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I. JURISDICTION

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

II. STATEMENT OF PURPOSE

2. In entering into these Orders, the mutual objectives of the Ohio EPA and NASA are (1) for the payment of Ohio EPA's past Response Costs and future Response Costs for review of the "No Further Remedial Action Planned" letter issued by U.S. EPA, and all relevant documentation ; (2) for Ohio EPA to review the "No Further Remedial Action Planned" letter issued by U.S. EPA, and all relevant documentation, to determine if Ohio EPA agrees with U.S. EPA's conclusion that no further remedial action is warranted at this time; and (3) for Ohio EPA to reserve all its rights relating to the Facility in the event a) Ohio EPA disagrees with the conclusion of U.S. EPA regarding the need for remedial action and/or b) Ohio EPA determines remedial action is necessary, and/or c) Ohio determines other action is necessary in order to abate a violation of R.C. Chapter 3734 and/or 6111, or the regulations promulgated under those Chapters.

III. DEFINITIONS

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

- A. "Days" shall mean calendar days, including weekends and holidays.
- B. "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 Facility. "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.
- C. "Facility" as defined in R.C. 3734.01(N) refers to the areas of Plum Brook Station, which have at any time been administered by NASA or occupied by NASA or any tenants within the locality of 6100 Columbus Avenue, Sandusky, Ohio, where treatment, storage, placement or disposal of hazardous waste, hazardous substances, solid wastes, industrial waste and/or other waste were conducted, including any other area of the Plum Brook Station contaminated or threatened to be contaminated by hazardous waste, hazardous substances, hazardous constituents, and/or industrial waste and/or other waste migrating therefrom.
- D. "Hazardous Constituents" shall have the same meaning as contained in Rule 3745-50-10(A) of the Ohio Administrative Code.
- E. "Hazardous Substance" 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.
- F. "Hazardous Waste" shall have the same meaning as contained in R.C. §3734.01(J).
- G. "NASA" means the National Aeronautics and Space Administration ("NASA") Plum Brook Station, Cleveland, Ohio, its directors, officers, employees, agents, subsidiaries, successors, designated representatives and assigns acting under, for or in concert with NASA.

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- H. "No Further Remedial Action Planned" or "NFRAP" refers to the letter issued by U.S. EPA on October 12, 1994 which is notice of U.S. EPA's conclusion that no further remedial action is necessary at the Facility at this time.
- I. "Ohio EPA" or "OEPA" means the Ohio Environmental Protection Agency and its designated representatives.
- J. "Orders" shall mean this Director's Final Finding and Orders.
- K. "Party" or "Parties" means NASA and/or Ohio EPA
- L. "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.
- M. "Response Costs" shall mean all direct and indirect costs of oversight incurred by Ohio EPA in verifying the work performed by US EPA regarding the NFRAP letter, or otherwise implementing or enforcing these Orders, including but not limited to the costs of payroll, fringe, contractors, travel, oversight costs, samples, laboratory analysis, data management, safety and general equipment, supplies, general maintenance, reviewing or developing work plans, reports, or other items pursuant to these Orders. 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 or US EPA;
 2. Identification and explanation of State requirements applicable to NASA or US EPA activities performed;
 3. Field visits to ensure that NASA or US EPA activities were performed in accordance with State requirements, 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 only if performed to validate NASA's or US EPA's investigations.
- N. "Solid Wastes" shall have the same meaning as contained in R.C. §3734.01(E).

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- O. "State of Ohio" means Ohio EPA and the Ohio Attorney General's Office.
- P. "U.S. EPA" means the United States Environmental Protection Agency.

Except as otherwise defined in the preceding definitions or as defined below, the terms used in these Orders and any document required by these Orders shall have the same meaning as used in Chapters 3734 and 6111 of the Ohio Revised Code, and regulations promulgated under the foregoing statutes.

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

4. OEPA has determined that all findings of fact necessary for the issuance of this Administrative Order pursuant to R.C. 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 Plum Brook Station (NASA) located at 6100 Columbus Avenue, Sandusky, Sandusky County, Ohio

B. NASA acquired ownership of that property in 1963 when it purchased the property from the former owner, the Ravenna Arsenal. Activities conducted by NASA at the Facility since 1963 included: testing liquid hydrogen pumps, testing propellant systems, testing space vehicles and upper stage rocket engines, altitude tests on large rocket engines, testing liquid hydrogen turbo pumps, simulating forces encountered by spacecraft during launch, cryogenic tests, fluid flow tests, testing liquid fluorine pumps, testing rocket engine oxidizer system components, testing propellant tank insulation systems, simulating high altitude conditions to test spacecraft, and conducting vacuum tests on spacecraft.

C. NASA's property currently covers approximately 6,500 acres. There are approximately 106 buildings on Facility. There are also 99 munitions bunkers, 5 wastewater treatment facilities, cooling towers, and various other structures. Currently, NASA is utilizing the following facilities on Facility: Space Power Facility, B-2 Facility/Space Propulsion Research Facility, the Cryogenic Propellant Tank Facility, and the Hypersonic Tunnel Facility.

D. The soils are very porous and shallow, with depth to bedrock ranging from 2 feet to 25 feet. Karst Terrain occurs in the western and northern portions of the Facility. There

are eleven streams running through the Facility. There are 380,000 lineal feet of ditch on the Facility. Lake Erie is within fifteen miles of the Facility. Depth to groundwater ranges from four to thirty feet.

E. There are seventeen States designated threatened or endangered species of plants and animals found on or near the Facility of Plum Brook station.

F. There were a number of areas used for disposal and storage of hazardous wastes, hazardous substances, industrial wastes and other waste. Those areas include, but are not limited to the following: 1) Disposal Area 2 was used for the disposal of asbestos; 2) A burn pit on the west side of Snake Road was used to dispose of explosives, acids, and chemical waste and the ash from this pit was subsequently buried near Line Road 16 and North Magazine Road; 3) Waste oil, explosives, spent fuel filters, and solvents were deposited and burned in a second, smaller burn pit near Snake Road; 4) Lime sludge, from the Plum Brook Reactor Facility, was buried in the northwest corner of the facility property; 5) There were five known burning grounds on Facility and these were used to dispose of explosives, acid, asbestos, waste oil, solvents, explosives-contaminated wastewater flumes, contaminated putty, contaminated building materials, and contaminated soils; 6) There were six above ground storage tanks that were used to store toluene and each tank has a capacity of 200,000 gallons; and 7) There were 19 underground storage tanks on the Facility and seven of these held solvents, twelve held petroleum products.

G. Hazardous wastes, hazardous substances, hazardous constituents, industrial wastes and/or other wastes present at the Facility include, without limitation, acetone, methylene chloride, DNT, trinitrobenzene, dinitrobenzene, TNT, nitrobenzene, nitrotolunene, barium, chromium, iron, lead, manganese, arsenic, cadmium and radioactive wastes. The releases of hazardous wastes, hazardous substances, hazardous constituents, industrial waste and/or other waste at the Facility have been documented as impacting and contaminating the following media: air, ground water, surface waters and soils. Structures have also been documented as being contaminated with hazardous wastes, hazardous substances, hazardous constituents, industrial wastes and/or other wastes.

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

I. Because of their quantity, concentration, or physical or chemical characteristics, the Director has determined that acetone, methylchloride, benzene, tetrachlorethene, ethylbenzene, toluene, xylene, PCB's, arsenic, 1,1,1, trichloroethane, naphthalene, chromium, and other contaminants founds at the Facility are "hazardous wastes" as defined under Section 3734.01(J) of the Ohio Revised Code and/or "hazardous substances" as defined by section 101(14) of CERCLA, 42 U.S.C. §9601(14).

J. The Facility is a hazardous waste facility, solid waste facility, or other location where hazardous waste, hazardous substances were treated, stored, or disposed.

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

L. Acetone, methylchloride, benzene, tetrachlorethene, ethylbenzene, toluene, xylene, PCB's, arsenic, 1,1,1., trichloroethane, naphthalene, chromium and other contaminants found at the Facility 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 Facility are "waters of the state" as defined under Section 6111.01(H) of the Ohio Revised Code.

N. On October 12, 1994 the U.S. EPA issued a "No Further Remedial Action Planned" letter relating to the Facility, which was notice of its conclusion that no further remedial action was necessary at this time.

O. NASA has requested that Ohio EPA review all relevant documentation to the Facility in order to determine if Ohio EPA agrees with the conclusions reached by U.S. EPA in its "No Further Remedial Action Planned" letter and to determine if no further remedial action is necessary.

P. 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.

Q. The Director has determined the findings of fact and conclusions of law contained in these Orders. Nothing in these Orders is intended to be an admission by NASA of the findings of fact and conclusions of law made within these Orders. Specifically, NASA does not admit that the past or present conditions at the Facility 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 these Orders, agrees to comply with the terms and conditions contained within these Orders, and agrees to undertake the actions in these Orders.

V. PERSONS BOUND

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

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VI. CALCULATION OF TIME

6. Unless otherwise stated in these Orders, where these Orders 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 signature, by both parties, of these Orders.

VII. INSPECTIONS AND ACCESS

7. Ohio EPA, its employees and agents shall have full access to the Facility at all times without the need for any type of warrant for inspection, monitoring, sampling, and any other oversight of NASA's activities. 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 Facility which it may otherwise have under Federal or State law.

VIII. SAMPLING AND DOCUMENT AVAILABILITY AND RETENTION

8. 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 Facility. Ohio EPA agrees not to ask for any document already in its possession.

9. NASA shall preserve for a minimum of 10 years after termination of these Orders, 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 to remediate the Facility. 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.

10. 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.

11. NASA shall submit to Ohio EPA within five (5) days after, any request made by Ohio EPA, any interpretive reports and written explanations concerning such raw data and original laboratory reports.

12. Should NASA, following submission of any report or document pursuant to these Orders, 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.

13. 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 these Orders.

IX. PAYMENTS AND REIMBURSEMENT OF COSTS

14. **PAST RESPONSE COSTS.** NASA shall pay within sixty (60) days from the effective date of these Orders \$16, 866.56 as reimbursement for past response costs incurred by the State through March 19, 1997. This payment shall be made to "Treasurer of the State of Ohio" and shall be forwarded to Fiscal Officer, Ohio Environmental Protection Agency, P. O.

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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 the Assistant Attorney General representing the Director.

15. **FUTURE COSTS.** NASA shall reimburse the State of Ohio for all Response Costs incurred subsequent to March 19, 1997 that are incurred as a result of Ohio EPA's review of the NFRAP letter, its supporting documentation, and any necessary activities for review of the NFRAP letter. 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. If NASA has a question regarding the accuracy of the itemized statement, such questions can be submitted to Ohio EPA prior to the payment being made. The due date for payment will be extended by the amount of time required for any questions to be resolved by Ohio EPA. 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 14 above.

X. RESERVATION OF RIGHTS

16. Nothing in these Orders shall be construed to limit the authority of the Ohio EPA to seek relief for violations of Ohio Revised Code Chapters 3734. and 6111 or the regulations promulgated thereunder, including such violations occurring before or after the entry of these Orders, whether or not such violations are based upon claims arising from the allegations in Section IV, above. In addition, the State and/or Ohio EPA reserves the right to bring an action against NASA to recover future response costs pertaining to this Facility, except for those

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response costs the NASA is ordered to pay under Section IX. of this Order. Ohio EPA and NASA agree that all work performed by NASA that was reviewed by the United States Environmental Protection Agency (USEPA) and the "No further action letter" issued by USEPA on October 12, 1994 for Plum Brook Station, Sandusky, Ohio, and the Ohio EPA's review of it constitute one and the same removal action.

17. Nothing in these Orders 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 these Orders shall be construed to limit the authority of Ohio EPA to seek relief for claims of damages to natural resources.

18. If upon review it is the judgment of Ohio EPA that further action is appropriate to protect human health or the environment, or to abate violations of R.C. Chapters 3734. and 6111 or the regulations adopted thereunder, nothing in these Orders 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.

19. Nothing in these Orders shall relieve NASA of its obligation to comply with applicable federal, state or local statutes, regulations, or ordinances.

20. The Ohio EPA reserves the right to perform any response actions necessary in order to protect the human health and/or the environment, or to abate any violations of R.C. Chapter 3734. and/or 6111, or the regulations adopted thereunder.

21. Except as provided herein, NASA expressly reserves all rights and defenses NASA may legally raise in response to any future action required or taken by Ohio EPA.

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Nothing in these Orders shall limit NASA's ability to challenge Ohio EPA's interpretation of these Orders in any subsequent action brought by the Ohio EPA. Notwithstanding any other provision of this Order, except for the waiver provision set forth in Section XIII 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 X. 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.

XI. COMPLIANCE

22. 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, except for payment of past response costs set forth in paragraph 14 of this Order, the parties agree to discuss whether 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

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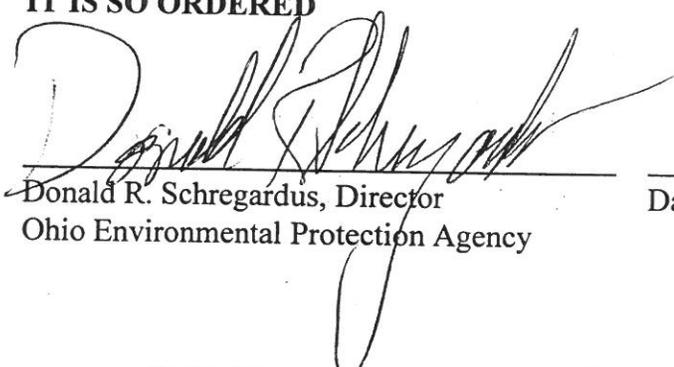
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obligations under this Order are subject to the provisions of the Anti-Deficiency Act, 31 U.S.C. Section 1341, nor does it constitute a waiver by the Ohio EPA of its position that NASA's obligations under this Order are not subject to the Anti-Deficiency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

XII. TERMINATION AND SATISFACTION

23. The provisions of these Orders shall be satisfied when the NASA submits the final payment required under paragraph 15 above.

IT IS SO ORDERED



Donald R. Schregardus, Director
Ohio Environmental Protection Agency

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Date

XIII. WAIVER OF CHALLENGE AND AUTHORITY TO ENFORCE

24. 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.

25. NASA hereby waives the right to appeal the issuance, terms and conditions, and service of these Orders to the Environmental Review Appeals Commission 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

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law or equity.

26. 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 Review Appeals Commission, 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.

27. Nothing in these Orders shall be construed as a limitation on the Ohio EPA's authority to enforce the requirements of these Orders.

XIV. SIGNATORY

28. 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.

Donald Campbell Oct 29, 1997
NASA Authorized Representative Date

Title

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Approved by:

BETTY D. MONTGOMERY
ATTORNEY GENERAL OF OHIO



10/30/97
Date

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