

United States Department of the Interior
National Park Service

National Register of Historic Places
Inventory—Nomination Form

For NPS use only

received

date entered

See instructions in *How to Complete National Register Forms*
Type all entries—complete applicable sections

1. Name

historic Neutral Buoyancy Space Simulator

and/or common Neutral Buoyancy Space Simulator

2. Location

street & number George C. Marshall Space Flight Center not for publication

city, town Huntsville vicinity of congressional district

state Alabama code 01 county Madison code 089

3. Classification

Category	Ownership	Status	Present Use
<input type="checkbox"/> district	<input checked="" type="checkbox"/> public	<input type="checkbox"/> occupied	<input type="checkbox"/> agriculture
<input type="checkbox"/> building(s)	<input type="checkbox"/> private	<input type="checkbox"/> unoccupied	<input type="checkbox"/> commercial
<input checked="" type="checkbox"/> structure	<input type="checkbox"/> both	<input type="checkbox"/> work in progress	<input type="checkbox"/> educational
<input type="checkbox"/> site	Public Acquisition	Accessible	<input type="checkbox"/> entertainment
<input type="checkbox"/> object	<input type="checkbox"/> in process	<input checked="" type="checkbox"/> yes: restricted	<input checked="" type="checkbox"/> government
	<input type="checkbox"/> being considered	<input type="checkbox"/> yes: unrestricted	<input type="checkbox"/> industrial
		<input type="checkbox"/> no	<input type="checkbox"/> military
			<input type="checkbox"/> museum
			<input type="checkbox"/> park
			<input type="checkbox"/> private residence
			<input type="checkbox"/> religious
			<input checked="" type="checkbox"/> scientific
			<input type="checkbox"/> transportation
			<input checked="" type="checkbox"/> other: Space Exploration

4. Owner of Property

name National Aeronautics and Space Administration (NASA)

street & number

city, town Washington vicinity of state D.C. 20546

5. Location of Legal Description

courthouse, registry of deeds, etc. National Aeronautics and Space Administration (NASA)

street & number Real Property Management Office Code NGX

city, town Washington state D.C. 20546

6. Representation in Existing Surveys

title Historic Properties Report (Draft) has this property been determined eligible? yes no

date July 1983 federal state county local

depository for survey records U.S. Army Redstone Arsenal

city, town Huntsville state Alabama

341

7. Description

Condition		Check one	Check one
<input checked="" type="checkbox"/> excellent	<input type="checkbox"/> deteriorated	<input checked="" type="checkbox"/> unaltered	<input checked="" type="checkbox"/> original site
<input type="checkbox"/> good	<input type="checkbox"/> ruins	<input type="checkbox"/> altered	<input type="checkbox"/> moved date _____
<input type="checkbox"/> fair	<input type="checkbox"/> unexposed		

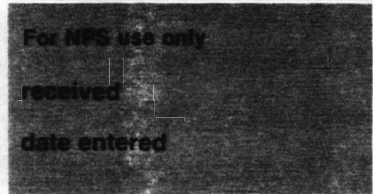
Describe the present and original (if known) physical appearance

The Neutral Buoyancy Simulator is in Building 4705 at the Marshall Space Flight Center in Huntsville, Alabama. A large water tank, 75 feet in diameter and 40 feet deep is the heart of the simulator. The water within the simulator is temperature controlled, continuously recirculated, and filtered. There are four observation levels with portholes to view activities within the simulator. An elevator serves all four observation levels. Special systems are integrated into the tank for underwater audio and video, pressure-suit environmental control, and emergency rescue and treatment. Life support is simultaneously provided by these systems for up to four pressure-suited subjects. Additional systems include data acquisition and recording, underwater lighting, special underwater pneumatic and electrical power operations of motor, valves, controls, and indicators that are required for high fidelity, and functional engineering mockups and trainers.

Adjacent to the Neutral Buoyancy Simulator is a completely equipped test control area for directing, controlling, and monitoring simulation activities in the Neutral Buoyancy Simulator. An annex contains the operating crew dressing and shower area.¹

**United States Department of the Interior
National Park Service**

**National Register of Historic Places
Inventory—Nomination Form**



Continuation sheet

Item number 7

Page 2

Footnotes

1. George C. Marshall Space Flight Center Master Plan (Washington, D.C.: National Aeronautics and Space Administration, 1980), p.31.

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8. Significance

Period	Areas of Significance—Check and justify below			
<input type="checkbox"/> prehistoric	<input type="checkbox"/> archeology-prehistoric	<input type="checkbox"/> community planning	<input type="checkbox"/> landscape architecture	<input type="checkbox"/> religion
<input type="checkbox"/> 1400-1499	<input type="checkbox"/> archeology-historic	<input type="checkbox"/> conservation	<input type="checkbox"/> law	<input type="checkbox"/> science
<input type="checkbox"/> 1500-1599	<input type="checkbox"/> agriculture	<input type="checkbox"/> economics	<input type="checkbox"/> literature	<input type="checkbox"/> sculpture
<input type="checkbox"/> 1600-1699	<input type="checkbox"/> architecture	<input type="checkbox"/> education	<input type="checkbox"/> military	<input type="checkbox"/> social/
<input type="checkbox"/> 1700-1799	<input type="checkbox"/> art	<input checked="" type="checkbox"/> engineering	<input type="checkbox"/> music	<input type="checkbox"/> humanitarian
<input type="checkbox"/> 1800-1899	<input type="checkbox"/> commerce	<input type="checkbox"/> exploration/settlement	<input type="checkbox"/> philosophy	<input type="checkbox"/> theater
<input checked="" type="checkbox"/> 1900-	<input type="checkbox"/> communications	<input type="checkbox"/> industry	<input type="checkbox"/> politics/government	<input type="checkbox"/> transportation
		<input type="checkbox"/> invention		<input checked="" type="checkbox"/> other (specify) Space Exploration

Specific dates 1955-Present **Builder/Architect** U.S. Army, NASA

Statement of Significance (in one paragraph)

The Neutral Buoyancy Simulator was constructed in 1955 by the Army at the Redstone Arsenal. It was designed to provide a simulated zero-gravity environment in which engineers, designers, and astronauts could perform, for extended periods of time, the various phases of research needed to gain first hand knowledge concerning design and operation problems associated with working in the zero-gravity environment of space. Because of this capability to support research and testing of operational techniques and materials needed to successfully performed manned space missions the Neutral Buoyancy Simulator contributed significantly to the American manned space program especially Projects Gemini, Apollo, Skylab, and the Space Shuttle. The Neutral Buoyancy Simulator is a facility that is unique within the NASA inventory of training facilities. Until the mid-1970s, when an additional facility was constructed at the Johnson Space Flight Center to support the Space Shuttle Program, this facility was the only test facility that allowed astronauts to become familiar with the dynamics of body motion under weightless conditions.

The Neutral Buoyancy Simulator is on the NASA public tour of the Marshall Space Flight Center and is interpreted to the public.

9. Major Bibliographical References

See continuation sheets

10. Geographical Data

Acreeage of nominated property Less than 1 acre

Quadrangle name Madison

Quadrangle scale 1:24,000

UMT References

A

1	6	5	2	9	5	0	0	3	8	3	4	5	0	0
Zone				Easting				Northing						

B

Zone				Easting				Northing						

C

Zone				Easting				Northing						

D

Zone				Easting				Northing						

E

Zone				Easting				Northing						

F

Zone				Easting				Northing						

G

Zone				Easting				Northing						

H

Zone				Easting				Northing						

Verbal boundary description and justification

The boundary of the Neutral Buoyancy Simulator is defined by the outside perimeter of Building 4705 at the Marshall Space Flight Center

List all states and counties for properties overlapping state or county boundaries

state	code	county	code
-------	------	--------	------

state	code	county	code
-------	------	--------	------

11. Form Prepared By

name/title Harry A. Butowsky

organization National Park Service

date May 15, 1984

street & number Division of History

telephone (202) 343-8168

city or town Washington, D.D. 20240

state

12. State Historic Preservation Officer Certification

The evaluated significance of this property within the state is:

national state local

As the designated State Historic Preservation Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the National Park Service.

State Historic Preservation Officer signature

title _____ date _____

For NPS use only

I hereby certify that this property is included in the National Register

date _____

Keeper of the National Register

Attest:

date _____

Chief of Registration

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**United States Department of the Interior
National Park Service**

**National Register of Historic Places
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received
date entered

Continuation sheet

Item number 9

Page 1

Bibliography

Brooks, Courtney G., Grimwood, James M., and Swenson, Loyd S. Chariots for Apollo: A History of Manned Lunar Spacecraft. Washington, D.C.: National Aeronautics and Space Administration, 1979.

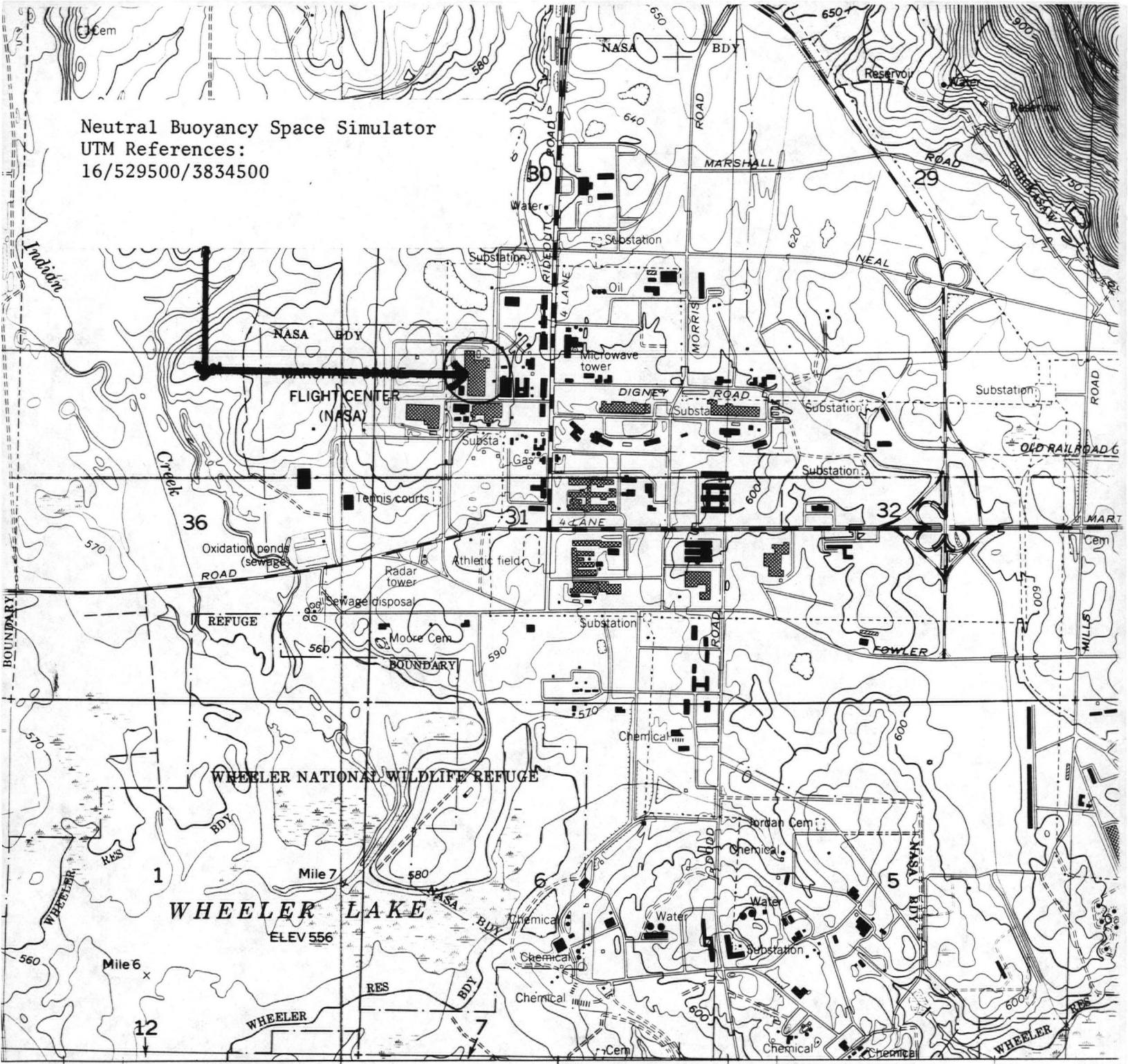
Draft Historic Properties Report Redstone Arsenal, Alabama with the George C. Marshall Space Flight Center. Silver Spring, Maryland: Building Technology Incorporated, 1983.

Master Plan George C. Marshall Space Flight Center. Washington, D.C.: National Aeronautics and Space Administration, 1980.

Technical Facilities Catalog Vol. III. Washington, D.C.: National Aeronautics and Space Administration, 1974.

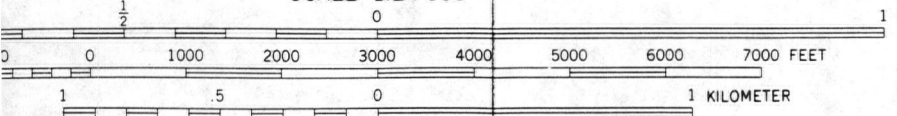
353

Neutral Buoyancy Space Simulator
 UTM References:
 16/529500/3834500

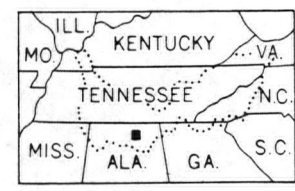


528 (TRIANA 75-SW) R. 2 W. R. 1 W. 530 40' 531 532 FARLEY 9 MI

SCALE 1:24 000



CONTOUR INTERVAL 10 FEET
 NATIONAL GEODETIC VERTICAL DATUM OF 1929



QUADRANGLE LOCATION

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
 FOR SALE BY U.S. GEOLOGICAL SURVEY, RESTON, VIRGINIA 22092
 NESSEE VALLEY AUTHORITY, CHATTANOOGA, TENN. 37401 OR KNOXVILLE, TENN. 37902
 OLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

There may be private inholdings within the bound
 of the National or State reservations shown on th

356

P. 357 BLANK

Primary
 hard sur
 Seconda
 hard sur

MARSHALL SPACE FLIGHT CENTER, ALABAMA

FACILITIES SITE MAP

4700 AREA

- 4702 Shop Building
- 4703 Storage Building
- 4704 Hydraulic Press Fac.
- 4705 Machine Shop & Neutral Buoyancy Simulator
- 4707 Shop & Assembly Building
- 4708 Engr & Development Lab.
- 4711 Developmental Processes Lab.
- 4712 Office Building
- 4714 Mech. Equip. Building
- 4715 Storage Building
- 4716 Test Control Building
- 4723 Training Fac.
- 4727 Shop & Office Building
- 4728 Shop & Storage Building
- 4731 Storage Building
- 4732 Bionic Wind Tunnel Fac.

- 4733 Impulse Base Flow Fac.
- 4734 Vacuum Pump House
- 4738 Fabrication Dev. Building
- 4740 Water Pollution Contr. Fac.
- 4744 Compressed Air Fac.
- 4746 Office Bldg.
- 4747 Air Compressor Bldg.
- 4752 Multipurpose High Bay Fac.
- 4755 High Bay Assembly Fac.
- 4759 Model Shop Building
- 4760 Surface Treatment Facility
- 4764 Chemical Storage Bldg.
- 4767 Heat Treatment Fac.
- 4774 Storage Building
- 4775 High Reynolds Fac.
- 4776 Experimental Acoustic Test Fac.

4200 AREA

- 4200 Office Building
- 4201 Office Building
- 4202 Office Building
- 4207 Communications Facility
- 4241 Shop & Storage Bldg.
- 4244 Storage Building
- 4249 Office Building
- 4250 Office & Shop Bldg.
- 4251 Equipment Shed

4300 AREA

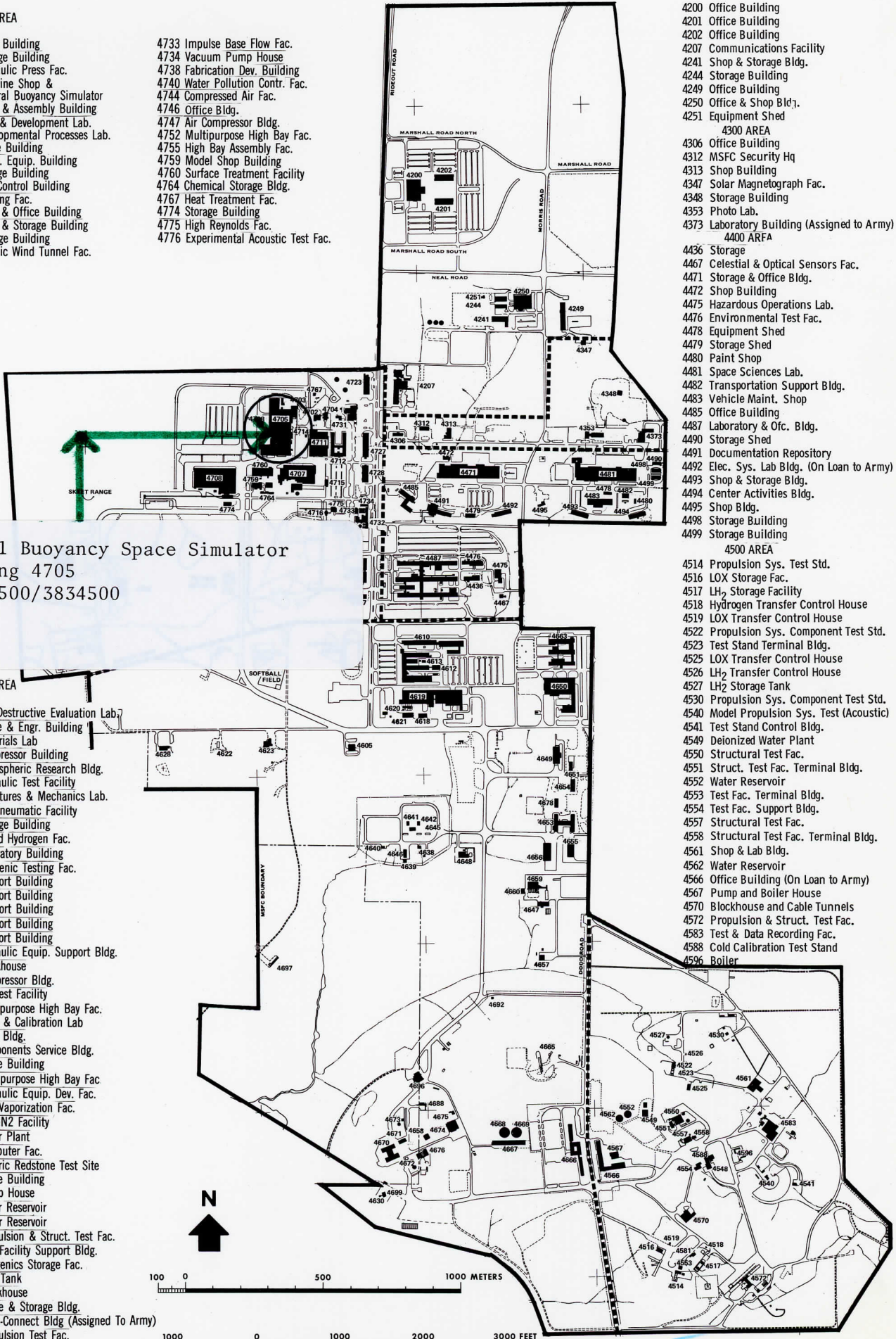
- 4306 Office Building
- 4312 MSFC Security Hq
- 4313 Shop Building
- 4347 Solar Magnetograph Fac.
- 4348 Storage Building
- 4353 Photo Lab.
- 4373 Laboratory Building (Assigned to Army)

4400 AREA

- 4436 Storage
- 4467 Celestial & Optical Sensors Fac.
- 4471 Storage & Office Bldg.
- 4472 Shop Building
- 4475 Hazardous Operations Lab.
- 4476 Environmental Test Fac.
- 4478 Equipment Shed
- 4479 Storage Shed
- 4480 Paint Shop
- 4481 Space Sciences Lab.
- 4482 Transportation Support Bldg.
- 4483 Vehicle Maint. Shop
- 4485 Office Building
- 4487 Laboratory & Ofc. Bldg.
- 4490 Storage Shed
- 4491 Documentation Repository
- 4492 Elec. Sys. Lab Bldg. (On Loan to Army)
- 4493 Shop & Storage Bldg.
- 4494 Center Activities Bldg.
- 4495 Shop Bldg.
- 4498 Storage Building
- 4499 Storage Building

4500 AREA

- 4514 Propulsion Sys. Test Std.
- 4516 LOX Storage Fac.
- 4517 LH₂ Storage Facility
- 4518 Hydrogen Transfer Control House
- 4519 LOX Transfer Control House
- 4522 Propulsion Sys. Component Test Std.
- 4523 Test Stand Terminal Bldg.
- 4525 LOX Transfer Control House
- 4526 LH₂ Transfer Control House
- 4527 LH₂ Storage Tank
- 4530 Propulsion Sys. Component Test Std.
- 4540 Model Propulsion Sys. Test (Acoustic)
- 4541 Test Stand Control Bldg.
- 4549 Deionized Water Plant
- 4550 Structural Test Fac.
- 4551 Struct. Test Fac. Terminal Bldg.
- 4552 Water Reservoir
- 4553 Test Fac. Terminal Bldg.
- 4554 Test Fac. Support Bldg.
- 4557 Structural Test Fac.
- 4558 Structural Test Fac. Terminal Bldg.
- 4561 Shop & Lab Bldg.
- 4562 Water Reservoir
- 4566 Office Building (On Loan to Army)
- 4567 Pump and Boiler House
- 4570 Blockhouse and Cable Tunnels
- 4572 Propulsion & Struct. Test Fac.
- 4583 Test & Data Recording Fac.
- 4588 Cold Calibration Test Stand
- 4596 Boiler

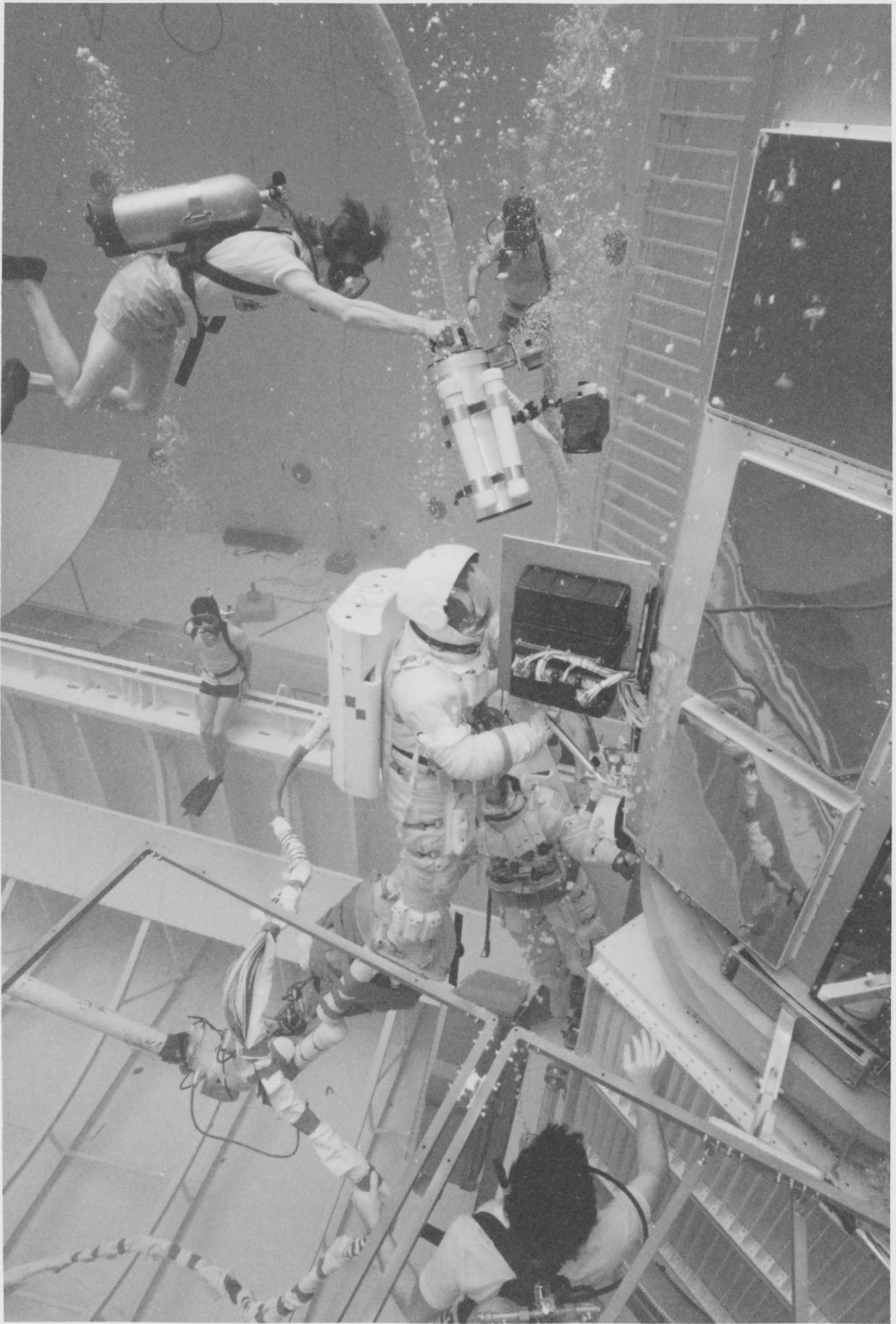


Neutral Buoyancy Space Simulator Building 4705
16/529500/3834500

4600 AREA

- 4605 Non-Destructive Evaluation Lab.
- 4610 Office & Engr. Building
- 4612 Materials Lab
- 4613 Compressor Building
- 4614 Atmospheric Research Bldg.
- 4618 Hydraulic Test Facility
- 4619 Structures & Mechanics Lab.
- 4620 HP Pneumatic Facility
- 4621 Storage Building
- 4622 Liquid Hydrogen Fac.
- 4623 Laboratory Building
- 4628 Cryogenic Testing Fac.
- 4638 Support Building
- 4639 Support Building
- 4640 Support Building
- 4641 Support Building
- 4642 Support Building
- 4645 Hydraulic Equip. Support Bldg.
- 4646 Blockhouse
- 4647 Compressor Bldg.
- 4648 HP Test Facility
- 4649 Multipurpose High Bay Fac.
- 4650 Shop & Calibration Lab
- 4651 Shop Bldg.
- 4653 Components Service Bldg.
- 4654 Office Building
- 4655 Multipurpose High Bay Fac.
- 4656 Hydraulic Equip. Dev. Fac.
- 4657 LH₂ Vaporization Fac.
- 4659 HP GN₂ Facility
- 4660 Boiler Plant
- 4663 Computer Fac.
- 4665 Historic Redstone Test Site
- 4666 Office Building
- 4667 Pump House
- 4668 Water Reservoir
- 4669 Water Reservoir
- 4670 Propulsion & Struct. Test Fac.
- 4671 Test Facility Support Bldg.
- 4672 Cryogenics Storage Fac.
- 4673 Fuel Tank
- 4674 Blockhouse
- 4678 Office & Storage Bldg.
- 4692 Cross-Connect Bldg. (Assigned To Army)
- 4696 Propulsion Test Fac.
- 4697 Observation Bunker
- 4699 Structural Test Fac.

REDUCE TO FIT 355



5A
63%

85
11

STILL CAPTION							
NEGATIVE NO.	CLASS	T	S	LAB/OFF	MO/YR	H	L
334906	U	B	D	EL	6/83		
		NB-57 SOLAR MAX MISSION					
		(VIEW 39)					
PHOTOGRAPHER: RIECKHOFF				JMC		DATE: 4/83	

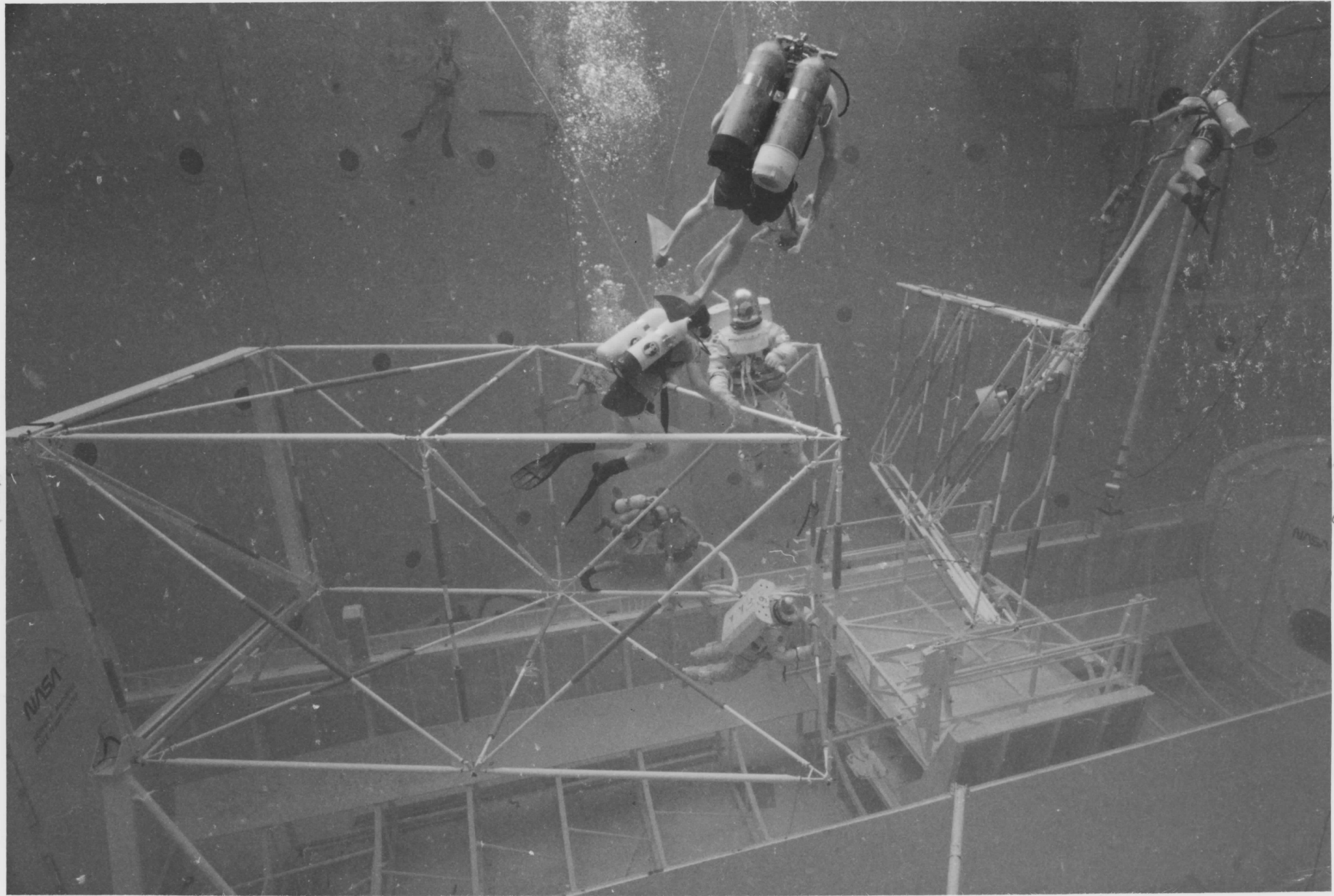
MSFC - Form 1048 (Rev. August 1976)

* MILITE CODE - "S"

BLDG 4705 NEUTRAL BUOYANCY SIMULATOR

NASA-MSFC

(Adamm)



top

PHOTO # 70

- 369
1. Neutral Buoyancy Space Simulator
 2. Huntsville, Alabama
 3. NASA
 4. 1980
 5. NASA, Marshall Space Flight Center Facilities Office
 6. Interior View of Water Tank with astronaut and support personnel
 7. 60

Block 4705 Neutral Buoyancy Simulator
NASA-MSSFC

155FC - FORM 1503 (REV. APRIL 1978)

NEGATIVE NO.	007506	CLASS	U B Z EL	NO. 989	
LAB/	OFF	NO. 989			
H	L				
NB 37 ASSEMBLY OF					
EXPANDABLE SPACE					
STRUCTURES					
(VIEW 13)					
DATE:					
9/9/80					
PHOTOGRAPHER					
KD					
* WHITE CODE - "H"					



STILL CAPTION							
NEGATIVE NO.	CLASS	Yr	Mo	DAY/OFF	MO/YR	FILE	
442264	U	B	Z	AB	4/84		
NEUTRAL BUOYANCY TANK							
PHOTOGRAPHER: CORDER				JNC		DATE: 4/6/84	
MSFC - Form 1002 (Rev. August 1970)						* HILITE CODE - "H"	

BLOG 4705 VIEW OF TOP LEVEL OF NEUTRAL BUOYANCY SIMULATOR SHOWING SOME OF THE EQUIPMENT AND DECOMPRESSION CHAMBER.

NASA-MSFC



STILL CAPTION						
NEGATIVE NO.	CLASSIFICATION	LAB/OFF	MONTH	YEAR	DAY	FILE NO.
442262	U	BZ	AR	6/84		
NEUTRAL BUOYANCY TANK						
PHOTOGRAPHER:				DATE:		
CORDER				JMC		
MSFC - Form 1069 (Rev. August 1976)				4/6/84		
				• HALFE CODE - "4"		

BLDG 4705 VIEW FROM TOP OF NEUTRAL BUOYANCY
SIMULATOR.

NASA-MSFC

Photo #65



108

STILL CAPTION						
NEGATIVE NO.	CLASS	Y	S	LAB/	MO/YR	H
		V	L	OFF		L
442260	U	B	Z	AB	4/84	
BLDG. 4705 NEUTRAL						
BUOYANCY SIMULATOR						
OUTSIDE VIEW						
PROJECT NAME: CORDE			JMC		DATE: 4/6/84	
REF: P. 1368 (27th August 1976)					* SILVER CODE * "E"	

BLDG 4705 - EXTERIOR VIEW OF
NEUTRAL BUOYANCY SIMULATOR.

NASA-MSFC

1. Neutral Buoyancy Space Simulator
2. Huntsville, Alabama
3. NASA
4. 1984
5. NASA, Marshall Space Flight Center Facilities Office
6. Exterior View of Neutral Buoyancy Space Simulator
7. 55

NEUTRAL BUOYANCY SIMULATOR

SURFACE CONTROL CONSOLE

MAIN CONTROL CONSOLE
(ROTATED 90°)

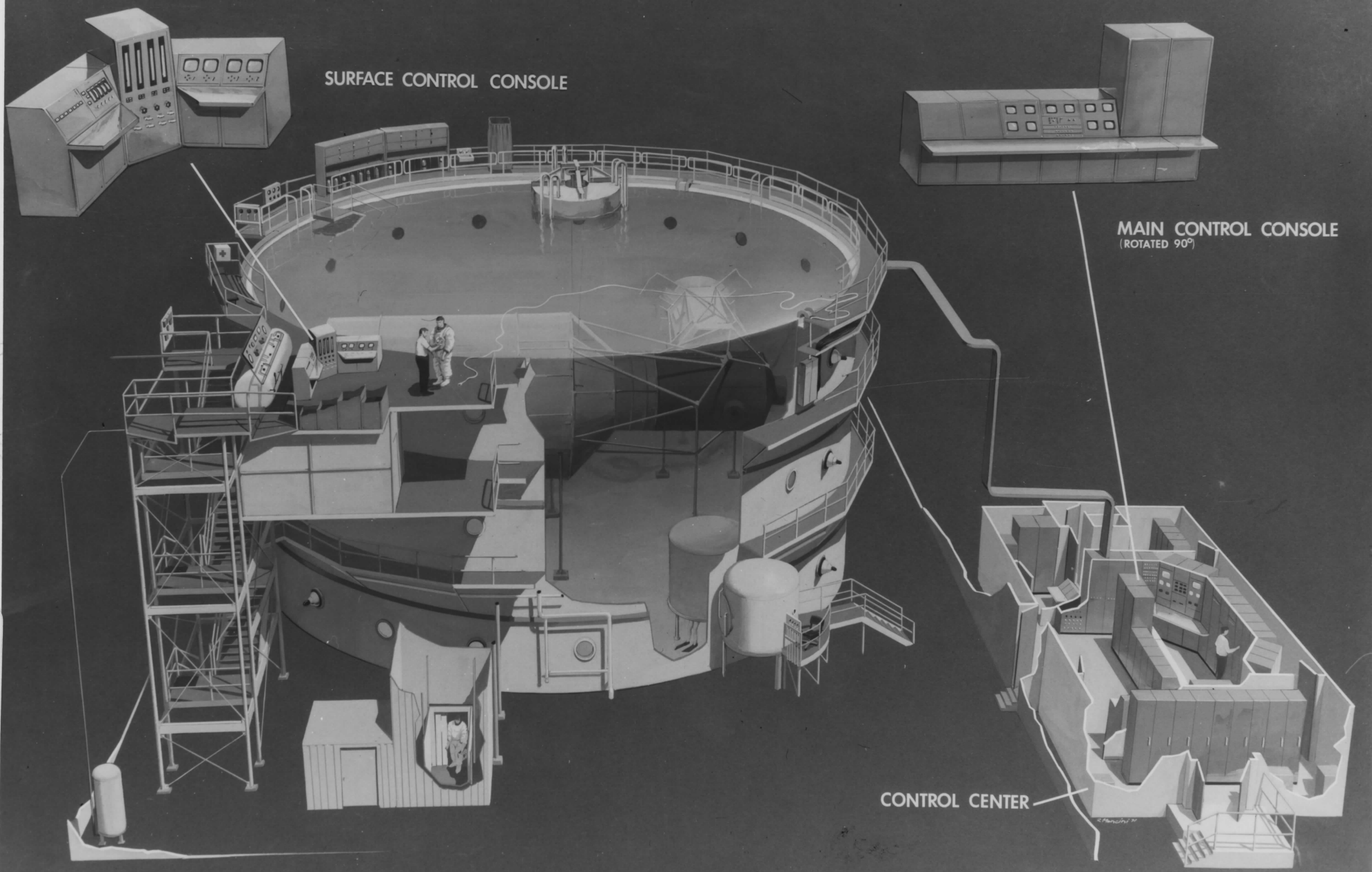
CONTROL CENTER

MSFC-71-S & E-PT 155 A

Photo #66

361

top



1. Neutral Buoyancy Space Simulator
2. Huntsville, Alabama
3. NASA
4. 1971
5. NASA, Marshall Space Flight Center Facilities Office
6. Cutaway View of facility
7. 56



Photo # 68

fold

365

1. Neutral Buoyancy Space Simulator
2. Huntsville, Alabama
3. NASA
4. 1984
5. NASA, Marshall Space Flight Center Facilities Office
6. Top of Water Tank
7. 58

NASA-MSFC

BLDG 4705 VIEW OF TOP LEVEL OF
NEUTRAL BUOYANCY SIMULATOR.

KODAK SAFETY FILM

NEGATIVE NO. 442265

CLASSIFICATION: U B Z AB 4/84

DATE: 4/6/84

JMC

PROGRAMMER: COORDINATOR

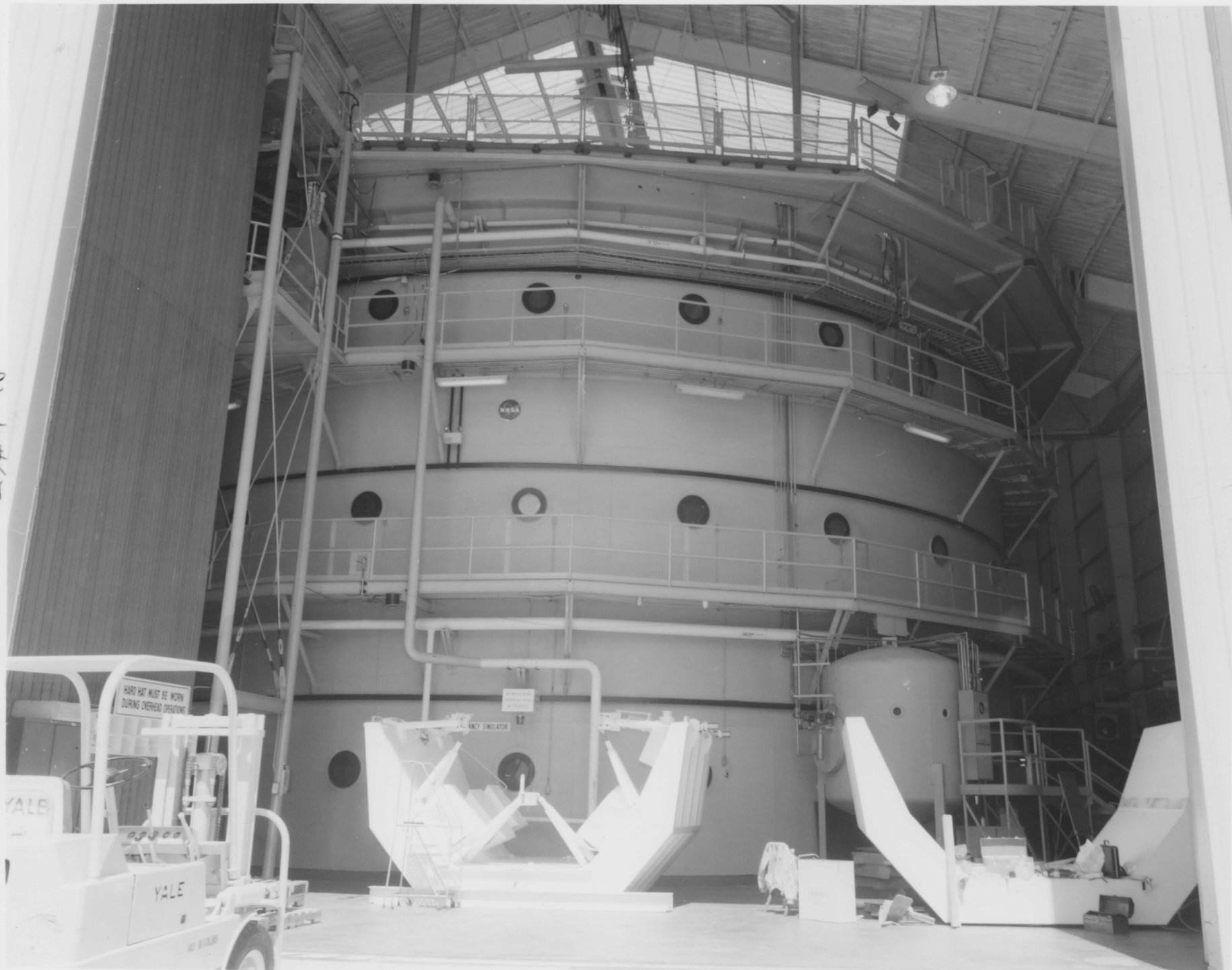
FILM CODE: 1363 (REV. AUGUST 1976)

NEUTRAL BUOYANCY TANK

STILL CAPTION

Photo # 67

TOP



HARD HAT MUST BE WORN
DURING OVERHEAD OPERATIONS

BRANDER
WIND TUNNEL

ANCY SIMULATOR

YALE

YALE

100 BUCKING

STILL CAPTION									
NEGATIVE NO.	CLASS	TYPE	S	LAB/OFF	MOVTR	ILL			
442261	U	B	Z	AB	4/84				
NEUTRAL BUOYANCY SIMULATOR									
INSIDE VIEW									
PHOTOGRAPHER:					DATE:				
CORDER					JMC				
					4/6/84				
MSFC - Form 1363 (Rev. August 1970) * WHITE CODE - "A"									

BLDG 4705 VIEW OF NEUTRAL BUOYANCY
SIMULATOR THRU ROLL-AWAY DOORS.

NASA-MSFC

1. Neutral Buoyancy Space Simulator
2. Huntsville, Alabama
3. NASA
4. 1984
5. NASA, Marshall Space Flight Center Facilities
6. Exterior View of Water Tank
7. 57

PHOTO # 69



PHOTO

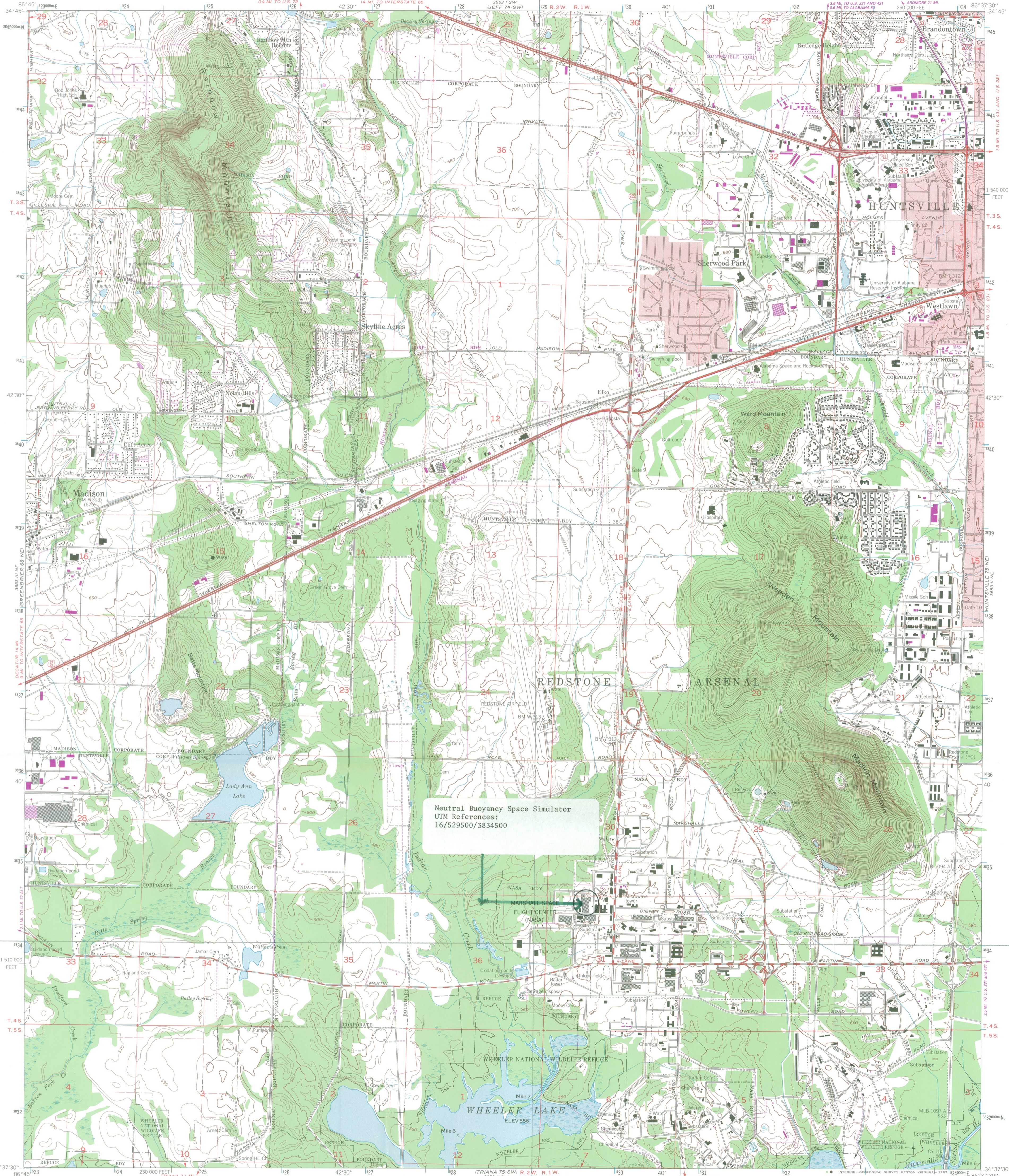
TOP

BLDG 4705 NEUTRAL BUOYANCY SIMULATOR
CONTROL ROOM.

NASA-MSFC

1. Neutral Buoyancy Space Simulator
2. Huntsville, Alabama
3. NASA
4. 1984
5. NASA, Marshall Space Flight Center Facilities Office
6. Interior View of Control Room
7. 59

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Neutral Buoyancy Space Simulator
UTM References:
16/529500/3834500

Mapped and edited by Tennessee Valley Authority
Published by the Geological Survey
Control by NOS/NOAA, USGS, and TVA

Revised by TVA in 1975 by photogrammetric methods using
aerial photographs taken 1974 and by reference to TVA-USGS
quadrangle dated 1964. Map field checked by TVA, 1975

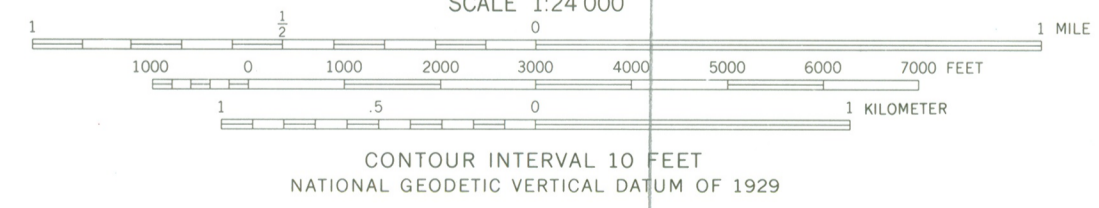
Polyconic projection. 10,000-foot grid ticks based on Alabama
coordinate system, east zone. 1000-meter Universal Transverse Mercator
grid ticks, zone 16, shown in blue. 1927 North American Datum
To place on the predicted North American Datum 1983 move
the projection lines 8 meters south and 1 meter west as
shown by dashed corner ticks

Fine red dashed lines indicate selected fence and field lines
where generally visible on aerial photographs. This information is
unchecked

Red tint indicates areas in which only landmark buildings are shown

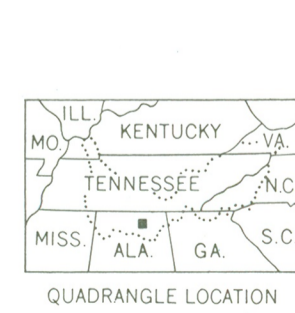
UTM GRID AND 1982 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET

Revisions shown in purple and woodland compiled by
the Tennessee Valley Authority from aerial photographs
taken 1981 and other sources. This information not
field checked. Map edited 1982



SCALE 1:24 000
CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY, RESTON, VIRGINIA 22092
AND BY U.S. TENNESSEE VALLEY AUTHORITY, CHATTANOOGA, TENN. 37401 OR KNOXVILLE, TENN. 37902
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST



QUADRANGLE LOCATION

ROAD CLASSIFICATION (TVA 75-NW)

Primary highway, all weather, hard surface	Light-duty road, all weather, improved surface
Secondary highway, all weather, hard surface	Unimproved road, fair or dry weather

Interstate Route U.S. Route State Route

MADISON, ALA.
N3437.5-W8637.5/7.5

1975
PHOTOREVISED 1982
DMA 3653 II NW-SERIES V844

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



United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

log #15173

Memorandum

TO: The Secretary
FROM: **ACTING DEPUTY** Assistant Secretary for Fish and Wildlife and Parks

[Handwritten signature] 9/10/85

SUBJECT SUMMARY: Request to Designate as National Historic Landmarks 22 properties in the Man in Space National Historic Landmarks Program Theme Study

DISCUSSION: The National Park System Advisory Board, meeting on May 3, 1985, recommended that the twenty-two properties in the Man in Space theme study named on the attached list be designated as National Historic Landmarks. In accordance with regulations, the Board examined the studies supporting nomination and found that the subject properties meet the criteria of the National Historic Landmarks Program. Except as noted in the attached report on the Advisory Board meeting, the Board voted unanimously to recommend designation of these properties.

Brief descriptions of these properties and comments of interested parties are contained in Appendixes A and C respectively of the attachments. A summary report of the Advisory Board meeting is being prepared and will be transmitted to you when completed. In its absence, actions of the Board relevant to the following recommendations are described here and in the attached "Recommendations of National Historic Landmark Designations by the National Park System Advisory Board"

OPTIONS:

1. To designate the 22 properties on the attached list as National Historic Landmarks.

Your Advisory Board found that these properties meet the prescribed criteria and recommended that they be designated National Historic Landmarks. The criteria are the sole legal basis for designation.

2. To designate only those properties whose owners have not objected to designation.

Air Force objections to designation of the two Man in Space properties under its jurisdiction, Space Launch Complex 2W at Vandenberg Air Force Base and Rogers Dry Lake at Edwards Air Force Base have been resolved. Representatives

Prepared by: Laura Feller

ext: 343-8167

of the National Park Service and the Air Force have reached mutually acceptable agreements on these two nominations. As a result, we are not requesting designation of SLC 2W at this time, and the Air Force has agreed to support designation of Rogers Dry Lake with a revised boundary.

In a letter of July 22, 1985, the National Aeronautics and Space Administration objected to designation of all properties under its jurisdiction. Those are the remaining Man in Space properties other than Launch Complex 33, which is administered by the Army. (This letter is in Appendix B.) While contending that some of its properties do not meet the Landmarks Program criteria, NASA appears primarily concerned about adverse effects on its operations. I believe that such concerns are unwarranted. In any case they should not influence your decision, which should be guided solely by your determination that the properties either do or do not meet the criteria.

3. To designate none of the 22 properties.

This option, like the partial non-designation option above, would require your finding that the properties do not meet the Landmarks Program criteria.

RECOMMENDATION: In light of the discussion above and the recommendation of your Advisory Board, I recommend that you approve Option 1.

Option 1:	Approve	<u>Ann McLaughlin</u>	Date	<u>10-3-85</u>
Option 2:	Approve	_____	Date	_____
Option 3:	Approve	_____	Date	_____

Attachments

Properties in the Man in Space Theme Study
Recommended for Designation as National Historic Landmarks

1. Variable Density Tunnel (Langley Research Center, Hampton, VA)
2. Full Scale Tunnel (Langley)
3. Eight-Foot High Speed Tunnel (Langley)
4. Unitary Plan Wind Tunnel (Ames Research Center, Moffett Field, CA)
5. Rocket Engine Test Facility (Lewis Research Center, Cleveland, OH)
6. Zero-Gravity Research Facility (Lewis)
7. Spacecraft Propulsion Research Facility (Lewis Plum Brook Operations Division)
8. Redstone Test Stand (George C. Marshall Space Flight Center, AL)
9. Propulsion and Structural Test Facility (Marshall)
10. Rocket Propulsion Test Complex (National Space Technology Laboratories, MS)
11. Saturn V Dynamic Test Stand (Marshall)
12. Launch Complex 33 (US Army White Sands Test Facility, NM)
13. Lunar Landing Research Facility (Langley)
14. Rendezvous Docking Simulator (Langley)
15. Neutral Buoyancy Space Simulator (Marshall)
16. Space Environment Simulation Laboratory (Lyndon B. Johnson Space Center, Houston, TX)
17. Spacecraft Magnetic Test Facility (Goddard Space Flight Center, Greenbelt, MD)
18. Twenty-Five-Foot Space Simulator (Jet Propulsion Laboratory, Pasadena, CA)
19. Pioneer Deep Space Station (Goldstone Deep Space Communications Complex, CA)
20. Space Flight Operations Facility (Jet Propulsion Laboratory)
21. Apollo Mission Control Center (Johnson)
22. Rogers Dry Lake (Edwards Air Force Base, CA)



DEPARTMENT of the INTERIOR

news release

NATIONAL PARK SERVICE

For Release January 8, 1986

Anita Clevenger 202/343-7394

INTERIOR DESIGNATES 22 "MAN IN SPACE"
NATIONAL HISTORIC LANDMARKS

Secretary of the Interior Don Hodel today announced that he has designated 22 properties in Alabama, California, Maryland, Mississippi, New Mexico, Ohio, Texas and Virginia, as national historic landmarks representing the early years of the American space program.

"These designations represent the best, most intact and most important examples of the technology which will interpret for future generations the early years of the American space program," Hodel said.

The Interior Department's National Park Service, as directed by Congress (P.L. 96-344), studied approximately 350 sites associated with the early space explorations for preservation and interpretation. "A Man in Space Theme Study" was initiated to consider resources relating to the following general subthemes: technical foundations before 1958; the effort to land a man on the moon; the exploration of the planets and solar system; and the role of scientific and communications satellites.

The Historic Sites Act of 1935 authorizes the Secretary to designate as national historic landmarks properties identified as having significance to the Nation. National historic landmarks are entered in the National Register of Historic Places upon designation.

DOI

(Attached is a list of the 22 national historic landmarks by category.)

For further information contact Dr. Harry Butowsky, Historian, telephone: 202/343-8155.

DESIGNATED NATIONAL HISTORIC LANDMARKS

National Advisory Committee for Aeronautics Wind Tunnels

1. Variable Density Tunnel, Langley Research Center, Hampton, Va.
2. Full Scale Tunnel (Langley)
3. Eight-Foot High Speed Tunnel (Langley)
4. Unitary Plan Wind Tunnel, Ames Research Center, Moffett Field, Calif.

These sites represent the technological base of aeronautical research created by the National Advisory Committee for Aeronautics facilities.

Rocket Engine Development Facilities

5. Rocket Engine Test Facility, Lewis Research Center, Cleveland, Ohio
6. Zero-Gravity Research Facility (Lewis)
7. Spacecraft Propulsion Research Facility (Lewis Plum Brook Operations Division)

These represent the important role of the Lewis Research Center in developing hydrogen as a fuel for the Centaur and Saturn V rockets.

Rocket Engine Test Stands

8. Redstone Test Stand, George C. Marshall Space Flight Center, Huntsville, Ala.
9. Propulsion and Structural Test Facility (Marshall)
10. Rocket Propulsion Test Complex, National Space Technology Laboratories, Bay St. Louis, Miss.

These facilities represent the role of the Marshall Space Flight Center in the building and testing of actual space flight rockets.

Rocket Test Facility

11. Saturn V Dynamic Test Stand, George G. Marshall Space Flight Center, Huntsville, Ala.

This facility illustrates another facet of the building and testing and man-rating of the Saturn V Rocket.

Launch Pads

12. Launch Complex 33, White Sands Test Facility, New Mexico

Launch Complex 33 was designated because of its close association with the testing of the V-2 rocket and the origins of the American Rocket Program.

Apollo Training Facilities

13. Lunar Landing Research Facility, Langley Research Center, Hampton, Va
14. Rendezvous Docking Simulator (Langley)
15. Neutral Buoyancy Space Simulator, George C. Marshall Space Flight Center, Huntsville, Ala.

These facilities were designated because of their association with training programs necessary to prepare American astronauts to land on the moon.

Apollo Hardware Test Facility

16. Space Environment Simulation Laboratory, Lyndon B. Johnson Space Center, Houston, Texas

This Laboratory is important because it was used to man-rate and test the integrity of the Apollo Command and Service Module, Lunar Module, and spacesuits under simulated space conditions here on Earth.

Unmanned Spacecraft Test Facilities

17. Spacecraft Magnetic Test Facility, Goddard Space Flight Center, Greenbelt, Md.
18. Twenty-Five-Foot Space Simulator, Jet Propulsion Laboratory, Pasadena, Calif.

These facilities illustrate the extensive ground support testing facilities needed to accomplish the American unmanned space program--the exploration of the near and deep space environment.

Tracking Stations

19. Pioneer Deep Space Tracking Station, Goldstone Tracking Station, Calif.

The station was the first antenna to support NASA's unmanned exploration of deep space.

Mission Control Centers

20. Space Flight Operations Facility, Jet Propulsion Laboratory, Pasadena, Calif.
21. Apollo Mission Control, Lyndon B. Johnson Space Center, Houston, Texas

These sites are the very heart and soul of both the American Manned and Unmanned Space Programs.

Other Support Facilities

22. Rogers Dry Lake, Edwards Air Force Base, Edwards, Calif.

Although a natural resource, Rogers Dry Lake was designated because of its association with flight testing of advanced aircraft that opened the way to space.

George C. Marshall Space Flight Center
Marshall Space Flight Center, Alabama
35812

Reply to Attn of: AA01

NOV 19 1986

Chief
Division of History
National Park Service
Department of the Interior
Washington, DC 20240

Dear Sir:

As the owner of the Propulsion and Structural Test Facility (Marshall Space Flight Center) located in Huntsville, Madison County, Alabama, we hereby make application for a bronze plaque identifying the property as a National Historic Landmark.

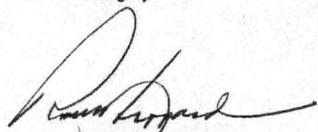
Fully conscious of the high responsibility to the Nation that goes with the ownership and care of a property classified as having national significance and worthy of National Historic Landmark status, we agree to preserve, so far as practicable and to the best of our ability, the historical values of the site that satisfy the criteria for national significance.

We agree to permit periodic inspection of the property by a representative of the National Park Service for the purpose of monitoring its integrity and the nature and degree of any threats thereto.

We agree that, should the landmark designation ever be revoked in accordance with the procedures outlined in the National Historic Landmarks regulations, the bronze plaque and the certificate of designation will be surrendered upon request to the National Park Service.

We further agree to affix the plaque for public view and in an appropriate manner.

Sincerely,



R. G. Sheppard
Deputy Director, Institutional
and Program Support

H34(418)

JAN 13 1987

Mr. R. G. Sheppard
Deputy Director, Institutional
& Program Support
George C. Marshall Space Flight
Center, Alabama 35812

Dear Mr. Sheppard:

We are pleased to have received your application for the bronze plaque identifying the Neutral Buoyancy Space Simulator, Huntsville, Alabama, as a National Historic Landmark.

The Regional Offices of the National Park Service coordinate the presentation of National Historic Landmark plaques and certificates. Therefore, we are notifying the Southeast Regional Office of your application, with the request that they proceed to order and provide the bronze plaque and National Historic Landmark certificate. If you have any questions regarding this or any related issue, you may contact:

Mr. Cecil McKithan
Southeast Regional Office
National Park Service
75 Spring Street, SW
Atlanta, GA 30303
(404) 221-5185

If you desire to invite Washington office officials of the National Park or the Department of the Interior to a presentation ceremony, please also contact:

Mr. Kelly Sinclair
Special Assistant to the Director
National Park Service
Washington, DC 20013-7127
(202) 343-3453.

Sincerely,

Edwin C. Bearss

Edwin C. Bearss
Chief Historian
cc: 001 Reading File
400 Reading File
418 Plaques and Certificates
418 Neutral Buoyancy Space Simulator (NHL)
JHCharleton:wa:01/06/86
NO. 10: Item #3a

H34(418)

JAN 14 1987

Memorandum

To: Regional Director, Southeast Region
Acting Deputy
From: Director

Subject: National Historic Landmark Plaque Applications

Single copies are enclosed of applications by the owners of Churchill Downs, Louisville, Kentucky; and the Neutral Buoyancy Space Simulator, Huntsville, Alabama, for the plaques identifying these National Historic Landmarks.

We ask you to contact the owners and arrange to order and provide the plaques from the Regional budget. We will provide the requisite National Historic Landmark certificates.

The Department would appreciate being advised of arrangements made to present the National Historic Landmark plaques and certificates. Every effort should be made to coordinate ceremonies with the availability of high-level Departmental staff and to secure the participation of Members of Congress who represent the localities. Please contact Mr. Kelly Sinclair, Special Assistant to the Director, at FTS: 343-3453, for assistance in arrangements.

s/ Stanley T. Albright

Attachments

cc:

001 Reading File
400 Reading File
418 Plaques and Certificates
418 Churchill Downs (NHL)
418 Neutral Boyancy Space Simulator (NHL)

JHCharleton:wa:01/06/86

No.10: Item #3

H34(418)

APR 30 1987

Memorandum

To: Regional Director, Southeast Region
Attention: National Historic Landmark Coordinator

From: Associate Director

Subject: National Historic Landmark Plaques and Certificates

We are transmitting for delivery to the owners the following National Historic Landmark certificates for properties in the Southeast Region:

Cotton Exchange Building
Neutral Buoyancy Space Simulator
U.S.S. Kidd, DD 661

The Department would appreciate being advised of arrangements made to present the National Historic Landmark plaques and certificates. Every effort should be made to coordinate ceremonies with the availability of high-level Departmental staff and to secure the participation of Members of Congress who represent the localities. Please contact Mr. Kelly Sinclair, Special Assistant to the Director at FTS: 343-3453, for assistance in arrangements.

Please advise Jim Charleton, History Division, FTS: 343-8165, of any concerns regarding the certificates.

/Sgd/Jerry L. Rogers

Attachments

cc: 001 RF
400 RF
418-PLAQUES AND CERTIFICATES
418-COTTON EXCHANGE BUILDING (NHL)
418-NEUTRAL BUOYANCY SPACE SIMULATOR (NHL)
418-U.S.S. KIDD, DD 661 (NHL)
JHCharleton:pt\$4/22/87 (4)