

FINAL

Environmental Assessment

Demolition of Test Stand 4696 at George C. Marshall Space Flight Center

Contract No. NNM05AB44C
Task Order No. CH379

Prepared for:



National Aeronautics and Space Administration
Marshall Space Flight Center
Huntsville, Alabama

July 2011



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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

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Environmental Assessment Organization

This Environmental Assessment addresses the National Aeronautics and Space Administration's Proposed Action to demolish Test Stand 4696 at George C. Marshall Space Flight Center in Huntsville, Alabama. As required by 32 Code of Federal Regulations 651 and the National Environmental Policy Act, the potential effects of implementing this action are analyzed.

The *EXECUTIVE SUMMARY* provides a summary of the Proposed Action, alternatives to the Proposed Action, and conclusions of the EA.

A *LIST OF ACRONYMS* is provided immediately following the Table of Contents.

SECTION 1: **PURPOSE OF AND NEED FOR THE PROPOSED ACTION** provides an introduction and background, summarizes the purpose of and need for the Proposed Action, discusses the scope of the document, and identifies the resources considered but eliminated from further analysis.

SECTION 2: **DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES** describes the Proposed Action and the alternatives to the Proposed Action.

SECTION 3: **AFFECTED ENVIRONMENT** describes the existing conditions of each resource for which the Proposed Action and alternatives to the Proposed Action are evaluated.

SECTION 4: **ENVIRONMENTAL CONSEQUENCES** presents the potential effects of implementing the Proposed Action and alternatives to the Proposed Action on the resources described in Section 3, as well as mitigation measures.

SECTION 5: **SUMMARY OF ENVIRONMENTAL CONSEQUENCES AND CONCLUSIONS** presents a tabulated summary of the potential consequences of the Proposed Action and No-Action Alternative and also presents the conclusions of the Environmental Assessment.

SECTION 6: **REFERENCES** presents bibliographical information about the sources used to prepare the Environmental Assessment.

SECTION 7: **LIST OF PREPARERS** provides information about the persons who prepared the Environmental Assessment

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Acronyms

ACHP	Advisory Council on Historic Preservation
ADEM	Alabama Department of Environmental Management
AST	aboveground storage tank
BMPs	best management practices
CAA	Clean Air Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CEQ	Council on Environmental Quality
CFR	<i>Code of Federal Regulations</i>
CVOC	chlorinated volatile organic compound
dba	A-weighted scale
EA	Environmental Assessment
EEOH	Environmental Engineering and Occupational Health
EHS	Extremely Hazardous Substance
EO	Executive Order
ESC	Environmental Support Contractor
FY	Fiscal Year
HABS	Historic American Building Survey
HAER	Historic American Engineering Record
HMA	Huntsville Metropolitan Area
HWSF	Hazardous Waste Storage Facility
kV	kilovolt
LBP	lead-base paint
Ldn	day-night averaged sound level
LOX	liquid oxygen
MOA	Memorandum of Agreement
MD	Mission Directorate
MEC	Munitions and Explosives of Concern
MMRP	Military Munitions Response Program
MSFC	George C. Marshall Space Flight Center
NAAQS	National Ambient Air Quality Standards
NASA	National Aeronautics and Space Administration
NEPA	National Environmental Policy Act
NPDES	National Pollutant Discharge Elimination System
NRHP	Natural Register of Historic Places
NPR	NASA Procedural Requirements
OSHA	Occupational Safety and Health Administration
OU	Operable Unit
P2	Pollution Prevention
PCB	polychlorinated biphenyl
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
RP-1	Rocket Propellant 1

RSA	Redstone Arsenal
SHPO	State Historic Preservation Office
SMC	Strategic Management Council
TCE	trichloroethene
TS	Test Stand
TSDf	Treatment, Storage, and Disposal Facility
TVA	Tennessee Valley Authority
USACE	U.S. Army Corps of Engineers
U.S.C.	United States Code
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish & Wildlife Service
UST	underground storage tank
WNWR	Wheeler National Wildlife Refuge
WTA	West Test Area

Executive Summary

Introduction

The National Aeronautics and Space Administration (NASA) proposes to demolish Test Stand (TS) 4696 at George C. Marshall Space Flight Center (MSFC) in Huntsville, Alabama. TS 4696, currently referred to as the Hydrogen Engine Test Facility, was constructed in 1962 to conduct static firing testing of the F-1 engine, which was used to power the Saturn V booster vehicle that launched the three-man Apollo capsule to land a man on the moon. The purpose of the Proposed Action is to comply with NASA's decision to dispose of facilities that have no programmatic requirements beyond 2012, in accordance with the Agency's facility revitalization program, which was initiated in 2008. TS 4696 has been mothballed since 1995 and has been determined to have no NASA programmatic requirements beyond 2012. TS 4696 was approved for demolition by the NASA Headquarters Facilities Engineering Division on May 1, 2009. The disposal of TS 4696 and other facilities that have met the criteria for disposal is needed to allow NASA to operate its overall infrastructure more cost effectively within a constrained budget.

This Environmental Assessment (EA) has been prepared in compliance with the National Environmental Policy Act of 1969 (NEPA), as amended (42 United States Code [U.S.C.] 4321 et seq.), the Council on Environmental Quality Regulations for Implementing the Procedural Provisions of NEPA (40 *Code of Federal Regulations* [CFR] Parts 1500 through 1508), and NASA regulations (14 CFR Part 1216 Subpart 1216.3). The outline and content of the EA are consistent with NASA Procedural Requirements 8580.1 for implementing NEPA and Executive Order (EO) 12114.

Proposed Action

The Proposed Action is to demolish TS 4696 at MSFC. TS 4696 is located in the West Test Area (WTA) of MSFC. It is 239 feet (ft) (72.8 meters [m]) high and approximately 8,891 ft² (826 m²) at its base. The facility has four hollow reinforced concrete towers (legs) and a steel truss structure that support multiple platforms. There is a two-level rectangular structure on the eastern side of the facility. The lower level (basement) of this structure, which is below the road level, contains a mechanical room, electrical room, and terminal room. The upper level (first floor) of the structure, which is above the road level, contains a mechanical shop and control and instrumentation areas. The terminal room in the basement is connected to an underground cableway tunnel that extends approximately 625 ft (190.5 m) to Building 4674 (West Test Area Control Facility). TS 4696 has a flame bucket (deflector) on its western side and two cranes, one on the work platform level and one on the top of the facility. Concrete pavement surrounds the facility on all sides and on the western side of the flame bucket, the pavement slopes into a man-made pond (Pond MSFC-004) that was constructed to receive deluge water, cooling water, and other discharges from the facility.

Under the Proposed Action, TS 4696 would be demolished by a private demolition contractor. All of the steel frame structure of the facility, including that which is below the road level, would be removed under the Proposed Action. The concrete towers of the facility would be taken down to road level as would the rectangular structure on the eastern side of the facility, the first floor of which is above the road level. The portions of the towers below the road level and the basement of the rectangular structure would be emptied of their contents and left empty or filled with gravel up to the road level. The metal components of the facility, which include the steel frame structure, flame bucket, siding, plating, grating, and much of the equipment within the rectangular structure would be sold to a metal recycler. The concrete and other non-metallic components of the facility would be properly disposed of as appropriate.

Two groundwater dewatering sumps exist at the TS 4696 site. At present, only one sump has an operating pump – the one adjacent to the northwest tower of the facility. Under the Proposed Action, the sump pump that is operating at the site would be deactivated. The sump that contains this pump as well as the other sump at the site would be plugged with concrete or some other suitable sealant. Both ends of the underground cableway tunnel that extends from the terminal room in the basement of the facility to Building 4674 would be sealed with concrete or by some other suitable means.

Alternatives to the Proposed Action

The Proposed Action to demolish TS 4696 is needed to allow NASA to operate its overall infrastructure more cost effectively within a constrained budget. Partial demolition of the facility would not meet the intent of NASA's facility revitalization program, would not eliminate facility maintenance costs, and would not be logistically practicable. Therefore, there are no reasonable action alternatives other than the Proposed Action.

The No-Action Alternative is to maintain existing conditions, i.e., not to demolish TS 4696. Under the No-Action Alternative, TS 4696 would remain mothballed. In the event the Proposed Action is not carried out, future use of the facility may require separate NEPA documentation depending on the type of operations and/or facility modifications proposed.

Affected Environment

This EA assesses the potential impacts associated with the demolition of TS 4696 at MSFC on the following resources: land use, air quality, noise, topography, soils, geology, hydrogeology, floodplains, surface water, vegetation, wetlands, protected species, wildlife, cultural resources, housing, schools, recreation, socioeconomics, environmental justice, protection of children, public and occupational health and safety, potable water, wastewater, energy, solid waste, traffic flow, rail transportation, water transportation, aviation, and hazardous materials and wastes.

Environmental Consequences

Based on the findings of this EA, demolition of TS 4696 under the Proposed Action would have no effect on land use, topography, floodplains, housing, schools, recreation,

environmental justice, protection of children, potable water, wastewater, rail transportation, water transportation, or aviation. The Proposed Action is expected to have little potential to impact soils, geology, hydrogeology, surface water, vegetation, wetlands, or protected species.

Demolition activities would have overall minor impacts on air quality, noise levels, wildlife, public and occupational health and safety, solid waste, traffic flow, and hazardous materials and wastes. Air emissions and increased noise and traffic levels would be limited to the demolition period and would return to current levels after the demolition work is completed. Fugitive dust would be controlled and minimized by implementing appropriate Best Management Practices. Potential impacts on wildlife would be limited to noise disturbance during the demolition period and the potential for incidental animal mortality occurring during demolition is considered to be very low.

To minimize the potential for accidents and exposure to lead-based paint, polychlorinated biphenyls, and asbestos-containing materials, workers would wear and use appropriate protective equipment and would follow all applicable Occupational Safety and Health Administration (OSHA) standards and procedures. Provided that all appropriate worker protection measures are taken and all applicable OSHA regulations and guidelines are followed, the potential for safety and occupational health impacts under the Proposed Action would be low. Prior to any demolition work, the MSFC Safety Office and the demolition contractor would confirm that there is no residual fuel or any other substance of concern within any utility lines that still exist at the TS 4696 site, and that the lines are suitable for demolition. After TS 4696 is demolished, the current level of site security, which includes access control at the perimeter of the WTA and security patrols of the area, would continue to be provided for the site.

TS 4696 is located within the boundaries of Operational Unit (OU) 1, which covers the Test Area of MSFC under NASA's Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) program. Pond MSFC-004, which borders the southwestern side of TS 4696, is a CERCLA site. Because TS 4696 is located within the boundaries of OU 1, demolition of the facility would require a CERCLA Site Access Checklist. Demolition of TS 4696 would occur entirely within the existing footprint of the facility and, therefore, would have no direct impacts on Pond MSFC-004. Precautions would be taken to prevent any disturbance to the liner of the pond. Deactivating the sump pump that is operating at the site would eliminate the discharge of groundwater via PVC pipe into Pond MSFC-004. After TS 4696 is demolished, groundwater could potentially seep into the facility footprint, e.g., through cracks in the foundation. Depending on the amount that seeps in, groundwater could potentially accumulate in parts of the facility footprint and also could potentially gravity flow into Pond MSFC-004. Under the Proposed Action, both ends of the underground cableway tunnel that extends from the terminal room in the basement of TS 4696 to Building 4674 (West Test Area Control Facility) would be sealed with concrete or by some other suitable means. Sealing both ends of the tunnel would prevent intrusion of any contaminated groundwater (and associated vapors) that could potentially seep into the facility footprint after the facility is demolished. Sealing the tunnel would also prevent human entry at both ends of the tunnel. Management of hazardous materials during demolition would be conducted in coordination with the MSFC Environmental Engineering and Occupational Health Office and in accordance with all local, state, and federal laws and

regulations, as well as with all applicable MSFC management plans and pollution prevention measures. Hazardous wastes generated during demolition and abatement would be disposed of at licensed hazardous waste disposal facilities.

TS 4696 is eligible for listing in the National Register of Historic Places; therefore, its demolition would have a major impact on cultural resources. Under a Memorandum of Agreement (MOA) between NASA, the Alabama State Historic Preservation Office (SHPO), and the Advisory Council on Historic Preservation (ACHP), SHPO and ACHP conditionally approve the proposed demolition of TS 4696 provided that NASA meets the mitigation requirements and other stipulations outlined in the MOA. NASA will meet the mitigation requirements and all other stipulations outlined in the final signed MOA for the proposed demolition of TS 4696. The impact that the Proposed Action would have on cultural resources would be reduced to below a significant level by the mitigation that would be provided under the MOA between NASA, SHPO, and ACHP.

Demolition of TS 4696 would decrease energy consumption at the site as the facility's lighting, fire alarm system, and operating sump pump would be eliminated. Electricity would continue to be supplied to the site to operate security lighting. Demolition work would have a minor, short-term, positive impact on the local economy. Direct expenditures for demolition-related materials would benefit local suppliers and secondary spending by workers would benefit businesses near MSFC such as gas stations and restaurants. The Proposed Action would allow NASA to eliminate the costs associated with maintaining TS 4696 in a mothballed state and, therefore, would have a moderate positive impact on NASA's ability to operate its overall infrastructure more cost effectively within a constrained budget.

Adverse cumulative impacts would not result from the interaction of the Proposed Action with other past, present, and reasonably foreseeable actions at MSFC or in the surrounding area. The combined effect of the Proposed Action and the disposal of other NASA facilities that have no programmatic requirements beyond 2012 would have positive cumulative impacts on NASA's finances and overall mission.

Under the No-Action Alternative, NASA would continue to incur costs associated with maintaining TS 4696 in a mothballed state. Therefore, the No-Action Alternative would have a moderate negative impact on NASA's ability to operate its overall infrastructure more cost effectively within a constrained budget.

Conclusions

Based on the findings of this EA, demolition of TS 4696 under the Proposed Action would not have a significant impact on the quality of the human or natural environment. NASA will meet the mitigation requirements and all other stipulations outlined in the final signed MOA between NASA, SHPO, and ACHP for the Proposed Action. This EA supports a Finding of No Significant Impact for the Proposed Action. Accordingly, preparation of an Environmental Impact Statement is not required.

Purpose of and Need for the Proposed Action

1.1 Introduction

The National Aeronautics and Space Administration (NASA) proposes to demolish Test Stand (TS) 4696 at George C. Marshall Space Flight Center (MSFC) in Huntsville, Alabama. TS 4696, currently referred to as the Hydrogen Engine Test Facility, has been mothballed since 1995 and has been determined to have no NASA programmatic requirements beyond 2012.

This Environmental Assessment (EA) has been prepared in compliance with the National Environmental Policy Act of 1969 (NEPA), as amended (42 United States Code [U.S.C.] 4321 et seq.), the Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 *Code of Federal Regulations* [CFR] Parts 1500 through 1508), and NASA regulations (14 CFR Part 1216 Subpart 1216.3). The outline and content of the EA are consistent with NASA Procedural Requirements 8580.1 for implementing NEPA and Executive Order (EO) 12114.

1.2 Background

In 2008, NASA initiated a facility revitalization activity called “Slow and Steady” to improve its infrastructure while reducing the cost of maintaining it. The approach involves the replacement or renovation of needed facilities that are in poor condition and the disposal of facilities that are currently unused and are not needed for future operations. The Agency Facilities Study team was tasked to conduct facility evaluations for the activity, and as a first step, to develop a list of “Don’t Need” facilities to be considered for disposal. The “Don’t Need” list was developed from data gathered from the four Mission Directorates (MDs) and the NASA Centers. For a facility to be included on the list, all four MDs must consider it to have no NASA programmatic requirements beyond 2012.

TS 4696 was identified by all four MDs as having no NASA programmatic requirements beyond 2012 and, therefore, it was included on the “Don’t Need” facilities list. Based on its review of data provided by the MDs and MSFC, the NASA Office of Chief Engineer concluded that disposal of TS 4696 would not adversely impact the Agency’s engineering capabilities. In discussions and correspondence leading up to the Strategic Management Council (SMC) meeting held on December 16, 2008, the only potential future use of TS 4696 identified by MSFC was its potential to support Lunar Lander drop testing through 2012. During the SMC meeting, the NASA Administrator concluded that other facilities could be used for Lunar Lander drop testing, and approved the decision to dispose TS 4696 through a disposition process to be managed by the NASA Office of Infrastructure. A Facilities Decision Memorandum stating that TS 4696 has no NASA programmatic requirements beyond 2012 was issued on January 5, 2009, and on May 1, 2009, the Director of NASA Headquarters Facilities Engineering Division approved the decision to demolish the facility.

1.3 Purpose and Need

The purpose of the Proposed Action is to comply with NASA's decision to dispose of facilities that have no programmatic requirements beyond 2012, in accordance with the Agency's facility revitalization program, which was initiated in 2008. TS 4696 has been mothballed since 1995 and has been identified by all four MDs and MSFC as having no NASA programmatic requirements beyond 2012. The facility was approved for demolition by the NASA Headquarters Facilities Engineering Division on May 1, 2009. The disposal of TS 4696 and other facilities that have met the criteria for disposal is needed to allow NASA to operate its overall infrastructure more cost effectively within a constrained budget. The disposal of TS 4696 would allow NASA to eliminate the costs associated with maintaining the facility in a mothballed state, which includes general maintenance of the facility and grounds, and supply of electricity for the facility's lighting and fire alarm system. In addition, the Proposed Action would also provide an opportunity to eliminate the costs associated with maintenance and operation of a groundwater dewatering sump pump at the site.

1.4 Scope of EA

This EA assesses the potential environmental impacts associated with the demolition of TS 4696 at MSFC. Potential impacts associated with the Proposed Action are evaluated against those associated with the No-Action Alternative of maintaining existing conditions (i.e., not to demolish TS 4696). This EA does not address potential future use of TS 4696 under the No-Action Alternative. In the event the Proposed Action is not carried out, future use of the facility may require separate NEPA documentation depending on the type of operations and/or facility modifications proposed.

1.5 Public and Agency Consultation

A 30-day public review was held from September 20, 2009 through October 19, 2009 to solicit public comments on the draft EA. The public review period was announced in a public notice that was published in *The Huntsville Times* newspaper out of Huntsville, Alabama. Copies of the draft EA were made available to the public during the review period at the NASA External Relations Office at MSFC and at three public libraries in the local area. A copy of the public notice that was published in *The Huntsville Times* newspaper is presented as Appendix B. The draft EA was also coordinated with federal, state, and local entities through letter correspondence (Appendix A).

All comments received, and MSFC's responses to the received comments, which include how they have been addressed, are included in Appendix A.

1.6 Resources Considered but Eliminated From Further Analysis

NASA uses a systematic and interdisciplinary approach to ensure that all pertinent resources are analyzed and potential effects identified. Using this approach, the Proposed

Action was determined to have no potential effect on several resources. As a result, these resources were eliminated from further analysis and discussion in this EA. Table 1-1 identifies the resources that would not be affected by the proposed action and, therefore, have been eliminated from further analysis.

TABLE 1-1
Resources Considered But Eliminated From Further Analysis
EA for Demolition of TS 4696 at MSFC

Resource	Rationale
Land Use	Demolition of TS 4696 under the Proposed Action would not change the land use designation of the site. The demolition would be contained within the existing footprint of the facility. Other land uses within MSFC and land uses in the surrounding region would not be affected in any manner by the Proposed Action.
Topography	Demolition of TS 4696 under the Proposed Action would not involve land contouring or any other activity that would affect site topography.
Soils	The TS 4696 site is paved and devoid of exposed soils. Demolition of TS 4696 under the Proposed Action would occur entirely within the existing footprint of the paved site and, therefore, would not directly impact soils. Sediment and erosion controls would be implemented during all project activities to prevent any indirect impacts to soils along the perimeter of the site.
Floodplains	No portion of the TS 4696 site is located within the 100-year floodplain. Therefore, demolition of TS 4696 under the Proposed Action would have no effect on floodplains.
Vegetation	The TS 4696 site is paved and devoid of vegetation. Demolition of TS 4696 under the Proposed Action would occur entirely within the existing footprint of the paved site and, therefore, would not directly impact vegetation. Sediment and erosion controls would be implemented during all project activities to prevent any indirect impacts to vegetation that exists along the perimeter of the site.
Protected Species	No federally-listed or state-listed species have been documented to occur, or are expected to potentially occur, within or in the vicinity of the TS 4696 site. The site is also not within the vicinity of the only ecologically sensitive area at MSFC – Williams Spring Ecological Sensitive Area. Therefore, demolition of TS 4696 under the Proposed Action is expected to have little potential to impact protected species.
Housing, Schools, and Recreation	Demolition of TS 4696 under the Proposed Action would not require permanent personnel relocations or permanent employee hires. Therefore, the Proposed Action would have no effect on housing, schools, or recreation.

TABLE 1-1
Resources Considered But Eliminated From Further Analysis
EA for Demolition of TS 4696 at MSFC

Resource	Rationale
Environmental Justice and Protection of Children	<p>On February 11, 1994, the President issued EO 12898, <i>Federal Actions to Address Environmental Justice in Minority and Low-Income Populations</i>. This EO directs federal agencies to identify and, as appropriate, to address disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations. On April 21, 1997, the President issued EO 13045, <i>Protection of Children from Environmental Health Risks and Safety Risks</i>, which recognized that a growing body of scientific knowledge demonstrates that children may suffer disproportionately from environmental health and safety risks. This EO requires federal agencies, to the extent permitted by law and mission, to identify and assess such environmental health and safety risks.</p> <p>Under the Proposed Action, demolition of TS 4696 would have no effect or only minor impacts associated with the resources most relevant for assessing impacts on human populations, which are air quality, noise, groundwater, surface water, and hazardous materials/wastes. The minor impacts that demolition activities would have on these resources would not adversely affect human populations. Therefore, the Proposed Action would not have disproportionately high or adverse human health or environmental effects on minority or low-income populations. The TS 4696 site is currently secured against unauthorized entry and it would continue to be so during and after demolition of the facility. Therefore, the Proposed Action would not result in environmental health or safety risks to children.</p>
Potable Water and Wastewater	<p>TS 4696 has not required potable water or generated domestic or industrial (process) wastewater since well prior to 1995 when it was mothballed. Demolition of TS 4696 under the Proposed Action would have no effect on potable water consumption/distribution or domestic wastewater distribution/treatment at MSFC.</p>
Rail and Water Transportation	<p>There are no railroads or waterways within the vicinity of the TS 4696 site and demolition of TS 4696 would not involve the use of rail or water transportation. Therefore the Proposed Action would have no effect on rail or water transportation.</p>
Aviation	<p>Demolition of TS 4696 under the Proposed Action would not involve any mode of air transportation. The Proposed Action would also not affect airspace or require coordination with airfield operations.</p>

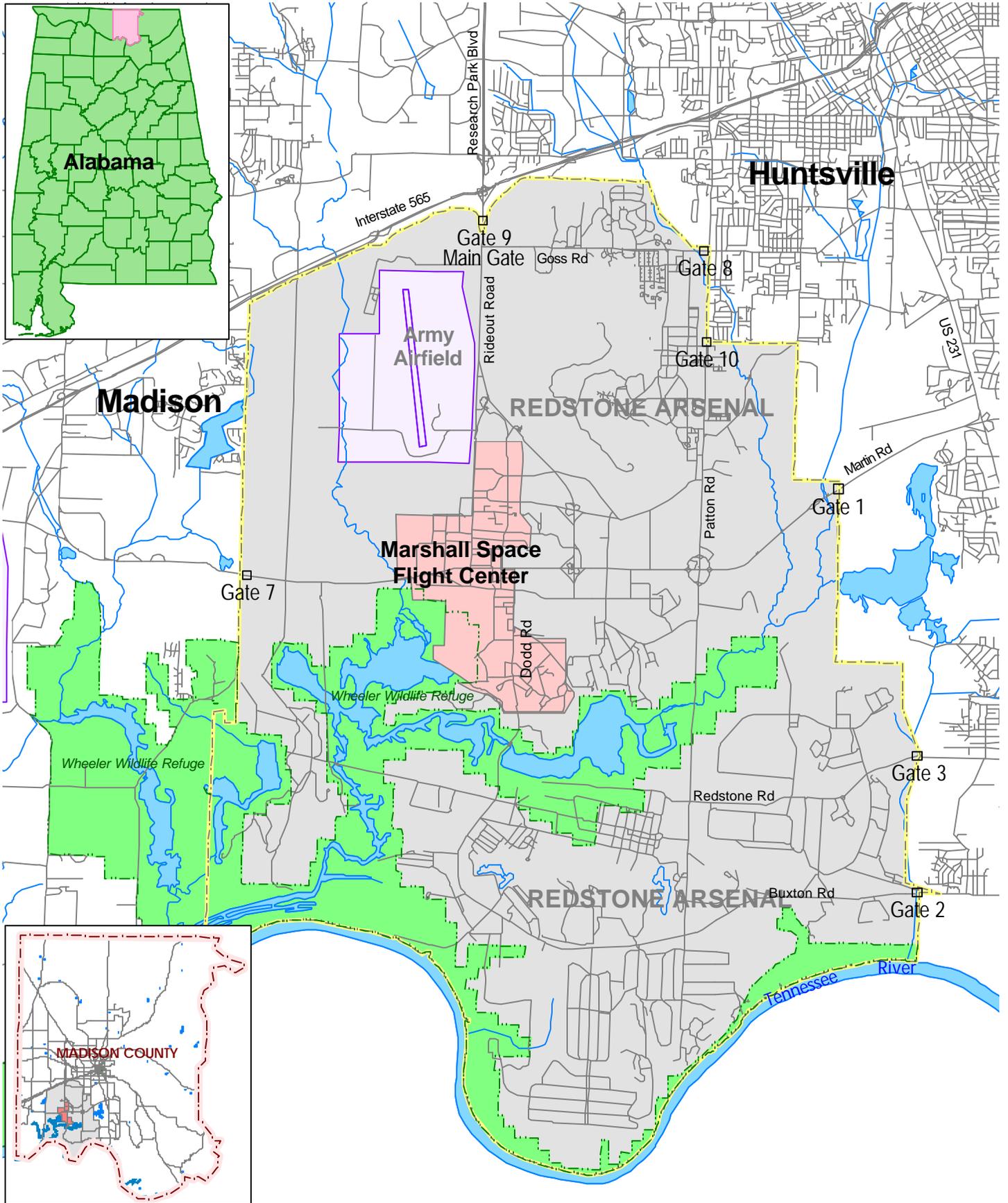
Description of the Proposed Action and Alternatives

2.1 Description of the Proposed Action

The Proposed Action is to demolish TS 4696 at MSFC. MSFC is located in north-central Alabama on approximately 1,841 acres of property within the Army's Redstone Arsenal (RSA) (Figure 2-1). TS 4696 is located in the West Test Area (WTA) of MSFC (Figures 2-2 and 2-3).

TS 4696, currently referred to as the Hydrogen Engine Test Facility, was constructed in 1962 to conduct static firing testing of the F-1 engine, which was used to power the Saturn V booster vehicle that launched the three-man Apollo capsule to land a man on the moon. Photographs taken of TS 4696 in April 2009 are shown on Figure 2-4.

TS 4696 is 239 feet (ft) (72.8 meters [m]) high and approximately 8,891 ft² (826 m²) at its base. The foundation, substructure, and lower portion of the facility are reinforced concrete. TS 4696 has four hollow reinforced concrete towers (legs), each measuring approximately 18 ft (5.5 m) by 16 ft (4.9 m). Plan views of the main levels of the TS 4696 are shown on Figure 2-5. There is a two-level rectangular structure on the eastern side of the facility that measures 102 ft (31.1 m) by 30 ft (9.1 m). The lower level (basement) of this structure, which is below the road level, contains a mechanical room, electrical room, and terminal room. The upper level (first floor) of the structure, which is above the road level, contains a mechanical shop and control and instrumentation areas. The terminal room in the basement is connected to an underground cableway tunnel that extends approximately 625 ft (190.5 m) to Building 4674 (West Test Area Control Facility). The southeast and northeast towers contain stairs that climb 12 levels to a work platform atop the reinforced concrete base of the facility. The northeast tower continues six and a half additional levels as a steel-frame shaft sheathed in corrugated metal. The northwest and southwest towers contain stairs that climb seven levels and include storage and shop space on several lower levels. In addition to the work platform on the 12th level, there are a rolling deck platform on the 5th level and a loading platform on the 7th level that provide work areas on the facility. The upper portion of TS 4696 is a steel truss structure with six additional levels that begin one-half level above the work platform. The facility has a flame bucket (deflector) on its western side and two cranes, one on the work platform level and one on the top of the facility (see Figure 2-4). Ancillary structures include a sentry booth, blast deflector wall, and warning light post on the southwestern side of the facility. Concrete pavement surrounds the facility on all sides and on the western side of the flame bucket, the pavement slopes into a man-made pond (Pond MSFC-004) that was constructed to receive deluge water, cooling water, and other discharges from the facility (Figure 2-6).



Drawn by: D. Scott Stevens

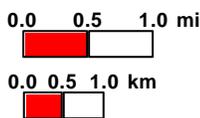
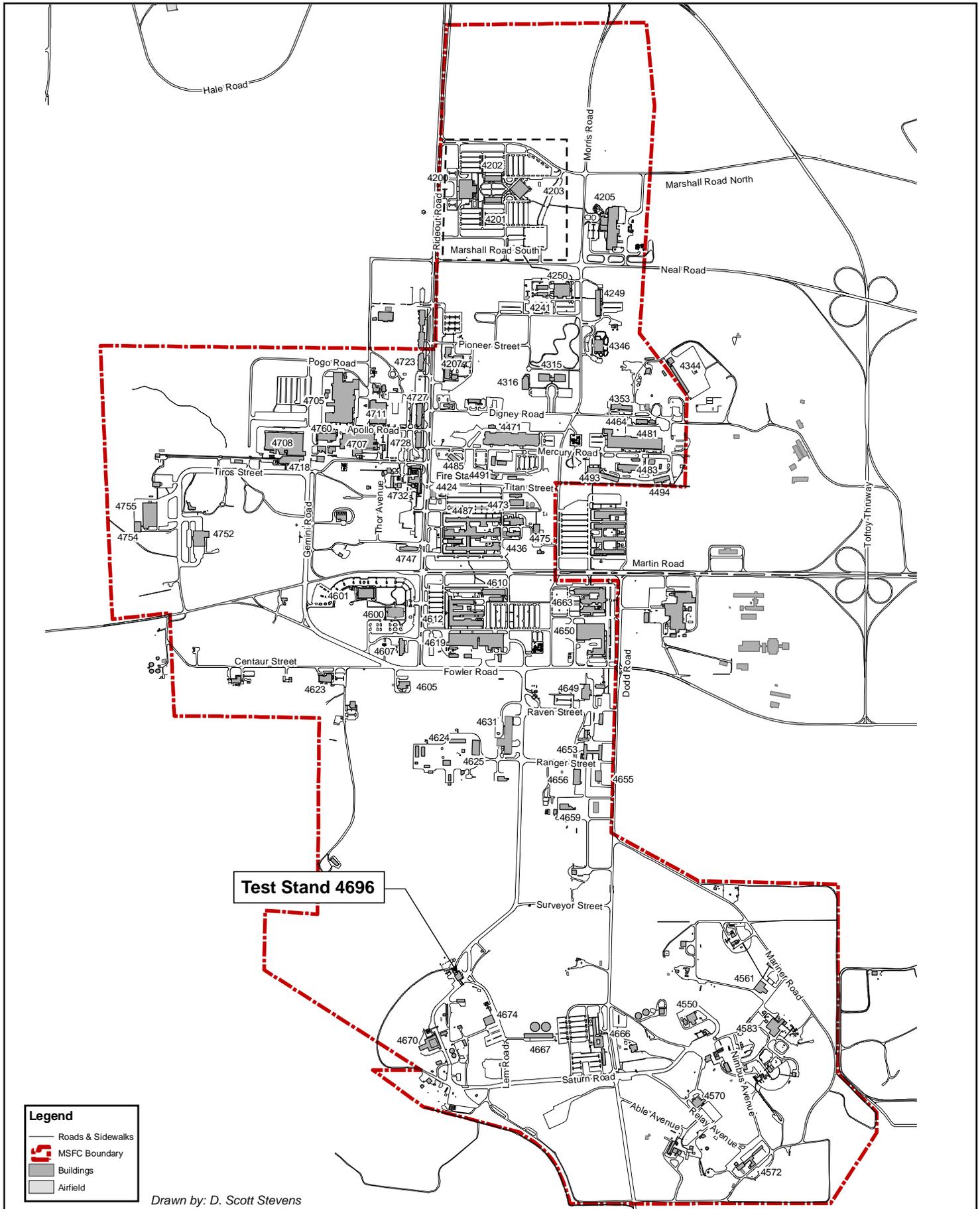


FIGURE 2-1
Marshall Space Flight Center
Location and Vicinity Map



0 500 1,000 2,000 3,000 Feet

0 250 500 1,000 Meters

FIGURE 2-2

Location of Test Stand 4696 at Marshall Space Flight Center



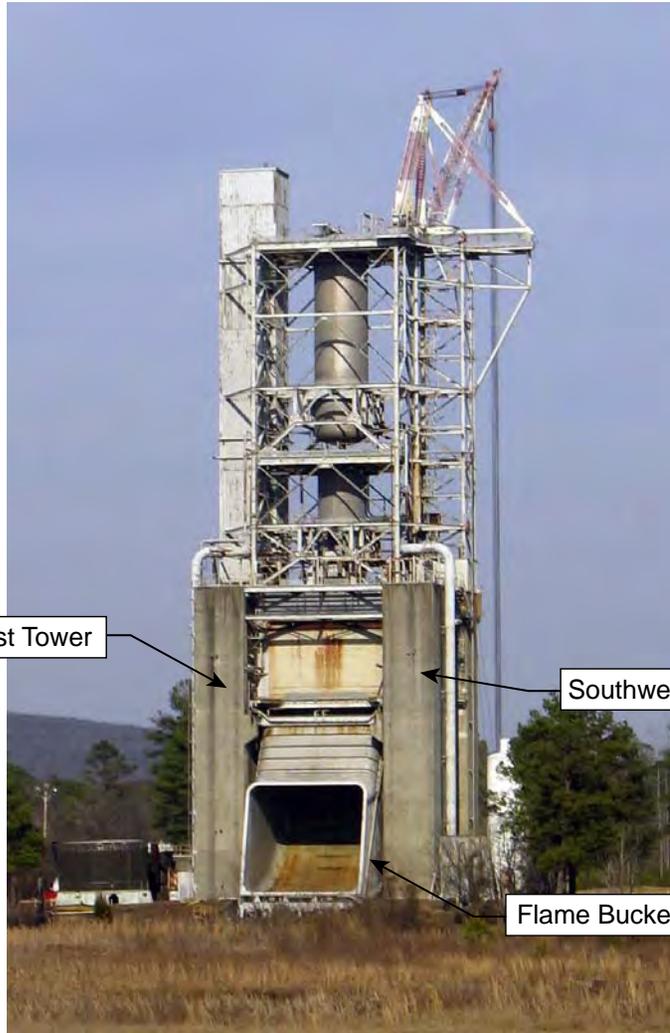
 MSFC Boundary

Drawn by: D. Scott Stevens

0 250 500 1,000
Feet

0 50 100 200 300
Meters

FIGURE 2-3
Aerial Photograph of West Test Area
at Marshall Space Flight Center



Northwest Tower

Southwest Tower

Flame Bucket

Facing North



Crane

Southeast Tower

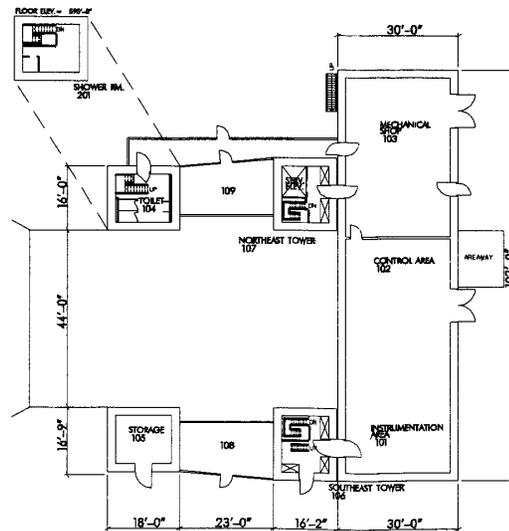
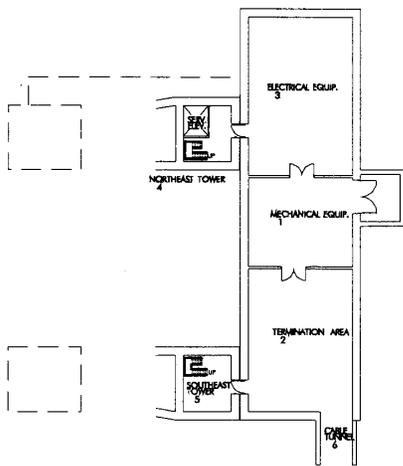
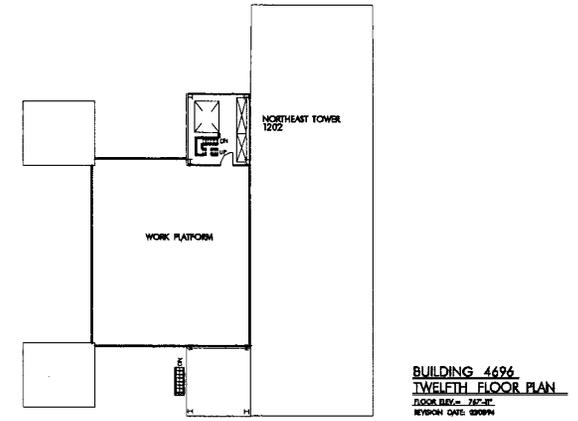
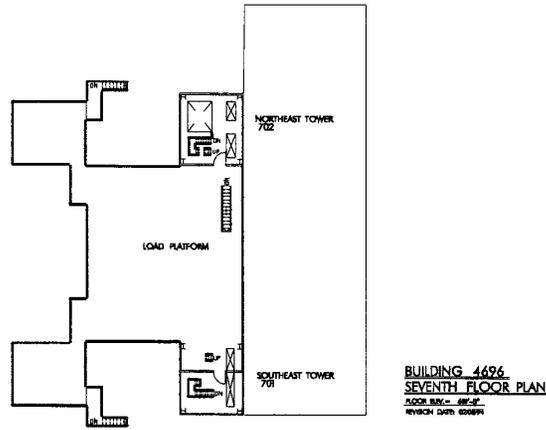
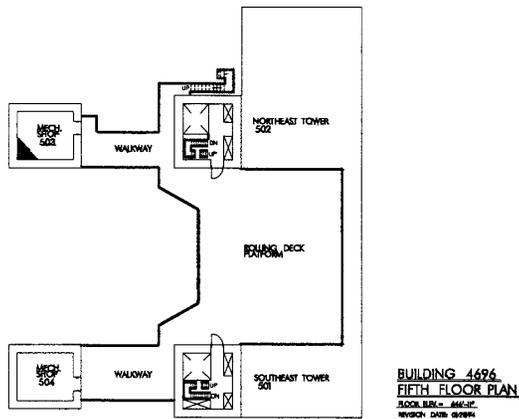
Northeast Tower

Facing South



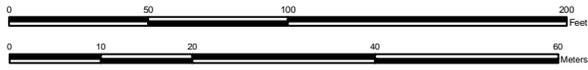
Photographs taken in April 2009

FIGURE 2-4
Photographs of Test Stand 4696
at Marshall Space Flight Center



0 12 24 Feet
0 7.3 Meters

FIGURE 2-5
Plan Views of the Main Levels of Test Stand 4696
at Marshall Space Flight Center



Drawn by: D. Scott Stevens

FIGURE 2-6
Test Stand 4696 Site
at Marshall Space Flight Center

Under the Proposed Action, TS 4696 would be demolished by a private demolition contractor. All of the steel frame structure of the facility, including that which is below the road level, would be removed under the Proposed Action. The concrete towers of the facility would be taken down to road level as would the rectangular structure on the eastern side of the facility, the first floor of which is above the road level. The portions of the towers below the road level and the basement of the rectangular structure would be emptied of their contents and left empty or filled with gravel up to the road level. The metal components of the facility, which include the steel frame structure, flame bucket, siding, plating, grating, and much of the equipment within the rectangular structure would be sold to a metal recycler. The concrete and other non-metallic components of the facility would be properly disposed of as appropriate.

Two groundwater dewatering sumps exist at the TS 4696 site. At present, only one sump has an operating pump – the one adjacent to the northwest tower of the facility. Under the Proposed Action, the sump pump that is operating at the site would be deactivated. The sump that contains this pump as well as the other sump at the site would be plugged with concrete or some other suitable sealant. Both ends of the underground cableway tunnel that extends from the terminal room in the basement of the facility to Building 4674 would be sealed with concrete or by some other suitable means.

2.2 Alternatives to the Proposed Action

Under NEPA and 32 CFR Part 989 – Environmental Impact Analysis Process, this EA is required to address the potential environmental impacts of the Proposed Action, No-Action Alternative, and “reasonable” alternatives to the Proposed Action. Reasonable alternatives are those that meet the underlying purpose and need for the Proposed Action, are feasible from a technical and economic standpoint, and meet reasonable screening criteria (selection standards) that are suitable to a particular action. Screening criteria may include requirements or constraints associated with operational, technical, environmental, budgetary, and time factors. Alternatives that are determined to not be reasonable can be eliminated from detailed analysis in this EA.

The Proposed Action to demolish TS 4696 is needed to allow NASA to operate its overall infrastructure more cost effectively within a constrained budget. Partial demolition of the facility would not meet the intent of NASA’s facility revitalization program, would not eliminate general maintenance costs, and would not be logistically practicable. Therefore, there are no reasonable action alternatives other than the Proposed Action.

2.2.1 No-Action Alternative

The No-Action Alternative is to maintain existing conditions, i.e., not to demolish TS 4696. Under the No-Action Alternative, TS 4696 would remain mothballed. In the event the Proposed Action is not carried out, future use of the facility may require separate NEPA documentation depending on the type of operations and/or facility modifications proposed. The No-Action Alternative is analyzed in Section 4 as a baseline against which the Proposed Action can be compared.

SECTION 3

Affected Environment

This section describes the existing environmental conditions potentially affected by the Proposed Action. In compliance with NEPA, CEQ guidelines, and 32 CFR Part 651, et seq., the description of the affected environment focuses on those resources and conditions potentially subject to impacts.

3.1 Air Quality

The Clean Air Act (CAA) requires the U.S. Environmental Protection Agency (USEPA) to set National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. USEPA has established NAAQS for the following six principal pollutants, which are called criteria pollutants: carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter, and sulfur dioxide. Areas that meet the air quality standard for the criteria pollutants are designated as being "in attainment." Areas that do not meet the air quality standard for one of the criteria pollutants may be subject to the formal rule-making process and designated as being "in nonattainment" for that standard. The Huntsville/Madison County area is currently classified as being "in attainment" for all criteria pollutants stipulated under the NAAQS and is classified as a Class II air quality area.

Because MSFC is within an attainment area for all criteria pollutants, new or modified major stationary sources of air emissions at the Center are subject to Prevention of Significant Deterioration review to ensure that these sources are constructed without causing significant deterioration of regional air quality. A major new source is defined as one that has the potential to emit any pollutant regulated under the CAA in amounts equal to or exceeding specific major source thresholds. There are no major stationary sources of air emissions at the TS 4696 site.

MSFC operates under an Alabama Department of Environmental Management (ADEM) Title V Air Quality Operating Permit (Permit No. 709-0014). As part of the Title V Clear Air Act Permit regulations, MSFC conducts an annual air emission inventory.

3.2 Noise

Noise, in the context of this analysis, refers to sounds generated by activities that could affect employees of MSFC/RSA, residents outside MSFC/RSA, or wildlife. Human hearing is best approximated by using an A-weighted decibel scale (dBA). Psychologically, most humans perceive a doubling of sound as an increase of 10 dBA (USEPA, 1974).

Noise level is often expressed as day-night averaged sound level (Ldn), which is the dBA sound level over a 24-hour day and night period. The Ldn also applies a 10-dBA penalty to nighttime sounds occurring between 10 pm and 7 am to account for the desirability of a quieter night than day. The U.S. Department of Housing and Urban Development and the

U.S. Department of Defense define outdoor Ldn levels up to 65 dBA as acceptable for residences.

Based on data presented in the USEPA publication, *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances* (USEPA, 1971), outdoor construction noise levels range from 78 dBA to 89 dBA, approximately 50 ft (15.2 m) from a typical construction site. Noise levels at 50 ft (15.2 m) from a source decrease by approximately 3 dBA over a hard, unobstructed surface (such as asphalt), and by approximately 4.5 dBA over a soft surface (such as vegetation). Table 3-1 presents typical noise levels (dBA at 50 ft [15.2 m]) estimated by USEPA for the main phases of outdoor construction.

TABLE 3-1
Typical Noise Levels For Outdoor Construction
EA for Demolition of TS 4696 at MSFC

Construction Phase	Noise Level (dBA at 50 feet [15.2 meters] from source)
Ground Clearing	84
Excavation, Grading	89
Foundations	78
Structural	85
Finishing	89

dBA – decibel on the A-weighted scale
Source: USEPA, 1971

Rocket engine testing is the primary source of noise in the vicinity of TS 4696. Engine testing has been routinely performed in the Test Area since the establishment of MSFC in 1960. MSFC is located in the center of RSA, which provides an effective buffer zone between noise-producing activities at MSFC and the nearest noise-sensitive areas, which are the residential communities within the Cities of Huntsville, Madison, and Triana. Noise produced in the Test Area is also buffered by the Wheeler National Wildlife Refuge (WNWR), which borders the western and southern sides of the Test Area. The nearest residential area to TS 4696 is located approximately 2.8 miles (4.5 kilometers) west of the facility.

3.3 Geology and Hydrogeology

MSFC is underlain by the Tuscumbia Limestone of Mississippian Age (MSFC, 2007). The Tuscumbia consists primarily of thin to thick beds of coarsely crystalline, dark to light gray fossiliferous limestone, with some interbedded layers of gray chert. The average thickness of the Tuscumbia in Madison County is about 150 ft (45.7 m). The Tuscumbia Limestone is underlain by the Fort Payne Chert of Mississippian Age, which ranges from about 155 ft (47.2 m) to 185 ft (56.4 m) in thickness. The Fort Payne Chert is underlain by the Chattanooga Shale of Devonian Age, which is typically about 10 ft (3.1 m) thick but may be as much as 40 ft (12.2 m) thick in some areas.

The hydrogeology at MSFC is differentiated into three principal units: 1) residuum, 2) undifferentiated Tuscumbia Limestone and Fort Payne Chert (which comprise the

Tuscumbia-Fort Payne Aquifer), and 3) Chattanooga Shale. The Chattanooga Shale is relatively impermeable and serves as a lower confining bed for the Tuscumbia-Fort Payne Aquifer.

The residuum is the surficial geologic unit at MSFC. This unit consists of silty clay material with variable amounts of chert rubble and boulders that were formed by the weathering of the underlying Tuscumbia Limestone. The thickness of the residuum generally ranges from about 10 ft (3.1 m) to 80 ft (24.4 m). Because the residuum is more permeable than the Chattanooga Shale, it acts as a groundwater reservoir that stores large amounts of water and releases it slowly into the underlying bedrock aquifer (Geological Survey of Alabama, 1975). Groundwater recharge in the residuum is almost exclusively from precipitation.

The Tuscumbia Limestone and the Fort Payne Chert form the Tuscumbia-Fort Payne Aquifer (Bossing and Harris, 1987). The Tuscumbia-Fort Payne is the primary aquifer in the region for water supply. This unit is composed of about 300 ft (91.4 m) to 330 ft (100.6 m) of fossiliferous and dolomitic limestone with occasional interbedded chert. The Tuscumbia-Fort Payne is a karst aquifer, where groundwater occurs within solution-enlarged fractures, joints, and bedding planes in the formation. Water enters the aquifer from the land surface through sinkholes and disappearing and losing streams. Because of this connection with the land surface, water levels in the aquifer respond quickly to rainfall. Although the potential for recharge is high in areas of surface connection, the primary means of recharge for the aquifer is fairly uniform areal recharge from the groundwater reservoir of the overlying residuum (Geological Survey of Alabama, 1975).

The water table in the residuum generally emulates topography and is influenced by surface waters such as streams and springs. The horizontal component of the hydraulic gradient at MSFC slopes southward toward the Wheeler Reservoir and ultimately to the Tennessee River. The primary pathway for horizontal groundwater flow in the residuum is the chert rubble zone near the residuum and bedrock interface. The hydraulic conductivity of the rubble zone is generally higher than that of the more clayey portions of the upper residuum. In the vicinity of local surface waters, the residuum groundwater flows horizontally towards, and discharges to, the surface waters. With the absence of surface water influences, the horizontal component of the hydraulic gradient becomes negligible, leaving groundwater flow with a primary vertical component. As a result, the residuum groundwater primarily discharges downward into the bedrock aquifer.

In southwest Madison County, the general direction of groundwater flow within the Tuscumbia-Fort Payne Aquifer is southward toward the Tennessee River. The movement of groundwater within this aquifer is more comparable to pipe or conduit flow than to flow through a porous medium because of solution features within the formation. Flow generally is controlled by gravity and the complex interconnection of solution-enlarged fractures and bedding planes. Groundwater flow can be turbulent, with velocities in the aquifer varying from less than a few feet to several hundred feet per day, depending on the development of solution features. Groundwater from the Tuscumbia-Fort Payne Aquifer beneath MSFC discharges to several surface water features in the vicinity of RSA and MSFC, including Indian Creek, McDonald Creek, and the spring near the abandoned Industrial Waste Treatment Facility. These surface water features ultimately discharge to Wheeler Lake and to the Tennessee River. Throughout MSFC, the residuum and bedrock groundwater flow direction is primarily to the south, southeast, and southwest (MSFC, 2007). Groundwater

flow direction remains fairly consistent between the wet and dry seasons; however, steeper gradients and greater groundwater velocities occur during the wet season.

Two groundwater dewatering sumps exist at the TS 4696 site. These sumps are located outside the facility and extend from the ground surface to approximately 2 ft (0.6 m) below the bedrock surface. The exact depths of the sumps are not known. Based on facility design drawings, these sumps were installed at the site when the facility was constructed and both sumps are expected to have had operating pumps in the past. At present, only one sump has an operating pump – the one adjacent to the northwest tower of the facility.

Groundwater has been pumped from the TS 4696 site and discharged into Pond MSFC-004 since the early 1960's. The groundwater underlying the TS 4696 site is contaminated with chlorinated volatile organic compounds (CVOCs). Pumped groundwater was treated with an air stripper from about 1997 to 2003, when the air stripper was turned off and mothballed per the request of USEPA. The sump pump that is currently operating at the TS 4696 site discharges groundwater into Pond MSFC-004 through a PVC pipe that extends over the concrete flume of the facility, which extends from under the flame bucket into the pond. The discharge volume from this pump is not known and is expected to be seasonally variable. The PVC pipe had intermittent flow during the field investigation conducted for the EA on April 22, 2009.

3.4 Surface Water

The TS 4696 site as well as most of MSFC is located within the Indian Creek drainage basin, which drains into the Tennessee River (MSFC, 2007). Indian Creek originates in the northwestern portion of Madison County and flows southward adjacent to the western boundary of MSFC. Indian Creek merges with Huntsville Spring Branch and then flows southward into the Tennessee River, approximately 3 miles (4.8 kilometers) southwest of MSFC. There are no rivers in the vicinity of MSFC that are protected under the Wild and Scenic Rivers Act (MSFC, 2007).

The only surface water body within the immediate vicinity of the TS 4696 site is Pond MSFC-004, which is a man-made pond constructed in 1963 to receive deluge water, cooling water, and other discharges from TS 4696 as well as from TS 4670 (See Figure 2-6). Pond MSFC-004 is approximately 11.1 acres (4.5 hectares) and has an average depth of approximately 3 ft (0.9 m). It abuts a sloped concrete flume that extends from the western side of TS 4696 starting from under the flame bucket of the facility (see Figure 2-6). The pond is lined and the liner comes up to the concrete flume of the facility. Dewatering sump pumps at the TS 4696 and TS 4670 sites currently discharge groundwater into Pond MSFC-004 (see Section 3.3). Overflow water exits the pond through a National Pollution Discharge Elimination System (NPDES)-permitted outfall (No. DSN-019) located in the southwestern corner of the pond, and into a wetland within the WNWR.

Pond MSFC-004 receives stormwater from the western portion of the WTA via drainage ditches/swales. Stormwater from the TS 4696 site and surrounding areas also drains into the pond via sheet flow. On the southern side of the TS 4696 site, a grassy drainage ditch that parallels the southern side of Saturn Road conveys stormwater southwestward and then across the road via a culvert into Pond MSFC-004 (see Figure 2-6). This ditch receives stormwater from areas to the west and south of the site as well as from the site, including

that which collects in a utility trench on the southern side of the facility. Near the site, this ditch has a channel width of approximately 4 ft (1.2 m), steep embankments, and it did not contain any water during the field investigation conducted for the EA on April 22, 2009. On the northern side of the TS 4696 site, a grassy drainage swale conveys stormwater westward across a grassy field and into a forested wetland (see Figure 2-6). This swale receives stormwater from the site, including that which collects in a utility trench on the northern side of the facility. This swale has a channel width of approximately 2 ft (0.6 m), shallow embankments, and it did not contain any water during the field investigation.

3.5 Wetlands

No wetlands exist within the TS 4696 site. The nearest wetlands to the site are Pond MSFC-004 which borders the southwestern side of the site and a forested/scrub-shrub wetland located approximately 500 ft (152.4 m) west of the site. Pond MSFC-004 is described in Section 3.4. Although a man-made pond, Pond MSFC has been identified to date as a federally jurisdictional wetland based on jurisdictional wetland boundary determinations conducted at MSFC in 1994 and 2006 and subsequently verified by the U.S. Army Corps of Engineers (USACE). Much of Pond MSFC-004 is covered with emergent vegetation. Plant species sighted within the pond in the vicinity of the TS 4696 site during the field investigation conducted for the EA on April 22, 2009 included Carolina willow (*Salix caroliniana*), cattail (*Typha latifolia*), and *Panicum* sp.

Much of the forested/scrub-shrub wetland west of the TS 4696 site is part of the WNWR, which extends into the southwestern part of MSFC. This wetland system, referred to as Wetland D at MSFC, is the largest contiguous area of wetlands at MSFC. It is approximately 86.4 acres (34.9 hectares) and includes palustrine emergent and open water components in addition to forested and scrub-shrub habitats. The wetland receives overflow water from Pond MSFC-004 through a NPDES-permitted outfall (No. DSN-019) located in the southwestern corner of the pond.

3.6 Wildlife

The TS 4696 site is paved and devoid of vegetation. The site is bordered by mowed grass and access roads on all sides except to the southwest where it is bordered by Pond MSFC-004, a man-made detention pond. The TS 4696 site provides minimal habitat for wildlife; however, high quality wildlife habitat exists approximately 200 ft (70 m) west of the site within the undeveloped forested portion of the WNWR. The WNWR extends into the southwestern part of MSFC and its boundary runs north/south directly over the TS 4696 site. The WNWR is approximately 34,000 acres and most of it provides high quality wildlife habitat, including important wintering habitat for migratory waterfowl (MSFC, 2007). Most of the undeveloped forested habitat within WNWR in the vicinity of the TS 4696 site is forested/scrub-shrub wetland (see Section 3.5). Lists of animal species that occur within the WNWR and at MSFC are provided in the 2007 MSFC Environmental Resource Document (MSFC, 2007).

Pine/deciduous forest exists north and east of the TS 4696 site. The pine/deciduous forest north of the site is contiguous with the WNWR forest and provides relatively high quality wildlife habitat. The pine/deciduous forest east of the site is of lower quality because it is

fragmented and surrounded by developed areas. Although a man-made detention pond, Pond MSFC-004 provides aquatic habitat for a variety of wading birds, waterfowl, small fish, amphibians, and reptiles (MSFC, 2007).

3.7 Cultural Resources

Federal agencies are required to protect and preserve cultural resources in cooperation with state and local governments under NEPA and the National Historic Preservation Act of 1966, as amended (16 U.S.C. 470, Public Law 95-515).

The area now designated as MSFC initially was purchased in 1941 by the Army as part of a 32,255-acre acquisition for the Chemical Warfare Service in response to the munitions requirements of World War II. Before the purchase, the land was largely farmed for cotton, corn, hay, and small grains, and also used as pasture.

A Center-wide archaeological survey of MSFC conducted in 2005 identified a total of 22 archaeological sites (Alexander and Alvey, 2006). Of the sites identified, seven sites are recommended ineligible for listing in the National Register of Historic Places (NHRP) and for no further archaeological investigation. The remaining 15 sites are recommended for avoidance or, if this option is not feasible, for additional archaeological testing to determine site NHRP significance. TS 4696 is not located within the vicinity of any of the archaeological sites that have been identified at MSFC.

TS 4696, currently referred to as the Hydrogen Engine Test Facility, was constructed in 1962 by Aetron (a division of Aerojet) as the F-1 Engine Static Test Stand. It was designed to conduct static firing testing of the F-1 engine, which operated at 1.5 million pounds thrust, burning Rocket Propellant 1 (RP-1) as fuel and using liquid oxygen (LOX) as the oxidizer. Five F-1 engines powered the Saturn V booster vehicle that launched the three-man Apollo capsule to land a man on the moon. The F-1 Engine Static Test Stand, capable of static firing the F-1 engine for 150-second durations, was used to conduct a total of 107 tests on the F-1 engine from July 1965 through February 1969. The facility was designed and operated in conjunction with TS 4670 (Advanced Engine Test Facility; originally the Saturn V Static Test Stand) and Building 4674 (West Test Area Control Facility; originally the Saturn V Static Test Facility Control Center).

TS 4696 is the second major NASA-era test stand designed and constructed at MSFC. Based on the 2003 Historical Assessment of MSFC, TS 4696 is classified as being eligible for NRHP listing under Criteria A (for association with key missions at MSFC) and C (for association with leading aerospace architectural-engineering firms of the early Cold War years) (NASA, 2003). TS 4696 sustains exceptional significance for properties less than 50 years old, has excellent integrity, and is at the national level of significance.

3.8 Socioeconomics

The Huntsville Metropolitan Area (HMA) includes all of Madison and Limestone Counties. The Cities of Huntsville and Madison, both located in Madison County, are the two largest municipalities in the HMA. In 2000, the population of the HMA was 342,376 (U.S. Census Bureau, 2000). The population of the HMA was estimated to have grown to 386,632 in 2007, an increase of 12.9 percent since 2000 (U.S. Census Bureau, 2009). In 2000, the average

household income in the HMA was \$55,343, per capita income was \$22,073, and the median age was 35.7 (U.S. Census Bureau, 2000). The total labor force of the HMA in 2006 was estimated to be 193,654 (U.S. Census Bureau, 2006).

During the past 50 years, the economy of the HMA has grown from agriculture and space-related industries to a diversified mix of manufacturing, testing, development, research, and support services. Cummings Research Park, located west of downtown Huntsville, is the second largest research park in the United States, encompassing 3,800 acres and employing 24,000 people. RSA is the largest employer in the HMA, followed by MSFC and the Huntsville Hospital System (Chamber of Commerce of Huntsville/Madison County, 2009).

As of April 2008, MSFC had 7,200 employees, of which 2,600 were civil service and 4,600 were contractors (NASA, 2009). MSFC had a 2008 Fiscal Year (FY) budget of \$2.5 billion and generated more than \$1.1 billion in economic impact for Alabama in FY 2007 (NASA, 2009).

3.9 Public and Occupational Health and Safety

MSFC is operated in compliance with all applicable federal laws, codes, and regulations and with all applicable laws, ordinances, codes, and regulations of the State of Alabama and Madison County with regard to construction, health, safety, food service, water supply, sanitation, and licenses and permits to do business.

All contractors at MSFC are responsible for following all applicable Occupational Safety and Health Administration (OSHA) regulations and for conducting their work in a manner that does not pose any risk to workers or Center personnel. Industrial hygiene responsibilities of contractors as applicable include reviewing potentially hazardous workplaces; monitoring exposure to workplace chemicals (e.g., asbestos, lead, hazardous material), physical (e.g., noise propagation), and biological (e.g., infectious waste) agents; recommending and evaluating controls (e.g., ventilation, respirators) to ensure personnel are properly protected or unexposed; and ensuring a medical surveillance program is in place to perform occupational health physicals for those workers subject to any accidental chemical exposures or engaged in hazardous waste work.

The Medical Center at MSFC is located in Building 4249. This facility offers out-patient services only and provides emergency, therapeutic, preventive, and special medical and health services to MSFC employees and certain contractor personnel. Occupational medicine and environmental health services are provided at the Center under contract. Ambulance service is available any time by calling 911. The Medical Center maintains a staff of 21, including five industrial hygienists.

MSFC has an established physical security program for site facilities and operations. The Protective Services Office at MSFC is located in Building 4200. Protective security measures at MSFC include the use of physical barriers, electro-mechanical intrusion detection systems, protective lighting, warning notification, identification and badge recognition, and automated access control capability. Contracted security officers patrol MSFC continuously and are in charge of locking and unlocking most MSFC buildings after hours. MSFC is an area of exclusive federal jurisdiction; therefore, state, county, and city police have no jurisdiction within MSFC.

Twenty-four-hour firefighting services, including hazardous materials response/mitigation and medical services, are provided to MSFC by four fire stations owned and operated by the Army, under an agreement that provides the Army with reimbursement. In the event of a fire at MSFC or RSA, all stations are alerted and respond. In addition to the firefighting services provided by the Army, MSFC has a mutual aid agreement with the City of Huntsville Fire Department for firefighting and hazardous materials assistance, as well as a working agreement with other local municipalities. All significant MSFC buildings, including TS 4696, are connected to a central fire alarm and reporting system. Each building has a fire alarm system that includes automatic smoke or heat detectors and manual pull stations.

3.10 Energy

RSA obtains electrical power from the Tennessee Valley Authority (TVA). The primary supply is obtained from the 161 kilovolt (kV), 3-phase transmission systems of the TVA. MSFC is billed by RSA for all electrical power consumed. MSFC also has approximately 1,800-kV total capacity through several emergency generators for critical or special electrical circuits. RSA's main steam plant is the City of Huntsville Plant, Ogden Martin Systems. MSFC is supplied with steam from RSA's steam supply. Steam is provided by boiler plants and modular boilers located within MSFC buildings. The boiler plants are located in the Test Area and are used exclusively for heat and processes associated with test operations. Steam for the WTA is provided by one boiler house (Building 4675). RSA receives its natural gas supply from the City of Huntsville. Natural gas is routed through MSFC in a 12-inch pipeline.

Since TS 4696 was mothballed in 1995, energy consumption at the site has primarily been electricity for the facility's lighting, fire alarm system, and operating sump pump.

3.11 Solid Waste

Refuse and nonhazardous waste generated at MSFC are collected by the MSFC Custodial and Refuse Collection Services contractor and disposed of under the provisions of RSA's Support Agreement. "Acceptable" solid waste is incinerated at a refuse fired steam plant located on the eastern boundary of RSA. "Unacceptable" nonhazardous waste (construction waste, rubble, vegetation, and asbestos) excluded from the incinerator is disposed of at RSA's Construction Debris Landfill located south of Building 5678. This landfill is classified as a Construction/Demolition Landfill and is permitted to receive 300 average tons (272.2 average metric tons) per day.

3.12 Traffic Flow

The road system within MSFC consists of primary, secondary, and tertiary roads. All primary roads are surfaced with asphaltic concrete. Many of the secondary roads have paving of bituminous plant mix or asphalt surface treatment. The tertiary roads generally are surfaced with gravel, and most of them are located in the Test Area. Maintenance of Martin, Marshall, Neal, Morris, Fowler, Rideout, and Dodd roads is provided by RSA as part of a support agreement with MSFC. RSA also is responsible for maintenance of the gates and bridges. MSFC is responsible for maintenance of all other roads and paved areas

within its boundaries. Currently, all traffic to and from MSFC and RSA is routed through six gates. The Main Gate is on Martin Road on the eastern side of RSA.

Access to the TS 4696 site is provided by Saturn Road and Lem Road (see Figures 2-3 and 2-5). Saturn Road provides access to the WTA from the north and runs adjacent to the southern side of the TS 4696 site. Lem Road intersects with Saturn Road near the eastern side of the facility. A small access road extends from the northern side of the TS 4696 site southwestward between Pond MSFC-004 and the adjacent forested area. Limited parking space is available on the southern and eastern sides of the facility.

3.13 Hazardous Materials and Waste

3.13.1 Storage and Handling

A variety of hazardous materials are used at MSFC. Hazardous substances have been declared hazardous through federal listing such as Extremely Hazardous Substances (EHSs), listed in 40 CFR 355, those listed as hazardous if released, under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) in 40 CFR 302.4, and by definition of hazardous chemicals by OSHA, in 29 CFR 1910.1200. In addition to these substances defined as hazardous, pesticides and sources of radiation are regulated.

Sections 311 and 312 of the Emergency Planning and Community Right-to-Know Act require any user to submit a report, known as a Tier II, annually for any substance that is present at MSFC in the following quantities:

- Greater than or equal to 10,000 pounds at any one time for a hazardous chemical; and
- Greater than or equal to 500 pounds or the Threshold Planning Quantity, whichever is less, at any time, for EHSs.

At present, hazardous materials are not stored or handled at TS 4696.

3.13.2 Waste Management

MSFC is classified according to federal and state regulations as a large quantity hazardous waste generator. MSFC generates more than 1,000 kilograms of hazardous waste each month. Federal regulations on hazardous waste are contained in 40 CFR Parts 260 to 279, and are a result of Subtitle C of the Resource Conservation and Recovery Act (RCRA), which requires a program to track hazardous waste from generation to storage to transportation to disposal.

NASA maintains a comprehensive inventory of all RCRA-defined hazardous wastes and controlled wastes not regulated by RCRA. The collection and management of hazardous waste data are the responsibility of the Environmental Support Contractor (ESC). MSFC has established hazardous and controlled waste accumulation site inspection guidelines that serve to monitor the accumulation activities of each generating activity throughout MSFC. Full drums of wastes are stored temporarily in the Hazardous Waste Storage Facility (HWSF). Within a 60- to 70-day time period, the ESC arranges for shipment of the containers to an appropriate Treatment, Storage, and Disposal Facility, so that MSFC is not subject to regulation under RCRA as a hazardous waste storage facility. All similar waste is combined within a consolidation area in the HWSF. Hazardous wastes are disposed offsite at several

hazardous waste disposal facilities approved by USEPA. Wastes are transported from MSFC by licensed hazardous waste transporters. Special wastes generated at MSFC include asbestos, industrial waste, petroleum-contaminated soil and water from spill cleanup, and medical waste.

At present, hazardous waste management is not conducted or needed at TS 4696.

3.13.3 Contaminated Areas

In 1994, MSFC was placed on the National Priorities List, which requires compliance with CERCLA. In response, MSFC conducted a surface media Remedial Investigation (RI) for the entire property in 1999 to assess the nature and extent of contamination, to evaluate public health risks, and to screen potential remedial actions. Contaminated areas were divided into operable units (OUs). OUs were then divided among media: surface soil, subsurface soil, surface water, sediment, and groundwater.

A substantial portion of MSFC is underlain by groundwater that is contaminated by chlorinated solvents because of the prevalent use of these compounds in the past. Most of the contamination is located in the rubble zone of the residuum layer. The primary contaminants in the rubble zone plumes are the CVOCs: tetrachloroethene, trichloroethene (TCE), dichloroethene, vinyl chloride, carbon tetrachloride, chloroform, and 1,1,2,2-tetrachloroethane. The following five major contamination plumes have been identified at MSFC (NASA, 2001a):

- Northwest Plume
- Northeast Plume
- Central Plume
- Southwest Plume
- Southeast Plume

TS 4696 is located within the boundaries of OU 1, which covers the Test Area of MSFC under NASA's CERCLA program. OU 1 is classified as a "Restricted Area Boundary" and requires a CERCLA Site Access Checklist for proposed activities. An associated dig permit is required for all activities involving earthwork within OU 1. MSFC is currently conducting an RI for OU 1, which involves surface and subsurface soil sampling for CERCLA constituents.

The TS 4696 site lies within the boundaries of the Southwest Plume. CVOC contamination of the groundwater in this area has resulted from past engine testing solvent washings (TCE) at TS 4696 and TS 4670 as well as from past operations in test facilities further to the south. Natural attenuation mechanisms such as dilution, dispersion, chemical degradation, and sorption have been shown to be occurring in the plume. Ongoing pilot studies involving *in-situ* chemical oxidation using hydrogen peroxide and *in-situ* chemical reduction using zero-valent iron are being conducted at the source areas in the center of the plume to treat the contamination.

Pond MSFC-004, which borders the southwestern side of TS 4696, is a CERCLA site. This pond has received deluge water from engine testing, cooling water, unburned RP-1, and past solvent washings (TCE) from TS 4696 and TS 4670 since the 1960s. Dewatering sump

pumps at the TS 4696 and TS 4670 sites currently discharge groundwater that is contaminated with CVOCs into the pond (see Section 3.3). Groundwater has been pumped from the TS 4696 and TS 4670 sites since the early 1960's and was treated with an air stripper from about 1997 to 2003, when the air stripper was turned off and mothballed per the request of USEPA.

In addition to Pond MSFC-004, two other CERCLA sites are located in the vicinity of TS 4696: 1) Containment Area for Old Storable Propellant Building 4688 and 2) Fuel Oil Loading Area for Tanks at Pump Station 4673. The Building 4688 and Pump Station 4673 CERCLA sites are located approximately 250 ft (76.2 m) and 800 ft (243.8 m), respectively, from TS 4696 at their nearest points. The boundaries of the Building 4688 CERCLA site, which is the closer of the two, begin on the southern side of Saturn Road directly south of TS 4696 and extend to the southwest adjacent to the road and then to the east to Building 4688.

3.13.4 Lead-Based Paint

Many of the older buildings at MSFC contain lead-based paint (LBP). MSFC implements a LBP abatement program through the MSFC Environmental Engineering and Occupational Health (EEOH) Office in accordance with all applicable federal, state, local, and NASA regulations and policies.

Some of the TS 4696 structure was initially painted with LBP (Farley Davis, personnel communication, April 22, 2009). During the field investigation conducted for the EA on April 22, 2009, LBP (peeling and not peeling) was visible on some of the metal components of the facility and LBP paint chips were visible on the facility floors, in the flame bucket, on the outside pavement, and in the utility trenches.

3.13.5 Asbestos

Asbestos is classified by MSFC as a special waste that does not meet the criteria to be considered and treated as hazardous waste. Special wastes require different processing, handling, or disposal techniques as determined by ADEM. State regulations require that notification be submitted to ADEM 10 weekdays prior to commencement of any demolition project with or without asbestos-containing material (ACM) (ADEM, 2009). ADEM has specific requirements pertaining to pre-demolition ACM survey, removal, and disposal for demolition projects.

ACMs are believed to exist on the engine level of TS 4696 between the floor plate and grating (Farley Davis, Personal Communication, April 22, 2009).

3.13.6 Polychlorinated biphenyls

A Center-wide polychlorinated biphenyl (PCB) survey was conducted at MSFC in 1999 (CH2M HILL 1999). All buildings operated by NASA were inspected for PCB-containing equipment during this survey. The 1999 PCB survey concluded that the use of PCB transformers and capacitors had been eliminated in all MSFC buildings, with the exception of Building 4619. A separate PCB survey conducted by the Army concluded that there are 55 transformers on RSA that have PCB concentrations ranging between 50 and 499 parts per million (ppm), and that 29 of the 55 are located outside of NASA buildings.

Fluorescent light ballasts throughout MSFC likely contain PCBs due to their age (MSFC, 2007). As these ballasts and lights are removed, the ballasts are properly managed.

Some of the TS 4696 structure was initially painted with paint containing PCBs (PCB paint) (Farley Davis, personnel communication, April 22, 2009). During the field investigation conducted for the EA on April 22, 2009, PCB paint (peeling and not peeling) was visible on the railing of the facility and PCB paint chips were visible on the facility floors, in the flame bucket, on the outside pavement, and in the utility trenches. Samples taken from facility railing and the flame bucket in July 2003 had PCB levels of 22 ppm and 36 ppm (John Troy, personnel communication, April 22, 2009). Due to its age, TS 4696 likely contains fluorescent light ballasts that contain PCBs. The facility also likely contains mercury light switches.

3.13.7 Ordnance

A considerable amount of ordnance was developed at RSA during World War II. As a result, RSA contains areas of ordnance and explosives contamination and potential contamination. The area that is now leased from RSA by MSFC has been surveyed for ordnance activity and disposal areas. Ordnance is defined collectively as Munitions and Explosives of Concern (MEC) and includes unexploded ordnance, ordnance that has exploded, and ordnance that does not have explosive potential. MEC is managed at RSA by RSA's Military Munitions Response Program (MMRP). The following five categories for MEC have been designated at RSA:

- Probability 1 - Frequent
- Probability 2 - Will occur several times during proposed site activities
- Probability 3 - Occasional
- Probability 4 - Seldom
- Probability 5 - Unlikely

The TS 4696 site is located within an area that is designated as Probability 5 - Unlikely for MEC. An area designated as Probability 3 - Occasional for MEC, is located approximately 550 ft (167.6 m) southeast of the TS 4696 site.

3.13.8 Storage Tanks

There are numerous Aboveground Storage Tanks (ASTs) and Underground Storage Tanks (USTs) used to store fuels and oils, as well as cryogenic storage tanks for the storage of rocket propellants, at MSFC. All USTs at MSFC have been removed or upgraded per ADEM Rule 335-6-15.07, Upgrading of Existing UST Systems.

TS 4696 was once equipped with RP-1, LOX, TCE, and ethylene glycol/sodium nitrate tanks. These tanks have been removed from the site and there are no ASTs or USTs currently at the site. Hydraulic oil potentially was once used and stored in TS 4696 (MSFC, 2007a).

3.13.9 Pollution Prevention

Pollution prevention (P2) at MSFC is implemented in accordance with MSFC's 2002 P2 Plan. The plan was developed in accordance with EO 13423 which requires federal agencies to further reduce their toxic chemical uses and releases and to phase out Class 1 ozone-depleting substances.

SECTION 4

Environmental Consequences

This section provides a detailed analysis of the potential environmental consequences associated with the implementation of the Proposed Action and the No-Action Alternative. The magnitude of the impact of an action is considered regardless of whether the impact is adverse or beneficial. The following terms are used to describe the magnitude of impacts:

- No Impact: The action would not cause a detectable change.
- Negligible: The impact would be at the lowest level of detection; the impact would not be significant.
- Minor: The impact would be slight but detectable; the impact would not be significant.
- Moderate: The impact would be readily apparent; the impact would not be significant.
- Major: The impact would be clearly adverse or positive; the impact has the potential to be significant. The significance of adverse and positive impacts is subject to interpretation and should be determined based on the final proposal. In cases of adverse impacts, the impact may be reduced to less than significant by mitigation, design features, and/or other measures that may be taken.

4.1 Air Quality

4.1.1 Proposed Action

Demolition activities under the Proposed Action would result in short-term, minor impacts to air quality. Fugitive dust (particulate matter) and construction vehicle exhaust emissions would be generated during demolition and would vary daily, depending on the level and type of work conducted. Fugitive dust would be generated by construction vehicle and equipment travel on dirt surfaces and by wind action on stockpiled materials. The primary risks from blowing dust particles relate to human health and human nuisance values. Fugitive dust from stockpiled materials would consist primarily of nontoxic particulate matter; however, fugitive dust can contribute to respiratory health problems and create an inhospitable working environment. Deposition on surfaces can be a nuisance to those living or working downwind. Fugitive dust would be controlled at the site using best management practices (BMPs) such as the periodic watering of stockpiled material. Management and abatement of LBP, asbestos, and PCB paint would be conducted in accordance with all applicable state and federal regulations. Workers would be responsible for following all applicable OSHA regulations and guidelines pertaining to prevention of airborne releases of associated dust and to worker protection from associated dust.

Pollutants that would be emitted from the internal combustion engine exhausts of construction vehicles and equipment include carbon monoxide, nitrogen oxide, particulate matter, and volatile organic compounds. These types of exhaust emissions would be

temporary, and at their expected generation levels, would not significantly impact air quality. Fugitive dust and exhaust emissions from demolition activities would not collectively represent a new major source of air emission that would require modification to the Title V Air Permit under which MSFC operates.

For these reasons, the Proposed Action would have an overall minor impact on air quality.

4.1.2 No-Action Alternative

Under the No-Action Alternative, TS 4696 would not be demolished. Therefore, the No-action Alternative would have no effect on air quality.

4.2 Noise

4.2.1 Proposed Action

Under the Proposed Action, demolition activities would temporarily increase ambient noise levels at and around the TS 4696 site. The increased noise levels would be intermittent and limited to normal working hours and the overall demolition period. Demolition workers would use hearing protection and would follow OSHA standards and procedures.

As discussed in Section 3.2, typical construction work generates noise levels in the range of 78 to 89 dBA approximately 50 ft (15.2 m) from the construction area (USEPA, 1971). The noise levels generated during typical construction activities are considered to be comparable to those generated during typical demolition activities. Noise levels at 50 feet (15.2 meters) from a source are estimated to decrease by approximately 3 dBA over a hard, unobstructed surface (such as asphalt), and by approximately 4.5 dBA over a soft surface (such as vegetation). Based on these estimates of noise dissipation, noise generated during demolition of TS 4696 would not be audible in the nearest residential area, which is located approximately 2.8 miles (4.5 kilometers) west of the facility. Potential noise impacts on wildlife are discussed in Section 4.6.

For these reasons, the Proposed Action would have an overall minor noise impact.

4.2.2 No-Action Alternative

Under the No-Action Alternative, TS 4696 would not be demolished. Therefore, the No-Action Alternative would have no noise-related effects.

4.3 Geology and Hydrogeology

4.3.1 Proposed Action

Under the Proposed Action, demolition of TS 4696 would not involve intrusion into the existing foundation of the facility. With the exception of the steel frame structure, TS 4696 would be taken down to the road level. Removal of the steel structure below the road level would terminate at the top of the existing facility foundation, which although below the road level, is above the existing land surface grade.

Demolition of TS 4696 would not involve withdrawals from, or discharges to, groundwater. Demolition activities would not require dewatering or involve intrusion into the surficial groundwater table. Under the Proposed Action, the groundwater dewatering sump pump that is operating at the site would be deactivated. The sump that contains this pump as well as the other sump at the site would be plugged with concrete or some other suitable sealant. Deactivating the sump pump that is operating at the site would eliminate the discharge of groundwater via PVC pipe into Pond MSFC-004. After TS 4696 is demolished, groundwater could potentially seep into the facility footprint, e.g., through cracks in the foundation. Depending on the amount that seeps in, groundwater could potentially accumulate in parts of the facility footprint and also could potentially gravity flow (as surface water) into Pond MSFC-004.

For these reasons, the Proposed Action would have an overall negligible impact on geology and hydrogeology.

4.3.2 No-Action Alternative

Under the No-Action Alternative, TS 4696 would not be demolished. Therefore, the No-Action Alternative would have no effect on geology or hydrogeology.

4.4 Surface Water

4.4.1 Proposed Action

Demolition of TS 4696 under the Proposed Action would occur entirely within the existing footprint of the facility and, therefore, would have no direct impacts on Pond MSFC-004, the drainage ditch on the southern side of Saturn Road, or the drainage swale on the northern side of the site. Precautions would be taken during demolition to prevent any disturbance to the liner of Pond MSFC-004. The Proposed Action would not involve direct withdrawals from, or discharges to, any surface water body. Because the TS 4696 site is entirely paved, demolition activities would have no direct impacts on soil or result in loss of vegetative cover. There would be no change in impervious area or any appreciable change in storm water runoff characteristics or volume. Sediment and erosion controls and other BMPs would be implemented during all project activities to minimize the potential for indirect stormwater runoff or other potential indirect impacts to water quality. If utilized, concrete pours would be conducted on days without precipitation to prevent concrete runoff into surface water bodies. Any concrete truck/equipment washing would be conducted in areas that have no potential to produce concrete runoff into surface water bodies.

As discussed in Section 4.3.1, the sump pump that is operating at the site would be deactivated. The sump that contains this pump as well as the other sump at the site would be plugged with concrete or some other suitable sealant. Deactivating the sump pump that is operating at the site would eliminate the discharge of groundwater via PVC pipe into Pond MSFC-004. After TS 4696 is demolished, groundwater could potentially seep into the facility footprint, e.g., through cracks in the foundation. Depending on the amount that seeps in, groundwater could potentially accumulate in parts of the facility footprint and also could potentially gravity flow into Pond MSFC-004.

For these reasons, the Proposed Action would have an overall negligible impact on surface water.

4.4.2 No-Action Alternative

Under the No-Action Alternative, TS 4696 would not be demolished. Therefore, the No-Action Alternative would have no effect on surface water.

4.5 Wetlands

4.5.1 Proposed Action

Demolition of TS 4696 under the Proposed Action would occur entirely within the existing footprint of the facility and, therefore, would have no direct impacts on wetlands, the nearest of which are Pond MSFC-004, which borders the southwestern side of the site, and a forested/scrub-shrub wetland located approximately 500 ft (152.4 m) west of the site. Although a man-made pond, Pond MSFC has been identified to date as a federally jurisdictional wetland based on jurisdictional wetland boundary determinations conducted at MSFC in 1994 and 2006 and subsequently verified by USACE. The elimination of groundwater discharge via PVC pipe into Pond MSFC-004 and the prevention of potential direct and indirect impacts to the pond are discussed in Section 4.4.

For these reasons, the Proposed Action would have an overall negligible impact on wetlands.

4.5.2 No-Action Alternative

Under the No-Action Alternative, TS 4696 would not be demolished. Therefore, the No-Action Alternative would have no effect on wetlands.

4.6 Wildlife

4.6.1 Proposed Action

As discussed in Section 3.6, the TS 4696 site provides minimal habitat for wildlife because it is paved, devoid of vegetation, and bordered by mowed grass and access roads on all sides except to the southwest where it is bordered by Pond MSFC-004. The undeveloped forested portion of the WNWR, which at its nearest point is approximately 200 ft (70 m) west of the site, provides high quality wildlife habitat. Pond MSFC-004 also provides aquatic habitat for a variety of wildlife species; however, the quality of habitat it provides is diminished by its contaminated state.

Demolition of TS 4696 under the Proposed Action would occur entirely within the existing footprint of the facility and, therefore, would not displace any wildlife habitat. Noise generated during demolition activities may temporarily disturb wildlife species that utilize Pond MSFC-004 and the portions of the WNWR that are near the site. Any disturbance experienced by wildlife species would be limited to the demolition period and is expected to be relatively minor. Wildlife species that utilize the areas around the site are adapted to operational noise levels generated in the Test Area, which can exceed those that would be

generated during demolition activities. The potential for incidental animal mortality occurring during demolition is considered to be very low.

Correspondence with the U.S. Fish and Wildlife Service will be discussed here when completed.

For these reasons, the Proposed Action would have an overall minor impact on wildlife.

4.6.2 No-Action Alternative

Under the No-Action Alternative, TS 4696 would not be demolished. Therefore, the No-Action Alternative would have no effect on wildlife.

4.7 Cultural Resources

4.7.1 Proposed Action

TS 4696 is not located within the vicinity of any of the archaeological sites that have been identified at MSFC. Demolition of TS 4696 under the Proposed Action would occur entirely within the existing footprint of the facility; therefore, the Proposed Action does not have the potential to impact any archaeological artifacts that may have not been discovered.

As discussed in Section 3.7, TS 4696 is eligible for NRHP listing under Criteria A (for association with key missions at MSFC) and C (for association with leading aerospace architectural-engineering firms of the early Cold War years). The Proposed Action was coordinated with the Alabama State Historic Preservation Office (SHPO) through letter correspondence (see Appendix A). SHPO did not comment specifically on the draft EA but did comment on the proposed demolition of TS 4696, which was communicated to SHPO by NASA via letter correspondence concurrently during preparation of the draft EA (see Appendix A). In a letter dated September 25, 2009, SHPO initially expressed opposition to the proposed demolition of TS 4696 (see Appendix A). Following receipt of SHPO's September 25, 2009 letter, NASA corresponded further with SHPO and initiated consultations with the Advisory Council on Historic Preservation (ACHP), which is the federal agency that has legal responsibility over other federal agencies regarding the preservation, enhancement, and productive use of historic resources (see Appendix A). These consultations culminated in a Memorandum of Agreement (MOA) between NASA, SHPO, and ACHP for the proposed demolition of TS 4696 (see Appendix A). Under this MOA, SHPO and ACHP conditionally approve the proposed demolition of TS 4696 provided that NASA meets the mitigation requirements and other stipulations outlined in the MOA. The mitigation requirements that NASA must fulfill are specified in the MOA as follows: "NASA shall perform a Historic American Building Survey/Historic American Engineering Record (HABS/HAER) Level I documentation of the Test Stand. NASA shall consult with the AL SHPO to determine the kind of drawings, historical text and photos to be included. Documentation will be placed in the Library of Congress and copies provided to the AL SHPO and ACHP". NASA will meet the mitigation requirements and all other stipulations outlined in the final signed MOA for the proposed demolition of TS 4696.

For these reasons, the Proposed Action would have an overall major impact on cultural resources. However, the impact on cultural resources would be reduced to below a

significant level by the mitigation that would be provided under the MOA between NASA, SHPO, and ACHP.

4.7.2 No-Action Alternative

Under the No-Action Alternative, TS 4696 would not be demolished. Therefore, the No-Action Alternative would have no effect on cultural resources.

4.8 Socioeconomics

4.8.1 Proposed Action

Demolition of TS 4696 under the Proposed Action would not require permanent personnel relocations or employee hires. Contractors would conduct the work and existing MSFC personnel would oversee the contractors. Therefore, the Proposed Action would not permanently change the number of persons working at MSFC or living in the local area.

Demolition work associated with the Proposed Action would have a minor, short-term, positive impact on the local economy. Direct expenditures for demolition-related materials would benefit local suppliers and secondary spending by workers would benefit businesses near MSFC such as gas stations and restaurants. Demolition work would have a negligible impact on the total labor force and employment in the region as a result of the small number of jobs that would be created. Any increase in employment would be temporary and relatively small.

The Proposed Action would allow NASA to eliminate the costs associated with maintaining TS 4696 in a mothballed state and, therefore, would contribute to NASA's ability to operate its overall infrastructure more cost effectively within a constrained budget.

For these reasons, the Proposed Action would have an overall moderate positive impact on socioeconomics.

4.8.2 No-Action Alternative

Under the No-Action Alternative, TS 4696 would not be demolished. NASA would continue to incur costs associated with maintaining TS 4696 in a mothballed state. Therefore, the No-Action Alternative would have a moderate negative impact on NASA's ability to operate its overall infrastructure more cost effectively within a constrained budget.

4.9 Public and Occupational Health and Safety

4.9.1 Proposed Action

Under the Proposed Action, there is the potential for worker accidents to occur during demolition of TS 4696 as a result of routine workplace exposure to heavy equipment and debris. As discussed in Section 3.13, TS 4696 contains LBP and PCBs, and likely ACMs. Therefore, there is the potential for workplace exposure to these materials during demolition work. To minimize the potential for accidents and exposure to LBP, ACMs, and PCBs, workers would wear and use appropriate protective equipment and would follow all

applicable OSHA standards and procedures. Job Safety Assessments would be prepared, and workers would review and sign these documents before working on the job site. Demolition and abatement contractors would be responsible for ensuring that all their employees (and subcontractors) comply with all applicable OSHA regulations and for conducting their work in a manner that does not pose any risk to themselves or to MSFC personnel. Provided that all appropriate worker protection measures are taken and all applicable OSHA regulations and guidelines are followed, the potential for safety and occupational health impacts under the Proposed Action would be low. Site safety measures that may be implemented at the site would be determined during project design.

There is the potential that some old underground fuel lines still exist at the TS 4696 site. These lines once conveyed fuel from the former fuel storage area (Pump Station 4673) to TS 4696. Prior to any demolition work, the MSFC Safety Office and the demolition contractor would confirm that there is no residual fuel or any other substance of concern within any utility lines that still exist at the TS 4696 site, and that the lines are suitable for demolition. If residual fuel or any other substance of concern is identified within the utility lines, appropriate measures will be taken by the MSFC Safety Office and the demolition contractor to clean the lines prior to any demolition work.

The TS 4696 site is paved and devoid of exposed soils. Demolition of TS 4696 under the Proposed Action would occur entirely within the existing footprint of the paved site and, therefore, would not directly impact soils. As such, any chemicals of concern that may be present within soils at or near the site would not pose a potential human health risk to workers during demolition activities.

Under the Proposed Action, both ends of the underground cableway tunnel that extends from the terminal room in the basement of TS 4696 to Building 4674 (West Test Area Control Facility) would be sealed with concrete or by some other suitable means. Sealing both ends of the tunnel would prevent intrusion of any contaminated groundwater (and associated vapors) that could potentially seep into the facility footprint after the facility is demolished (see Sections 4.3.1 and 4.4.1). Sealing the tunnel would also prevent human entry at both ends of the tunnel.

As discussed in Section 4.8.1, the Proposed Action would not permanently change the number of persons working at MSFC or living in the local area. Therefore, the demand for medical, police, and fire-fighting services at MSFC would remain at current levels under the Proposed Action. After TS 4696 is demolished, the current level of site security, which includes access control at the perimeter of the WTA and security patrols of the area, would continue to be provided for the site.

For these reasons, the Proposed Action would have an overall minor impact on public and occupational health and safety.

4.9.2 No-Action Alternative

Under the No-Action Alternative, TS 4696 would not be demolished. Therefore, the No-Action Alternative would have no effect on public and occupational health and safety.

4.10 Energy

4.10.1 Proposed Action

As discussed in Section 3.10, energy consumption at the TS 4696 site since 1995 has primarily been electricity for the facility's lighting, fire alarm system, and operating sump pump. Demolition of TS 4696 would decrease energy consumption at the site as the facility's lighting, fire alarm system, and operating sump pump would be eliminated. Electricity would continue to be supplied to the site to operate security lighting.

For these reasons, the Proposed Action would have a minor positive impact on energy.

4.10.2 No-Action Alternative

Under the No-Action Alternative, TS 4696 would not be demolished. Therefore, the No-Action Alternative would have no effect on energy.

4.11 Solid Waste

4.11.1 Proposed Action

Under the Proposed Action, the metal components of the facility, which include the steel frame structure, flame bucket, siding, plating, grating, and much of the equipment within the rectangular structure of the facility, would be sold to a metal recycler. Concrete rubble and other non-metallic, nonhazardous waste, which include ACMs, would be disposed of at RSA's Construction Debris Landfill located south of Building 5678. The potential for the materials to be sold (metal) and disposed (non metal) to be contaminated will be taken into account and handling of these materials will be conducted accordingly. MSFC will coordinate the potential contamination of these materials with the receiving entities (metal recycler and RSA's Construction Debris Landfill) to ensure they are acceptable. Any non-acceptable materials will be disposed of at licensed hazardous waste disposal facilities. Hazardous waste management is discussed in Section 4.13.

For these reasons, the Proposed Action would have an overall minor impact on solid waste.

4.11.2 No-Action Alternative

Under the No-Action Alternative, TS 4696 would not be demolished. Therefore, the No-Action Alternative would have no effect on solid waste.

4.12 Traffic Flow

4.12.1 Proposed Action

As discussed in Section 4.8.1, the Proposed Action would not permanently change the number of persons working at MSFC or living in the local area. Therefore, there would be no permanent change in traffic levels at MSFC or in the local area under the Proposed Action.

Under the Proposed Action, demolition work would temporarily increase traffic at MSFC and in the local area. The projected increase in traffic is expected to be minor and traffic

levels would return to current levels after the demolition work is completed. The Proposed Action would not involve modifications to the existing road system at MSFC.

For these reasons, the Proposed Action would have an overall minor impact on traffic flow.

4.12.2 No-Action Alternative

Under the No-Action Alternative, TS 4696 would not be demolished. Therefore, the No-Action Alternative would have no effect on traffic flow.

4.13 Hazardous Materials and Wastes

4.13.1 Proposed Action

As discussed in Section 13.3, TS 4696 is located within the boundaries of OU 1, which covers the Test Area of MSFC under NASA's CERCLA program. Pond MSFC-004, which borders the southwestern side of TS 4696, is a CERCLA site. In addition to Pond MSFC-004, two other CERCLA sites are located in the vicinity of TS 4696, the closer of the two being approximately 250 ft (76.2 m) from TS 4696 at its nearest point.

Because TS 4696 is located within the boundaries of OU 1, demolition of the facility would require a CERCLA Site Access Checklist. Demolition of TS 4696 under the Proposed Action would occur entirely within the existing footprint of the facility and, therefore, would have no direct impacts on Pond MSFC-004. Precautions would be taken to prevent any disturbance to the liner of the pond. Sediment and erosion controls and other BMPs would be implemented during all project activities to minimize the potential for indirect stormwater runoff or other potential indirect impacts to the pond. Based on their distances from TS 4696, the other two CERCLA sites would not be directly or indirectly affected by the Proposed Action.

Demolition of TS 4696 under the Proposed Action would not involve withdrawals from, or discharges to, groundwater. Demolition activities would not require dewatering or involve intrusion into the surficial groundwater table. Under the Proposed Action, the groundwater dewatering sump pump that is operating at the site would be deactivated. The sump that contains this pump as well as the other sump at the site would be plugged with concrete or some other suitable sealant. Deactivating the sump pump that is operating at the site would eliminate the discharge of groundwater via PVC pipe into Pond MSFC-004. After TS 4696 is demolished, groundwater could potentially seep into the facility footprint, e.g., through cracks in the foundation. Depending on the amount that seeps in, groundwater could potentially accumulate in parts of the facility footprint and also could potentially gravity flow into Pond MSFC-004. Although the amount of groundwater that may enter the pond in this manner cannot be determined, there would be no further intentional discharge of groundwater into the pond via the sump. Pond MSFC-004 is a CERCLA site and access to it and to the entire Test Area is strictly controlled.

Under the Proposed Action, both ends of the underground cableway tunnel that extends from the terminal room in the basement of TS 4696 to Building 4674 (West Test Area Control Facility) would be sealed with concrete or by some other suitable means. Sealing both ends of the tunnel would prevent intrusion of any contaminated groundwater (and associated

vapors) that could potentially seep into the facility footprint after the facility is demolished. Sealing the tunnel would also prevent human entry at both ends of the tunnel.

As discussed in Section 3.13, TS 4696 contains LBP and PCBs, and likely ACMs, mercury light switches, and hydraulic oil. Management of these materials would be conducted in coordination with the MSFC EEOH Office and in accordance with all local, state, and federal laws and regulations, as well as with all applicable MSFC management plans and pollution prevention measures. To minimize the potential for exposure to these materials, workers would wear and use appropriate protective equipment and would follow all applicable OSHA standards and procedures. Provided that all appropriate worker protection measures are taken and all applicable OSHA regulations and guidelines are followed, the potential for health impacts from exposure to these materials would be low.

Hazardous wastes generated during demolition and abatement would be disposed of at licensed hazardous waste disposal facilities. Hazardous wastes would be transported from MSFC by licensed hazardous waste transporters. After TS 4696 is demolished, no hazardous materials or wastes would be stored or handled and no hazardous wastes would be generated at the site.

As discussed in Section 3.13., the TS 4696 site is located within an area that is designated as Probability 5 – Unlikely for MEC. An area designated as Probability 3 – Occasional for MEC, is located approximately 550 ft (167.6 m) southeast of the TS 4696 site. Based on the location of TS 4696 and because the demolition of the facility would not involve any excavation or other type of subsurface intrusion, a MEC sweep is not expected to be necessary for the Proposed Action.

For these reasons, the Proposed Action would have an overall minor impact on hazardous materials and wastes.

4.13.2 No-Action Alternative

Under the No-Action Alternative, TS 4696 would not be demolished. Therefore, the No-Action Alternative would have no effect on hazardous materials and wastes.

4.14 Cumulative Impacts

4.14.1 Proposed Action

A “cumulative impact” is defined in 40 CFR 1508.7 as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions.” Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

The Proposed Action would occur entirely within the boundaries of MSFC and is expected to have little potential to interact with any private sector projects in the surrounding area. Based on planning schedules, one or more of the Center development projects identified in the 2003 MSFC 20-Year Facilities Master Plan may be implemented during the same time that the Proposed Action is implemented (NASA, 2003a). The majority of the foreseeable development projects at MSFC involves construction/demolition for facilities, utilities, and

other infrastructure in existing developed areas and, therefore, would have environmental impacts similar to those expected under the Proposed Action, such as temporary increases in noise, air emissions, and traffic. Most of the planned development projects would occur outside the Test Area; therefore, there is little potential for adverse cumulative impacts on noise or air emissions to occur if the Proposed Action coincides with one or more of the planned projects. There is the potential for heavy traffic to occur if two or more construction/demolition projects are implemented at the same time; however, the cumulative impact would be temporary and could be minimized by making most or all MSFC access gates and routes available during the work period. Because the sites where the planned projects and the Proposed Action would occur are already developed, adverse cumulative impacts to soils, vegetation, or habitat would not occur.

The combined effect of the Proposed Action and foreseeable development projects at MSFC, regardless of their timing, would have positive cumulative impacts on the local economy resulting from short-term, temporary increases in employment and expenditures. The combined effect of the Proposed Action and the disposal of other NASA facilities that have no programmatic requirements beyond 2012 would have positive cumulative impacts on NASA's finances and overall mission.

For these reasons, the Proposed Action would have overall minor positive cumulative impacts.

4.14.2 No-Action Alternative

Under the No-Action Alternative, TS 4696 would not be demolished. Therefore, the No-Action Alternative would have no cumulative impacts.

SECTION 5

Summary of Environmental Consequences and Conclusions

5.1 Summary of Environmental Consequences

The potential environmental consequences of the Proposed Action and No-Action Alternative are summarized in Table 5-1.

TABLE 5-1
Summary Of Environmental Consequences
EA for Demolition of TS 4696 at MSFC

Resource	Proposed Action	No Action Alternative
Air Quality	MINOR IMPACT	NO EFFECT
Noise	MINOR IMPACT	NO EFFECT
Geology and Hydrogeology	NEGLIGIBLE IMPACT	NO EFFECT
Surface Water	NEGLIGIBLE IMPACT	NO EFFECT
Wetlands	NEGLIGIBLE IMPACT	NO EFFECT
Wildlife	MINOR IMPACT	NO EFFECT
Cultural Resources	MAJOR IMPACT (Impact would be reduced to below a significant level by mitigation)	NO EFFECT
Socioeconomics	MODERATE POSITIVE IMPACT	MODERATE NEGATIVE IMPACT
Public and Occupational Health and Safety	MINOR IMPACT	NO EFFECT
Energy	MINOR POSITIVE IMPACT	NO EFFECT
Solid Waste	MINOR IMPACT	NO EFFECT
Traffic Flow	MINOR IMPACT	NO EFFECT
Hazardous Materials and Wastes	MINOR IMPACT	NO EFFECT
Cumulative Impacts	MINOR POSITIVE IMPACT	NO EFFECT

No Impact: The action would not cause a detectable change.

Negligible: The impact would be at the lowest level of detection; the impact would not be significant.

Minor: The impact would be slight but detectable; the impact would not be significant.

Moderate: The impact would be readily apparent; the impact would not be significant.

Major: The impact would be clearly adverse or positive; the impact has the potential to be significant. The significance of adverse and positive impacts is subject to interpretation and should be determined based on the final proposal. In cases of adverse impacts, the impact may be reduced to less than significant by mitigation, design features, and/or other measures that may be taken.

5.2 Conclusions

Based on the findings of this EA, demolition of TS 4696 under the Proposed Action would not have a significant impact on the quality of the human or natural environment. NASA will meet the mitigation requirements and all other stipulations outlined in the final signed MOA between NASA, SHPO, and ACHP for the Proposed Action. This EA supports a Finding of No Significant Impact for the Proposed Action. Accordingly, preparation of an Environmental Impact Statement is not required.

SECTION 6

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SECTION 7

List of Preparers

Name	Title	Primary Responsibility
Jason Glasgow/CH2M HILL	Environmental Engineer	Hazardous Materials/Wastes
Tunch Orsoy/CH2M HILL	Environmental Scientist	CH2M HILL Project Manager
Mike Reynolds/NASA	Environmental Engineer	NASA Project Manager

APPENDIX A

Regulatory Agency Correspondence

Environmental Assessment Demolition of Test Stand 4696 at George C. Marshall Space Flight Center

MSFC Responses to Comments on the Draft EA Received During Public/Agency Review

George C. Marshall Space Flight Center's (MSFC's) responses to comments on the draft Environmental Assessment (EA) for Demolition of Test Stand (TS) 4696 at MSFC, dated September 2009, received during the public/agency review period are provided below. The full versions of all received comments are included in Appendix A of the Final EA.

Alabama Department of Environmental Management

Comments received: October 22, 2009 from Mr. Stephen A. Cobb

The Alabama Department of Environmental Management (ADEM) submitted the following comment: "As noted in the EA, lead and PCB contaminated paint, as well as asbestos contaminated material (ACM), are present on Test Stand 4696. In the descriptions of affects related to solid waste (pages 2-8 and 4-7), the EA discusses selling the metal components of the Test Stand to a metal recycler and disposing of the non metallic components 'as appropriate'. The EA should address how the potential contamination of these materials by lead, PCBs and asbestos will be handled during the disposal process to prevent potential adverse effects to human health and the environment."

MSFC will manage (including abatement) lead, PCBs, and asbestos during demolition of the facility, and handle/dispose demolished materials, in accordance with all local, state, and federal laws and regulations, as well as with all applicable MSFC management plans and pollution prevention measures. The potential for the materials to be sold (metal) and disposed (non metal) to be contaminated will be taken into account and handling of these materials will be conducted accordingly. MSFC will coordinate the potential contamination of these materials with the receiving entities (metal recycler and RSA's Construction Debris Landfill) to ensure they are acceptable. Any non-acceptable materials will be disposed of at licensed hazardous waste disposal facilities. All workers handling potentially contaminated materials would wear and use appropriate protective equipment and would follow all applicable OSHA standards and procedures. The information above is included in the final EA.

ADEM submitted the following comment: "According to the Final Interim Record of Decision Interim Action Project for Operable Unit 3: Groundwater (September 2007), approximately 0.5 MGD is dewatered from the TS 4696 basement and prior sampling of the sump discharge showed a TCE concentration of 85 micrograms/L. The EA states that, once the Test Stand is demolished and the dewatering sumps are closed, groundwater could seep into the facility footprint. The result could be a contaminated spring, seep, or surface water area. The EA should address how this will be handled to prevent potential adverse effects to human health and the environment."

The sump pump that is currently operating at the TS 4696 site discharges groundwater into Pond MSFC-004 through a PVC pipe. The discharge volume from this pump is not known and

is expected to be seasonally variable. The PVC pipe had intermittent flow during the field investigation conducted for the EA on April 22, 2009. The operating sump as well as the other sump at the site would be plugged with concrete or some other suitable sealant. After the facility is demolished, groundwater may potentially seep into the facility footprint (e.g., through cracks in the foundation) and gravity flow into Pond MSFC-004. Although the amount of groundwater that may enter the pond in this manner cannot be determined, there would be no further intentional discharge of groundwater into the pond via the sump. Pond MSFC-004 is a CERCLA site and access to it and to the entire Test Area is strictly controlled. Furthermore, both ends of the underground cableway tunnel that extends from the terminal room in the basement of TS 4696 to Building 4674 (West Test Area Control Facility) would be sealed with concrete or by some other suitable means. Sealing both ends of the tunnel would prevent intrusion of any contaminated groundwater (and associated vapors) that could potentially seep into the facility footprint after the facility is demolished. Sealing the tunnel would also prevent human entry at both ends of the tunnel. The information above is included in the final EA.

ADEM submitted the following comment: "According to the Draft Operable Unit 1 Remedial Investigation Report (June 2008), chemicals of concern (COCs) were identified at sites near TS 4696 including the MSFC-B and MSFC-004 Areas. Section 4.9.1 of the EA should address whether any soil COCs will pose a potential human health risk to workers during the demolition of T54696 and, if so, how this risk will be handled to prevent potential adverse effects to human health."

The TS 4696 site is paved and devoid of exposed soils. Demolition of TS 4696 under the Proposed Action would occur entirely within the existing footprint of the paved site and, therefore, would not directly impact soils. As such, any chemicals of concern that may be present within soils at or near the site would not pose a potential human health risk to workers during demolition activities. The information above is included in Section 4.9.1 of the final EA.

Alabama State Historic Preservation Office

Comments received: September 25, 2009 from Mr. Frank White

The Alabama State Historic Preservation Office (SHPO) did not comment specifically on the draft EA but did comment on the proposed demolition of TS 4696, which was communicated to SHPO by NASA concurrently during preparation of the draft EA. SHPO submitted the following comment: "It appears to us that maintaining this significant resource is not only the best for historic preservation but it is also the most financially prudent option. Therefore, we cannot concur with the proposed demolition of the NR eligible Test Stand 4696".

Following receipt of SHPO's September 25, 2009 letter opposing the demolition of TS 4696, NASA corresponded further with SHPO and initiated consultations with the Advisory Council on Historic Preservation (ACHP), which is the federal agency that has legal responsibility over other federal agencies regarding the preservation, enhancement, and productive use of historic resources. These consultations culminated in a Memorandum of Agreement (MOA) between NASA, SHPO, and ACHP for the proposed demolition of TS 4696. Under this MOA, SHPO and ACHP conditionally approve the proposed demolition of TS 4696 provided that NASA meets the mitigation requirements and other stipulations outlined in the MOA. The mitigation requirements that NASA must fulfill are specified in the MOA as follows: "NASA shall perform a Historic American Building Survey/Historic American Engineering Record (HABS/HAER) Level I documentation of the Test Stand. NASA shall consult with the AL SHPO to determine the kind of drawings, historical text and photos to be included. Documentation will be placed in

the Library of Congress and copies provided to the AL SHPO and ACHP". NASA will meet the mitigation requirements and all other stipulations outlined in the final signed MOA for the proposed demolition of TS 4696. The information above is included in Section 4.7.1 of the final EA. A copy of the MOA is included in Appendix A of the final EA.

U.S. Environmental Protection Agency

Comments received: October 7, 2009 from Mr. Heinz J. Mueller

The U.S. Environmental Protection Agency (USEPA) submitted the following comment: "EPA does not believe the Draft EA adequately documents that the proposed demolition will only have a "moderate" impact on historical or cultural resources. TS 4696 is reportedly eligible for listing in the National Register of Historic Places (NRHP), and its demolition would deprive Alabama and the U.S. of one of the most historically significant engineering test structures ever built, as TS 4696 was used to test the main rocket engine that led to America's lunar landings. The Draft EA does not include any correspondence from the Alabama State Historic Preservation Officer (SHPO) expressing concurrence with the Proposed Action, and at least five (5) facilities at the MSFC have already been designated by the U.S. Department of the Interior's National Park Service as National Historic Landmarks, including the Redstone Test Stand, the Saturn V Dynamic Test Stand, and the Propulsion and Structural Test Facility. If onsite preservation of TS 4696 is not feasible, we alternatively suggest that consideration be given to saving representative portions of the structure at the U.S. Space and Rocket Center's new Davidson Center for Space Exploration facility in Madison, Alabama. While such preservation would be less meaningful than continued onsite preservation and maintenance, it would physically complement the currently proposed video documentation in the Library of Congress for future generations experiencing the popular U.S. Space and Rocket Center."

Following receipt of USEPA's October 7, 2009 letter opposing the demolition of TS 4696, NASA held discussions with SHPO and ACHP as discussed above in the response to SHPO's comment. As discussed above, these discussions culminated in a MOA between NASA, SHPO, and ACHP, under which SHPO and ACHP conditionally approve the proposed demolition of TS 4696 provided that NASA meets the mitigation requirements and other stipulations outlined in the MOA. NASA will meet the mitigation requirements and all other stipulations outlined in the final signed MOA for the proposed demolition of TS 4696. The magnitude of the impact that the Proposed Action would have on cultural resources has been changed from "moderate" (as stated in the draft EA) to "major" in the final EA. The final EA states that the impact on cultural resources would be reduced to below a significant level by the mitigation that would be provided under the MOA between NASA, SHPO, and ACHP. The information above is included in the final EA.

Redstone Arsenal Comments on Draft EA for Demolition of Test Stand 4696 at George C. Marshall Space Flight Center

**From: Etta Carolene Wu, Cultural Resources Manager and NEPA Coordinator,
Environmental Management Division, U.S. Army Garrison - Redstone Arsenal**

To: Mr. Michael Reynolds, Environmental Engineering and Occupational Health Office, Marshall Space Flight Center

Comments Received: October 30, 2009

No.	Date	Reviewer/Branch	Notes	MSFC Responses
1	10/2/2009	Matt Wade/ICP	I have reviewed this project and have found no significant environmental impacts in my area of expertise.	Acknowledged
2	10/5/2009	David Nixon/CNR	I have reviewed this project and have found no significant environmental impacts in my area of expertise.	Acknowledged
3	10/5/2009	Denean Summers/ICP	The RSA landfill has a soil remediation area that should be used in the event that POL contaminated soil is found. The C & D landfill also has a permitted asbestos area should it be necessary to dispose of asbestos containing material. POC Denean Summers 955-7110.	Acknowledged
4	10/5/2009	Diane West/ICP	I have reviewed this project and have found no significant environmental impacts in my area of expertise.	Acknowledged
5	10/6/2009	Gregory Hicks/CNR	I have reviewed this project and have found no significant environmental impacts in my area of expertise.	Acknowledged
6	10/6/2009	Carolene Wu/CNR	I have reviewed this project and have found no significant environmental impacts in my area of expertise.	Acknowledged
7	10/7/2009	Cristine Easterwood/CNR	Be sure to fill in the Review Date for this record in the database. I have no comment regarding impacts to wildlife, wetlands or other natural resources as a result of the demolition of TS-4696. Re-vegetate or otherwise stabilize all disturbed areas following the completion of demolition.	Acknowledged
8	10/7/2009	Gene Daniels/ICP	I have reviewed this project and have found no significant impacts on the environmental programs (Drinking Water and The Emergency Planning and Community Right-to-Know Act) that I manage.	Acknowledged
9	10/7/2009	John Souza/ICP	The indicates that "...ACMs are believed to exist on the engine level of TS 4696 between the floor plate and grating". I have no other records on this facility.	Acknowledged
10	10/7/2009	Mike Wassell/ICP	I have reviewed this project and have found no significant environmental impacts in my area of	Acknowledged

			expertise.	
11	10/8/2009	Ben Hoksbergen/CNR	Looks good to me.	Acknowledged
12	10/8/2009	Clayton Vaughan/CNR	<p>Section 3.2, Noise - Extensive information and data regarding construction noise (which will not occur during or from the proposed action) are provided but information and data for test noise (which may occur during but not from the proposed action) are not provided ("testing...since...1960" is not comparatively pertinent to dBa levels). Since neither of these relates to the Proposed Action, recommend these paragraphs be removed. If the intent was to provide a comparative basis for construction noise to demolition noise, the connection was never provided here or in Section 4.2 and is recommended to be included.</p> <p>Section 3.3, Geology and Hydrogeology - Extensive information is provided but the information is never tied into the depth to groundwater, sump pump activities or loss of dewatering water. Also, the next to the last paragraph states the sumps extend to "2 ft below bedrock." It is more likely they extend 2 ft into bedrock or 2 ft below the bedrock surface.</p> <p>Section 3.5, Wetlands, states the Pond is jurisdictional, "in part because of its hydrological connection to the...wetland west of the site. " If the Pond liner is intact, the only hydrological connection is from overflow and the impacts from the loss of overflow into the wetlands is not adequately discussed in any of the Affected Environment sections.</p> <p>Section 3.8, Socioeconomics - The quantitative data provided in this section indicate that quantitative data can be provided to indicate what "moderate impacts" are in Section 4.8. How NASA's more cost effective operation positively impacts the Socioeconomic environment as presented in Section 3.8, is not clearly presented because cost effective operations were never addressed in Section 3.8.</p> <p>Section 4.3.1 - How can groundwater gravity flow into a lined pond? The liner would block the groundwater from entering just as it blocks pond water from exiting to the subsurface. Additionally, if groundwater can flow in, then Pond water can flow out, meaning there could have been unreported discharge to the subsurface.</p> <p>Section 4.1.4, Cumulative Impacts - Impacts are identified as "minor" in the Table but not as minor in the text.</p> <p>Section 4.9 Public and Occupational Health and Safety - If the contractor does not confirm there is no residual fuel within utility lines, no information is provided as to what would then</p>	<p>Section 3.2, Noise - The noise levels generated during typical construction activities are considered to be comparable to those generated during typical demolition activities. This statement has been added to Section 4.2. General information on testing noise is included in Section 3.2 to describe the existing general noise environment in and around the project area.</p> <p>Section 3.3, Geology and Hydrogeology - The overall geological and hydrogeological conditions of MSFC are described in Section 3.3 for context and are considered representative of the conditions within the project site. The next to the last paragraph in the section has been revised as suggested.</p> <p>Section 3.5, Wetlands – The amount of groundwater that is intentionally discharged into the pond from TS 4696 is insignificant in terms of volume and its influence on the hydrology of the pond. The pond's hydrology is primarily influenced by rainfall.</p> <p>Section 3.8, Socioeconomics – The economic justification of NASA's decision to demolish TS 4696 is described in detail in Sections 1.2 and 1.3.</p> <p>Section 4.3.1 – The reference text intended to explain that groundwater that potentially seeps into the facility could potentially gravity flow as surface water into Pond MSFC-004. The text has been revised to provide greater clarity.</p> <p>Section 4.14, Cumulative Impacts – The section states that the Proposed Action would have overall minor positive cumulative impacts.</p> <p>Section 4.9, Public and Occupational Health and Safety - If residual fuel or any other substance of concern is identified within the utility lines, appropriate measures will be taken by the MSFC Safety Office and the demolition contractor to clean the lines prior to any demolition work. This statement has been added to the section.</p>

			be done to address that situation.	
13	10/8/2009	Dan Seever/ICP	There are no hazardous material/waste compliance issues associated with this action.	Acknowledged
14	10/8/2009	Terry Booker/ICP	I have reviewed this project and have found no significant environmental impacts in my area of expertise.	Acknowledged
15	10/14/2009	Shannon Allen/CNR	Need to include review date in database. Demolition of Test Stand 4696 at George C. Marshall Space Flight Center should have no significant impacts to wetlands, sensitive species, or other natural resources as long as standard construction BMP's are utilized and construction debris and runoff are kept out of the surrounding wetlands.	Acknowledged
16	10/14/2009	Ramzi Makkouk/ICP	Ensure all the proposed best management practices are in place to maximize the potential benefits of pollution prevention and sediment and erosion control measures at the TS 4696 demolition site.	Acknowledged
17	10/14/2009	Troy Pitts/IRP	This project will not affect the Installation Restoration (CERCLA or MMRP) programs.	Acknowledged
18	10/20/2009	Renee Gallimore/CNR	Figure 2-4: Regarding directions indicated on pictures - please double-check these, a couple of the directions (GIS/map) do not appear to match up with the directions indicated (in text). Wetlands sections: ...“Although a man-made pond, it is classified as a federally jurisdictional wetland, in part because of its hydrological connection to the forested/scrub-shrub wetland west of the site (MSFC, 2007)”.... I'm unfamiliar with what the entire reference (MSFC, 2007) states about this subject, but has this constructed pond/wetland been verified by the USACE to be jurisdictional (ie: is there an existing JD)? If so, stating the USACE “classifies it or considers it to be jurisdictional” or “it is classified as a jurisdictional wetland by the USACE” and citing the date of the JD would be appropriate and helpful. If it has not been verified by the USACE, saying “it is classified as” ... is not entirely accurate and stating it the way it is written would not be appropriate. (For the purpose of this project, it doesn't necessarily matter because it is not being impacted based on the project description. But for the sake of accuracy, it could matter. If there are future plans for this area (development, construction, mitigation, etc), having to re-define its designation at that time or explain why it was once considered jurisdictional and now it isn't, may become a slight headache and also look questionable). Also, it is not typical for the USACE to claim jurisdiction over a manmade pond with a liner, that is re-charged by run-off or 'other discharges' or having water pumped into it (but maybe this is an exception for some reason).Also, what's the other 'part' of why it is classified as a federally jurisdictional wetland? Is there documentation/permit from the USACE/EPA allowing the discharge of CVOCs into this pond? Is documentation	Figure 2-4: The directions depicted on the figure have been confirmed to be accurate. Wetlands sections: The referenced sentence has been revised to read as follows: “Although a man-made pond, Pond MSFC has been identified to date as a federally jurisdictional wetland based on jurisdictional wetland boundary determinations conducted at MSFC in 1994 and 2006 and subsequently verified by the U.S. Army Corps of Engineers (USACE)”. During September 2010, CH2M HILL re-evaluated and updated as necessary the 2006 jurisdictional determinations and classifications. The 2010 delineations are currently being reviewed by USACE. The classification of the pond may be revised by USACE. If the USACE final determinations are obtained in time, the updated information will be incorporated into the EA. Pond MSFC-004 is a CERCLA site and, therefore, is permitted to receive discharges. The referenced drainage swale and ditch at the site have been identified to date as “drainages” based on the jurisdictional wetland boundary determinations conducted at MSFC in 1994 and 2006 and subsequently verified by USACE. As with the pond, the classifications of these drainages may be revised by USACE. If the USACE final determinations are obtained in time, the updated information will be incorporated into the EA. Stormwater: The referenced sentences have been revised to read as follows: “The Proposed Action would not involve direct withdrawals from, or discharges to, any surface water body” and “Sediment and erosion controls and other BMPs would be implemented during all project activities to minimize the

			<p>necessary or required?</p> <p>Also, in reference to the drainage swale and ditch, have these been verified by the USACE to be nonjurisdictional, are they based on GIS info, or has a determination been made by a reputable/knowledgeable person familiar with USACE/ADEM reg's? If it is on GIS (or NWI), etc, it may or may not be accurate from a USACE jurisdictional standpoint. So if these features have not actually been verified by the USACE, stating where/how the information was obtained (ie: shown on GIS), would be sufficient - but making the call on what is or is not jurisdictional, without verification, can sometimes cause issues.</p> <p>Stormwater::The EA states: "The Proposed Action would not involve withdrawals from, or discharges to, any surface water body" and "Sediment and erosion controls and other BMPs would be implemented during demolition to minimize the potential for stormwater runoff or other potential indirect impacts to water quality". Saying that there won't be any 'discharge to any surface water body' can't be a true statement, especially since the other sentence says 'minimize the potential for stormwater runoff or other potential indirect impacts to water quality'. I would add that BMPs should be utilized during ALL project activities, not just demolition, and include in the verbiage "or direct impacts...". Also, ensure that all disturbed areas are established with appropriate permanent vegetation prior to project completion.</p> <p>If the use of concrete is proposed: Concrete pours shall be accomplished on days without precipitation, in order to avoid runoff of contaminants or pollutants. Also, concrete truck or equipment wash-out (if necessary) shall be confined within an area with no potential for runoff into water bodies or water conveyance features. (This should be obvious, but recently I observed a sub-contractor here on RSA washing out his truck directly into a drainage ditch by the road). Go figure... "Concrete and other non-metallic components will be disposed of as appropriate..." Not sure where all this will be disposed of, but Redstone C & D recycles concrete, soil and lots of other stuff (contact Denean Summers 955-7110 for this info, if needed).</p> <p>Any questions or confusion about these comments, please contact Renee Gallimore at 842-9713 or renee.gallimore@us.army.mil</p>	<p>potential for indirect stormwater runoff or other potential indirect impacts to water quality". Associated sentences in other sections of the EA have also been revised accordingly.</p> <p>The following statements have been added to Section 4.4.1 to address the comments on concrete runoff: "If utilized, concrete pours would be conducted on days without precipitation to prevent concrete runoff into surface water bodies. Any concrete truck/equipment washing would be conducted in areas that have no potential to produce concrete runoff into surface water bodies".</p>
19	10/20/2009	Allison Nail/CNR	I have reviewed this project and have found no significant environmental impacts in my area of expertise.	Acknowledged
20	10/22/2009	Kara Malone/CNR	Pg. ES-3, last para., 2nd sent., "southwestern side of TS 4696" insert "of"	Pg. ES-3: The EA has been revised accordingly.

			<p>What is done to a building when it is "mothballed"?</p> <p>Pg. 3-3, 2nd full para., last sentence, "uniform areal recharge" should that be area?</p> <p>Pg. 3-3, 3rd full para., 2nd sentence uses toward and 5th sentence uses towards. I believe either is correct, but be consistent on usage.</p> <p>Pg. 3-6, 3rd para., 3rd sentence, archaeological misspelled here, correct in the rest of the paragraph.</p> <p>Pg. 3-11, 3.15.5 Asbestos, 2nd sentence, "Special wastes require" not "requires"</p> <p>Section 4.8 - Socioeconomics: After stating that any increases in employment would be small and short term, the impact is stated as a moderate positive impact instead of a minor positive impact. This section also mentions the improvement of NASA's ability to operate on a constrained budget, but this statement does not explain how this would benefit socioeconomics.</p> <p>Section 4.13: Hazardous Materials and Wastes. If a CERCLA Checklist is required, it needs to be attached in the appendix and referenced in the text.</p> <p>Table 5.1: Socioeconomics should be changed to minor positive impact for proposed action and minor negative impact for no action alternative after it is changed in the socioeconomics section.</p> <p>When the SHPO coordination is complete, the correspondence letters and MOA should be attached and referenced.</p>	<p>Maintaining a building in a mothballed state includes general maintenance of the facility and grounds, and supply of electricity for the facility's lighting and fire alarm system. This is explained in Section 1.3.</p> <p>Pg. 3-3: "Areal" is used as an adjective form of "area" in the referenced sentence.</p> <p>Pg. 3-6: The EA has been revised accordingly.</p> <p>Pg. 3-11: The EA has been revised accordingly.</p> <p>Section 4-8: The Proposed Action is considered to have an overall moderate positive impact on socioeconomics based on its combined positive impact on the local economy and NASA's finances. The effect that the Proposed Action would have on NASA's finances is included under Socioeconomics as it relates to the broader national economy. The manner in which the Proposed Action would benefit NASA's finances is discussed in Sections 1.2 and 1.3.</p> <p>Section 4-13: The CERCLA Checklist and associated requirements will be fulfilled during project implementation. The EEOH Office will be responsible for overseeing that such requirements are met.</p> <p>Table 5-1: See above response to comment on Section 4-8.</p> <p>All SHPO correspondence is included in the final EA.</p>
21	10/31/2009	Kevin Guthrie/CNR	No comment.	Acknowledged



Alabama Department of Environmental Management
adem.alabama.gov

1400 Coliseum Blvd. 36110-2059 • Post Office Box 301463
Montgomery, Alabama 36130-1463
(334) 271-7700
FAX (334) 271-7950

October 22, 2009

CERTIFIED MAIL # 91 7108 2133 3935 2996 5862

Mr. Michael Reynolds
George C. Marshall Space Flight Center
Environmental Engineering and Occupational Health Office/AS10
Marshall Space Flight Center (MSFC), Alabama 35812

Re: **ADEM Comments:** Draft Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI) for the demolition of Test Stand 4696, dated September, 23 2009. EPA ID: AL1800013863

Dear Mr. Reynolds:

The Alabama Department of Environmental Management (ADEM or the Department) has reviewed the referenced EA and FONSI for the demolition of Test Stand (TS) 4696 and has generated the following comments:

- As noted in the EA, lead and PCB contaminated paint, as well as asbestos contaminated material (ACM), are present on Test Stand 4696. In the descriptions of affects related to solid waste (pages 2-8 and 4-7), the EA discusses selling the metal components of the Test Stand to a metal recycler and disposing of the non-metallic components 'as appropriate'. The EA should address how the potential contamination of these materials by lead, PCBs and asbestos will be handled during the disposal process to prevent potential adverse effects to human health and the environment.
- According to the Final Interim Record of Decision Interim Action Project for Operable Unit 3: Groundwater (September 2007), approximately 0.5 MGD is dewatered from the TS 4696 basement and prior sampling of the sump discharge showed a TCE concentration of 85 micrograms/L. The EA states that, once the Test Stand is demolished and the dewatering sumps are closed, groundwater could seep into the facility footprint. The result could be a contaminated spring, seep, or surface water area. The EA should address how this will be handled to prevent potential adverse effects to human health and the environment.



- According to the Draft Operable Unit 1 Remedial Investigation Report (June 2008), chemicals of concern (COCs) were identified at sites near TS 4696 including the MSFC-B and MSFC-004 Areas. Section 4.9.1 of the EA should address whether any soil COCs will pose a potential human health risk to workers during the demolition of TS4696 and, if so, how this risk will be handled to prevent potential adverse effects to human health.

If you have any questions regarding this correspondence, please contact Sarah Gill at (334) 271-7734 or via e-mail at sgill@adem.state.al.us.

Sincerely,



Stephen A. Cobb, Chief
Governmental Hazardous Waste Branch
Land Division

SAC/JW/SAG/mal

cc: Leigh Lattimore/EPA



STATE OF ALABAMA
ALABAMA HISTORICAL COMMISSION
468 SOUTH PERRY STREET
MONTGOMERY, ALABAMA 36130-0900

FRANK W. WHITE
EXECUTIVE DIRECTOR

September 25, 2009

TEL: 334-242-3184
FAX: 334-240-3477

Ralph H. Allen
Historic Preservation Officer
George C. Marshall Space Flight Center
Marshall Space Flight Center, Alabama 35812

Re: AHC 09-0985
Proposed Demolition of NR Eligible Test Stand 4696
Marshall Space Flight Center
Madison County, Alabama

Dear Mr. Allen:

Thank you for providing the information we requested. As we stated in our previous letter, the demolition of a National Register eligible property is a serious issue. This is especially true for our resources related to space exploration as many are removed to make way for new facilities to support new missions. This alone would be a compelling reason to avoid the demolition of Test Stand 4696. However, the figures provided by your office relative to annual maintenance costs of \$23,694 dollars versus the cost of demolition at \$3.5 million dollars strongly support maintaining the test stand. A cursory review of these costs indicate that the test stand could be maintained at the current annual maintenance cost for approximately 145 years. It appears to us that maintaining this significant resource is not only the best for historic preservation but it is also the most financially prudent option. Therefore, we cannot concur with the proposed demolition of the NR eligible Test Stand 4696.

We appreciate your efforts on this project. Should you have any questions, please contact Greg Rhinehart at (334) 230-2662. Please have the AHC tracking number referenced above available and include it with any correspondence.

Sincerely,

A handwritten signature in blue ink, appearing to read "Frank White".

Frank White
State Historic Preservation Officer

FW/EAB/GCR/gcr



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4
ATLANTA FEDERAL CENTER
81 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

October 7, 2009

Allen Elliot, Manager
Environmental Engineering & Environmental Health
National Aeronautics and Space Administration
George C. Marshall Space Flight Center, Alabama 35812

**SUBJ: EPA Comments on the Draft Environmental Assessment (EA)
Demolition of Test Stand 4696 at Marshall Space Flight Center, Alabama**

Dear Mr. Elliot:

Consistent with Section 102(2)(c) of the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act, the U.S. Environmental Protection Agency (EPA) has reviewed the Draft EA (dated September 2009) provided by the National Aeronautics and Space Administration (NASA) for the proposed demolition of Test Stand 4696 at the George C. Marshall Space Flight Center (MSFC), located in Huntsville, Alabama. TS 4696, currently referred to as the Hydrogen Engine Test Facility, was constructed in 1962 to conduct the "static firing testing" of the F-1 engine for the Saturn V booster vehicle that launched the three-man Apollo capsule to land a man on the moon. The purpose of the Proposed Action is reportedly to comply with NASA's decision to dispose of facilities "that have no programmatic requirements beyond 2012, in accordance with the Agency's facility revitalization program, which was initiated in 2008." TS 4696 has been "mothballed by NASA since 1995, and has been determined "to have no programmatic requirements beyond 2012." The demolition was approved by the NASA Headquarters Facilities Engineering Division on May 1, 2009. NASA reports the need to demolish TS 4696 is primarily to eliminate general maintenance costs.

Under the Proposed Action, TS 4696 will be demolished by a private demolition contractor. All of the steel frame structure of the facility, including that which is below the road level, is to be removed. The concrete towers of the facility would be taken down to road level, as would the rectangular structure on the eastern side of the facility. The portions of the towers below the road level and the basement of the rectangular structure will be emptied of their contents and left empty or filled with gravel up to the road level. The metal components of the facility, which include the steel frame structure, flame bucket, siding, plating, grating, and much of the equipment within the rectangular structure, will be sold to a metal recycler as scrap. The concrete and other non-metallic components of the facility would be properly disposed of as appropriate.

Demolition activities would reportedly have minor impacts on air quality, noise levels, wildlife, public and occupational health and safety, solid waste, traffic flow, and hazardous materials and wastes. Air emissions and increased noise and traffic levels would be limited to the demolition period and would return to current levels after the demolition work is completed. Fugitive dust is to be controlled and minimized by implementing appropriate Best Management Practices (BMPs), and potential impacts on wildlife will be limited to noise disturbance during the demolition period. The potential for incidental animal mortality occurring during demolition is considered to be very low. TS 4696 is located within the boundaries of Operational Unit (OU) 1, which covers the Test Area of MSFC under NASA's Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) program. Pond MSFC-004, which borders the southwestern side of TS 4696, is a CERCLA site. Because TS 4696 is located within the boundaries of OU 1, demolition of the facility will require that a CERCLA Site Access Checklist be completed.

Based on the findings of the Draft EA, NASA believes that demolition of TS 4696 "will not have a significant impact on the quality of the human or natural environment." NASA reports that the only mitigation measure that has been determined to be necessary for the Proposed Action "is the preparation of Historic American Engineering Record (HAER) Level I documentation" of the facility. The HAER Level I documentation will include drawings, photographs, videos, and a written history, which will all then be placed into the Library of Congress. NASA has reportedly already completed video documentation appropriate for historic structures for the facility. NASA believes that if HAER Level I documentation is developed, the impact that the Proposed Action will have on historical and cultural resources will be reduced to "below a significant level."

EPA does not believe the Draft EA adequately documents that the proposed demolition will only have a "moderate" impact on historical or cultural resources. TS 4696 is reportedly eligible for listing in the National Register of Historic Places (NRHP), and its demolition would deprive Alabama and the U.S. of one of the most historically significant engineering test structures ever built, as TS 4696 was used to test the main rocket engine that led to America's lunar landings. The Draft EA does not include any correspondence from the Alabama State Historic Preservation Officer (SHPO) expressing concurrence with the Proposed Action, and at least five (5) facilities at the MSFC have already been designated by the U. S. Department of the Interior's National Park Service as National Historic Landmarks, including the Redstone Test Stand, the Saturn V Dynamic Test Stand, and the Propulsion and Structural Test Facility.

If onsite preservation of TS 4696 is not feasible, we alternatively suggest that consideration be given to saving representative portions of the structure at the U.S. Space & Rocket Center's new Davidson Center for Space Exploration facility in Madison, Alabama. While such preservation would be less meaningful than continued onsite preservation and maintenance, it would physically complement the currently proposed video documentation in the Library of Congress for future generations experiencing the popular U.S. Space & Rocket Center.

We appreciate the opportunity to review the Draft EA. Should you have questions, feel free to coordinate with Paul Gagliano, P.E., of my staff at 404/562-9373 or at gagliano.paul@epa.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "H. Mueller", with a long horizontal flourish extending to the right.

Heinz J. Mueller, Chief
NEPA Program Office
Office of Policy and Management



Preserving America's Heritage

August 4, 2011

Mr. Melvin McKinstry
Historic Preservation Officer
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812

REF: Demolition of F-1 engine Test Stand Building

Dear Mr. McKinstry:

Enclosed is the executed Memorandum of Agreement for the referenced undertaking. By carrying out the terms of the Agreement, the National Aeronautics and Space Administration will have fulfilled its responsibilities under Sections 106 and 110 of the National Historic Preservation Act and the Council's regulations.

If you have any questions, or if we may be of further assistance at this time, do not hesitate to call Dr. Tom McCulloch at 202-606-8554 or via email at tmcculloch@achp.gov

Sincerely,

Caroline D. Hall
Assistant Director
Federal Property Management Section
Office of Federal Agency Programs

Enclosure

ADVISORY COUNCIL ON HISTORIC PRESERVATION

1100 Pennsylvania Avenue NW, Suite 803 • Washington, DC 20004
Phone: 202-606-8503 • Fax: 202-606-8647 • achp@achp.gov • www.achp.gov

MEMORANDUM OF AGREEMENT

**BETWEEN THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
(NASA) – MARSHALL SPACE FLIGHT CENTER (MSFC),
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION (ACHP),
AND THE
ALABAMA STATE HISTORIC PRESERVATION OFFICER (AL SHPO)**

**REGARDING THE DEMOLITION OF THE F-1 ENGINE TEST STAND (BUILDING
4696) AT MARSHALL SPACE FLIGHT CENTER (MSFC), MADISON COUNTY,
ALABAMA.**

WHEREAS, NASA plans to demolish the F-1 Engine Test Stand (Building 4696) at Marshall Space Flight Center in Madison County Alabama; and

WHEREAS, the National Aeronautics and Space Administration (NASA) plans to carry out the Project pursuant to its authority, thereby making the Project an undertaking subject to review under Section 106 of the National Historic Preservation Act (NHPA), 16 U.S.C. § 470f, and its implementing regulations, 36 C.F.R. Part 800; and

WHEREAS, NASA has defined the undertaking's area of potential effect (APE) as the F-1 Engine Test Stand (4696), with the potential to indirectly affect the surrounding area known as MSFC's West Test Area and to a lesser degree the MSFC; and

WHEREAS NASA has determined that the undertaking may have an adverse effect on the F-1 Engine Test Stand (4696) at MSFC, which is eligible for listing in the National Register of Historic Places, and has consulted with the Alabama SHPO pursuant to 36 C.F.R. part 800; and

WHEREAS, in accordance with 36 C.F.R. § 800.6(a)(1), NASA has notified the Advisory Council on Historic Preservation (ACHP) of its adverse effect determination providing the specified documentation, and the ACHP has chosen to participate in the consultation pursuant to 36 C.F.R. § 800.6(a)(1)(iii);

WHEREAS, in accordance with 36 C.F.R. § 800.6(a)(4), NASA's Marshall Space Flight Center has sought and taken into consideration public comment by public notification and response on the proposed action, and

NOW, THEREFORE, NASA and the Al SHPO agree that the undertaking shall be implemented in accordance with the following stipulations in order to take into account the effect of the undertaking on the F1 Engine Test Stand at Marshall Space Flight Center, Madison County, Alabama.

STIPULATIONS

NASA shall ensure that the following measures are carried out:

I. MITIGATION

NASA shall perform a Historic American Building Survey/Historic American Engineering Record

(HABS/HAER) Level I documentation of the Test Stand. NASA shall consult with the AL SHPO to determine the kind of drawings, historical text and photos to be included. Documentation will be placed in the Library of Congress and copies provided to the AL SHPO and ACHP.

II. DURATION

When in consultation with the AL SHPO and the ACHP, MSFC determines that all of the stipulations have been satisfactorily fulfilled, this MOA will expire. If it is determined that its stipulations have not been carried out within five (5) years from the date of its execution, then at such time, and prior to work continuing on the undertaking, NASA shall either (a) execute a MOA pursuant to 36 C.F.R. § 800.6, or (b) request, take into account, and respond to the comments of the ACHP under 36 C.F.R. § 800.7. Prior to such time, NASA may consult with the other signatories to reconsider the terms of the MOA and amend it in accordance with Stipulation V below. NASA shall notify the signatories as to the course of action it will pursue.

III. MONITORING AND REPORTING

Each year following the execution of this MOA until it expires or is terminated, NASA shall provide all parties to this MOA a summary report detailing work carried out pursuant to its terms. Such report shall include any scheduling changes proposed, any problems encountered, and any disputes and objections received in NASA's efforts to carry out the terms of this MOA.

IV. DISPUTE RESOLUTION

Should any signatory to this MOA object at any time to any actions proposed or the manner in which the terms of this MOA are implemented, NASA shall consult with such party to resolve the objection. If NASA determines that such objection cannot be resolved, NASA will:

A. Forward all documentation relevant to the dispute, including NASA's proposed resolution, to the ACHP. The ACHP shall provide NASA with its advice on the resolution of the objection within thirty (30) days of receiving adequate documentation. Prior to reaching a final decision on the dispute, NASA shall prepare a written response that takes into account any timely advice or comments regarding the dispute from the ACHP, signatories and concurring parties, and provide them with a copy of this written response. NASA will then proceed according to its final decision.

B. If the ACHP does not provide its advice regarding the dispute within the thirty (30) day time period; NASA may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, NASA shall prepare a written response that takes into account any timely comments regarding the dispute from the signatories and concurring parties to the MOA, and provide them and the ACHP with a copy of such written response.

C. NASA's responsibility to carry out all other actions subject to the terms of this MOA that are not the subject of the dispute remain unchanged.

V. AMENDMENTS

This MOA may be amended when such an amendment is agreed to in writing by all signatories. The amendment will be effective on the date a copy signed by all of the signatories is filed with the ACHP.

VI. TERMINATION

If any signatory to this MOA determines that its terms will not or cannot be carried out, that party shall immediately consult with the other parties to attempt to develop an amendment per Stipulation V, above. If within thirty (30) days (or another time period agreed to by all signatories) an amendment cannot be reached, any signatory may terminate the MOA upon written notification to the other signatories.

Once the MOA is terminated, and prior to work continuing on the undertaking, NASA must either (a) execute an MOA pursuant to 36 CFR § 800.6, or (b) request, take into account, and respond to the comments of the ACHP under 36 CFR § 800.7. NASA shall notify the signatories as to the course of action it will pursue.

VII. ANTIDIFFICIENCY

NASA's Marshall Space Flight Center's obligations under this agreement are subject to the availability of appropriated funds, and the stipulations of this agreement are subject to the provisions of the Anti-Deficiency Act. NASA's Marshall Space Flight Center shall make reasonable and good faith efforts to secure the necessary funds to implement its obligations under this agreement. If compliance with the Anti-Deficiency Act alters or impairs NASA's Marshall Space Flight Center's ability to implement its obligations under this agreement, NASA's Marshall Space Flight Center shall consult in accordance with the agreement and termination procedures found at stipulation VI.

EXECUTION of this MOA by NASA, the AL SHPO and the ACHP and implementation of its terms evidence that NASA has taken into account the effects of this undertaking on historic properties.

SIGNATORIES:

NASA

Ann McNair Date 07/11/11
Ann McNair, Director
NASA's Marshall Space Flight Center Office of Center Operations

Alabama Historic Preservation Officer

Elizabeth Brown Date 22 July 2011
Elizabeth Brown
Deputy Alabama State Historic Preservation Officer

Advisory Council on Historic Preservation

John M. Fowler Date 8/5/11
John Fowler, Executive Director
Advisory Council on Historic Preservation

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



August 12, 2009

Reply to Attn of: AS21

Ms Elizabeth Ann Brown
Deputy State Historic Preservation Officer
Alabama Historical Commission
468 South Perry St
Montgomery, AL 36130-0090

Elizabeth:

As a part of NASA's revitalization activity to improve infrastructure and reduce maintenance costs at all Centers, Test Stand 4696 at Marshall Space Flight Center (evaluated as eligible for listing on the National Register of Historic Places in 2003) has been identified as an unused structure that is not needed for future operations and placed on a "don't need" list. NASA's administrator has approved this evaluation and the decision to demolish the stand.

As mitigation for this action, we propose conducting a HAER Level I documentation of Test Stand 4696, which includes drawings, large format archival photographs and a history. This will document the stand to the highest level and be placed in the Library of Congress.

Please review the attached 106 package, which will help familiarize you with the stand, and outlines our Level I mitigation plans and give us your comments.

Respectfully,

A handwritten signature in black ink, appearing to read "Ralph H. Allen".

Ralph H. Allen
Historic Preservation Officer
Marshall Space Flight Center
Huntsville, AL 35801

National Aeronautics and
Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



October 14, 2009

Reply to Alt of AS21

Mr. Tom McCulloch
Advisory Council on Historic Preservation
1100 Pennsylvania Avenue NW, Suite 803
Old Post Office Building
Washington, DC 20004

Dear Mr. McCulloch:

As a part of NASA's revitalization activity, Test Stand 4696 at Marshall Space Flight Center (evaluated as eligible for listing on the NRHP in 2003) has been identified as an unused structure that is not needed for future operations and placed on a "don't need" list. NASA's administrator has approved this evaluation and the decision to demolish the stand.

As mitigation for this action, we propose conducting a HAER Level I documentation of Test Stand 4696, which includes drawings, large format archival photographs and a history. This will document the stand to the highest level and be placed in the Library of Congress.

We invite the ACHP to participate in the consultation per 36 CFR Part 800.10(c). Please review the attached package and within 15 days let me know if the ACHP would like to participate.

Respectfully,

A handwritten signature in black ink, appearing to read "R. Allen", written over a horizontal line.

Ralph H. Allen
Historic Preservation Officer

cc:
AS21/Roslin Hicks/Melvin Mckinstry
AS10/Donna Holland
AS21/Rhonda Pepper

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



March 16, 2011

Reply to Airtel of: AS21

Mr. Tom McCulloch
Advisory Council on Historic Preservation
1100 Pennsylvania Avenue NW, Suite 803
Old Post Office Building
Washington, DC 20004

Dear Mr. McCulloch:

NASA has identified a need to proceed with demolition of obsolete structures. The F-1 Test Stand (4696) at Marshall Space Flight Center (MSFC) is proposed to be demolished. NASA's Marshall Space Flight Center (MSFC) recognizes that the proposed demolition constitutes an undertaking under 36 CFR 800.3a. In accordance with NHPA, the test stand was evaluated in 2003 and found eligible for listing on the National Register of Historic Places in our *"Historical Assessment of Marshall Space Flight Center"*.

The Area of Potential Effect (APE) includes the immediate area surrounding the test stand with the potential to indirectly affect the surrounding area known as MSFC's West Test Area and to a lesser degree the MSFC. Please refer to the attached map.

We have determined that the demolition of the F-1 Test Stand (4696) at MSFC is an adverse effect and invite the Advisory Council on Historic Preservation (ACHP) to participate in accordance with 800.6.a.1 of the Historic preservation Act of 1966 in the resolution of the adverse effect and the preparation of a Memorandum of Agreement (MOA) to resolve the adverse effects. We have spoken with the Alabama SHPO's office and they would like the ACHP to participate as a signatory of the MOA. Please advise us as to whether the ACHP intends to participate in this consultation. We look forward to working with you on the development of the MOA.

Sincerely,

A handwritten signature in black ink, appearing to read "Melvin McKinstry". The signature is written in a cursive, flowing style.

Melvin McKinstry
Historic Preservation Officer

cc:

AS21/ Ralph Allen/Roslin Hicks

Elizabeth Brown

NASA HQ/Jennifer Groman



F-1 ENGINE TEST STAND



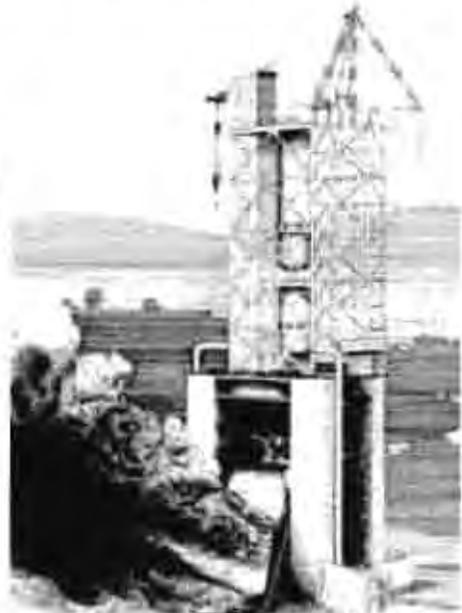
The F-1 Engine Test Stand is located primarily around the main property of the Marshall Space Flight Center, within the main aircraft building. Additionally, it also consists of a number of test stands located in the development of the F-1 (Static Pressure) Stand (SPS) at the test stands that are used to test the engine. The test stands are located at the main property of the Marshall Space Flight Center, within the main aircraft building. The test stands are located at the main property of the Marshall Space Flight Center, within the main aircraft building.

The test stands are an integral part of the Civilian-Industrial cooperation of the United States government in the construction of the test stands. The test stands are an integral part of the Civilian-Industrial cooperation of the United States government in the construction of the test stands. The test stands are an integral part of the Civilian-Industrial cooperation of the United States government in the construction of the test stands.

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SITES OF F-1 DEVELOPMENT

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012/24/47 2000
MARSHALL SPACE FLIGHT CENTER
ACT 1147 0000

MARSHALL SPACE FLIGHT CENTER, F-1 ENGINE STATIC TEST STAND		DATE	01/24/00
PROJECT NO. 1147 0000		SCALE	AS SHOWN
DRAWN BY: [Name]		CHECKED BY: [Name]	APPROVED BY: [Name]



West Test Area

A Marshall Space Flight Center

Site Legend

- 1. Main Building
- 2. Support Building
- 3. Tower
- 4. Crane
- 5. Parking
- 6. Road
- 7. Landscape
- 8. Other
- 9. Utility
- 10. Other
- 11. Other
- 12. Other
- 13. Other
- 14. Other
- 15. Other
- 16. Other
- 17. Other
- 18. Other
- 19. Other
- 20. Other



<p>MARSHALL SPACE FLIGHT CENTER 1000 N. W. 11th St., Huntsville, AL 35894 (205) 866-0000</p>	<p>LEADING SPACE TEST STAGE 1000 N. W. 11th St., Huntsville, AL 35894 (205) 866-0000</p>	<p>DATE: 10/20/01 DRAWN BY: [Name] CHECKED BY: [Name]</p>	<p>SCALE: 1" = 100'</p>	<p>PROJECT NO. [Number] SHEET NO. [Number]</p>
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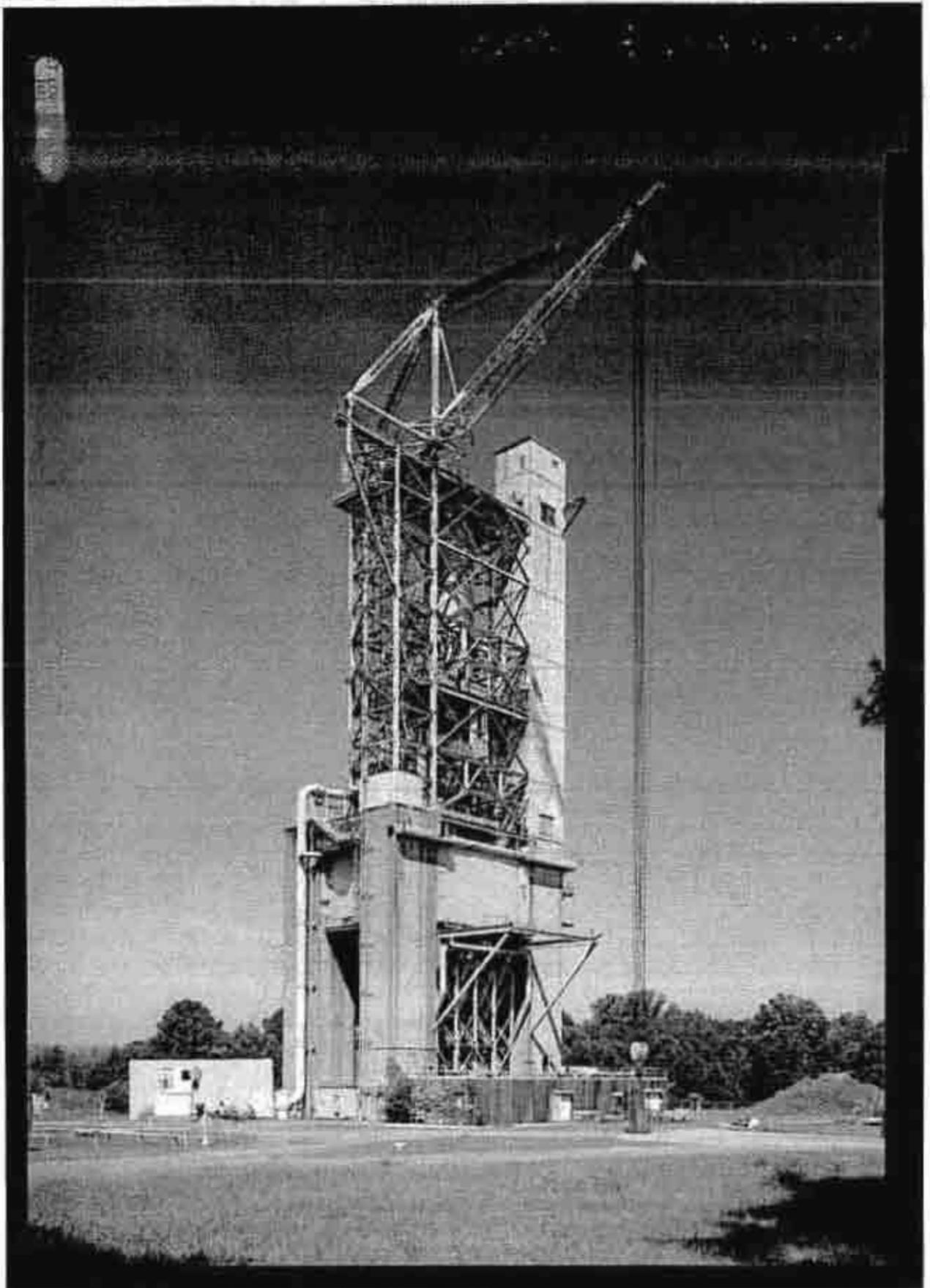


Photo of Test Stand 4696 at MSFC from HAER Documentation

1	Mr. Terry Hazle AMSAM-RA-DEM Building 4488 Redstone, Arsenal, AL 35898
2	Honorable Paul Finley Mayor of Madison 100 Hughes Road Madison, AL 35758
3	Representative (District 6) Phil Williams 2185 Old Monrovia Road Huntsville, AL 35806
4	Alabama State Clearinghouse Department of Economic and Community P.O. Box 2929 3645 Norman Bridge Road Montgomery, AL 36105-0939
5	Senator (District 9) Hinton Mitchem 412-A Gunter Avenue Guntersville, AL 35897
6	Representative (District 21) Randy Hinshaw 100 St. Clair Ave., STE A Huntsville, AL 35801
7	Honorable Mary Caudle Mayor of Trina 640 Sixth Street Triana, AL 35758
8	Congressman Parker Griffith 5 th Congressional District of Alabama 2101 Clinton Avenue, West STE 302 Huntsville, AL 35805
9	Elizabeth Ann Brown, Deputy SHPO Alabama Historical Commission 468 South Perry Street Montgomery, AL 36130-0900
10	Stanley Meiburg, Regional Administrator Environmental Protection Agency Region IV 61 Forsyth St., SW Atlanta, GA 30303
11	Honorable Mike Gillespie, Chairman Madison County Commission Madison County Courthouse Huntsville, AL 35801
12	Senator (District 8) Lowell Barron P.O. Box 65 Fyffe, AL 35971

13	NASA/MSFC Mail Code CS20 ATTN: Mr. Mike Wright MSFC, AL 35812
14	Refuge Manager USFWS Wheeler Wildlife Refuge Rt. 4 Box 35603 Decatur, AL 35603
15	NASA/MSFC Mail Code CS20 ATTN: Mr. Dom Amatore MSFC, AL 35812
16	Representative (District 25) Mac McCutcheon P.O. Box 370 Capshaw, AL 35742
17	Onis "Trey" Glenn III, Director Alabama Department of Environmental Management 1400 Coliseum Blvd. Montgomery, AL 36110-2059
18	Representative (District 20) Howard Sanderford 908 Tannahill Dr SE Huntsville, AL 35802
19	Honorable Tommy Battle Mayor of Huntsville P.O. Box 308 308 Fountain Circle Huntsville, AL 35801
20	Senator Jeff Sessions 7550 Halcyon Summit Dr., STE 150 Montgomery, AL 36117
21	Representative (District 19) Laura Hall P.O. Box 3367 Huntsville, AL 35810
22	Senator (District 2) Tom Butler 136 Harrington Drive Madison, AL 35758
23	Representative (District 10) Mike Ball P.O. Box 6302 Huntsville, AL 35824
24	Senator (District 3) Arthur Orr P.O. Box 305 Decatur, AL 35602
25	Senator (District 7) Paul Sanford 218 Westchester Avenue Huntsville, Alabama 35801

26	Senator Richard Shelby 1118 Greensboro Ave #240 Tuscaloosa, AL 35401
27	Representative (District 22) Butch Taylor 224 Taylor Ave New Hope, AL 35760

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



September 23, 2009

Reply to Attn of AS10 (124-09)

Representative (District 21) Randy Hinshaw
100 St. Clair Ave., STE A
Huntsville, AL 35801

Dear Representative Hinshaw:

The draft Environmental Assessment (EA) and draft Finding of No Significant Impact (FONSI) for the demolition of Test Stand (TS) 4696 at George C. Marshall Space Flight Center (MSFC) have been prepared and are being made available to the public and to federal, state, and local entities for a 30-day review and comment period. Please find enclosed a CD containing electronic copies of the documents.

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To receive hardcopies or additional electronic copies of the draft EA and draft FONSI, please contact AS10/Mr. Michael Reynolds, Environmental Engineering and Occupational Health Office, NASA Marshall Space Flight Center, AL 35812, phone: (256) 544-9606, e-mail: Michael.L.Reynolds@nasa.gov or CS30/Ms. Sharon Cobb, Manager, External Relations Office, NASA Marshall Space Flight Center, AL 35812, phone: (256) 544-7791, e-mail: Sharon.Cobb@nasa.gov. Comments on the draft EA and draft FONSI must be provided in writing by mail or e-mail to Mr. Michael Reynolds or to Ms. Sharon Cobb, and must be postmarked within 30 days from the date of this letter..

Sincerely,

A handwritten signature in black ink that reads "Allen Elliott".

Allen Elliott
Manager
Environmental Engineering and Occupational Health Office

Enclosure

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



September 23, 2009

Reply to Attn of: AS10 (124-09)

Honorable Mike Gillespie, Chairman
Madison County Commission
Madison County Courthouse
Huntsville, AL 35801

Dear Mike Gillespie:

The draft Environmental Assessment (EA) and draft Finding of No Significant Impact (FONSI) for the demolition of Test Stand (TS) 4696 at George C. Marshall Space Flight Center (MSFC) have been prepared and are being made available to the public and to federal, state, and local entities for a 30-day review and comment period. Please find enclosed a CD containing electronic copies of the documents.

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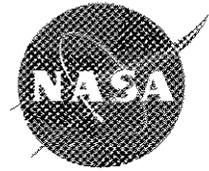
Sincerely,

A handwritten signature in cursive script that reads "Allen Elliott".

Allen Elliott
Manager
Environmental Engineering and Occupational Health Office

Enclosure

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



September 23, 2009

Reply to AS10 of AS10 (124-09)

Mr. Mike Wright
NASA/MSFC
Mail Code CS20
MSFC, AL 35812

Dear Mike Wright:

The draft Environmental Assessment (EA) and draft Finding of No Significant Impact (FONSI) for the demolition of Test Stand (TS) 4696 at George C. Marshall Space Flight Center (MSFC) have been prepared and are being made available to the public and to federal, state, and local entities for a 30-day review and comment period. Please find enclosed a CD containing electronic copies of the documents.

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Sincerely,

A handwritten signature in cursive script that reads "Allen Elliott".

Allen Elliott
Manager
Environmental Engineering and Occupational Health Office

Enclosure

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



September 23, 2009

Subject: AS10 (124-09)

Mr. Dom Amatore
NASA/MSFC
Mail Code CS20
MSFC, AL 35812

Dear Dom Amatore:

The draft Environmental Assessment (EA) and draft Finding of No Significant Impact (FONSI) for the demolition of Test Stand (TS) 4696 at George C. Marshall Space Flight Center (MSFC) have been prepared and are being made available to the public and to federal, state, and local entities for a 30-day review and comment period. Please find enclosed a CD containing electronic copies of the documents.

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Allen Elliott
Manager
Environmental Engineering and Occupational Health Office

Enclosure

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



September 23, 2009

Re: AS10 (124-09)

Congressman Parker Griffith
5th Congressional District of Alabama
2101 Clinton Avenue, West STE 302
Huntsville, AL 35805

Dear Congressman Griffith:

The draft Environmental Assessment (EA) and draft Finding of No Significant Impact (FONSI) for the demolition of Test Stand (TS) 4696 at George C. Marshall Space Flight Center (MSFC) have been prepared and are being made available to the public and to federal, state, and local entities for a 30-day review and comment period. Please find enclosed a CD containing electronic copies of the documents.

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Sincerely,

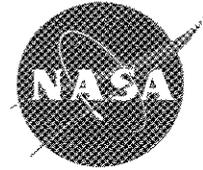
Handwritten signature of Allen Elliott in black ink.

Allen Elliott

Manager
Environmental Engineering and Occupational Health Office

Enclosure

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



September 23, 2009

Reply to / 11 / AS10 (124-09)

Senator (District 2) Tom Butler
136 Harrington Drive
Madison, AL 35758

Dear Senator Butler:

The draft Environmental Assessment (EA) and draft Finding of No Significant Impact (FONSI) for the demolition of Test Stand (TS) 4696 at George C. Marshall Space Flight Center (MSFC) have been prepared and are being made available to the public and to federal, state, and local entities for a 30-day review and comment period. Please find enclosed a CD containing electronic copies of the documents.

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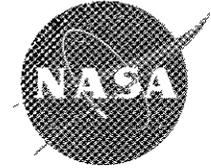
Sincerely,

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Allen Elliott
Manager
Environmental Engineering and Occupational Health Office

Enclosure

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



September 23, 2009

Reply to Attn of: AS10 (124-09)

Senator (District 3) Arthur Orr
P.O. Box 305
Decatur, AL 35602

Dear Senator Orr:

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Sincerely,

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Allen Elliott
Manager
Environmental Engineering and Occupational Health Office

Enclosure

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



September 23, 2009

Reply to AS10 (124-09)

Senator (District 8) Lowell Barron
P.O. Box 65
Fyffe, AL 35971

Dear Senator Barron:

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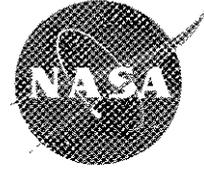
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Allen Elliott
Manager
Environmental Engineering and Occupational Health Office

Enclosure

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



September 23, 2009

Reply to Airmail AS10 (124-09)

Senator (District 9) Hinton Mitchem
412-A Gunter Avenue
Guntersville, AL 35897

Dear Senator Mitchem:

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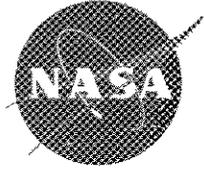
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Allen Elliott
Manager
Environmental Engineering and Occupational Health Office

Enclosure

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



September 23, 2009

Reply to Attn of: AS10 (124-09)

Representative (District 6) Phil Williams
2185 Old Monrovia Road
Huntsville, AL 35806

Dear Representative Williams:

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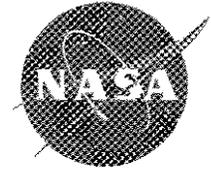
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Environmental Engineering and Occupational Health Office

Enclosure

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



September 23, 2009

Reply to Attn of AS10 (124-09)

Representative (District 10) Mike Ball
P.O. Box 6302
Huntsville, AL 35824

Dear Representative Ball:

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Allen Elliott
Manager
Environmental Engineering and Occupational Health Office

Enclosure

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



September 23, 2009

Reel 10-Attn: AS10 (124-09)

Representative (District 19) Laura Hall
P.O. Box 3367
Huntsville, AL 35810

Dear Representative Hall:

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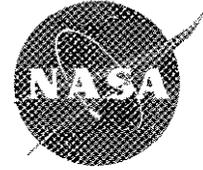
Sincerely,

A handwritten signature in cursive script that reads "Allen Elliott".

Allen Elliott
Manager
Environmental Engineering and Occupational Health Office

Enclosure

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



September 23, 2009

Reply to Attention: AS10 (124-09)

Representative (District 20) Howard Sanderford
908 Tannahill Dr SE
Huntsville, AL 35802

Dear Representative Sanderford:

The draft Environmental Assessment (EA) and draft Finding of No Significant Impact (FONSI) for the demolition of Test Stand (TS) 4696 at George C. Marshall Space Flight Center (MSFC) have been prepared and are being made available to the public and to federal, state, and local entities for a 30-day review and comment period. Please find enclosed a CD containing electronic copies of the documents.

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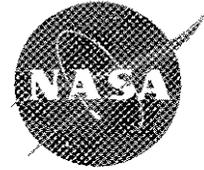
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Allen Elliott
Manager
Environmental Engineering and Occupational Health Office

Enclosure

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



September 23, 2009

Copy to Attention AS10 (124-09)

Representative (District 22) Butch Taylor
224 Taylor Ave
New Hope, AL 35760

Dear Representative Taylor:

The draft Environmental Assessment (EA) and draft Finding of No Significant Impact (FONSI) for the demolition of Test Stand (TS) 4696 at George C. Marshall Space Flight Center (MSFC) have been prepared and are being made available to the public and to federal, state, and local entities for a 30-day review and comment period. Please find enclosed a CD containing electronic copies of the documents.

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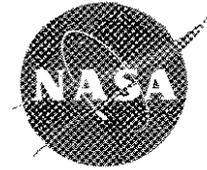
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Allen Elliott
Manager
Environmental Engineering and Occupational Health Office

Enclosure

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



September 23, 2009

Re: AS10 (124-09)

Representative (District 25) Mac McCutcheon
P.O. Box 370
Capshaw, AL 35742

Dear Representative McCutcheon:

The draft Environmental Assessment (EA) and draft Finding of No Significant Impact (FONSI) for the demolition of Test Stand (TS) 4696 at George C. Marshall Space Flight Center (MSFC) have been prepared and are being made available to the public and to federal, state, and local entities for a 30-day review and comment period. Please find enclosed a CD containing electronic copies of the documents.

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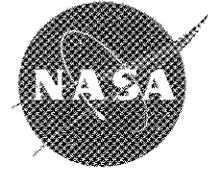
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Allen Elliott
Manager
Environmental Engineering and Occupational Health Office

Enclosure

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



September 23, 2009

Reply to Attn of AS10 (124-09)

Senator Jeff Sessions
7550 Halcyon Summit Dr., STE 150
Montgomery, AL 36117

Dear Senator Sessions:

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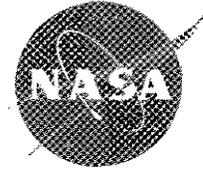
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Sincerely,


Allen Elliott
Manager
Environmental Engineering and Occupational Health Office

Enclosure

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



September 23, 2009

Rept. to Act. of AS10 (124-09)

Senator Richard Shelby
1118 Greensboro Ave #240
Tuscaloosa, AL 35401

Dear Senator Shelby:

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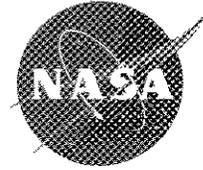
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Allen Elliott
Manager
Environmental Engineering and Occupational Health Office

Enclosure

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



September 23, 2009

Reply to Attn of: AS10 (124-09)

Onis "Trey" Glenn III, Director
Alabama Department of Environmental Management
1400 Coliseum Blvd.
Montgomery, AL 36110-2059

Dear Onis Glenn:

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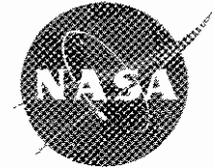
Sincerely,

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Allen Elliott
Manager
Environmental Engineering and Occupational Health Office

Enclosure

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



September 23, 2009

Subject: to Attn of AS10 (124-09)

Honorable Tommy Battle
Mayor of Huntsville
P.O. Box 308
308 Fountain Circle
Huntsville, AL 35801

Dear Mayor Battle:

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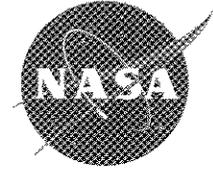
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Manager
Environmental Engineering and Occupational Health Office

Enclosure

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



September 23, 2009

Reply to Attn of: AS10 (124-09)

Alabama State Clearinghouse
Department of Economic and Community
P.O. Box 2929
3645 Norman Bridge Road
Montgomery, AL 36105-0939

Dear Clearinghouse:

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Sincerely,

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Allen Elliott
Manager
Environmental Engineering and Occupational Health Office

Enclosure

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



September 23, 2009

Ref: to Attn of AS10 (124-09)

Elizabeth Ann Brown, Deputy SHPO
Alabama Historical Commission
468 South Perry Street
Montgomery, AL 36130-0900

Dear Elizabeth Ann Brown:

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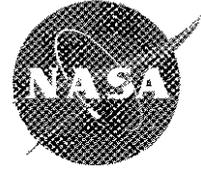
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Manager
Environmental Engineering and Occupational Health Office

Enclosure

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



September 23, 2009

Reply to Form of AS10 (124-09)

Mr. Terry Hazle
AMSAM-RA-DEM
Building 4488
Redstone Arsenal, AL 35898

Dear Terry Hazle:

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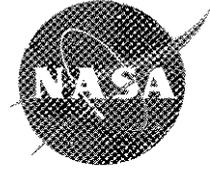
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Manager
Environmental Engineering and Occupational Health Office

Enclosure

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



September 23, 2009

Reply to Attn of AS10 (124-09)

Refuge Manager
USFWS Wheeler Wildlife Refuge
Rt. 4 Box 35603
Decatur, AL 35603

Dear Refuge Manager:

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Allen Elliott
Manager
Environmental Engineering and Occupational Health Office

Enclosure

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



September 23, 2009

Reply to Attn of: AS10 (124-09)

Honorable Mary Caudle
Mayor of Trina
640 Sixth Street
Triana, AL 35758

Dear Mayor Caudle:

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Allen Elliott
Manager
Environmental Engineering and Occupational Health Office

Enclosure

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



September 23, 2009

Reply to Airtel of AS10 (124-09)

Stanley Meiburg, Regional Administrator
Environmental Protection Agency
Region IV
61 Forsyth St., SW
Atlanta, GA 30303

Dear Stanley Meiburg:

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Allen Elliott
Manager
Environmental Engineering and Occupational Health Office

Enclosure

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



September 23, 2009

Policy to Action AS10 (124-09)

Honorable Paul Finley
Mayor of Madison
100 Hughes Road
Madison, AL 35758

Dear Mayor Finley:

The draft Environmental Assessment (EA) and draft Finding of No Significant Impact (FONSI) for the demolition of Test Stand (TS) 4696 at George C. Marshall Space Flight Center (MSFC) have been prepared and are being made available to the public and to federal, state, and local entities for a 30-day review and comment period. Please find enclosed a CD containing electronic copies of the documents.

Under the Proposed Action, TS 4696 at MSFC would be demolished. The purpose of the Proposed Action is to comply with NASA's decision to dispose of facilities that have no programmatic requirements beyond 2012, in accordance with the Agency's facility revitalization program initiated in 2008. TS 4696 has been mothballed since 1995 and has been determined to have no NASA programmatic requirements beyond 2012. The disposal of TS 4696 and other facilities that have met the criteria for disposal is needed to allow NASA to operate its overall infrastructure more cost effectively.

To receive hardcopies or additional electronic copies of the draft EA and draft FONSI, please contact AS10/Mr. Michael Reynolds, Environmental Engineering and Occupational Health Office, NASA Marshall Space Flight Center, AL 35812, phone: (256) 544-9606, e-mail: Michael.L.Reynolds@nasa.gov or CS30/Ms. Sharon Cobb, Manager, External Relations Office, NASA Marshall Space Flight Center, AL 35812, phone: (256) 544-7791, e-mail: Sharon.Cobb@nasa.gov. Comments on the draft EA and draft FONSI must be provided in writing by mail or e-mail to Mr. Michael Reynolds or to Ms. Sharon Cobb, and must be postmarked within 30 days from the date of this letter.

Sincerely,

A handwritten signature in cursive script that reads "Allen Elliott".

Allen Elliott
Manager
Environmental Engineering and Occupational Health Office

Enclosure

APPENDIX B

Public Involvement

Account Number

1025893

Order Number

0000247511

Date

August 29, 2011

Tunch Orsoy
4350 West Cypress Street
Suite 600
Tampa, FL 33607

Date	Position	Description	P.O. Number	Ad Size	Total Cost
08/28/2011	Legal	PUBLIC NOTICE FOR THE FINAL ENVIRON	MSFC AD	1 x 730 L	1,234.80

PUBLIC NOTICE FOR THE FINAL ENVIRONMENTAL ASSESSMENT AND FINAL FINDING OF NO SIGNIFICANT IMPACT

Demolition of Test Stand 4696 at George C. Marshall Space Flight Center NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
 GEORGE C. MARSHALL SPACE FLIGHT CENTER
 The U.S. National Aeronautics and Space Administration, George C. Marshall Space Flight Center (MSFC) announces publication of the Final Environmental Assessment (EA) and the following Final Finding of No Significant Impact (FONSI) for the Demolition of Test Stand 4696 at MSFC.

FINAL NATIONAL AERONAUTICS AND SPACE ADMINISTRATION National Environmental Policy Act; Demolition of Test Stand 4696 at George C. Marshall Space Flight Center AGENCY: National Aeronautics and Space Administration (NASA)

ACTION: Finding of No Significant Impact
SUMMARY: Pursuant to the National Environmental Policy Act of 1969 (NEPA), as amended (42 United States Code [U.S.C.] 4321 et seq.), the Council on Environmental Quality Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] Parts 1500 through 1508), and NASA's regulations (14 CFR Part 1216, Subpart 1216.3), and based on the analyses in the Environmental Assessment (EA), the National Aeronautics

and Space Administration (NASA) has made a Finding of No Significant Impact (FONSI) with respect to the Proposed Action. The action involves the demolition of Test Stand (TS) 4696 at NASA's George C. Marshall Space Flight Center (MSFC).

DATE: July 2011
ADDRESSES: A 30-

day public review was held from September 20, 2009 through October 19, 2009 to solicit public comments on the Draft EA. The Draft EA was also coordinated with federal, state, and local entities through letter correspondence. All comments received, and MSFC's responses to the received comments, which include how they have been addressed, are included in the Final EA.

To receive a copy of the Final EA, contact AS10/Mr. Dan Adams, Manager, Environmental Engineering and Occupational Health Office, NASA Marshall Space Flight Center, AL 35812, phone: (256) 544-1614, e-mail: Dan.Adams@nasa.gov.
FOR FURTHER INFORMATION, CONTACT:

General CS30/Ms. Sharon Cobb
 Manager, External Relations Office
 NASA Marshall Space Flight Center AL 35812
 phone: (256) 544-7791
 e-mail: Sharon.Cobb@nasa.gov
 Technical AS10/Mr. Michael Reynolds
 Environmental Engineering and Occupational Health Office
 NASA Marshall Space Flight Center AL 35812
 phone: (256) 544-9606
 e-mail: Michael.L.Reynolds@nasa.gov

SUPPLEMENTAL INFORMATION:
 The purpose of the Proposed Action is to

comply with NASA's decision to dispose of facilities that have no programmatic requirements beyond 2012, in accordance with the Agency's facility revitalization program, which was initiated in 2008. The disposal of TS 4696 and other facilities that have met the criteria for disposal is needed to allow NASA to operate its overall infrastructure more cost effectively within a constrained budget. TS 4696, currently referred to as the Hydrogen Engine Test Facility, was constructed in 1962 to conduct static firing testing of the F-1 engine, which was used to power the Saturn V

booster vehicle that launched the three-man Apollo capsule to land a man on the moon. TS 4696 has been mothballed since 1985. The 1985 Area Control Facility would be sealed with concrete or by some other suitable means. Partial demolition of TS 4696 would not meet the intent of

NASA's facility revitalization program would not eliminate the general maintenance costs, and would not be logistically practicable. Therefore, there are no reasonable alternative actions other than the Proposed Action. The No-Action Alternative is to maintain existing conditions, i.e., not to demolish TS 4696. Under the No-Action Alternative, TS 4696 would remain mothballed. Demolition activities would have overall minor impacts on air quality, noise levels, and wildlife, public and

Date Issued: July 2011
 Aug. 28, 2011

**STATE OF ALABAMA
 MADISON COUNTY**

Before me, Brandi Cook, a Notary Public in and for Said State, personally appeared Mecia Carlson, known to me, who being by me first duly sworn, deposes and said person is a Legal Advertising Representative of the Huntsville Times, a newspaper published and printed at Huntsville, Madison County, Alabama, and that the attached legal notice was published in said newspaper on:

08/28/2011

Mecia Carlson

Legal Advertising Representative

Sworn to before me this the

29th day of August 2011

Brandi Cook

Notary Public

My Commission expires October 04, 2014

Advertising Affidavit

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4350 West Cypress Street
Suite 600
Tampa, FL 33607

Date	Position	Description	P.O. Number	Ad Size	Total Cost
09/22/2009	Legal	NOTICE OF PUBLIC COMMENT PERIOD FOR THE		1 x 129 L	231.14

NOTICE OF PUBLIC COMMENT PERIOD FOR THE DRAFT ENVIRONMENTAL ASSESSMENT AND DRAFT FINDING OF NO SIGNIFICANT IMPACT

Demolition of Test Stand 4696 at George C. Marshall Space Flight Center

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
GEORGE C. MARSHALL SPACE FLIGHT CENTER

The U.S. National Aeronautics and Space Administration, George C. Marshall Space Flight Center (MSFC) announces publication of the draft Environmental Assessment (EA) and draft Finding of No Significant Impact (FONSI) for the demolition of Test Stand 4696 at MSFC. The draft EA and draft FONSI are available for public review at the NASA External Relations Office at MSFC, and at the following branches of the Huntsville-Madison County Public Library:

*Main Branch - 915 Monroe St., Huntsville, AL 35801, Phone: (256) 532-5940
*Madison Branch - 130 Plaza Blvd., Madison, AL 35768, Phone: (256) 461-0046
*Triana Branch - 280 Zierdt Rd., Madison, AL 35758, Phone: (256) 772-3677

To receive copies of the draft EA and draft FONSI, contact AS10/Mr. Michael Reynolds, Environmental Engineering and Occupational Health Office, NASA Marshall Space Flight Center, AL 35812, phone: (256) 544-9606, e-mail: Michael.L.Reynolds@n

asa.gov. or CS30/Ms. Sharon Cobb, Manager, External Relations Office, NASA Marshall Space Flight Center, AL 35812, phone: (256) 544-7791, e-mail: Sharon.Cobb@nasa.gov. Comments for consideration by NASA on the draft EA and draft FONSI should be provided in writing by mail or e-mail to Mr. Michael Reynolds or to Ms. Sharon Cobb. These documents will have a 30-day comment period, which will start on September 21, 2009 and end on October 20, 2009. Written substantive comments received within the review period will be addressed.

September 20, 2009

STATE OF ALABAMA MADISON COUNTY

Before me, Brandi Cook, a Notary Public in and for Said State and County, personally appeared Mecia Carlson, known to me, who being by me first duly sworn, deposes and said person is a Legal Advertising Representative of the Huntsville Times, a newspaper published and printed at Huntsville, Madison County, Alabama, and that the attached legal notice was published in said newspaper on:

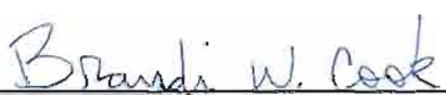
09/20/2009



Legal Advertising Representative

Sworn to before me this the

22th day of September 2009



Notary Public

My Commission expires October 17, 2010