30 days of approval of any workplan for which site access is required. NASA shall provide Ohio EPA with copies of any access agreement or

other document providing for access. "Best efforts" as used in this paragraph shall include, at a minimum, a certified letter from NASA to the present owners of such property requesting agreements to permit NASA and Ohio EPA access to property. NASA shall exercise whatever authority it may have pursuant to Section 104(e) of CERCLA, 42 U.S.C. § 9604(e), when necessary to obtain access. In the event that agreements for access are not obtained within 30 days of the approval of the appropriate Workplan, NASA shall notify Ohio EPA in writing, within 7 days thereafter, of its inability to obtain such agreements, and all efforts that have been exercised to obtain such agreements.

XVI. SAMPLING AND DOCUMENT AVAILABILITY AND RETENTION

38. NASA shall make available to Ohio EPA the results of all sampling, tests or other data, including raw data, generated by or on behalf of NASA from environmental media or hazardous waste, hazardous substances, hazardous constituents, industrial waste or other waste at the Site. NASA shall allow split or duplicate samples to be taken by Ohio EPA of all such samples collected by NASA. NASA shall notify the Ohio EPA Coordinator not less than 30 days in advance of any sample collection.

39. NASA shall preserve, until the termination of this Order, and for a minimum of 10 years after completion of work pursuant to this Order, whichever is later, copies of all records and documents within its possession or that of its divisions, employees, agents, accountants, contractors or attorneys which relate to

work performed under this Order and its waste disposal practices, etc. After the 10 year period, NASA shall notify Ohio EPA within 30 days prior to the destruction of any such documents required to be kept pursuant to this Section. Upon request by Ohio EPA, NASA shall make available to Ohio EPA such records or copies of any such records.

40. NASA shall upon Ohio EPA's request submit all raw data and all original reports of analytical procedures and results to Ohio EPA by certified mail within five (5) days of receipt of such request.

41. NASA shall submit to Ohio EPA within five (5) days after NASA's receipt, any interpretive reports and written explanations concerning such raw data and original laboratory reports. Draft and final interpretive reports or explanations must be immediately submitted as generated.

42. Should NASA, following submission of any report or document pursuant to this Order, discover any error in any report or raw data, NASA shall within ten days of discovery, notify Ohio EPA of such discovery and provide to the Ohio EPA the basis for the error, and the corrected information.

43. Any action by any party required or authorized by, or undertaken pursuant to this Order, or any document or information required or authorized by, or generated or requested pursuant to this Order may be subject to national security requirements contained in Federal law, and to applicable attorney-client and work product privileges. The analytical data described in Paragraph 40 shall not be subject to any such security requirement or claim of work product or attorney-client

privilege. NASA shall inform Ohio EPA in writing of any security requirement, work product exemption or attorney-client privilege claimed by NASA in response to any document or information requested by Ohio EPA, or otherwise required to be submitted or generated by this Order. Any disputes between the parties as to the validity of an asserted security requirement, work product exemption or privilege shall be subject to the dispute resolution procedures in Section XII.

XVII. DEED NOTICE, LAND USE AND CONVEYANCE OF TITLE

44. No portion of the Site shall be used in any manner which could adversely affect the integrity of any response action implemented pursuant to this Order. NASA shall not convey any title, easement or other interest without provision for continued operation and maintenance of any response action implemented pursuant to Sections VIII and IX of this Order. Before transferring any interest in the property, NASA shall assure that an appropriate notice shall be put in the deed as to the condition of the property in accordance with CERCLA Section 120(h), 42 U.S.C. Sec. 9620(h); the notice shall first be approved by Ohio EPA. NASA shall notify Ohio EPA of its intent to convey any interest in the Facility by certified mail at least 90 days prior to any conveyance.

XVIII. MONTHLY PROGRESS REPORTS

45. NASA shall submit written progress reports describing the activities which, pursuant to Section VIII and IX of this Order, have been undertaken during

the previous month, and activities which are scheduled for the next month, to Ohio EPA by the twentieth day of every month after the entry of this Order. At a minimum, these reports shall:

1) Identify the Site and activity;

2) Describe the status of work at the Site and progress to date;
3) Demonstrate the percentage of work completed;

4) Describe difficulties encountered during the reporting period;

5) Describe actions taken to rectify problems;

6) Describe activities planned for the next month;

7) Identify changes in key personnel.

8) List target and actual completion dates for each element of activity, including the project completion;

9) Provide an explanation of any deviation from the milestones in the Workplan Schedules and corrective actions taken to correct the deviation from the milestones; and

10) Describe any data obtained during the reporting period which shows contamination of the Site with hazardous waste, hazardous substances, hazardous constituents, industrial waste or other waste.

11) Identify by media and quantity wastes(s) generated, treated and disposed.

XIX. NOTICE

46. Progress reports as required under Section XVIII and any other submissions, notifications and documents, including correspondence, submitted pursuant to this Order shall be sent by certified mail to the following:

Ohio EPA (1 copy)
P. O. Box 1049
Columbus, Ohio 43266-0149
Attn: Technical and Program Support
Section, Division of Emergency and
Remedial Response

Ohio EPA (4 copies)
Northeast District Office
2110 East Aurora Road
Twinsburg, Ohio 44087
Attn: Nancy Zikmanis, Site Coordinator, or her successor

All correspondence to NASA will be directed to the following:

Peter W. McCallum, Chief
Office of Environmental Programs
NASA Lewis Research Center
MS 6-4
21000 Brookpark Road
Cleveland, OH 44135

NASA or Ohio EPA may change the person to whom notice shall be sent by providing written notification of the change to the other party.

XX. PAYMENTS AND REIMBURSEMENT OF COSTS

47. **PAST COSTS.** NASA is ordered and enjoined to pay within sixty (60) days from the entry of this Order $77,460.95 as reimbursement for past response costs incurred by the State. This payment shall be made in the following manner:

A. For those costs incurred prior to January 28, 1992, payment shall be made to "Treasurer of the State of Ohio" and shall be forwarded to Fiscal Officer, Ohio Environmental Protection Agency, P. O. Box 1049, 1800 WaterMark Drive, Columbus, Ohio 43266-0149, attention: Edith Long or successor. NASA shall send a copy of the transmittal letter and check to counsel for the Director;

B. For those costs incurred on January 28, 1992 thru December 31, 1995 reimbursement shall be made via two payments: (1) for costs incurred by the Ohio Attorney General's Office, payment shall be made to the order of "Treasurer, State of Ohio" and shall be delivered to Matt Sanders, Administrative Assistant, or his successor, Environmental Enforcement Section, 30 East Broad Street, 25th Floor, Columbus, Ohio 43215-3428; and (2) for costs incurred by the Ohio EPA, payment shall be made to "Treasurer, State of Ohio" and forwarded to the above listed WaterMark Drive address.

C. Copies of all transmittal letters and checks shall also be delivered to the Ohio EPA Project Coordinator as identified in Paragraph 46, above.

48. **FUTURE COSTS.** NASA shall reimburse the State of Ohio for all oversight costs incurred subsequent to December 31, 1995, pursuant to the provisions of subparagraphs A and B below. Ohio EPA may submit to NASA an itemized statement of Ohio EPA's costs for the previous year, including, but not limited to, identification of employees and agents, including contractors and subcontractors, and an explanation of the tasks performed and/or the basis upon which such cost are claimed. The dispute resolution provisions of Section XII of this Order shall apply only to the accuracy of the itemized statements prepared in accordance with paragraph 48 of this section. Any Response costs that NASA must pay as a result of dispute resolution shall be paid within thirty (30) days of the resolution of the dispute.

A. For costs incurred by the Ohio Attorney General's Office, the Attorney General may submit to NASA an itemized statement of costs incurred for each calendar year following the end of that year. Within sixty (60) days of receipt of the itemized statements, NASA shall pay the Attorney General's costs. Payment shall be

made to "Treasurer, State of Ohio" and in the same manner as set forth in paragraph 47 (B) and (C) above.

B. For costs incurred by the Ohio EPA, Ohio EPA may submit to NASA an itemized statement of costs incurred for each calendar year following the end of that year. Within sixty (60) days of receipt of the itemized statements, NASA shall pay the Ohio EPA costs. Payment shall be made to "Treasurer, State of Ohio" and shall be forwarded to the Fiscal Officer, Ohio EPA, in the same manner as set forth in paragraph 47 (B) and (C), above.

XXI. COMPLIANCE

49. Except as specifically set forth in this Order, NASA shall not be excused from compliance with any applicable federal and state laws in carrying out the provisions of this Order. NASA agrees to advise the Ohio EPA of its efforts to obtain the appropriated funding necessary to implement this Order. If appropriated funds necessary to fulfill an obligation under this Order are not available, the parties agree to utilize the dispute resolution procedures of Section XII of this Order to discuss whether the Ohio EPA will, in its sole discretion, agree to make appropriate adjustments to the action dates for obligations which require the payment or obligation of such funds. If no agreement is reached, the Ohio EPA and NASA agree that in any judicial proceeding seeking to enforce the terms of this Order for NASA's failure to comply or delay in compliance with such terms, NASA may raise as a defense that its failure or delay was caused by circumstances beyond its control or that such failure or delay was caused by the unavailability of appropriated funds. While the Ohio EPA disagrees that such defenses exist, the parties do agree and stipulate that it is premature at this time to raise and adjudicate the existence of such

defenses. This paragraph does not constitute a waiver by NASA of its position that its obligations under this Order are subject to the provisions of the Anti-Deficiency Act, 31 U.S.C. §1341, nor does it constitute a waiver by the Ohio EPA of its position that NASA's obligations under this Order are not subject to the Anti-Deficiency Act.

XXII. SATISFACTION OF LAWSUIT AND RESERVATION OF RIGHTS

50. Except as otherwise provided for in this Order, full compliance with the terms of this Order shall constitute satisfaction of any civil liability of NASA to the Ohio EPA, based upon the allegations set forth in Section IV, above, for claims arising prior to the date of entry of this Order under: (1) R.C. Chapters 3734. and 6111., and the regulations promulgated thereunder; and (2) the Comprehensive Environmental Response, Compensation and Liability Act (42 U.S.C. §§ 9601-9675), and the regulations promulgated thereunder.

51. This Order shall not be construed to limit the authority of the Ohio EPA to seek relief for claims not arising from allegations in Section IV, above, or for releases which NASA does not perform response actions pursuant to this Order.

52. Nothing in this Order shall be construed to limit the authority of the Ohio EPA to seek relief for further violations of 3734. and 6111, including such violations occurring after the entry of this Order, whether or not such violations are based upon claims arising from the allegation in Section IV, above.

53. Nothing in this Order shall be construed to limit the authority of the Ohio EPA to undertake any action against any entity, including NASA, to eliminate

or mitigate conditions which may present a threat to the public health, welfare or environment, or to seek cost reimbursement for any such action. Nothing in this Order shall be construed to limit the authority of Ohio EPA to seek relief for claims of damages to natural resources.

54. If the response actions performed pursuant to this Order result in any hazardous waste, hazardous substances, hazardous constituents, industrial wastes, or other wastes remaining at the Site, Ohio EPA may review the response actions at least once every five years after the initiation of the response actions in accordance with the guidance documents in Attachment C of this Order to assure that the response actions protect human health and the environment. NASA shall conduct any studies and investigations as requested by Ohio EPA in order to permit Ohio EPA to conduct reviews at least every five years. If upon such review it is the judgment of Ohio EPA that further action is appropriate to protect human health or the environment, nothing in this Order shall be construed to bar the Ohio EPA and/or the State of Ohio from exercising any authority or initiating any legal proceeding against NASA to require such further action.

55. Nothing in this Order shall relieve NASA of its obligation to comply with applicable federal, state or local statutes, regulations, or ordinances.

56. The Ohio EPA reserves the right to perform any of the response actions required of NASA by this Order in the event that NASA fails to fully perform any of them in accordance with the deadlines of this Order and to recover the costs of such response actions from NASA. The Ohio EPA also reserves the right to perform the

response actions required of NASA by this Order in the event of Ohio EPA disapproval of any second submittal under Section VIII of this Order.

57. Notwithstanding any other provision of this Order, except for the waiver provision set forth in Section XXIV, below, NASA expressly reserves all rights and defenses NASA may legally raise in response to any future action taken by Ohio EPA pursuant to this Section XXII. Nothing in this order shall limit NASA's ability to challenge Ohio EPA's interpretation of these Orders in any subsequent action brought by the Ohio EPA.

XXIII. TERMINATION AND SATISFACTION

58. The provisions of this Order shall be satisfied when the NASA demonstrates in writing and certifies to Ohio EPA's satisfaction that all activities required under this Order, including any additional tasks required under Section IX, have been met and properly implemented.

IT IS SO ORDERED

_____ _____

Donald R. Schregardus, Director Date
Ohio Environmental Protection Agency

XXIV. WAIVER OF CHALLENGE AND AUTHORITY TO ENFORCE

59. In order to resolve disputed claims, without admission of fact, violation, or liability, NASA hereby agrees that these Findings and Orders are lawful and reasonable, and agrees to comply with the requirements of these Orders.

60. NASA hereby waives the right to appeal the issuance, terms and conditions, and service of these Orders to the Environmental Board of Review or any other court of competent jurisdiction. In addition, NASA hereby waives any and all rights that it may have to seek judicial review of the issuance, terms and conditions, and service of these Orders either in law or equity.

61. Notwithstanding the limitations herein on NASA's right to appeal or seek judicial review, the Ohio EPA and NASA agree that in the event that these Orders are appealed by a third party to the Environmental Board of Review, or any court, NASA retains the right to intervene and participate in such appeal. In such event, NASA shall continue to comply with these Orders notwithstanding such appeal and intervention unless these Orders are stayed, vacated or modified.

62. Nothing in this Order shall be construed as a limitation on the Ohio EPA's authority to enforce the requirements of this Order.

XXV. SIGNATORY

63. The undersigned NASA signatory to these Orders hereby certifies that he or she is fully authorized to enter into the terms and conditions of these Orders and to legally bind NASA to this document.

NASA Authorized Representative

Date 8/1/96

Director, Lewis Research Center

Title

Approved by:

BETTY D. MONGTOMERY
ATTORNEY GENERAL OF OHIO

TERRENCE S. FINN (0039391)
Assistant Attorney General
Environmental Enforcement Section
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Date 8/22/96