

FINDING AID FOR THE JOHN HOWARD KIMZEY PAPERS, 1961-1997 (#2018-0009)

Contact Information

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Descriptive Summary

Repository (049): University Archives
Collection # (099): 2018-0009
Title (245): John Howard Kimzey Papers
Creator (100/110): Kimzey, John Howard
Inclusive Dates: 1961- 1997
Bulk Dates: 1965-1972
Extent (300): 10.5 linear feet, 19 6" boxes, 1 3" box
Language (546): English

Administrative Information

Restrictions on Access (506): None
Restrictions on Use (540): None
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Biographical/Historical Note (545)

John Howard Kimzey started to work at the Johnson Space Center as a chemical engineer. He was nationally renowned as an expert in flammability, specifically in the oxygen atmosphere of manned spacecraft, and extinguishment in an oxygen environment. As Principal Investigator for Skylab 4 he performed individual experiments under Technology and Materials Processing focused on Zero-g Flammability. His work demonstrated that it would be hard to control and direct water in space, which meant that it would not be sufficient to put out a fire. Until 1991, his fire experiments in a combustion chamber were the only combustion-related study conducted on a spacecraft. His work on the effects of various fire extinguishing agents in special atmospheres was useful in the development of techniques and equipment for manned spacecraft. The experiments and investigation performed on Skylab 4 formed the rest of his career and made him a pioneering expert for decades to come in this important and underdeveloped field of research.

Kimzey analyzed the data that was gathered from Mercury and observed issues that could affect future manned spacecraft, after which he defined problem areas in flammable and toxic materials. He demonstrated that materials for use on a manned spacecraft needed to be selected with primary attention to crew safety in order to keep them safe from toxic and flammable gases. He was involved with experiments during the Gemini project involving microgravity flights and throughout Gemini it was a major goal to perfect methods of safe reentry. This was an issue that Kimzey also focused on because he was concerned with the materials that were used in space and how they would affect the health of the space team and how those materials would react under the direct pressures and heat of a changing external environment while maintaining an internal oxygen environment.

His work during Apollo continued to develop knowledge of flammability in spacecraft. He continued study of materials, lubricants, and specific clothes and how they would react in oxygen-rich environments with a manned crew aboard. He was ever insistent on the importance of testing flammability scenarios and safety aboard a manned spacecraft. Following the Apollo 13 supercritical oxygen tank incident, Kimzey wrote *Review of Factors Affecting Ignition of Metals in High Pressure Oxygen Systems* which provided summaries of reported data and emphasized the effects of "oxygen concentration; total pressure; convection, including zero gravity; oxygen percentage; and halogenated compounds on ignition." He continued to contribute to the Shuttle program from its conception until his death in 2004. In 1991 he authored *Flammability as Related to Spacecraft Design and Operations*, continuing his work directed toward flammability and extinguishment.

Scope and Content (520)

Collection contains the work of J.H. Kimzey. His participation in field testing at White Sands (WSTF) and in other testing facilities focused on material safety and flammability and extinguishment in a Zero Gravity (Zero-G) environment. His work spans the eras of Gemini, Mercury, Skylab, and Apollo. After leaving his job at the Johnson Space Center he worked for a few outside contractors continuing to do invaluable research for the space program.

Arrangement

The collection is organized by topic in alphabetical order. There are separate bulk sections for important topics that are reoccurring. Flammability is a large focus as his life work revolved around flammability in zero-g environments.

Index Terms (6xx):

Personal Names: John Howard Kimzey

Corporate Names: Goddard Space Flight Center, Kalrez, Kapton, Kel- F, Kennedy Space Center, Krytox, Kynar, Lubeco, McDonnell Aircraft Company, McDonnell Douglas Space Systems Company, Nextel, UCLA, Wyle Laboratories

Subjects: Apollo, Challenger, Columbia, Flammability, Johnson Space Center (JSC), NASA Contractor Reports (NASA CR), NASA Technical Manual (NASA TM), NASA Technical Reports (NASA- TR), Skylab, Skylink Apollo- Soyuz, Space Shuttle Program (SSP), White Sands Testing Facility Test Report (WSTF TR)

Places: White Sands, Houston, Nassau Bay, Clear Lake, Los Angeles

Document Types: Paper, Photographs, Microfilm transparencies, Books

Items Separated

Duplicate materials were removed to preserve space.

Inventory

<u>Box</u>	<u>Folder</u>	<u>Title</u>	<u>Date</u>
		Series 1: Topics in Alphabetical Order	
1	1	Acoustics	1960s
	2	Adhesion Characteristics of Cold plate Thermal Test Pads	1960s
	3	Adhesion of Metals and Non-Metals in Ultrahigh Vacuum (Preparation and Final Report)	1965-1966
	4	Adhesives	1989,1994
	5	Aerospace Fallout	1960s

	6	Aging	1971,1985-1988
	7	Aircraft	1969, 1978
	8	Aluminum	1973, 1974, 1980-1991
	9	Apollo 204 Hearing before Committee on Aeronautical and Space Sciences	1967, 1986
	10	Arc Tracking	1984-1991
	11	Asteroids (tracking)	1971, 1991-1998
	12	Atomic Oxygen	1983-1991
	13	Atmosphere	1965
2	1	Auto decomposition of Hydrazine	1963-1977
	2	Auxiliary Power Units Challenger and Columbia	1983-1984
	3	Batteries and Lithium	1955-1959, 1972, 1980-1985
	4	Beryllium	1962
	5	Boron Nitride	Undated
	6	Cadmium (Use for Spacelab)	1981-1982
	7	Carbon Monoxide	1971, 1983, 1985
	8	Cleanliness- Rules and Regulations, Requirements Apollo and Skylab	1962-1972, 1988-1992
	9	Combustion Experiments Orbiting Spacecraft Subcontract under NASA contract NAS7-100	1974
	10	Compatibility – Hydrazine and Polymers	1976-1984, 1991
	11	Determining and Assess the State of the Art of High Pressure, Centrifugal Oxygen Compressors Task 1 of Contrast E (46-1)-8010	1976
	12	Elastomers	1969, 1973
	13	Electrical Insulation	1969, 1972-1979, 1990
	14	Electrostatic	1968-1980, 1989
	15	Engineering Documentation/ Drawing Data System (EDDS)	1989-1990
	16	Environmental Control and Life Support System (Development Test Results) Space Station Freedom	1989
	17	Evaporation Six Hour Off Gassing Report for IML-ISL	1965, 1971, 1992
	18	Exterior Contamination Control Plan- Drafts Version 1 and 2	1992
	19	Factors of Safety	1960-1975
3	1	Fuel Cell Regenerative	1985
	2	Goddard Space Flight Center/ Marshall Space Flight Center(GSFC/ MSFC) with Picture	1985-1986
	3	Heat Shield	1960s
	4	Heat Transfer	1961-1965, 1970-1979
	5	Helium	1968, 1995
	6	Human Rights	1990s
	7	Hydraulic Fluid	1974-1975
	8	Hydrazine	1959, 1974-1978, 1985, 1991
	9	Hydrazine Compatibility	1961-1984

	10	Hydrocarbon and Petro-Sulfur Compounds	1962
	11	Hydrogen Folder 1 of 2	1961-1984
4	1	Hydrogen Folder 2 of 2	1961-1984
	2	Hydrogen Peroxide	Undated
	3	Ice	1966
	4	Internal Environment Space Station Atmosphere Monitoring	1985-1986
	5	International Business Machines- Space Station Program Management System, 90BX0013, 901BMX0014	1990
	6	Japanese Off Gassing Round Robin	1985
	7	Jet Propulsion Laboratory- Tests and Off Gassing Results Reviewed and Approved	1985,1986
	8	Kalrez (Sample O-Ring) Material Test Results	1976
	9	Kapton Wire in Records to use for Space Station Freedom	1984-1989
	10	Kel- F Resin- Material Inquiry	1962
	11	Krytox Lubricants	1970-1975
	12	Laminate	1989-1990
	13	Lead	1962-1990
	14	Leak Detection for Space Station	1962
	15	Liquid Fuel	1970-1979
	16	Liquid Locking Compounds	1975-1981
	17	Liquid Metals	1965
5	1	Long Duration Exposure Facility (LDEF)	1990-1991
	2	Lubeco- Materials Test Data	1971,1985
	3	Lubricant Study in Ultrahigh Vacuum and in Various Gas Environments	1965-1966
	4-6	Lubrication and Lubricants Folder 1 - 3	1964-1990
	7	Lubrication Material Company E/M Corporation Correspondence with J.H. Kimzey	1990
	8	Man Rating of Space Vehicles	1990s
	9	Manned Maneuvering Unit International Aerospace Abstracts	1979
	10	Manned Spacecraft Center- High Purity (Potable) Water, Specification for Water with Picture	1960s
	12	Manned System- A Human Factors Symposium and Workshop	1989
	13	Material Considerations for the Low Earth Orbit Environment Long-Life Space Station	1989
6	1	Materials	1981-1991
	2	Materials and Processes Technical Information System (MAPTIS) Materials Analysis Tracking and Control (MATCO)	1986-1991
	3	Materials Processing in Space	1973, 1990
	4	McDonnell Aircraft Company: Members Report to NASA Research and Technology Advisory Committee on Materials and Structures	1976
	5	McDonnell Douglas Space Systems Company MAPTIS- Space Station Material Ratings as Determined by Testing per NHB 8060.1	1997
	6	MDC H4070 External Contamination Control Plan NASA Contract NAS 9-18200 Space Station Freedom	1989

	7	MDSSC-SSD Acronyms and Abbreviations MDC 92H0391	1992
	8	Mercury- Hg Royal Aircraft Establishment Technical Report 77014- Chemical Treatment for Mercury Accidentally Spilled in Aircraft	1977, 1983, 1990
	9	Meteoroids and Meteorites	1970-1983
	10	Metals and Alloys	1988-1991
	11	Military	1960-1990s
	12	Monomethyl Hydrazine	1975-1986
	13	Monthly Reports- Coating for Graphic Fibers Contract NAS1- 14346 July- October	1978
7	1	Moon	1965-1988
	2	N ₂ O ₂ Compatibility- Elastomers	1978-1989
	3	N ₂ O ₂ Compatibility- Polymers and Metals N ₂ O ₂ Permeability	1971-1983
	4	NASA Hydrogen- Oxygen Safety Standards reviewed by Kimzey and Final Copy, Letter to Kimzey concerning Final Draft	1985
	5	NASA- Kennedy Space Center Space Shuttle Materials Control and Verification Program Plan	1985, 1987
	6	NASA Reference Publication 1113 Design Guide for High Pressure Oxygen Systems	1983
	7	Nextel Ceramic Fibers (with Samples)	Undated
	8	NRL Report 5630- Annual Progress Report: Present Status of Chemical Research in Atmosphere Purification and Control on Nuclear- Powered Submarines	1961
	9	NRL Report 6722- Sixth Annual Progress Report Present Status of Chemical Research in Atmosphere Purification and Control on Nuclear Powered Submarines	1968
	10	NSTS 18798 Interpretations of NSTS Payload Safety Requirements Revision A	1989
	11	Nuclear Radiation	1969-1985
8	1	Nutrition	1986-1989
	2	Oceanography	Undated
	3	Odor- Human Physiology	1960s
	4	Ozone	1960-1974
	5	Paper (Non-flammable)	1967
	6	Payload	1960s
	7	Payload Standards Integration Program- Spacelab	1981-1986
	8	Permeability of Rubber	Undated
	9	Planets	1960-1999
	10	Pollution (Air)	1960-1975
	11	Polyimide	1966-1969
	12	Polyurethane (Foam)	1964- 1968
	13	Pressure	1967
	14	Prudent Practices for Handling Hazardous Chemicals in Laboratories, J.H. Kimzey Notes	1980, 1981
	15	Pyrophoric Metal	Undated
	16	Quality Assurance	Undated

9	1	Radiation	1962,1965,1985-1993
	2	SE-R- 0006 Rev. C- General Specification NASA JSC Requirements for Materials and Processes	1982
	3	SE-0-0104 General Specification- NASA JSC Requirements for Flight and Flight Prototype Liquid and High Pressure Oxygen Components and Systems	1983
	4	Shuttle Fluid Compatibilities	1981
	5	Skylink Apollo- Soyuz	1971
	6	Smoke and Smoldering	1969, 1975,1984, 1989,1997
	7	SN-C-0005 Revision C Contamination Control Requirements for the Space Shuttle Program	1992
	8	Solar Absorbance	1992
	9	Solar Alpha Rotary Joint- SARJ Lubrication for Joints	1989, 1977, 1990
	10	Solar Energy	1977,1978, 1981,1989-1994
	11	Solid Rocket Booster Experimental Techniques for Solid Propellant Combustion	1986
	12	Solvents	1961, 1968,1993
	13	Space Debris	1988, 1990, 1994
	14	Space Station Contamination Form	1985
	15	Space Station Integration Waste Gas System - IWGS	1991
	16	Space Station Organization	1997
	17	STS-1 Mission Commentary Tapes 0021-0037	1981
	18	STS-3 Oxygen Atom Reaction with Shuttle Materials at Orbital Altitudes- Data and Experiments Status	1983
	19	STS-3 Remote Manipulator System Press Kit	1982
	20	STS-5 Low Earth Orbit Atomic Oxygen Effects on Surfaces LEO Atomic Oxygen Effects on Spacecraft Materials	1984
	21	STS-5 – STS 8 a Consideration of Atomic Oxygen Interactions with Space Station	1985-1986
	22	STS-8 Atomic Oxygen Effects Experiment	1985
	23	STS 51- F, STS 61- A, Mission 51-G Crew Debriefings and “Lessons Learned”	1985, 1992
	24	STS OV-102 Space Transportation Systems	1966
	25	Test Plan for Orbital Satellite Servicing Suit Exposure, Test TTA-TP- 2P357	1983
	26	Test Plan Oxygen Tank Failure	1989
	27	Thermally Conductive- Potting Compound- Rubber	1973, 1988, 1990
10	1	Thermal Insulation	1969, 1974, 1992
	2	Titanium	1962, 1968, 1974
	3	Toxicity	1968, 1974, 1980, 1989, 1991
	4	U.F.O.s	1972-1996
	5-6	Space Station Freedom Contingency Operations Scenarios: Mission Operations Directorate Memo 1-1 to 6-16 Folders 1- 2	1990-1991
	7	Vacuum Science and Technology- Ultra High Vacuum	Undated
	8	Vapor Pressure	Undated

	9	Wyle Laboratories "Spacecraft Fire Safety Analysis and Planning" NASA Contract NAS3-25367	1987-1989
	10	Zirconium	Undated
		Series 2: Flammability	
11	1	AF APL-TR- 65-114 Fire and Explosion Detection for Advanced Flight Vehicles	1965
	2	Carbon Dioxide and Fire Extinguishment in Regards to Space Station	1988-1992
	3	Evaluation of High Expansion Foam for Spacecraft Fire Extinguishment. Contract NAS 9-7983	1969
	4	Explosives Research Center- Flammability of Materials in Hyperbaric Atmospheres	1967
	5	Fire and Their Atmosphere Products in Spacecraft Robert Friedman NASA Lewis Research Center	1991
	6	Fire Detector	1972-1974
	7	Fire Scenarios Space Station Freedom Explosion/ Detonation Scenarios Space Station Freedom	1989-1991
	8	Flammability	1960-1995
	9	Flammability- as Related to Spacecraft Design and Operations	1991
	10	Flammability of Electronic Components in Spacecraft Environments Contract No. NAS12-623	1968
12	1	Hyperbaric Environment and Flammability Concerns, Flammability in Space Station Freedom	1981-1992
	2	Hyperbaric Environment Fire Extinguishment in Regards to Space Station Freedom	1980-1986
	3	J.H. Kimzey Personal Work Journals- Fire Extinguishments on Gemini, Zero-gravity Flammability on Apollo, Fire Investigation Board	1966
	4	J.H. Kimzey Personal Work Journals- Fire Extinguishments, Fire, Zero-gravity film, flammability testing, flammability of materials	1967
	5	J.H. Kimzey Personal Work Journals- Fire Extinguishment, Fire Protection Systems, Zero-g Apollo 6	1968
	6	J.H. Kimzey Personal Work Journals- Fire Hazards in Oxygen Enriched Atmosphere, Apollo 11, Apollo 12, MSFC, Space Base	1969-1970
	7	J.H. Kimzey Personal Work Journals- Work as a consultation for flammability and Extinguishment	1988-1989
	8	J.H. Kimzey Presentation on Fire Hazard Control and Risk Minimization on Space Programs UCLA	1991
	9	J.H. Kimzey Schedule, notes on Zero-gravity Flammability, Manned Spacecraft Center	1963-1964
	10	Medical Hazards of Flame Suppressant Atmospheres	1991
	11-12	Metal Flammability Folder 1 - 2	Undated
13	1	M-TR 65-78 The Effects if 100% Oxygen at Reduced Pressure on the Ignitibility and Combustibility of Materials	1965
	2	NB-SIR 77-1264 Fire Research Specialists Directory	1977
	3	Proceedings of Fire Hazards and Extinguishments Conference AMD- TR 67-2	1967
	4	Proposal 5487.3000, Proposal for Orbital Zero- Gravity Combustion Experiments, MSC 5-65-1408 Cost Proposal, Denial Memo	1965

	5	Pyrolysis Flammability and Toxicological Characteristics of Isocyanurate Foams	1985
	6	Review of Fire and Explosion Hazards of Flight Vehicle Combustion	1965
	7	Skylab ¼ Corollary Experiments Debriefing Prepared by Orbital Assembly Project Office JHK pages 30-42	1974
	8	Smoke Hazards from Burning Plastics	1974
	9	Space Shuttle Environmental and Thermal Control/ Life Support System "Fire Detection and Extinguishment." Manned Spacecraft Center	1971
	10	Toxicity of Smoke in Zero Gravity, Research for "Spontaneous Ignition," Proposal for "Spontaneous Ignition", J.H. Kimzey response to NASA OAST Program	1986
	11	Toxicity of Smoke in Zero Gravity	1986
	12	Workshop of Spacecraft Fire Safety UCLA (with slides)	1991
	13	Wyle Laboratories Spacecraft Safety Consultation Documents over Spacecraft Fire Safety and Extinguishment	Undated
14	1	Zero Gravity Effects on Flammability and Fire Extinguishment, Correspondence Regarding Collaboration of Research Information	1960s-1980s
	2	Zero Gravity Flammability- Phase 3 NASA Technical Report TM X-1992	1992
	3	Zero Gravity (Zero-g), Skylab M-479 Experiment, Zero-g Flight Test Plan Addendum: Flammability in Zero-g	1963
		Series 3: Johnson Space Center (JSC)	
	4	JSC 5322 Contamination on Control Requirements- Superseding JSCM	1974, 1982
	5	JSC 12545 Crew Training and Procedures Division Flight Activities Branch	1980
	6	JSC 13833 Control Plan for Non-flight Materials and Equipment	1981
	7	JSC 17773 Instructions for Preparation of Hazard Analysis for JSC Ground Operations	1984
	8	JSC 19438 Internal Note for Orbital Satellite Servicing Suit Exposure Test. Thermochemical test area (with pictures and test results).	1984
	9	JSC 19614 Materials Branch Procedures for Conducting Flammability, Off-gassing, Fracture Control, Outgassing and Stress Corrosion Payload	Undated
	10	JSC 19649 Space Station Fracture Control Plan	1984
	11	JSC 20149 Space Station Requirements for Materials and Processes	1984
	12	JSC 20584 Spacecraft Maximum Allowable Concentrations for Airborne Contaminants (SMAC)	1990
	13-14	JSC 20810 Handbook of Material Test Data (Folder 1-2) includes microfilm	1985
15	1	JSC 20810 Handbook of Material Test Data (Folder 3) includes microfilm	1985
	2	JSC 23160 Orbiter Avionics Radiation Handbook	10/ 1988
	3	JSC 23213 An Investigation of External Tank Charring During STS 51-J	1987
	4	JSC 30233 Space Station Requirements for Materials and Processes	1986- 1990

	5	JSC 30236 Space Station Electromagnetic Effects Control Process Requirements	1986
	6	JSC 30238 Space Station Electromagnetic Technology-Review of Item Discrepancy	1989
	7	JSC 30245 Space Station Electrical Bonding Requirements (becomes SSP 30245) Space Station Freedom Review Item Discrepancy Forms	1991
	8	JSC 30420 Space Station Electromagnetic, Ionizing Radiation and Plasma Environment Definition and Design Requirements	1986, 1991
	9	JSC 30426 Space Station External Contamination Control Requirements	1986-1991
	10	JSC 30511 Space Station Ionizing Radiation Environment Effects Design Standard	1987
		Series 4: NASA Contractor Reports (NASA CR)	
	11	NASA CR- 98500 60 Day Manned Test of a Regenerative Life Support System with Oxygen and Water Recovery Part 1 and 2 Memo to Kimzey for comments and suggestions	1968
	12	NASA CR-135234 Burning of Liquid Pools Reduced Gravity	1977
16	1	NASA CR-159528 Definition of Smolder Experiments for Spacelab	1979
	2	NASA CR-159642 Feasibility Study of Liquid Pool Burning in Reduced Gravity	1979
	3	NASA CR-182114 Spacecraft Fire-Safety Experiments for Space Station Technology Development Mission Wyle Laboratories Contract No NAS3-25067	1988
	4	NASA CR-185147 Advanced Spacecraft Fire Safety: Proposed Projects and Program Plan	1989
	5	NASA CR-187115 Material Flammability Test Assessment for Space Station Freedom	06/1991
	6	Series 5: NASA Series Publications (NASA SP)	
	7	NASA SP-3072 Asrdis Oxygen Technology Survey Volume II: Cleaning Requirements, Procedures, and Verification Techniques (includes microfilm) Notes from J.H. Kimzey	1972
	8	NASA SP-3077 Asrdis Oxygen Technology Survey Volume VII: Characteristics of Metals that Influence System Safety (includes microfilm)	1974
	9	NASA SP- 5012 Effects of Low Temperatures on Structural Metals	12/1964
	10	NASA SP-5045 Contamination Control Principles	1967
	11	NASA SP-5076 Contamination Control Handbook	1969
	12	NASA SP-5109 Systematic Control of Nonmetallic Materials for Improved Fire Safety- A Report	1972
	13	NASA SP-7012 The International System of Units Physical Constants and Conversion Factors (notes and corrections by Kimzey)	1969
	14	NASA SP-8005 NASA Space Vehicle Design Criteria (Environment) Solar Electromagnetic Radiation	07/1971
	15	NASA SP-8021 Models of Earth's Atmosphere (120 to 1000 km)	05/1969
	16	NASA SP-8049 The Earth's Ionosphere	03/1971

		Series 6: NASA Technical Manual (NASA TM)	
	17	NASA TM-58246 Oxygen Atom Reaction With Shuttle Materials at Orbital Altitudes	05/1982
	18	NASA TM-78234 Early Space Experiments in Materials Processing	07/1979
	19	NASA TM-100351 Material Selection Guidelines to Limit Atomic Oxygen Effects on Spacecraft Surfaces	1989
	20	NASA TM-100459 Atomic Oxygen Effects Measurements for Shuttle Missions STS-8 and 41-G Volume 3	09/1988
	21	NASA TM-104334 "Fire Suppression in Human-Crew Spacecraft" with notes from J.H. Kimzey Author's Response to Kimzey's notes Final Copy	1991
	22	NASA TM-106093 Contributions of Microgravity Test Results to the Design of Spacecraft Fire Safety Systems	1993
17	1	NASA TM X-1992 Comparison of Flame Spreading over Thin Flat Surfaces in Normal Gravity and Weightlessness in an Oxygen Environment	1970
	2	NASA TM X-2174 Burning of Teflon Insulated Wires in Supercritical Oxygen at Normal and Zero Gravities	02/1971
	3	NASA TM X-52757 An Investigation of Gravity Effects in Laminar Gas Jet Diffusion Flames	08/1970
		Series 7: NASA Technical Note (NASA TN)	
	4	NASA TN D-1580 Boundary Lubrication Characteristics of Typical Bearing Steel in Liquid Oxygen	02/1963
	5	NASA TN D-2081 Evaporation Rates for Various Organic Liquid and Solid Lubricants in Vacuum to 10^{-8} Millimeter of Mercury at 55° to 1100°F	12/1963
	6	NASA TN D-5579 Static Electricity in the Apollo Spacecraft	12/1969
	7	NASA TN D-5872 Effects of Gravity on Laminar Gas Jet Diffusion Flames	06/1970
	8	NASA TT F- 13940 The Behavior of a Burning Candle in Gravitationless Space	1973
		Series 8: NASA Handbook (NHB)	
	9	NHB 1700.7A and 1700.7B Safety Policy and Requirements for Payloads Using the Space Transportation System (STS)	1980, 1989
	10	National Space Transportation System (NSTS) 1700.7B (Formally NHB 1700.7A)	1989
	11	NHB 8071.1 Fracture Control Requirements for Payloads Using the National Space Transportation System (NSTS)	1988
	12	NHB 5060.1A, NHB 8060.1B, NHB 8060.1C Flammability, Odor, and Off gassing Requirements and Test Procedures for Materials in Environments that Support Combustion	1974, 1981, 1991
		Series 9: Space Station Program (SSP)	
	13	SSP 30000 Section 4: Space Station Operations Requirements	Undated
	14	SSP 30215 Revision B Notes of correction for Revision C	1988
18	1	SSP 30233 Space Station Requirements for Materials and Processes	1989
	2	SSP 30237 Space Station Electromagnetic Emission and Susceptibility Requirements for Electromagnetic Compatibility	1991

	3	SSP 30240 Space Station Grounding Requirements	10/1991
	4	SSP 30242 Space Station Cable and Wire Design Control Requirements for Electromagnetic Compatibility Revision A	09/1991
	5	SSP 30243 Space Station System Requirements for Electromagnetic Compatibility	03/1991
	6	SSP 30245 Space Station Electrical Bonding Requirements Draft	09/1989
	7	SSP 30262 Architectural Control Document Environmental Control and Life Support System Revision C	1989
	8	SSP 30263 Architectural Control Document Electrical Power System Revision C	1989
	9	SSP 30264 Architectural Control Document Fluid Management Systems	1989-1990
	10	SSP 30285 Space Station Commonality Process Requirements	1988
	11	SSP 30312 Electrical, Electronic and Electromechanical Parts Management and Implementation Plan	1988
	12	SSP 30482 Electric Power Specifications and Standards Volume 2: Consumer Constraints	09/1991
	13	SSP 30510 Space Stations Requirements for Ionizing Radiation Environment Compatibility	08/1991
	14	SSP 30512 Space Station Ionizing Radiation Emission and Susceptibility Requirements for Ionizing Radiation Environment Compatibility	06/1991
	15	SSP 30513 Space Station Ionizing Radiation Environment Effects Test and Analysis Techniques	08/1991
	16	SSP 30523 Safety and Product Assurance (S&PA) Information and Planning Group (IPG) Overview Document	1/1991
	17	SSP 30560 Glass, Window, and Ceramic Structural Design and Verification Requirements	06/1991
	18	SSP 30573 Space Stations Freedom Program Fluid Procurement and Use Control Specification Routine Change Request Urgent change Request	1992
		Series 10: Technical Report (TR) White Sands Testing Facility (WSTF) (Initially labeled Testing Plan [TP] or Test Directive [TD])	
19	1	TD 205-001 WSTF Lower and Upper Flammability Properties of Hydrazine and Monomethyl-Hydrazine in Air of Reduced Pressures	04/1978
	2	TP-WSTF-221 Determination of the Effects of Pressure and Potentially Catalytic Surfaces on the Auto-decomposition Temperature of Anhydrous Hydrazine	1977
	3	TP- WSTF-226 Determination of the Exothermic Properties of the Auto-decomposition Reactions of Liquid Hydrazine Report with photos	1978, 1979
	4	TR-205-003 WSTF Auto-ignition Characteristics of Monomethyl-Hydrazine at Reduced Pressure (with figures and photos)	06/1978
	5	TR-205-004 WSTF Auto-ignition Characteristics of Hydrazine at Reduced Pressure (with figures and photos)	09/1978
	6	TR-225-001 WSTF Thermal Regeneration Temperatures of Materials Exposed to Hydrazine Vapor and Air Mixtures (with figures and photos)	06/1978

	7	TR-226-001 WSTF The Exothermicity of Liquid Hydrazine Exposed to Various Auxiliary Power Unit Materials (with figures and photos)	05/1980
	8	TR-243-001 WSTF Ignitability of Hydrogen/ Oxygen/ Nitrogen Mixtures at Reduced Pressures (with figures and photos)	12/1980
	9	TR-246-001 WSTF Compatibility of Various Orbital Coolant System Materials with Freon TA (with figures and photos) Memo for suggested edits from J.H. Kimzey	09/1981
	10	TR-255-001 WSTF Freon 1301 Fire Extinguishment Evaluation	10/1979
	11	TR-271-001 WSTF The Exothermicity of Monomethyl-hydrazine and Kynar 460 (with figures and photos)	05/1980
	12	TR-282-001 WSTF Flammability of Vapor Hydrazine and Monomethyl-hydrazine in Air at Reduced Pressures and Elevated Temperatures	10/1980
	13	TR-291-001 WSTF Compatibility of AFE-411 with Hydrazine at Elevated Temperatures	05/1981
	14	TR-293-001 WSTF Thermal Compatibility of Kalrez 1045, FEP Teflon, Dyed and Undyed Tefzel in Hydrazine at Elevated Temperatures (with figures and photos)	07/1981
	15	TR-650-001 WSTF Evaluations of the Fire Extinguishment for Space Station Freedom	03/1992
	16	WSTF The Burning of Metals and Alloys in Microgravity (with figures and photos)	Undated
		Series 11: Personal	
20		College Chemistry book of John Howard Kimzey	1932