(Oct. 1990)
United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES
REGISTRATION FORM

1731

1. NAME OF PROPERTY

HISTORIC NAME: Saturn V Launch Vehicle
OTHER NAME/SITE NUMBER: Saturn V Rocket

2. LOCATION

STREET & NUMBER: Johnson Space Center **NOT FOR PUBLICATION:** N/A
CITY OR TOWN: Houston **VICINITY:** N/A
STATE: Texas **CODE:** TX **COUNTY:** Harris **CODE:** 201 **ZIP CODE:** 77058

1. STATE/FEDERAL AGENCY CERTIFICATION

As the designated authority under the National Historic Preservation Act, as amended, I hereby certify that this (x nomination) (_ request for determination of eligibility) meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property (x meets) (_ does not meet) the National Register criteria. I recommend that this property be considered significant (x nationally) (_ statewide) (_ locally). (__ See continuation sheet for additional comments.)

Kenneth M. Kumor
Signature of certifying official

DECEMBER 6, 2002
Date

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
State or Federal agency and bureau

In my opinion, the property x meets __ does not meet the National Register criteria. (__ See continuation sheet for additional comments.)

Signature of commenting or other official

8-5-2002
Date

Texas Historical Commission (Texas SHPO)
State or Federal agency and bureau

4. NATIONAL PARK SERVICE CERTIFICATION

I hereby certify that this property is:

	Signature of the Keeper	Date of Action
✓ entered in the National Register ___ See continuation sheet.	Carol D. Shull	2-4-03
____ determined eligible for the National Register ___ See continuation sheet		
____ determined not eligible for the National Register		
____ removed from the National Register		
____ other (explain): _____		

5. CLASSIFICATION

OWNERSHIP OF PROPERTY: Public-Federal

CATEGORY OF PROPERTY: Structure

NUMBER OF RESOURCES WITHIN PROPERTY:	**CONTRIBUTING**	**NONCONTRIBUTING**
	0	0 **BUILDINGS**
	0	0 **SITES**
	1	0 **STRUCTURES**
	0	0 **OBJECTS**
	1	0 **TOTAL**

NUMBER OF CONTRIBUTING RESOURCES PREVIOUSLY LISTED IN THE NATIONAL REGISTER: 0

NAME OF RELATED MULTIPLE PROPERTY LISTING:

6. FUNCTION OR USE

HISTORIC FUNCTIONS: TRANSPORTATION/ air-related = rocket/launch vehicle

CURRENT FUNCTIONS: WORK IN PROGRESS, OTHER = museum artifact

7. DESCRIPTION

ARCHITECTURAL CLASSIFICATION: NO STYLE

MATERIALS: **FOUNDATION**
WALLS
ROOF
OTHER METAL/Aluminum

NARRATIVE DESCRIPTION (see continuation sheets 7-5 through 7-7).

The Saturn V Launch Vehicle on the grounds of the Johnson Space Center in Houston, Texas, is a three stage liquid-propellant vehicle, consisting of four components: three rocket stages and the spacecraft designed to carry astronauts to and from the moon. The launch vehicle is currently on display in an "open air" exhibit in four sections along the western edge of the Building 14 visitor's parking lot near the southwestern edge of the grounds. The vehicle is exhibited horizontally, with the first stage on a trailer, and the other two on cradles. The launch vehicle retains a high degree of integrity.

The Saturn V Launch Vehicle is exhibited in separate sections without its inter-stages, which served as mechanical adapters for connecting the stages. The launch vehicle contains engines, which are made of stainless steel, copper alloys, aluminum pipes, and copper wiring with plastic and other insulation, all covered by a body skin of very thin-gauge aluminum. The total length is 364.4 feet in its full operational mode. The vehicle weighed 6,100,000 pounds when fully fueled.

Section 1
The First Stage (S1C-14) was slated for the Apollo 18 mission (cancelled). It is 33 feet in diameter by 138 feet long. This stage is composed of five F-1 engines with a 7,766,000 pound thrust total at lift-off, using RP-1 (kerosene) and liquid oxygen as propellants. This unit was assembled by Boeing Aircraft at NASA's Michoud Assembly Facility in New Orleans, Louisiana.

Section 2
The Second Stage (S-II-15) was scheduled as a backup vehicle (SA-515) for the Skylab program, which produced the first Earth-orbiting space station. It is 33 feet diameter by 81.5 feet long. This unit is powered by five J-2 engines with a 1,150,000 pound thrust total, using liquid oxygen and liquid hydrogen. It was manufactured at the Seal Beach Production Facility in Seal Beach, California by North American Rockwell Corporation.

Section 3
The Third Stage (SA-IVB-513) was scheduled for the Apollo 18 mission (cancelled). This unit is 21.7 feet in diameter by 58.6 feet long. A single J-2 engine powered this stage with the use of liquid oxygen and liquid hydrogen, producing 230,000 pounds of thrust. It was manufactured by Douglas Aircraft Company. Components were manufactured at several of Douglas' plants in California, but the final production was carried out at the Douglas Facility in Huntington Beach, California.

Section 4
Section Four consists of several components:

1. The Instrumentation Unit (S-IU-515) was scheduled for the cancelled Apollo 18 or possibly the Apollo 20 mission. This unit is 21.7 feet in diameter and 3 feet long. It carried the vehicle's control and guidance electronics and was manufactured by IBM at their Huntsville, Alabama facility.

2. The Apollo spacecraft, the tip of the Saturn V rocket, consists of the following components: a Spacecraft Launcher Adapter (SLA), the Service Module (SM), the Command Module (CSM) and the Launch Escape System (LES).

a. The Spacecraft Launch Adapter (SLA-22) was slated for one of the later mission. The unit is 28 feet long and cone-shaped with a base of 21.7 feet in diameter and an apex of 12.8 feet in diameter. It connects to the Service and Command Modules, encapsulating the Lunar Excursion Module (LM), and was intended to land on the Moon. It was made by North American Aviation, Inc. and was assembled at their plant in Downey, California.

b. The Service Module (SM-115A) was designed as a mockup for one of the later Apollo missions. It is cylindrical in shape with a diameter of 12.8 feet and is 20 feet long. Carrying electrical power, water, oxygen, and fuel for the trip back home, it would have been jettisoned right before re-entry of the Command Module. It was made by North American Aviation, Inc. and was assembled at their plant in Downey, California.

c. The Command Module (CM-115) most likely was slated for the Apollo 18 mission. The Command Module is cone-shaped, 12.8 feet in diameter at the base and 11.7 feet long. It carried the astronauts and their equipment. It was made by North American Aviation, Inc. and was assembled at their plant in Downey, California.

d. The Launch Escape System (LES-115) is 2.2 feet in diameter and 29.1 feet long. Intended as a standard escape system, it most likely was not assigned to a specific mission. Serving as a temporarily attached rocket to the spacecraft during take-off, it consists of a solid-fuel tower jettison and launch escape motor. If an emergency situation arose during the initial launch, the LES would free the Apollo Command Module from the rocket, thereby rescuing the astronauts. It was built by the Lockheed Aircraft Corporation in Redlands, California.

Current condition

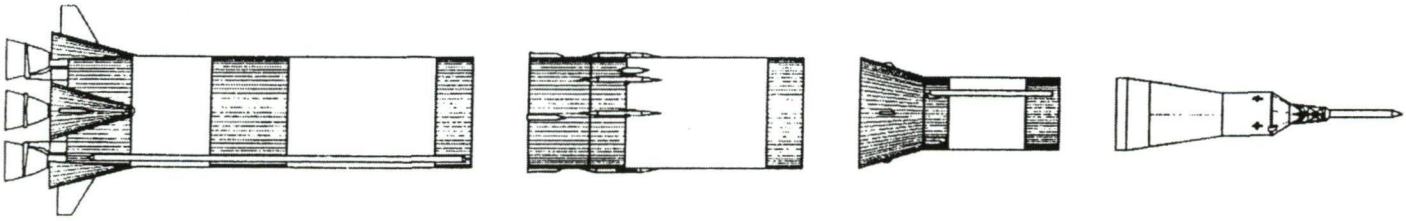
Due to its size, the Saturn V Launch Vehicle has been stored outdoors for the past 25 years. Although it has been treated and painted several times, it has nonetheless suffered greatly from exposure to air pollution and the elements. To rectify this deterioration, plans are being formulated to provide a permanent indoor home at the Johnson Space Center in Houston, Texas (NASA-JSC) for the artifact. Funds from the "Save America's Treasures" program and its matching fund contributors will be used to restore the object and construct a temporary, air conditioned structure around its display area at the Johnson Space Center. When restored, the rocket stages of this Saturn V will be enclosed to protect it from the elements in the future. In order to bring the stages as close as possible to their original condition, an experienced contractor will be engaged for the following required steps:

- construction of an enclosed work area
- photography and documentation of the object and its current condition
- cleaning and debris removal of existing external coatings
- asbestos abatement
- fabrication of missing and destroyed mechanical parts
- repair of damaged surfaces
- application of protective coatings
- application of external paint to restore original appearance.

Following restoration, the Saturn V will remain in a protected environment, a stressed membrane building, until a more permanent indoor location is provided.

Line Drawing of the Saturn V Launch Vehicle

Saturn V Display, Johnson Space Center
Houston, Texas



1st Stage S-IC-14
(Originally Slated for
Apollo 18)

2nd Stage S-II--15
(From Skylab backup
SA-515)

3rd Stage S-IV-513
(Originally Slated for
Apollo 18)

Apollo Spacecraft

drawn by Peter Alway for NASM

8. STATEMENT OF SIGNIFICANCE

APPLICABLE NATIONAL REGISTER CRITERIA

_x_ **A** PROPERTY IS ASSOCIATED WITH EVENTS THAT HAVE MADE A SIGNIFICANT CONTRIBUTION TO THE BROAD PATTERNS OF OUR HISTORY.
___ **B** PROPERTY IS ASSOCIATED WITH THE LIVES OF PERSONS SIGNIFICANT IN OUR PAST.
_x_ **C** PROPERTY EMBODIES THE DISTINCTIVE CHARACTERISTICS OF A TYPE, PERIOD, OR METHOD OF CONSTRUCTION OR REPRESENTS THE WORK OF A MASTER, OR POSSESSES HIGH ARTISTIC VALUE, OR REPRESENTS A SIGNIFICANT AND DISTINGUISHABLE ENTITY WHOSE COMPONENTS LACK INDIVIDUAL DISTINCTION.
___ **D** PROPERTY HAS YIELDED, OR IS LIKELY TO YIELD, INFORMATION IMPORTANT IN PREHISTORY OR HISTORY.

CRITERIA CONSIDERATIONS: G

AREAS OF SIGNIFICANCE: TRANSPORTATION, ENGINEERING, OTHER: Space Exploration

PERIOD OF SIGNIFICANCE: 1970-1973

SIGNIFICANT DATES: 1970

SIGNIFICANT PERSON: N/A

CULTURAL AFFILIATION: N/A

ARCHITECT/BUILDER: Boeing Aircraft, Douglas Aircraft Company, North American Rockwell Corporation

NARRATIVE STATEMENT OF SIGNIFICANCE (see continuation sheets 8-8 through 8-10).

9. MAJOR BIBLIOGRAPHIC REFERENCES

BIBLIOGRAPHY (see continuation sheets 9-11).
PREVIOUS DOCUMENTATION ON FILE (NPS): N/A
_ preliminary determination of individual listing (36 CFR 67) has been requested.
_ previously listed in the National Register
_ previously determined eligible by the National Register
_ designated a National Historic Landmark
_ recorded by Historic American Buildings Survey #
_ recorded by Historic American Engineering Record #
PRIMARY LOCATION OF ADDITIONAL DATA:
x State historic preservation office *(Texas Historical Commission)*
_ Other state agency
x Federal agency
_ Local government
_ University
x Other -- Specify Repository: *Johnson Space Center; Smithsonian Institution*

Narrative Statement of Significance

The Saturn V is considered one of the greatest engineering achievements of all times, serving as the launch vehicle for the Apollo program which took the first men to the moon. The Saturn V Launch Vehicle at the Johnson Space Center (JSC) in Houston, Texas, has the distinction of being the only intact Saturn V consisting of all flyable stages. It is nominated to the National Register of Historic Places at the national level of significance, under Criteria A and C, for its technological achievements in transportation, engineering and space exploration. The Saturn V meets Criteria Consideration G because it is exceptionally significant as one of only three intact Saturn V rockets in the United States, and as the only example made of components intended to fly on Apollo missions.[1] The Saturn V need not meet Criterion Consideration B (Moved Properties) as it is a property designed to be moved, and its location at the Johnson Space Center is appropriate because the JSC served as the command center for all Saturn V space flight missions. The period of significance runs from 1970 (construction date of the components) through 1973, the last year Saturn V rockets were used in NASA space missions.

On May 25, 1961, President Kennedy announced the nation's goal to send a man to the moon by the end of the decade. The decision to develop the Saturn V was officially announced on January 10, 1962. The Saturn V was the first large vehicle in the U.S. space program to be conceived and developed for a specific purpose – the lunar landing. The extension of NASA's jurisdiction to the moon meant an enormous expansion of its research and development operations, and nearly 20,000 contractor companies across the country contributed to the production of the rocket. NASA began to reorganize and increase its space establishments to carry out Project Apollo, the program to land humans on the moon and bring them safely back to earth.

The liftoff of the first manned lunar landing mission of Apollo 11 took place on July 16, 1969. The Saturn V successfully conveyed five other Apollo missions to the moon (Apollo missions 12, 14, 15, 16, and 17). The last Saturn V lunar mission liftoff took place on December 6, 1972. The vehicle's last space mission occurred when the first two stages of a Saturn V lifted the Skylab's first Earth-orbiting space station on May 14, 1973.

The Manned Spacecraft Center (renamed Johnson Space Center on August 17, 1973) was created after the formation of NASA to manage the American Manned Space Program. On September 19, 1961, Administrator James E. Webb of NASA formally announced that the new Manned Spacecraft Center would be built in southeastern Harris County, Texas, about twenty-five miles from downtown Houston, at the edge of Clear Lake, an inlet of Galveston Bay. In addition to serving as Mission Control for the Apollo missions, the JSC pioneered in research and development of manned spacecraft systems, astronaut life support systems, integration of experiments for space flight activities, and application of space technology for scientific, engineering, and medical research.

[1] Harry A. Butowsky, "Man in Space: National Historic Landmark Theme Study" (Washington, DC: National Park Service, Department of the Interior, 1984).

Saturn V Launch Vehicle

The manned Apollo missions were each launched aboard a Saturn V launch vehicle, the largest and most powerful U.S. expendable launch vehicle ever built. The "V" designation originates from the five powerful F-1 engines that powered the first stage of the rocket. When configured to launch Apollo spacecraft, each Saturn V required three stages: the S-1C, the S-II and the SA-IVB. Contracts to build these stages were awarded to North American, Douglas and Boeing during 1961 and 1962.[2] The stages were test fired at the Mississippi Test Facility near Bay St. Louis and at the George C. Marshall Space Center in Huntsville, Alabama.[3] The Saturn V performed successfully in all Apollo flight missions.[4]

The Apollo spacecraft, including the Command Module (CM), Service Module (SM) and Lunar Module (LM) and emergency escape system sat atop the launch vehicle. In a typical Apollo Saturn V flight, carrying three astronauts launched from Cape Canaveral, Florida, the first stage separated after a 2.5 minute firing duration at the altitude of about 38 miles and speed of almost 6,000 mph. This stage largely burned up during reentry through the Earth's atmosphere then fell into the Atlantic Ocean. The second stage fired for six minutes and took the vehicle to 115 miles at a speed of 15,700 mph. This stage also burned upon reentry and fell into the Atlantic. Consequently, only a rocket that was never used for its purpose remains to be displayed as they are at the Johnson Space Center. After a firing duration of about 2.5 minutes, the Apollo's third stage, attached to Apollo spacecraft assembly, was at an orbital altitude of 118 miles and speed of 17,520 mph.[5]

For the flight to the moon from Earth orbit, the third stage was re-ignited on the second or third orbit around Earth to take it out of Earth's gravitational pull. Smaller engines helped steer the remaining vehicle toward the moon, while rocket motors separated the third stage from the Apollo Command Module (CM) with attached Lunar Module (LEM). Altogether, there were 41 rocket motors on the Saturn V, including the main propulsion systems and much smaller control rockets.

On its approach and insertion into an orbit around the moon, the Lunar Excursion Module separated and touched down on the lunar surface, later rejoining the Command Module orbiting the moon. The two lunar explorers climbed into and sealed the Control Module, then jettisoned the remaining part of the Lunar Module to the surface of the moon. The Command Module then rocketed out of lunar orbit toward Earth and eventually reentered the Earth's atmosphere, slowed down part way by parachutes, landing in the Pacific Ocean where the three astronauts were retrieved by recovery ships.

The Saturn V was tested in two unmanned evaluation flights, Apollo 4 and 6. The first manned lunar orbital mission in which the astronauts flew around the moon (not landing) and returned to Earth was made by Apollo 8, launched on

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[2] NASA selected Boing to design the first stage (August 6, 1962), North American to develop the second stage (September 11, 1961) and Douglas to design the third stage (December 21, 1961). Linda Neuman Ezell, NASA Historical Data Book, vol. II (Washington, DC: National Aeronautics and Space Administration, 1988), p. 61.

[3] NASA assigned the task of designing, developing and manufacturing the Saturn V to the Marshall Space Center. Launch responsibility was committed to the Kennedy Space Center, while the Johnson Space Center served as the mission control center and as a training center for the astronauts.

[4] The Saturn V vehicle achieved 100% reliability despite the fact that the Apollo 13 mission, launched on April 11, 1970, experienced the explosion of an oxygen tank of the electrical power supply system in the Apollo Service Module, forcing the cancellation of the mission when it was close to the Moon.

[5] National Air and Space Museum, catalog number A19780111000, (3).

December 21, 1968. Apollo 11, launched on July 18, 1969, carrying Neil Armstrong, Edwin "Buzz" Aldrin and Michael Collins, made the first Moon landing on July 20, 1969. NASA planned ten lunar missions (11 through 20) but budgetary constraints during the early 1970s precluded further Apollo missions. In October 1969, a revised launch schedule set the Apollo 18 mission for February 1972 and the Apollo 19 mission for November of the same year, but the last Apollo moon landing flight, Apollo 17, was launched on December 7, 1972.[6] The final flight of the Saturn V, launched on May 5, 1973, was a two-stage version of the vehicle which placed the Skylab Orbital Workshop into a 275-mile high orbit.[7]

The Saturn V at the Johnson Space center is one of three extant Saturn V vehicles belonging to the National Air and Space Museum on loan to NASA Centers (the others are at Kennedy Space Center at Cape Canaveral, Florida and Marshall Space Center in Huntsville, Alabama). Of the three, the launch vehicle at JSC is the only one with all three flyable stages, designed for use in Apollo missions. Stages 1 and 3 were manufactured by the end of December 1970 and the second stage was completed in September 1970. The first (S-1C-14) and third (SA-IVB-513) stages were chosen for the Apollo 18 mission, which ultimately was cancelled.[8] The second stage (S-II-15) was meant as a backup for the Skylab mission which NASA did not use. The Saturn V was placed on display intact, with little attempt to remove small components from the vehicle prior to exposing it to the elements. The Saturn V vehicle in Huntsville, Alabama, was selected in 1985 to represent the class of Saturn V rockets as a National Historic Landmark because of its integrity and association with its site. While not intended to fly itself, the Huntsville Saturn V was a working vehicle with all of its parts intact, and prepared the way for all the Saturn Vs that did fly and were lost after having completed their missions.

Formal accountability for the Apollo/ Saturn hardware now belongs to the Smithsonian's National Air and Space Museum (NASM) in Washington, DC. The actual hardware, however, still resides in Texas, Florida, and Alabama where each Saturn V provides those with an abiding interest in space flight with lessons on the history of engine configuration, structural design and more. The JSC Saturn V is nominated to the National Register of Historic Places, under Criterion A, in the areas of Transportation and Space Exploration and Criterion C, in the area of Engineering, as a rare and intact example of the launch vehicle used throughout the Apollo Program.

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[6] Both mission flights were cancelled during 1970.

[7] Information on NASA budget cut-backs and the resulting canceled missions, was gathered from newspaper articles. Rudy Abramson, "Cancellation of 2 Apollo Flights Forced by Leaner NASA Budget," Los Angeles Times, September 3, 1970, p. 4. and Colin Burgess and Kate Doolan, "Apollo: The Lost Flights", Spaceflight, Vol. 42, September 2000, pp. 387-392. This information is also available in other public records such as the annual NASA Chronologies titled Aeronautics and Astronautics.

[8] Budgetary constraints forced the cancellation of several Apollo missions during 1970. Ivan D. Ertel and Roland W. Newkirk with Courtney G. Brooks, The Apollo Spacecraft: A Chronology, vol. 4 (Washington, DC: National Aeronautics and Space Administration, 1978), p. 338.

Bibliography

Armstrong, Neil, Michael Collins, and Edwin E. Aldrin. *First on the Moon*. Boston: Little, Brown, 1970.

Bilstein, Roger E. *Stages To Saturn: A Technological History of the Apollo/ Saturn Launch Vehicles*. NASA SP-4206. Washington, D.C.: U.S. Government Printing Office, 1980.

Brooks, Courtney G., James M. Grimwood, and Loyd S. Swenson, Jr. *Chariots for Apollo: A History of Manned Lunar Spacecraft*. NASA SP-4206. Washington, D.C.: U.S. Government Printing Office, 1979.

Butowsky, Harry A., *Man in Space: National Historic Landmark Theme Study.* Washington, D.C.: National Park Service, Department of the Interior, 1984.

Compton, William David. *Where No Man Has Gone Before: A History of Apollo Lunar Exploration Missions*. NASA SP-4214. Washington, D.C.: U.S. Government Printing Office, 1989.

McDougall, Walter. *The Heavens and the Earth: A Political History of the Space Age*. New York: Basic Books, 1985.

Winter, Frank H. *Rockets Into Space.* Cambridge, MA: Harvard University Press, 1990.

Relevant web sites

Project Apollo - Program Overview, Kennedy Space Center (NASA): www.ksc.nasa.gov/history/apollo/apollo.html

The Apollo Program (1963-1972), National Space Science Data Center:
http://nssdc.gsfc.nasa.gov/planetary/lunar/apollo.html

The Apollo Program, National Air and Space Museum: www.nasm.edu/apollo

The Apollo Spacecraft - A Chronology (NASA): www.hq.nasa.gov/office/pao/History/SP-4009/cover.htm

10. GEOGRAPHICAL DATA

ACREAGE OF PROPERTY: 2.5 acres

UTM REFERENCES	Zone	Easting	Northing
	15	297616	3271368

VERBAL BOUNDARY DESCRIPTION: The Saturn V rocket is displayed in an "open air" exhibit at the Johnson Space Center, Houston, Texas. The vehicle components are displayed along the western edge of the Building 14 visitor's parking lot near the southwestern edge of the grounds, as indicated on the accompanying USGS map.

BOUNDARY JUSTIFICATION: The boundary contains all components of the Saturn V Launch Vehicle. While the rocket is the property of the Smithsonian Institution, it will remain on indefinite loan to the Johnson Space Center.

11. FORM PREPARED BY (with assistance from Gregory W. Smith, Texas Historical Commission)

NAME/TITLE: Sabina Wiedenhoeft

ORGANIZATION: Smithsonian Institution **DATE:** April 11, 2002

STREET & NUMBER: 900 Jefferson Drive, SW **TELEPHONE:** (202) 357-2571

CITY OR TOWN: Washington **STATE:** DC **ZIP CODE:** 20560-0417

ADDITIONAL DOCUMENTATION

CONTINUATION SHEETS

MAPS (see continuation sheet Map-12)

PHOTOGRAPHS (see continuation sheet Photo-13 through Photo 16)

ADDITIONAL ITEMS

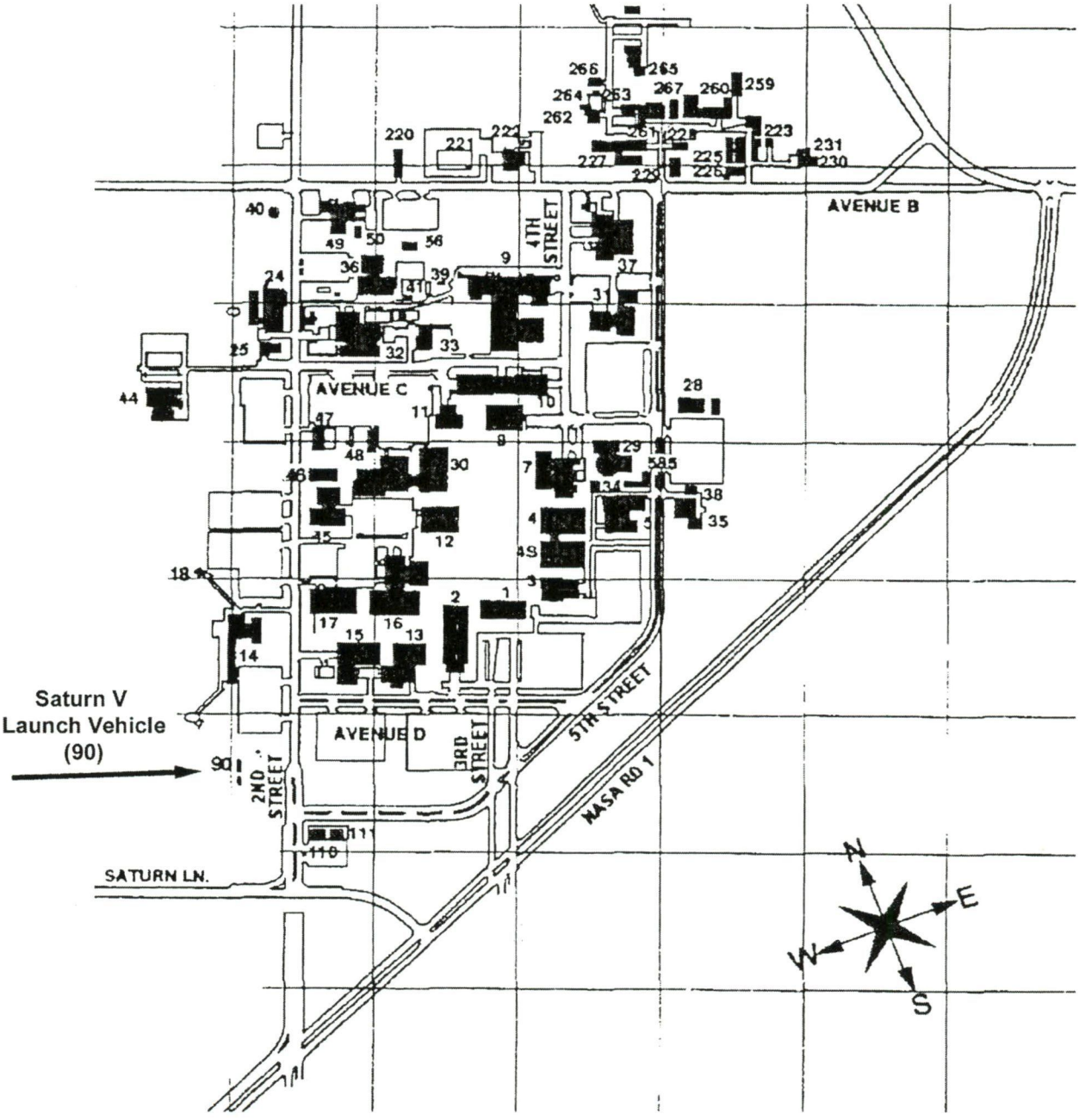
PROPERTY OWNER

NAME: National Air and Space Museum, Smithsonian Institution (on loan to Johnson Space Center)

STREET & NUMBER: Independence Ave & Sixth Street, SW **TELEPHONE:** (202) 633-9268

CITY OR TOWN: Washington **STATE:** DC **ZIP CODE:** 20560-0311

Map of the Johnson Space Center



Photographs

Saturn V Launch Vehicle
Lyndon B. Johnson Space Center, Houston, Harris County, Texas
Photographed by NASA, except as noted (unknown photographer except Photo 2, by Frank Winter)
Photographed 1996, except as noted (Photo 2, 1999)
Negatives on file with NASA, except as noted

Photo 1
Overall west view of the Saturn V display
Negative # 896-05158

Photo 2
Overall view of the First Stage of the Saturn V display looking east.
Negatives on file with National Air and Space Museum, Washington, DC

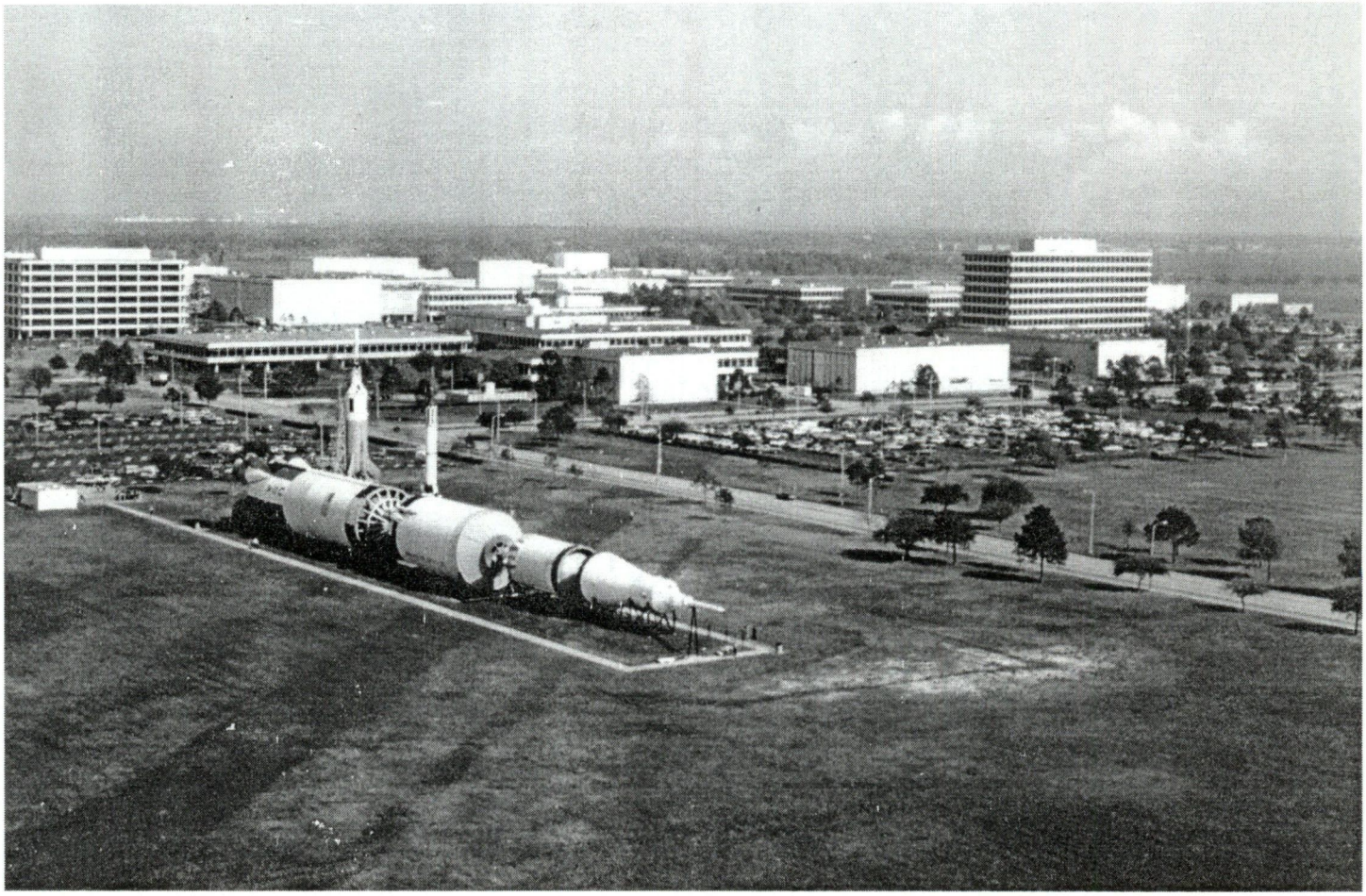
Photo 3
Overall view of Second Stage of the Saturn V display looking west.
Negative # 899-03767

Photo 4
Overall view of the Spacecraft portion of the Saturn V display looking northeast.
Negative # 899-03758

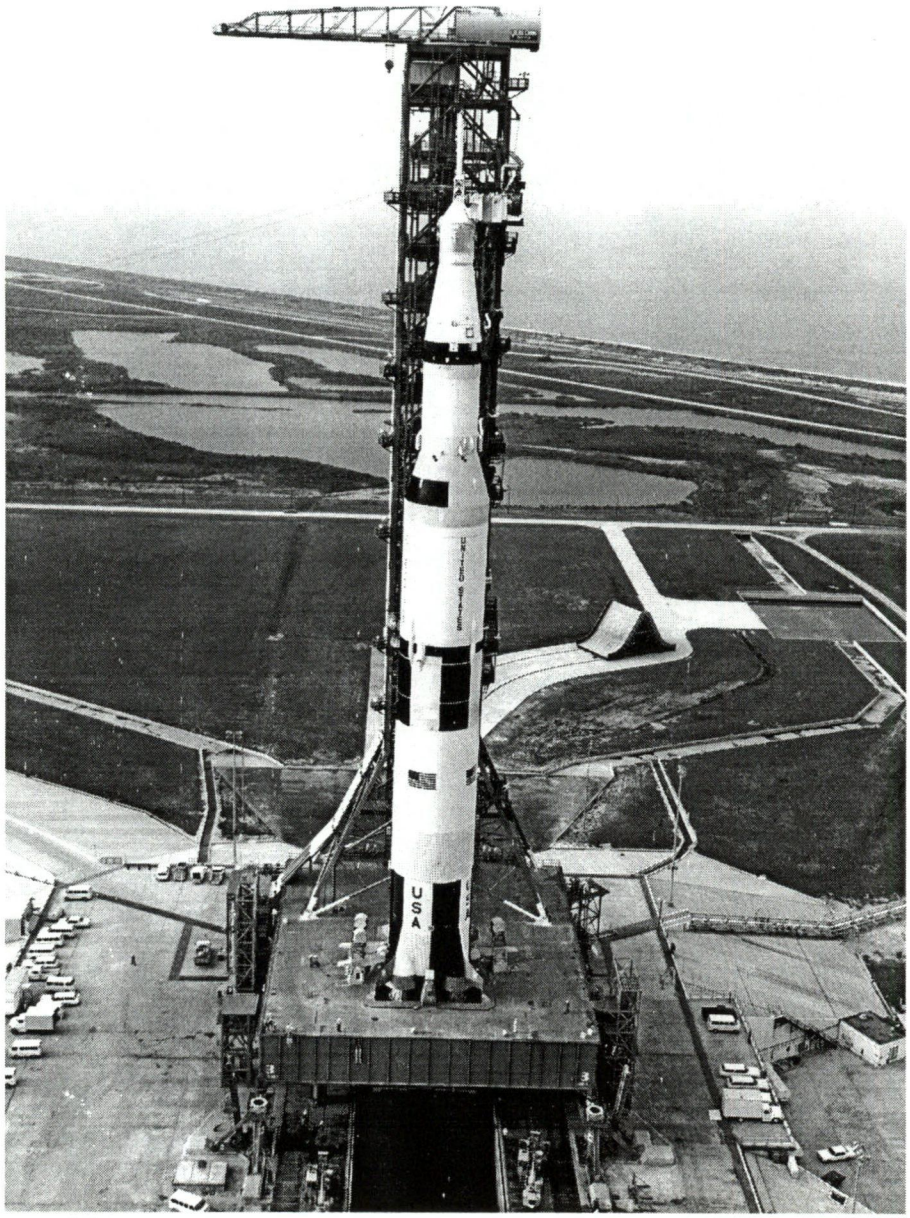
Supplemental Photograph

Photo 5
Overall west view of the Saturn V display, Johnson Space Center
December 1982
Negative # 896-05158

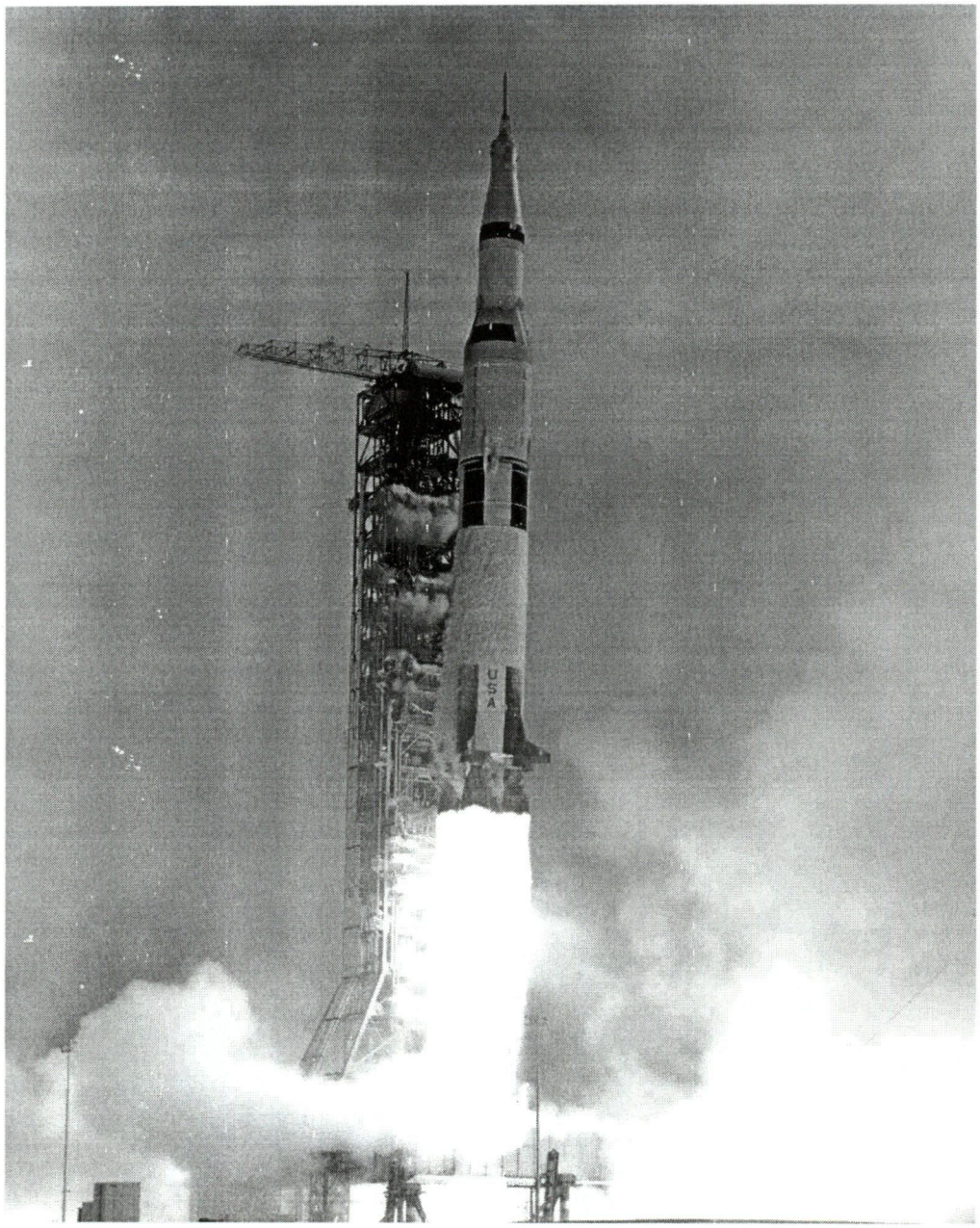
Supplemental Photograph
Overall west view of the Saturn V display, Johnson Space Center
December 1982
NASA photograph, Negative # 896-05158



Supplemental Photograph
Overall view of a Saturn V at Pad A at the Launch Complex 39 at the Kennedy Space Center, Florida, during a Countdown Demonstration Test. (*Photo courtesy NASA, RSIS Information Systems Corporation, Goddard Space Flight Center, Greenbelt, MD, negative # 72-H-395*)



Supplemental Photo
Overall view of the Apollo 15 lift-off from Complex 39A at the Kennedy Space Center, Florida, 1971 (*Photo Courtesy NASA, RSIS Information Systems Corporation, Goddard Space Flight Center, Greenbelt, MD, negative # 71-H-1219*)



Photographs

Saturn V Launch Vehicle
Lyndon B. Johnson Space Center, Houston, Harris County, Texas
Photographed by NASA, except as noted (unknown photographer except Photo 2, by Frank Winter)
Photographed 1996, except as noted (Photo 2, 1999)
Negatives on file with NASA, except as noted

Photo 1
Overall west view of the Saturn V display
Negative # 896-05158

Photo 2
Overall view of the First Stage of the Saturn V display looking east.
Negatives on file with National Air and Space Museum, Washington, DC

Photo 3
Overall view of Second Stage of the Saturn V display looking west.
Negative # 899-03767

Photo 4
Overall view of the Spacecraft portion of the Saturn V display looking northeast.
Negative # 899-03758

NPS Form 10-900-a
(8-86)

OMB Approval No. 1024-0018

United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

Section number _____ **Page** _____

SUPPLEMENTARY LISTING RECORD

NRIS Reference Number: 02001731

Property Name: Saturn V Launch Vehicle

County: Harris State: Texas

none
Multiple Name

This property is listed in the National Register of Historic Places in accordance with the attached nomination documentation subject to the following exceptions, exclusions, or amendments, notwithstanding the National Park Service certification included in the nomination documentation.

Signature of the Keeper — February 4, 2003
Date of Action

==========

Amended Items in Nomination:

Section 5: Classification: The count is hereby revised to indicate that the property consists of four contributing structures, a total of four contributing resources, to correspond with the fact that they were constructed as separate components.

Section 10: Geographical Data: The verbal boundary description is, hereby, clarified by the addition of the following sentence: "The nominated area is the raised and graded display area outlined by a cordoned fence."

The Federal Historic Preservation Office was notified of this amendment.

DISTRIBUTION:
National Register property file
Nominating Authority (without nomination attachment)

Recommendation: ___ SLR ___ Return Action: ___ SLR ___ Return ___ None

DOCUMENTATION ISSUES—DISCUSSION SHEET

STATE NAME: TX COUNTY NAME Harris RESOURCE NAME Saturn V Launch Vehicle

REFERENCE NO. 02-1731 MULTIPLE NAME ___

Solution: ___

PROBLEM: Nat'l signif., less than 50 yrs. Rocket is made up of components from different vehicles. Property is museum object.

KM 1/17/03

RESOLUTION: ___

SLR: ___ Yes ___ No

DATABASE CHANGE: ___

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES
EVALUATION/RETURN SHEET

REQUESTED ACTION: NOMINATION

PROPERTY NAME: Saturn V Launch Vehicle

MULTIPLE NAME:

STATE & COUNTY: TEXAS, Harris

DATE RECEIVED: 12/09/02 DATE OF PENDING LIST: 1/13/03
DATE OF 16TH DAY: 1/29/03 DATE OF 45TH DAY: 1/23/03
DATE OF WEEKLY LIST:

REFERENCE NUMBER: 02001731

REASONS FOR REVIEW:

APPEAL:	N	DATA PROBLEM:	N	LANDSCAPE:	N	LESS THAN 50 YEARS:	N
OTHER:	N	PDIL:	N	PERIOD:	N	PROGRAM UNAPPROVED:	N
REQUEST:	N	SAMPLE:	N	SLR DRAFT:	N	NATIONAL:	N

COMMENT WAIVER: N

___ACCEPT ___RETURN ___REJECT _____DATE

ABSTRACT/SUMMARY COMMENTS:

needs S.I.O. letter (co-owner)
Called Perry Cox 1/22/03, and discussed letter w/ Cynthia Field ~~FPO~~ FPO (SF) on 1/23/03, who will FAX & send letter by mail.

RECOM./CRITERIA Return

REVIEWER J McClelland DISCIPLINE History

TELEPHONE 202-354-9258 DATE 1/23/03

DOCUMENTATION see attached comments Y/N see attached SLR Y/N

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES
EVALUATION/RETURN SHEET

REQUESTED ACTION: RESUBMISSION

NAME: Saturn V Launch Vehicle

MULTIPLE
NAME:

STATE & COUNTY: TEXAS, Harris County

DATE RECEIVED: 01/24/03 DATE OF PENDING LIST:
DATE OF 16TH DAY: DATE OF 45TH DAY: 03/10/03
DATE OF WEEKLY LIST:

REFERENCE NUMBER: 02001731

NOMINATOR: STATE

DETAILED EVALUATION: Y

___ACCEPT ___RETURN ___REJECT_____DATE

ABSTRACT/SUMMARY COMMENTS:

Recommendation attached

Note: A similar rocket was made an NHL (11/22/78) under Man in Space theme study. Saturn V Space Vehicle, Madison Co, Alabama. See to clarify count and V.b.d. attached

RECOM./CRITERIA Accept A+C Crit. Cons. G

REVIEWER LMcClelland DISCIPLINE Arch. History

TELEPHONE 202-354-2258 DATE February 4, 2003

DOCUMENTATION see attached comments (Y)/N see attached SLR (Y)/N

National Register of Historic Places
Review Comments

L McAllwood 2/4/03

Saturn V Launch Vehicle
Johnson Space Center
Harris County, Texas

This property is exceptionally important under Criterion Consideration G as one of three Saturn V launch vehicles nationwide assembled from surviving parts associated with the Apollo Space Program of the early 1970s and placed on display at NASA sites associated with the operation of the Apollo program. The best and most cohesive assemblage is located at Marshall, Alabama, and was one of the 26 sites recommended for NHL designation under the Man in Space theme study. The remaining two assemblages (including the one on display in Houston) were recommended for National Register listing. The nomination is signed by NASA's FPO with concurrence from Smithsonian Institution, which owns the actual objects (see FPO's letter).

The outdoor display at the Johnson Space Center consists of examples of the four separate components that made up the Saturn V launch vehicles used in the Apollo Space program. The components are presently exhibited horizontally on an elevated and graded area in the sequence in which they were to be assembled prior to launching. All components were built during the period 1970-1973 for actual use in the space program. Two of the three lower components (which were designed to power and guide the mission) and portions of the spaceship itself (the fourth component) were originally designed for the Apollo 18 mission, which was cancelled. Because the various stages separated from each other and disintegrated in space, remaining components such as these are the only tangible evidence of the massive, highly complex and powerful vehicles that made man's landing on the moon possible and dominated the Nation's advances in aerospace engineering for several decades.

National Register eligibility as a collection of exceptionally and nationally significant components is based on their outstanding association with one of the greatest accomplishments of the US's space program—mankind's landing on the Moon. The various components making up this property were constructed as separate movable objects that were to be interconnected and assembled at the launching site into a multi-staged vehicle that would transport an Apollo spaceship into space. The Apollo program is considered one of the most successful and highly publicized accomplishments of NASA and the Nation's remarkable program of space exploration in the twentieth century. The appropriateness of the present location of these resources at the Johnson Space Center is based on the site's strong association with the operation of the Apollo space program and the manner in which the components are collectively displayed for interpretive and preservation purposes. The eligibility under Criteria A and C and Criterion Consideration G is further justified by the collection's representation of a cohesive and complete grouping of actual components that, constructed separately to serve different but interrelated functions, reflected a variety of advances in aerospace

engineering and transportation as well as the development of America's aerospace industry.

Recommendations for SLR: Because these are separate components that were constructed separately for several different missions and because they are exhibited as unconnected objects, the count should be revised from one to four contributing structures. In addition, the verbal boundary description should be revised to clarify that "the nominated area is the raised and graded display area enclosed by a fence."

Linda McClelland
Historian
February 4, 2003

1) Saturn V Launch Vehicle
2) Harris, Texas
3) photograph 1

1) Saturn V Launch Vehicle

2) Harris, Texas

3) photograph 2

UNITED STATES

1) Saturn V Launch Vehicle
2) Harris, Texas
3) photograph 3

1) Saturn V Launch Vehicle

2) Harris, Texas

3) photograph 4

National Aeronautics and Space Administration

S99-03767

Lyndon B. Johnson Space Center
Houston, Texas 77058

National Aeronautics and
Space Administration

S99-03758

Lyndon B. Johnson Space Center
Houston, Texas 77058

Order No-2002-3090 ima002

NASA 8/8/2002

National Aeronautics and
Space Administration

S96-05158

Lyndon B. Johnson Space Center
Houston, Texas 77058

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

LEAGUE CITY QUADRANGLE
TEXAS
7.5-MINUTE SERIES (TOPOGRAPHIC)

Saturn V Launch Vehicle
Johnson Space Flight Center
Houston, Harris County, Texas
UTM Reference: 15/297616/3271368

Produced by the United States Geological Survey

Topography compiled 1975. Planimetry derived from imagery taken 1995. Survey control current as of 1976

North American Datum of 1983 (NAD 83). Projection and 1000-meter grid: Universal Transverse Mercator, zone 15
10 000-foot ticks: Texas Coordinate System of 1983 (south central zone)

North American Datum of 1927 (NAD 27) is shown by dashed corner ticks. The values of the shift between NAD 83 and NAD 27 for 7.5-minute intersections are obtainable from National Geodetic Survey NADCON software

This quadrangle covers a subsidence area

Selected hydrographic data compiled from NOS/NOAA chart 11326 (1981)
This information is not intended for navigational purposes

Water stages in this area vary with the meteorological conditions
Approximate limits of occasional inundation shown by dashed blue lines where mean high water is undetermined for lack of visual evidence
Dotted blue lines indicate the approximate limits of low water

There may be private inholdings within the boundaries of the National or State reservations shown on this map

Landmark buildings verified 1976

UTM GRID AND 1998 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET
MN
GN
0°59′ 17 MILS
5° 89 MILS

SCALE 1:24 000

1 .5 0 KILOMETERS 1 2
1000 0 METERS 1000 2000
1 .5 0 1
MILES
1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000
FEET

CONTOUR INTERVAL 5 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
TO CONVERT FROM FEET TO METERS, MULTIPLY BY 0.3048
DEPTH CURVES AND SOUNDINGS IN FEET-GULF COAST LOW WATER DATUM
THE MEAN RANGE OF TIDE IS NEGLIGIBLE

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY, P.O. BOX 25286, DENVER, COLORADO 80225
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

TEXAS
QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 Pasadena
2 La Porte
3 Morgans Point
4 Friendswood
5 Bacliff
6 Algoa
7 Dickinson
8 Texas City

ADJOINING 7.5' QUADRANGLE NAMES
2995-411

INTERIOR - GEOLOGICAL SURVEY, RESTON, VIRGINIA - 1998

ROAD CLASSIFICATION

Primary highway hard surface
Secondary highway hard surface
Light-duty road, hard or improved surface
Unimproved road
Interstate Route
U.S. Route
State Route

LEAGUE CITY, TX
1995
NIMA 6943 II SE-SERIES V882

ISBN 0-607-89256-0
9 780607 892567

National Aeronautics and
Space Administration

Lyndon B. Johnson Space Center
2101 NASA Road 1
Houston, Texas 77058-3696

May 30, 2002

Reply to Attn of: JA161-02-056

Mr. F. Lawrence Oaks, SHPO
Texas Historical Commission
P.O. Box 12276
Austin, TX 78711-2276

Dear Mr. Oaks:

Enclosed, for your review and concurrence, is information relevant to submission to the National Register for the Saturn V Launch Vehicle, owned by the Smithsonian Institution and located at the Lyndon B. Johnson Space Center (JSC) Houston, Harris County, Texas.

JSC is fully conscious of the high responsibility, to the Nation, required in the care of property classified as having national significance. We agree to preserve, so far as practicable and to the best of our ability, the historical values of the Saturn V.

JSC is currently working with the Smithsonian Institution on seeking a proposal for the stabilization and restoration of the Saturn V rocket, and for the installation of an enclosure to protect the rocket during and after the restoration.

Once your review is complete, we ask that you certify the registration form. Please return the package to JSC for forwarding through NASA Headquarters to the National Park Service for final consideration. If you require additional information, please feel free to contact Ms. Perri E. Fox at 281-483-3157.

Cordially,

Original Signed by:
Joel B. Walker

Joel B. Walker
Acting Director, Center Operations

Enclosure

CONCUR	CODE >	JA161/PEF	JA161/PAK	AL/MGW	AP/LAP	JA/BAH	AB/BRS	AC/SHG
	INITIALS >							
	DATE >	5/23/02	5/23/02	5.24.02	5.23.02	5/29/02		

NASA FORM 1267

TEXAS HISTORICAL COMMISSION

The State Agency for Historic Preservation

RICK PERRY, GOVERNOR

JOHN L. NAU, III, CHAIRMAN

F. LAWERENCE OAKS, EXECUTIVE DIRECTOR

August 5, 2002

Joel B. Walker
Acting Director, Center Operations
Lyndon B. Johnson Space Center
2101 NASA Road 1
Houston, Texas 77058-3696

RE: Saturn V National Register nomination, Johnson Space Center, Houston, Harris County, Texas

Dear Mr. Walker:

Enclosed is a signed copy of the Saturn V Launch Vehicle National Register nomination. We understand that copies of the four archival photographs will be submitted to the Texas Historical Commission for use in our agency library.

We are pleased that NASA continues to preserve the historic properties under its purview, and commend your efforts to document this nationally significant structure. If you have any questions, please contact me at (512) 463-6013, or via email at greg.smith@thc.state.tx.us. Thank you for your interest in preserving Texas' rich heritage.

Sincerely,

Gregory W. Smith, National Register Coordinator
for F. Lawerence Oaks, Executive Director

P.O. BOX 12276 · AUSTIN, TX 78711-2276 · 512/463-6100 · FAX 512/475-4872 · TDD 1-800/735-2989
www.thc.state.tx.us

Smithsonian Institution

Architectural History and Historic Preservation

January 23, 2003

Carol Schull
Keeper
National Register of Historic Places
National Park Service
1201 Eye Street, NW
8th Floor (MS 2280)
Washington, DC 20005

Dear Ms. Schull,

We would hereby like to offer our full support of the National Register nomination of the Saturn V Launch Vehicle, now under consideration. The Space History Division of the National Air and Space Museum (NASM), as curators of the Saturn V, asked for our assistance in drafting the nomination, which we gladly did. Our office worked closely with the Air and Space Museum and the Johnson Space Center in Houston, where the rocket is located, in putting together the package submitted. Using the varied academic and profession backgrounds of all involved has guaranteed that could achieve a high level of accuracy and completeness for all of the information in the nomination.

We look forward to receiving full recognition for the historic nature of this important landmark in space history.

Sincerely,

Cynthia Field

Cynthia R. Field, Ph.D.
Chair, Architectural History and Historic Preservation

Box 37012
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Washington DC 20560-7012
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