

**ENVIRONMENTAL ASSESSMENT**

**REHABILITATION OF PROPULSION SYSTEM LABORATORY (PSL)  
PRIMARY COOLER AND  
CENTRAL AIR EQUIPMENT BUILDING (CAEB) EXHAUSTERS**

**BUILDINGS 123, 124, 125, AND 64**

**TASK ORDER 6173-008**

**NASA LEWIS RESEARCH CENTER  
21000 BROOKPARK ROAD  
CLEVELAND, OHIO 44135**

**MARCH 28, 1994**

**PREPARED BY:**

**MORRISON KNUDSEN/NASA  
21000 BROOKPARK ROAD  
CLEVELAND, OHIO 44135**

**Abstract**

The objective of this Environmental Assessment is to review proposed actions associated with the Propulsion Systems Laboratory and Central Air Equipment Building rehabilitation at the NASA Lewis Research Center in Cleveland, Ohio. The information developed appears to indicate that the proposed action will not result in substantial impacts to the environment.

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## ABBREVIATIONS AND ACRONYMS

PSL	Propulsion Systems Laboratory
CAEB	Central Air Equipment Building
EA	Environmental Assessment
NEPA	National Environmental Policy Act
CEQ	Council on Environmental Quality
NASA	National Aeronautic and Space Administration
LeRC	Lewis Research Center
CFR	Code of Federal Regulations
EIS	Environmental Impact Statement
WDPF	Westinghouse Distributed Process Family
POTW	Publicly Owned Treatment Works
OEPA	Ohio Environmental Protection Agency
NPDES	National Pollution Discharge Elimination System
OSHA	Occupational Safety and Health Administration
TSCA	Toxic Substances Control Act

## **1.0 SUMMARY AND CONCLUSIONS**

This Environmental Assessment (EA), required pursuant to the National Environmental Policy Act (NEPA), and Council on Environmental Quality (CEQ) regulations concerns a proposed action at the National Aeronautic and Space Administration (NASA) Lewis Research Center (LeRC) in Cleveland, Ohio to rehabilitate the Propulsion System Laboratory (PSL) Primary Cooler and Central Air Equipment Building (CAEB) Exhausters in Buildings 123, 124, 125, and 64. Under NASA's proposed action, the three major components of this action are:

1. Rehabilitation of six CAEB exhausters (#41, 43, 44 ,45, 46 & 47) (Building 64);
2. Replacement of the third bank PSL primary cooler tubes (Building 123); and
3. Upgrades and repairs in the heater building of the PSL complex (Building 124).

This EA addresses and evaluates environmental impacts associated with implementing the proposed action and two alternatives; no action or duplication of the PSL and CAEB facilities at an alternate site.

Table 1-1 summarizes the environmental impacts of the proposed action and the alternatives based on issues outlined in NEPA, the CEQ regulations, applicable NASA procedures (14 Code of Federal Regulations (CFR) Subpart 1216.3), and the Statement of Work. The Proposed Action column rates issues as having potential short-term, long-term, or no substantial impacts at all. The final two columns compare the expected environmental impacts of the alternatives against the proposed action. The comparisons indicate whether the alternatives will present either more severe, similar, or less severe environmental impacts than the proposed action.

In general, the proposed action would result in little impact to the surrounding environment for the following reasons:

- The proposed action does not address any new activities, only repair and renovation of existing equipment.
- There are no existing substantial problems with air quality, surface and ground water quality, waste generation, noise and vibration, hazardous substances, ionizing and non-ionizing radiation, endangered species and biotic resources, wetlands and floodplains, Historical and Archeological Sites, Prime and Unique Farmlands, Land Quality, Vicinity Land Use, Visual and Recreational Resources, Economic, Population and Employment Factors, Health and Safety or Coastal Zone Consistency associated with the PSL/CAEB complex.

The two alternatives evaluated also do not strongly impact any environmental parameters addressed in this EA, and neither appears more beneficial to the surrounding environment than the proposed action. Standard construction is essentially the only cause of impact at the NASA LeRC. Therefore, it does not appear that preparation of an environmental impact statement (EIS) would be necessary or prudent.

**TABLE 1-1  
SUMMARY OF POTENTIAL ENVIRONMENTAL IMPACTS**

	<b>Proposed Action</b>	<b>No Action (Impacts Relative to Proposed Action)</b>	<b>Duplicate PSL/CAEB (Impacts Relative to Proposed Action)</b>
<b>Air Quality</b>	None	Similar	Similar
<b>Surface Water and Groundwater Quality</b>	None	Similar	Similar
<b>Waste Generation</b>	Short-term	Less Severe	Similar
<b>Noise and Vibration</b>	Long-term Benefits	More Severe	Similar
<b>Hazardous Substances</b>	None	Similar	Similar
<b>Ionizing and Non-ionizing Radiation</b>	None	Similar	Similar
<b>Endangered Species and Biotic Resources: Fish and Wildlife Resources</b>	None	Similar	Similar
<b>Wetlands and Floodplains</b>	None	Similar	Similar
<b>Historical and Archeological Sites</b>	None	Similar	Similar
<b>Prime and Unique Farmlands</b>	None	Similar	Similar
<b>Land Quality, Vicinity Land Use, Visual and Recreational Resources</b>	None	Similar	Similar
<b>Economic, Population, and Employment Factors</b>	Short-term (renovation)	More Severe	Less Severe
<b>Health and Safety</b>	Long-term Benefits	More Severe	Similar
<b>Coastal Zone Consistency</b>	None	Similar	Similar

## **2.0 INTRODUCTION**

### **2.1 Purpose and Need**

The NEPA, codified at 42 USC 4321 et seq., was enacted to articulate the federal government's policy and objectives in environmental protection. Regulations promulgated in support of NEPA are found at 40 CFR Parts 1500-1508. These regulations contain provisions necessary to ensure that federal agencies act within the intent of NEPA. In particular, these regulations address the procedural aspects of conducting environmental analyses and preparing and publishing EIS. The regulations also dictate that federal agencies shall adopt procedures to ensure that decisions are made in accordance with the scope and intent of NEPA. As a result, NASA enacted provisions found at 14 CFR Subparts 1216.1 and 1216.3 (NASA/NEPA provisions) for implementing NEPA requirements. This EA has been prepared pursuant to the NASA/NEPA provisions in support of a proposed action at the NASA LeRC in Cleveland, Ohio.

Buildings 123, 124, and 125 house the PSL and Building 64 houses the CAEB which are critical facilities at NASA LeRC. The three components of the proposed action are necessary for NASA LeRC to continue its superior testing capabilities in support of NASA's aeronautics strategic plan. The CAEB has been fully functional for more than 30 years after installation of the current equipment. The exhauster machinery in the CAEB, as it exists, is deteriorated and in danger of failing. There are eight exhausters which are a vital part of NASA LeRC's major air handling and air conditioning equipment. Two exhausters are already scheduled for repair. The remaining six exhausters require replacement of essential parts and inspection and repair of motors.

The PSL houses the primary cooler system necessary for future programmatic commitments. Water flows through three banks of carbon steel tubes to cool high temperature exhaust gasses. NASA replaced the first two banks of tubes in 1990. After years of high temperature processes, the remaining tubes are beginning to leak and are in need of constant repair. The proposed action addresses the replacement of the third bank of tubes.

The PSL Heater Building (Building 124) is also in need of repair. The heat exchanger system is outdated and has deteriorated substantially from many years of substantial use. In order to meet future high temperature requirements for PSL test programs, renovation and repair in the Heater Building is essential.

The repairs at PSL and CAEB will enable NASA LeRC to continue to service all the major aero facilities at LeRC, as well as continue testing air breathing engines in support of NASA's aeronautics strategic plan. These facilities are vital to NASA LeRC's testing capabilities. If left as is, the equipment in the PSL and the CAEB will deteriorate to the point of failure generating increased replacement costs and causing unscheduled shutdowns of the PSL, the CAEB and all

major aero facilities. Further, testing at LeRC is planned to increase in the near future, elevating the demand for the facilities housed in Building 64.

## **2.2 Existing Building and General Operations**

Buildings 123, 124, and 125 currently house the PSL and Building 64 houses the CAEB. The CAEB has been in operation since 1953 when half of the current equipment was installed. The remaining equipment in CAEB became functional in 1958. The PSL is NASA's only altitude simulation facility for testing air breathing engines in support of NASA's aeronautics strategic plan. The PSL complex (Buildings 123, 124, and 125) came on line in the early 1970's. The PSL heater engine system in Building 124 is important in increasing air temperature to at least 600°F to simulate testing conditions for the test article engines. The primary cooler system in Building 123 is important in decreasing high temperature exhaust gasses of the test article engines before they enter the exhaust equipment.

The CAEB incorporates the primary air handling and air conditioning equipment used by the test facilities at NASA LeRC. The equipment includes compressors, exhausters and coolers. The CAEB is an integral part in maintaining continuous operations at all major NASA LeRC's testing facilities.

## **3.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES**

This section describes the proposed action and two alternatives; no action or duplication of the PSL and the CAEB facilities at an alternate site. Figure 1 shows the location of the proposed action.

### **3.1 PSL and CAEB Upgrade and Rehabilitation**

The proposed action consists of three components which involve the repair and upgrade of existing and degraded systems in the PSL and the CAEB. The first component addresses six CAEB exhausters which are in need of repair before total replacement becomes necessary. The exhausters require the following items to be replaced: impellers, shafts, bearings, all labyrinth seals, couplings, and guide vanes. The motors of each exhauster are also in need of inspection and reconditioning.

The second component addresses the PSL primary cooler finned tube replacement. The finned tubes are the third bank of tubes to be replaced in the PSL. NASA repaired the first and second bank of tubes in 1990. This project requires the removal of approximately 1,340 carbon steel tubes and tube supports. The new tubes are between 13-45 feet (4-14 meters) in length and must be fabricated. Tube supports and fins made of either galvanized carbon steel or stainless steel will also be fabricated.





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The third component addresses the PSL heater building upgrades. Several items are in need of repair due to deterioration. The exhaust mufflers in the heater system require replacement. The existing Westinghouse Distributed Process Family (WDPF) control system must be expanded to allow for control of the heaters. In addition, the proposed action includes fabrication and installation of a heated auxiliary air line to provide heated air directly to the test cell, installation of combustion air blinds (gate valves), replacement of a hot air control valve and replacement of explosion proof outlets, lights, conduit, and motors. Construction for all three components is scheduled to last approximately six months. The proposed action will not involve the long-term conversion of land from other uses.

### **3.2 No Action**

This alternative assumes the proposed action will not be performed. If this option is chosen, NASA will not eliminate current problems associated with the PSL and the CAEB.

### **3.3 Replacement of PSL and CAEB Equipment**

This alternative assumes the complete replacement of equipment for the PSL and the CAEB as opposed to merely rehabilitating the equipment. The increased work load to replace the CAEB exhausters, the PSL primary cooler system and the PSL heating system located in the Heater Building will incur considerably more down-time and cost than the proposed action.

## **4.0 ENVIRONMENTAL IMPACT OF ALTERNATIVES**

### **4.1 Introduction**

The scope of this EA has been outlined following the NEPA, CEQ regulations, applicable NASA procedures<sup>1</sup>, the proposed PSL and CAEB rehabilitation Statement of Work<sup>2</sup> and the Addendum to the Statement of Work for the PSL, FY95 CoF project.<sup>3</sup> This section compares the impact of the alternatives described in Section 3.0 with respect to the following issues:

- Air Quality
- Surface Water and Groundwater Quality
- Waste Generation
- Noise and Vibration
- Hazardous Substances
- Ionizing and Non-ionizing Radiation
- Endangered Species and Biotic Resources: Fish and Wildlife Resources
- Wetlands and Floodplains
- Historical and Archeological Sites
- Prime and Unique Farmlands

- Land Quality, Vicinity Land Use, Visual, and Recreational Resources
- Economic, Population, and Employment Factors
- Health and Safety
- Coastal Zone Consistency

## 4.2 Air Quality

The Ohio Environmental Protection Agency (OEPA) has designated areas within the state as either attainment or non-attainment for various pollutants. An attainment area for a particular pollutant is an area that meets the national primary or secondary ambient air quality standard for that pollutant. A non-attainment area is one which does not meet (or that contributes to poor ambient air quality in a nearby area that does not meet) the national primary or secondary ambient air quality standard for the pollutant.<sup>4</sup> Table 4-1 summarizes Cuyahoga County's attainment and non-attainment designations for various pollutants.

TABLE 4-1 CUYAHOGA COUNTY ATTAINMENT/NON-ATTAINMENT STATUS <sup>5</sup>					
	NO <sub>x</sub>	SO <sub>2</sub> <sup>A</sup>	PM <sub>10</sub>	OZONE	CO <sup>B</sup>
ATTAINMENT	X				
NON-ATTAINMENT		X	X	X	X
<sup>A</sup> SO <sub>2</sub> is nonattainment in the portion of Cuyahoga County where NASA is located. Other portions of the county are in attainment					
<sup>B</sup> CO is in the process of being redesignated as in attainment.					

### 4.2.1 PSL and CAEB Upgrade and Rehabilitation

The project involves replacement of the exhaust muffler structure. There will be no increase in air emissions over current levels.

### 4.2.2 No Action

If no action is taken, there may be a negative impact on air quality due to deterioration of the exhaust equipment.

### 4.2.3 Replacement of PSL and CAEB Equipment

Similar to the proposed action, there will be no increase in air emissions over current levels.



### 4.3 Groundwater and Surface Water Quality

Direct discharges from the PSL and CAEB may impact surface water and groundwater quality. Point sources are discharges to storm and sanitary sewers from the PSL and CAEB. The sanitary sewer discharge ties into the Northeast Ohio Regional Sewer District line, which is ultimately treated at the Publicly Owned Treatment Works (POTW). Storm water runoff currently discharges into the Rocky River via National Pollution Discharge Elimination System (NPDES)-permitted outfall 001 and into Abram Creek via permitted outfall 006. Storm water runoff from PSL and CAEB which is not collected in the storm sewer system is considered a non-point source which may impact both surface water and groundwater quality.

The OEPA recently completed a comprehensive study of the Rocky River and its tributaries, including Abram Creek. Table 4-2 contains the results of the study obtained upstream and downstream from the permitted outfalls. The parameters in Table 4-2 are those which may be impacted by stormwater runoff.

TABLE 4-2 ABRAM CREEK EXISTING WATER QUALITY <sup>6</sup>		
Parameter	Upstream Average	Downstream Average
pH	7.78	7.58
Dissolved Oxygen	7.5	5.4
Nitrate	5.52	4.61
Nitrite	0.73	0.76
Ammonia	0.94	2.48
Total Kjeldahl Nitrogen	1.9	3.8
Total Suspended Solids	3.9	7.2
Total Dissolve Solids	418	593
Phosphorus	0.16	0.26
Chemical Oxygen Demand	25	41

#### 4.3.1 PSL and CAEB Upgrade and Rehabilitation

Like air quality, there should be no impact of the proposed action on water quality. There are no changes in the system other than replacing worn parts.

#### **4.3.2 No Action**

If no action is taken, there will be no impacts on water quality.

#### **4.3.3 Replacement of PSL and CAEB Equipment**

There are no changes in the system other than replacing the PSL and CAEB equipment listed in the proposed action description. This alternative should have no impact on water quality.

### **4.4 Waste Generation**

Solid waste transport and disposal is regulated by the OEPA in conjunction with the local County Health Department.<sup>7</sup> NASA LeRC utilizes third-party contractors for transport and disposal services. These contractors have OEPA approval for solid waste disposal services.

Solid wastes exhibiting hazardous characteristics and listed hazardous wastes are regulated by the OEPA as hazardous wastes. OEPA regulates management of hazardous wastes, including generation, storage, transport, and disposal of these wastes.<sup>8</sup>

#### **4.4.1 PSL and CAEB Upgrade and Rehabilitation**

Solid wastes will be generated by the proposed action in the form of fabrication material and removed tubes which will be disposed of as scrap. There will be no additional solid or hazardous waste generation during daily activities in the PSL and CAEB as a result of selecting this alternative. There is no asbestos associated with the proposed action in the PSL and CAEB.

#### **4.4.2 No Action**

The no action alternative will result in no change in the quantity of solid or hazardous wastes generated at the PSL and CAEB. The quantity of solid waste generated will be less than the other two alternatives as there are no renovation activities associated with this alternative.

#### **4.4.3 Replacement of PSL and CAEB Equipment**

As with the proposed action, there would be no solid or hazardous wastes generated during daily activities in the PSL and CAEB. During replacement of the PSL and CAEB equipment, there will be waste generated from the old equipment.

### **4.5 Noise and Vibration**

Figure 2 shows the current noise contours in the vicinity of NASA LeRC. From the map, it is evident that the primary source of noise in the area is Cleveland Hopkins International Airport.

Scale in Feet



# Cleveland Hopkins International Airport

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February, 1991

# PRELIMINARY

Current Noise  
Contours - 1990

#### **4.5.1 PSL and CAEB Upgrade and Rehabilitation**

The replacement of the heater engine mufflers will decrease noise levels in the PSL area. Construction activities will generate short-term impacts on noise and vibration. However, once the project is completed, noise will decrease to below current levels. Currently, there are no problems with vibration.

#### **4.5.2 No Action**

This option results in an increase in noise due to the muffler deterioration in the heater engine building. There will be no vibration generation. This option has a slightly higher impact than the proposed action.

#### **4.5.3 Replacement of PSL and CAEB Equipment**

Similar to the proposed action, the replacement of the heater engine mufflers will decrease noise levels in the PSL area. Construction activities will generate short-term impacts on noise and vibration. However, once the project is completed, noise will decrease to below current levels.

### **4.6 Hazardous Substances**

Hazardous substances maintained at the PSL and CAEB complexes are hydraulic fluids, lubricants and oils, and cleaning solvents. These substances are stored within the buildings in 5 gallons (9 liters) or less containers. Hazardous materials are received into the building only when their use is anticipated and only in quantities sufficient to complete the task. These materials are a minimal health and safety hazard to building workers.

Solid wastes exhibiting hazardous characteristics and listed hazardous wastes are regulated by the OEPA as hazardous wastes. PSL and CAEB operations generate small quantities of hazardous wastes, typically in the form of empty containers which formerly held hazardous substances and waste solvents. These wastes are stored in satellite collection areas near Building 125. Wastes in the satellite storage areas are collected every 30 to 60 days and stored in Building 212. Once in Building 212, wastes are consolidated, repackaged, and manifested for shipment to an off-site disposal facility.<sup>9</sup>

#### **4.6.1 PSL and CAEB Upgrade and Rehabilitation**

The proposed action does not have any additional hazardous substances associated with it. There will be no significant net increase in solid or hazardous waste generation at LeRC as a result of selecting this alternative.

#### **4.6.2 No Action**

Hazardous substance generation will not change under the no action alternative.

#### **4.6.3 Replacement of PSL and CAEB Equipment**

Similar to the proposed action, there will be no significant net increase in solid or hazardous waste generation at NASA LeRC.

#### **4.7 Ionizing and Non-ionizing Radiation**

There are no sources of ionizing or non-ionizing radiation in the PSL and CAEB associated with the proposed action.

#### **4.8 Endangered Species and Biotic Resources: Fish and Wildlife Resources**

The Upland Sandpiper is the only known endangered or protected species in the area of the NASA LeRC.<sup>10</sup> No known endangered aquatic species inhabit the Rocky River. The crayfish, *Orconectes propinquus*, is classified as "Special Interest" and has been seen in the Rocky River and Abram Creek. The Big Mouth Shiner, *Notropis dorsalis*, is classified as "Threatened"<sup>11</sup> and has been seen in the Rocky River.

##### **4.8.1 PSL and CAEB Upgrade and Rehabilitation**

The proposed action should have no impact on endangered species and biotic resources. There is no action associated with anything outside of the building.

##### **4.8.2 No Action**

Similar to the proposed action, there should be no impacts on endangered species and biotic resources.

##### **4.8.3 Replacement of PSL and CAEB Equipment**

Similar to the proposed action and the no action alternative, this option should have no impact on endangered species and biotic resources.

#### **4.9 Wetlands and Floodplains**

Wetlands are areas of land where the water table is at, near or above the land surface long enough each year to result in the formation of characteristically wet (hydric) soil types, and support growth of water-dependent (hydrophytic) vegetation. Wetlands include, but are not



limited to, marshes, swamps, bogs, and other low-lying areas.<sup>12</sup> The PSL and CAEB facilities are centrally located in the NASA LeRC complex and are surrounded by buildings and roads on all sides. There are no apparent wetlands within the vicinity of the PSL and CAEB facilities.

A review of Flood Insurance Rate Maps for NASA LeRC indicates that the PSL and CAEB are not in a flood hazard location.<sup>13</sup> These maps are generated by the Federal Emergency Management Agency to display the zone designations for a community according to area of designated flood hazards.

#### **4.10 Historical and Archeological Sites**

The PSL and CAEB do not qualify as a historical or an archeological site.<sup>14</sup> State and Federal agencies have been contacted.

#### **4.11 Prime and Unique Farmlands**

There are no farmlands within the boundary of the NASA LeRC. The area is zoned commercial/industrial and has been used as such since the 1940s.

#### **4.12 Land Quality, Vicinity Land Use, Visual, and Recreational Resources**

The PSL and CAEB facilities are surrounded by NASA LeRC buildings on the north, south, east, and west. There are no designated visual or recreational resources within the boundaries of the LeRC.

The material laydown areas are currently being used as parking lots. Minimal space will be used for the temporary placement of materials.

##### **4.12.1 PSL and CAEB Upgrade and Rehabilitation**

Selection of the proposed action will have no impact on land quality, vicinity land use, or visual and recreational resources.

##### **4.12.2 No Action**

The no action alternative will result in no impact on land quality, vicinity land use, or visual and recreation resources.

##### **4.12.3 Replacement of PSL and CAEB Equipment**

The replacement of PSL and CAEB deteriorated equipment will result in no impact on land quality, vicinity land use, or visual and recreation resources.

#### **4.13 Economic, Population, and Employment Factors**

Economic, population and/or employment factors that are "interrelated with natural or physical environmental factors" can have an impact on an EA. Economic, population, or permanent employment factors associated with the PSL and CAEB relate solely to the number of NASA LeRC employees working in the PSL and CAEB facilities on a daily basis.

##### **4.13.1 PSL and CAEB Upgrade and Rehabilitation**

If the proposed action is chosen, temporary workers will be hired to perform renovation. There will be increased economic activity during the construction phase of the project.

##### **4.13.2 No Action**

If no action is taken, there will be no immediate change in economic, population, and employment factors for the PSL and CAEB facilities. However, long-term inability to carry out testing as a result of severe deterioration of PSL and CAEB equipment will greatly impact the above mentioned factors.

##### **4.13.3 Replacement of PSL and CAEB Equipment**

If this action is chosen, temporary workers will be hired to perform equipment replacement. There will be a greater increase in economic activity during the construction phase of the project than the proposed action due to the complete replacement of the specified equipment.

#### **4.14 Health and Safety**

Health and safety considers not only effects from use of hazardous substances within the laboratories, but also physical hazards present in the environment (*i.e.*, trip hazards). Worker health and safety is regulated primarily by the Occupational Safety and Health Administration (OSHA).<sup>15</sup> However, worker protection is also addressed by regulations such as those issued pursuant to the Toxic Substances Control Act (TSCA) and state Community Right-to-Know regulations.<sup>16</sup>

##### **4.14.1 PSL and CAEB Upgrade and Rehabilitation**

The rehabilitation of the PSL and CAEB equipment will reduce any danger associated with deterioration. Construction contractors will be required to prepare task-specific Health and Safety Plans to protect temporary workers at the site during construction activities.

##### **4.14.2 No Action**

The no action alternative will allow the PSL and CAEB systems to continue to deteriorate, possibly resulting in a significant impact on LeRC personnel health and safety.

#### **4.14.3 Replacement of PSL and CAEB Equipment**

Similar to the proposed action, the replacement of the PSL and CAEB equipment will reduce any danger associated with deterioration.

#### **4.15 Coastal Zone Consistency**

Coastal zones include areas extending "landward only to the extent necessary to include shorelands, the uses of which have a direct and significant impact on coastal waters."<sup>17</sup> The PSL and CAEB are not located in a coastal zone.



## 5.0 LIST OF AGENCIES AND INDIVIDUALS CONSULTED

TABLE 5-1 AGENCIES AND INDIVIDUALS CONSULTED		
ORGANIZATION	INDIVIDUAL(S)	INFORMATION
MK/NASA 21000 Brookpark Rd. Cleveland, OH 44135 (216) 433-2439	Elise Allen	Waste Generation, Hazardous Substances, Health and Safety
MK-Environmental 1500 West 3rd St. Cleveland, OH 44114 (216) 523-5600	Minden Hudak Lynn Rogozinski	Air Quality, Hazardous Substances, Wetlands, Health and Safety
NASA Lewis Research Center 21000 Brookpark Rd. Cleveland, OH 44135	Chuck Yesberger Walter Rzasnicki Tom Krivanek Maureen Burns Rich Kalynchuk	Waste Generation, Noise and Vibration, Hazardous Substances, Visual and Recreational Resources, Employment Factors, Health and Safety, Farmlands, Land Use
Cleveland Bureau of Air Pollution Control, City of Cleveland (216) 441-7444	George Young	Air Quality
The Ohio EPA Columbus, OH (614) 265-6752	Christopher Thomas	Floodplains and Coastal Zones
The Ohio EPA Columbus, OH (614) 777-6264	Chuck McKnight	Fish and Wildlife Resources
The Ohio EPA Twinsburg, OH (216) 963-1105	Steve Tuckerman	Water Resources

**5.0 LIST OF AGENCIES AND INDIVIDUALS CONSULTED (continued)**

<b>TABLE 5-1 AGENCIES AND INDIVIDUALS CONSULTED</b>		
<b>ORGANIZATION</b>	<b>INDIVIDUAL(S)</b>	<b>INFORMATION</b>
Cleveland Metroparks Cleveland, OH (216) 351-6300	Tom Stanley	Endangered Species
National Park Service History Division Washington, DC (202) 343-8155	Harry Butowski	Information Regarding National Historic Landmarks and the National Registry
Ohio State Historic Preservation Office Historic Preservation Div. Columbus, OH (614) 297-2740	John Rau	Information Regarding National Historic Sties

## REFERENCES

1. 14 CFR Subpart 1216.3.
2. Statement of Work, Architect-Engineering Services for Preparation of Environmental Assessments for the C of F Projects: Modifications for Composite Technology Center; Rehabilitation of PSL Primary Cooler and CAEB Exhausters; Construction of Addition to Power Systems Facility (333) prepared by NASA Lewis Research Center, March 1993.
3. Statement of Work, Architect-Engineering Services for Preparation of Environmental Assessments for the C of F Projects: Modifications for Composite Technology Center; Rehabilitation of PSL Primary Cooler and CAEB Exhausters; Construction of Addition to Power Systems Facility (333) - Addendum - prepared by NASA Lewis Research Center, June 1993.
4. §107[42 USC 7407] (d).
5. Telephone discussion with George Young at the Cleveland Bureau of Air Pollution Control, City of Cleveland, Ohio.
6. OEPA Study of 1993 Rocky River TSD, draft dated June 17, 1993.
7. Ohio Administrative Code §3745-29.
8. Ohio Administrative Code §3745-66.
9. Environmental Compliance Self-Evaluation for Lewis Research Center at the National Aeronautics and Space Administration, Lewis Research Center, Cleveland, Ohio prepared by Ebasco Services Incorporation, January 1993 (Environmental Compliance Document).
10. Telephone discussion with Tom Stanley at the Cleveland Metroparks Administration, Cleveland, Ohio.
11. Telephone discussion with Chuck McKnight at the Ohio EPA in Columbus.
12. Ohio Administrative Code §3645-102 (LLL).
13. Federal Insurance Flood Map.
14. Per telephone discussion with Rich Kalynchuk of Bionetics at NASA Lewis Research Center, Cleveland, Ohio and Landmarks Program of the National Park Service.
15. Regulations are found in 29 CFR 1910.

16. Ohio Revised Code §3750.
17. Ohio Revised Code §1506.01.