Traceability of SMARTS Requirements from Document: various for Project: Constellation (CxP)										
Filter Settings: Tech Authority: Any | OSMA Opinion: Y | CxP Implementation: Y										
Parent Doc Num	**Parent Doc Para**	**Parent Req ID**	**Parent Req Text**	**Tech Auth**	**OSMA Opinion**	**CxP Impl'n**	**CxP Discipline**	**CxP Doc**	**CxP Doc Para**	**CxP Doc Req**
NASA STD 2202-93	0	57095	NASA Standard 2202-93 is represented by this single entry. If this entry is being viewed from a filter, list, or traceability report, then the metadata applies to the document as a whole.	S	Y	Y	SWA	CxP 70059	7.5.2.2	SWA-44
NASA STD 8719.13B	4.1.1	33382	When the system is determined to be safety-critical, the software shall be evaluated for its contribution to the safety of the system. (Requirement 33382)	S	Y	Y	SWA	CxP 70059	7.5.7.2	SWA-69
NASA STD 8719.13B	4.1.1.1	33383	Until proven otherwise, based on the following evaluation criteria, all software within a safety critical system shall be assumed to be safety critical. (Requirement 33383)	S	Y	Y	SWA	CxP 70059	7.5.7.1	SWA-68
								CxP 70059	7.5.7.2	SWA-69
								CxP 70059	7.5.7.2	SWA-70
NASA STD 8719.13B	4.1.1.2.a	33385	Software shall be classified as safety-critical if it meets at least one of the following criteria: Resides in a safety-critical system (as determined by a hazard analysis) AND at least one of the following apply: 1) Causes or contributes to a hazard. 2) Provides control or mitigation for hazards. 3) Controls safety-critical functions. 4) Processes safety-critical commands or data (see note 4-1 below). 5) Detects and reports, or takes corrective action, if the system reaches a specific hazardous state. 6) Mitigates damage if a hazard occurs. 7) Resides on the same system (processor) as safety-critical software (see note 4-2 below). (Requirement 33385)	S	Y	Y	SWA	CxP 70059	7.5.7.2	SWA-70
NASA STD 8719.13B	4.1.1.2.b	33386	Software shall be classified as safety-critical if it meets at least one of the following criteria: Processes data or analyzes trends that lead directly to safety decisions	S	Y	Y	SWA	CxP 70059	7.5.7.2	SWA-69
								CxP 70059	7.5.7.2	SWA-70
NASA STD 8719.13B	4.1.1.2.c	33387	Software shall be classified as safety-critical if it meets at least one of the following criteria: Provides full or partial verification or validation of safety-critical systems,	S	Y	Y	SWA	CxP 70059	7.5.7.2	SWA-69
								CxP 70059	7.5.7.2	SWA-70
NASA STD 8719.13B	4.1.1.2.Note 4-1:	33388	If data is used to make safety decisions (either by a human or the system), then the data is safety-critical, as is all the software that acquires, processes, and transmits	S	Y	Y	SWA	CxP 70059	7.5.7.2	SWA-69
								CxP 70059	7.5.7.2	SWA-70
NASA STD 8719.13B	4.1.1.3(1)	33390	The software evaluation shall occur during the concept or formulation phase, prior to the acquisition or planning for the given software for all new projects. (Requirement 33390)	S	Y	Y	SWA	CxP 70059	7.5.7.1	SWA-68
								CxP 70059	7.5.7.2	SWA-69
								CxP 70059	7.5.7.2	SWA-70
NASA STD 8719.13B	4.1.1.4	33392	The evaluation results shall be recorded in an appropriate document. (Requirement 33392)	S	Y	Y	SWA	CxP 70059	7.5.7.3	SWA-76
NASA STD 8719.13B	4.1.1.5	33393	The Center or responsible Program Safety and Mission Assurance (SMA) organization shall approve the evaluation conclusions. (Requirement 33393)	S	Y	Y	SWA	CxP 70059	7.5.7.2	SWA-124
								CxP 70059	7.5.7.6	SWA-112
NASA STD 8719.13B	4.1.2	33394	The requirements of this Standard shall apply to all safety-critical software elements regardless of the presence of non-software hazard controls or mitigations (e.g.,	S	Y	Y	SWA	CxP 70059	7.1	SWA-1
								CxP 70059	7.5.7.2	SWA-70
NASA STD 8719.13B	4.2.1	33399	Software safety personnel shall participate in system safety analyses, including the PHA, which is usually conducted during the concept or formulation phase.	S	Y	Y	SWA	CxP 70059	7.5.7.3	SWA-75
								CxP 70059	7.5.7.3	SWA-76
NASA STD 8719.13B	4.2.1.1	33400	Identified hazards associated with a specific requirement, design concept and/or operation shall be evaluated for software s contribution to hazard causes, controls,	S	Y	Y	SWA	CxP 70059	7.5.7.3	SWA-75
								CxP 70059	7.5.7.3	SWA-76
NASA STD 8719.13B	4.2.1.2	33401	Software safety analyses shall be conducted in conjunction with the overall system safety analyses. System safety analyses provide input into software safety	S	Y	Y	SWA	CxP 70059	7.5.7.3	SWA-75
								CxP 70059	7.5.7.3	SWA-76
NASA STD 8719.13B	4.2.2	33402	System safety analyses, including the PHA, subsequent system hazard analyses, and software safety analyses shall be used to create new, or identify existing, software requirements necessary to mitigate or resolve any hazards where software is a potential cause or contributor, or enable software to be used as a hazard control. Such requirements are designated as software safety requirements. (Requirement 33402)	S	Y	Y	SWA	CxP 70059	7.5.7.5.1	SWA-80
NASA STD 8719.13B	4.2.2.1	33403	Identified software safety requirements and software hazard causes, contributors, and controls shall be recorded in an appropriate document and referenced in a safety plan. The requirements are usually documented in a section of the software	S	Y	Y	SWA	CxP 70059	7.5.7.3	SWA-75
								CxP 70059	7.5.7.3	SWA-76
								CxP 70059	7.5.7.5.1	SWA-80
NASA STD 8719.13B	5.01.2.1	33424	Program/project/facility management shall be responsible for software safety planning within the project. (Requirement 33424)	S	Y	Y	SWA	CxP 70059	7.5.7.1	SWA-68
								CxP 70059	7.5.7.2	SWA-69
								CxP 70059	7.5.7.4.2	SWA-125
								CxP 70065	3.4	CSR-34-011
NASA STD 8719.13B	5.01.2.1.1	33425	Program/project/facility management shall consult with software safety personnel regarding the acquisition of safety-critical software and its applicability to this Standard. (Requirement 33425)	S	Y	Y	SWA	CxP 70059	7.5.7.3	SWA-127
NASA STD 8719.13B	5.01.2.1.2	33426	Program/project/facility management shall ensure that the acquired or developed system is periodically evaluated for the use of software in safety-critical functions. (Requirement 33426)	S	Y	Y	SWA	CxP 70059	7.5.7.1	SWA-68
								CxP 70059	7.5.7.2	SWA-69
								CxP 70059	7.5.7.2	SWA-70
								CxP 70065	0	CSR-34-008
NASA STD 8719.13B	5.01.2.1.3	33427	Program/project/facility management shall provide adequate resources, including trained software safety personnel (trained per NASA policy), schedule time, tools, and budget, to the software safety program. (Requirement 33427)	S	Y	Y	SWA	CxP 70059	7.5.7.4.1	SWA-100
NASA STD 8719.13B	5.01.2.1.4	33428	Program/project/facility management shall designate personnel to be responsible fo the software safety program (e.g., software safety manager) of the project, program or facility. (Requirement 33428)	S	Y	Y	SWA	CxP 70059	7.2	SWA-3
NASA STD 8719.13B	5.01.2.1.5	33429	Program/project/facility management shall work with SMA management to provide a means to resolve conflicts related to software safety requirements or processes. (Requirement 33429)	S	Y	Y	SWA	CxP 70059	1.8	MGT-18
								CxP 70059	1.8	MGT-19
								CxP 70059	1.8	MGT-20
								CxP 70059	1.9	MGT-21
NASA STD	5.01.2.2	33430	Program/project/facility management shall ensure that the software safety program	S	Y	Y	SWA	CxP 70059	7.4.1	SWA-35

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8719.13B			is planned and executed throughout the entire software life cycle. (Requirement					CxP 70059	7.5.7.4.3	SWA-72
NASA STD 8719.13B	5.01.2.3	33431	Program/project/facility management shall ensure that software safety is an integral part of the overall system safety and software development efforts. (Requirement 33431)	S	Y	Y	SWA	CxP 70059	7.5.7.3	SWA-75
								CxP 70059	7.5.7.3	SWA-76
								CxP 70059	7.5.7.4.3	SWA-77
								CxP 70065	3.4	CSR-34-10
NASA STD 8719.13B	5.01.2.4	33432	Program/project/facility management shall implement a process or mechanism to document, trace, communicate, and close software safety concerns that result from safety analyses or design reviews, with concurrence of the safety personnel. (Requirement 33432)	S	Y	Y	SWA	CxP 70059	7.5.3	SWA-45
								CxP 70059	7.5.3	SWA-46
								CxP 70059	7.5.3	SWA-47
NASA STD 8719.13B	5.01.3.1	33434	A software safety manager shall be assigned to each project, program or facility, with the responsibility to develop and implement the software safety processes and plans. (Requirement 33434)	S	Y	Y	SWA	CxP 70059	7.2	SWA-3
NASA STD 8719.13B	5.01.3.1.1	33435	The software safety manager shall communicate software safety concerns directly to the project manager for resolution within the project. (Requirement 33435)	S	Y	Y	SWA	CxP 70059	7.5.7.4.1	SWA-6
NASA STD 8719.13B	5.01.3.1.2	33436	The software safety manager shall follow the approved method to elevate software safety concerns that cannot be resolved within the project. (Requirement 33436)	S	Y	Y	SWA	CxP 70059	7.5.7.4.1	SWA-6
NASA STD 8719.13B	5.01.3.1.3	33437	The software safety manager shall assure that risks affecting software safety are captured, addressed, and managed as part of program, project, and facility risk management processes, and those risks which could impose a system hazard are captured in the system hazard analyses. (Requirement 33437)	S	Y	Y	SWA	CxP 70059	7.5.7.4.1	SWA-101
NASA STD 8719.13B	5.01.3.1.4	33438	The software safety manager (or designee) shall be a part of any change control board that approves software modifications affecting safety-critical systems. (Requirement 33438)	S	Y	Y	SWA	CxP 70059	7.5.7.4.3	SWA-7
NASA STD 8719.13B	5.01.3.1.5	33439	The software safety manager shall provide input to management on the selection of off-the-shelf or previously created (reused) software for incorporation into safety-critical systems. (Requirement 33439)	S	Y	Y	SWA	CxP 70059	7.5.7.5.2	SWA-85
NASA STD 8719.13B	5.01.3.1.6	33440	The software safety manager shall provide inputs to management regarding requirements to be imposed on a contractor(s) for development of safety-critical software. These requirements include, at a minimum, documentation, process definition, quality assurance and verification and validation requirements as they relate to assuring safety of the system. (Requirement 33440)	S	Y	Y	SWA	CxP 70059	7.3.1	SWA-13
								CxP 70059	7.4.1	SWA-35
								CxP 70059	7.5.7.5.2	SWA-126
NASA STD 8719.13B	5.01.3.2	33441	One or more personnel shall be assigned the responsibility for performing software safety analyses (or assuring it is properly conducted and documented). This person or persons shall be referred to in this document as the software safety personnel. (Requirement 33441)	S	Y	Y	SWA	CxP 70059	7.2	SWA-3
NASA STD 8719.13B	5.01.3.2.1	33442	Software safety personnel shall have the organizational freedom and authority to analyze and report software safety non-conformances. (Requirement 33442)	S	Y	Y	SWA	CxP 70059	1.8	MGT-18
								CxP 70059	1.8	MGT-19
								CxP 70059	7.5.7.4.1	SWA-101
NASA STD 8719.13B	5.01.3.2.2	33443	Software safety personnel shall review system hazard analyses for changes that impact the software subsystem. (Requirement 33443)	S	Y	Y	SWA	CxP 70059	7.5.7.3	SWA-75
NASA STD 8719.13B	5.01.3.2.3	33444	Software safety personnel shall provide information on changes in safety-critical software to system safety personnel for evaluation and incorporation into system safety documents. (Requirement 33444)	S	Y	Y	SWA	CxP 70059	7.5.7.3	SWA-75
								CxP 70059	7.5.7.3	SWA-76
								CxP 70059	7.5.7.5	SWA-86
								CxP 70065	3.4	CSR-34-10
NASA STD 8719.13B	5.01.3.2.4	33445	Software safety personnel shall support the system safety review process. (Requirement 33445)	S	Y	Y	SWA	CxP 70059	7.5.7.3	SWA-75
								CxP 70059	7.5.7.3	SWA-76
								CxP 70059	7.5.7.5	SWA-86
								CxP 70065	3.4	CSR-34-10
NASA STD 8719.13B	5.01.3.2.5	33446	Software safety personnel shall participate in project reviews. These include any NASA-specific reviews, e.g., Preliminary and Critical Design Reviews (PDR, CDR), Design Certification Review (DCR), FACI (First Article Configuration Inspection), Test Readiness Review (TRR), Certification of Flight Readiness (CoFR), Preflight Acceptance Review (PAR), Flight Acceptance Review (FAR), facility reviews, etc. (Requirement 33446)	S	Y	Y	SWA	CxP 70059	2.2.1	SAF-181
NASA STD 8719.13B	5.01.4.1	33448	At least one software assurance engineer shall be assigned responsibility for assuring that software safety is planned, approved, and implemented. (Requirement 33448)	S	Y	Y	SWA	CxP 70059	7.2	SWA-3
								CxP 70059	7.3.1	SWA-13
								CxP 70059	7.4.1	SWA-35
								CxP 70059	7.5.7.5.2	SWA-126
NASA STD 8719.13B	5.01.4.1.1	33449	The software assurance engineer shall assure that software safety processes, product standards and procedures are followed. (Requirement 33449)	S	Y	Y	SWA	CxP 70059	7.2	SWA-3
								CxP 70059	7.3.1	SWA-13
								CxP 70059	7.4.1	SWA-35
								CxP 70059	7.5.7.4.2	SWA-125
								CxP 70059	7.5.7.5.2	SWA-126
NASA STD 8719.13B	5.01.4.1.2	33450	The software assurance engineer shall be assigned responsibility for performing software safety assurance audits. (Requirement 33450)	S	Y	Y	SWA	CxP 70059	7.2	SWA-3
								CxP 70059	7.3.1	SWA-13
								CxP 70059	7.4.1	SWA-35
								CxP 70059	7.5.7.4.2	SWA-125
								CxP 70059	7.5.7.5.2	SWA-126
NASA STD	5.01.4.1.3	33451	The software assurance engineer shall report software safety process non	S	Y	Y	SWA	CxP 70059	7.3.1	SWA-13

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8719.13B			conformances to software and system safety personnel, to project/program/facility management. (Requirement 33451)					CxP 70059	7.5.3	SWA-45
								CxP 70059	7.5.3	SWA-46
								CxP 70059	7.5.3	SWA-47
								CxP 70059	7.5.7.5.2	SWA-126
NASA STD 8719.13B	5.02.1	33457	Software safety assessment and planning shall be performed for each software acquisition, development, and maintenance activity, and for changes to legacy systems. (Requirement 33457)	S	Y	Y	SWA	CxP 70059	7.2	SWA-3
								CxP 70059	7.3.1	SWA-13
								CxP 70059	7.4.1	SWA-35
								CxP 70059	7.5.7.5.2	SWA-126
								CxP 70065	3.4	CSR-34-011
NASA STD 8719.13B	5.02.1.1	33458	Safety program reviews shall be planned and conducted to ensure proper implementation of the software safety program. (Requirement 33458)	S	Y	Y	SWA	CxP 70059	7.2	SWA-3
								CxP 70059	7.3.1	SWA-13
								CxP 70059	7.4.1	SWA-35
								CxP 70059	7.5.7.5.2	SWA-126
								CxP 70065	3.4	CSR-34-011
NASA STD 8719.13B	5.02.2	33459	Software safety planning shall be implemented at a point in time sufficient to provide direction to personnel performing the software development and assurance activities. Ideally, software safety planning will begin at project conception or formulation. Legacy systems and projects already in development should determine, with input from Center or program SMA, how this Standard should be applied. (Requirement 33459)	S	Y	Y	SWA	CxP 70059	7.2	SWA-3
								CxP 70059	7.3.1	SWA-13
								CxP 70059	7.4.1	SWA-35
								CxP 70059	7.5.7.5.2	SWA-126
								CxP 70065	3.4	CSR-34-011
NASA STD 8719.13B	5.02.3	33460	The software safety manager shall document software safety planning information in a Software Safety Plan. (Requirement 33460)	S	Y	Y	SWA	CxP 70059	7.2	SWA-3
								CxP 70059	7.3.1	SWA-13
								CxP 70059	7.4.1	SWA-35
								CxP 70059	7.5.7.5.2	SWA-126
								CxP 70065	3.4	CSR-34-011
NASA STD 8719.13B	5.02.3.1	33461	If the Software Safety Plan is documented in multiple locations, each plan shall include a cross-reference to the safety activities in the associated/related plans. (Requirement 33461)	S	Y	Y	SWA	CxP 70065	3.4	CSR-34-011
								CxP 70128	4.2.6.1	4.2.6.1
NASA STD 8719.13B	5.02.3.2	33462	The Software Safety Plan shall be under configuration control. (Requirement 33462)	S	Y	Y	SWA	CxP 70065	3.1	CSR-31-003
								CxP 70073-01	0	CxP 70073-01
NASA STD 8719.13B	5.02.4.	33463	The Software Safety Plan shall describe how the requirements specified by this Standard will be implemented. For example, this can be done by means of a matrix showing the relationship between requirements of this Standard and the activities specified in the plan. (Requirement 33463)	S	Y	Y	SWA	CxP 70059	7.2	SWA-3
								CxP 70059	7.3.1	SWA-13
								CxP 70059	7.4.1	SWA-35
								CxP 70059	7.5.7.5.2	SWA-126
NASA STD 8719.13B	5.02.5	33464	The Software Safety Plan shall specify the activities to be carried out, the schedule on which they will be implemented, the personnel who will carry out the activities, the methodologies used, and the products that will result. (Requirement 33464)	S	Y	Y	SWA	CxP 70059	7.2	SWA-3
								CxP 70059	7.3.1	SWA-13
								CxP 70059	7.4.1	SWA-35
								CxP 70059	7.5.7.5.2	SWA-126
NASA STD 8719.13B	5.02.6	33465	The Software Safety Plan shall address the interrelationships among system safety, software assurance, software development efforts, and the Center or Program SMA organization. (Requirement 33465)	S	Y	Y	SWA	CxP 70059	7.2	SWA-3
								CxP 70059	7.3.1	SWA-13
								CxP 70059	7.4.1	SWA-35
								CxP 70059	7.5.7.5.2	SWA-126
NASA STD 8719.13B	5.02.6.1	33466	If this project is a candidate for IV&V, the Software Safety Plan shall address, either specifically or by reference to the IV&V MOA, the role of IV&V for the safety-critical software and detail how IV&V will work with the software safety program and personnel. (Requirement 33466)	S	Y	Y	SWA	CxP 70059	7.2	SWA-3
								CxP 70059	7.3.1	SWA-13
								CxP 70059	7.4.1	SWA-35
								CxP 70059	7.5.7.5.2	SWA-126
NASA STD 8719.13B	5.02.6.2	33467	The Software Safety Plan shall specifically address the mechanism by which safety-critical requirements are generated, implemented, tracked, and verified. (Requirement 33467)	S	Y	Y	SWA	CxP 70059	7.2	SWA-3
								CxP 70059	7.3.1	SWA-13
								CxP 70059	7.4.1	SWA-35
								CxP 70059	7.5.7.5.2	SWA-126
NASA STD 8719.13B	5.02.6.3	33468	The Software Safety Plan shall specify procedures for ensuring prompt follow-up and satisfactory resolution of software safety concerns and recommendations. (Requirement 33468)	S	Y	Y	SWA	CxP 70059	7.2	SWA-3
								CxP 70059	7.3.1	SWA-13
								CxP 70059	7.4.1	SWA-35
								CxP 70059	7.5.7.5.2	SWA-126
NASA STD 8719.13B	5.02.6.4	33469	The Software Safety Plan shall specify how the software safety activity schedule will be synchronized with related program/project activities. (Requirement 33469)	S	Y	Y	SWA	CxP 70059	7.2	SWA-3
								CxP 70059	7.3.1	SWA-13
								CxP 70059	7.4.1	SWA-35
								CxP 70059	7.5.7.5.2	SWA-126
NASA STD 8719.13B	5.02.6.5	33470	The Software Safety Plan shall specify the number and relative schedule of software safety assurance audits. (Requirement 33470)	S	Y	Y	SWA	CxP 70065	3.4	CSR-34-011

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NASA STD 8719.13B	5.02.6.6	33471	The Software Safety Plan shall document an agreement between the project and NASA Center level SMA detailing when software safety engineers are required to review a system (e.g. when certain types of problems or anomalies are reported) and the proposed solutions or upgrades. (Requirement 33471)	S	Y	Y	SWA	CxP 70065	3.4	CSR-34-011
NASA STD 8719.13B	5.02.6.7	33472	The Software Safety Plan will also document responsibility for monitoring the system during operation, and procedures to be followed when those monitoring the system feel safety of the system, environment, or personnel may be threatened. (Requirement 33472)	S	Y	Y	SWA	CxP 70065	3.4	CSR-34-011
NASA STD 8719.13B	5.02.7	33473	The Software Safety Plan shall be periodically reviewed to ensure it addresses expected system operational conditions. These reviews consist of routine scheduled reviews, and event driven reviews. As a minimum, these reviews will be performed at the following times: (1) Prior to delivery. (2) Every 2 years. (3) Prior to retirement, extended deactivation, and reactivation after retirement or extended periods. (4) When a major change is made to the system or operating procedures. (Requirement 33473)	S	Y	Y	SWA	CxP 70065	3.4	CSR-34-011
NASA STD 8719.13B	5.02.7.Note	33474	The Software Safety Plan should be revised when differences exist between the plan and actual/expected conditions. Software safety personnel may generate a completely new plan in place of revising the old plan if desired. (Requirement 33474)	S	Y	Y	SWA	CxP 70065	3.4	CSR-34-011
NASA STD 8719.13B	5.03.1	33476	The project/program/facility software safety plan shall have a section describing the training requirements for all project software safety roles. This includes training on or about the specific system and environment the project/program/facility will operate in. (Requirement 33476)	S	Y	Y	SWA	CxP 70065	3.4	CSR-34-011
NASA STD 8719.13B	5.04.1	33478	Resource requirements and the allocation of those resources to software safety tasks for this project/program/facility shall be specified in an appropriate project plan and in the process planning documents. (Requirement 33478)	S	Y	Y	SWA	CxP 70065	3.4	CSR-34-011
NASA STD 8719.13B	5.05.1	33480	The integration of software safety with the chosen software life cycle shall be documented in the project Software Safety Plan. (Requirement 33480)	S	Y	Y	SWA	CxP 70059	1.13	MGT-32
								CxP 70059	7.2	SWA-3
								CxP 70059	7.3.1	SWA-13
								CxP 70059	7.4.1	SWA-35
								CxP 70059	7.5.7.5.2	SWA-126
NASA STD 8719.13B	5.05.2	33481	Software safety activities shall be performed throughout all phases of the software development life cycle. Activities which may be completed within or dependent upon a particular phase, or may need to be updated within successive phases, are documented as such. (Requirement 33481)	S	Y	Y	SWA	CxP 70059	1.2	MGT-2
NASA STD 8719.13B	5.05.3	33482	Software safety activities shall continue to be performed at a needed level once the system is operational. Section 7 provides requirements for the operational phase of the system. (Requirement 33482)	S	Y	Y	SWA	CxP 70059	1.2	MGT-2
NASA STD 8719.13B	5.06.1	33484	The documents to be prepared as part of the software safety program, and their contents, shall be specified in the Software Safety Plan. (Requirement 33484)	S	Y	Y	SWA	CxP 70059	1.13	MGT-32
NASA STD 8719.13B	5.06.2	33485	The change and approval process for software safety related portions of all project documents, including the plan itself, shall be specified in an appropriate project plan (Requirement 33485)	S	Y	Y	SWA	CxP 70065	3.4	CSR-34-011
NASA STD 8719.13B	5.06.3(01)	33487	The following documentation shall address safety-critical software: Software Safety Plan (Requirement 33487)	S	Y	Y	SWA	CxP 70065	3.4	CSR-34-011
NASA STD 8719.13B	5.06.3(02)	33488	The following documentation shall address safety-critical software: Software Project Management Plan (Requirement 33488)	S	Y	Y	SWA	CxP 70065	3.1	CSR-31-003
NASA STD 8719.13B	5.06.3(03)	33489	The following documentation shall address safety-critical software: Software Configuration Management Plan (Requirement 33489)	S	Y	Y	SWA	CxP 70065	3.1	CSR-31-003
								CxP 70073-01	0	CxP 70073-01
NASA STD 8719.13B	5.06.3(04)	33490	The following documentation shall address safety-critical software: Software Quality Assurance Plan (Requirement 33490)	S	Y	Y	SWA	CxP 70128	4.2	4.2
NASA STD 8719.13B	5.06.3(05)	33491	The following documentation shall address safety-critical software: Software Requirements Specification (Requirement 33491)	S	Y	Y	SWA	CxP 70059	7.5.7.5.5	SWA-96
								CxP 70065	0	CSR-34-005
NASA STD 8719.13B	5.06.3(06)	33492	The following documentation shall address safety-critical software: Software Design Documentation (Requirement 33492)	S	Y	Y	SWA	CxP 70059	7.5.7.5.2	SWA-85
								CxP 70065	3.4	CSR-34-007
NASA STD 8719.13B	5.06.3(07)	33493	The following documentation shall address safety-critical software: Verification and Validation Plan (Requirement 33493)	S	Y	Y	SWA	CxP 70059	7.5.7.5.4	SWA-94
								CxP 70065	3.4	CSR-34-007
NASA STD 8719.13B	5.06.3(08)	33494	The following documentation shall address safety-critical software: Safety Analyses and Reports (Requirement 33494)	S	Y	Y	SWA	CxP 70059	7.5.7.5	SWA-86
								CxP 70065	3.4	CSR-34-10
NASA STD 8719.13B	5.06.3(09)	33495	The following documentation shall address safety-critical software: Test Documentation (Requirement 33495)	S	Y	Y	SWA	CxP 70059		SWA-34
								CxP 70065	3.4	CSR-34-007
NASA STD 8719.13B	5.06.3(10)	33496	The following documentation shall address safety-critical software: User documentation and procedures (Requirement 33496)	S	Y	Y	SWA	CxP 70059	7.5.7.7	SWA-117
								CxP 70065	3.1	CSR-31-003
NASA STD 8719.13B	5.06.3(11)	33497	The following documentation shall address safety-critical software: Operations and Maintenance Plan (Requirement 33497)	S	Y	Y	SWA	CxP 70059	7.5.7.7	SWA-115
								CxP 70065	3.1	CSR-31-003

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NASA STD 8719.13B	5.07.1	33502	A tracing system shall map the relationships between software safety requirements and system hazards, as well as trace the flow down of software safety requirements to design, implementation, and test. (Requirement 33502)	S	Y	Y	SWA	CxP 70059	7.5.7.5.5	SWA-96
NASA STD 8719.13B	5.07.1.1	33503	The software tracing system shall include, or link to, the system-level hazard tracking system to allow tracking of software-related hazard controls and mitigations, and to verify closure of system hazards. (Requirement 33503)	S	Y	Y	SWA	CxP 70059	7.5.7.5.5	SWA-96
NASA STD 8719.13B	5.07.2	33504	The tracing system shall be under configuration control. (Requirement 33504)	S	Y	Y	SWA	CxP 70059	7.5.7.5.5	SWA-96
								CxP 70065	0	CSR-33-001
NASA STD 8719.13B	5.07.3	33505	The tracing system reports shall be reviewed by software safety personnel. These reports are, at a minimum, available for project formal reviews. (Requirement 33505)	S	Y	Y	SWA	CxP 70059	7.5.7.5.5	SWA-96
NASA STD 8719.13B	5.08.1	33507	There shall be a system for closed-loop tracking of discrepancies, problems, and failures in the baselined safety-critical software products and processes. (Requirement 33507)	S	Y	Y	Safety	CxP 70059	2.2.2.2	SAF-36
								CxP 70068	0	CxP 70068
NASA STD 8719.13B	5.08.1.1	33508	This system shall trace identified safety-critical software problems back to the system-level hazard involved. (Requirement 33508)	S	Y	Y	SWA	CxP 70059	7.5.7.5.5	SWA-96
NASA STD 8719.13B	5.08.1.2	33509	Software safety personnel shall approve safety-critical discrepancy report closures. (Requirement 33509)	S	Y	Y	SWA	CxP 70059	7.5.3	SWA-45
NASA STD 8719.13B	5.08.2	33510	All discrepancy reports shall be reviewed regularly for safety impacts by software safety personnel. (Requirement 33510)	S	Y	Y	SWA	CxP 70059	7.5.3	SWA-46
NASA STD 8719.13B	5.08.3	33511	All software changes including those that result from problem or discrepancy resolution shall be evaluated for potential safety impact, including the creation of new hazard contributions and impacts, modification of existing hazard controls or mitigations, or detrimental effect on safety-critical software or hardware. (Requirement 33511)	S	Y	Y	SWA	CxP 70059	7.5.3	SWA-47
NASA STD 8719.13B	5.09(1)	33513	Safety-critical software is managed in accordance with a software configuration management process that is approved by the software configuration manager. (Requirement 33513)	S	Y	Y	SWA	CxP 70059	7.5.7.4.3	SWA-73
NASA STD 8719.13B	5.09(2)	33514	Software configuration management is practiced during all phases of the software life cycle, from initiation of development through software maintenance, and is responsible for ensuring that any changes during the development and maintenance processes are made in a controlled and complete manner. (Requirement 33514)	S	Y	Y	SWA	CxP 70059	7.5.7.4.3	SWA-73
NASA STD 8719.13B	5.09.1	33516	Software and documentation shall be placed under strict configuration control, including source code, executables, test plans and procedures, and associated data, prior to verification of the safety requirements. (Requirement 33516)	S	Y	Y	SWA	CxP 70059	7.5.7.4.3	SWA-73
								CxP 70065	3.1	CSR-31-003
NASA STD 8719.13B	5.09.1.1	33517	All baselined safety-critical software and associated documentation, simulators, models, test suites, data, etc. shall be maintained in a controlled configuration management system. (Requirement 33517)	S	Y	Y	SWA	CxP 70059	7.5.7.4.3	SWA-73
NASA STD 8719.13B	5.09.1.2	33518	The organization responsible for Software Configuration Management shall formally provide and document the release of safety-critical software. (Requirement 33518)	S	Y	Y	SWA	CxP 70059	7.5.7.4.3	SWA-73
NASA STD 8719.13B	5.09.2	33519	All changes, modifications, and patches made to safety-critical requirements, design, code, systems, equipment, test plans, procedures, simulators, models, test suites, or criteria shall be evaluated to determine the effect of the proposed change on system safety. (Requirement 33519)	S	Y	Y	SWA	CxP 70059	7.3.6	SWA-28
NASA STD 8719.13B	5.09.2.1	33520	Software safety personnel shall approve changes to baselined safety-critical software. (Requirement 33520)	S	Y	Y	SWA	CxP 70059	7.5.7.4.3	SWA-74
NASA STD 8719.13B	5.09.3	33521	For software in its operational phase, the configuration management system shall track and control incremental changes to the safety-critical software and its release to operations. (Requirement 33521)	S	Y	Y	SWA	CxP 70065	3.1	CSR-31-003
								CxP 70073-01	0	CxP 70073-01
NASA STD 8719.13B	5.09.3.1	33522	Any reconfiguration changes made to the software system on a routine basis (e.g., mission-specific database changes) shall be configuration controlled. This allows a record so that safety impacts may be analyzed if needed. (Requirement 33522)	S	Y	Y	SWA	CxP 70065	3.1	CSR-31-003
								CxP 70073-01	0	CxP 70073-01
NASA STD 8719.13B	5.10.1	33524	Acceptance or closure of any system-level hazards related to software shall be dependent on the successful conclusion of all assurance activities linked to its associated software safety requirements. (Requirement 33524)	S	Y	Y	SWA	CxP 70059	7.5.7.3	SWA-75
								CxP 70059	7.5.7.3	SWA-76
								CxP 70059	7.5.7.4.3	SWA-77
NASA STD 8719.13B	5.10.2	33525	Software safety tasks shall be coordinated with the overall software assurance disciplines to eliminate duplication of effort. (Requirement 33525)	S	Y	Y	SWA	CxP 70059	7.2	SWA-3
								CxP 70059	7.3.1	SWA-13
								CxP 70059	7.5.7.3	SWA-76
								CxP 70059	7.5.7.5.2	SWA-126
NASA STD 8719.13B	5.11.1	33527	The approach to preventing the inadvertent introduction of software hazards by project tools shall be documented in an appropriate project plan. Tools may include CASE products, compilers, editors, fault tree generators, simulators, emulators, and test environments for hardware and software. (Requirement 33527)	S	Y	Y	SWA	CxP 70065	3.1	CSR-31-003
NASA STD 8719.13B	5.11.1.1	33528	All project tools that could potentially impact safety-critical software, the degree of impact, and mitigation strategies shall be identified in the appropriate project plan. (Requirement 33528)	S	Y	Y	SWA	CxP 70065	3.1	CSR-31-003
NASA STD 8719.13B	5.11.1.2	33529	The process and criteria used to select, approve, and control project tools shall be described in the appropriate project plan. (Requirement 33529)	S	Y	Y	SWA	CxP 70065	3.1	CSR-31-003
NASA STD 8719.13B	5.11.1.2.1	33530	The process shall address the following areas: installation of upgrades to previously approved tools, withdrawal of a previously approved tool, and identification of limitations that may be imposed on tool use. (Requirement 33530)	S	Y	Y	SWA	CxP 70065	3.1	CSR-31-003
NASA STD	5.11.1.2.2	33531	The software safety manager shall ensure sufficient safety testing and analysis is	S	Y	Y	SWA	CxP 70059	7.5.2.1	SWA-43

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8719.13B			performed to verify that any changes in the use of project tools does not influence known hazards or adversely affect the residual risk of the software. (Requirement 33531)					CxP 70059	7.5.2.2	SWA-44
								CxP 70059	7.5.7.3	SWA-75
								CxP 70059	7.5.7.3	SWA-76
								CxP 70059	7.5.7.4.1	SWA-101
								CxP 70059	7.5.7.4.3	SWA-77
								CxP 70059	7.5.7.5.4	SWA-90
								CxP 70059	7.5.7.5.4	SWA-91
								CxP 70059	7.5.7.5.4	SWA-93
								CxP 70059	7.5.7.5.4	SWA-94
								CxP 70059	7.5.7.5.4	SWA-95
								CxP 70059	7.5.7.6	SWA-108
								CxP 70065	3.1	CSR-31-003
NASA STD 8719.13B	5.11.2	33532	The software safety manager shall approve the approach. (Requirement 33532)	S	Y	Y	SWA	CxP 70059	7.2	SWA-3
								CxP 70059	7.5.7.4.1	SWA-6
NASA STD 8719.13B	5.12.1	33534	All off-the-shelf and reused software shall be evaluated for the potential to impact safety-critical functions within the current system. (Requirement 33534)	S	Y	Y	SWA	CxP 70059	7.5.7.5.2	SWA-85
NASA STD 8719.13B	5.12.1.1	33535	Safety-critical OTS and reused software shall undergo safety analysis that considers its ability to meet required safety functions, extra functionality, even if not planned for use that may be present, the impact on safety, and interfaces to developed code. (Requirement 33535)	S	Y	Y	SWA	CxP 70059	7.5.7.5.2	SWA-85
NASA STD 8719.13B	5.12.1.2	33536	Software safety analysis shall consider the interactions of COTS software components with the developed software and any other COTS software that is part of the system. (Requirement 33536)	S	Y	Y	SWA	CxP 70059	7.5.7.5.2	SWA-85
NASA STD 8719.13B	5.12.1.3	33537	Additional analysis, testing, or a combination thereof shall be performed to verify safety-critical OTS or reused software to the same level required of in-house developed software to the extent possible via black box testing. (Requirement 33537)	S	Y	Y	SWA	CxP 70059	7.5.2.1	SWA-43
								CxP 70059	7.5.2.2	SWA-44
								CxP 70059	7.5.7.3	SWA-75
								CxP 70059	7.5.7.3	SWA-76
								CxP 70059	7.5.7.4.1	SWA-101
								CxP 70059	7.5.7.4.3	SWA-77
								CxP 70059	7.5.7.5.4	SWA-90
								CxP 70059	7.5.7.5.4	SWA-91
								CxP 70059	7.5.7.5.4	SWA-93
								CxP 70059	7.5.7.5.4	SWA-94
								CxP 70059	7.5.7.5.4	SWA-95
								CxP 70059	7.5.7.6	SWA-108
NASA STD 8719.13B	5.13.1	33541	The contract or MOA/MOU shall include provisions sufficient to assure that the contracted safety-critical software is developed according to this Standard. (Requirement 33541)	S	Y	Y	SWA	CxP 70059	1.1	MGT-1
								CxP 70059	1.2	MGT-2
								CxP 70059	1.3	MGT-3
								CxP 70059	1.3	MGT-4
								CxP 70059	1.3	MGT-5
								CxP 70059	1.3	MGT-6
								CxP 70059	7.1	SWA-1
								CxP 70059	7.3.1	SWA-9
								CxP 70059	7.5.7.1	SWA-68
								CxP 70059	7.5.7.2	SWA-69
								CxP 70059	7.5.7.2	SWA-70
NASA STD 8719.13B	5.13.1.1	33542	The contract or MOA/MOU shall include all software safety deliverables, including the software safety plan, preliminary and subsequent hazard analyses, safety-critical software development audit reports, and verification reports. (Requirement 33542)	S	Y	Y	SWA	CxP 70059	1.1	MGT-1
								CxP 70059	1.2	MGT-2
								CxP 70059	1.3	MGT-3
								CxP 70059	1.3	MGT-4
								CxP 70059	1.3	MGT-5
								CxP 70059	1.3	MGT-6
								CxP 70059	7.1	SWA-1
								CxP 70059	7.3.1	SWA-9
								CxP 70059	7.5.7.1	SWA-68
								CxP 70059	7.5.7.2	SWA-69
								CxP 70059	7.5.7.2	SWA-70
NASA STD 8719.13B	5.13.1.2	33543	The contract or MOA/MOU shall specify how the customer (i.e., the NASA program/project) will determine if the contractor is performing the software safety activities properly. (Requirement 33543)	S	Y	Y	SWA	CxP 70059	1.1	MGT-1
								CxP 70059	1.2	MGT-2
								CxP 70059	1.3	MGT-3
								CxP 70059	1.3	MGT-4
								CxP 70059	1.3	MGT-5
								CxP 70059	1.3	MGT-6
								CxP 70059	7.1	SWA-1
								CxP 70059	7.3.1	SWA-9
								CxP 70059	7.5.7.1	SWA-68
								CxP 70059	7.5.7.2	SWA-69
								CxP 70059	7.5.7.2	SWA-70

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NASA STD 8719.13B	5.13.1.3	33544	The contract or MOA/MOU shall define a method for problem reporting and corrective action between the contractor and the customer. (Requirement 33544)	S	Y	Y	SWA	CxP 70059	7.5.7.4.1	SWA-101
NASA STD 8719.13B	5.13.1.4	33545	The contract or MOA/MOU shall specify that customer agreement is required for changes to baselined safety-critical software elements. (Requirement 33545)	S	Y	Y	SWA	CxP 70059	1.1	MGT-1
								CxP 70059	1.2	MGT-2
								CxP 70059	1.3	MGT-3
								CxP 70059	1.3	MGT-4
								CxP 70059	1.3	MGT-5
								CxP 70059	1.3	MGT-6
								CxP 70059	7.1	SWA-1
								CxP 70059	7.3.1	SWA-9
								CxP 70059	7.5.7.1	SWA-68
								CxP 70059	7.5.7.2	SWA-69
								CxP 70059	7.5.7.2	SWA-70
NASA STD 8719.13B	5.14.1	33547	There shall be an official certification process established, documented, and conducted prior to the release of any safety-critical software for its intended operational use. (Requirement 33547)	S	Y	Y	SWA	CxP 70059	7.5.7.6	SWA-108
NASA STD 8719.13B	5.14.3.a	33550	The software safety organization shall participate in evaluation of the following areas as part of their certification process: All software hazards have been identified. (Requirement 33550)	S	Y	Y	SWA	CxP 70059	7.5.7.6	SWA-109
NASA STD 8719.13B	5.14.3.b	33551	The software safety organization shall participate in evaluation of the following areas as part of their certification process: All hazard controls that require software implementation have been identified. (Requirement 33551)	S	Y	Y	SWA	CxP 70059	7.5.7.6	SWA-109
NASA STD 8719.13B	5.14.3.c	33552	The software safety organization shall participate in evaluation of the following areas as part of their certification process: All software safety requirements and elements have been identified and tracked. (Requirement 33552)	S	Y	Y	SWA	CxP 70059	7.5.7.6	SWA-109
NASA STD 8719.13B	5.14.3.d	33553	The software safety organization shall participate in evaluation of the following areas as part of their certification process: All software safety requirements and elements have been successfully validated, or waivers/deviations have been approved.	S	Y	Y	SWA	CxP 70059	7.5.7.5.6	SWA-99
								CxP 70059	7.5.7.6	SWA-109
NASA STD 8719.13B	5.14.3.e	33554	The software safety organization shall participate in evaluation of the following areas as part of their certification process: All software safety requirements and elements have been properly verified, or waivers/deviations have been approved.	S	Y	Y	SWA	CxP 70059	7.5.7.5.6	SWA-99
								CxP 70059	7.5.7.6	SWA-109
NASA STD 8719.13B	5.14.3.f	33555	The software safety organization shall participate in evaluation of the following areas as part of their certification process: All discrepancies in safety-critical software have been dispositioned with the safety organization's concurrence, per the certification process. (Requirement 33555)	S	Y	Y	SWA	CxP 70059	7.5.7.6	SWA-109
NASA STD 8719.13B	5.14.3.g	33556	The software safety organization shall participate in evaluation of the following areas as part of their certification process: All operational workarounds associated with discrepancies in safety-critical software have the concurrence of the Center or Program safety organization, per the certification process. (Requirement 33556)	S	Y	Y	SWA	CxP 70059	7.5.7.6	SWA-109
NASA STD 8719.13B	5.14.4	33557	Personnel conducting software safety functions shall be prepared to represent the software to an appropriate safety panel for certification. (Requirement 33557)	S	Y	Y	SWA	CxP 70059	7.5.7.6	SWA-111
NASA STD 8719.13B	5.14.5	33558	The organization providing the safety engineering shall approve the results and reports prior to acceptance of the software and the system. The Center SMA organization reviews the results and provides final certification or approval for operation of safety-critical products and facilities. (Requirement 33558)	S	Y	Y	SWA	CxP 70059	7.5.7.6	SWA-110
								CxP 70059	7.5.7.6	SWA-112
NASA STD 8719.13B	5.15.1	33560	If one or more requirements (i.e., a numbered shall statement) contained within this Standard cannot be met by any safety-critical software project, a waiver/deviation package shall be prepared by a software safety expert and approved according to NPR 8715.3. (Requirement 33560)	S	Y	Y	SWA	CxP 70059	7.5.7.5.6	SWA-99
NASA STD 8719.13B	5.15.2	33561	The project shall submit a written request for a waiver/deviation, detailing the justification to support the waiver/deviation. (Requirement 33561)	S	Y	Y	SWA	CxP 70059	7.5.7.5.6	SWA-99
NASA STD 8719.13B	6.1.1	33570	Software safety requirements shall be developed and included in the software requirements specification. (Requirement 33570)	S	Y	Y	SWA	CxP 70059	7.5.7.5.1	SWA-80
								CxP 70065	0	CSR-34-005
								CxP 70065	3.1	CSR-31-003
NASA STD 8719.13B	6.1.1.1	33571	Software safety requirements shall be derived from the system safety requirements, environmental requirements, standards, program specification, vehicle or facility requirements, interface requirements, system hazard reports, and system hazard analyses [ref. section 4.2]. (Requirement 33571)	S	Y	Y	SWA	CxP 70059	7.5.7.1	SWA-68
								CxP 70059	7.5.7.2	SWA-69
								CxP 70059	7.5.7.5.1	SWA-80
								CxP 70065	0	CSR-34-005
								CxP 70065	3.1	CSR-31-003
NASA STD 8719.13B	6.1.1.2	33572	Software safety requirements, both generic and specific, shall be clearly identified as such in the software requirements specification. (Requirement 33572)	S	Y	Y	SWA	CxP 70059	7.5.7.5.1	SWA-80
								CxP 70065	0	CSR-34-005
								CxP 70065	3.1	CSR-31-003
NASA STD 8719.13B	6.1.1.3	33573	Software safety requirements shall be expressed and structured so that they are clear, precise, unequivocal, verifiable, testable, maintainable and feasible. (Requirement 33573)	S	Y	Y	SWA	CxP 70065	3.4	CSR-34-004

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NASA STD 8719.13B	6.1.1.4	33574	Software safety requirements shall include the modes or states of operation under which they are valid, and any modes or states in which they are not applicable. Note: These requirements are also referred to as must work and must not work functions. For example, the safety critical commands and checks which initiate a robotic arm movement must not work during system initiation or perhaps when in maintenance mode. (Requirement 33574)	S	Y	Y	SWA	CxP 70059	7.5.7.5.1	SWA-78
NASA STD 8719.13B	6.1.1.5	33575	Any safety related constraints between the hardware and software shall be included in the software requirements documentation. That is, when the software and hardware work together to perform a safety critical function, their roles, precedence, and failure modes, are documented and understood. (Requirement 33575)	S	Y	Y	SWA	CxP 70059	7.5.7.5.1	SWA-71
NASA STD 8719.13B	6.1.2	33576	Software safety personnel shall analyze the software safety requirements, both technical and procedural. (Requirement 33576)	S	Y	Y	SWA	CxP 70059	7.5.2.1	SWA-43
								CxP 70059	7.5.2.2	SWA-44
								CxP 70059	7.5.7.3	SWA-75
								CxP 70059	7.5.7.3	SWA-76
								CxP 70059	7.5.7.4.1	SWA-101
								CxP 70059	7.5.7.4.3	SWA-77
								CxP 70059	7.5.7.5.4	SWA-90
								CxP 70059	7.5.7.5.4	SWA-91
								CxP 70059	7.5.7.5.4	SWA-93
								CxP 70059	7.5.7.5.4	SWA-94
								CxP 70059	7.5.7.5.4	SWA-95
								CxP 70059	7.5.7.6	SWA-108
NASA STD 8719.13B	6.1.2.1.a	33578	The analysis methodology shall be recorded in an appropriate document and include the following steps, at a minimum: Verify that all software safety requirements meet the requirements of section 6.1.1 and sub-sections. (Requirement 33578)	S	Y	Y	SWA	CxP 70059		SWA-81
								CxP 70059	7.1	SWA-1
								CxP 70059	7.5.7.1	SWA-68
								CxP 70059	7.5.7.2	SWA-69
								CxP 70059	7.5.7.2	SWA-70
								CxP 70059	7.5.7.5	SWA-86
								CxP 70059	7.5.7.5.1	SWA-78
								CxP 70059	7.5.7.5.1	SWA-80
								CxP 70059	7.5.7.5.2	SWA-83
								CxP 70059	7.5.7.5.2	SWA-85
								CxP 70059	7.5.7.5.5	SWA-96
NASA STD 8719.13B	6.1.2.1.b	33579	The analysis methodology shall be recorded in an appropriate document and include the following steps, at a minimum: Examine the software safety requirements for ambiguities, inconsistencies, omissions, and undefined conditions. (Requirement 33579)	S	Y	Y	SWA	CxP 70059	7.1	SWA-1
								CxP 70059	7.5.7.1	SWA-68
								CxP 70059	7.5.7.2	SWA-69
								CxP 70059	7.5.7.2	SWA-70
								CxP 70059	7.5.7.5	SWA-86
								CxP 70059	7.5.7.5.1	SWA-78
								CxP 70059	7.5.7.5.1	SWA-80
								CxP 70059	7.5.7.5.2	SWA-83
								CxP 70059	7.5.7.5.2	SWA-85
NASA STD 8719.13B	6.1.2.1.c	33580	The analysis methodology shall be recorded in an appropriate document and include the following steps, at a minimum: Verify that all software safety requirements are traceable to system safety requirements, environmental	S	Y	Y	SWA	CxP 70059	7.5.7.5.5	SWA-96
								CxP 70059	7.5.7.6	SWA-108
NASA STD 8719.13B	6.1.2.1.d	33581	The analysis methodology shall be recorded in an appropriate document and include the following steps, at a minimum: Verify that the software safety requirements provide adequate response to potential failures. Areas to consider should include, but are not limited to, limit ranges, relationship logic for interdependent limits, out-of-sequence event protection, timing problems, sensor or actuator failures, voting logic, hazardous command processing requirements, Fault Detection, Isolation, and Recovery (FDIR), switchover logic for failure tolerance, and the ability to reach and maintain a safe state if so required. (Requirement 33581)	S	Y	Y	SWA	CxP 70059		SWA-81
								CxP 70059	7.1	SWA-1
								CxP 70059	7.5.7.1	SWA-68
								CxP 70059	7.5.7.2	SWA-69
								CxP 70059	7.5.7.2	SWA-70
								CxP 70059	7.5.7.5	SWA-86
								CxP 70059	7.5.7.5.1	SWA-78
								CxP 70059	7.5.7.5.1	SWA-80
								CxP 70059	7.5.7.5.2	SWA-83
								CxP 70059	7.5.7.5.2	SWA-85
								CxP 70059	7.5.7.5.5	SWA-96
NASA STD 8719.13B	6.1.2.1.e	33582	The analysis methodology shall be recorded in an appropriate document and include the following steps, at a minimum: Verify that the software safety requirements include positive measures to prevent potential problems and implement required "must work" functions. (Requirement 33582)	S	Y	Y	SWA	CxP 70059		SWA-81
								CxP 70059	7.1	SWA-1
								CxP 70059	7.5.7.1	SWA-68
								CxP 70059	7.5.7.2	SWA-69
								CxP 70059	7.5.7.2	SWA-70
								CxP 70059	7.5.7.5	SWA-86
								CxP 70059	7.5.7.5.1	SWA-71
								CxP 70059	7.5.7.5.1	SWA-78
								CxP 70059	7.5.7.5.1	SWA-80
								CxP 70059	7.5.7.5.2	SWA-83
								CxP 70059	7.5.7.5.2	SWA-85
								CxP 70059	7.5.7.5.5	SWA-96
NASA STD 8719.13B	6.1.2.2	33583	The documented results of the analysis, including any newly identified hazards, hazard causes, and improperly decomposed requirements, shall be provided to the responsible system safety personnel. (Requirement 33583)	S	Y	Y	SWA	CxP 70059	7.5.7.3	SWA-75
								CxP 70059	7.5.7.3	SWA-76
								CxP 70059	7.5.7.4.3	SWA-77

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NASA STD 8719.13B	6.1.2.3	33584	Improperly decomposed requirements shall be documented for project level resolution. (Requirement 33584)	S	Y	Y	SWA	CxP 70059	7.5.2.1	SWA-43
NASA STD 8719.13B	6.1.2.4	33585	The software safety requirements analysis results shall be presented at project formal reviews and system-level safety reviews by the responsible safety organization. (Requirement 33585)	S	Y	Y	SWA	CxP 70059	7.5.7.5	SWA-86
NASA STD 8719.13B	6.2.1	33587	All functional software safety requirements shall be incorporated into the software design. (Requirement 33587)	S	Y	Y	SWA	CxP 70059	7.5.2.1	SWA-43
								CxP 70059	7.5.7.5.2	SWA-126
								CxP 70065	0	CSR-34-005
								CxP 70065	3.1	CSR-31-003
NASA STD 8719.13B	6.2.1.1	33588	The software design shall identify safety design features and methods (e.g., inhibits failure detection and recovery, interlocks, assertions, and partitions) that will be used to implement the software safety requirements. (Requirement 33588)	S	Y	Y	SWA	CxP 70059	7.5.7.5.2	SWA-83
								CxP 70065	3.1	CSR-31-003
								CxP 70065	3.4	CSR-34-007
NASA STD 8719.13B	6.2.1.2	33589	The software design shall allow software safety features and requirements to be thoroughly tested. (Requirement 33589)	S	Y	Y	SWA	CxP 70059	7.5.7.5.4	SWA-90
								CxP 70059	7.5.7.5.4	SWA-91
NASA STD 8719.13B	6.2.1.3	33590	Design elements that implement safety-critical requirements or can potentially affect the safety-critical elements through failure or other mechanisms, shall be designated as safety-critical. (Requirement 33590)	S	Y	Y	SWA	CxP 70059	7.5.7.5.2	SWA-85
NASA STD 8719.13B	6.2.1.3.1	33591	Software design documentation shall clearly identify all safety-critical design elements. (Requirement 33591)	S	Y	Y	SWA	CxP 70059	7.5.7.5.1	SWA-71
NASA STD 8719.13B	6.2.1.4	33592	To the extent practical, the software design shall modularize the safety-related aspects of the design [ref. NASA-GB-8719.13, Software Safety Guidebook]. (Requirement 33592)	S	Y	Y	SWA	CxP 70065	3.1	CSR-31-003
NASA STD 8719.13B	6.2.2	33593	Software safety personnel shall analyze the software design. (Requirement 33593)	S	Y	Y	SWA	CxP 70059	7.5.7.5.2	SWA-126
								CxP 70059	7.5.7.5.2	SWA-83
								CxP 70059	7.5.7.5.2	SWA-85
NASA STD 8719.13B	6.2.2.1	33594	The analysis methodology shall be recorded in an appropriate document (e.g., software safety plan or software assurance plan). (Requirement 33594)	S	Y	Y	SWA	CxP 70059	1.13	MGT-32
								CxP 70059	7.3.1	SWA-13
								CxP 70059	7.4.1	SWA-35
								CxP 70059	7.5.7.5.2	SWA-126
NASA STD 8719.13B	6.2.2.2.a	33596	The analysis methodology shall include the following steps, at a minimum: Verify that the software design meets the requirements of section 6.2.1 and sub-sections. (Requirement 33596)	S	Y	Y	SWA	CxP 70059	7.5.2.1	SWA-43
								CxP 70059	7.5.2.2	SWA-44
								CxP 70059	7.5.7.3	SWA-75
								CxP 70059	7.5.7.3	SWA-76
								CxP 70059	7.5.7.4.1	SWA-101
								CxP 70059	7.5.7.4.3	SWA-77
								CxP 70059	7.5.7.5.4	SWA-90
								CxP 70059	7.5.7.5.4	SWA-91
								CxP 70059	7.5.7.5.4	SWA-93
								CxP 70059	7.5.7.5.4	SWA-94
								CxP 70059	7.5.7.5.4	SWA-95
								CxP 70059	7.5.7.6	SWA-108
NASA STD 8719.13B	6.2.2.2.b	33597	The analysis methodology shall include the following steps, at a minimum: Verify that the design does not compromise any safety controls or processes, that any additional hazard, hazard cause, or hazard contribution is documented, and that the design maintains the system in a safe state during all modes of operation. The analysis should, at a minimum, consider: timing constraints, hardware failures,	S	Y	Y	SWA	CxP 70059	7.5.7.3	SWA-75
								CxP 70059	7.5.7.3	SWA-76
								CxP 70059	7.5.7.4.3	SWA-77
								CxP 70059	7.5.7.5.4	SWA-94
NASA STD 8719.13B	6.2.2.2.c	33598	The analysis methodology shall include the following steps, at a minimum: Verify that safety features incorporated in the design are adequate for their function. (Requirement 33598)	S	Y	Y	SWA	CxP 70059	7.5.7.3	SWA-75
								CxP 70059	7.5.7.3	SWA-76
								CxP 70059	7.5.7.4.3	SWA-77
								CxP 70059	7.5.7.5.4	SWA-94
NASA STD 8719.13B	6.2.2.2.d	33599	The analysis methodology shall include the following steps, at a minimum: Safety analyses, such as PHAs, sub-system hazard analyses, FMEAs (Failure Modes and Effects Analysis), FTAs (Fault Tree Analysis), shall be used to help determine design features to prevent, mitigate or control failures and faults, and the level of failure/fault combinations to include (e.g., both a software and a hardware failure, or	S	Y	Y	SWA	CxP 70059	7.5.7.3	SWA-75
								CxP 70059	7.5.7.3	SWA-76
								CxP 70059	7.5.7.4.3	SWA-77
								CxP 70059	7.5.7.5.4	SWA-95
NASA STD 8719.13B	6.2.2.2.e	33600	The analysis methodology shall include the following steps, at a minimum: Verify that any partitioning or isolation methods used in the design adequately isolate the safety-critical design elements from those that are non-safety-critical. This is particularly important with the incorporation of COTS. (Requirement 33600)	S	Y	Y	SWA	CxP 70059	7.5.7.3	SWA-75
								CxP 70059	7.5.7.3	SWA-76
								CxP 70059	7.5.7.4.3	SWA-77
								CxP 70059	7.5.7.5.4	SWA-94
NASA STD 8719.13B	6.2.2.2.f	33601	The analysis methodology shall include the following steps, at a minimum: Verify all safety-critical design elements are traceable to software safety requirements, and vice versa. (Requirement 33601)	S	Y	Y	SWA	CxP 70059		SWA-81
								CxP 70059	7.1	SWA-1
								CxP 70059	7.5.7.1	SWA-68
								CxP 70059	7.5.7.2	SWA-69
								CxP 70059	7.5.7.2	SWA-70
								CxP 70059	7.5.7.5	SWA-86
								CxP 70059	7.5.7.5.1	SWA-71
								CxP 70059	7.5.7.5.1	SWA-78
								CxP 70059	7.5.7.5.1	SWA-80
								CxP 70059	7.5.7.5.2	SWA-83
								CxP 70059	7.5.7.5.2	SWA-85

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								CxP 70059	7.5.7.5.5	SWA-96
NASA STD 8719.13B	6.2.2.3	33602	The documented results of the analysis including any newly identified hazards, shall be provided to the responsible system safety personnel. (Requirement 33602)	S	Y	Y	SWA	CxP 70059	7.5.7.3	SWA-75
								CxP 70059	7.5.7.3	SWA-76
NASA STD 8719.13B	6.2.2.4	33603	The software safety design analysis results shall be presented at project formal reviews and system-level safety reviews. (Requirement 33603)	S	Y	Y	SWA	CxP 70059	7.5.7.5	SWA-86
NASA STD 8719.13B	6.3.1	33605	All software safety design features and methods shall be implemented in the software code. (Requirement 33605)	S	Y	Y	SWA	CxP 70059	7.5.7.5.3	SWA-87
								CxP 70065	3.4	CSR-34-007
NASA STD 8719.13B	6.3.1.1	33606	The software coding standards shall incorporate requirements for clearly identifying safety-critical code and data within source code comments, and strongly discouraging unsafe language features such as pointers or memcopy, requiring these features to also be clearly identified and documented whenever used [ref. checklist in NASA GB 8719.13, NASA Software Safety Guidebook]. (Requirement 33606)	S	Y	Y	SWA	CxP 70059	7.5.7.5.3	SWA-87
NASA STD 8719.13B	6.3.1.2	33607	The software coding standard shall be used in the development of software code. (Requirement 33607)	S	Y	Y	SWA	CxP 70059	7.5.7.5.3	SWA-87
NASA STD 8719.13B	6.3.2	33608	Software safety personnel shall analyze the software implementation (e.g., code). (Requirement 33608)	S	Y	Y	SWA	CxP 70059	7.5.2.1	SWA-43
								CxP 70059	7.5.2.2	SWA-44
								CxP 70059	7.5.7.3	SWA-75
								CxP 70059	7.5.7.3	SWA-76
								CxP 70059	7.5.7.4.1	SWA-101
								CxP 70059	7.5.7.4.3	SWA-77
								CxP 70059	7.5.7.5.4	SWA-90
								CxP 70059	7.5.7.5.4	SWA-91
								CxP 70059	7.5.7.5.4	SWA-93
								CxP 70059	7.5.7.5.4	SWA-94
								CxP 70059	7.5.7.5.4	SWA-95
								CxP 70059	7.5.7.6	SWA-108
NASA STD 8719.13B	6.3.2.1	33609	The analysis methodology shall be recorded in an appropriate document (e.g., software safety plan or software assurance plan). (Requirement 33609)	S	Y	Y	SWA	CxP 70059	1.13	MGT-31
								CxP 70059	1.13	MGT-32
								CxP 70059	5.2.6.1	QAS-TBD
								CxP 70059	7.3.1	SWA-13
								CxP 70059	7.4.1	SWA-35
								CxP 70059	7.5.7.5.2	SWA-126
NASA STD 8719.13B	6.3.2.2.a	33611	The analysis methodology shall include the following steps, at a minimum, and can include source code reviews and inspections: Verify that the safety-critical software code and data meets the requirements of section 6.3.1 and sub-sections. (Requirement 33611)	S	Y	Y	SWA	CxP 70059	7.5.2.1	SWA-43
								CxP 70059	7.5.2.2	SWA-44
								CxP 70059	7.5.7.3	SWA-75
								CxP 70059	7.5.7.3	SWA-76
								CxP 70059	7.5.7.4.1	SWA-101
								CxP 70059	7.5.7.4.3	SWA-77
								CxP 70059	7.5.7.5.3	SWA-87
								CxP 70059	7.5.7.5.4	SWA-90
								CxP 70059	7.5.7.5.4	SWA-91
								CxP 70059	7.5.7.5.4	SWA-93
								CxP 70059	7.5.7.5.4	SWA-94
								CxP 70059	7.5.7.5.4	SWA-95
								CxP 70059	7.5.7.6	SWA-108
NASA STD 8719.13B	6.3.2.2.b	33612	The analysis methodology shall include the following steps, at a minimum, and can include source code reviews and inspections: Verify that design safety features and methods are correctly implemented in the software code. (Requirement 33612)	S	Y	Y	SWA	CxP 70059	7.5.2.1	SWA-43
								CxP 70059	7.5.2.2	SWA-44
								CxP 70059	7.5.7.3	SWA-75
								CxP 70059	7.5.7.4.1	SWA-101
								CxP 70059	7.5.7.4.3	SWA-77
								CxP 70059	7.5.7.5.1	SWA-78
								CxP 70059	7.5.7.5.3	SWA-87
								CxP 70059	7.5.7.5.4	SWA-90
								CxP 70059	7.5.7.5.4	SWA-91
								CxP 70059	7.5.7.5.4	SWA-93
								CxP 70059	7.5.7.5.4	SWA-94
								CxP 70059	7.5.7.5.4	SWA-95
								CxP 70059	7.5.7.6	SWA-108
NASA STD 8719.13B	6.3.2.2.c	33613	The analysis methodology shall include the following steps, at a minimum, and can include source code reviews and inspections: Verify that the code implementation does not compromise any safety controls or processes, does not create any additional hazards, and maintains the system in a safe state during all modes of	S	Y	Y	SWA	CxP 70059	7.5.7.3	SWA-75
								CxP 70059	7.5.7.3	SWA-76
								CxP 70059	7.5.7.4.3	SWA-77
NASA STD 8719.13B	6.3.2.2.d	33614	The analysis methodology shall include the following steps, at a minimum, and can include source code reviews and inspections: Ensure that code and data verification activities adequately substantiate all software safety requirements, to the extent that a requirement can be verified at a component or unit level. (Requirement 33614)	S	Y	Y	SWA	CxP 70059	7.5.2.1	SWA-43
								CxP 70059	7.5.2.2	SWA-44
								CxP 70059	7.5.7.3	SWA-75
								CxP 70059	7.5.7.3	SWA-76
								CxP 70059	7.5.7.4.1	SWA-101

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								CxP 70059	7.5.7.4.3	SWA-77
								CxP 70059	7.5.7.5.3	SWA-87
								CxP 70059	7.5.7.5.4	SWA-90
								CxP 70059	7.5.7.5.4	SWA-91
								CxP 70059	7.5.7.5.4	SWA-93
								CxP 70059	7.5.7.5.4	SWA-94
								CxP 70059	7.5.7.5.4	SWA-95
								CxP 70059	7.5.7.6	SWA-108
NASA STD 8719.13B	6.3.2.2.e	33615	The analysis methodology shall include the following steps, at a minimum, and can include source code reviews and inspections: Verify all safety-critical code units are traceable to safety-critical design elements. (Requirement 33615)	S	Y	Y	SWA	CxP 70059	7.5.7.5.5	SWA-96
NASA STD 8719.13B	6.3.2.3	33616	The documented results of the analysis, including any newly identified hazards and improperly implemented safety features, shall be provided to the responsible system safety personnel. (Requirement 33616)	S	Y	Y	SWA	CxP 70059	7.5.7.3	SWA-75
								CxP 70059	7.5.7.3	SWA-76
								CxP 70059	7.5.7.4.3	SWA-77
NASA STD 8719.13B	6.3.2.4	33617	The software safety code analysis results shall be presented at project formal reviews and system-level safety reviews. (Requirement 33617)	S	Y	Y	SWA	CxP 70059	7.5.7.5	SWA-86
NASA STD 8719.13B	6.3.3	33618	Verification of each safety-critical code unit and data shall be completed prior to the unit's incorporation in a higher-level code package. (Requirement 33618)	S	Y	Y	SWA	CxP 70065	3.1	CSR-31-003
								CxP 70086	4.4.3.2.7	4.4.3.2.7
NASA STD 8719.13B	6.4.1	33622	All functional software safety requirements and safety-critical software elements shall be verified by testing. (Requirement 33622)	S	Y	Y	SWA	CxP 70059	7.5.7.5.4	SWA-90
NASA STD 8719.13B	6.4.1.1	33623	Testing shall verify that system hazards related to software have been eliminated or controlled to an acceptable level of risk. (Requirement 33623)	S	Y	Y	SWA	CxP 70059	7.5.7.5.4	SWA-91
NASA STD 8719.13B	6.4.1.2	33624	Unit level tests and component level tests shall include software safety testing. (Requirement 33624)	S	Y	Y	SWA	CxP 70059	7.5.7.5.4	SWA-91
								CxP 70065	3.1	CSR-31-003
NASA STD 8719.13B	6.4.1.2.1	33625	Any simulators, test drivers and stubs, along with any test data, used for testing at the unit level shall be configuration controlled and documented. (Requirement 33625)	S	Y	Y	SWA	CxP 70059	7.5.7.4.3	SWA-73
								CxP 70065	3.1	CSR-31-003
NASA STD 8719.13B	6.4.1.2.2	33626	Any simulators, test drivers and stubs, along with any test data, used for testing at the component level shall be configuration controlled and documented. (Requirement 33626)	S	Y	Y	SWA	CxP 70059	7.5.7.4.3	SWA-73
								CxP 70065	3.1	CSR-31-003
NASA STD 8719.13B	6.4.1.2.3	33627	The results of unit level and component level tests and the test procedures, simulators, test suites, drivers, stubs and data shall be documented. (Requirement 33627) Note: When changes occur within software units or components containing safety-critical requirements, these test articles (simulator, test drivers, and stubs) may be used to conduct regression tests.	S	Y	Y	SWA	CxP 70059	7.5.7.5.4	SWA-95
NASA STD 8719.13B	6.4.1.3	33628	System and acceptance tests shall include software safety testing. (Requirement 33628)	S	Y	Y	SWA	CxP 70059	7.5.7.5.4	SWA-90
								CxP 70059	7.5.7.5.4	SWA-91
								CxP 70059	7.5.7.5.4	SWA-95
								CxP 70065	3.1	CSR-31-003
NASA STD 8719.13B	6.4.1.3.1	33629	Correct and safe operation of the software in conjunction with system hardware and operator inputs shall be verified prior to system acceptance. (Requirement 33629)	S	Y	Y	SWA	CxP 70059	7.5.7.5.4	SWA-94
								CxP 70065	3.1	CSR-31-003
NASA STD 8719.13B	6.4.1.3.2	33630	System testing shall verify the correct and safe operation of the system in the presence of failures and faults including software, hardware, input, timing, memory corruption, communication, and other failures. (Requirement 33630)	S	Y	Y	SWA	CxP 70059	7.5.7.5.4	SWA-94
NASA STD 8719.13B	6.4.1.3.3	33631	Safety analyses, such as PHAs, sub-system hazard analyses, FMEAs, FTAs, shall be used to determine which failures to test for, and the level of failure combinations to include (e.g., both a software and a hardware failure, or multiple concurrent hardware failures). (Requirement 33631)	S	Y	Y	SWA	CxP 70059	7.2	SWA-3
								CxP 70059	7.3.1	SWA-13
								CxP 70059	7.4.1	SWA-35
								CxP 70059	7.5.7.5.2	SWA-126
NASA STD 8719.13B	6.4.1.3.4	33632	System testing shall verify the correct and safe operation of the system under system load, stress, and off-nominal conditions. (Requirement 33632)	S	Y	Y	SWA	CxP 70059	7.2	SWA-3
								CxP 70059	7.3.1	SWA-13
								CxP 70059	7.4.1	SWA-35
								CxP 70059	7.5.7.5.2	SWA-126
NASA STD 8719.13B	6.4.1.3.5	33633	System testing shall verify correct and safe operations in all anticipated operational and off-nominal configurations. (Requirement 33633)	S	Y	Y	SWA	CxP 70059	7.2	SWA-3
								CxP 70059	7.3.1	SWA-13
								CxP 70059	7.4.1	SWA-35
								CxP 70059	7.5.7.5.2	SWA-126
								CxP 70065	0	CSR-35-006
NASA STD 8719.13B	6.4.1.4	33634	Additional hazardous states or contributors identified during testing shall undergo complete analysis prior to software delivery or use. (Requirement 33634)	S	Y	Y	SWA	CxP 70059	7.5.2.1	SWA-43
								CxP 70059	7.5.2.2	SWA-44
								CxP 70059	7.5.7.3	SWA-75
								CxP 70059	7.5.7.3	SWA-76
								CxP 70059	7.5.7.4.1	SWA-101
								CxP 70059	7.5.7.4.3	SWA-77
								CxP 70059	7.5.7.5.3	SWA-87
								CxP 70059	7.5.7.5.4	SWA-90
								CxP 70059	7.5.7.5.4	SWA-91

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								CxP 70059	7.5.7.5.4	SWA-93
								CxP 70059	7.5.7.5.4	SWA-94
								CxP 70059	7.5.7.5.4	SWA-95
								CxP 70059	7.5.7.6	SWA-108
								CxP 70065	0	CSR-31-009
								CxP 70065	0	CSR-34-006
								CxP 70065	3.4	CSR-34-10
NASA STD 8719.13B	6.4.2	33635	Requirements that cannot be verified by test shall be verified by evaluation, inspection, or demonstration. (Requirement 33635)	S	Y	Y	SWA	CxP 70059	7.5.7.5.4	SWA-90
								CxP 70059	7.5.7.5.4	SWA-91
								CxP 70059	7.5.7.5.4	SWA-95
NASA STD 8719.13B	6.4.2.1	33636	The rationale for selecting evaluation, inspection, or demonstration shall be recorded in an appropriate document (e.g., system safety report, hazard analysis). (Requirement 33636)	S	Y	Y	SWA	CxP 70059	7.5.7.5.4	SWA-90
								CxP 70059	7.5.7.5.4	SWA-91
								CxP 70059	7.5.7.5.4	SWA-95
NASA STD 8719.13B	6.4.2.2	33637	The evaluation, inspection, or demonstration methodology shall be recorded in an appropriate document. (Requirement 33637)	S	Y	Y	SWA			
NASA STD 8719.13B	6.4.2.3	33638	The software safety personnel shall concur with both the rationale for not performing a test and the selected evaluation, inspection, or demonstration methodology used to verify the requirement. (Requirement 33638)	S	Y	Y	SWA	CxP 70059	7.5.7.5.4	SWA-90
								CxP 70059	7.5.7.5.4	SWA-91
								CxP 70059	7.5.7.5.4	SWA-95
NASA STD 8719.13B	6.4.3	33639	The results from the software and system test process, or the requirements verification evaluation, inspection, or demonstration process, shall be analyzed. (Requirement 33639)	S	Y	Y	SWA	CxP 70059	7.5.2.1	SWA-43
								CxP 70059	7.5.2.2	SWA-44
								CxP 70059	7.5.7.3	SWA-75
								CxP 70059	7.5.7.3	SWA-76
								CxP 70059	7.5.7.4.1	SWA-101
								CxP 70059	7.5.7.4.3	SWA-77
								CxP 70059	7.5.7.5.3	SWA-87
								CxP 70059	7.5.7.5.4	SWA-90
								CxP 70059	7.5.7.5.4	SWA-91
								CxP 70059	7.5.7.5.4	SWA-93
								CxP 70059	7.5.7.5.4	SWA-94
								CxP 70059	7.5.7.5.4	SWA-95
								CxP 70059	7.5.7.6	SWA-108
NASA STD 8719.13B	6.4.3.1	33640	The analysis methodology shall be recorded in an appropriate document. (Requirement 33640)	S	Y	Y	SWA			
NASA STD 8719.13B	6.4.3.2.a	33642	The analysis methodology shall include the following steps, at a minimum: Verify that the software and system tests data meet the requirements of section 6.4.1 and sub-sections. (Requirement 33642)	S	Y	Y	SWA	CxP 70059	7.5.2.1	SWA-43
								CxP 70059	7.5.2.2	SWA-44
								CxP 70059	7.5.7.3	SWA-75
								CxP 70059	7.5.7.3	SWA-76
								CxP 70059	7.5.7.4.1	SWA-101
								CxP 70059	7.5.7.4.3	SWA-77
								CxP 70059	7.5.7.5.3	SWA-87
								CxP 70059	7.5.7.5.4	SWA-90
								CxP 70059	7.5.7.5.4	SWA-91
								CxP 70059	7.5.7.5.4	SWA-93
								CxP 70059	7.5.7.5.4	SWA-94
								CxP 70059	7.5.7.5.4	SWA-95
								CxP 70059	7.5.7.6	SWA-108
NASA STD 8719.13B	6.4.3.2.b	33643	The analysis methodology shall include the following steps, at a minimum: Verify that the requirements verification evaluation, inspection, or demonstration data meet the requirements of section 6.4.2 and sub-sections (Requirement 33643)	S	Y	Y	SWA	CxP 70059	7.5.2.1	SWA-43
								CxP 70059	7.5.2.2	SWA-44
								CxP 70059	7.5.7.4.3	SWA-77
								CxP 70059	7.5.7.6	SWA-108
								CxP 70059	7.5.7.6	SWA-109
NASA STD 8719.13B	6.4.3.2.c	33644	The analysis methodology shall include the following steps, at a minimum: Verify via test coverage analysis that all safety requirements, functions, controls, and processes have been completely covered within the unit, component, system, and acceptance level tests. (Requirement 33644)	S	Y	Y	SWA	CxP 70059	7.5.2.1	SWA-43
								CxP 70059	7.5.2.2	SWA-44
								CxP 70059	7.5.7.3	SWA-75
								CxP 70059	7.5.7.3	SWA-76
								CxP 70059	7.5.7.4.3	SWA-77
								CxP 70059	7.5.7.5.4	SWA-90
								CxP 70059	7.5.7.5.4	SWA-91
								CxP 70059	7.5.7.5.4	SWA-93
								CxP 70059	7.5.7.5.4	SWA-94
								CxP 70059	7.5.7.5.4	SWA-95
								CxP 70059	7.5.7.6	SWA-108
NASA STD 8719.13B	6.4.3.2.d	33645	The analysis methodology shall include the following steps, at a minimum: Verify that all software safety requirements have been tested, or evaluated, inspected, or demonstrated. (Requirement 33645)	S	Y	Y	SWA	CxP 70059	7.5.2.1	SWA-43
								CxP 70059	7.5.2.2	SWA-44
								CxP 70059	7.5.7.3	SWA-75

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								CxP 70059	7.5.7.3	SWA-76
								CxP 70059	7.5.7.4.1	SWA-101
								CxP 70059	7.5.7.4.3	SWA-77
								CxP 70059	7.5.7.5.3	SWA-87
								CxP 70059	7.5.7.5.4	SWA-90
								CxP 70059	7.5.7.5.4	SWA-91
								CxP 70059	7.5.7.5.4	SWA-93
								CxP 70059	7.5.7.5.4	SWA-94
								CxP 70059	7.5.7.5.4	SWA-95
								CxP 70059	7.5.7.6	SWA-108
NASA STD 8719.13B	6.4.3.2.e	33646	The analysis methodology shall include the following steps, at a minimum: Verify that all software safety functions are correctly performed and that the software system does not perform unintended functions. (Requirement 33646)	S	Y	Y	SWA	CxP 70059	7.5.2.1	SWA-43
								CxP 70059	7.5.2.2	SWA-44
								CxP 70059	7.5.7.3	SWA-75
								CxP 70059	7.5.7.3	SWA-76
								CxP 70059	7.5.7.4.1	SWA-101
								CxP 70059	7.5.7.4.3	SWA-77
								CxP 70059	7.5.7.5.3	SWA-87
								CxP 70059	7.5.7.5.4	SWA-90
								CxP 70059	7.5.7.5.4	SWA-91
								CxP 70059	7.5.7.5.4	SWA-93
								CxP 70059	7.5.7.5.4	SWA-94
								CxP 70059	7.5.7.5.4	SWA-95
								CxP 70059	7.5.7.6	SWA-108
NASA STD 8719.13B	6.4.3.3	33647	The documented results of the analysis, including any newly identified hazards and improperly implemented safety features, shall be provided to the responsible system safety personnel. (Requirement 33647)	S	Y	Y	SWA	CxP 70059	7.5.2.1	SWA-43
								CxP 70059	7.5.2.2	SWA-44
								CxP 70059	7.5.7.3	SWA-75
								CxP 70059	7.5.7.3	SWA-76
								CxP 70059	7.5.7.4.3	SWA-77
								CxP 70059	7.5.7.5.4	SWA-90
								CxP 70059	7.5.7.5.4	SWA-91
								CxP 70059	7.5.7.5.4	SWA-93
								CxP 70059	7.5.7.5.4	SWA-94
								CxP 70059	7.5.7.5.4	SWA-95
								CxP 70059	7.5.7.6	SWA-108
NASA STD 8719.13B	6.4.3.4	33648	Improperly implemented safety features shall be input into the problem reporting system for project-level resolution. (Requirement 33648)	S	Y	Y	SWA	CxP 70059	2.2.2.2	SAF-36
								CxP 70059	7.5.3	SWA-45
								CxP 70059	7.5.3	SWA-46
								CxP 70059	7.5.3	SWA-47
								CxP 70059	7.5.7.6	SWA-109
NASA STD 8719.13B	6.4.3.5	33649	The software safety test analysis results shall be presented at project formal reviews and system-level safety reviews. (Requirement 33649)	S	Y	Y	SWA	CxP 70059	7.5.7.5.4	SWA-95
NASA STD 8719.13B	7.1	33655	The requirements of this Standard shall continue to be applicable after the safety-critical software has been released for operations. (Requirement 33655)	S	Y	Y	SWA	CxP 70059	1.1	MGT-1
								CxP 70059	1.2	MGT-2
								CxP 70059	1.3	MGT-3
								CxP 70059	1.3	MGT-4
								CxP 70059	1.3	MGT-5
								CxP 70059	7.1	SWA-1
NASA STD 8719.13B	7.2	33656	The software safety requirements to specify, develop, analyze, and test safety-critical software, shall apply to all changes made to the software or routine operational updates (e.g., mission specific database updates). (Requirement 33656)	S	Y	Y	SWA	CxP 70059	1.1	MGT-1
								CxP 70059	1.2	MGT-2
								CxP 70059	1.3	MGT-3
								CxP 70059	1.3	MGT-4
								CxP 70059	1.3	MGT-5
								CxP 70059	7.1	SWA-1
NASA STD 8719.13B	7.2.1	33657	Software safety change analysis shall evaluate whether the proposed change could invoke a hazardous state, affect a hazard control, increase the likelihood of a hazardous state, adversely affect safety-critical software, or change the safety-criticality of an existing software element. (Requirement 33657)	S	Y	Y	SWA	CxP 70059		SWA-81
								CxP 70059	7.1	SWA-1
								CxP 70059	7.5.7.1	SWA-68
								CxP 70059	7.5.7.2	SWA-69
								CxP 70059	7.5.7.2	SWA-70
								CxP 70059	7.5.7.5	SWA-86
								CxP 70059	7.5.7.5.1	SWA-71
								CxP 70059	7.5.7.5.1	SWA-78
								CxP 70059	7.5.7.5.1	SWA-80
								CxP 70059	7.5.7.5.2	SWA-83
								CxP 70059	7.5.7.5.2	SWA-85
								CxP 70059	7.5.7.5.5	SWA-96
NASA STD 8719.13B	7.2.1.1	33658	The analysis activity shall include an assessment of the amount of regression testing needed to verify that the implementation of new software requirements has not affected the implementation of existing safety-critical software. (Requirement 33658)	S	Y	Y	SWA	CxP 70059	7.5.7.7	SWA-113

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NASA STD 8719.13B	7.2.1.2	33659	Software safety personnel shall concur on any changes to basic, as built, or approved upgrades of the operational software. (Requirement 33659)	S	Y	Y	SWA	CxP 70059	7.3.6	SWA-28
								CxP 70059	7.4.3	SWA-40
								CxP 70059	7.5.3	SWA-47
								CxP 70059	7.5.7.4.3	SWA-7
								CxP 70059	7.5.7.4.3	SWA-74
NASA STD 8719.13B	7.3	33660	Operational documentation, including user manuals and procedures, shall describe all safety related commands, data, input sequences, options, and other items necessary for the safe operation of the system. (Requirement 33660)	S	Y	Y	SWA	CxP 70059	7.5.7.7	SWA-115
NASA STD 8719.13B	7.3.1	33661	All error message descriptions and corrective actions shall be included in operational documentation. (Requirement 33661)	S	Y	Y	SWA	CxP 70059	7.5.7.7	SWA-116
NASA STD 8719.13B	7.3.2	33662	Software safety personnel shall review any updates to user manuals and procedures for safety impacts, and to ensure that any software-related hazard closures that depend on operational workarounds are properly documented. (Requirement 33662)	S	Y	Y	SWA	CxP 70059	7.5.7.7	SWA-117
NASA STD 8719.13B	7.4	33663	The requirements of this Standard expire for a particular facility or system only upon the retirement of that facility or system. (Requirement 33663)	S	Y	Y	SWA	CxP 70059	7.3.8	SWA-32
NASA STD 8719.13B	7.4.1	33664	When the facility or system is retired, there shall be a retirement plan which addresses the safe termination of operations, decommissioning, and retirement of that system or facility. (Requirement 33664)	S	Y	Y	SWA	CxP 70059	7.3.8	SWA-32
NASA STD 8719.14	1.1.3	56244	SCOPE: Purpose: This document, along with the associated Debris Assessment Software (DAS) [version 2.0 or higher] provided by the NASA Orbital Debris Program Office (NASA ODPO) located at Johnson Space Center (JSC), shall be used by the program or project manager as the primary reference in conducting orbital debris assessments (Requirement 56244).	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NASA STD 8719.14	1.2.e	56255	SCOPE: Applicability: NASA spacecraft, launch vehicles, and instruments that passed Preliminary Design Review prior to August 1995 (release of NASA Safety Standard (NSS) 1740.14, Guidelines and Assessment Procedures for Limiting Orbital Debris) are not required to perform an ODA unless a large change in design or changes in space object capability or risk affect the ability to achieve compliance with the requirements. If one or more of these conditions occur, an ODA Report (ODAR) shall be performed (Requirement 56255).	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NASA STD 8719.14	4.2.1.e	56372	Requirements: Conducting Debris Assessments: An Overview: ODA and ODARs: ODAs being performed on components or portions of a spacecraft shall document the assessment in the abbreviated ODAR using Appendix A.3 (Requirement 56372).	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NASA STD 8719.14	4.2.1.i	56376	Requirements: Conducting Debris Assessments: An Overview: ODA and ODARs: NASA programs/projects that are flying as Space Shuttle, International Space Station (ISS), and Constellation Program payloads that remain encapsulated by the Space Shuttle/ISS (i.e., not exposed to outer space environment) are exempted from performing orbital debris assessments. Space Shuttle/ISS/Constellation payloads which are temorarily deployed and retreived into the ISS or on the same Space Shuttle or Constellation flight shall provide an abbreviated Orbital Debris Assessment (ODA) Report (ODAR) per this standard (Requirement 56376).	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NASA STD 8719.14	4.2.2.b	56380	Requirements: Conducting Debris Assessments: An Overview: The EOMP shall be organized using Appendix B, Section B.1 (Requirement 56380). The NASA ODPO reviews the EOMPs using the Section B.1 criteria and reports findings back to the program via the OSMA using the evaluation sheet in Appendix B, Section B.2.	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NASA STD 8719.14	4.2.2.c	56381	Requirements: Conducting Debris Assessments: An Overview: The EOMP shall contain a statement covering what actions must be undertaken in the event of reductions of capabilities or consumables which may significantly and predictably threaten the ability to carry out the EOMP (Requirement 56381). This includes reduction of system capability to "single string" unless expressly agreed otherwise.	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NASA STD 8719.14	4.3.2	56396	Requirements: Assessment of Debris Released During Normal Operations: Requirements for the Control of Debris Released During Normal Operations: NASA programs and projects shall assess and limit the amount of debris released (Requirement 56396).	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NASA STD 8719.14	4.3.2.1	56397	Requirements: Assessment of Debris Released During Normal Operations: Requirements for the Control of Debris Released During Normal Operations: Requirement 4.3-1: Debris passing through LEO: For missions leaving debris in orbits passing through LEO, released debris with diameters of 1 mm or larger shall satisfy both Requirement 4.3-1a and Requirement 4.3-1b (Requirement 56397).	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NASA STD 8719.14	4.3.2.1.a	56398	Requirements: Assessment of Debris Released During Normal Operations: Requirements for the Control of Debris Released During Normal Operations: Requirement 4.3-1a: All debris released during the deployment, operation, and disposal phases shall be limited to a maximum orbital lifetime of 25 years from date of release (Requirement 56398).	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NASA STD 8719.14	4.3.2.1.b	56399	Requirements: Assessment of Debris Released During Normal Operations: Requirements for the Control of Debris Released During Normal Operations: Requirement 4.3-1b: The total object-time product shall be no larger than 100 object years per mission (Requirement 56399). The object-time product is the sum of all debris of the total time spent below 2000 km altitude during the orbital lifetime of each object. (See section 4.3.4.2 for methods to calculate the object-time product).	S	Y	Y	Safety	CxP 70059	2.4	SAF-191

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NASA STD 8719.14	4.3.2.2	56400	Requirements: Assessment of Debris Released During Normal Operations: Requirements for the Control of Debris Released During Normal Operations: Requirement 4.3-2: Debris passing near GEO: For missions leaving debris in orbits with the potential of traversing GEO (GEO altitude +/- 15 degrees latitude), released debris with diameters of 5 cm or greater shall be left in orbits which will ensure that within 25 years after release the apogee will no longer exceed GEO - 200 km (Requirement 56400).	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NASA STD 8719.14	4.3.4	56407	Requirements: Assessment of Debris Released During Normal Operations: Methods to Assess Compliance: Compliance to section 4.3 requirements shall be documented in the ODAR and EOMP for all items/objects larger than 1 mm in LEO and 5 cm in GEO planned for release during all phases of flight (Requirement 56407).	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NASA STD 8719.14	4.4(1)	56433	Requirements: Assessment of Debris Generated by Explosions and Intentional Breakups: Orbital debris analyses assess accidental explosion probability and intentional breakups during and after completion of mission operations. Requirement area 4.4 is required for all space structures in Earth and lunar orbits (Requirement 56433). Requirement 4.4-3 is recommended for Earth-Sun Lagrange Points, Earth-Moon Lagrange points, and Mars operations.	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NASA STD 8719.14	4.4.2.1.1	56449	Requirements: Assessment of Debris Generated by Explosions and Intentional Breakups: Requirements for the Area: Accidental Explosions: Requirement 4.4-1: Limiting the risk to other space systems from accidental explosions during deployment and mission operations while in orbit about Earth or the Moon: For each spacecraft and launch vehicle orbital stage employed for a mission, the program or project shall demonstrate, via failure mode and effects analyses or equivalent analyses, that the integrated probability of explosion for all credible failure modes of each spacecraft and launch vehicle is less than 0.001 (excluding small particle impacts) (Requirement 56449).	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NASA STD 8719.14	4.4.2.1.2	56450	Requirements: Assessment of Debris Generated by Explosions and Intentional Breakups: Requirements for the Area: Accidental Explosions: Requirement 4.4-2: Design for passivation after completion of mission operations while in orbit about Earth or the Moon: Design of all spacecraft and launch vehicle orbital stages shall include the ability to deplete all onboard sources of stored energy and disconnect all energy generation sources when they are no longer required for mission operations or postmission disposal or control (Requirement 56450).	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NASA STD 8719.14	4.4.2.2.1.a	56453	Requirements: Assessment of Debris Generated by Explosions and Intentional Breakups: Requirements for the Area: Intentional Breakups: Be conducted at an altitude such that for orbital debris fragments larger than 10 cm the object-time product does not exceed 100 object-years (Requirement 56453). For example, if the debris fragments greater than 10cm decay in the maximum allowed 1 year, a maximum of 100 such fragments can be generated by the breakup.	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NASA STD 8719.14	4.4.2.2.1.b	56454	Requirements: Assessment of Debris Generated by Explosions and Intentional Breakups: Requirements for the Area: Intentional Breakups: Requirement 4.4-3. Limiting the long-term risk to other space systems from planned breakups: Planned explosions or intentional collisions shall: Not generate debris larger than 1 mm that shall remain in Earth orbit longer than one year (Requirement 56454).	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NASA STD 8719.14	4.4.2.2.2	56455	Requirements: Assessment of Debris Generated by Explosions and Intentional Breakups: Requirements for the Area: Intentional Breakups: Requirement 4.4-4: Limiting the short-term risk to other space systems from planned breakups: Immediately before a planned explosion or intentional collision, the probability of debris, orbital or ballistic, larger than 1 mm colliding with any operating spacecraft within 24 hours of the breakup shall be verified to not exceed 10^6 (Requirement 56455).	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NASA STD 8719.14	4.4.4	56465	Requirements: Assessment of Debris Generated by Explosions and Intentional Breakups: Methods to Assess Compliance: Compliance to section 4.4 requirements shall be documented in the ODAR and EOMP for all phases of flight (Requirement 56465).	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NASA STD 8719.14	4.5	56500	Requirements: Assessment of Debris Generated by On-orbit Collisions: Orbital debris analyses assess the ability of the design and mission profile of a space system to limit the probability of accidental collision with known resident space objects during the system's orbital lifetime. Requirement area 4.5 shall apply for all space structures in Earth and lunar orbits (Requirement 56500).	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NASA STD 8719.14	4.5.2	56505	Requirements: Assessment of Debris Generated by On-orbit Collisions: Requirements for the Collision-induced Risk to Disposal Area: NASA programs and projects shall assess and limit the probability that the operating space system becomes a source of debris if it collides with orbital debris or meteoroids (Requirement 56505).	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NASA STD 8719.14	4.5.2.1	56506	Requirements: Assessment of Debris Generated by On-orbit Collisions: Requirements for the Collision-induced Risk to Disposal Area: Requirement 4.5-1. Limiting debris generated by collisions with large objects when operating in Earth or lunar orbit: For each spacecraft and launch vehicle orbital stage in or passing through LEO, the program or project shall demonstrate that, during the orbital lifetime of each spacecraft and orbital stage, the probability of accidental collision with space objects larger than 10 cm in diameter is less than 0.001 (Requirement 56506).	S	Y	Y	Safety	CxP 70059	2.4	SAF-191

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NASA STD 8719.14	4.5.2.2	56507	Requirements: Assessment of Debris Generated by On-orbit Collisions: Requirements for the Collision-induced Risk to Disposal Area: Requirement 4.5-2. Limiting debris generated by collisions with small objects when operating in Earth or lunar orbit: For each spacecraft, the program or project shall demonstrate that, during the mission of the spacecraft, the probability of accidental collision with orbital debris and meteoroids is sufficient to prevent postmission disposal is less than 0.01 (Requirement 56507).	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NASA STD 8719.14	4.5.4(1)	56511	Requirements: Assessment of Debris Generated by On-orbit Collisions: Methods to Assess Compliance: Compliance to section 4.5 requirements shall be documented in the ODAR and EOMP for all phases of flight including the launch phase per applicability in Section 4.5 introduction (Requirement 56511).	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NASA STD 8719.14	4.5.4.2.e(1)	56523	Requirements: Assessment of Debris Generated by On-orbit Collisions: Methods to Assess Compliance: Collisions with Small Debris During Mission Operations (Requirement 4.5-2): For operations in Earth orbit, DAS shall be used to determine whether damaging impacts by small particles could reasonably prevent successful postmission disposal operations (Requirement 56523). The software estimates the probability that meteoroid or orbital debris impacts will cause components critical to postmission disposal to fail. If this estimate shows that there is a significant probability of failure, a higher-fidelity analysis shall be used to guide any redesign and to validate any sheilding design (Requirement 56523). DAS is not intended to be used to design shielding.	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NASA STD 8719.14	4.5.4.2.e(2)	56524	Requirements: Assessment of Debris Generated by On-orbit Collisions: Methods to Assess Compliance: Collisions with Small Debris During Mission Operations (Requirement 4.5-2): The software estimates the probability that meteoroid or orbital debris impacts will cause components critical to postmission disposal to fail. If this estimate shows that there is a significant probability of failure, a higher-fidelity analysis shall be used to guide any redesign and to validate any sheilding design (Requirement 56524). DAS is not intended to be used to design shielding.	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NASA STD 8719.14	4.6(5).a	56545	Requirements: Postmission Disposal of Space Structures: Spacecraft disposal can be accomplished by one of three methods: Requirement area 4.6 applies as follows Requirements 4.6-1, 4.6-2, and 4.6-3 are required for all space structures when in Earth orbit (Requirement 56545).	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NASA STD 8719.14	4.6(5).b	56546	Requirements: Postmission Disposal of Space Structures: Spacecraft disposal can be accomplished by one of three methods: Requirement area 4.6 applies as follows Requirement 4.6-4 is required for all space structure in orbit about the Earth (Requirement 56546).	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NASA STD 8719.14	4.6(5).c	56547	Requirements: Postmission Disposal of Space Structures: Spacecraft disposal can be accomplished by one of three methods: Requirement area 4.6 applies as follows Requirement 4.6-5 is required for all space structures in orbit about the Earth and the Moon (Requirement 56547).	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NASA STD 8719.14	4.6.2.1	56557	Requirements: Postmission Disposal of Space Structures: Requirements for the Area: Requirement 4.6-1. Disposal for space structures passing through LEO: A spacecraft or orbital stage with a perigee altitude below 2000 km shall be disposed of by one of three methods: (Requirement 56557)	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NASA STD 8719.14	4.6.2.2	56563	Requirements: Postmission Disposal of Space Structures: Requirements for the Area: Requirement 4.6-2. Disposal for space structures near GEO: A spacecraft or orbital stage in an orbit near GEO shall be maneuvered at EOM to a disposal orbit above GEO with a predicted minimum altitude of GEO +200 km (35,986 km) for a period of at least 100 years after disposal (Requirement 56563).	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NASA STD 8719.14	4.6.2.3.a	56565	Requirements: Postmission Disposal of Space Structures: Requirements for the Area: Requirement 4.6-3. Disposal for space structures between LEO and GEO: A spacecraft or orbital stage may be left in any orbit between 2000 km above the Earth's surface and 500 km below GEO (Requirement 56565).	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NASA STD 8719.14	4.6.2.3.b	56566	Requirements: Postmission Disposal of Space Structures: Requirements for the Area: Requirement 4.6-3. Disposal for space structures between LEO and GEO: A spacecraft or orbital stage shall not use nearly circular disposal orbits near regions of high value operational space structures, such as between 19,100 km and 20,200 km (Requirement 56566).	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NASA STD 8719.14	4.6.2.4	56567	Requirements: Postmission Disposal of Space Structures: Requirements for the Area: Requirement 4.6-3. Disposal for space structures between LEO and GEO: Requirement 4.6-4. Reliability of postmission disposal operations in Earth orbit: NASA space programs and projects shall ensure that all postmission disposal operations are designed for a probability of success as follows: (Requirement 56567)	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NASA STD 8719.14	4.6.2.5.a	56571	Requirements: Postmission Disposal of Space Structures: Requirements for the Area: Requirement 4.6-5. Operational design for EOM passivation: All NASA spacecraft and launch vehicles in Earth and lunar orbit shall be totally passivated at EOM to prevent breakup or further generation of orbital debris (Requirement 56571).	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NASA STD 8719.14	4.6.2.5.b	56572	Requirements: Postmission Disposal of Space Structures: Requirements for the Area: Requirement 4.6-5. Operational design for EOM passivation: The timing, order, procedures, and verification methods for performing all depletions identified for Requirement 4.4-2 shall have been developed prior to launch (Requirement 56572).	S	Y	Y	Safety	CxP 70059	2.4	SAF-191

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NASA STD 8719.14	4.6.2.5.c	56573	Requirements: Postmission Disposal of Space Structures: Requirements for the Area: Requirement 4.6-5. Operational design for EOM passivation: Requirement 4.6 5 shall be updated prior to implementation of the EOMP (Requirement 56573).	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NASA STD 8719.14	4.6.2.5.d	56574	Requirements: Postmission Disposal of Space Structures: Requirements for the Area: Requirement 4.6-5. Operational design for EOM passivation: Depletion Passivation shall occur as soon as this operation does not pose an unacceptable risk to the payload (Requirement 56574).	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NASA STD 8719.14	4.6.3.d	56580	Requirements: Postmission Disposal of Space Structures: Rationale for the Area Requirements: If disposal by controlled reentry into the atmosphere is chosen, the trajectory must be designed to ensure that the space structure does not skip in the upper regions of the atmosphere. Therefore, the effective perigee of the reentry trajectory shall be no higher than 50 km (Requirement 56580). See section 4.7 for additional guidance on controlled reentries.	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NASA STD 8719.14	4.6.3.f	56582	Requirements: Postmission Disposal of Space Structures: Rationale for the Area Requirements: Spacecraft that have terminated their mission shall be maneuvered far enough away from GEO so as not to cause interference with space systems still in geostationary orbit (Requirement 56582). The minimum increase in perigee altitude at the end of re-orbiting shall ensure that the space structure does not come within GEO + 200 km for the next 100 years. A selected perigee of GEO +235 km + (1000*CR*A/m) and an eccentricity of less than 0.005 (e<g]	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NASA STD 8719.14	4.6.3.g	56583	Requirements: Postmission Disposal of Space Structures: Rationale for the Area Requirements: The propulsion system for a GEO spacecraft should be designed not to be separated from the spacecraft. If there are unavoidable reasons that require separation, the propulsion system shall remain outside of the protected geosynchronous region (GEO altitude plus or minus 200 km) (Requirement 56583). Regardless of whether it is separated or not, a propulsion system shall be designed for passivation.	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NASA STD 8719.14	4.6.3.j	56586	Requirements: Postmission Disposal of Space Structures: Rationale for the Area Requirements: Due to the relatively (compared with LEO) small amount of propellants needed to perform disposal maneuvers near GEO, propellant gauging issues can be important. An adequate amount of propellant shall be held in reserve to ensure that the desired disposal orbit is reached, usually through a series of maneuvers (Requirement 56586). This is even more important when orbits of very low eccentricity are needed. In accordance with Requirement 4.4-2, all propellants remaining after achieving the proper disposal orbit needs to be vented or burned in a way that does not upset the disposal orbit.	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NASA STD 8719.14	4.6.3.m	56589	Requirements: Postmission Disposal of Space Structures: Rationale for the Area Requirements: When selecting a disposal orbit between LEO and GEO, a long-term (at least 100-year) orbital perturbation analysis shall be conducted (and documented in the ODAR/EOMP) to enure that the disposal orbit is not altered, particularly by solar and lunar gravitational forces, in such a way that the disposed space structure will later penetrate LEO or GEO (Requirement 56589). Even nearly circular orbits in MEO can, under certain initial conditions, later experience severe changes in eccentricity, resulting in perigees within LEO or apogees within GEO.	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NASA STD 8719.14	4.6.3.o	56591	Requirements: Postmission Disposal of Space Structures: Rationale for the Area Requirements: All planned postmission maneuvers, including large, discrete maneuvers and continuous low-thrust maneuvers, shall be evaluated for potential collision risks with other resident space objects tracked by the U.S. Space Surveillance Network (Requirement 56591). Contact the NASA ODPO at JSC for assistance in requesting DoD support in maneuver planning.	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NASA STD 8719.14	4.7.1	56623	Requirements: Survival of Debris From the Postmission Disposal Earth Atmospheric Reentry Option: Definition of the Reentry Debris Casualty Risk Technical Area: The use of atmospheric reentry to limit the orbital lifetime of space structures in conformance with Requirement 4.6-1 results in the transfer of an orbital environment risk to a potential human casualty risk. This section presents the requirement that defines the maximum human casualty risk permitted for either a controlled or uncontrolled reentry. An uncontrolled reentry is defined as the atmospheric reentry of a space structure in which the surviving debris impact cannot be guaranteed to avoid landmasses. Requirement area 4.7 applies to all space structures in Earth orbital area (Requirement 56623).	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NASA STD 8719.14	4.7.2(2).a	56626	Requirements: Survival of Debris From the Postmission Disposal Earth Atmospheric Reentry Option: Requirements for the Area: Requirement 4.7-1. Limit the risk of human casualty: The potential for human casualty is assumed for any object with an impacting kinetic energy in excess of 15 joules: Requirements for the Area: For uncontrolled reentry, the risk of human casualty from surviving debris shall not exceed 0.0001 (1:10,000) (Requirement 56626).	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NASA STD 8719.14	4.7.2(2)b	56627	Requirements: Survival of Debris From the Postmission Disposal Earth Atmospheric Reentry Option: Requirements for the Area: Requirement 4.7-1. Limit the risk of human casualty: The potential for human casualty is assumed for any object with an impacting kinetic energy in excess of 15 joules: For controlled reentry, the selected trajectory shall ensure that no surviving debris impact with a kinetic energy greater than 15 joules, is closer than 370 km from foreign landmasses, or is within 50 km from the continental U.S., territories of the U.S., and the permanent ice pack of Antarctica (Requirement 56627).	S	Y	Y	Safety	CxP 70059	2.4	SAF-191

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NASA STD 8719.14	4.7.2(2)c	56628	Requirements: Survival of Debris From the Postmission Disposal Earth Atmospheric Reentry Option: Requirements for the Area: Requirement 4.7-1. Limit the risk of human casualty: The potential for human casualty is assumed for any object with an impacting kinetic energy in excess of 15 joules: Requirements for the Area: For controlled reentries, the product of the probability of failure of the reentry burn (from Requirement 4.6-4.b) and the risk of human casualty assuming uncontrolled reentry shall not exceed 0.0001 (1:10,000) (Requirement 56628).	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NASA STD 8719.14	4.7.4.d	56639	Requirements: Survival of Debris From the Postmission Disposal Earth Atmospheric Reentry Option: Methods to Assess Compliance: Due to the complexity of satellite reentry physics and material responses, NASA programs and projects shall employ either DAS or a higher fidelity model called ORSAT (Object Reentry Survival Analysis Tool) to determine compliance with Requirement 4.7-1 (Requirement 56639). The reentry risk assessment portion of DAS contains a simplified model which does not require expert knowledge in satellite reentry analyses. Due to the need to make some simplifications, the model is designed to be somewhat conservative. The degree of conservatism is actually a function of the vehicle and the materials under evaluation.	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NASA STD 8719.14	4.7.4.g	56642	Requirements: Survival of Debris From the Postmission Disposal Earth Atmospheric Reentry Option: Methods to Assess Compliance: In the DAS or ORSAT risk assessment, the assumptions used to model the reentry shall be documented in the ODAR and include the explanation of which items are assemblies and their sub assemblies and which items, resulting in >15J impacts have been included (Requirement 56642).	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NASA STD 8719.14	4.8	56648	Requirements: Additional Assessment Requirement for Tether Missions: Orbital debris analyses assess the potential hazard of tethered systems considering both an intact and severed system. Tethers are flexible long and narrow space structures with two of the dimensions much smaller than the third. The potential to damage operating spacecraft can be larger than would be expected solely from the tether mass and cross-sectional area. Requirement area 4.8 applies to all space structures with tethers in Earth and lunar orbits (Requirement 56648).	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NASA STD 8739.1	0	57097	NASA Standard 8739.1 is represented by this single entry. If this entry is being viewed from a filter, list, or traceability report, then the metadata applies to the document as a whole.	S	Y	Y	Safety			
NASA STD 8739.2	0	57098	NASA Standard 8739.2 is represented by this single entry. If this entry is being viewed from a filter, list, or traceability report, then the metadata applies to the document as a whole.	S	Y	Y	Safety			
NASA STD 8739.3	0	57099	NASA Standard 8739.3 is represented by this single entry. If this entry is being viewed from a filter, list, or traceability report, then the metadata applies to the document as a whole.	S	Y	Y	Safety			
NASA STD 8739.4	0	57100	NASA Standard 8739.4 is represented by this single entry. If this entry is being viewed from a filter, list, or traceability report, then the metadata applies to the document as a whole.	S	Y	Y	Safety			
NASA STD 8739.5	0	57101	NASA Standard 8739.5 is represented by this single entry. If this entry is being viewed from a filter, list, or traceability report, then the metadata applies to the document as a whole.	S	Y	Y	Safety			
NASA-STD-8739.8	5.1.1(1)	33174	The acquirer shall identify a person with responsibility for software assurance, e.g, a software assurance manager. (Requirement 33174)	S	Y	Y	SWA	CxP 70059	7.2	SWA-3
NASA-STD-8739.8	5.1.2.01	33177	Ensure completion of the Software Assurance Classification Assessment in Appendix A, for each project, including software management agreement on the results. (Requirement 33177)	S	Y	Y	SWA	CxP 70059	7.3.1	SWA-9
NASA-STD-8739.8	5.1.2.02	33178	Ensure that projects with safety-critical software comply with the requirements in NASA STD-8719.13 and the software assurance requirements and activities for the assessed Class of software. (Requirement 33178)	S	Y	Y	SWA	CxP 70059	7.2	SWA-3
NASA-STD-8739.8	5.1.2.03(1)	33179	Ensure that Class A and B projects, which require the most software assurance, follow all the requirements of Sections 5, 6, and 7. (Requirement 33179) See Table 1 for requirements and implementation of those requirements by Software Class. While the implementation of requirements for Class B will be tailored to some degree, the actual requirements are not. Class C software may address tailoring the requirements based on what is applicable for the software engineering requirements of NPR 7150.2 and according to any potential risks specific to the planned operational or development environment. Class D software may have the most requirements tailoring, matching the assurance activities to the less formal development activities. An experienced software assurance engineer must work closely with the project to assess the software for the project and tailor the software assurance activities accordingly. (See Table 1)	S	Y	Y	SWA	CxP 70059	7.3.1	SWA-10
NASA-STD-8739.8	5.1.2.04	33184	Assure all classifications of software are compared and agreed upon with the project. (Requirement 33184) As some projects may have multiple software tasks, each may need to be assessed separately. The assurance and engineering ITAs will need to settle any disagreements in classification.	S	Y	Y	SWA	CxP 70059	7.3.1	SWA-11
NASA-STD-8739.8	5.1.2.05	33185	Apply software assurance requirements in Section 5 for the acquirer software assurance activities, based on both the results of the Software Assurance Classification Assessment and Table 1 for guidance. (Requirement 33185)	S	Y	Y	SWA	CxP 70059	7.3.1	SWA-10
								CxP 70059	7.3.1	SWA-11
								CxP 70059	7.3.1	SWA-12
								CxP 70059	7.3.1	SWA-13
								CxP 70059	7.3.1	SWA-14
								CxP 70059	7.3.1	SWA-15

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								CxP 70059	7.3.1	SWA-9
								CxP 70059	7.3.2	SWA-16
								CxP 70059	7.3.2	SWA-17
								CxP 70059	7.3.2	SWA-18
								CxP 70059	7.3.2	SWA-19
								CxP 70059	7.3.2	SWA-21
								CxP 70059	7.3.3	SWA-22
								CxP 70059	7.3.3	SWA-23
NASA-STD-8739.8	5.1.2.06	33186	Apply software assurance requirements in Sections 6 and 7 for the provider software assurance activities for each RFP/MOU/MOA, based on both the results of the Software Assurance Classification Assessment and Table 1 for guidance. (Requirement 33186)	S	Y	Y	SWA	CxP 70059	7.4.1	SWA-35
								CxP 70059	7.4.1	SWA-37
								CxP 70059	7.4.2	SWA-38
								CxP 70059	7.4.2	SWA-39
								CxP 70059	7.4.3	SWA-40
								CxP 70059	7.4.4	SWA-41
								CxP 70059	7.5.1	SWA-42
								CxP 70059	7.5.2.1	SWA-43
								CxP 70059	7.5.2.2	SWA-44
								CxP 70059	7.5.3	SWA-45
								CxP 70059	7.5.3	SWA-46
								CxP 70059	7.5.3	SWA-47
								CxP 70059	7.5.4	SWA-49
								CxP 70059	7.5.4	SWA-50
								CxP 70059	7.5.4	SWA-51
								CxP 70059	7.5.4	SWA-52
								CxP 70059	7.5.5	SWA-53
								CxP 70059	7.5.5	SWA-54
								CxP 70059	7.5.5	SWA-55
								CxP 70059	7.5.5	SWA-56
								CxP 70059	7.5.6	SWA-66
NASA-STD-8739.8	5.1.2.07	33187	Assure contractual statements include appropriate oversight/insight requirements, including needed deliverables (e.g, records, documents, reports). (Requirement 33187)	S	Y	Y	SWA	CxP 70059	7.3.1	SWA-12
NASA-STD-8739.8	5.1.2.08	33188	Prepare a preliminary acquirer program/project software assurance plan documenting the planned level of software assurance effort and activities required and the necessary resources using the template provided in Appendix B. (Requirement 33188)	S	Y	Y	SWA	CxP 70059	7.3.1	SWA-13
NASA-STD-8739.8	5.1.2.09	33189	Verify that the RFP/MOU/MOA address software quality metrics (see definition in Section 3.1 of the Standard). (Requirement 33189)	S	Y	Y	SWA	CxP 70059	7.3.1	SWA-14
NASA-STD-8739.8	5.1.2.10	33190	Participate in the process to identify, analyze, track, and control procurement/development risks. (Requirement 33190)	S	Y	Y	SWA	CxP 70059	7.3.1	SWA-15
NASA-STD-8739.8	5.2.1.1	33193	Evaluate the proposals to verify that the software assurance requirements in the RFP have been addressed. (Requirement 33193)	S	Y	Y	SWA	CxP 70059	7.3.2	SWA-16
NASA-STD-8739.8	5.2.1.2	33194	Participate in pre-award surveys when such surveys are requested. (Requirement 33194)	S	Y	Y	SWA	CxP 70059	7.3.2	SWA-17
NASA-STD-8739.8	5.2.1.3	33195	Participate in contract negotiation to ensure that all software engineering, software assurance, management, and development requirements have been addressed and, where appropriate, are included in any resulting contracts. (Requirement 33195)	S	Y	Y	SWA	CxP 70059	7.3.2	SWA-18
NASA-STD-8739.8	5.2.1.4	33196	Coordinate with project management to perform an updated Software Assurance Classification Assessment with the accepted proposal information and defined software assurance development approach. (Requirement 33196)	S	Y	Y	SWA	CxP 70059	7.3.2	SWA-19
NASA-STD-8739.8	5.2.1.5	33197	Apply the updated Software Assurance Classification Assessment results to update the software assurance requirements. (Requirement 33197)	S	Y	Y	SWA	CxP 70059	7.3.2	SWA-19
NASA-STD-8739.8	5.2.1.6	33198	Ensure that each Software Assurance Classification Assessment Report is maintained and made available to the SMA director, SMA office, SMO, project management, and/or Center Director upon request. (Requirement 33198)	S	Y	Y	SWA	CxP 70059	7.3.2	SWA-21
NASA-STD-8739.8	5.3.1.1	33201	Verify that the provider's software assurance plan meets contractual requirements. (Requirement 33201)	S	Y	Y	SWA	CxP 70059	7.3.3	SWA-22
NASA-STD-8739.8	5.3.1.2	33202	Verify that the acquirer's software assurance plan and the provider's software assurance plan are consistent, compatible, and are baselined. (Requirement 33202)	S	Y	Y	SWA	CxP 70059	7.3.3	SWA-23
NASA-STD-8739.8	5.3.1.3	33203	Ensure that acquirer software assurance personnel are trained and qualified to accomplish their tasks. (Requirement 33203)	S	Y	Y	SWA	CxP 70059	1.8	MGT-20
NASA-STD-8739.8	5.3.1.4	33204	Assure that provider software assurance personnel are trained and qualified to accomplish their tasks. (Requirement 33204)	S	Y	Y	SWA	CxP 70059	1.8	MGT-20
NASA-STD-8739.8	5.4.1.1	33207	Provide surveillance to assure that both the acquirer and provider software assurance functions are performed according to their specific software assurance plans and the contract. (Requirement 33207)	S	Y	Y	SWA	CxP 70059	7.3.4	SWA-119
NASA-STD-8739.8	5.4.1.2	33208	Verify that the provider has developed and maintained processes for assurance of COTS, MOTS, and GOTS software addressing both the basic acquired software and any modifications or applications written to adopt them into the intended system. (Requirement 33208)	S	Y	Y	SWA	CxP 70059	7.3.4	SWA-120

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NASA-STD-8739.8	5.4.1.3	33209	Ensure that acquirer software assurance staff performs tasks to provide insight into whether the provider is adhering to approved software assurance, management, and development plans and procedures and that these plans and procedures are effectively fulfilling their purpose. (Requirement 33209) These tasks may include activities such as audits, reviews, analyses, and assessments.	S	Y	Y	SWA	CxP 70059	7.3.1	SWA-9
NASA-STD-8739.8	5.4.1.4	33210	Ensure that acquirer software assurance staff performs tasks to provide oversight of the provider's management, assurance, and engineering processes. Specifically, reviews, audits, and evaluations may be performed to ensure adherence to and effectiveness of approved plans and procedures. (Requirement 33210)	S	Y	Y	SWA	CxP 70059	7.3.1	SWA-9
NASA-STD-8739.8	5.4.1.5	33211	Assure that both deliverable and any designated non-deliverable software development products have proper configuration management. (Requirement 33211)	S	Y	Y	SWA	CxP 70059	7.3.1	SWA-9
NASA-STD-8739.8	5.4.1.6	33212	Assure that problem reports, discrepancies from reviews, and test anomalies are documented, addressed, analyzed, and tracked to resolution. (Requirement 33212)	S	Y	Y	SWA	CxP 70059	7.5.3	SWA-45
								CxP 70059	7.5.3	SWA-46
								CxP 70059	7.5.3	SWA-47
								CxP 70059	7.5.7.6	SWA-109
NASA-STD-8739.8	5.4.1.7	33213	Assure that software products (e.g, software requirements, preliminary design, detailed design, use cases, code, models, simulators, test data, inspection results, flow diagrams) are reviewed and software quality metrics (e.g, defect metrics) are collected, analyzed, trended, and documented. (Requirement 33213)	S	Y	Y	SWA	CxP 70059	7.5.5	SWA-56
NASA-STD-8739.8	5.5.1.1	33216	Ensure that an audit (e.g, Functional Configuration Audit, Physical Configuration Audit) is performed prior to delivery to assure that all delivered products are complete, contain the proper versions, and that all discrepancies, open work, and deviations and waivers are properly documented and approved. (Requirement 33216)	S	Y	Y	SWA	CxP 70059	7.5.2.1	SWA-43
NASA-STD-8739.8	5.5.1.2	33217	Ensure that any acquirer facilities (e.g, buildings, hardware) are prepared to receive and install the software. (Requirement 33217)	S	Y	Y	SWA	CxP 70059	7.3.5	SWA-24
NASA-STD-8739.8	5.5.1.3	33218	Assure that all acceptance documentation is present, including signed certifications. (Requirement 33218)	S	Y	Y	SWA	CxP 70059	7.5.2.1	SWA-43
								CxP 70059	7.5.7.6	SWA-108
								CxP 70059	7.5.7.6	SWA-109
NASA-STD-8739.8	5.5.1.4	33219	Assure that all acquisition lessons learned are recorded and entered into the NASA lessons learned database. (Requirement 33219)	S	Y	Y	SWA	CxP 70059	7.3.5	SWA-25
NASA-STD-8739.8	5.6.1.1	33222	Ensure that software assurance processes are in place for operation of the software developed or acquired by NASA. (Requirement 33222) A separate Software Assurance Plan may be necessary as a new contract may cover the operational phase.	S	Y	Y	SWA	CxP 70059	1.16	MGT-41
NASA-STD-8739.8	5.6.1.2	33223	Depending upon the operational environment and the criticality of operation, ensure that software assurance processes include a periodic audit of the operations to ensure any changes to the software or software induced operational workarounds have been reviewed and approved. (Requirement 33223)	S	Y	Y	SWA	CxP 70059	1.9	MGT-27
								CxP 70059	5.2.7.5.3	QAS-27
								CxP 70059	5.2.7.5.4.2	QAS-29
								CxP 70059	7.3.6	SWA-28
NASA-STD-8739.8	5.6.2(1)	33224	Software assurance staff shall perform periodic operational assessments to ensure baseline management of software requirements, design, code, and documentation and to ensure review and approval of software changes or software induced operational workarounds. (Requirement 33224)	S	Y	Y	SWA	CxP 70059	7.3.6	SWA-28
NASA-STD-8739.8	5.7.1.1	33228	Ensure that software assurance processes are in place for software maintenance. (Requirement 33228)	S	Y	Y	SWA	CxP 70059	7.3.7	SWA-122
NASA-STD-8739.8	5.7.1.2	33229	Assure the transfer and maintenance of any licenses, simulators, models, and test suites from the developer to NASA, or the designated maintenance contractor. (Requirement 33229)	S	Y	Y	SWA	CxP 70059	7.3.7	SWA-29
NASA-STD-8739.8	5.7.1.3	33230	Assure that any metrics collected on the software, along with any trending and reliability data, are transferred to the maintenance organization and maintained in order to better understand and predict problem areas in the software. (Requirement 33230)	S	Y	Y	SWA	CxP 70059	7.3.7	SWA-30
NASA-STD-8739.8	5.8.1.1	33233	Assure that software engineering and management prepare, approve, and execute a retirement plan. (Requirement 33233)	S	Y	Y	SWA	CxP 70059	7.3.8	SWA-31
NASA-STD-8739.8	5.8.1.2	33234	Ensure that the retirement plan includes archival and eventual disposal of software assurance records and documents created over the life of the program/project in accordance with the requirements of NPR 1441.1, NASA Records Retention Schedules. (Requirement 33234)	S	Y	Y	SWA	CxP 70059	1.13	MGT-31
								CxP 70059	1.13	MGT-32
								CxP 70059	7.3.1	SWA-13
								CxP 70059	7.4.1	SWA-35
NASA-STD-8739.8	6.1.1	33237	The provider shall plan, document, and implement a software assurance program for software development, operation, and maintenance activities. (Requirement 33237) This includes documentation of software assurance procedures, processes, tools, techniques, and methods to be used.	S	Y	Y	SWA	CxP 70059	7.4.1	SWA-35
NASA-STD-8739.8	6.1.2	33238	The software assurance program shall include processes for assurance of COTS, MOTS, and GOTS software addressing both the basic acquired software and any modifications or applications written to adopt them into the intended system. (Requirement 33238)	S	Y	Y	SWA	CxP 70059	7.1	SWA-1
NASA-STD-8739.8	6.1.3	33239	The software assurance program shall include the disciplines of Software Quality, Software Safety, Software Reliability, and Software V&V. (Requirement 33239)	S	Y	Y	SWA	CxP 70059	7.1	SWA-1
NASA-STD-8739.8	6.1.4	33240	When IV&V has been selected for a project, the provider shall coordinate with IV&V personnel to share data and information. (Requirement 33240)	S	Y	Y	SWA	CxP 70059	7.3.1	SWA-13
								CxP 70059	7.4.1	SWA-35

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NASA-STD-8739.8	6.1.5	33241	The software assurance program shall describe what metrics will be collected and reported in regards to the software assurance program activities. (Requirement 33241)	S	Y	Y	SWA	CxP 70059	7.4.1	SWA-37
NASA-STD-8739.8	6.2.1(1)	33243	The provider shall identify the person responsible for directing and managing the software assurance program; e.g, a software assurance manager. (Requirement 33243)	S	Y	Y	SWA	CxP 70059	7.4.2	SWA-38
NASA-STD-8739.8	6.2.2	33245	The software assurance manager shall establish and maintain the interfaces with project management and ensure the working relationship between software assurance personnel and that of the project. (Requirement 33245)	S	Y	Y	SWA	CxP 70059	7.1	SWA-1
NASA-STD-8739.8	6.2.3	33246	The software assurance manager shall have a reporting channel to provider management that is independent of the provider's project management and	S	Y	Y	SWA	CxP 70059	1.8	MGT-18
								CxP 70059	1.8	MGT-19
NASA-STD-8739.8	6.2.4	33247	The software assurance manager shall conduct and document periodic reviews of the software assurance process. (Requirement 33247)	S	Y	Y	SWA	CxP 70059	7.4.2	SWA-39
NASA-STD-8739.8	6.2.5	33248	The software assurance manager shall conduct and document periodic reviews, audits, and assessments of the development process and products. (Requirement	S	Y	Y	SWA	CxP 70059	7.5.2.1	SWA-43
								CxP 70059	7.5.2.2	SWA-44
NASA-STD-8739.8	6.2.6	33249	The software assurance manager shall assure that problems and risks are reported, recorded, addressed, and tracked to closure. (Requirement 33249)	S	Y	Y	SWA	CxP 70059	0	SWA-128
								CxP 70059	0	SWA-129
								CxP 70059	7.5.7.3	SWA-127
								CxP 70059	7.5.7.4.1	SWA-101
NASA-STD-8739.8	6.3.1(1)	33251	Each software provider shall establish and maintain a software assurance plan that addresses all software development and maintenance activities. (Requirement 33251)	S	Y	Y	SWA	CxP 70059	1.13	MGT-31
								CxP 70059	1.13	MGT-32
								CxP 70059	7.3.1	SWA-13
								CxP 70059	7.4.1	SWA-35
NASA-STD-8739.8	6.3.2.1	33254	Conform to IEEE 730-2002, IEEE Standard for Software Quality Assurance Plans. (Requirement 33254)	S	Y	Y	SWA	CxP 70059	1.13	MGT-31
								CxP 70059	1.13	MGT-32
								CxP 70059	7.3.1	SWA-13
								CxP 70059	7.4.1	SWA-35
NASA-STD-8739.8	6.3.2.2	33255	In addition, address how the provider will implement the requirements of Sections 6.0 and 7.0 of this Standard. (Requirement 33255)	S	Y	Y	SWA	CxP 70059	7.5.2.1	SWA-43
								CxP 70059	7.5.2.2	SWA-44
								CxP 70059	7.5.7.4.3	SWA-77
								CxP 70059	7.5.7.6	SWA-108
								CxP 70059	7.5.7.6	SWA-109
NASA-STD-8739.8	6.3.2.3	33256	If there is any conflict between Section 6.0 or Section 7.0 of this Standard and IEEE 730-2002, IEEE Standard for Software Quality Assurance Plans, this Standard shall take precedence. (Requirement 33256)	S	Y	Y	SWA	CxP 70059	1.13	MGT-31
								CxP 70059	1.13	MGT-32
								CxP 70059	7.3.1	SWA-13
								CxP 70059	7.4.1	SWA-35
NASA-STD-8739.8	6.4.1	33258	The provider shall submit any proposed deviations from or modification to the baselined software assurance plan to the acquirer as a formal change request. (Requirement 33258)	S	Y	Y	SWA	CxP 70059	1.13	MGT-31
								CxP 70059	1.13	MGT-32
								CxP 70059	7.3.1	SWA-13
NASA-STD-8739.8	6.4.2	33259	Proposed changes shall be accompanied by a risk analysis, as defined in NPR 7120.5, NASA Program and Project Management Processes and Requirements, to identify the potential impact of the change. (Requirement 33259)	S	Y	Y	SWA	CxP 70056	0	CxP 70056
NASA-STD-8739.8	6.5	33260	Software Assurance Approval Authority. The software assurance manager shall have approval authority on the establishment and composition of all software baselines and any changes to the baselines before submission to the acquirer. (Requirement 33260) This includes changes to software plans, procedures, verification approaches, requirements, design, and code.	S	Y	Y	SWA	CxP 70059	7.4.3	SWA-40
NASA-STD-8739.8	6.6.1	33262	Software assurance records shall be prepared, maintained, placed under configuration management, and contain the descriptions and results of software	S	Y	Y	SWA	CxP 70059	1.13	MGT-31
								CxP 70059	1.13	MGT-32
NASA-STD-8739.8	6.6.2	33263	Software assurance records shall include recommended preventive measures, corrective actions, and lessons learned. (Requirement 33263)	S	Y	Y	SWA	CxP 70059	1.13	MGT-31
								CxP 70059	1.13	MGT-32
								CxP 70059	5.2.7.2.1	QAS-17
								CxP 70059	7.3.5	SWA-25
NASA-STD-8739.8	6.7.1	33265	The provider shall prepare software assurance status reports that include: a. Highlights of organization and key personnel changes. b. Assurance accomplishments and resulting software assurance program metrics for activities such as inspection and test, reviews, contractor/subcontractor surveys, audits. c. Subcontractor assurance accomplishments, including items listed above, plus summaries of acceptance and certification reports. d. Significant problems, their status, solutions, and remedial and preventive actions. e. Trends in software quality metric data (e.g, defect types, location, priority/criticality). f. Plans for upcoming software assurance activities. g. Recommendations and lessons learned. (Requirement 33265)	S	Y	Y	SWA	CxP 70059	7.4.4	SWA-41
NASA-STD-8739.8	6.8.1	33267	Personnel managing, developing, and implementing the software assurance process shall be trained and/or experienced in software assurance. (Requirement 33267)	S	Y	Y	SWA	CxP 70059	1.8	MGT-20
NASA-STD-8739.8	6.8.2	33268	Software assurance training shall be obtained and/or originated and maintained for management, engineering, and assurance personnel. (Requirement 33268)	S	Y	Y	SWA	CxP 70059	1.8	MGT-20

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NASA-STD-8739.8	6.8.3	33269	Software assurance personnel shall be trained in relevant software engineering design methods and languages, processes, development environments, tools, test techniques, and other software engineering and assurance methods needed to stay current with the engineering environment and products they must assure. (Requirement 33269)	S	Y	Y	SWA	CxP 70059	1.8	MGT-20
NASA-STD-8739.8	6.8.4	33270	Software assurance personnel shall be trained for the environment and operational particulars of the program/project to which they are assigned. (Requirement 33270) This may include on-the-job training as well as orientation and specific engineering training.	S	Y	Y	SWA	CxP 70059	1.8	MGT-20
NASA-STD-8739.8	6.8.5	33271	Records shall be maintained and readily available for review (e.g, training, testing, and certification/recertification status of personnel). (Requirement 33271)	S	Y	Y	SWA	CxP 70059	2.1.12	SAF-1009
NASA-STD-8739.8	6.9.1	33273	The provider shall flow down the requirements of this Standard to any subcontractor who develops, tests, maintains, operates, or provides services for the software. (Requirement 33273)	S	Y	Y	SWA	CxP 70059	7.3.1	SWA-9
NASA-STD-8739.8	6.9.2	33274	The provider shall assure that the subcontractors satisfy the requirements of this Standard. (Requirement 33274)	S	Y	Y	SWA	CxP 70059	7.3.1	SWA-9
NASA-STD-8739.8	7.1.1.01	33280	All of the required plans (e.g, configuration management, risk management, provider's assurance plan, software management plan) are documented, adhere to applicable standards and procedures, are mutually consistent, and are being executed. (Requirement 33280)	S	Y	Y	SWA	CxP 70059	7.5.2.1	SWA-43
NASA-STD-8739.8	7.1.1.02	33281	All software requirements are defined, traceable from one life cycle phase to another, and analyzed in a manner that is measurable or otherwise verifiable.	S	Y	Y	SWA	CxP 70059	7.5.2.1	SWA-43
								CxP 70059	7.5.7.5.5	SWA-96
NASA-STD-8739.8	7.1.1.03	33282	Software products and related documentation have been evaluated, according to the software assurance plan. (Requirement 33282)	S	Y	Y	SWA	CxP 70059	7.3.1	SWA-13
								CxP 70059	7.4.1	SWA-35
								CxP 70059	7.5.2.1	SWA-43
NASA-STD-8739.8	7.1.1.04	33283	Project documentation, including plans, procedures, requirements, design, verification documentation, reports, schedules, and records and any changes to them are reviewed for impact to the quality of the product. (Requirement 33283)	S	Y	Y	SWA	CxP 70059	7.5.2.1	SWA-43
NASA-STD-8739.8	7.1.1.05	33284	Formal and acceptance software testing are witnessed by software assurance personnel to verify satisfactory completion and outcome. (Requirement 33284)	S	Y	Y	SWA	CxP 70059	7.5.2.1	SWA-43
NASA-STD-8739.8	7.1.1.06	33285	Lower level testing results and software development folders are updated, audited, and/or reviewed for completeness. (Requirement 33285)	S	Y	Y	SWA	CxP 70059	7.5.2.1	SWA-43
NASA-STD-8739.8	7.1.1.07	33286	Software quality metrics are in place and are used to ensure the quality and safety of the software products being delivered. (Requirement 33286) Trends in software	S	Y	Y	SWA	CxP 70059	7.5.2.1	SWA-43
								CxP 70059	7.5.5	SWA-56
NASA-STD-8739.8	7.1.1.08	33287	The software development plans specify the standards and procedures for management, acquisition, engineering, and assurance activities. (Requirement 33287)	S	Y	Y	SWA	CxP 70059	7.5.2.1	SWA-43
NASA-STD-8739.8	7.1.1.09	33288	The software is verified (e.g, tested, analyzed, measured) for compliance with functional and performance requirements. (Requirement 33288)	S	Y	Y	SWA	CxP 70059	7.5.2.1	SWA-43
								CxP 70059	7.5.7.5.4	SWA-90
NASA-STD-8739.8	7.1.1.10	33289	The status and quality of the software are presented at formal reviews. (Requirement 33289)	S	Y	Y	SWA	CxP 70059	7.5.2.1	SWA-43
								CxP 70059	7.5.7.5	SWA-86
NASA-STD-8739.8	7.1.1.11	33290	Problems with products are reported during participation in formal and informal reviews (e.g, inspections, peer reviews, test readiness reviews, requirements reviews) along with regular reporting to project management and engineering during team meetings. (Requirement 33290)	S	Y	Y	SWA	CxP 70059	7.5.2.1	SWA-43
NASA-STD-8739.8	7.1.2.1	33292	Those software life cycle processes employed for the project adhere to the applicable plans. (Requirement 33292)	S	Y	Y	SWA	CxP 70059	7.3.1	SWA-13
								CxP 70059	7.4.1	SWA-35
								CxP 70059	7.4.2	SWA-39
								CxP 70059	7.5.2.2	SWA-44
								CxP 70059	7.5.7.5.2	SWA-126
NASA-STD-8739.8	7.1.2.2	33293	Problems found with implementation of the software life cycle processes, including management, engineering, and assurance, are documented, tracked, and resolved	S	Y	Y	SWA	CxP 70059	7.5.2.1	SWA-43
								CxP 70059	7.5.2.2	SWA-44
NASA-STD-8739.8	7.1.2.3	33294	The software engineering practices, development environment, test environment, and libraries employed for the project adhere to applicable standards and procedures. (Requirement 33294)	S	Y	Y	SWA	CxP 70059	7.5.2.2	SWA-44
NASA-STD-8739.8	7.1.2.4	33295	Formal reviews and inspections are monitored and address software quality issues. (Requirement 33295)	S	Y	Y	SWA	CxP 70059	7.5.2.2	SWA-44
NASA-STD-8739.8	7.1.2.5	33296	All management, engineering, and assurance processes are audited for compliance with applicable plans. (Requirement 33296)	S	Y	Y	SWA	CxP 70059	7.3.1	SWA-13
								CxP 70059	7.3.6	SWA-28
								CxP 70059	7.4.1	SWA-35
								CxP 70059	7.5.2.2	SWA-44
NASA-STD-8739.8	7.1.2.6	33297	The software quality metrics process is assessed for compliance to appropriate documentation or requirements. (Requirement 33297) Trending is accomplished following the defined software quality metrics process.	S	Y	Y	SWA	CxP 70059	7.5.2.2	SWA-44
NASA-STD-8739.8	7.2.1	33299	The requirements for NASA-STD-8719.13, NASA Software Safety Standard, shall be implemented. (Requirement 33299)	S	Y	Y	SWA	CxP 70059	7.1	SWA-1
								CxP 70065	3	3
NASA-STD-8739.8	7.2.2	33300	Software safety tasks shall be coordinated between system safety program, software development, and software assurance to ensure completion of required tasks and elimination of duplicate efforts. (Requirement 33300)	S	Y	Y	SWA	CxP 70059	7.5.7.3	SWA-76
NASA-STD-8739.8	7.2.3	33301	In the course of performing software assurance, any safety risks shall be communicated to the appropriate safety organization. (Requirement 33301)	S	Y	Y	SWA	CxP 70065	0	CSR-34-002
NASA-STD-8739.8	7.2.4	33302	Periodic reviews and/or audits shall be conducted for compliance with the defined software safety process for acquisition, development, and assurance of safety-critical software. (Requirement 33302)	S	Y	Y	SWA	CxP 70059	7.3.1	SWA-13
								CxP 70059	7.3.6	SWA-28
								CxP 70059	7.4.1	SWA-35

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NASA-STD-8739.8	7.3.1	33304	Software assurance shall assure that fault tolerance and redundancy have been specified, implemented correctly, and verified by testing. (Requirement 33304)	S	Y	Y	SWA	CxP 70059	7.5.4	SWA-49
NASA-STD-8739.8	7.3.2	33305	Software reliability analyses and measurements, including trends and metric data, shall be included in appropriate status reports to the software assurance manager and project management. This data is to be used to trace and recommend actions on specific modules which may have less than desired reliability. (Requirement 33305)	S	Y	Y	SWA	CxP 70059	7.5.4	SWA-50
NASA-STD-8739.8	7.3.3	33306	Collection and classification of defects found during/from software assurance and programmatic/project formal and informal reviews shall be maintained. (Requirement 33306)	S	Y	Y	SWA	CxP 70059	7.5.2.2	SWA-44
NASA-STD-8739.8	7.3.4	33307	The use of software quality metrics shall be documented, monitored, analyzed and tracked during each stage of development and across development and operational phases. (Requirement 33307) Examples include fault counts by severity levels, time between discovery and removal of faults, and number of faults found in a time period per lines of code or number of function points.	S	Y	Y	SWA	CxP 70059	7.5.4	SWA-51
NASA-STD-8739.8	7.3.5	33308	Trend analyses shall be performed on the software quality metrics and made available for lessons learned or root cause analyses. (Requirement 33308)	S	Y	Y	SWA	CxP 70059	7.5.4	SWA-52
NASA-STD-8739.8	7.4.1	33310	Software assurance shall assure that software V&V activities occur according to established plans, policies, procedures, and standards. (Requirement 33310)	S	Y	Y	SWA	CxP 70059	7.5.5	SWA-53
NASA-STD-8739.8	7.4.2	33311	Software assurance shall participate in the formal and informal reviews. (Requirement 33311) Such activities include peer reviews, inspections, and milestone reviews (e.g, software requirements review, design reviews, test readiness reviews, certification readiness reviews).	S	Y	Y	SWA	CxP 70059	7.5.5	SWA-54
NASA-STD-8739.8	7.4.3	33312	Software assurance shall witness or review/audit results of software testing and demonstration. (Requirement 33312)	S	Y	Y	SWA	CxP 70059	7.5.5	SWA-55
NASA-STD-8739.8	7.4.4	33313	Software assurance shall use defect data collected by the project to analyze software quality metrics. (Requirement 33313)	S	Y	Y	SWA	CxP 70059	7.5.5	SWA-56
NASA-STD-8739.8	7.4.5	33314	Software assurance shall collect and maintain software assurance records showing the participation of software assurance staff in verification and validation efforts, such as minutes, records, artifacts, and signature on test reports. (Requirement 33314)	S	Y	Y	SWA	CxP 70059	1.13	MGT-31
								CxP 70059	1.13	MGT-32
								CxP 70059	7.3.5	SWA-25
NASA-STD-8739.8	7.4.6	33315	Software assurance shall provide objective evidence to the project and NASA SMA of the software's readiness for operational release. (Requirement 33315)	S	Y	Y	SWA	CxP 70059	1.14	MGT-35
								CxP 70059	1.14	MGT-36
								CxP 70059	1.14	MGT-37
								CxP 70059	1.14	MGT-38
								CxP 70059	1.16	MGT-33
								CxP 70059	1.16	MGT-34
								CxP 70059	1.16	MGT-39
								CxP 70059	1.16	MGT-40
								CxP 70059	1.16	MGT-41
NASA-STD-8739.8	7.5.3	33321	When the IV&V function is required, the provider shall provide all required information to NASA IV&V Facility personnel. (Requirement 33321) (This	S	Y	Y	SWA	CxP 70059	7.3.1	SWA-13
								CxP 70059	7.4.1	SWA-35
NPD 8700.1C	1.a	1003	POLICY: It is NASA policy to-- Protect the public, Astronauts and pilots, NASA workforce, and high-value equipment and property from potential harm as a result of NASA activities and operations by providing safe programs, technologies, operations, and facilities; and protect the environment. (Requirement 1003)	S	Y	Y	Mgmt	CxP 70059	1.1	MGT-1
NPD 8700.1C	1.c	1006	POLICY: It is NASA policy to-- Establish and maintain independent lines of communications for unrestricted flow of information concerning Safety and Mission	S	Y	Y	Mgmt	CxP 70059	1.8	MGT-18
								CxP 70059	1.8	MGT-19
NPD 8700.1C	1.d(1)	1062	POLICY: It is NASA policy to-- Define and document both SMA requirements and safety and mission- success criteria in NASA programs and projects as a foundation for the design and development of safe and reliable program hardware and software. (Requirement 1062)	S	Y	Y	Mgmt	CxP 70059	1.2	MGT-2
								CxP 70059	1.3	MGT-3
								CxP 70059	1.3	MGT-4
								CxP 70059	1.3	MGT-5
NPD 8700.1C	1.d(2)	30884	POLICY: It is NASA policy to-- All solicitation instruments (announcements of opportunity, cooperative agreements, requests for proposals, or other) will require	S	Y	Y	Mgmt	CxP 70059	1.2	MGT-2
								CxP 70059	1.3	MGT-3
NPD 8700.1C	1.e	1063	POLICY: It is NASA policy to-- Verify and validate life-cycle implementation of SMA, RM, and mission- success requirements through ongoing surveillance of program, project, and contractor processes. (Requirement 1063)	S	Y	Y	Mgmt	CxP 70059	1.16	MGT-34
NPD 8700.1C	1.f	1064	POLICY: It is NASA policy to-- Certify the safety and operational readiness of flight hardware/software, mission-critical support equipment, hazardous	S	Y	Y	Mgmt	CxP 70059	1.16	MGT-34
								CxP 70059	1.9	MGT-22
NPD 8700.1C	1.g	1065	POLICY: It is NASA policy to-- Fully address safety and mission success concerns, risks and risk acceptance, and appropriate lessons learned at all management committee reviews, other major milestone review activities, and operational readiness reviews. (Requirement 1065)	S	Y	Y	Mgmt	CxP 70059	1.9	MGT-22
NPD 8700.1C	1.i	1067	POLICY: It is NASA policy to-- Report and track to resolution all corrective actions resulting from investigations of mishaps, incidents, nonconformances, and	S	Y	Y	Quality	CxP 70059	2.1.11	SAF-160
								CxP 70059	5.1.3	QAS-1
NPD 8700.1C	5.a	1013	RESPONSIBILITY: Each NASA organizational element shall allocate and maintain appropriate levels of authority, funding, and training necessary to achieve compliance with the policies set forth above. (Requirement 1013)	S	Y	Y	Mgmt	CxP 70059	1.8	MGT-20
NPD 8700.1C	5.e.1	1039	RESPONSIBILITY: Program and project managers are responsible for the safety and mission success of their program/projects. Program and project managers shall: - Implement Agency SMA and Risk Management policies, guidelines, and standards and establish safety and mission-success requirements within their programs and projects. (Requirement 1039)	S	Y	Y	Mgmt	CxP 70059	1.1	MGT-1

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NPD 8700.1C	5.e.2	1040	RESPONSIBILITY: Program and project managers are responsible for the safety and mission success of their program/projects. Program and project managers shall - Develop, in coordination with the responsible Center SMA functional manager(s), the program and project RM plans; establish/maintain a mission- risk profile; and serve as the final risk acceptance/disposition official for activities within their program/project. (Requirement 1040)	S	Y	Y	Mgmt	CxP 70056	0	CxP 70056
NPD 8700.1C	5.e.3	1041	RESPONSIBILITY: Program and project managers are responsible for the safety and mission success of their program/projects. Program and project managers shall - Coordinate with the responsible Mission Suport Offices, Functional Support Offices and Administrative Staff Offices to ensure that other domains of potential risk (information management, environment, security, legal) are properly included in RM plans. (Requirement 1041)	S	Y	Y	Mgmt	CxP 70056	0	CxP 70056
NPD 8700.1C	5.e.4	1085	RESPONSIBILITY: Program and project managers are responsible for the safety and mission success of their program/projects. Program and project managers shall - Use and distribute lessons learned to enhance the probability of mission success and establish recurrence control through a closed-loop corrective/preventative action system. (Requirement 1085)	S	Y	Y	Quality	CxP 70059	1.16	MGT-41
								CxP 70059	2.1.11	SAF-160
								CxP 70059	5.2.9.3	QAS-50
								CxP 70059	7.3.5	SWA-25
NPD 8700.1C	5.e.5	1086	RESPONSIBILITY: Program and project managers are responsible for the safety and mission success of their program/projects. Program and project managers shall	S	Y	Y	Quality	CxP 70059	1.1	MGT-50
								CxP 70059	1.9	MGT-23
NPD 8720.1B	1.a.(1)	13014	It is NASA policy for: Plan, establish, document, and implement-- System Reliability and Maintainability design and operational performance requirements (qualitative and quantitative). (Requirement 13014)	S	Y	Y	RMS	CxP 70059	3.1.1	RMS-2
								CxP 70059	3.1.2	RMS-3
								CxP 70059	4.1	RMS-65
								CxP 70059	4.1.1	RMS-66
NPD 8720.1B	1.a.(2)	13032	It is NASA policy for: Plan, establish, document, and implement-- System maintenance concepts. (Requirement 13032)	S	Y	Y	RMS	CxP 70059	4.2.1	RMS-82
NPD 8720.1B	1.a.(3)	13015	It is NASA policy for: Plan, establish, document, and implement-- Requirements and tasks for Reliability and Maintainability engineering, analysis, and testing (including hardware, software, firmware, and human elements). (Requirement 13015)	S	Y	Y	RMS	CxP 70059	3.1	RMS-1
								CxP 70059	3.1.2	RMS-3
								CxP 70059	3.2	RMS-18
								CxP 70059	3.2.1.4	RMS-113
								CxP 70059	4.1.3	RMS-70
NPD 8720.1B	1.a.(4)	13016	It is NASA policy for: Plan, establish, document, and implement-- Timely and continuous assessment of the progress toward achieving the Reliability and Maintainability requirements, including identification of areas for improvement. (Requirement 13016)	S	Y	Y	RMS	CxP 70059	3.1.2	RMS-118
								CxP 70059	3.1.4	RMS-10
								CxP 70059	3.1.4	RMS-5
								CxP 70059	4.1.5	RMS-75
NPD 8720.1B	1.a.(5)	13033	It is NASA policy for: Plan, establish, document, and implement-- Integration of Reliability and Maintainability processes, analytical activities, and data with systems engineering, risk management, and other processes, assessments, and analyses including, but not limited to, safety, security, quality, logistics, availability, probabilistic risk assessment, life-cycle cost, configuration management, and maintenance. (Requirement 13033)	S	Y	Y	RMS	CxP 70059	3.1	RMS-1
								CxP 70059	3.2.5.1	RMS-32
								CxP 70059	4.1.1	RMS-66
								CxP 70059	4.1.2	RMS-67
								CxP 70059	4.1.2	RMS-68
								CxP 70059	4.1.8	RMS-79
								CxP 70059	4.2.7	RMS-97
NPD 8720.1B	5.d.(1)	13009	Program and project managers are responsible for: Integrating all Reliability and Maintainability activities with the associated design and operation functions and associated program/project safety, quality assurance, risk management (including probabilistic risk assessment), and logistics (including maintenance) activities. (Requirement 13009)	S	Y	Y	RMS	CxP 70059	3.1	RMS-1
								CxP 70059	3.1.3	RMS-6
								CxP 70059	3.2.2	RMS-23
								CxP 70059	3.2.5.1	RMS-32
								CxP 70059	3.3.1.1	RMS-57
								CxP 70059	4.1.1	RMS-66
								CxP 70059	4.1.2	RMS-67
								CxP 70059	4.1.2	RMS-68
								CxP 70059	4.1.8	RMS-79
								CxP 70059	4.2.7	RMS-97
NPD 8720.1B	5.d.(2)	13010	Program and project managers are responsible for: Establishing a maintenance concept early in the system development and ensuring that compatibility is	S	Y	Y	RMS	CxP 70059	4.2.1	RMS-82
								CxP 70059	4.2.1.2	RMS-84
NPD 8720.1B	5.d.(3)	13011	Program and project managers are responsible for: Establishing and maintaining a data collection system that provides a basis for generating the information to evaluate Reliability and Maintainability performance throughout the system's life cycle. (Requirement 13011)	S	Y	Y	RMS	CxP 70059		SAF-123
								CxP 70059		SAF-124
								CxP 70059		SAF-129
								CxP 70059	4.2.2	RMS-87
NPD 8720.1B	5.d.(4)	13039	Program and project managers are responsible for: Identifying the organization(s) that will maintain the Reliability and Maintainability data for the lifetime of the system and coordinating with the Center SMA functional manager to ensure that Reliability and Maintainability data is available for use as heritage data. (Requirement 13039)	S	Y	Y	RMS	CxP 70059		SAF-123
								CxP 70059		SAF-124
								CxP 70059		SAF-129
								CxP 70059	0	MGT-132
								CxP 70059	4.2.2	RMS-87
NPD 8730.1B	1.a	11010	It is NASA policy to accomplish the following: Require that suppliers of calibration laboratory services to NASA be compliant with the calibration laboratory competency requirements identified in ANSI/NCSL Z540.1-1994 (R2002). (Requirement 11010)	S	Y	Y	Quality	CxP 70059	A.1.7.6	QAS-120
NPD 8730.1B	1.b	11021	It is NASA policy to accomplish the following: Require that suppliers of calibration laboratory services be accredited to ANSI/ISO/IEC 17025:2000, where it is appropriate and beneficial to NASA to require independent accreditation, and be compliant with the calibration laboratory competency requirements identified in ANSI/NCSL Z540.1-1994 (R2002). (Requirement 11021)	S	Y	Y	Quality	CxP 70059	A.1.7.6	QAS-120

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NPD 8730.1B	1.c(1-5)	11011	It is NASA policy to accomplish the following: Maintain calibration on all test and measuring equipment and safety instruments used to perform measurements associated with the following functions: (1) Acceptance testing (determining that a part, component, or system meets specifications). (2) Inspection, maintenance, or calibration. (3) Flight hardware qualification. (4) Measurement of processes where test equipment accuracy is essential for the safety of personnel or the public. (5) Telecommunication, transmission, and test equipment where exact signal interfaces and circuit confirmations are essential to mission success. (Requirement 11022)	S	Y	Y	Quality	CxP 70059	A.1.7.6	QAS-120
NPD 8730.1B	1.c(6)	30895	It is NASA policy to accomplish the following: Maintain calibration on all test and measuring equipment and safety instruments used to perform measurements associated with the following functions: (6) Development, testing, and special applications where the specifications, end products, or data are accuracy sensitive, including instruments used in hazardous and critical applications. (Requirement 30895)	S	Y	Y	Quality	CxP 70059	A.1.7.6	QAS-120
NPD 8730.1B	1.d	11022	It is NASA policy to accomplish the following: Limit use of noncalibrated instruments to only applications where substantiated accuracy is not required, or for "indication only" purposes in nonhazardous, noncritical applications. (Requirement 11022)	S	Y	Y	Quality	CxP 70059	A.1.7.6	QAS-120
NPD 8730.2B	1	10013	POLICY: It is NASA policy to control risk and enhance reliability in NASA spaceflight and critical ground support systems, in part, by managing the selection, acquisition, traceability, testing, handling, packaging, storage, and application of Electrical, Electronic, and Electromechanical (EEE) parts; advanced packaging and interconnect systems; and mechanical parts (including fasteners, bearings, studs, pins, rings, shims, valves, springs, brackets, clamps, and spacers). (Requirement 10013)	S	Y	Y	RMS	CxP 70059	3.2.6	RMS-34
NPD 8730.2B	1.a	10014	To carry out this policy, NASA shall accomplish the following: Select parts and packaging technology based on their intended use considering, but not limited to, performance, environmental, criticality, and lifetime requirements. (Requirement 10014)	S	Y	Y	RMS	CxP 70059	3.2.6	RMS-34
NPD 8730.2B	1.b	10025	To carry out this policy, NASA shall accomplish the following: Document the derating criteria for parts. (Requirement 10025)	S	Y	Y	RMS	CxP 70059	3.2.6	RMS-34
NPD 8730.2B	1.c(1)	10026	To carry out this policy, NASA shall accomplish the following: Utilize the results of surveys/audits as a means to determine capability and qualification of sources. (Requirement 10026)	S	Y	Y	Quality	CxP 70059	3.2.6	RMS-34
NPD 8730.2B	1.c(2)	30896	To carry out this policy, NASA shall accomplish the following: NASA Centers may utilize the results of surveys/audits performed by other Centers or third-party auditors. The process used by third-party auditors/surveyors (including those performed by other Government agencies or commercial third-party auditors) must be reviewed prior to use to determine that the process meets minimum NASA requirements. (Requirement 30896)	S	Y	Y	Quality	CxP 70059	3.2.6	RMS-34
NPD 8730.5	1.a	42126	Policy: It is NASA policy to comply with prescribed requirements for performance of work and to provide for independent assurance of compliance through	S	Y	Y	Quality	CxP 70059	5.1.3	QAS-1
								CxP 70059	5.1.3	QAS-70
NPD 8730.5	1.b.01	42128	Policy: NASA quality assurance programs shall: Be designed and implemented in a manner that mitigates risks associated with noncompliance. Determination of risk considers the likelihood of noncompliance and the consequences associated with noncompliance, including the maturity, complexity, criticality, and value of work	S	Y	Y	Quality	CxP 70059	5.2.7.5.4.1	QAS-79
								CxP 70059	5.2.9.2	QAS-135
								CxP 70059	5.2.9.2	QAS-48
NPD 8730.5	1.b.02	42129	Policy: NASA quality assurance programs shall: Attain confidence levels for requirement compliance that are commensurate with the severity of consequences that would be incurred in the event of noncompliance. (Requirement 42129)	S	Y	Y	Quality	CxP 70059	5.2.6.1	QAS-71
								CxP 70059	5.2.7.2.2	QAS-20
								CxP 70059	5.2.7.5.1	QAS-24
NPD 8730.5	1.b.02.a	42130	Policy: NASA quality assurance programs shall: For circumstances where noncompliance cannot result in loss of life or loss of mission, statistically-based sampling plans or 100 percent inspection shall be employed based on determination of risk. (Requirement 9005)	S	Y	Y	Quality	CxP 70059	A.1.7.4.3.a	QAS-171
NPD 8730.5	1.b.02.b	42131	Policy: NASA quality assurance programs shall: For circumstances where noncompliance can result in loss of life or loss of mission, Government Mandatory Inspection Points (GMIP) shall be performed to ensure 100 percent compliance with safety/mission critical attributes. Safety/mission critical attributes include hardware characteristics, manufacturing process requirements, operating conditions, and functional performance criteria that, if not met, can result in loss of life or loss of mission. (Requirement 42131)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPD 8730.5	1.b.03	42132	Policy: NASA quality assurance programs shall: Be reevaluated and adjusted based on changes to risk factors. (Requirement 42132)	S	Y	Y	Quality	CxP 70059	5.2.7.5.4.1	QAS-79
								CxP 70059	5.2.7.5.4.2	QAS-29
NPD 8730.5	1.b.04	42133	Policy: NASA quality assurance programs shall: Include prework assurance measures that provide increased confidence for meeting prescribed requirements (e.g., preaward surveys, qualified source selection, training), concurrent assurance	S	Y	Y	Quality	CxP 70059	5.2.7.5.4.1	QAS-79
								CxP 70059	5.2.9.2	QAS-48
NPD 8730.5	1.b.05	42134	Policy: NASA quality assurance programs shall: Flow applicable quality assurance requirements down to successive levels of the supply chain to ensure control of subtier suppliers and verificaiton of safety/mission critical attributes at all levels of	S	Y	Y	Quality	CxP 70059	A	QAS-51
								CxP 70059	A.1.1.1	QAS-52
								CxP 70059	A.1.1.1	QAS-53
NPD 8730.5	1.b.06	42135	Policy: NASA quality assurance programs shall: Continually be improved through: advocacy; awareness training; teaming and sharing of quality assurance tools,	S	Y	Y	Quality	CxP 70059	1.17	MGT-43
								CxP 70059	A.1.8.3	QAS-229
NPD 8730.5	1.b.07	42136	Policy: NASA quality assurance programs shall: Ensure that customers and Government authorities are quickly notified concerning noncompliant products or failure experiences potentially affecting product safety, reliability, or functionality. Customers and Government authorities include: contracting officers, Government contract management agents, authorities responsible for assigning, managing, or	S	Y	Y	Quality	CxP 70059	A.1.8.3.3.a	QAS-238
								CxP 70059	A.1.8.3.3.d	QAS-241
								CxP 70059	A.1.8.3.5	QAS-267

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			overseeing work, and, where noncompliant conditions might constitute evidence of possible fraud, malpractice, or other serious misconduct, the NASA Office of Inspector General. (Requirement 42136)					CxP 70059	A.1.8.3.5.d	QAS-283
NPD 8730.5	1.b.08	42137	Policy: NASA quality assurance programs shall: Provide for investigative and corrective actions upon discovery or notification of noncompliance. (Requirement 42137)	S	Y	Y	Quality	CxP 70059	5.2.7.7.2	QAS-34
NPD 8730.5	1.b.08.a	42138	Policy: NASA quality assurance programs shall: Investigative actions shall identify the proximate and root cause(s) of noncompliance and the scope/population of noncompliant items. (Requirement 42138)	S	Y	Y	Quality	CxP 70059	5.2.7.7.2	QAS-37
NPD 8730.5	1.b.08.b	42139	Policy: NASA quality assurance programs shall: Corrective actions shall include the correction, replacement, repair, or authorized disposition of noncompliant	S	Y	Y	Quality	CxP 70059	5.2.7.7.2	QAS-36
								CxP 70059	5.2.7.7.2	QAS-37
NPD 8730.5	1.b.09	42140	Policy: NASA quality assurance programs shall: Ensure clear and mutual understanding of prescribed quality requirements among organizations responsible for contracting or assigning work, performing work, and assuring conformity of work. (Requirement 42140)	S	Y	Y	Quality	CxP 70059	5.2.7.5.4.1	QAS-79
								CxP 70059	5.2.9.2	QAS-48
								CxP 70059	5.2.9.2	QAS-49
NPD 8730.5	1.b.10.a	42142	Policy: NASA quality assurance programs shall: Be performed by persons that are competent on the basis of: Demonstrated knowledge, skills, and experience related to quality assurance principles and practices, and related to the specific product, process, or attribute for which assurance is being provided. (Requirement 42142)	S	Y	Y	Quality	CxP 70059	5.2.4	QAS-3
								CxP 70059	5.2.4	QAS-4
								CxP 70059	5.2.4	QAS-5
								CxP 70059	5.2.4	QAS-6
								CxP 70059	5.2.4	QAS-7
NPD 8730.5	1.b.10.b	42143	Policy: NASA quality assurance programs shall: Be performed by persons that are competent on the basis of: Meeting formal certification or qualification requirements where prescribed in required/invoked documents or where deemed necessary to ensure personnel competency to perform specialized quality assurance functions. (Requirement 42143)	S	Y	Y	Quality	CxP 70059	5.2.4	QAS-3
								CxP 70059	5.2.4	QAS-4
								CxP 70059	5.2.4	QAS-5
								CxP 70059	5.2.4	QAS-6
								CxP 70059	5.2.4	QAS-7
NPD 8730.5	1.b.11	42144	Policy: NASA quality assurance programs shall: Be performed by persons that are not assigned direct responsibility for ensuring that cost or schedule objectives are	S	Y	Y	Quality	CxP 70059	A.1.7.5.1	QAS-173
								CxP 70059	A.1.7.5.1	QAS-179
NPD 8730.5	1.b.12	42145	Policy: NASA quality assurance programs shall: Be supported by records demonstrating compliance with technical/quality requirements. Records shall be legible, traceable to the applicable product, identifiable to the applicable requirement, and readily retrievable for requirement verification. (Requirement 42145)	S	Y	Y	Quality	CxP 70059	A.1.4.2.4	QAS-61
								CxP 70059	A.1.4.2.4	QAS-62
								CxP 70059	A.1.7.6.i	QAS-221
								CxP 70059	A.1.7.6.i	QAS-222
NPD 8730.5	1.b.13	42146	Policy: NASA quality assurance programs shall: Include the collection and analysis of quality data for the purpose of identifying and initiating resolution of problem areas (e.g., projects, products, processes, operations, organizations), common deficiency causes, nonconformance trends, defect anomalies, and process variations. (Requirement 42146)	S	Y	Y	Quality	CxP 70059	A.1.4.2.4	QAS-61
								CxP 70059	A.1.4.2.4	QAS-62
								CxP 70059	A.1.7.6.i	QAS-221
								CxP 70059	A.1.7.6.i	QAS-222
NPD 8730.5	1.b.14	42147	Policy: NASA quality assurance programs shall: Be performed in accordance with a documented quality system that follows the criteria specified in Attachment A. (Requirement 42147)	S	Y	Y	Quality	CxP 70059	5.1.3	QAS-1
								CxP 70059	5.1.3	QAS-70
								CxP 70059	5.2.6.3	QAS-73
NPD 8730.5	1.c	42148	Policy: Government quality assurance organizations are to ensure that contractors implement quality system requirements and deliver conforming product in accordance with Federal Acquisition Regulations (FAR), the NASA FAR Supplement, and NPR 8735.2, Management of Government Safety and Mission Assurance Functions for NASA Contracts, Chapters 1 and 2.	S	Y	Y	Quality	CxP 70059	5.1.3	QAS-1
								CxP 70059	5.1.3	QAS-70
								CxP 70059	5.2.6.3	QAS-73
								CxP 70059	5.2.6.3	QAS-74
NPD 8730.5	5.d.1	42197	Responsibility: Program/project managers shall: Provide necessary program dollars for costs associated with Government and contractor implementation of the requirements prescribed by this NPD and NPR 8735.2. (Requirement 42197)	S	Y	Y	Quality	CxP 70059	1.8	MGT-20
NPD 8730.5	5.d.2	42198	Responsibility: Program/project managers shall: Ensure program planning and acquisition documents incorporate applicable requirements of this NPD, including specification of applicable quality system requirements identified in Attachment A of this NPD. (Requirement 42198)	S	Y	Y	Quality	CxP 70059	5.1.3	QAS-1
								CxP 70059	5.1.3	QAS-70
								CxP 70059	A.1.1.1	QAS-52
								CxP 70059	A.1.1.1	QAS-53
NPD 8730.5	5.d.3	42199	Responsibility: Program/project managers shall: Identify safety/mission critical attributes and associated Government mandatory inspection points. (Requirement 42199)	S	Y	Y	Quality	CxP 70059	1.15	MGT-13
								CxP 70059	A.1.7.4.2.b	QAS-170
NPD 8730.5	5.d.4	42200	Responsibility: Program/project managers shall: Initiate corrective actions upon discovery or notification of noncompliance. (Requirement 42200)	S	Y	Y	Quality	CxP 70059	5.2.7.7.1.a	QAS-131
								CxP 70059	5.2.7.7.2	QAS-34
								CxP 70059	A.1.8.2.4.1	QAS-124
NPD 8730.5	5.e.1	42202	Responsibility: Procurement officials shall: Incorporate quality assurance requirements identified in Attachment A of this NPD into procurement contracts	S	Y	Y	Quality	CxP 70059	A.1.1.1	QAS-52
								CxP 70059	A.1.1.1	QAS-53
NPD 8730.5	5.e.2	42203	Responsibility: Procurement officials shall: Ensure that prospective contractors meet contract qualification requirements (quality system, product, process, personnel). (Requirement 42203)	S	Y	Y	Quality	CxP 70059	1.15	MGT-13
								CxP 70059	5.2.7.2.2	QAS-18
								CxP 70059	5.2.7.5.3	QAS-27
								CxP 70059	A.1.1.1	QAS-53
								CxP 70059	A.1.1.3	QAS-58
								CxP 70059	A.1.7.4.1	QAS-101
NPR 8000.4	1.3.1.a	26006	The Program Manager (PM) is responsible for the following: a.) Applying a continuous risk management process within the program throughout its life cycle. (Requirement 26006)	S	Y	Y	Risk	CxP PMP	PMP 4.4.2	PMP 4.4.2
NPR 8000.4	1.3.1.b	30898	The Program Manager (PM) is responsible for the following: b.) Documenting and approving that process within a Risk Management Plan. (Requirement 30898)	S	Y	Y	Risk	CxP PMP	PMP 4.4.2	PMP 4.4.2
NPR 8000.4	1.3.1.c	30899	The Program Manager (PM) is responsible for the following: c.) Documenting and managing risks throughout the programs life cycle. (Requirement 30899)	S	Y	Y	Risk	CxP PMP	PMP 4.4.2	PMP 4.4.2
NPR 8000.4	1.3.1.d	30900	The Program Manager (PM) is responsible for the following: d.) Approving the formal acceptance of all program risks. (Requirement 30900)	S	Y	Y	Risk	CxP PMP	PMP 4.4.2	PMP 4.4.2

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NPR 8000.4	1.3.1.e	30901	The Program Manager (PM) is responsible for the following: e.) Providing program risk status, especially concerning primary risks (see Appendix A, Glossary), to the Program Management Council (PMC) or Governing PMC as appropriate.(Requirement 30901)	S	Y	Y	Risk	CxP PMP	PMP 4.4.2	PMP 4.4.2
NPR 8000.4	1.3.2.a	26007	The Project Manager is responsible for the following: a.) Applying a continuous risk management process within the project throughout its life cycle. (Requirement 26007)	S	Y	Y	Risk	CxP PMP	PMP 4.4.2	PMP 4.4.2
NPR 8000.4	1.3.2.b	30902	The Project Manager is responsible for the following: b.) Documenting and approving that process within a Risk Management Plan. (Requirement 30902)	S	Y	Y	Risk	CxP PMP	PMP 4.4.2	PMP 4.4.2
NPR 8000.4	1.3.2.c	30903	The Project Manager is responsible for the following: c.) Documenting and managing risks throughout the projects life cycle. (Requirement 30903)	S	Y	Y	Risk	CxP PMP	PMP 4.4.2	PMP 4.4.2
NPR 8000.4	1.3.2.d	30904	The Project Manager is responsible for the following: d.) Approving the formal acceptance/closure of all project risks. (Requirement 30904).	S	Y	Y	Risk	CxP PMP	PMP 4.4.2	PMP 4.4.2
NPR 8000.4	1.3.2.e	30905	The Project Manager is responsible for the following: e.) Providing project risk status, especially concerning primary risks, to the Program Manager, Center Director, PMC, or Governing PMC as appropriate. (Requirement 30905)	S	Y	Y	Risk	CxP PMP	PMP 4.4.2	PMP 4.4.2
NPR 8000.4	2.7.06.1	26065	Every program/project shall have a Risk List. (Requirement 26065) The Risk List is the listing of all identified risks in priority order from highest to lowest risk, together with the information that is needed to manage each risk and document its evolution over the course of the project. Risk prioritization is performed by the project team and consolidated and approved by the PM. Figure 3 provides suggested data elements and format for the Risk List.	S	Y	Y	Risk	CxP PMP	PMP 4.4.2	PMP 4.4.2
NPR 8000.4	2.7.06.2(1)	26063	The Risk List must be updated as changes (including changes in assumptions) occur. (Requirement 26063)	S	Y	Y	Risk	CxP PMP	PMP 4.4.2	PMP 4.4.2
NPR 8000.4	2.7.06.2(2)	30912	Extracts from the Risk list shall be presented at project meetings, reviews, and milestones as required by the RM Plan. (Requirement 30912)	S	Y	Y	Risk	CxP PMP	PMP 4.4.2	PMP 4.4.2
NPR 8000.4	2.7.06.2(3	30913	Programs/projects may also find it beneficial to use the classification of risks to create subsets of the Risk List in addition to the complete Risk List so that working or functional groups may focus on specific areas of risk (for example, tracking all of the environmental risks or the security risks or technical risks together). The Risk List must be widely accessible to all members of the program/project team. (Requirement 30913)	S	Y	Y	Risk	CxP PMP	PMP 4.4.2	PMP 4.4.2
NPR 8621.1B	0.P.1.a	44011	PREFACE: PURPOSE: The purpose of this NASA Procedural Requirements (NPR) is to provide requirements to report, investigate, and document mishaps, close calls, and previously unidentified serious workplace hazards to prevent recurrence of similar accidents. This NPR does not apply to investigative procedures concerning civil, criminal, or administrative culpability or legal liability. Furthermore, the safety investigation outlined in this NPR shall not be used to direct or justify disciplinary action for mishaps or close calls. (Requirement 44011)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.02.2.6(1)	44065	GENERAL INFORMATION: Description of NASA Mishaps and Close Calls: The following are not considered NASA mishaps: When an event is not considered a mishap because the initiating event (proximate cause) is natural phenomenon or weather, the cognizant Center safety office shall enter the event and a description o the damage in IRIS. (Requirement 44065)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.02.2.7	44070	GENERAL INFORMATION: Description of NASA Mishaps and Close Calls: The following are not considered NASA mishaps: When an event is not considered a mishap because the initiating event (proximate cause) is natural phenomenon or weather, the organization incurring the damage shall perform a technical assessment to evaluate design and construction aspects, contingency planning, and emergency response and provide facts, findings, and recommendations to the Center Director through the Center SMA Director (or equivalent office with responsibilities for the Center?s facility safety program). (Requirement 44070)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.03.1	44074	GENERAL INFORMATION: Determining the Classification Level and Type of Investigation to be Conducted: The severity of the personnel injury and the direct cost of the mishap or close call (property damage and/or mission failure) shall determine the classification level of the mishap or close call (see Figure 1) and the corresponding type of investigation to be conducted. (Requirement 44074)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.03.3.1	44077	GENERAL INFORMATION: Determining the Classification Level and Type of Investigation to be Conducted: Determining the direct cost of the mishap or close call: The responsible manager, with review and concurrence by the Center safety office, shall calculate the direct cost of a mishap or close call by adding all the actua costs (or the estimate of the cost) (the greater value of actual or fair market value) of damaged property, destroyed property, or mission failure, actual cost of repair or replacement, labor (actual value of replacement or repair hours for internal and external/contracted labor), cost of the lost commodity (e.g., the cost of the fluid that was lost from a ruptured pressure vessel), as well as resultant costs such as environmental decontamination, property cleanup, and restoration. (Requirement 44077)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.03.3.2	44078	GENERAL INFORMATION: Determining the Classification Level and Type of Investigation to be Conducted: Determining the direct cost of the mishap or close call: In cases where replacement parts are available from salvaged or excess equipment at little or no cost to NASA, the direct cost of the mishap or close call shall include the actual costs of replacement parts (if they were purchased new) plus labor calculated as if the salvage/excess parts were unavailable. (Requirement 44078)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154

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NPR 8621.1B	1.03.3.3	44079	GENERAL INFORMATION: Determining the Classification Level and Type of Investigation to be Conducted: Determining the direct cost of the mishap or close call: In cases where insurance compensation, contractor compensation, or other compensation is available or provided, the direct cost of the mishap or close call shall include the direct cost (or estimate of the cost) as if this compensation were not available or provided. (Requirement 44079)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.03.3.4	44080	GENERAL INFORMATION: Determining the Classification Level and Type of Investigation to be Conducted: Determining the direct cost of the mishap or close call: The cost of the safety mishap investigation shall not be included in the direct cost. (Requirement 44080)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.01.a	44083	GENERAL INFORMATION: Roles and Responsibilities: Administrator. The Administrator: May elect to be the appointing official for Type A mishaps or delegate to the AA. (If the Administrator elects not to be the appointing official, the MDAA, CD, or another designee will serve as the appointing official.) (Requirement 44083)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.01.b	44084	GENERAL INFORMATION: Roles and Responsibilities: Administrator. The Administrator: Shall serve as appointing official for NASA joint participation on a MIB with the Department of Defense (DoD) and other agencies unless authority is delegated by existing agreements. (Requirement 44084)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.02.a	44087	GENERAL INFORMATION: Roles and Responsibilities: Chief/OSMA. The Chief/OSMA or designee shall: Ensure the proper reporting, investigating, and recordkeeping for mishaps and close calls by defining the mishap reporting and investigating process, updating this NPR, verifying its implementation, developing mishap investigation training, and identifying candidate mishap investigation tools. (Requirement 44087)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.02.b	44088	GENERAL INFORMATION: Roles and Responsibilities: Chief/OSMA. The Chief/OSMA or designee shall: Concur with the mishap classification level, investigation approach, and the MIB membership and serve as an endorsing official for the mishap report for Type A mishaps, Type B mishaps, high-visibility mishaps, and high-visibility close calls. (Requirement 44088)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.02.c	44089	GENERAL INFORMATION: Roles and Responsibilities: Chief/OSMA. The Chief/OSMA or designee shall: Provide a qualified NASA person to support NTSB investigations of NASA aircraft mishaps. (Requirement 44089)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.02.d	44090	GENERAL INFORMATION: Roles and Responsibilities: Chief/OSMA. The Chief/OSMA or designee shall: Archive NASA Headquarters-approved NASA mishap investigation board reports and related documents per NPR 1441.1. (Requirement 44090)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.03	44091	GENERAL INFORMATION: Roles and Responsibilities: Inspector General. The Inspector General shall investigate criminal activity associated with mishaps and close calls. (Requirement 44091)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.04.a	44093	GENERAL INFORMATION: Roles and Responsibilities: AA. The AA shall: Serve as the appointing official for Type A mishaps if designated by the Administrator. (Requirement 44093)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.04.b	44094	GENERAL INFORMATION: Roles and Responsibilities: AA. The AA shall: Obtain concurrence from the Chief/OSMA and the Chief Engineer on the MIB membership of mishaps in which he/she is the appointing official. (Requirement 44094)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.04.c	44095	GENERAL INFORMATION: Roles and Responsibilities: AA. The AA shall: Serve as an endorsing official for all mishaps in which he/she is the appointing official. (Requirement 44095)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.05.a	44097	GENERAL INFORMATION: Roles and Responsibilities: MDAA. The MDAA shall: Implement the mishap and close call reporting, investigating, and recordkeeping requirements for their assigned Mission Directorates for mishaps and close calls that occur outside the Center?s gates, during in-space flight, or at a program/project contractor site that is not managed by a Center. (Requirement 44097)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.05.b(1)	44098	GENERAL INFORMATION: Roles and Responsibilities: MDAA. The MDAA shall: Approve via signature all his/her program and project (as defined in NPR 7120.5) Program/Project Mishap Preparedness and Contingency Plans. (These plans will be developed by the cognizant Center safety offices, and will include procedures to notify, report, investigate, and record mishaps and close calls that involve Mission Directorate programs/projects/activities whether onsite or offsite, and whether on the ground or in flight.) (Requirement 44098)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.05.c	44100	GENERAL INFORMATION: Roles and Responsibilities: MDAA. The MDAA shall: Determine the mishap classification level (or assign a designee to determine the classification level) for all mishaps for which he/she has reporting responsibility and obtain concurrence on this classification level from the Chief/OSMA for Type A and B mishaps, high-visibility mishaps, and high-visibility close calls. (Requirement 44100)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.05.d(1)	44102	GENERAL INFORMATION: Roles and Responsibilities: MDAA. The MDAA shall: Serve as the appointing official for Type A mishaps, Type B mishaps, high-visibility mishaps, and high-visibility close calls that involve Mission Directorate programs/projects/activities that occur outside the Center?s gates, during in-space flight, or at a program/project contractor site that is not managed by a Center. (Requirement 44102)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154

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NPR 8621.1B	1.04.05.e	44104	GENERAL INFORMATION: Roles and Responsibilities: MDAA. The MDAA shall: Serve as the appointing official or document the designee in the Program Mishap Preparedness and Contingency Plan for Type C mishaps, Type D mishaps, and close calls that occur outside the Center?s gates, during in-space flight, or at a program/project contractor site that is not managed by a Center. (Requirement 44104)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.05.f	44105	GENERAL INFORMATION: Roles and Responsibilities: MDAA. The MDAA shall: Provide funding and support for investigations within their programs and involving their hardware, facilities, or enabling activities. (Requirement 44105)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.05.g	44106	GENERAL INFORMATION: Roles and Responsibilities: MDAA. The MDAA shall: Ensure that agreements for joint programs with international partners and other Federal agencies incorporate elements of this NPR to ensure that joint mishap investigating and reporting complies with NASA requirements. (Requirement 44106)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.06.a	44108	GENERAL INFORMATION: Roles and Responsibilities: Assistant Administrator, Office of Public Affairs (AA/OPA): The AA/OPA shall establish guidelines for the public release of mishap reports and related information. (Requirement 44108)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.06.c(1)	44110	GENERAL INFORMATION: Roles and Responsibilities: Assistant Administrator, Office of Public Affairs (AA/OPA): For Type A mishaps, Type B mishaps, high-visibility mishaps, and high-visibility close calls, the AA/OPA (or designee) shall appoint a Headquarters public affairs advisor. (Requirement 44110)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.07.1	44113	GENERAL INFORMATION: Roles and Responsibilities: CD and AA/OIA. The CD and the AA/OIA shall: The AA/OIA shall provide funding and support for investigations of mishaps that occur at NASA Headquarters. (Requirement 44113)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.07.a	44114	GENERAL INFORMATION: Roles and Responsibilities: CD and AA/OIA. The CD and the AA/OIA shall: Develop Center and Program Mishap Preparedness and Contingency Plans to support this NPR (this includes procedures to notify, report, investigate, and record mishaps and close calls that involve programs, projects, and activities that fall under their responsibility). (Requirement 44114)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.07.b	44115	GENERAL INFORMATION: Roles and Responsibilities: CD and AA/OIA. The CD and the AA/OIA shall: Implement the mishap reporting, investigating, and recordkeeping requirements for all projects, programs, and activities that fall under their SMA responsibility. (Requirement 44115)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.07.c	44116	GENERAL INFORMATION: Roles and Responsibilities: CD and AA/OIA. The CD and the AA/OIA shall: Provide funding and support for investigations at their Centers, within their projects and programs, and involving their hardware, facilities, or enabling activities. (Requirement 44116)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.07.d	44117	GENERAL INFORMATION: Roles and Responsibilities: CD and AA/OIA. The CD and the AA/OIA shall: Determine the mishap classification level (or assign a designee to determine the classification level) for all mishaps for which the Center has reporting responsibility and obtain concurrence on this classification level from the Chief/OSMA for Type A and B mishaps, high-visibility mishaps, and high-visibility close calls. (Requirement 44117)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.07.e(1)	44118	GENERAL INFORMATION: Roles and Responsibilities: CD and AA/OIA. The CD and the AA/OIA shall: Serve as the appointing official for Type A mishaps and Type B mishaps occurring at, or managed by, his/her Center and involving offsite Center support contractors. (Requirement 44118)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.07.f	44120	GENERAL INFORMATION: Roles and Responsibilities: CD and AA/OIA. The CD and the AA/OIA shall: Serve as or designate the appointing official and document the designee(s) in the Mishap Preparedness and Contingency Plan for Type C mishaps, Type D mishaps, and close calls. (Requirement 44120)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.07.g	44121	GENERAL INFORMATION: Roles and Responsibilities: CD and AA/OIA. The CD and the AA/OIA shall: In the event that there is a mishap involving injury of a human research subject at a NASA Center, request the Chief Health and Medical Officer (CHMO) concurrence on the investigating authority's membership. (Requirement 44121)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.07.h	44122	GENERAL INFORMATION: Roles and Responsibilities: CD and AA/OIA. The CD and the AA/OIA shall: Personally report, by telephone or e-mail, to the Administrator within 24 hours of learning the instance of any NASA Type A mishap, any NASA Type B mishap, and a NASA Type C mishap only if it involves a lost-time injury or illness. (Requirement 44122)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.07.i	44123	GENERAL INFORMATION: Roles and Responsibilities: CD and AA/OIA. The CD and the AA/OIA shall: Personally report, by telephone or e-mail, to the Administrator within 24 hours of any nonoccupational fatality, such as sudden cardiac arrest of a NASA civil service employee or a resident contractor that occurred on site (a resident contractor is a NASA contractor whose primary place of business is on or near a NASA Center or NASA-owned facility). (Requirement 44123)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.07.j	44124	GENERAL INFORMATION: Roles and Responsibilities: CD and AA/OIA. The CD and the AA/OIA shall: Personally report, by telephone or e-mail, to the Administrator when it becomes known that there is any off-the-job fatality or serious injury/illness of a NASA civil service employee or resident contractor. (Requirement 44124)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154

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NPR 8621.1B	1.04.07.k.1	44126	GENERAL INFORMATION: Roles and Responsibilities: CD and AA/OIA. The CD and the AA/OIA shall: Ensure that local procedures for dealing with the needs of the NASA workforce (civil service employees and contractor employees) when they are experiencing a crisis situation (e.g., serious injury, illness, or fatality of workforce member or family member) are: Reviewed annually. (Requirement 44126)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.07.k.2	44127	GENERAL INFORMATION: Roles and Responsibilities: CD and AA/OIA. The CD and the AA/OIA shall: Ensure that local procedures for dealing with the needs of the NASA workforce (civil service employees and contractor employees) when they are experiencing a crisis situation (e.g., serious injury, illness, or fatality of workforce member or family member) are: Include a process for immediately notifying the next of kin for mishaps and on site nonoccupational medical events resulting in fatality or serious injury. (Requirement 44127)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.07.k.3	44128	GENERAL INFORMATION: Roles and Responsibilities: CD and AA/OIA. The CD and the AA/OIA shall: Ensure that local procedures for dealing with the needs of the NASA workforce (civil service employees and contractor employees) when they are experiencing a crisis situation (e.g., serious injury, illness, or fatality of workforce member or family member) are: Provide information to the person or family (when the person is unable to receive such information due to the injury or illness) concerning benefits, such as extended sick-leave and disability. (Requirement 44128)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.07.L	44129	GENERAL INFORMATION: Roles and Responsibilities: CD and AA/OIA. The CD and the AA/OIA shall: Ensure that the NASA civil service employees designated to communicate with the family of an injured, ill, or deceased individual have received training in NASA policy concerning benefits and crisis intervention. (Requirement 44129)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.07.m(1)	44130	GENERAL INFORMATION: Roles and Responsibilities: CD and AA/OIA. The CD and the AA/OIA shall: Initiate the use of the NASA Family Assistance Fund (NFAF), upon the NASA civil service employee family?s agreement or request. (Requirement 44130)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.07.n	44132	GENERAL INFORMATION: Roles and Responsibilities: CD and AA/OIA. The CD and the AA/OIA shall: Obtain concurrence from the Chief/OSMA and the Chief Engineer on the MIB membership of Type A, Type B, high-visibility mishaps, and high-visibility close calls in which he/she is the appointing official. (Requirement 44132)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.07.o	44133	GENERAL INFORMATION: Roles and Responsibilities: CD and AA/OIA. The CD and the AA/OIA shall: Provide administrative and logistical support for the investigating authority working on the Center and distribute the authorized mishap report per this NPR. (Requirement 44133)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.07.p	44134	GENERAL INFORMATION: Roles and Responsibilities: CD and AA/OIA. The CD and the AA/OIA shall: Verify that NASA contractors and grantees conduct mishap investigations and provide mishap reports as specified in their contracts and in NFS 1852.223-70. (Requirement 44134)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.07.q	44135	GENERAL INFORMATION: Roles and Responsibilities: CD and AA/OIA. The CD and the AA/OIA shall: Serve as an endorsing official for mishaps and close calls in which he/she is the appointing official. (Requirement 44135)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.08.a	44137	GENERAL INFORMATION: Roles and Responsibilities: Program and Project Managers. Program and project managers shall: Concur on the Program/Project Mishap Preparedness and Contingency Plan. (Requirement 44137)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.08.b	44138	GENERAL INFORMATION: Roles and Responsibilities: Program and Project Managers. Program and project managers shall: In the event of a mishap or close call at the Center, activate the Program Mishap Preparedness and Contingency Plan. (Requirement 44138)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.08.c	44139	GENERAL INFORMATION: Roles and Responsibilities: Program and Project Managers. Program and project managers shall: Provide funding and support for investigations within their program jurisdiction or involving their hardware and facilities. (Requirement 44139)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.08.d	44140	GENERAL INFORMATION: Roles and Responsibilities: Program and Project Managers. Program and project managers shall: Assist the investigating authority as requested. (Requirement 44140)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.08.e	44141	GENERAL INFORMATION: Roles and Responsibilities: Program and Project Managers. Program and project managers shall: When tasked by the appointing official, develop the Corrective Action Plan (CAP), implement the CAP, support the Center safety office personnel as they verify that the CAP has been completed, and generate the lessons learned. (Requirement 44141)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.09.a	44143	GENERAL INFORMATION: Roles and Responsibilities: Responsible Organization. The responsible organization shall: Assist the investigating authority as requested. (Requirement 44143)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.10.b	44147	GENERAL INFORMATION: Roles and Responsibilities: Appointing Official. The appointing official shall: Determine the level of NASA involvement, if any, when a mishap resulted from the actions of an outside source that was not involved in NASA operations. (Requirement 44147)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.10.c	44148	GENERAL INFORMATION: Roles and Responsibilities: Appointing Official. The appointing official shall: Initiate a NASA investigation pursuant to this NPR, when the appointing official believes that a NASA contractor's/grantee's mishap report is not adequate because it failed to reach root cause(s), failed to provide recommendations that prevent recurrence, is not suitably independent, or is in some other way deficient. (Requirement 44148)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154

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NPR 8621.1B	1.04.10.d(1)	44149	GENERAL INFORMATION: Roles and Responsibilities: Appointing Official. The appointing official shall: Generate a formal memorandum for Type A mishaps, Type B mishaps, high-visibility mishaps, and high-visibility close calls that communicates the appointment of the investigating authority members, the chairperson, the ex officio, and the advisors. (Requirement 44149)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.10.e	44151	GENERAL INFORMATION: Roles and Responsibilities: Appointing Official. The appointing official shall: Serve as an endorsing official for mishaps and close calls in which he/she is the appointing official. (Requirement 44151)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.10.f	44152	GENERAL INFORMATION: Roles and Responsibilities: Appointing Official. The appointing official shall: Assign the responsible organization(s)/program(s)/project(s) to develop the CAP, implement the CAP, and generate the lessons learned. (Requirement 44152)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.10.g	44153	GENERAL INFORMATION: Roles and Responsibilities: Appointing Official. The appointing official shall: Ensure that the mishap investigation process for the assigned mishap or close call is properly completed. (Requirement 44153)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.10.h	44154	GENERAL INFORMATION: Roles and Responsibilities: Appointing Official. The appointing official shall: Verify that the mishap report is reviewed, endorsed, and authorized for public release. (Requirement 44154)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.10.i	44155	GENERAL INFORMATION: Roles and Responsibilities: Appointing Official. The appointing official shall: Ensure that the CAP is developed and implemented. (Requirement 44155)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.10.j	44156	GENERAL INFORMATION: Roles and Responsibilities: Appointing Official. The appointing official shall: Ensure that the lessons learned are developed, reviewed, and authorized for public release. (Requirement 44156)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.10.k	44157	GENERAL INFORMATION: Roles and Responsibilities: Appointing Official. The appointing official shall: Release the investigating authority from duty. (Requirement 44157)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.10.L	44158	GENERAL INFORMATION: Roles and Responsibilities: Appointing Official. The appointing official shall: Generate the CAP closure statement and the mishap activities completion statement. (Requirement 44158)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.10.m	44159	GENERAL INFORMATION: Roles and Responsibilities: Appointing Official. The appointing official shall: Assist the investigating authority as requested. (Requirement 44159)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.10.n.1	44161	GENERAL INFORMATION: Roles and Responsibilities: Appointing Official. The appointing official shall: If the NTSB performs an investigation, the appointing official shall: Initiate a NASA mishap investigation per this NPR. (Requirement 44161)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.10.n.2	44162	GENERAL INFORMATION: Roles and Responsibilities: Appointing Official. The appointing official shall: If the NTSB performs an investigation, the appointing official shall: Request that a NASA representative be a party to the NTSB's investigation. (Requirement 44162)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.12.a	44167	GENERAL INFORMATION: Roles and Responsibilities: Ex Officio. The ex officio shall: Serve as the authorized representative of the Chief/OSMA. (Requirement 44167)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.12.b	44168	GENERAL INFORMATION: Roles and Responsibilities: Ex Officio. The ex officio shall: Be a nonvoting participant in all investigation deliberations. (Requirement 44168)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.12.e	44171	GENERAL INFORMATION: Roles and Responsibilities: Ex Officio. The ex officio shall: Assure that the mishap report contains the proper elements including proximate cause(s), root cause(s), failed barrier(s), and observation(s); sufficient facts/data to support the finding(s) and recommendation(s); and a mishap investigation summary. (Requirement 44171)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.13.a	44175	GENERAL INFORMATION: Roles and Responsibilities: Chairperson. The chairperson of the investigating authority shall: Manage and coordinate all aspects of the mishap investigation, including, but not limited to, the following tasks: assign group leaders; interview witnesses; reconstruct the mishap or close call; identify facts; identify proximate cause(s) and root cause(s); generate recommendation(s); and complete the mishap report. (Requirement 44175)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.13.e	44181	GENERAL INFORMATION: Roles and Responsibilities: Chairperson. The chairperson of the investigating authority shall: Define the roles and/or areas of investigative responsibility for each group or subgroup on the MIB or MIT, as needed. (Requirement 44181)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.13.g(1)	44183	GENERAL INFORMATION: Roles and Responsibilities: Chairperson. The chairperson of the investigating authority shall: Report only to the appointing official (or designee) during the investigation. (Requirement 44183)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.13.h(1)	44185	GENERAL INFORMATION: Roles and Responsibilities: Chairperson. The chairperson of the investigating authority shall: Refer allegations and evidence of criminal activity that are identified in the course of an investigation to the Office of Inspector General. (Requirement 44185)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.14	44187	GENERAL INFORMATION: Roles and Responsibilities: Investigating Authority. The investigating authority shall conduct a comprehensive investigation within the defined scope of the appointment letter or appointment orders, generate the products indicated in paragraph 1.7 and Figure 5 of this NPR, prepare a mishap report, and sign the report. (Requirement 44187)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154

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NPR 8621.1B	1.04.15.a(1)	44189	GENERAL INFORMATION: Roles and Responsibilities: Investigating Authority's Advisors. The advisors shall: Attend meetings as needed, travel with the investigating authority as requested, and have access to all investigative material with the exception of witness statements and testimony. (Requirement 44189)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.15.b	44191	GENERAL INFORMATION: Roles and Responsibilities: Investigating Authority's Advisors. The advisors shall: Provide advice to the investigating authority. (Requirement 44191)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.15.c	44192	GENERAL INFORMATION: Roles and Responsibilities: Investigating Authority's Advisors. The advisors shall: Sign the mishap report stating that he/she has reviewed the mishap report and that it meets NASA policies and procedures in his/her functional area. (Requirement 44192)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.16.a	44194	GENERAL INFORMATION: Roles and Responsibilities: Legal Advisor. The legal advisor shall: Develop nondisclosure agreements if the investigating authority uses a contractor as administrative support. (Requirement 44194)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.16.b	44195	GENERAL INFORMATION: Roles and Responsibilities: Legal Advisor. The legal advisor shall: Develop nondisclosure agreements if the investigating authority uses a contractor to analyze interview data or participate in interviews. (Requirement 44195)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.16.c	44196	GENERAL INFORMATION: Roles and Responsibilities: Legal Advisor. The legal advisor shall: Provide legal advice and counsel as requested by the board chair. (Requirement 44196)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.17.1(1)	44199	GENERAL INFORMATION: Roles and Responsibilities: The advisors may be included or excluded from listening to any deliberations at the discretion of the chairperson: The chairperson may exclude advisors (with the exception of the legal advisor) from participating in deliberations that discuss privileged witness testimony. (Requirement 44199)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.19.a	44206	GENERAL INFORMATION: Roles and Responsibilities: The consultants shall not: Participate in deliberations (vote on findings). (Requirement 44206)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.19.b	44207	GENERAL INFORMATION: Roles and Responsibilities: The consultants shall not: Sign the mishap report. (Requirement 44207)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.19.c(1)	44208	GENERAL INFORMATION: Roles and Responsibilities: The consultants shall not: Read, listen to, or participate in witness interviews unless they are tasked to analyze interviews, and they have signed a nondisclosure agreement prepared by NASA Office of the General Counsel or Center Chief Counsel. (Requirement 44208)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.20(1)	44214	GENERAL INFORMATION: Roles and Responsibilities: If the Chair of the Investigating Authority chooses to use a person that is not a Federal employee as administrative support, that person shall sign a nondisclosure agreement prior to having access to any mishap data or International Traffic Arms Regulations (ITAR), Export Administration Regulations (EAR), proprietary, or privileged information. (Requirement 44214)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.21.a	44217	GENERAL INFORMATION: Roles and Responsibilities: Interim Response Team (IRT). The IRT shall: Notify the Center PAO about casualties, damages, and any potential hazards to the public, and notify legal advisors (as appropriate) (Requirement 44217)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.21.b	44218	GENERAL INFORMATION: Roles and Responsibilities: Interim Response Team (IRT). The IRT shall: Assist the incident commander, as requested. (Requirement 44218)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.21.d	44220	GENERAL INFORMATION: Roles and Responsibilities: Interim Response Team (IRT). The IRT shall: Only Federal employees on the IRT shall support the Center safety office in impounding data and collecting witness statements (written statements when possible) (Requirement 44220)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.21.f(1)	44223	GENERAL INFORMATION: Roles and Responsibilities: Interim Response Team (IRT). The IRT shall: Advise the supervisor if drug testing should be requested per the NPR 3792.1, Plan for a Drug-Free Workplace. (Requirement 44223)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.21.g	44225	GENERAL INFORMATION: Roles and Responsibilities: Interim Response Team (IRT). The IRT shall: Provide all available mishap data and evidence to the investigating authority. (Requirement 44225)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.21.h	44226	GENERAL INFORMATION: Roles and Responsibilities: Interim Response Team (IRT). The IRT shall: Support the AA/OPA (or designee), Center safety office, IRT, and CD or AA/OIA in the release of information to the press and media to alert Center personnel and the public of any known hazards and their potential effects, and provide instructions that will mitigate the risk and harm. (Requirement 44226)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.22	44227	GENERAL INFORMATION: Roles and Responsibilities: Incident Commander. The incident commander shall implement the procedures outlined in the Center Mishap Preparedness and Contingency Plan to coordinate rescue activities, mitigate hazards, and safe and secure the mishap site. (Requirement 44227)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.23.a	44229	GENERAL INFORMATION: Roles and Responsibilities: Center Safety Office. The Center safety office shall: Support the development of the Center Mishap Preparedness and Contingency Plan, Program Mishap Preparedness and Contingency Plan(s), contract clauses, mishap investigation training, and a mishap investigation tool repository (that makes tools readily accessible to investigating authorities). (Requirement 44229)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154

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NPR 8621.1B	1.04.23.b	44230	GENERAL INFORMATION: Roles and Responsibilities: Center Safety Office. The Center safety office shall: Develop the Program/Project Mishap Preparedness and Contingency Plans for Programs/Projects as defined by NPR 7120.5 and that their Center manages. Programs with aircraft in the developmental, qualification, or certification phases of the program shall have a Program Mishap Preparedness and Contingency Plan that is tailored for the particular phase of the program. (Requirement 44230)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.23.c	44231	GENERAL INFORMATION: Roles and Responsibilities: Center Safety Office. The Center safety office shall: Ensure that their Center's employees are familiar with the roles and responsibilities as documented within the Center Mishap Preparedness and Contingency Plan and this NPR. (Requirement 44231)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.23.d	44232	GENERAL INFORMATION: Roles and Responsibilities: Center Safety Office. The Center safety office shall: Implement the Center Mishap Preparedness and Contingency Plan; when applicable, support the program as they initiate the Program Mishap Preparedness and Contingency Plan; and initiate, facilitate, and coordinate all investigation activities per the plan. (Requirement 44232)	S	Y	Y	Safety			
NPR 8621.1B	1.04.23.e	44233	GENERAL INFORMATION: Roles and Responsibilities: Center Safety Office. The Center safety office shall: Report the mishap to Headquarters per the reporting requirements defined in this NPR and to OSHA (when applicable). (Requirement 44233)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.23.f	44234	GENERAL INFORMATION: Roles and Responsibilities: Center Safety Office. The Center safety office shall: Support the incident commander as he/she safes and secures the mishap site. (Requirement 44234)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.23.g	44235	GENERAL INFORMATION: Roles and Responsibilities: Center Safety Office. The Center safety office shall: Impound data, records, equipment, and facilities. (Requirement 44235)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.23.h	44236	GENERAL INFORMATION: Roles and Responsibilities: Center Safety Office. The Center safety office shall: Advise the supervisor that drug testing should be initiated (Requirement 44236)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.23.j(1)	44238	GENERAL INFORMATION: Roles and Responsibilities: Center Safety Office. The Center safety office shall: Ensure that mishap and close call information is entered in the Incident Reporting Information System (IRIS) per the requirements outline in this NPR. (Requirement 44238)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.23.k	44240	GENERAL INFORMATION: Roles and Responsibilities: Center Safety Office. The Center safety office shall: Verify the CAP is complete and all elements of the investigation have been completed. (Requirement 44240)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.23.L	44241	GENERAL INFORMATION: Roles and Responsibilities: Center Safety Office. The Center safety office shall: Retain mishap investigation records per NPR 1441.1 and physical evidence (debris) as necessary. (Requirement 44241)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.23.m	44242	GENERAL INFORMATION: Roles and Responsibilities: Center Safety Office. The Center safety office shall: Keep an updated list of all Center personnel that have training and experience in mishap investigation including information such as relevant training courses, date of training, recent participation in a mishap investigation, and security clearances. (Requirement 44242)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.23.n	44243	GENERAL INFORMATION: Roles and Responsibilities: Center Safety Office. The Center safety office shall: Establish a Center-specific process to disseminate to other Centers the final mishap report and to rapidly disseminate preliminary mishap and close call precautionary information that meets the PAO guidelines for release. (Requirement 44243)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.24.a	44245	GENERAL INFORMATION: Roles and Responsibilities: The Office of Security and Program Protection (OSPP) shall: Upon request from the appointing official, perform a classification review of the endorsed mishap report to determine if any section of the report (or the whole report) needs to be classified or if it may be authorized for public release. (Requirement 44245)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.25.a	44247	GENERAL INFORMATION: Roles and Responsibilities: The Center security office shall: Support the Incident Commander, Center safety office, and IRT in securing the mishap site and impounding data, records, equipment, and facilities. (Requirement 44247)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.26.a	44249	GENERAL INFORMATION: Roles and Responsibilities: Supervisors. Supervisors shall: Notify the Center safety office when a mishap or close call occurs. (Requirement 44249)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.26.b	44250	GENERAL INFORMATION: Roles and Responsibilities: Supervisors. Supervisors shall: Support the incident commander as he/she secures and safes the mishap site. (Requirement 44250)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.26.c	44251	GENERAL INFORMATION: Roles and Responsibilities: Supervisors. Supervisors shall: Initiate drug testing after a mishap if the mishap results in a fatality or persona injury requiring immediate hospitalization or in damage estimated to be in excess of $10,000 to government or private property. (Requirement 44251)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.26.d	44252	GENERAL INFORMATION: Roles and Responsibilities: Supervisors. Supervisors shall: Assist the investigating authority, as requested. (Requirement 44252)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.26.e	44253	GENERAL INFORMATION: Roles and Responsibilities: Supervisors. Supervisors shall: Complete the initial mishap or close call report in accordance with the Center Mishap Preparedness and Contingency Plan. (Requirement 44253)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154

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NPR 8621.1B	1.04.27.a	44255	GENERAL INFORMATION: Roles and Responsibilities: All Employees. All employees shall: If witness to, or involved in, a NASA mishap or close call, immediately notify both emergency response (e.g., 911, fire, ambulance, Center security office) of the need for assistance and a supervisor, management official, or a safety/health staff member of the circumstance of the mishap or close call. (Requirement 44255)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.27.b	44256	GENERAL INFORMATION: Roles and Responsibilities: All Employees. All employees shall: Complete witness statements prior to leaving the mishap investigation site, to the extent possible. (Requirement 44256)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.27.c	44257	GENERAL INFORMATION: Roles and Responsibilities: All Employees. All employees shall: Provide as much information as possible to the investigating authority. (Requirement 44257)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.28	44258	GENERAL INFORMATION: Roles and Responsibilities: Center's Chief of Aircraft Operations. The Chief of Aircraft Operations shall notify the NTSB of a mishap involving aircraft per paragraph 1.6.6 of this NPR and complete NTSB Form 6120 per paragraph 1.6.8 of this NPR and NTSB requirements. (Requirement 44258)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.29.a	44260	GENERAL INFORMATION: Roles and Responsibilities: Contracting Officers. Contracting officers shall: Involve the Center safety office in the acquisition strategy planning activities for proposed contracts as detailed in NASA NFS Part 1807, "Acquisition Planning". (Requirement 44260)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.29.b	44261	GENERAL INFORMATION: Roles and Responsibilities: Contracting Officers. Contracting officers shall: Incorporate applicable mishap and close call reporting and investigating procedures and corrective action requirements detailed in the NFS into contracts and grants covering NASA programs and operations. (Requirement 44261)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.29.c	44262	GENERAL INFORMATION: Roles and Responsibilities: Contracting Officers. Contracting officers shall: Coordinate with the contractor and subcontractor sites to assist the investigating authority in gaining contractor site access, impound contractor data, and interview contractor personnel as permitted by the contract. (Requirement 44262)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.30.a(1)	44264	GENERAL INFORMATION: Roles and Responsibilities: CHMO. The CHMO shall: Serve as the appointing official for a mishap involving a human research subject participating in NASA-funded research at a grantee site, or at another offsite location, and obtain the concurrence from the Chief/OSMA on the investigating authority?s membership. (Requirement 44264)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.30.b	44267	GENERAL INFORMATION: Roles and Responsibilities: CHMO. The CHMO shall: Serve as an endorsing official for Type A mishaps, Type B mishaps, high-visibility mishaps, and high-visibility close calls involving an injury or fatality. (Requirement 44267)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.31	44268	GENERAL INFORMATION: Roles and Responsibilities: Office of Institutions and Management, Office of Infrastructure and Administration, Aircraft Management Division (AMD). For Type A mishaps, Type B mishaps, high-visibility mishaps, and high-visibility close calls involving aircraft AMD shall serve as an endorsing official. (Requirement 44268)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.32.a	44270	GENERAL INFORMATION: Roles and Responsibilities: Office of the General Counsel. The Office of the General Counsel shall: Develop and implement procedures for collateral investigations that will be performed for mishaps and close calls that do not involve criminal activity. (Requirement 44270)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.04.32.b	44271	GENERAL INFORMATION: Roles and Responsibilities: Office of the General Counsel. The Office of the General Counsel shall: Assist the AA/OPA (or designee) in the review of the approved mishap report as it is being prepared for public release. (Requirement 44271)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.05.1	44277	GENERAL INFORMATION: Notification and Reporting Requirements: Immediately after a mishap or close call, NASA employees shall notify the appropriate authorities in the manner specified in paragraph 1.4.27 of this NPR and the Center Mishap Preparedness and Contingency Plan. (Requirement 44277)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.05.2	44278	GENERAL INFORMATION: Notification and Reporting Requirements: The Center safety office shall collect employee safety concerns, mishap reports, and close call reports through a Center process, review the employee reports, verify that they meet the definitions of mishap or close call found in Appendix A and Figure 1, and report those that are consistent with the NPR. (Requirement 44278)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.05.3	44279	GENERAL INFORMATION: Notification and Reporting Requirements: Notify Office of Safety and Mission Assurance, Safety and Assurance Requirements Division (OSMA/SARD). After emergency response has been initiated, within one hour of the occurrence of a Type A mishap, Type B mishap, high-visibility mishap, or high-visibility close call, the Center safety office shall notify OSMA/SARD by calling 1.202.358.0006, or, if no answer, by calling the NASA Headquarters After Hours Contact Center at 1.866.230.6272. (Requirement 44279)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.05.3.1	44280	GENERAL INFORMATION: Notification and Reporting Requirements: During this notification, the Center safety office shall provide the following information: the Center name, location of incident, time of incident, number of fatalities (if known), number of hospitalized employees (if known), type of injury (if known), type of damage (if known), contact person, contact person's phone number, and a brief description of the mishap. (Requirement 44280)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.05.3.a	44281	GENERAL INFORMATION: Notification and Reporting Requirements: Mishap notification must be acknowledged (verbally, e-mailed, or faxed) to meet the intent of this requirement. (Requirement 44281)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154

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NPR 8621.1B	1.05.3.b	44282	GENERAL INFORMATION: Notification and Reporting Requirements: Per NPR 7100.1, paragraph 11.4.1, this includes immediately reporting a human test subject injury or fatality that resulted in a loss of life, a permanent disability, hospitalization, extensive first aid, or lost workday[s]. (Requirement 44282)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.05.4	44283	GENERAL INFORMATION: Notification and Reporting Requirements: Notify OSHA. Within 8 hours of a work-related mishap involving death of a Federal employee, or the hospitalization for inpatient care of three or more employees (provided at least one is a Federal employee), the Center safety office shall notify OSHA by calling the area office nearest the site of the mishap or OSHA's toll-free number, 1.800.321.6742. (Requirement 44283)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.05.4.1	44284	GENERAL INFORMATION: Notification and Reporting Requirements: OSHA notification is required for any fatality or three or more hospitalizations that occur up to 30 workdays after the respective mishap. (Requirement 44284)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.05.4.2	44285	GENERAL INFORMATION: Notification and Reporting Requirements: The Center safety office shall persist in making contact with OSHA to provide this report until OSHA has acknowledged receipt of the report. (Requirement 44285)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.05.4.3	44286	GENERAL INFORMATION: Notification and Reporting Requirements: In notifying OSHA, the Center safety office shall provide OSHA with the following information: the establishment name, location of incident, time of incident, number of fatalities (if known), number of hospitalized employees (if known), contact person, contact person's phone number, and a brief description of the mishap. (Requirement 44286)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.05.4.4	44287	GENERAL INFORMATION: Notification and Reporting Requirements: After notifying OSHA, the Center safety office shall inform OSMA/SARD that an oral report has been provided to OSHA. (Requirement 44287)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.05.5	44288	GENERAL INFORMATION: Notification and Reporting Requirements: Within 24 hours of a Type A mishap, Type B mishap, high-visibility mishap, or high visibility close call, the Center safety office shall follow up the initial phone notification by sending an electronic notification to OSMA/SARD that includes the following information: Center submitting report; author of report; author's phone number and mail code; date report submitted; time report submitted; incident date; incident time; incident general location; exact location (if known); responsible organization; organization's point of contact; point of contact's phone number and mail code; mission affected; program impact (if known); number and type of injuries or fatalities (if known); type of damage to equipment, flight hardware, flight software, or facilities; estimate of direct cost of damage; and a brief description of the mishap or close call. (Requirement 44288)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.05.6.1	44290	GENERAL INFORMATION: Notification and Reporting Requirements: The OIG and the Center's Office of the Chief Counsel or the NASA Office of the General Counsel shall be notified if it is suspected that a mishap resulted from criminal activity. (Requirement 44290)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.06.1	44294	GENERAL INFORMATION: Additional Notification and Reporting Requirements for Aircraft Investigations: NASA employees shall report immediately to the Center safety office any of the aircraft mishaps or anomalies described in Figure 3, paragraph 1.2, and paragraph 1.6.2 of this NPR. (Requirement 44294)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.06.2(1)	44295	GENERAL INFORMATION: Additional Notification and Reporting Requirements for Aircraft Investigations: Employees shall report unexpected aircraft departure from controlled flight for all aircraft except the following high performance jet/test aircraft which can experience departure from controlled flight when engaged in flight test activities: F-15, F-16, F/A-18, T-38, OV-10, and T-34. (Requirement 44295)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.06.3	44297	GENERAL INFORMATION: Additional Notification and Reporting Requirements for Aircraft Investigations: Immediately after the occurrence of an aviation mishap or NTSB-defined mishap or close call, the Center aircraft operator shall provide all the information listed in Figure 4 to the Center safety office and the Center Chief of Aircraft Operations. (Requirement 44297)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.06.7	44303	GENERAL INFORMATION: Additional Notification and Reporting Requirements for Aircraft Investigations: In the event that the NTSB exercises its authority to investigate a NASA aircraft mishap, NASA shall conduct a separate investigation in accordance with this NPR. (Requirement 44303)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.06.8	44304	GENERAL INFORMATION: Additional Notification and Reporting Requirements for Aircraft Investigations: Within 10 workdays of an aircraft mishap or close call that meets the reporting requirements as defined in Figure 3 and paragraph 1.6.2 of this NPR, the Center Chief of Aircraft Operations shall submit an NTSB Form 6120 to the NTSB regional office nearest to the location of the mishap or close call. (Requirement 44304)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.06.9	44305	GENERAL INFORMATION: Additional Notification and Reporting Requirements for Aircraft Investigations: An unmanned aerial vehicle (UAV) is not currently considered an aircraft by the NTSB, consequently NTSB reporting requirements are not applicable to a UAV unless personnel are injured or the UAV comes down in a populated area outside a Center's gates.	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154

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NPR 8621.1B	1.07.1.a	44308	GENERAL INFORMATION: Investigation Products for each Classification Level/Type of Investigation: The investigating authority shall conduct an investigation and include the following products in the mishap report according to the requirements listed in Figure 5: Investigating authority and ex officio signatures demonstrating their approval of the mishap report. (Requirement 44308)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.07.1.b	44309	GENERAL INFORMATION: Investigation Products for each Classification Level/Type of Investigation: The investigating authority shall conduct an investigation and include the following products in the mishap report according to the requirements listed in Figure 5: Advisor(s) signatures demonstrating that he/she has reviewed the mishap report; that it meets NASA policies and procedures in his/her functional area; that any privileged or proprietary information, ITAR information, EAR information, or material subject to the Privacy Act has been identified and marked as nonreleasable to the public; and that sections that are releasable to the public are marked releasable and, to the best of his/her knowledge, are ready for public release (pending endorsements and Headquarters and Center public affairs authorization) (Requirement 44309)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.07.1.c	44310	GENERAL INFORMATION: Investigation Products for each Classification Level/Type of Investigation: The investigating authority shall conduct an investigation and include the following products in the mishap report according to the requirements listed in Figure 5: List of the investigating authority's consultants. (Requirement 44310)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.07.1.d	44311	GENERAL INFORMATION: Investigation Products for each Classification Level/Type of Investigation: The investigating authority shall conduct an investigation and include the following products in the mishap report according to the requirements listed in Figure 5: An executive summary that does not contain privileged or proprietary information, material subject to the Privacy Act, ITAR information, or EAR information. (Requirement 44311)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.07.1.e	44312	GENERAL INFORMATION: Investigation Products for each Classification Level/Type of Investigation: The investigating authority shall conduct an investigation and include the following products in the mishap report according to the requirements listed in Figure 5: The OSHA Final Mishap Summary (OSHA 301 Form: Injury and Illness Incident Report, or an equivalent form), if the mishap is an OSHA recordable incident. (Requirement 44312)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.07.1.f	44313	GENERAL INFORMATION: Investigation Products for each Classification Level/Type of Investigation: The investigating authority shall conduct an investigation and include the following products in the mishap report according to the requirements listed in Figure 5: Description of the type of data gathered and evaluated during the investigation. (Requirement 44313)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.07.1.g	44314	GENERAL INFORMATION: Investigation Products for each Classification Level/Type of Investigation: The investigating authority shall conduct an investigation and include the following products in the mishap report according to the requirements listed in Figure 5: Narrative description of the facts including what, when, and where. (Requirement 44314)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.07.1.h	44315	GENERAL INFORMATION: Investigation Products for each Classification Level/Type of Investigation: The investigating authority shall conduct an investigation and include the following products in the mishap report according to the requirements listed in Figure 5: Timeline. (Requirement 44315)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.07.1.i	44316	GENERAL INFORMATION: Investigation Products for each Classification Level/Type of Investigation: The investigating authority shall conduct an investigation and include the following products in the mishap report according to the requirements listed in Figure 5: Description of all structured analysis techniques used and how they contributed to determining the findings. (Requirement 44316)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.07.1.j	44317	GENERAL INFORMATION: Investigation Products for each Classification Level/Type of Investigation: The investigating authority shall conduct an investigation and include the following products in the mishap report according to the requirements listed in Figure 5: Event and causal factor tree or similar graphical representation of the mishap. (Requirement 44317)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.07.1.k	44318	GENERAL INFORMATION: Investigation Products for each Classification Level/Type of Investigation: The investigating authority shall conduct an investigation and include the following products in the mishap report according to the requirements listed in Figure 5: Description explaining why the mishap/close call occurred including all finding(s) such as proximate cause(s), root cause(s), contributing factor(s), failed barrier(s), observation(s), and the evidence upon which the findings are based. (Requirement 44318)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.07.1.L	44319	GENERAL INFORMATION: Investigation Products for each Classification Level/Type of Investigation: The investigating authority shall conduct an investigation and include the following products in the mishap report according to the requirements listed in Figure 5: Conclusions and recommendations. (Requirement 44319)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.07.1.m	44320	GENERAL INFORMATION: Investigation Products for each Classification Level/Type of Investigation: The investigating authority shall conduct an investigation and include the following products in the mishap report according to the requirements listed in Figure 5: Minority report, if there is one. (Requirement 44320)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154

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NPR 8621.1B	1.07.2	44321	GENERAL INFORMATION: Investigation Products for each Classification Level/Type of Investigation: For close calls, where the potential for a Type A mishap or Type B mishap is significant, the Center Safety and Mission Assurance (SMA) director may consider application of a MIB or MIT investigation and their associated products. Serious workplace hazards previously unidentified and discovered as a result of inspections, audits, surveys, or concerns shall be investigated in the same manner as close calls. (Requirement 44321)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.07.4	44324	GENERAL INFORMATION: Investigation Products for each Classification Level/Type of Investigation: The CD or AA/OIA shall elevate the level of investigation and required products of any mishap or close call upon the request of a higher authority, such as the Administrator, an Associate or Assistant Administrator, or upon his/her discretion. (Requirement 44324)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.08.1(1)	44326	GENERAL INFORMATION: Recording Requirements: Within 24 hours, the Center safety office shall ensure that all NASA mishaps and close calls are recorded in IRIS and include the following information: Center submitting report; author of report; author's phone number and mail code; date report submitted; time report submitted; incident date; incident time; incident general location; exact location (if known); responsible organization; organization's point of contact; point of contact's phone number and mail code; mission affected; program impact (if known); number and type of injuries or fatalities (if known); type of damage to equipment, flight hardware, flight software, or facilities; estimate of direct cost of damage; and a brief description of the mishap or close call. (Requirement 44326)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.08.2	44328	GENERAL INFORMATION: Recording Requirements: For mishaps or close calls involving injury, the occupational health representative or other medical person shall provide the appropriate medical information regarding the person(s) injured and the nature of the injury(s) to the Center safety office for inclusion in IRIS. (Requirement 44328)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.08.3	44329	GENERAL INFORMATION: Recording Requirements: The Center safety office shall record mishaps involving injury or illness to NASA civil service employees on the OSHA 300 Log as required by 29 CFR Part 1904.7. (Requirement 44329)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.08.4	44330	GENERAL INFORMATION: Recording Requirements: The Center safety office shall ensure that the information recorded in IRIS is updated as new information becomes available and, at a minimum, verify information is up to date once every 30 days until the investigation is complete and the corrective actions are complete. (Requirement 44330)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.09.1	44332	GENERAL INFORMATION: Collateral Investigations: The NASA investigating authority performing the safety investigation per this NPR shall have primacy over other Agency collateral investigations, with the exception of OIG criminal investigations. (Requirement 44332)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.09.2	44333	GENERAL INFORMATION: Collateral Investigations: The investigating authority shall not distribute witness statements, notes, or transcripts of witness testimony taken during interviews, or medical records to the collateral investigation board or any other Agency, unless ordered in a court of law. (Requirement 44333)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.09.5	44337	GENERAL INFORMATION: Collateral Investigations: Members of the investigating authority shall not participate in both collateral investigations or contractor and safety investigations for the same mishap or at the same time. (Requirement 44337)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.10.1	44339	GENERAL INFORMATION: Investigations by Outside Authorities: NASA shall support investigations of NASA mishaps by other Federal agencies authorized to investigate NASA mishaps. (Requirement 44339)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.10.2	44340	GENERAL INFORMATION: Investigations by Outside Authorities: NASA shall support investigations of mishaps experienced by other Federal agencies, foreign participants, and private industry in accordance with agreements. (Requirement 44340)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	1.10.5.1	44348	GENERAL INFORMATION: Investigations by Outside Authorities: A contractor onsite injury or illness that is classified as a Type C mishap, Type D mishap, or Close Call may be investigated by the contractor per their contract. The mishap report must be delivered to NASA, and NASA has the option of completing the endorsement process. (Requirement 44348)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	2.1.1.a	44358	READINESS TO CONDUCT INVESTIGATIONS: Headquarters Operations and Center Mishap Preparedness and Contingency Plan: The AA/OIA and each CD shall develop a Center Mishap Preparedness and Contingency Plan that describes the following: The local mishap and close call notification, reporting, investigating, recording, and prevention policies and procedures. (Requirement 44358)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	2.1.1.b	44359	READINESS TO CONDUCT INVESTIGATIONS: Headquarters Operations and Center Mishap Preparedness and Contingency Plan: The AA/OIA and each CD shall develop a Center Mishap Preparedness and Contingency Plan that describes the following: The relationship between the emergency preparedness plan, the Center Mishap Preparedness and Contingency Plan, and Program Mishap Preparedness and Contingency Plans and which plan takes precedence given specific conditions. (Requirement 44359)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	2.1.1.c	44360	READINESS TO CONDUCT INVESTIGATIONS: Headquarters Operations and Center Mishap Preparedness and Contingency Plan: The AA/OIA and each CD shall develop a Center Mishap Preparedness and Contingency Plan that describes the following: Management responsibilities for establishing mishap investigations. (Requirement 44360)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154

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NPR 8621.1B	2.1.1.d	44361	READINESS TO CONDUCT INVESTIGATIONS: Headquarters Operations and Center Mishap Preparedness and Contingency Plan: The AA/OIA and each CD shall develop a Center Mishap Preparedness and Contingency Plan that describes the following: Procedures to appoint an IRT for those mishaps and close calls that are not covered by a program/project Mishap Preparedness and Contingency Plan (i.e., facility mishaps and close calls) (Requirement 44361)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	2.1.1.e	44362	READINESS TO CONDUCT INVESTIGATIONS: Headquarters Operations and Center Mishap Preparedness and Contingency Plan: The AA/OIA and each CD shall develop a Center Mishap Preparedness and Contingency Plan that describes the following: Procedures to appoint a MIT or MI for Type C mishaps, Type D mishaps, and close calls that occur at the Center or involve programs/projects/activities managed by the Center. (Requirement 44362)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	2.1.1.f	44363	READINESS TO CONDUCT INVESTIGATIONS: Headquarters Operations and Center Mishap Preparedness and Contingency Plan: The AA/OIA and each CD shall develop a Center Mishap Preparedness and Contingency Plan that describes the following: Roles and responsibilities of the incident commander (or the location in the emergency preparedness plan where these can be found) (Requirement 44363)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	2.1.1.g	44364	READINESS TO CONDUCT INVESTIGATIONS: Headquarters Operations and Center Mishap Preparedness and Contingency Plan: The AA/OIA and each CD shall develop a Center Mishap Preparedness and Contingency Plan that describes the following: Procedures to impound appropriate records and equipment that may be involved in the mishap to prevent unauthorized use or modification. (Requirement 44364)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	2.1.1.h	44365	READINESS TO CONDUCT INVESTIGATIONS: Headquarters Operations and Center Mishap Preparedness and Contingency Plan: The AA/OIA and each CD shall develop a Center Mishap Preparedness and Contingency Plan that describes the following: List of responsible organizations, along with Center safety office personnel, that shall take immediate action to safeguard (or impound) appropriate records, equipment, and facilities and secure the mishap site. (Requirement 44365)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	2.1.1.i	44366	READINESS TO CONDUCT INVESTIGATIONS: Headquarters Operations and Center Mishap Preparedness and Contingency Plan: The AA/OIA and each CD shall develop a Center Mishap Preparedness and Contingency Plan that describes the following: Identification of the location or space where impounded data, records, and equipment shall be stored and secured during an investigation. (Requirement 44366)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	2.1.1.j	44367	READINESS TO CONDUCT INVESTIGATIONS: Headquarters Operations and Center Mishap Preparedness and Contingency Plan: The AA/OIA and each CD shall develop a Center Mishap Preparedness and Contingency Plan that describes the following: Procedures for release of impounded data, records, equipment, facilities, and the mishap site. (Requirement 44367)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	2.1.1.k	44368	READINESS TO CONDUCT INVESTIGATIONS: Headquarters Operations and Center Mishap Preparedness and Contingency Plan: The AA/OIA and each CD shall develop a Center Mishap Preparedness and Contingency Plan that describes the following: Mishap report approval process for Type C mishaps, Type D mishaps and close calls that occur at the Center or involve programs/projects/activities managed by the Center. (Requirement 44368)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	2.1.1.L	44369	READINESS TO CONDUCT INVESTIGATIONS: Headquarters Operations and Center Mishap Preparedness and Contingency Plan: The AA/OIA and each CD shall develop a Center Mishap Preparedness and Contingency Plan that describes the following: List of potential contractor support and onsite experts that can facilitate the immediate acquisition or purchase of products needed by the investigation board or team (e.g., high resolution cameras, recording devices, software, and others) (Requirement 44369)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	2.1.1.n	44371	READINESS TO CONDUCT INVESTIGATIONS: Headquarters Operations and Center Mishap Preparedness and Contingency Plan: The AA/OIA and each CD shall develop a Center Mishap Preparedness and Contingency Plan that describes the following: The information technology plan to provide computer data retrieval and data archive support to the investigating authority. (Requirement 44371)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	2.1.1.o	44372	READINESS TO CONDUCT INVESTIGATIONS: Headquarters Operations and Center Mishap Preparedness and Contingency Plan: The AA/OIA and each CD shall develop a Center Mishap Preparedness and Contingency Plan that describes the following: Requisite security clearances, if any, for investigating authority members, chair, and ex officio. (Requirement 44372)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	2.1.1.p(1)	44373	READINESS TO CONDUCT INVESTIGATIONS: Headquarters Operations and Center Mishap Preparedness and Contingency Plan: The AA/OIA and each CD shall develop a Center Mishap Preparedness and Contingency Plan that describes the following: Description of the ?chain of custody process? that will be used to secure and safeguard personnel effects and sensitive information related to injured or deceased individuals. (Requirement 44373)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	2.1.1.q(1)	44375	READINESS TO CONDUCT INVESTIGATIONS: Headquarters Operations and Center Mishap Preparedness and Contingency Plan: The AA/OIA and each CD shall develop a Center Mishap Preparedness and Contingency Plan that describes the following: The expiration date. (Requirement 44375)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154

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NPR 8621.1B	2.2.1.b	44380	READINESS TO CONDUCT INVESTIGATIONS: Program and Project Mishap Preparedness and Contingency Plans: The program/project manager shall concur in a Program/Project Mishap Preparedness and Contingency Plan that: Is consistent with the Centers' Mishap Preparedness and Contingency Plans, for all Centers in which the program operates. (Requirement 44380)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	2.2.1.c	44381	READINESS TO CONDUCT INVESTIGATIONS: Program and Project Mishap Preparedness and Contingency Plans: The program/project manager shall concur in a Program/Project Mishap Preparedness and Contingency Plan that: Covers any information and procedures required specifically by the program that are not covered in the Centers' Mishap Preparedness and Contingency Plans (i.e., special procedures for safing, handling, or containing hazardous chemicals present in the program's/project's hardware). (Requirement 44381)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	2.2.1.d	44382	READINESS TO CONDUCT INVESTIGATIONS: Program and Project Mishap Preparedness and Contingency Plans: The program/project manager shall concur in a Program/Project Mishap Preparedness and Contingency Plan that: Describes the procedures to comply with NPR 8621.1 notification, reporting, investigating, and recording requirements for all program/project activities not located at a Center or managed by a Center (e.g., program/project activities managed by Headquarters and located at a University, contractor site, or other off-Center location). (Requirement 44382)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	2.2.1.e	44383	READINESS TO CONDUCT INVESTIGATIONS: Program and Project Mishap Preparedness and Contingency Plans: The program/project manager shall concur in a Program/Project Mishap Preparedness and Contingency Plan that: Describes the training requirements and the IRT's membership for mishaps and close calls that occur offsite, at offsite program/project (as defined by NPR 7120.5) contractor sites, or in flight. (Requirement 44383)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	2.2.1.f	44384	READINESS TO CONDUCT INVESTIGATIONS: Program and Project Mishap Preparedness and Contingency Plans: The program/project manager shall concur in a Program/Project Mishap Preparedness and Contingency Plan that: Describes any special procedures for the emergency response personnel, the IRT, and the incident commander that are not covered in the Center Mishap Preparedness and Contingency Plan or the emergency response plan (e.g., identification and handling of hazardous commodities specific to the program). (Requirement 44384)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	2.2.1.g	44385	READINESS TO CONDUCT INVESTIGATIONS: Program and Project Mishap Preparedness and Contingency Plans: The program/project manager shall concur in a Program/Project Mishap Preparedness and Contingency Plan that: Describes the procedures to impound data, records, equipment, facilities, and property not located at a NASA facility. (Requirement 44385)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	2.2.1.h	44386	READINESS TO CONDUCT INVESTIGATIONS: Program and Project Mishap Preparedness and Contingency Plans: The program/project manager shall concur in a Program/Project Mishap Preparedness and Contingency Plan that: Identifies existing memoranda of agreement with national, state, and local organizations and agencies that may be utilized during a mishap investigation. (Requirement 44386)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	2.2.1.i	44387	READINESS TO CONDUCT INVESTIGATIONS: Program and Project Mishap Preparedness and Contingency Plans: The program/project manager shall concur in a Program/Project Mishap Preparedness and Contingency Plan that: Describes how offsite debris shall be collected, transported, and stored. (Requirement 44387)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	2.2.1.j	44388	READINESS TO CONDUCT INVESTIGATIONS: Program and Project Mishap Preparedness and Contingency Plans: The program/project manager shall concur in a Program/Project Mishap Preparedness and Contingency Plan that: Describes the investigation and debris collection process required for any mishap or close call occurring in a foreign country. (Requirement 44388)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	2.2.1.k	44389	READINESS TO CONDUCT INVESTIGATIONS: Program and Project Mishap Preparedness and Contingency Plans: The program/project manager shall concur in a Program/Project Mishap Preparedness and Contingency Plan that: Requires that, for NASA-investigated mishaps, NASA personnel shall perform and control the impounding process. (Requirement 44389)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	2.2.1.L(1)	44390	READINESS TO CONDUCT INVESTIGATIONS: Program and Project Mishap Preparedness and Contingency Plans: The program/project manager shall concur in a Program/Project Mishap Preparedness and Contingency Plan that: Lists the personnel who will assist in performing the procedures to impound data, records, equipment, facilities, and other property. (Requirement 44390)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	2.2.1.m	44392	READINESS TO CONDUCT INVESTIGATIONS: Program and Project Mishap Preparedness and Contingency Plans: The program/project manager shall concur in a Program/Project Mishap Preparedness and Contingency Plan that: Identifies the national, state, and local (and, where applicable, international) organizations and agencies which are most likely to take part in debris collection; identifies the roles and responsibilities of each organization; and identifies a point of contact. (Requirement 44392)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	2.2.1.n	44393	READINESS TO CONDUCT INVESTIGATIONS: Program and Project Mishap Preparedness and Contingency Plans: The program/project manager shall concur in a Program/Project Mishap Preparedness and Contingency Plan that: Addresses the responsibilities and procedures for mishap investigation in the bilateral or multilateral agreements when the program involves international partners, program managers, and project managers. (Requirement 44393)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154

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NPR 8621.1B	2.2.1.o	44394	READINESS TO CONDUCT INVESTIGATIONS: Program and Project Mishap Preparedness and Contingency Plans: The program/project manager shall concur in a Program/Project Mishap Preparedness and Contingency Plan that: Describes the resources that may be needed from other government agencies (e.g., Federal Emergency Management Agency, NTSB, DoD, Department of Justice) during a Type A mishap or Type B mishap investigation; identifies the point of contact and contact information for each of these Agencies; describes the procedures to acquire their assistance; and identifies the potential roles and responsibilities of each Agency. (Requirement 44394)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	2.2.1.p	44395	READINESS TO CONDUCT INVESTIGATIONS: Program and Project Mishap Preparedness and Contingency Plans: The program/project manager shall concur in a Program/Project Mishap Preparedness and Contingency Plan that: Includes a list of information such as databases, Web sites, documentation (including hardware history), drawings, basic system operation, and procedures that may be scrutinized in a Type A mishap involving loss of a vehicle and/or major facility damage and frequently updates this information so that it is easily deliverable to a mishap investigation board, and includes points of contact for the information. (Requirement 44395)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	2.2.1.q	44396	READINESS TO CONDUCT INVESTIGATIONS: Program and Project Mishap Preparedness and Contingency Plans: The program/project manager shall concur in a Program/Project Mishap Preparedness and Contingency Plan that: Describes the information technology plan to provide computer data retrieval and data archive support to the investigating authority. (Requirement 44396)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	2.2.1.r	44397	READINESS TO CONDUCT INVESTIGATIONS: Program and Project Mishap Preparedness and Contingency Plans: The program/project manager shall concur in a Program/Project Mishap Preparedness and Contingency Plan that: Describes the requisite security clearances, if any, for investigating authority members, chair, and ex officio participating in program/project investigations. (Requirement 44397)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	2.2.1.s(1)	44398	READINESS TO CONDUCT INVESTIGATIONS: Program and Project Mishap Preparedness and Contingency Plans: The program/project manager shall concur in a Program/Project Mishap Preparedness and Contingency Plan that: Describes the ?chain of custody process? that will be used to secure and safeguard personal effects and sensitive information related to injured or deceased individuals. (Requirement 44398)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	2.2.1.t	44400	READINESS TO CONDUCT INVESTIGATIONS: Program and Project Mishap Preparedness and Contingency Plans: The program/project manager shall concur in a Program/Project Mishap Preparedness and Contingency Plan that: Names of key personnel from the Agency Public Affairs Office and Office of External Relations (OER) that should be notified for all Type A and Type B mishaps. (Requirement 44400)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	2.2.1.u(1)	44401	READINESS TO CONDUCT INVESTIGATIONS: Program and Project Mishap Preparedness and Contingency Plans: The program/project manager shall concur in a Program/Project Mishap Preparedness and Contingency Plan that: States the expiration date. (Requirement 44401)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	2.2.2	44403	READINESS TO CONDUCT INVESTIGATIONS: Program and Project Mishap Preparedness and Contingency Plans: The program/project manager shall have the appropriate NASA Offices, at a minimum, General Counsel, OPA, OER, OSMA, and Centers (all Centers at which the program/project has activities) review and comment on the Mishap Preparedness and Contingency Plan prior to its approval. (Requirement 44403)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	2.2.5	44406	READINESS TO CONDUCT INVESTIGATIONS: Program and Project Mishap Preparedness and Contingency Plans: The program or project (as defined per NPR 7120.5) Safety and Mission Assurance representative shall review and approve the Mishap Preparedness and Contingency Plan, verifying that it has the content required per this NPR (NPR 8621.1), prior to submittal for signature. (Requirement 44406)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	2.3.1(1)	44408	READINESS TO CONDUCT INVESTIGATIONS: Mishap Preparedness and Contingency Plan Practice: The Program and Center Mishap Preparedness and Contingency Plans, including emergency response where appropriate, shall be practiced during contingency simulations that occur prior to a major test, launch, or space activity. (Requirement 44408)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	2.5.1	44417	READINESS TO CONDUCT INVESTIGATIONS: Contract Clauses: Contracting officers shall include appropriate mishap and close call notification, reporting, recording, and investigation procedures in NASA contracts. (Requirement 44417)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	2.5.2	44418	READINESS TO CONDUCT INVESTIGATIONS: Contract Clauses: The Center safety office shall involve itself in acquisition strategy meetings per NFS Part 1807, Acquisition Planning, to assure that the appropriate mishap and close call reporting, investigating, and evaluation criteria are incorporated into contracts. (Requirement 44418)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	2.6.1.a(1)	44421	READINESS TO CONDUCT INVESTIGATIONS: Training: The Chief/OSMA with the support of the Center safety office shall provide the necessary training to ensure that at least one member of each investigating authority and the ex officio has, at a minimum, the following: Knowledge of the NASA mishap investigation policy and process as demonstrated via test. (Requirement 44421)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154

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NPR 8621.1B	2.6.1.b	44423	READINESS TO CONDUCT INVESTIGATIONS: Training: The Chief/OSMA with the support of the Center safety office shall provide the necessary training to ensure that at least one member of each investigating authority and the ex officio has, at a minimum, the following: Knowledge and skills to secure the site; preserve the mishap scene; interview witnesses; collect and impound data, records, equipment and facilities; create time lines; document facts; generate fault trees; perform barrier analysis; perform change analysis; create event and causal factor trees; obtain forensic analysis; integrate evidence; draw conclusions; generate recommendations; and generate mishap reports. (Requirement 44423)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	2.6.2.a	44425	READINESS TO CONDUCT INVESTIGATIONS: Training: The Chief/OSMA, with the support of the Center safety office, shall provide the necessary training to ensure that the human factors mishap investigator has the following: At a minimum, knowledge (as demonstrated via test or on-the-job training) of the method to identify unsafe acts and errors, identify types of errors, identify causal and contributing factors for errors, identify performance shaping factors, interview witnesses, analyze data, create timelines, perform fault tree analysis, perform barrier analysis, create event and causal factor trees, draw conclusions, and generate recommendations that will reduce human error or mitigate the negative consequence of human actions. (Requirement 44425)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	2.6.2.b	44426	READINESS TO CONDUCT INVESTIGATIONS: Training: The Chief/OSMA, with the support of the Center safety office, shall provide the necessary training to ensure that the human factors mishap investigator has the following: Basic knowledge of physical and psychological processes, capabilities, skill levels, and limitations of humans, such as the science and practical application of cognitive psychology, human reliability, anthropometrics, biomechanics, and human factors engineering applications to design. (Requirement 44426)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	2.6.3	44427	READINESS TO CONDUCT INVESTIGATIONS: Training: The Center safety office shall develop and maintain NASA mishap investigation introductory training (onsite orientation training) that can be provided to the investigating authority and advisors upon their assignment to the investigation. (Requirement 44427)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	2.6.3.a	44428	READINESS TO CONDUCT INVESTIGATIONS: Training: The Center safety office shall develop and maintain NASA mishap investigation introductory training (onsite orientation training) that can be provided to the investigating authority and advisors upon their assignment to the investigation: The NASA mishap investigation introductory training shall include (at a minimum) a brief familiarization of the investigating authority's roles and responsibilities, NASA policy and procedures, and a description of root cause analysis. (Requirement 44428)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	2.7	44429	READINESS TO CONDUCT INVESTIGATIONS: Tools: The Chief/OSMA supported by the Center safety offices shall identify candidate mishap investigation tools that can be implemented quickly and maintain a tool repository that makes these tools readily available to investigating authorities. (Requirement 44429)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	3.01.1	44432	INITIAL RESPONSE TO A MISHAP OR CLOSE CALL: Safe the Mishap Site and Initiate Mishap Preparedness and Contingency Plan(s): After the initial notifications are made, the supervisor shall provide any necessary assistance to safe the mishap site until the emergency response and/or personnel from the Center safety office arrive. (Requirement 44432)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	3.01.2	44433	INITIAL RESPONSE TO A MISHAP OR CLOSE CALL: Safe the Mishap Site and Initiate Mishap Preparedness and Contingency Plan(s): Upon notification of a mishap, the Center safety office shall initiate the Center Mishap Preparedness and Contingency Plan. (Requirement 44433)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	3.01.4	44435	INITIAL RESPONSE TO A MISHAP OR CLOSE CALL: Safe the Mishap Site and Initiate Mishap Preparedness and Contingency Plan(s): In accordance with the Center Mishap Preparedness and Contingency Plan, the incident commander, with support from the responsible organization, IRT, Center safety office, Center security office, emergency response personnel, and supervisor, shall take immediate action to prevent further injury to personnel and/or damage to any property and secure the site. (Requirement 44435)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	3.01.5	44436	INITIAL RESPONSE TO A MISHAP OR CLOSE CALL: Safe the Mishap Site and Initiate Mishap Preparedness and Contingency Plan(s): The incident commander and emergency response personnel shall have the authority to take action to mitigate dangerous conditions, direct emergency response actions, and/or clean up a hazardous materials release. (Requirement 44436)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	3.01.6	44437	INITIAL RESPONSE TO A MISHAP OR CLOSE CALL: Safe the Mishap Site and Initiate Mishap Preparedness and Contingency Plan(s): The Center safety office and incident commander shall ensure protection of personnel from residual hazardous material prior to entry into the mishap site. (Requirement 44437)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	3.01.7	44438	INITIAL RESPONSE TO A MISHAP OR CLOSE CALL: Safe the Mishap Site and Initiate Mishap Preparedness and Contingency Plan(s): The Center safety office and/or incident commander shall stipulate the type of personal protective equipment (PPE) required. (Requirement 44438)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154

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NPR 8621.1B	3.01.8	44439	INITIAL RESPONSE TO A MISHAP OR CLOSE CALL: Safe the Mishap Site and Initiate Mishap Preparedness and Contingency Plan(s): Every professional supporting the investigation, including the IRT and investigating authority, shall adhere to the PPE requirements as defined by the Center safety office personnel or incident commander. (Requirement 44439)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	3.02	44440	INITIAL RESPONSE TO A MISHAP OR CLOSE CALL: Notify Headquarters Office of Safety and Mission Assurance Within 1 Hour of Type A Mishap, Type B Mishap, High-Visibility Mishap, or High-Visibility Close Call: After emergency response has been initiated, within 1 hour of the occurrence of a Type A mishap, Type B mishap, high-visibility mishap, or high-visibility close call, the Center safety office shall notify Headquarters as described in paragraph 1.5.3 and NPR 7100.1, paragraph 11.4.1 (Per NPR 7100.1, paragraph 11.4.1, this includes immediately reporting a human test subject injury or fatality that resulted in a loss of life, a permanent disability, hospitalization, extensive first aid, or lost workday(s)). (Requirement 44440)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	3.03	44441	INITIAL RESPONSE TO A MISHAP OR CLOSE CALL: Deploy IRT: In accordance with the Center or program/project Mishap Preparedness and Contingency Plan, the Center safety office or other designee shall deploy the IRT to initiate and support the investigation until a determination can be made as to the need for, and selection of, an investigating authority. (Requirement 44441)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	3.04	44442	INITIAL RESPONSE TO A MISHAP OR CLOSE CALL: Notify Personnel and the Public of Potential Hazards: The AA/OPA (or designee), with the assistance of the Center safety office, IRT, and CD or AA/OIA shall immediately release information to the press and media to alert Center personnel and the public of any known hazards and their potential effects and provide instructions that will mitigate the risk and harm. (Requirement 44442)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	3.05.1	44444	INITIAL RESPONSE TO A MISHAP OR CLOSE CALL: Secure the Site and Preserve Evidence: The incident commander, with support from the responsible organization, IRT, Center safety office, Center security office, emergency response personnel, and supervisor, shall take immediate action to prevent further injury to personnel and/or damage to any property, secure the site, limit unnecessary access, and preserve evidence. (Requirement 44444)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	3.05.2	44445	INITIAL RESPONSE TO A MISHAP OR CLOSE CALL: Secure the Site and Preserve Evidence: Evidence preservation actions shall not hamper essential rescue operations. (Requirement 44445)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	3.06.1	44448	INITIAL RESPONSE TO A MISHAP OR CLOSE CALL: Impound Data: The Center safety office, with the support of the IRT, Center security office personnel, and supervisor, shall impound all appropriate data, records, equipment, and facilities that may be involved in the mishap to prevent their unauthorized use or modification. (Requirement 44448)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	3.06.2	44449	INITIAL RESPONSE TO A MISHAP OR CLOSE CALL: Impound Data: The Center safety office shall control access to all impounded items until they are released by the investigating authority per the procedures in the Center Mishap Preparedness and Contingency Plan. (Requirement 44449)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	3.06.4	44451	INITIAL RESPONSE TO A MISHAP OR CLOSE CALL: Impound Data: For NASA mishaps occurring on international programs and/or involving program participants, autopsies shall be conducted in accordance with the bilateral/multilateral agreements. (Requirement 44451)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	3.06.5	44452	INITIAL RESPONSE TO A MISHAP OR CLOSE CALL: Impound Data: For NASA mishaps occurring on international programs and/or involving international program participants, data, records, equipment, and facilities shall be impounded in accordance with the bilateral/multilateral agreements. (Requirement 44452)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	3.07	44453	INITIAL RESPONSE TO A MISHAP OR CLOSE CALL: Initiate Drug Testing: If the mishap results in a fatality or personal injury requiring immediate hospitalization, or in damage estimated to be in excess of $10,000 to government or private property, the supervisor shall initiate post-accident/unsafe practice testing per NPR 3792.1, NASA Plan for a Drug-Free Workplace. (Requirement 44453)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	3.08.a(1)	44455	INITIAL RESPONSE TO A MISHAP OR CLOSE CALL: Collect Witness Statements: All written witness statements obtained within the first 24 hours of the occurrence of a mishap or close call shall be considered privileged and protected. (Requirement 44455)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	3.08.b	44457	INITIAL RESPONSE TO A MISHAP OR CLOSE CALL: Collect Witness Statements: All verbal witness statements and written statements given after 24 hours as part of a NASA mishap investigation, where the witness was explicitly informed that his/her account will not be released, shall be considered privileged and protected. (Requirement 44457)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	3.08.c(1)	44458	INITIAL RESPONSE TO A MISHAP OR CLOSE CALL: Collect Witness Statements: When privilege has been granted by the IRT, Center safety office, or investigating authority, NASA shall make every effort to keep witness testimony (both written and verbal) confidential and privileged to the greatest extent permitted by law. (Requirement 44458)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	3.08.d(1)	44460	INITIAL RESPONSE TO A MISHAP OR CLOSE CALL: Collect Witness Statements: The witness shall not be given a copy of the privileged written statement or transcripts of verbal witness statements given in the course of a NASA mishap investigation. (Requirement 44460)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154

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NPR 8621.1B	3.08.e	44462	INITIAL RESPONSE TO A MISHAP OR CLOSE CALL: Collect Witness Statements: The Center safety office, with the support of the IRT, shall either request initial written statements from all persons who were involved in or witness to the mishap or document verbal accounts from such persons. (Requirement 44462)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	3.08.f(1)	44463	INITIAL RESPONSE TO A MISHAP OR CLOSE CALL: Collect Witness Statements: Before a verbal witness statement is taken or an interview begins, the IRT, Center safety office, or investigating authority shall tell the witness whether the information gathered during the interview is confidential and privileged or not confidential and not privileged. (Requirement 44463)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	3.08.g	44465	INITIAL RESPONSE TO A MISHAP OR CLOSE CALL: Collect Witness Statements: When conducting privileged witness interviews, the NASA investigating authority shall only have Federal employees present at the interview (with the exception of the interviewee), unless a contractor has been hired specifically to support interviews or provide technical guidance to the Board during the interviews and has signed a nondisclosure agreement prepared by General Counsel prior to participating in the interviews. (Requirement 44465)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	3.08.h(1)	44466	INITIAL RESPONSE TO A MISHAP OR CLOSE CALL: Collect Witness Statements: When it is expected that an external investigating body will be the sole mishap investigation authority (e.g., for catastrophic vehicle failure such as Space Shuttle or International Space Station loss, or airplane loss), NASA shall not grant privilege to witnesses for either written witness statements or verbal witness statements, even when those statements are taken within the first 24 hours after the mishap. (Requirement 44466)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	3.08.i.1	44469	INITIAL RESPONSE TO A MISHAP OR CLOSE CALL: Collect Witness Statements: When the IRT, Center safety office, or investigating authority decides to take a verbal statement or interview a witness and keep that witness interview confidential, the interviewer shall read the statement in Figure 6 of this NPR and inform the witness that: The oral statement (taken during interview) and/or written statement will be retained as part of the investigation report background files but will not be released as part of the mishap report. (Requirement 44469)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	3.08.i.2	44470	INITIAL RESPONSE TO A MISHAP OR CLOSE CALL: Collect Witness Statements: When the IRT, Center safety office, or investigating authority decides to take a verbal statement or interview a witness and keep that witness interview confidential, the interviewer shall read the statement in Figure 6 of this NPR and inform the witness that: NASA will make every effort to keep the testimony privileged to the greatest extent permitted by law. (Requirement 44470)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	3.09.1.1	44473	INITIAL RESPONSE TO A MISHAP OR CLOSE CALL: Coordinate Release of Information: Release of Information Concerning Casualties and Extensive Property Damage: The NASA Headquarters OPA must approve the release of all information related to NASA Type A mishaps and Type B mishaps, prior to its release to the press or public. (Requirement 44473)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	3.09.1.2	44474	INITIAL RESPONSE TO A MISHAP OR CLOSE CALL: Coordinate Release of Information: Release of Information Concerning Casualties and Extensive Property Damage: The CD or AA/OIA shall coordinate release of all information to the press and the public via the Center PAO. (Requirement 44474)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	3.09.1.3	44475	INITIAL RESPONSE TO A MISHAP OR CLOSE CALL: Coordinate Release of Information: Release of Information Concerning Casualties and Extensive Property Damage: The Center PAO shall, as appropriate, disseminate any preliminary information, video, and imagery to the public relating to the mishap. (Requirement 44475)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	3.09.2.1	44477	INITIAL RESPONSE TO A MISHAP OR CLOSE CALL: Coordinate Release of Information: Release of Information Concerning NASA-Owned Property Damage on Other Than Government-Owned Facilities, Overseas Tracking Stations, and Contractor-Owned Plants: When a mishap involving extensive damage to, or destruction of, NASA property occurs at other than government-owned facilities, overseas tracking stations, or contractor-owned plants, the contractor, tracking station manager, base commander, or other authority shall inform their point of contact at NASA. (Requirement 44477)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	3.09.2.2	44478	INITIAL RESPONSE TO A MISHAP OR CLOSE CALL: Coordinate Release of Information: Release of Information Concerning NASA-Owned Property Damage on Other Than Government-Owned Facilities, Overseas Tracking Stations, and Contractor-Owned Plants: The Center safety office cognizant of the mishap shall confirm that the mishap occurred to the NASA-owned property on other than government-owned facilities. (Requirement 44478)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	3.09.3.1	44480	INITIAL RESPONSE TO A MISHAP OR CLOSE CALL: Coordinate Release of Information: Release of Information to the Press and Public Concerning Casualties: NASA Employee Casualties. When a NASA employee is killed or receives a permanent disability within the confines of a Center, the Center PAO shall promptly announce to the public that a mishap has taken place and injuries or fatalities have occurred. (Requirement 44480)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154

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NPR 8621.1B	3.09.3.1.a	44481	INITIAL RESPONSE TO A MISHAP OR CLOSE CALL: Coordinate Release of Information: Release of Information to the Press and Public Concerning Casualties: NASA Employee Casualties. When a NASA employee is killed or receives a permanent disability within the confines of a Center, the Center PAO shall promptly announce to the public that a mishap has taken place and injuries or fatalities have occurred: In the case of a fatality, the CD or AA/OIA or appropriate Headquarters Official-in-Charge, shall ensure that notification of the family has been made prior to release of the victim's name. (Requirement 44481)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	3.09.3.1.b	44482	INITIAL RESPONSE TO A MISHAP OR CLOSE CALL: Coordinate Release of Information: Release of Information to the Press and Public Concerning Casualties: NASA Employee Casualties. When a NASA employee is killed or receives a permanent disability within the confines of a Center, the Center PAO shall promptly announce to the public that a mishap has taken place and injuries or fatalities have occurred: All initial announcements shall include what is known at the time, including the injuries or fatalities that have occurred and when additional information is expected to be available. (Requirement 44482)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	3.09.3.1.c	44483	INITIAL RESPONSE TO A MISHAP OR CLOSE CALL: Coordinate Release of Information: Release of Information to the Press and Public Concerning Casualties: NASA Employee Casualties. When a NASA employee is killed or receives a permanent disability within the confines of a Center, the Center PAO shall promptly announce to the public that a mishap has taken place and injuries or fatalities have occurred: In the case of fatalities, release of the victim's name(s) shall be made as soon as possible after the notification of the next of kin. (Requirement 44483)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	3.09.3.2.a	44485	INITIAL RESPONSE TO A MISHAP OR CLOSE CALL: Coordinate Release of Information: Release of Information to the Press and Public Concerning Casualties: Military and Other Agency Personnel Casualties: The procedures for public announcements of mishaps involving military and other Federal personnel (including astronauts) detailed to NASA shall be the same as for NASA employees, with these additional requirements: The CD or AA/OIA shall inform the appropriate military service headquarters or other Federal agency of the mishap. (Requirement 44485)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	3.09.3.2.b	44486	INITIAL RESPONSE TO A MISHAP OR CLOSE CALL: Coordinate Release of Information: Release of Information to the Press and Public Concerning Casualties: Military and Other Agency Personnel Casualties: The procedures for public announcements of mishaps involving military and other Federal personnel (including astronauts) detailed to NASA shall be the same as for NASA employees, with these additional requirements: The CD or AA/OIA shall inform the Center PAO that the military service organization or other Federal agency has been notified of the mishap. (Requirement 44486)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	3.09.3.2.c	44487	INITIAL RESPONSE TO A MISHAP OR CLOSE CALL: Coordinate Release of Information: Release of Information to the Press and Public Concerning Casualties: Military and Other Agency Personnel Casualties: The procedures for public announcements of mishaps involving military and other Federal personnel (including astronauts) detailed to NASA shall be the same as for NASA employees, with these additional requirements: When the Center is on a military base, release of a victim's name shall be made according to procedures previously agreed upon by the base commander and CD or AA/OIA. (Requirement 44487)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	3.09.3.3.a	44489	INITIAL RESPONSE TO A MISHAP OR CLOSE CALL: Coordinate Release of Information: Release of Information to the Press and Public Concerning Casualties: Contractor and Grantee Employee Casualties. NASA does not assume responsibility for the release of information concerning mishaps involving contractor or grantee employees, except as follows: When a Type A mishap or Type B mishap occurs on a Center or at Headquarters or involves a NASA-managed program managed by that Center, the CD or AA/OIA, in coordination with the Center PAO/Headquarters PAO, shall announce as soon as possible that a mishap has occurred, as well as the number of known fatalities and/or injured. (Requirement 44489)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	3.09.3.3.b	44490	INITIAL RESPONSE TO A MISHAP OR CLOSE CALL: Coordinate Release of Information: Release of Information to the Press and Public Concerning Casualties: Contractor and Grantee Employee Casualties. NASA does not assume responsibility for the release of information concerning mishaps involving contractor or grantee employees, except as follows: The CD or AA/OIA shall not announce the identity of contractor or grantee personnel involved. (Requirement 44490)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	3.09.3.3.c	44491	INITIAL RESPONSE TO A MISHAP OR CLOSE CALL: Coordinate Release of Information: Release of Information to the Press and Public Concerning Casualties: Contractor and Grantee Employee Casualties. NASA does not assume responsibility for the release of information concerning mishaps involving contractor or grantee employees, except as follows: When a mishap occurs at a contractor's/grantee's plant engaged in NASA work, NASA has no responsibility to release information concerning the mishap and shall not issue statements as to the cause and extent of injury or damage. (Requirement 44491)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154

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NPR 8621.1B	3.09.3.4	44492	INITIAL RESPONSE TO A MISHAP OR CLOSE CALL: Coordinate Release of Information: Release of Information to the Press and Public Concerning Casualties: Center Visitor Casualties. When a Type A mishap or Type B mishap occurs which involves visitors on a Center or at Headquarters, the CD or AA/OIA, in coordination with the Center PAO or Headquarters PAO, shall announce as soon as possible that a mishap occurred and the number of known fatalities and/or injured. (Requirement 44492)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	3.09.3.5	44493	INITIAL RESPONSE TO A MISHAP OR CLOSE CALL: Coordinate Release of Information: Release of Information to the Press and Public Concerning Casualties: Overseas Mishaps. When a Type A mishap or Type B mishap occurs overseas, for example, at a tracking station or during an overseas rocket or balloon campaign involving NASA personnel, the Official-in-Charge shall release mishap information through the U.S. consular office in accordance with policies and procedures established by that office. (Requirement 44493)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	3.09.3.5.a	44494	INITIAL RESPONSE TO A MISHAP OR CLOSE CALL: Coordinate Release of Information: Release of Information to the Press and Public Concerning Casualties: Overseas Mishaps. When a Type A mishap or Type B mishap occurs overseas, for example, at a tracking station or during an overseas rocket or balloon campaign involving NASA personnel, the Official-in-Charge shall release mishap information through the U.S. consular office in accordance with policies and procedures established by that office: If the program involves foreign participation, the release of information shall be coordinated with the foreign entities sponsoring and participating in the program. (Requirement 44494)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	3.09.3.5.b	44495	INITIAL RESPONSE TO A MISHAP OR CLOSE CALL: Coordinate Release of Information: Release of Information to the Press and Public Concerning Casualties: Overseas Mishaps. When a Type A mishap or Type B mishap occurs overseas, for example, at a tracking station or during an overseas rocket or balloon campaign involving NASA personnel, the Official-in-Charge shall release mishap information through the U.S. consular office in accordance with policies and procedures established by that office: The Official-in-Charge shall notify, by the most expeditious means, the Chief/OSMA and the appropriate MDAA that a mishap has occurred overseas. (Requirement 44495)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	3.09.3.5.c	44496	INITIAL RESPONSE TO A MISHAP OR CLOSE CALL: Coordinate Release of Information: Release of Information to the Press and Public Concerning Casualties: Overseas Mishaps. When a Type A mishap or Type B mishap occurs overseas, for example, at a tracking station or during an overseas rocket or balloon campaign involving NASA personnel, the Official-in-Charge shall release mishap information through the U.S. consular office in accordance with policies and procedures established by that office: The MDAA shall notify, by the most expeditious means, the AA that a mishap has occurred overseas. (Requirement 44496)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	3.10.1	44499	INITIAL RESPONSE TO A MISHAP OR CLOSE CALL: Notify OSHA: Within 8 hours of a work-related mishap involving death of a Federal employee, or the hospitalization for inpatient care of three or more employees (provided at least one is a Federal employee), the Center safety office shall notify OSHA per paragraph 1.5.4 of this NPR. (Requirement 44499)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	3.10.2	44500	INITIAL RESPONSE TO A MISHAP OR CLOSE CALL: Notify OSHA: OSHA notification is required for any fatality and for three or more hospitalizations for inpatient care that occur up to 30 workdays after the respective mishap. (Requirement 44500)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	3.11.1	44502	INITIAL RESPONSE TO A MISHAP OR CLOSE CALL: Record the Mishap: For Type A mishaps, Type B mishaps, high-visibility mishaps, and high-visibility close calls, the Center safety office shall send an electronic notification to OSMA/SARD containing information found in paragraph 1.5.3.2 of this NPR. (Requirement 44502)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	3.11.2(1)	44503	INITIAL RESPONSE TO A MISHAP OR CLOSE CALL: Record the Mishap: Within 24 hours, the Center safety office shall ensure that all NASA mishaps and close calls are recorded in IRIS in accordance with paragraph 1.8.1 of this NPR. (Requirement 44503)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	4.1.1	44507	SELECTING THE INVESTIGATING AUTHORITY AND SUPPORT: Determine the Appointing Official for Mishap and Close Call Investigation: The Chief/OSMA or the AA shall contact the Administrator within 1 hour of the initial notification of the Type A mishap to determine if the Administrator wishes to exercise appointment authority. (Requirement 44507)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	4.1.2	44508	SELECTING THE INVESTIGATING AUTHORITY AND SUPPORT: Determine the Appointing Official for Mishap and Close Call Investigation: Within 48 hours of a mishap or close call, the appointing official, as specified in Figure 5, shall appoint the investigating authority. (Requirement 44508)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	4.1.3	44509	SELECTING THE INVESTIGATING AUTHORITY AND SUPPORT: Determine the Appointing Official for Mishap and Close Call Investigation: The Administrator shall serve as appointing official for NASA joint participation on a MIB with the DoD and other agencies unless authority is delegated by existing agreements. (Requirement 44509)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	4.2.1	44511	SELECTING THE INVESTIGATING AUTHORITY AND SUPPORT: Select the Members of the Investigating Authority (MIB, MIT, or MI): The appointing official shall select the members of the investigating authority, the chairperson, the executive secretary (when needed), and the support staff. (Requirement 44511)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154

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NPR 8621.1B	4.2.2	44512	SELECTING THE INVESTIGATING AUTHORITY AND SUPPORT: Select the Members of the Investigating Authority (MIB, MIT, or MI): The MDAA shall request concurrence from the Chief/OSMA and the Chief Engineer on the proposed MIB membership for Type A mishaps, high-visibility mishaps, and high-visibility close calls in which he/she is the appointing official. (Requirement 44512)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	4.2.3	44513	SELECTING THE INVESTIGATING AUTHORITY AND SUPPORT: Select the Members of the Investigating Authority (MIB, MIT, or MI): For Type A mishaps and Type B mishaps, the investigating authority membership shall be determined with the advice of the Office of the General Counsel or the Office of the Chief Counsel, as appropriate. (Requirement 44513)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	4.2.4	44514	SELECTING THE INVESTIGATING AUTHORITY AND SUPPORT: Select the Members of the Investigating Authority (MIB, MIT, or MI): For Type A mishaps and Type B mishaps, high-visibility mishaps, and high-visibility close calls involving aircraft, the investigating authority membership shall be determined with the advice of the AMD. (Requirement 44514)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	4.2.5	44515	SELECTING THE INVESTIGATING AUTHORITY AND SUPPORT: Select the Members of the Investigating Authority (MIB, MIT, or MI): The Chief/OSMA shall concur with the selection of MIB membership for Type A mishaps, Type B mishaps, high-visibility mishaps, and high-visibility close calls. (Requirement 44515)	S	Y	Y	Safety			
NPR 8621.1B	4.2.6	44516	SELECTING THE INVESTIGATING AUTHORITY AND SUPPORT: Select the Members of the Investigating Authority (MIB, MIT, or MI): For Type C mishaps, Type D mishaps, and close calls, the CD or AA/OIA, or designee, shall seek advice concerning investigating authority membership from the Center safety office. (Requirement 44516)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	4.2.6.a	44517	SELECTING THE INVESTIGATING AUTHORITY AND SUPPORT: Select the Members of the Investigating Authority (MIB, MIT, or MI): For Type C mishaps, Type D mishaps, and close calls, the CD or AA/OIA, or designee, shall seek advice concerning investigating authority membership from the Center safety office: The MDAA [or designee] shall seek advice concerning investigating authority membership from OSMA/SARD for NASA Type C mishaps, Type D mishaps, and close calls that involve Mission Directorate programs/projects/activities where the mishaps or close calls have occurred outside the Center's gates and are not managed by a Center, program, or project. (Requirement 44517)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	4.2.7.a	44519	SELECTING THE INVESTIGATING AUTHORITY AND SUPPORT: Select the Members of the Investigating Authority (MIB, MIT, or MI): The appointing official shall use the following requirements to determine the composition of the investigating authority: All members of the investigating authority (including the chairperson) and the executive secretary must be Federal personnel. (Requirement 44519)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	4.2.7.b	44520	SELECTING THE INVESTIGATING AUTHORITY AND SUPPORT: Select the Members of the Investigating Authority (MIB, MIT, or MI): The appointing official shall use the following requirements to determine the composition of the investigating authority: The severity and complexity of the mishap to be investigated shall dictate the total number of members. (Requirement 44520)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	4.2.7.c	44521	SELECTING THE INVESTIGATING AUTHORITY AND SUPPORT: Select the Members of the Investigating Authority (MIB, MIT, or MI): The appointing official shall use the following requirements to determine the composition of the investigating authority: The investigating authority shall consist of an odd number of voting members (including the chairperson). (Requirement 44521)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	4.2.7.d(1)	44522	SELECTING THE INVESTIGATING AUTHORITY AND SUPPORT: Select the Members of the Investigating Authority (MIB, MIT, or MI): The appointing official shall use the following requirements to determine the composition of the investigating authority: The majority of the members of the investigating authority shall be independent from (have no responsibilities for) the operation or activity. (Requirement 44522)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	4.2.7.e	44524	SELECTING THE INVESTIGATING AUTHORITY AND SUPPORT: Select the Members of the Investigating Authority (MIB, MIT, or MI): The appointing official shall use the following requirements to determine the composition of the investigating authority: Members and the chairperson shall have the requisite security clearances as identified in the Center and/or program/project Mishap Preparedness and Contingency Plans. (Requirement 44524)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	4.2.7.f(1)	44525	SELECTING THE INVESTIGATING AUTHORITY AND SUPPORT: Select the Members of the Investigating Authority (MIB, MIT, or MI): The appointing official shall use the following requirements to determine the composition of the investigating authority: The chairperson for the investigating authority shall be independent of the program or facility that experienced the mishap or close call. (Requirement 44525)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	4.2.7.g	44527	SELECTING THE INVESTIGATING AUTHORITY AND SUPPORT: Select the Members of the Investigating Authority (MIB, MIT, or MI): The appointing official shall use the following requirements to determine the composition of the investigating authority: The members shall not be from the direct chain of authority responsible for day-to-day or line management oversight of the facility, area, or activity involved in the mishap or have a vested interest in the outcome of the investigation. (Requirement 44527)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154

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NPR 8621.1B	4.2.7.h	44528	SELECTING THE INVESTIGATING AUTHORITY AND SUPPORT: Select the Members of the Investigating Authority (MIB, MIT, or MI): The appointing official shall use the following requirements to determine the composition of the investigating authority: The MIB and MIT shall be composed of a chairperson, members, and an ex officio. (Requirement 44528)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	4.2.7.i	44529	SELECTING THE INVESTIGATING AUTHORITY AND SUPPORT: Select the Members of the Investigating Authority (MIB, MIT, or MI): The appointing official shall use the following requirements to determine the composition of the investigating authority: The MIB shall have at least five members for a Type A mishap and at least three members for a Type B mishap. (Requirement 44529)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	4.2.7.i.1	44530	SELECTING THE INVESTIGATING AUTHORITY AND SUPPORT: Select the Members of the Investigating Authority (MIB, MIT, or MI): The appointing official shall use the following requirements to determine the composition of the investigating authority: The MIB shall have at least five members for a Type A mishap and at least three members for a Type B mishap: The number of MIB members for high-visibility mishaps and high-visibility close calls shall be determined by the appointing official. (Requirement 44530)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	4.2.7.j(1)	44531	SELECTING THE INVESTIGATING AUTHORITY AND SUPPORT: Select the Members of the Investigating Authority (MIB, MIT, or MI): The appointing official shall use the following requirements to determine the composition of the investigating authority: For all Type A mishaps involving injury, illness, or fatality, the MIB shall include an occupational health physician as a member. (Requirement 44531)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	4.2.7.k(1)	44534	SELECTING THE INVESTIGATING AUTHORITY AND SUPPORT: Select the Members of the Investigating Authority (MIB, MIT, or MI): The appointing official shall use the following requirements to determine the composition of the investigating authority: For all Type A mishaps, Type B mishaps, high-visibility mishaps, and high-visibility close calls involving aircraft, the MIB shall have a member knowledgeable in aircraft operations, a member knowledgeable in aircraft maintenance, and a member knowledgeable in aviation safety. (Requirement 44534)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	4.2.7.L	44536	SELECTING THE INVESTIGATING AUTHORITY AND SUPPORT: Select the Members of the Investigating Authority (MIB, MIT, or MI): The appointing official shall use the following requirements to determine the composition of the investigating authority: The MIB and MIT shall include a safety officer and a human factors mishap investigator as members. (Requirement 44536)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	4.2.7.n	44538	SELECTING THE INVESTIGATING AUTHORITY AND SUPPORT: Select the Members of the Investigating Authority (MIB, MIT, or MI): The appointing official shall use the following requirements to determine the composition of the investigating authority: The investigating authority shall have at least one member that has completed all the NASA mishap investigation training listed in paragraph 2.6.1.a in the last 1 year and paragraph 2.6.1.b in the last three years. (Requiremen 44538)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	4.2.7.p	44540	SELECTING THE INVESTIGATING AUTHORITY AND SUPPORT: Select the Members of the Investigating Authority (MIB, MIT, or MI): The appointing official shall use the following requirements to determine the composition of the investigating authority: Members shall have sufficient experience and technical expertise to understand the technology and management interfaces related to the mishap. (Requirement 44540)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	4.2.7.r	44542	SELECTING THE INVESTIGATING AUTHORITY AND SUPPORT: Select the Members of the Investigating Authority (MIB, MIT, or MI): The appointing official shall use the following requirements to determine the composition of the investigating authority: For international programs, members shall be selected as described in bilateral/multilateral or international agreements. (Requirement 44542)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	4.3.1	44549	SELECTING THE INVESTIGATING AUTHORITY AND SUPPORT: Select the Ex Officio: For any mishap or close call, the Chief/OSMA may serve as the ex officio or appoint, at his/her discretion, the ex officio; otherwise that selection shall be made by the senior SMA official in the appointing official's organization. (Requirement 44549)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	4.3.2(1)	44550	SELECTING THE INVESTIGATING AUTHORITY AND SUPPORT: Select the Ex Officio: For Type C mishaps, Type D mishaps, and close call investigations, the ex officio shall be at a level consistent with the authority level of the MIT chair. (Requirement 44550)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	4.3.3	44552	SELECTING THE INVESTIGATING AUTHORITY AND SUPPORT: Select the Ex Officio: The ex officio shall be a Federal employee selected from personnel who have completed the NASA mishap investigation training or equivalent and have received refresher training in the last 3 years (if training was acquired more than 3 years ago) (Requirement 44552)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	4.3.5	44554	SELECTING THE INVESTIGATING AUTHORITY AND SUPPORT: Select the Ex Officio: Only one ex officio shall be appointed to an investigating authority. (Requirement 44554)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	4.4.1	44556	SELECTING THE INVESTIGATING AUTHORITY AND SUPPORT: Select Investigating Authority's Advisors: For all mishaps, the appointing official shall request that the appropriate mission support office appoint advisors to the investigating authority. (Requirement 44556)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	4.4.2	44557	SELECTING THE INVESTIGATING AUTHORITY AND SUPPORT: Select Investigating Authority's Advisors: For Type A, Type B, and Type C mishaps, the investigating authority shall have a legal advisor, a public affairs advisor, an import/export control advisor, and (where appropriate) an external relations advisor. (Requirement 44557)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154

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NPR 8621.1B	4.4.3	44558	SELECTING THE INVESTIGATING AUTHORITY AND SUPPORT: Select Investigating Authority's Advisors: The advisors shall be NASA civil service employees selected from the respective mission support offices and be authorized to represent their mission support office's interests in the investigation. (Requirement 44558)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	4.6.1(1)	44565	SELECTING THE INVESTIGATING AUTHORITY AND SUPPORT: Provide Support to Investigating Authority: The appointing official shall arrange for administrative, logistical, and information technology support to the investigating authority via the appointment letter or by contacting the appropriate CD or the AA/OIA, as appropriate. (Requirement 44565)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	4.6.2	44567	SELECTING THE INVESTIGATING AUTHORITY AND SUPPORT: Provide Support to Investigating Authority: The responsible organization, the Center safety office, and the CD or AA/OIA shall provide support as deemed necessary by the investigating authority. (Requirement 44567)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	4.7.1(1)	44569	SELECTING THE INVESTIGATING AUTHORITY AND SUPPORT: Contents of the Appointment Letter or Appointment Orders: For Type A mishaps, Type B mishaps, high-visibility mishaps, and high-visibility close calls, the appointing official shall prepare an appointment letter to communicate the selection of the investigating authority members, the chairperson, the ex officio, and the advisors. (Requirement 44569)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	4.7.2	44571	SELECTING THE INVESTIGATING AUTHORITY AND SUPPORT: Contents of the Appointment Letter or Appointment Orders: The appointment letter shall identify the chairperson, membership (including ex officio), the legal advisor, the Headquarters public affairs advisor, import/export control advisor, the external relations advisor (where appropriate), the scope of the investigation, and the projected completion date. (Requirement 44571)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	4.7.3	44572	SELECTING THE INVESTIGATING AUTHORITY AND SUPPORT: Contents of the Appointment Letter or Appointment Orders: The appointment letter/appointment orders shall relieve the investigating authority chairperson and members from other duties while they are engaged in investigation activities. (Requirement 44572)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	5.01.1	44575	MISHAP INVESTIGATION PROCESS. Overview of the Mishap Investigation Process: The investigating authority shall use a structured technique to collect and review all available data, construct a timeline of events, conduct witness interviews, reconstruct the mishap or close call, and analyze the mishap occurrence to determine what happened, when it happened, and why it happened. (Requirement 44575)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	5.01.2	44576	MISHAP INVESTIGATION PROCESS. Overview of the Mishap Investigation Process: Figure 7 illustrates the typical steps that the investigating authority shall perform during the mishap investigation. (Requirement 44576)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	5.02.a	44578	MISHAP INVESTIGATION PROCESS: Prepare for the Investigation: The investigating authority shall perform the following activities prior to arrival at the mishap site or shortly thereafter: Mishap investigation overview training. (Requirement 44578)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	5.02.a.1(1)	44579	MISHAP INVESTIGATION PROCESS: Prepare for the Investigation: The investigating authority shall perform the following activities prior to arrival at the mishap site or shortly thereafter: Mishap investigation overview training: The Investigating Authority members and advisors shall take the NASA ?Introduction to Mishap Investigation Training? upon their assignment to the investigation to familiarize themselves with NASA mishap investigation policies and procedures and root cause analysis. (Requirement 44579)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	5.02.b(1)	44581	MISHAP INVESTIGATION PROCESS: Prepare for the Investigation: The investigating authority shall perform the following activities prior to arrival at the mishap site or shortly thereafter: Assessment of personnel resources. (Requirement 44581)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	5.02.b.1	44583	MISHAP INVESTIGATION PROCESS: Prepare for the Investigation: The investigating authority shall perform the following activities prior to arrival at the mishap site or shortly thereafter: Assessment of personnel resources: For Type A mishaps, Type B mishaps, high-visibility mishaps, and high-visibility close call investigation boards, the Chief/OSMA and Chief Engineer shall concur on membership changes prior to any MIB member additions or deletions. (Requirement 44583)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	5.02.c	44584	MISHAP INVESTIGATION PROCESS: Prepare for the Investigation: The investigating authority shall perform the following activities prior to arrival at the mishap site or shortly thereafter: Identification and selection of consultants as necessary. (Requirement 44584)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	5.02.d	44585	MISHAP INVESTIGATION PROCESS: Prepare for the Investigation: The investigating authority shall perform the following activities prior to arrival at the mishap site or shortly thereafter: Establishment of member duties, meeting times, and investigation schedules. (Requirement 44585)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	5.03.1.1	44588	MISHAP INVESTIGATION PROCESS: Verify that the Site is Safe and Secured and Ensure Evidence is Preserved/Impounded: Verify that the Mishap Site is Safe and Secured: Upon arrival, the chairperson shall verify the site is safe and secured. (Requirement 44588)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	5.03.1.2	44589	MISHAP INVESTIGATION PROCESS: Verify that the Site is Safe and Secured and Ensure Evidence is Preserved/Impounded: Verify that the Mishap Site is Safe and Secured: Neither the investigating authority nor the IRT has the authority to direct emergency response actions or activities to clean up a hazardous materials release (Requirement 44589)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154

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NPR 8621.1B	5.03.1.2.1	44590	MISHAP INVESTIGATION PROCESS: Verify that the Site is Safe and Secured and Ensure Evidence is Preserved/Impounded: Verify that the Mishap Site is Safe and Secured: Neither the investigating authority nor the IRT has the authority to direct emergency response actions or activities to clean up a hazardous materials release These actions shall be directed by the incident commander. (Requirement 44590)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	5.03.2.1	44592	MISHAP INVESTIGATION PROCESS: Verify that the Site is Safe and Secured and Ensure Evidence is Preserved/Impounded: Ensure that Evidence is Preserved and Impounded: The chairperson shall ensure that all the appropriate perishable evidence has been collected, photographed, documented, and/or impounded. (Requirement 44592)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	5.03.2.2	44593	MISHAP INVESTIGATION PROCESS: Verify that the Site is Safe and Secured and Ensure Evidence is Preserved/Impounded: Ensure that Evidence is Preserved and Impounded: The chairperson shall ensure that all the necessary data, records, and equipment have been impounded and are being stored in a secure site. (Requirement 44593)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	5.03.2.3	44594	MISHAP INVESTIGATION PROCESS: Verify that the Site is Safe and Secured and Ensure Evidence is Preserved/Impounded: Ensure that Evidence is Preserved and Impounded: The IRT, Center safety office personnel, emergency response personnel, and Center security office personnel shall provide the investigating authority with all evidence gathered at the scene; all data pertaining to the investigation, including impounded records; a status of impounded records/equipment; and a description of the actions taken. (Requirement 44594)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	5.03.2.4	44595	MISHAP INVESTIGATION PROCESS: Verify that the Site is Safe and Secured and Ensure Evidence is Preserved/Impounded: Ensure that Evidence is Preserved and Impounded: When there is a mishap involving an injury or a fatality, the chairperson shall appoint a Federal employee to serve as an evidence custodian(s) who will implement the ?chain of custody process? documented in the Program Mishap Preparedness and Contingency Plan to provide physical security over and controlled access to the injured/deceased personal effects and related sensitive material. (Requirement 44595)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	5.04.3	44599	MISHAP INVESTIGATION PROCESS: Gather Physical Evidence and Facts: Lack of physical evidence: If there is no recoverable physical evidence available, the investigating authority shall use existing program and/or mission documentation, any collected mission data, and applicable analytical techniques to determine the probable proximate cause(s) and probable root cause(s) of the mishap. (Requirement 44599)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	5.05.1	44601	MISHAP INVESTIGATION PROCESS: Interview Witnesses: It is NASA's philosophy to interview witnesses rather than interrogate them. "Interview" connotes a cooperative meeting where the interviewer approaches the interviewee as an equal. The cooperation of the interviewee is sought; encouragement is given to tell the story freely without interruption or intimidation. An interview is usually conducted informally with a voluntary or cooperative answering of questions. However, the investigating authority may also conduct more formal interviews. Even in those cases, witnesses shall not be sworn in. (Requirement 44601)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	5.05.2.a	44603	MISHAP INVESTIGATION PROCESS: Interview Witnesses: The investigating authority shall interview mishap witnesses with two basic objectives in mind: To find out what the witness observed or did. (Requirement 44603)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	5.05.2.b	44604	MISHAP INVESTIGATION PROCESS: Interview Witnesses: The investigating authority shall interview mishap witnesses with two basic objectives in mind: To find out the witness's opinion of potential cause(s) of the mishap. (Requirement 44604)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	5.05.3	44605	MISHAP INVESTIGATION PROCESS: Interview Witnesses: The investigating authority conducting the witness interviews shall perform all steps as listed in paragraph 3.8 of this NPR. (Requirement 44605)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	5.06.1	44607	MISHAP INVESTIGATION PROCESS: Review and Analyze Data: The investigating authority shall determine the sequence of events and document them in a timeline. (Requirement 44607)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	5.06.2(1)	44608	MISHAP INVESTIGATION PROCESS: Review and Analyze Data: The investigating authority shall create a fault tree, or perform an equivalent analysis, to identify all potential cause(s) and contributing factor(s) to the mishap and the relationships among them. (Requirement 44608)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	5.06.3	44610	MISHAP INVESTIGATION PROCESS: Review and Analyze Data: The investigating authority shall analyze all potential cause(s), including both technical and human cause(s) (Requirement 44610)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	5.07.1	44612	MISHAP INVESTIGATION PROCESS: Draw Conclusions and Document Findings: The investigating authority shall evaluate all information collected during the course of the investigation, including, but not limited to, physical evidence, witness statements and testimony, and analytical results from testing and analysis; draw conclusions concerning what happened and why it happened; and document these as investigation findings. (Requirement 44612)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	5.07.2	44613	MISHAP INVESTIGATION PROCESS: Draw Conclusions and Document Findings: All findings shall be supported by facts. (Requirement 44613)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	5.08.1	44615	MISHAP INVESTIGATION PROCESS: Generate Recommendations: At a minimum, the investigating authority shall develop recommendations that address both the proximate cause(s) and the root cause(s) to prevent recurrence of the mishap or close call or similar mishaps and close calls. (Requirement 44615)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154

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NPR 8621.1B	5.08.2	44616	MISHAP INVESTIGATION PROCESS: Generate Recommendations: The investigating authority shall verify that the recommendations are practical, feasible, and achievable. (Requirement 44616)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	5.08.3	44617	MISHAP INVESTIGATION PROCESS: Generate Recommendations: The investigating authority shall prioritize the recommendations. (Requirement 44617)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	5.08.5	44619	MISHAP INVESTIGATION PROCESS: Generate Recommendations: Upon receipt of a safety critical recommendation, the appointing official shall evaluate the recommendation and communicate the recommendation to the responsible program, project, organization, or external body to initiate implementation of corrective measures. (Requirement 44619)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	5.09(1)	44620	MISHAP INVESTIGATION PROCESS: When and How to Turn Over for Criminal Investigation: If it is reasonably suspected that a mishap resulted from criminal activity, the investigating authority shall halt the investigation; notify immediately the OIG and the Office of the General Counsel or the Office of the Chief Counsel, as appropriate; notify the appointing official; and wait for further direction. (Requiremen 44620)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	5.10.1	44623	MISHAP INVESTIGATION PROCESS: Release the Mishap Site and Restore Site Operations: Only the investigating authority shall release the mishap site for post-investigation cleanup or other activities. (Requirement 44623)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	5.10.2	44624	MISHAP INVESTIGATION PROCESS: Release the Mishap Site and Restore Site Operations: Only the investigating authority shall release impounded data, records, equipment, or facilities. (Requirement 44624)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	5.10.3	44625	MISHAP INVESTIGATION PROCESS: Release the Mishap Site and Restore Site Operations: The investigating authority shall not release data and records unless copies of the documents are made and retained with mishap investigation records. (Requirement 44625)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	6.1.01	44628	The investigating authority shall develop a mishap report that contains the information as specified in paragraph 1.7 and Figure 5 in this NPR. (Requirement 44628)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	6.1.02	44629	MISHAP REPORT: Develop the Mishap Report: Witness statements, witness names, and names of those involved in the mishap or related activities shall not be included as a part of the mishap report. (Requirement 44629)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	6.1.03.a	44631	MISHAP REPORT: Develop the Mishap Report: The mishap report shall be technically accurate; properly documented; easily understood; have traceability between facts, findings, and recommendations; and include the products required in Figure 5 in this NPR, in the following order: Section 1: Signature page(s), list of consultants, executive summary, and OSHA summary (when applicable) (Requirement 44631)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	6.1.03.b	44632	MISHAP REPORT: Develop the Mishap Report: The mishap report shall be technically accurate; properly documented; easily understood; have traceability between facts, findings, and recommendations; and include the products required in Figure 5 in this NPR, in the following order: Section 2: Narrative description and facts (what, when, where, how) (Requirement 44632)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	6.1.03.c	44633	MISHAP REPORT: Develop the Mishap Report: The mishap report shall be technically accurate; properly documented; easily understood; have traceability between facts, findings, and recommendations; and include the products required in Figure 5 in this NPR, in the following order: Section 3: Type of data gathered and data analysis (level of detail and products dependent upon Figure 5 in this NPR) (Requirement 44633)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	6.1.03.d	44634	MISHAP REPORT: Develop the Mishap Report: The mishap report shall be technically accurate; properly documented; easily understood; have traceability between facts, findings, and recommendations; and include the products required in Figure 5 in this NPR, in the following order: Section 4: Finding(s) (Requirement 44634)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	6.1.03.e	44635	MISHAP REPORT: Develop the Mishap Report: The mishap report shall be technically accurate; properly documented; easily understood; have traceability between facts, findings, and recommendations; and include the products required in Figure 5 in this NPR, in the following order: Section 5: Recommendation(s) (Requirement 44635)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	6.1.03.f	44636	MISHAP REPORT: Develop the Mishap Report: The mishap report shall be technically accurate; properly documented; easily understood; have traceability between facts, findings, and recommendations; and include the products required in Figure 5 in this NPR, in the following order: Section 6: Minority Report(s) (Requirement 44636)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	6.1.04	44637	MISHAP REPORT: Develop the Mishap Report: The investigating authority shall include the mishap classification level (e.g., Type A, Type B, Type C, Type D, or close call) and the IRIS/NAARS case number in the mishap report title page and the report executive summary. (Requirement 44637)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	6.1.05	44638	MISHAP REPORT: Develop the Mishap Report: The investigating authority shall describe, in the mishap report, the type of property damage, type of the mission failure, and/or describe the personal injury(ies)/illness/(es) (Requirement 44638)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	6.1.06	44639	MISHAP REPORT: Develop the Mishap Report: The investigating authority shall describe, in the mishap report, the actual direct cost of the mishap or if the actual direct cost is not available, the estimate of the direct cost of the mishap. (Requirement 44639)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154

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NPR 8621.1B	6.1.08.a	44642	MISHAP REPORT: Develop the Mishap Report: If the investigating authority would like to receive a preliminary review of the mishap report and feedback concerning the adequacy of the report, they may provide a draft mishap report to the appointing official and request a preliminary review: This preliminary review must occur within the time allocated for the completion of the mishap report. (Requirement 44642)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	6.1.08.b	44643	MISHAP REPORT: Develop the Mishap Report: If the investigating authority would like to receive a preliminary review of the mishap report and feedback concerning the adequacy of the report, they may provide a draft mishap report to the appointing official and request a preliminary review: Upon receipt of a draft mishap report, the appointing official shall determine the appropriate preliminary review process and reviewing offices that should participate in the preliminary review, have them review the draft mishap report, and provide feedback to the investigating authority within 15 workdays. (Requirement 44643)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	6.1.08.c	44644	MISHAP REPORT: Develop the Mishap Report: If the investigating authority would like to receive a preliminary review of the mishap report and feedback concerning the adequacy of the report, they may provide a draft mishap report to the appointing official and request a preliminary review: The Center safety office or OSMA (dependent on level of investigation) shall participate in all preliminary reviews. (Requirement 44644)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	6.1.08.e	44646	MISHAP REPORT: Develop the Mishap Report: If the investigating authority would like to receive a preliminary review of the mishap report and feedback concerning the adequacy of the report, they may provide a draft mishap report to the appointing official and request a preliminary review: The chairperson and/or investigating authority is not required to make any changes to the mishap report with which he or she does not agree. (Requirement 44646)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	6.1.09	44647	MISHAP REPORT: Develop the Mishap Report: All investigating authority members shall sign the completed mishap report. (Requirement 44647)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	6.1.10.a	44649	MISHAP REPORT: Develop the Mishap Report: The ex officio shall sign the completed mishap report attesting to the following: The investigation was conducted in conformance with NASA policy and this NPR. (Requirement 44649)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	6.1.10.b	44650	MISHAP REPORT: Develop the Mishap Report: The ex officio shall sign the completed mishap report attesting to the following: The investigation process was fair, independent, and nonpunitive. (Requirement 44650)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	6.1.10.c	44651	MISHAP REPORT: Develop the Mishap Report: The ex officio shall sign the completed mishap report attesting to the following: The mishap report contains all the required elements. (Requirement 44651)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	6.1.10.d	44652	MISHAP REPORT: Develop the Mishap Report: The ex officio shall sign the completed mishap report attesting to the following: The mishap report accurately identifies the proximate cause(s), root cause(s), and contributing factor(s) (Requirement 44652)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	6.1.10.e	44653	MISHAP REPORT: Develop the Mishap Report: The ex officio shall sign the completed mishap report attesting to the following: Adequate facts have been gathered and analyzed to substantiate the findings. (Requirement 44653)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	6.1.10.f	44654	MISHAP REPORT: Develop the Mishap Report: The ex officio shall sign the completed mishap report attesting to the following: The recommendations reasonably address the causes and findings. (Requirement 44654)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	6.1.10.g	44655	MISHAP REPORT: Develop the Mishap Report: The ex officio shall sign the completed mishap report attesting to the following: The recommendations track one-to-one to each significant finding. (Requirement 44655)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	6.1.10.h	44656	MISHAP REPORT: Develop the Mishap Report: The ex officio shall sign the completed mishap report attesting to the following: If these conditions have not been met, the ex officio shall describe the mishap report's deficiencies in writing and sign and attach this description to the mishap report in lieu of signing the report. (Requirement 44656)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	6.1.11	44657	MISHAP REPORT: Develop the Mishap Report: Each NASA advisor shall sign the mishap report stating that he/she has reviewed the mishap report, that it meets NASA policies and procedures in his/her functional area, and: (Requirement 44657)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	6.1.12	44662	MISHAP REPORT: Develop the Mishap Report: The names of the consultants may be listed in the mishap report; however, the consultants shall not sign the mishap report. (Requirement 44662)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	6.1.13(1)	44663	MISHAP REPORT: Develop the Mishap Report: Within 75 workdays of the mishap or close call, the investigating authority shall submit the completed and signed mishap report to the appointing official. (Requirement 44663)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	6.2	44666	MISHAP REPORT: Release Investigating Authority: Upon receiving the signed mishap report, the appointing official shall inform the investigating authority that the mishap report fulfills the requirements of the appointment letter and that they are released from duty. (Requirement 44666)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	6.3.1	44668	MISHAP REPORT: Review, Endorse, and Approve Mishap Report: Upon receipt of the signed mishap report, the appointing official shall request the appropriate officials to review and endorse the mishap report (see Figure 5 of this NPR for endorsing officials) (Requirement 44668)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	6.3.2.a	44670	MISHAP REPORT: Review, Endorse, and Approve Mishap Report: The review and endorsement process should verify, at a minimum, the following: The mishap report content is technically accurate and complete. (Requirement 44670)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154

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NPR 8621.1B	6.3.2.b	44671	MISHAP REPORT: Review, Endorse, and Approve Mishap Report: The review and endorsement process should verify, at a minimum, the following: Proper analysis techniques were selected and completed correctly. (Requirement 44671)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	6.3.2.c	44672	MISHAP REPORT: Review, Endorse, and Approve Mishap Report: The review and endorsement process should verify, at a minimum, the following: The mishap report adequately describes proximate cause(s), root cause(s), and contributing factor(s) (Requirement 44672)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	6.3.2.d	44673	MISHAP REPORT: Review, Endorse, and Approve Mishap Report: The review and endorsement process should verify, at a minimum, the following: There are adequate facts to substantiate the findings. (Requirement 44673)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	6.3.2.e	44674	MISHAP REPORT: Review, Endorse, and Approve Mishap Report: The review and endorsement process should verify, at a minimum, the following: Recommendations track one-to-one to each finding. (Requirement 44674)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	6.3.2.f	44675	MISHAP REPORT: Review, Endorse, and Approve Mishap Report: The review and endorsement process should verify, at a minimum, the following: Recommendations are practical, feasible, achievable, and will, in the opinion of the reviewer, prevent recurrence of similar mishaps or close calls. (Requirement 44675)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	6.3.2.g	44676	MISHAP REPORT: Review, Endorse, and Approve Mishap Report: The review and endorsement process should verify, at a minimum, the following: Proprietary information, ITAR information, EAR information, material subject to the Privacy Act, or privileged information that should not be released has been identified. (Requirement 44676)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	6.3.3	44677	MISHAP REPORT: Review, Endorse, and Approve Mishap Report: For those mishap or close call reports where the Chief/OSMA is an endorsing official, all endorsements shall be forwarded to OSMA for review prior to completion of the Chief/OSMA endorsement. (Requirement 44677)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	6.3.4	44678	MISHAP REPORT: Review, Endorse, and Approve Mishap Report: Within 30 workdays, the endorsing officials will provide their signed endorsement, recommendation for mishap report approval or rejection, and (when applicable) comments related to amplification or disagreement with elements of the report to the appointing official. (These endorsements and comments (when applicable) shall be attached to the mishap report and become part of the permanent record). (Requirement 44678)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	6.3.5	44679	MISHAP REPORT: Review, Endorse, and Approve Mishap Report: Within 5 workdays, the appointing official shall attach all endorsements and comments (including his/her own) to the mishap report, review the comments, and determine if the report is approved or rejected based on the review and comments/direction from endorsing officials. (Requirement 44679)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	6.3.6	44680	MISHAP REPORT: Review, Endorse, and Approve Mishap Report: If the appointing official rejects the mishap report, he/she must provide a written description of the deficiencies that warrant this rejection, attach this to the mishap report, send the report to the Center safety office (or OSMA for Type A mishaps, Type B mishaps, high visibility mishaps, and high-visibility close calls) for records retention, and charter a new investigation. (Requirement 44680)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	6.4.1(1)	44682	MISHAP REPORT: Authorize Mishap Report for Public Release: If the mishap report is approved, the appointing official shall immediately send the approved report with endorsements/comments to the Export Administrator, the Center PAO, Office of Security and Program Protection, and then to OPA, Procurement, and legal counsel for review. (Requirement 44682)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	6.4.2(1)	44684	MISHAP REPORT: Authorize Mishap Report for Public Release: Within 10 workdays of the request, the Export Administrator, OPA, Office of Security and Program Protection, Procurement, and legal counsel shall review the mishap report and specify in writing which sections of the mishap report are authorized for public release. (Requirement 44684)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	6.5.1	44687	MISHAP REPORT: Distribute Mishap Report: Upon receipt of notification that the mishap report is authorized for public release, the appointing official shall send the approved mishap report with authorization comments to OSMA/SARD and the Center safety office (dependent upon level of investigation). (Requirement 44687)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	6.5.2	44688	MISHAP REPORT: Distribute Mishap Report: Within 10 workdays, the MDAA or the Center safety office shall distribute the mishap report to the appropriate NASA programs and organizations including, but not limited to, the responsible organization and/or program, all Center safety offices, the CHMO (when an injury or fatality has occurred), and AMD (when the mishap involved an aircraft). (Requirement 44688)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	6.5.3	44689	MISHAP REPORT: Distribute Mishap Report: Within 15 workdays, the Center safety office shall distribute information about the Type A mishap or Type B mishap via "weekly safety highlights" (or equivalent) to Center personnel, including a brief description of what caused the mishap and how it can be prevented. (Requirement 44689)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	6.5.4	44690	MISHAP REPORT: Distribute Mishap Report: The AA/OPA shall determine whether a mishap report, whatever its origin, shall be issued from Headquarters or the Center. (Requirement 44690)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	6.5.5	44691	MISHAP REPORT: Distribute Mishap Report: Generally, the appropriate public affairs officer shall make the news release on the mishap report available simultaneously at Headquarters and the appropriate Center. (Requirement 44691)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154

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NPR 8621.1B	6.5.6	44692	MISHAP REPORT: Distribute Mishap Report: The appropriate public affairs officer shall make the mishap report available to the public at the same time. (Requirement 44692)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	7.1.1	44698	POST-INVESTIGATION ACTIVITIES: Develop CAP: Immediately after the mishap report has been authorized for public release, the appointing official shall direct the responsible organization or program/project to develop a CAP for those recommendations approved by the endorsing officials. (Requirement 44698)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	7.2.1.a	44703	POST-INVESTIGATION ACTIVITIES: CAP Contents: The CAP shall include the following: A description of the corrective actions along with a designation of the organization(s) responsible for implementing the corrective actions and a completion date for each corrective action. (Requirement 44703)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	7.2.1.b	44704	POST-INVESTIGATION ACTIVITIES: CAP Contents: The CAP shall include the following: Which NASA organization, contractor organization, or grantee organization (to the lowest level) is responsible for ensuring the corrective action is completed. (Requirement 44704)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	7.2.1.c	44705	POST-INVESTIGATION ACTIVITIES: CAP Contents: The CAP shall include the following: A matrix or other means of matching corrective actions to all findings and recommendations. (Requirement 44705)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	7.2.1.d	44706	POST-INVESTIGATION ACTIVITIES: CAP Contents: The CAP shall include the following: A review of any process changes required based on corrective actions. (Requirement 44706)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	7.3.2	44709	POST-INVESTIGATION ACTIVITIES: Review and Approve CAP: Based on the results of these reviews and his/her own review, the appointing official shall either accept or reject the CAP. (Requirement 44709)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	7.3.3	44710	POST-INVESTIGATION ACTIVITIES: Review and Approve CAP: If the plan is rejected, the appointing official shall return the CAP, with comments, to the responsible organization or program/project for revision and resubmission. (Requirement 44710)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	7.3.4	44711	POST-INVESTIGATION ACTIVITIES: Review and Approve CAP: The appointing official shall determine the timeframe for resubmission of the CAP. (Requirement 44711)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	7.4.1	44713	POST-INVESTIGATION ACTIVITIES: Implement CAP: The responsible organization shall implement the corrective actions as directed by the appointing official and as documented in the approved CAP. (Requirement 44713)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	7.4.2	44714	POST-INVESTIGATION ACTIVITIES: Implement CAP: The responsible organization shall track the corrective action performance and completion in IRIS and inform the appointing official of the status of the actions at intervals determined by the appointing official. (Requirement 44714)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	7.4.4	44716	POST-INVESTIGATION ACTIVITIES: Implement CAP: The Center safety office shall assist the responsible organization, if needed, to enter updates into IRIS, as described in the Center Mishap Preparedness and Contingency Plan. (Requirement 44716)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	7.4.5	44717	POST-INVESTIGATION ACTIVITIES: Implement CAP: The Center safety office shall enter into IRIS the actual direct cost of the mishap or if the actual direct cost is not available, the estimate of the direct cost of the mishap. (Requirement 44717)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	7.4.7	44719	POST-INVESTIGATION ACTIVITIES: Implement CAP: The appointing official shall assess and, if warranted and desired, approve any changes to the CAP. (Requirement 44719)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	7.4.8	44720	POST-INVESTIGATION ACTIVITIES: Implement CAP: The appointing official shall send approved changes to the responsible organization and the Center safety office. (Requirement 44720)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	7.5.1	44722	POST-INVESTIGATION ACTIVITIES: Monitor and Closeout CAP: The applicable Center safety office shall monitor corrective action activities to determine if they were carried out according to the plan and report noncompliance to the appointing official. (Requirement 44722)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	7.6.1	44726	POST-INVESTIGATION ACTIVITIES: Develop, Disposition, Submit, and Approve Lessons Learned: Following the authorization of the mishap report for public release, the appointing official shall designate a person or team of persons to develop the lessons learned identified in the mishap report. (Requirement 44726)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	7.6.2	44727	POST-INVESTIGATION ACTIVITIES: Develop, Disposition, Submit, and Approve Lessons Learned: The individual or team shall develop lessons learned that, at a minimum, include the executive summary, findings, and recommendations from the mishap report that are authorized for public release. (Requirement 44727)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	7.6.3	44728	POST-INVESTIGATION ACTIVITIES: Develop, Disposition, Submit, and Approve Lessons Learned: Program and/or project managers that have mission failures or NASA mishaps for long-duration missions shall develop lessons learned for possible application to existing or future programs. (Requirement 44728)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	7.6.4	44729	POST-INVESTIGATION ACTIVITIES: Develop, Disposition, Submit, and Approve Lessons Learned: Within 10 workdays of being tasked, the person or team assigned to develop lessons learned shall submit the prepared lessons learned to the appointing official. (Requirement 44729)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154

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NPR 8621.1B	7.6.5.a	44731	POST-INVESTIGATION ACTIVITIES: Develop, Disposition, Submit, and Approve Lessons Learned: Prior to submission into NASA Lessons Learned Information System (LLIS), NASA program and policy officials, including, but not limited to, legal, import/export control, and public affairs, shall: Review the proposed lessons learned to ensure they are consistent with NASA policy and do not contain any privileged or proprietary information, ITAR information, EAR information, or material subject to the Privacy Act. (Requirement 44731)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	7.6.6	44733	POST-INVESTIGATION ACTIVITIES: Develop, Disposition, Submit, and Approve Lessons Learned: Based on the results of the review of the lessons learned, the appointing official shall either accept or reject the lessons learned and forward accepted lessons learned to the NASA LLIS. (Requirement 44733)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	7.6.7	44734	POST-INVESTIGATION ACTIVITIES: Develop, Disposition, Submit, and Approve Lessons Learned: OCE and program managers shall review the LLIS quarterly to determine if any mishap lessons learned should be translated into programmatic or Agency requirements. (Requirement 44734)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	7.7.1	44736	POST-INVESTIGATION ACTIVITIES: Conclude Mishap Activities: The appointing official shall submit the mishap activities completion statement to the responsible organization, OSMA/SARD (For Type A mishaps, Type B mishaps, high-visibility mishaps, and high-visibility close calls), the Center safety office, and other appropriate organizations indicating that the investigation was performed; the CAP was developed, implemented, and closed; and the lessons learned have been entered into the NASA LLIS. (Requirement 44736)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	7.8.1	44739	POST-INVESTIGATION ACTIVITIES: Record and Retain Evidence: The final CAP and approved lessons learned shall be filed with the official approved mishap report in a location specified in the Center Mishap Preparedness and Contingency Plan. (Requirement 44739)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8621.1B	7.8.3(1)	44741	POST-INVESTIGATION ACTIVITIES: Record and Retain Evidence: The CAP, lessons learned, and witness statements, plus other records documenting the investigation, shall be managed and dispositioned by the Center safety office in accordance with NPR 1441.1, NASA Records Retention Schedule. (Requirement 44741)	S	Y	Y	Safety	CxP 70059	2.1.11	SAF-154
NPR 8705.2A	0.P.2.a	34241	The requirements in this NPR (NPR 8705.2) shall apply to all space systems (hardware and software), developed and/or operated by or for NASA, that support human activity in space and that interact with crewed NASA human-rated space systems. This includes, but is not limited to, space systems, space suits, planetary bases, planetary rovers, and surface vehicles (Requirement 34241).	S	Y	Y	Safety			
NPR 8705.2A	0.P.2.b	34243	The Agency Program Management Committee shall determine the applicability of the requirements in this NPR (NPR 8705.2) to programs in existence (e.g., Space Shuttle and International Space Station) and to major modifications of those programs in the future (Requirement 34243).	S	Y	Y	Safety			
NPR 8705.2A	0.P.2.c	34244	The requirements in this NPR (NPR 8705.2) shall apply to internationally provided space systems as documented in distinct separate agreements, such as joint or multilateral agreements (Requirement 34244).	S	Y	Y	Safety			
NPR 8705.2A	0.P.2.d	34245	The requirements in this NPR (NPR 8705.2) shall be made applicable to contractors only through contract clauses, specifications, or statements of work in conformance with the NASA Federal Acquisition Regulation (FAR) supplement and not as direct instructions to contractors (Requirement 34245).	S	Y	Y	Safety			
NPR 8705.2A	0.P.2.e	34246	The requirements in this NPR (NPR 8705.2) shall supersede any conflicting requirements imposed by other NASA procedural requirements and standards (Requirement 34246).	S	Y	Y	Safety			
NPR 8705.2A	0.P.2.f	34247	The requirements in this NPR (NPR 8705.2) shall supplement more stringent requirements imposed by other Federal Government agencies (Requirement 34247).	S	Y	Y	Safety			
NPR 8705.2A	1.3.1	34259	The Chief Safety and Mission Assurance Officer shall serve as the Office of Primary Responsibility providing leadership, policy direction, assessment, and coordination of the technical requirements and process compliance verification for NPR 8705.2 throughout the life cycle of the system (Requirement 34259).	S	Y	Y	Safety			
NPR 8705.2A	1.4.1.1	34262	The Human-Rating Independent Review Team shall provide the Human-Rating Board with insight of the Human-Rating Plan development, implementation, and the system's human-rating certification process beginning in system formulation and continuing throughout the life of the program (Requirement 34262).	S	Y	Y	Safety			
NPR 8705.2A	1.4.2.1	34265	The Associate Administrator for Space Operations and the Associate Administrator for Exploration Systems shall charter (select membership and tasks of) the Human-Rating Independent Review Team that performs all functions independent of the Program Manager's funding and control (Requirement 34265).	S	Y	Y	Safety			
NPR 8705.2A	1.4.2.2	34266	The Associate Administrator for Space Operations and the Associate Administrator for Exploration Systems shall co-chair the Human-Rating Independent Review Team for each human space system (Requirement 34266).	S	Y	Y	Safety			
NPR 8705.2A	1.4.3.1	34268	The Chief Safety and Mission Assurance Officer shall concur (or nonconcur) on the membership of the Human-Rating Independent Review Team (Requirement 34268).	S	Y	Y	Safety			
NPR 8705.2A	1.4.3.2	34269	The Chief Health and Medical Officer shall concur (or nonconcur) on the membership of the Human-Rating Independent Review Team (Requirement 34269).	S	Y	Y	Safety			

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NPR 8705.2A	1.4.3.3	34270	The Chief Engineer shall concur (or nonconcur) on the membership of the Human-Rating Independent Review Team (Requirement 34270).	S	Y	Y	Safety			
NPR 8705.2A	1.5.01.1	34274	The Program Manager shall develop a Human-Rating Plan for the human space system (Requirement 34274).	S	Y	Y	Safety			
NPR 8705.2A	1.5.02.1	34278	In Volume I of the Human-Rating Plan, the Program Manager shall provide clear traceability for each requirement stated in this NPR (NPR 8705.2) by including a tracking matrix that describes how the program plans to comply with each requirement assigned to its responsibility and shows where each requirement will be incorporated into program documentation or levied onto the contractor (Requirement 34278).	S	Y	Y	Safety			
NPR 8705.2A	1.5.02.2	34280	The Program Manager shall document in Volume I of the Human-Rating Plan all tailoring and exceptions with the corresponding justification (Requirement 34280).	S	Y	Y	Safety			
NPR 8705.2A	1.5.02.3	34282	In Volume I of the Human-Rating Plan, the Program Manager shall include a set of applicable standards approved by the Independent Technical Authority (Requirement 34282).	S	Y	Y	Safety			
NPR 8705.2A	1.5.02.4	34283	In Volume I of the Human-Rating Plan, the Program Manager shall document the duration of the program's human-rating certification (Requirement 34283).	S	Y	Y	Safety			
NPR 8705.2A	1.5.02.5	34285	In Volume II of the Human-Rating Plan, the Program Manager shall provide a description of the objective quality evidence that will be used to demonstrate that each human-rating requirement has been met (Requirement 34285).	S	Y	Y	Safety			
NPR 8705.2A	1.5.02.6	34286	In Volume II of the Human-Rating Plan, the Program Manager shall describe the space system(s) critical functions (Requirement 34286).	S	Y	Y	Safety			
NPR 8705.2A	1.5.02.7	34287	In Volume III of the Human-Rating Plan, the Program Manager shall describe each critical function's performance criteria, and how the function of each will be ensured through analysis, test, inspection, and demonstration (Requirement 34287).	S	Y	Y	Safety			
NPR 8705.2A	1.5.02.8	34288	In Volume III of the Human-Rating Plan, the Program Manager shall document in the maintenance plan the processes that the program will use to ensure that the space system will be maintained in the as-certified condition (Requirement 34288).	S	Y	Y	Safety			
NPR 8705.2A	1.5.04.1	34293	For a program using a phased acquisition approach, 60 workdays prior to the System Requirements Review (or for a program using the acquisition strategy meeting for down-select to a single contractor, 30 workdays prior to the acquisition strategy meeting), the Program Manager shall submit a request with supporting justification to the Independent Technical Authority to approve tailoring-out each requirement that does not apply to the space system (Requirement 34293).	S	Y	Y	Safety			
NPR 8705.2A	1.5.04.2	34296	For a program using a phased acquisition approach, 45 workdays prior to the System Requirements Review (or for a program using the acquisition strategy meeting for down-select to a single contractor, 15 workdays prior to the acquisition strategy meeting), the Independent Technical Authority shall approve (or disapprove) tailoring of the requirements in this NPR (NPR 8705.2) (Requirement 34296).	S	Y	Y	Safety			
NPR 8705.2A	1.5.05.1	34298	For a program using a phased acquisition approach, 60 workdays prior to the System Requirements Review (or for a program using the acquisition strategy meeting for down-select to a single contractor, 30 workdays prior to the acquisition strategy meeting), the Program Manager shall submit a request with supporting justification to the Independent Technical Authority to approve an exception to a requirement if that requirement does not apply to all the subsystems (Requirement 34298).	S	Y	Y	Safety			
NPR 8705.2A	1.5.05.2	34300	For a program using a phased acquisition approach, 45 workdays prior to the System Requirements Review (or for a program using the acquisition strategy meeting for down-select to a single contractor, 15 workdays prior to the acquisition strategy meeting), the Independent Technical Authority shall conditionally approve (or disapprove) exceptions to the requirements in this NPR (NPR 8705.2) (Requirement 34300).	S	Y	Y	Safety			
NPR 8705.2A	1.5.06.1	34303	Forty-five workdays prior to the specified program review, as illustrated in Figure 1, the Program Manager shall submit the specified volume of the Human-Rating Plan to the Human-Rating Independent Review Team for preliminary review (Requirement 34303).	S	Y	Y	Safety			
NPR 8705.2A	1.5.06.2	34304	Thirty workdays prior to the specified program review, as illustrated in Figure 1, the Human-Rating Independent Review Team shall provide the Program Manager with feedback concerning the adequacy of the Human-Rating Plan (Requirement 34304).	S	Y	Y	Safety			
NPR 8705.2A	1.5.07.1	34306	Fifteen workdays prior to the specified program review, as illustrated in Figure 1, the Program Manager shall submit the specified volume of the Human-Rating Plan and supporting documentation to the Human-Rating Independent Review Team and the Human-Rating Board for final review (Requirement 34306).	S	Y	Y	Safety			
NPR 8705.2A	1.5.07.2	34307	Five workdays prior to the specified program review, the Human-Rating Independent Review Team shall provide the Human-Rating Board with an evaluation of the adequacy of the Human-Rating Plan that includes a recommendation as to whether to accept, modify, or reject the proposed Human-Rating Plan (Requirement 34307).	S	Y	Y	Safety			
NPR 8705.2A	1.5.07.3	34308	If the Human-Rating Independent Review Team recommends that the Human-Rating Plan be modified or rejected, the team shall provide the Human-Rating Board with a list of the items that must be corrected to achieve compliance (Requirement 34308).	S	Y	Y	Safety			

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NPR 8705.2A	1.5.08.1	34310	Prior to the specified program review, as illustrated in Figure 1, the Chief Engineer (Independent Technical Authority) and Chief Health and Medical Officer (Independent Technical Authority) shall approve (or disapprove) the specified volume of the Human-Rating Plan, including all tailoring and exceptions for the space system, indicating that the plan is technically acceptable (Requirement 34310).	S	Y	Y	Safety			
NPR 8705.2A	1.5.08.2	34311	Prior to the specified program review, as illustrated in Figure 1, the Associate Administrator for Space Operations and the Associate Administrator for Exploration Systems shall approve (or disapprove) the specified volume of the Human-Rating Plan (Requirement 34311).	S	Y	Y	Safety			
NPR 8705.2A	1.5.08.3	34312	Prior to the specified program review, as illustrated in Figure 1, the Chief Safety and Mission Assurance Officer shall concur (or nonconcur) on the specified volume of the Human-Rating Plan (Requirement 34312).	S	Y	Y	Safety			
NPR 8705.2A	1.5.08.4	34314	At any time in the program's life, when the Independent Technical Authority approves exceptions to human-rating requirements, the Program Manager shall simultaneously have the Human-Rating Plan updated and approved (Requirement 34314).	S	Y	Y	Safety			
NPR 8705.2A	1.5.09.1	34316	Prior to certification, the Program Manager shall demonstrate compliance with the program's human-rating requirements as allocated through program documentation per the approved Human-Rating Plan (Requirement 34316).	S	Y	Y	Safety			
NPR 8705.2A	1.5.10.1	34318	When a program's human-rating requirement will not be met, but through an alternate means, the system will have an equivalent or lower level of risk, the Program Manager shall request a deviation from the human-rating requirements (Requirement 34318).	S	Y	Y	Safety			
NPR 8705.2A	1.5.10.2	34319	The Independent Technical Authority shall approve (or disapprove) all deviations from the human-rating requirements (Requirement 34319).	S	Y	Y	Safety			
NPR 8705.2A	1.5.10.3	34320	The Associate Administrator for Exploration Systems or designee shall present the status of all new deviations at the Agency Quarterly Program Management Committee Meeting (Requirement 34320).	S	Y	Y	Safety			
NPR 8705.2A	1.5.10.4	34321	The Program Manager shall track all deviations from the human-rating requirements (Requirement 34321).	S	Y	Y	Safety			
NPR 8705.2A	1.5.10.5	34322	The Chief Safety and Mission Assurance Officer shall independently verify compliance with all deviations from the human-rating requirements (Requirement 34322).	S	Y	Y	Safety			
NPR 8705.2A	1.5.11.1	34324	When a program does not meet a requirement in its approved Human-Rating Plan and there is an increase in risk, due to the fact that the requirement is not satisfied, and the risk and justification for the waiver have been documented, the Program Manager shall request a waiver to the requirement (Requirement 34324).	S	Y	Y	Safety			
NPR 8705.2A	1.5.11.2	34325	The Associate Administrator for Exploration Systems shall accept (or not accept) the programmatic risk for waivers (Requirement 34325).	S	Y	Y	Safety			
NPR 8705.2A	1.5.11.3	34326	The Associate Administrator for Space Operations shall accept (or not accept) the risk for waivers involving risk to flight crew and passengers (Requirement 34326).	S	Y	Y	Safety			
NPR 8705.2A	1.5.11.4	34327	Upon request for a waiver to a technical requirement, the Independent Technical Authority shall provide the program manager with technically acceptable alternatives including their corresponding risk and value assessments (Requirement 34327).	S	Y	Y	Safety			
NPR 8705.2A	1.5.11.5	34328	The Independent Technical Authority shall approve (or disapprove) waivers as technically acceptable (Requirement 34328).	S	Y	Y	Safety			
NPR 8705.2A	1.5.11.6	34330	The Associate Administrator for Exploration Systems or designee shall present the status of all new waivers at the Agency Quarterly Program Management Committee Meeting (Requirement 34330).	S	Y	Y	Safety			
NPR 8705.2A	1.5.11.7	34331	The Program Manager shall track the status of compliance with the provisions of all waivers (Requirement 34331).	S	Y	Y	Safety	CxP 70059	1.5	MGT-47
NPR 8705.2A	1.6.1.1	34334	The Program Manager shall verify that all critical functions in the approved Human-Rating Plan have been allocated into the system design at the Critical Design Review (Requirement 34334).	S	Y	Y	Safety			
NPR 8705.2A	1.6.2.1	34336	Prior to System Requirements Review and throughout the development process, the Program Manager shall analyze the probability of fatality from catastrophic events and use the analysis for related design and operational trade studies (Requirement 34336).	S	Y	Y	Safety			
NPR 8705.2A	1.6.2.2	34337	When the Agency has established a relative risk goal or a relative risk requirement for a system, the Program Manager shall use probabilistic risk assessment to show compliance with the goal or requirement (Requirement 34337).	S	Y	Y	Safety			
NPR 8705.2A	1.6.2.3	34339	The Program Manager shall develop systems engineering models that are compatible with the risk model developed as part of the probabilistic risk assessment to estimate and allocate component, subsystem, and human reliability values throughout the development and operation of the system (Requirement 34339).	S	Y	Y	Safety			
NPR 8705.2A	1.6.3.1	34342	The Program Manager shall implement established Agency processes (documented in NASA procedural requirements for safety and quality) relative to human health and safety that identify, analyze, track, and eliminate or mitigate hazards and risks throughout the life of the program (Requirement 34342).	S	Y	Y	Safety			
NPR 8705.2A	1.6.3.2	34343	The Program Manager shall prepare an integrated safety and mission assurance plan that maintains safety and mission assurance throughout the system life cycle and implements all of functions listed in Figure 4 (Requirement 34343). Figure 4. Functions to be Included in the Integrated Safety and Mission Assurance Plan	S	Y	Y	Safety			

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NPR 8705.2A	1.6.4.1	34346	The Program Manager shall apply human factors engineering beginning in early concept development and continuing throughout the life cycle of the space system (Requirement 34346).	S	Y	Y	Safety			
NPR 8705.2A	1.6.4.2	34347	The Program Manager shall involve human factors engineering and users, such as the Astronaut Office, mission operations personnel, and ground support personnel, in the development of human system interfaces (Requirement 34347).	S	Y	Y	Safety			
NPR 8705.2A	1.6.4.3	34348	The Program Manager shall establish human performance criteria and system usability requirements to ensure crew and passenger safety (Requirement 34348).	S	Y	Y	Safety			
NPR 8705.2A	1.6.5.1	34350	The Program Manager shall perform demonstration, test, and analyses of critical functions at the integrated system level to ensure that the system design will not cause loss of life or permanent disability (Requirement 34350).	S	Y	Y	Safety			
NPR 8705.2A	1.6.6.1	34353	The Program Manager shall perform usability testing of human-system interfaces for the critical functions using support from the user community including the Astronaut Office, ground processing crew, and mission control crew to verify that the system design meets the human performance requirements during system operation and in-flight maintenance consistent with the anticipated mission operations concept and anticipated mission duration (Requirement 34353).	S	Y	Y	Safety			
NPR 8705.2A	1.6.7.1	34356	The Program Manager shall perform testing to verify and validate the performance, security, and reliability of all critical software across the entire performance envelope (or flight envelope) including mission functions, modes, and transitions (Requirement 34356).	S	Y	Y	Safety			
NPR 8705.2A	1.6.7.2	34357	Flight software shall, at a minimum, be tested using a flight-equivalent avionics test-bed operating in a real-time, closed-loop test environment (Requirement 34357).	S	Y	Y	Safety			
NPR 8705.2A	1.6.7.3	34358	The Program Manager shall test ground-control software on the computer platforms that will be used to support flights (space missions) (Requirement 34358).	S	Y	Y	Safety			
NPR 8705.2A	1.6.8.1	34360	In Volume III of the Human-Rating Plan, the Program Manager shall document the type and number of flight tests that will be performed across the mission profile under actual and simulated conditions to achieve human-rating certification (Requirement 34360).	S	Y	Y	Safety			
NPR 8705.2A	1.7(1)	34363	Note: Human-rating certification is the documented authorization granted by the Associate Administrator for Space Operations that validates that the system will perform its mission in the expected environment and verifies with objective quality evidence that the requirements were met allowing the Program Manager to operate the space system within its prescribed parameters for its defined reference missions. Human-Rating Certification is obtained prior to the first crewed flight (for flight vehicles) or operational use (for other systems).	S	Y	Y	Safety			
NPR 8705.2A	1.7(2)	34364	Note: The human-rating certification process is accomplished prior to a program's flight readiness review process, and the human-rating certification is presented at the flight readiness review.	S	Y	Y	Safety			
NPR 8705.2A	1.7.1.1	34366	The Program Manager shall submit a request to the Associate Administrator for Space Operations for human-rating certification for a space system (Requirement 34366).	S	Y	Y	Safety			
NPR 8705.2A	1.7.1.2	34368	At the time that the Program Manager submits a request for human-rating certification, the Program Manager shall provide the Associate Administrator for Space Operations, Chief Safety and Mission Assurance Officer, Associate Administrator for Exploration Systems, Chief Health and Medical Officer, Chief Engineer, and the Human-Rating Independent Review Team with a submission package that includes the following documents: the verification matrix that tracks status of each requirement in the approved Human-Rating Plan, the objective quality evidence that coincides with the matrix and demonstrates compliance with the requirements, the design reference missions, the system specification, and the documentation for all deviations and waivers (Requirement 34368).	S	Y	Y	Safety			
NPR 8705.2A	1.7.1.3	34370	As a part of the human-rating certification process, the Program Manager shall demonstrate that appropriate process controls are in place for maintaining critical aspects of the human-rating certification throughout the life cycle of the program, including but not limited to (Requirement 34370):	S	Y	Y	Safety			
NPR 8705.2A	1.7.1.3.a	34371	As a part of the human-rating certification process, the Program Manager shall demonstrate that appropriate process controls are in place for: Production, procurement, and traceability of materials and components (Requirement 34371).	S	Y	Y	Safety			
NPR 8705.2A	1.7.1.3.b	34372	As a part of the human-rating certification process, the Program Manager shall demonstrate that appropriate process controls are in place for Fabrication, maintenance, and inspection quality (Requirement 34372).	S	Y	Y	Safety			
NPR 8705.2A	1.7.1.3.c	34373	As a part of the human-rating certification process, the Program Manager shall demonstrate that appropriate process controls are in place for: System configuration control (Requirement 34373).	S	Y	Y	Safety			
NPR 8705.2A	1.7.1.3.d	34374	As a part of the human-rating certification process, the Program Manager shall demonstrate that appropriate process controls are in place for: Sustaining engineering (Requirement 34374).	S	Y	Y	Safety			
NPR 8705.2A	1.7.1.3.e	34375	As a part of the human-rating certification process, the Program Manager shall demonstrate that appropriate process controls are in place for: Maintenance and control of certification documentation (Requirement 34375).	S	Y	Y	Safety			

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NPR 8705.2A	1.7.2.1	34377	The Human-Rating Independent Review Team shall evaluate the adequacy of the program's compliance with the human-rating requirements as documented in the approved Human-Rating Plan and recommend whether the system should be certified as human-rated (Requirement 34377).	S	Y	Y	Safety			
NPR 8705.2A	1.7.3.1	34379	Prior to the flight readiness review, the Associate Administrator for Space Operations shall certify (or not certify) each space system as human-rated (Requirement 34379).	S	Y	Y	Safety			
NPR 8705.2A	1.7.4.1	34382	The Chief Safety and Mission Assurance Officer shall concur (or nonconcur) on the human-rating certification of any space system to be crewed during any phase of flight (Requirement 34382).	S	Y	Y	Safety			
NPR 8705.2A	1.7.4.2	34383	The Chief Health and Medical Officer shall concur (or nonconcur) on the human-rating certification of any space system to be crewed during any phase of flight (Requirement 34383).	S	Y	Y	Safety			
NPR 8705.2A	1.7.4.3	34384	The Chief Engineer shall concur (or nonconcur) on the human-rating certification of any space system to be crewed during any phase of flight (Requirement 34384).	S	Y	Y	Safety			
NPR 8705.2A	1.7.4.4	34385	The Associate Administrator for Exploration Systems shall concur (or nonconcur) on the human-rating certification of any space system to be crewed during any phase of flight (Requirement 34385).	S	Y	Y	Safety			
NPR 8705.2A	1.7.5.1	34387	To sustain certification, the Program Manager shall provide sustaining and preventative maintenance to the space system to ensure it stays in the as-certified condition (Requirement 34387).	S	Y	Y	Safety			
NPR 8705.2A	1.7.5.2	34389	The Program Manager shall implement a process that sustains the human-rating certification throughout the system's life cycle (Requirement 34389).	S	Y	Y	Safety			
NPR 8705.2A	1.7.5.3	34390	The Program Manager shall maintain the integrated safety and mission assurance plan throughout the system life cycle (Requirement 34390).	S	Y	Y	Safety			
NPR 8705.2A	1.7.5.4	34391	The Program Manager shall update analytical models throughout the life of the program by including design changes and actual operational and flight performance data (Requirement 34391).	S	Y	Y	Safety			
NPR 8705.2A	1.7.5.5	34392	The Program Manager shall maintain the risk assessment model throughout the system life cycle (Requirement 34392).	S	Y	Y	Safety			
NPR 8705.2A	1.7.5.6	34393	The Program Manager shall maintain the systems engineering model throughout the system life cycle (Requirement 34393).	S	Y	Y	Safety			
NPR 8705.2A	1.7.5.7	34394	The Program Manager shall keep all documentation related to the human-rating certification up-to-date throughout the system life cycle, including, but not limited to: the Human-Rating Plan, deviations, waivers, risk acceptance rationale, system drawings, compliance verification documentation, system maintenance plan, and safety and mission assurance plan (Requirement 34394).	S	Y	Y	Safety			
NPR 8705.2A	1.7.6.1	34396	The Program Manager shall obtain Associate Administrator for Space Operations concurrence for any design changes or proposed alterations of equipment that affect the human-rating certification of the space system (Requirement 34396).	S	Y	Y	Safety			
NPR 8705.2A	1.7.6.2	34397	If the space system undergoes modifications or any changes to mission or environment that impact the human-rating certification as determined by the Associate Administrator for Space Operations, the Program Manager shall submit for approval the Human-Rating Plan with identified changes, any risk mitigations taken, and any increases to system risk (Requirement 34397).	S	Y	Y	Safety			
NPR 8705.2A	1.7.6.3	34398	If, during independent assessments and/or audits or after failures, deficiencies are identified in the as-certified design, operation, and/or maintenance of the space system, the Associate Administrator for Space Operations shall suspend the space system human-rating certification, thereby prohibiting use of the system for crews and passengers until compliance is reached and/or prohibition has been resolved (Requirement 34398).	S	Y	Y	Safety			
NPR 8705.2A	1.7.7.1	34400	The Associate Administrator for Space Operations shall reinstate human-rating certification only after the cause of the suspension has been thoroughly investigated and satisfactorily corrected and after he/she has obtained concurrences from the other Human-Rating Board members (Requirement 34400).	S	Y	Y	Safety			
NPR 8705.2A	1.7.7.2	34401	The Chief Safety and Mission Assurance Officer shall concur (or nonconcur) on the reinstatement of the human-rating certification (Requirement 34401).	S	Y	Y	Safety			
NPR 8705.2A	1.7.7.3	34402	The Chief Health and Medical Officer shall concur (or nonconcur) on the reinstatement of the human-rating certification (Requirement 34402).	S	Y	Y	Safety			
NPR 8705.2A	1.7.7.4	34403	The Chief Engineer shall concur (or nonconcur) on the reinstatement of the human-rating certification (Requirement 34403).	S	Y	Y	Safety			
NPR 8705.2A	1.7.7.5	34404	The Associate Administrator for Exploration Systems shall concur (or nonconcur) on the reinstatement of the human-rating certification (Requirement 34404).	S	Y	Y	Safety			
NPR 8705.2A	2.01	34406	The Program Manager shall ensure that the system's design complies with NASA-STD-3000 Volume I - II, Man-Systems Integration Standards (Requirement 34406).	S	Y	Y	Safety			
NPR 8705.2A	2.02	34407	The Program Manager shall ensure that the system's design complies with MIL-STD-1472, Department of Defense Design Criteria Standard - Human Engineering (Requirement 34407).	S	Y	Y	Safety			
NPR 8705.2A	2.03	34408	The Program Manager shall ensure that the system's design complies with JSC 26882, NASA Space Flight Health Requirements (Requirement 34408).	S	Y	Y	Safety			
NPR 8705.2A	2.04	34409	The Program Manager shall ensure that the system's design complies with JPG 8080.5, JSC Design and Procedural Standards Manual (Requirement 34409).	S	Y	Y	Safety			

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NPR 8705.2A	2.05	34410	The Program Manager shall ensure that the system's software development complies with the requirements in NASA-STD-8719.13, Software Safety Standard (Requirement 34410).	S	Y	Y	Safety			
NPR 8705.2A	2.06	34411	The Program Manager shall ensure that the system's design complies with the requirements in NASA Standard 5001, Structural Design and Test Factors of Safety for Spaceflight Hardware (Requirement 34411).	S	Y	Y	Safety			
NPR 8705.2A	2.07	34412	The Program Manager shall ensure that the system's design complies with the requirements in NASA Standard 5007, General Fracture Control Requirements for Manned Space Flight Systems (Requirement 34412).	S	Y	Y	Safety			
NPR 8705.2A	2.08	34413	The Program Manager shall ensure that the system's design complies with the additional set of applicable design and operational standards specified by the Independent Technical Authority (Requirement 34413).	S	Y	Y	Safety			
NPR 8705.2A	2.09	34415	Any tailoring or exceptions to these standards shall be approved by the Independen Technical Authority (Requirement 34415).	S	Y	Y	Safety			
NPR 8705.2A	2.1	34416	The Independent Technical Authority shall resolve any conflicts between technical standards and/or military specification and determine the appropriate standards for the program (Requirement 34416).	S	Y	Y	Safety			
NPR 8705.2A	3.01.1	34419	Space systems shall be designed so that no two failures result in crew or passenger fatality or permanent disability (Requirement 34419).	S	Y	Y	Safety			
NPR 8705.2A	3.01.2	34421	The Program Manager shall provide evidence and rationale that one or more of the following are met when requesting an exception, deviation, or waiver from the two-failure tolerance requirement (Requirement 34421). a. Two-failure tolerance is technically not feasible. b. The program manager demonstrates through analysis that redundancy does not reduce the critical system contribution to cumulative risk or the contribution of common cause failures to that critical system's failure. c. The system or subsystem, such as but not limited to, structures, pressure vessels, and thermal protection systems, that is unable to meet the two-failure tolerance requirement will be designed and certified in accordance with approved standards.	S	Y	Y	Safety			
NPR 8705.2A	3.01.3	34422	The system shall be designed and operated so that neither two inadvertent actions during operation or in-flight maintenance nor a combination of one inadvertent action and one failure result in crew or passenger fatality or permanent disability (Requirement 34422).	S	Y	Y	Safety			
NPR 8705.2A	3.01.4	34424	The Program Manager shall provide evidence and rationale that one or more of the following are met when requesting an exception, deviation, or waiver to the two-inadvertent action requirement (Requirement 34424). a. Meeting the two-inadvertent action requirement is technically not feasible. b The program manager demonstrates through analysis that redundancy does not reduce the critical system contribution to cumulative risk, or the contribution of common cause failures to that critical system's failure. c. The Program Manager has demonstrated by test data and comprehensive risk analyses that the system'shall provide personnel with the capability to detect and recover from the inadvertent actions in time to prevent crew or passenger fatality or permanent disability.	S	Y	Y	Safety			
NPR 8705.2A	3.01.5	34426	The space system shall provide human error management in the following order of precedence (Requirement 34426): a. The system design prevents human error. b. The system reduces the likelihood of human error and provides the capability for the human to detect and correct the error through the incorporation of systems, controls, and associated monitoring. c. The system provides a method to limit the negative effects of errors so that the error does not result in a fatality or permanent disability.	S	Y	Y	Safety			
NPR 8705.2A	3.01.6	34429	Space systems shall not use emergency systems or contingency and emergency operations (such as fire suppression or crew escape) to satisfy the two-failure tolerance requirement or two-inadvertent action requirement (Requirement 34429).	S	Y	Y	Safety			
NPR 8705.2A	3.01.7	34430	Space systems shall not use abort as the first leg of failure tolerance (Requirement 34430).	S	Y	Y	Safety			
NPR 8705.2A	3.01.8	34431	If the Program Manager has been granted an exception, deviation, or waiver to the two-failure tolerance requirement or the two-inadvertent action requirement, the justification and documentation shall include the level of fault tolerance achieved, the quantitative evidence of reliability with applicable data, the design process used to achieve minimum risk, and evidence that the exception, deviation, or waiver has been documented in the program's critical items list including acceptance rationale (Requirement 34431).	S	Y	Y	Safety			
NPR 8705.2A	3.02.1	34434	The space system shall provide a crew station, or equivalent interface, to provide the crew the capability to monitor, at a minimum, the health and status of critical functions (Requirement 34434).	S	Y	Y	Safety			
NPR 8705.2A	3.02.2	34436	The space system shall include a crew station or equivalent interface that provides the crew the capability to operate, at a minimum, the critical functions of the system (Requirement 34436).	S	Y	Y	Safety			
NPR 8705.2A	3.02.3	34438	The space system shall provide the crew feedback for all human commands for critical functions. (Requirement 34438).	S	Y	Y	Safety			
NPR 8705.2A	3.02.4	34440	The space system shall provide the crew with the capability to reverse or correct inputs to critical functions from ground-control or flight crew that are physically reversible (Requirement 34440).	S	Y	Y	Safety			
NPR 8705.2A	3.02.5	34442	The space system shall provide the crew accessibility to equipment involved in immediate and follow-up action that effects emergency recovery of the space system, such as, but not limited to, spacecraft compartment pressurization, life support, and emergency systems (Requirement 34442).	S	Y	Y	Safety			

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NPR 8705.2A	3.02.6	34443	The space system shall provide the crew control over those systems that directly affect the performance of the crew (including, but not limited to, cabin temperature, cabin exterior/interior lighting, and radio volume) (Requirement 34443).	S	Y	Y	Safety			
NPR 8705.2A	3.02.7	34445	The space system shall provide the crew with the capability for manual override of higher-level software and automation (such as configuration change and mode change) when the transition from software/automation to manual control will not cause loss of critical functions (Requirement 34445).	S	Y	Y	Safety			
NPR 8705.2A	3.03.1	34447	The space system shall provide the ground control with the capability to monitor, at a minimum, the health and status of critical functions (Requirement 34447).	S	Y	Y	Safety			
NPR 8705.2A	3.03.2	34448	The space system shall provide the ground control the capability to operate, at a minimum, the critical functions of the system (Requirement 34448).	S	Y	Y	Safety			
NPR 8705.2A	3.03.3	34449	The space system shall provide the ground control feedback for all human commands for critical functions. (Requirement 34449).	S	Y	Y	Safety			
NPR 8705.2A	3.03.4	34450	The space system shall provide the ground control with the capability to reverse or correct inputs to critical functions from ground-control or flight crew (Requirement 34450).	S	Y	Y	Safety			
NPR 8705.2A	3.03.5	34451	The space system shall provide the ground control with the capability for manual override of higher-level software and automation (such as configuration change and mode change) when the transition from software/automation to manual control will not cause loss of critical functions (Requirement 34451).	S	Y	Y	Safety			
NPR 8705.2A	3.04.1	34453	The space system shall be designed so mission design, including task design, procedures, and scheduling, does not affect the ability of the crew to successfully operate the spacecraft (Requirement 34453).	S	Y	Y	Safety			
NPR 8705.2A	3.04.2	34455	The space system shall provide the flight crew with human-interfaces such that all tasks required of the flight crew meet a workload rating of 3 or better on the Bedford Workload Scale or the Modified Cooper-Harper Scale when tested by trained operators under simulated and actual flight conditions (Requirement 34455).	S	Y	Y	Safety			
NPR 8705.2A	3.04.3	34457	During periods of human-in-the-loop flight/ground path and attitude and directional control, the space system'shall exhibit Level I handling qualities as defined by the Cooper-Harper Rating Scale when operated/flown by trained professionals under simulated and actual operational (flight) conditions (Requirement 34457).	S	Y	Y	Safety			
NPR 8705.2A	3.05.1	34460	The system shall provide a fault detection, isolation, and recovery (FDIR) system for faults that affect critical functions (Requirement 34460).	S	Y	Y	Safety			
NPR 8705.2A	3.06.1	34462	The space system shall provide the capability to record health and status data of critical systems (Requirement 34462).	S	Y	Y	Safety			
NPR 8705.2A	3.07.1	34464	The space system shall provide the capability for autonomous operation of critical functions (Requirement 34464).	S	Y	Y	Safety			
NPR 8705.2A	3.08.1	34467	The space system, such as a rover, lunar base, or other system, shall provide crew and passengers survival modes throughout the mission profile in the event of loss of a critical function (Requirement 34467).	S	Y	Y	Safety			
NPR 8705.2A	3.09.01	34469	The space system shall provide the crew and passengers with the capability for emergency egress to a safe haven during prelaunch activities (Requirement 34469)	S	Y	Y	Safety			
NPR 8705.2A	3.09.02	34470	The space system shall provide emergency egress, safe haven, and rescue post touchdown (Requirement 34470).	S	Y	Y	Safety			
NPR 8705.2A	3.09.03	34471	The space system shall provide crew and passenger survival modes throughout the ascent and on-orbit profile (from hatch closure until atmosphere entry interface) in the following order of precedence (Requirement 34471): a. Abort. b. Escape by retaining the crew and passengers encapsulated in a portion of the vehicle that can reenter without crew or passenger fatality or permanent disability. c. Escape by removing the crew and passengers from the vehicle.	S	Y	Y	Safety			
NPR 8705.2A	3.09.04	34473	The program shall ensure that ascent survival modes can be successfully accomplished during any ascent failure mode including, but not limited to, complete loss of thrust, complete loss of control, and catastrophic booster failure at any point during ascent (Requirement 34473).	S	Y	Y	Safety			
NPR 8705.2A	3.09.05	34474	The space system shall provide crew and passenger survival modes throughout the descent profile (from entry interface through landing) in the following order of precedence (Requirement 34474): a. Design features that increase tolerance to loss of critical functions such that landing can still be accomplished. b. Escape.	S	Y	Y	Safety			
NPR 8705.2A	3.09.06	34476	The program shall ensure that the descent survival modes can be successfully accomplished for loss of critical functions including, but not limited to, loss of active attitude control and loss of primary power (Requirement 34476).	S	Y	Y	Safety			
NPR 8705.2A	3.09.07	34477	The space system shall provide the crew with the capability to select abort modes (Requirement 34477).	S	Y	Y	Safety			
NPR 8705.2A	3.09.08	34478	The space system shall provide the crew with the capability to initiate the abort sequence (Requirement 34478).	S	Y	Y	Safety			
NPR 8705.2A	3.09.09	34480	The space system shall provide the crew with the capability to inhibit the abort system (Requirement 34480).	S	Y	Y	Safety			
NPR 8705.2A	3.09.10	34481	The space system shall provide the crew with the capability to initiate the crew escape system (Requirement 34481).	S	Y	Y	Safety			
NPR 8705.2A	3.09.11	34483	The space system shall provide the crew with the capability to override automatic initiation sequences (Requirement 34483).	S	Y	Y	Safety			

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NPR 8705.2A	3.09.12	34485	The space system shall provide ground control with the capability to select abort modes (Requirement 34485).	S	Y	Y	Safety			
NPR 8705.2A	3.09.13	34486	The space system shall provide ground control with the capability to initiate the abort sequence (Requirement 34486).	S	Y	Y	Safety			
NPR 8705.2A	3.09.14	34487	The space system shall provide ground control with the capability to initiate the crew escape system (Requirement 34487).	S	Y	Y	Safety			
NPR 8705.2A	3.09.16	34490	While on the ground or in space, the space system shall provide the capability to disable the crew escape system by mechanical means (such as a pin, handle, or lever lock) (Requirement 34490).	S	Y	Y	Safety			
NPR 8705.2A	3.10.1	34493	The system design shall prevent or mitigate the effects of common cause failures in time-critical software (e.g., flight control software during dynamic phases of flight such as ascent) (Requirement 34493).	S	Y	Y	Safety			
NPR 8705.2A	3.10.2	34495	During all phases of flight, the system'shall provide the capability for manual control of flight path and attitude, when the human can operate the system within the structural, thermal, and performance margins without causing crew or passenger fatality or permanent disability (Requirement 34495).	S	Y	Y	Safety			
NPR 8705.2A	3.11.1	34497	Two crewed space systems conducting proximity operations shall have the capability to transmit and receive voice communications between each other (Requirement 34497).	S	Y	Y	Safety			
NPR 8705.2A	3.11.2	34498	When crewed and uncrewed space systems are performing proximity operations, the crewed space system'shall have the capability to monitor the status of those systems on the uncrewed vehicle that are critical to the prevention of crew or passenger fatality or permanent disability (Requirement 34498).	S	Y	Y	Safety			
NPR 8705.2A	3.11.3	34499	When crewed and uncrewed space systems are performing proximity operations, the crewed space system'shall have the capability to command those systems on the uncrewed space system that are critical to the prevention of crew or passenger fatality or permanent disability (Requirement 34499).	S	Y	Y	Safety			
NPR 8705.2A	3.11.4	34500	When crewed and uncrewed space systems are performing proximity operations, the ground control shall have the capability to monitor the status of those systems on the uncrewed vehicle that are critical to the prevention of crew or passenger fatality or permanent disability (Requirement 34500).	S	Y	Y	Safety			
NPR 8705.2A	3.11.5	34501	The crewed system'shall provide the capability to confirm the environmental conditions of an unoccupied crew compartment prior to opening the hatch of that compartment (Requirement 34501).	S	Y	Y	Safety			
NPR 8705.2A	3.11.6	34503	The crewed space system'shall provide the capability for manual flight control during proximity operations (Requirement 34503).	S	Y	Y	Safety			
NPR 8705.2A	3.12.1	34505	Flight termination shall include features that allow sufficient time for abort or escape prior to activation of the destruct system (Requirement 34505).	S	Y	Y	Safety			
NPR 8705.5	0.P.2.b	32944	This NPR shall be used specifically for programs/projects that provide aerospace products or capabilities; i.e., space and aeronautics systems, flight and ground systems, technology demonstration/validation, and operations (Requirement 32944).	S	Y	Y	PRA	CxP 70059	6	PRA-1
NPR 8705.5	1.1.4	32960	All PRAs shall be conducted in accordance with this NPR (Requirement 32960).	S	Y	Y	PRA	CxP 70059	6	PRA-1
NPR 8705.5	1.2.1	32964	NASA program and project managers shall use the criteria in paragraph 1.2.3, Table 1, and paragraph 1.2.4 to determine when a PRA must be conducted and the scope to be implemented (Requirement 32964).	S	Y	Y	PRA	CxP 70059	6	PRA-1
NPR 8705.5	1.2.2	32965	The PRA approach for each project shall be described in the project s risk management plan and submitted for Governing Program Management Committee (GPMC) review and approval at the project formulation decision milestone (Requirement 32965).	S	Y	Y	PRA	CxP 70059	6	PRA-1
NPR 8705.5	1.2.3.1.1(2)	32969	Decision-making for projects involving complex systems in high-stakes programmatic contexts shall be supported by a full-scope PRA with consideration of	S	Y	Y	PRA	CxP 70059	6	PRA-1
								CxP 70059	6	PRA-2
NPR 8705.5	1.2.3.1.3(2)	32972	Uncertainty analysis shall be performed to provide the decision-maker with a full appreciation of the overall degree of uncertainty about the PRA results and an	S	Y	Y	PRA	CxP 70059	6	PRA-1
								CxP 70059	6	PRA-11
NPR 8705.5	1.2.3.2.3	32976	Similar to a full-scope PRA, sources of uncertainties that have a strong effect on the limited-scope PRA results and insights shall be identified and quantified (Requirement 32976).	S	Y	Y	PRA	CxP 70059	6	PRA-1
NPR 8705.5	1.2.3.3.2	32979	In a simplified PRA, the sources of uncertainties that have the strongest effects on the PRA results shall be identified and, in cases where they affect the management decision process, shall be quantified (Requirement 32979).	S	Y	Y	PRA	CxP 70059	6	PRA-1
NPR 8705.5	1.3.1	32984	After determining the level at which the PRA shall be conducted, the program or project manager shall document the PRA decision and its basis in the program/project risk plan (Requirement 32984).	S	Y	Y	PRA	CxP 70059	6	PRA-1
NPR 8705.5	1.3.2	32985	The program or project manager shall brief the GPMC on the PRA decision and the rationale during the formulation phase of the program or project (Requirement 32985). (See NPR 1000.3, The NASA Organization, paragraph 6.6.)	S	Y	Y	PRA	CxP 70059	6	PRA-14
NPR 8705.5	1.3.3	32986	Any disputes concerning the PRA decision and level of implementation shall be elevated to the next level of Program Management Committee (Requirement 32986).	S	Y	Y	PRA	CxP 70059	6	PRA-14
NPR 8705.5	1.4.4	33016	Center Directors, Center SMA Directors, and program/project SMA Directors shall assist Center-based programs/projects in conducting required PRAs; i.e., provide required resources, training, tools, technical advice, or assistance in obtaining competent support services (Requirement 33016).	S	Y	Y	PRA	CxP 70059	1.8	MGT-20
NPR 8705.5	1.4.5	33017	Program/project managers and other decision-makers shall conduct and use PRA	S	Y	Y	PRA	CxP 70059	6	PRA-1

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			with the best state-of-practice methods and data to support management decisions to improve safety and performance (Requirement 33017). (See Probabilistic Risk Assessment Procedures Guide for NASA Managers and Practitioners, chapters 7 and 12.)					CxP 70059	6	PRA-3
								CxP 70059	6	PRA-6
								CxP 70059	6	PRA-7
								CxP 70059	6	PRA-8
								CxP 70059	6	PRA-9
NPR 8705.5	1.4.5.1	33018	Program/project managers shall document PRA decisions, justifications and plans for implementing and conducting PRAs in program/project risk management plans (Requirement 33018).	S	Y	Y	PRA	CxP 70059	6	PRA-1
								CxP 70059	6	PRA-4
								CxP 70059	6	PRA-5
								CxP 70059	6	PRA-9
NPR 8705.5	1.4.5.2	33019	The program or project manager shall brief the GPMC on the PRA decision and the rationale during the formulation phase of the program or project (Requirement 33019).	S	Y	Y	PRA	CxP 70059	6	PRA-14
NPR 8705.5	1.4.5.3	33020	Program/project managers shall maintain and safeguard records resulting from PRAs in accordance with the guidelines in NPR 1441.1, NASA Records Retention Schedule (Requirement 33020).	S	Y	Y	PRA	CxP 70059	6	PRA-3
								CxP 70059	6	PRA-7
								CxP 70059	6	PRA-9
NPR 8705.5	1.4.5.4	33021	Program/project managers shall adequately and clearly communicate PRA results and insights that explicitly include initial assumptions, residual uncertainties, and significant risk drivers to all involved program/project staff and management, and ensure that the PRA results and insights, as well as their implications regarding systems design, operation, and upgrade, are reviewed, analyzed, properly interpreted, and understood (Requirement 33021). (See Probabilistic Risk Assessment Procedures Guide for NASA Managers and Practitioners, chapter 13.)	S	Y	Y	PRA	CxP 70059	6	PRA-1
								CxP 70059	6	PRA-10
								CxP 70059	6	PRA-11
								CxP 70059	6	PRA-12
								CxP 70059	6	PRA-4
								CxP 70059	6	PRA-5
								CxP 70059	6	PRA-6
								CxP 70059	6	PRA-9
NPR 8705.5	1.4.5.5	33022	Program/project managers shall update design, operating, and implementation plans to reflect insights from PRA and use the insights gathered from PRA to reinforce or modify existing relevant management decisions or to generate new management decisions (Requirement 33022). (See Probabilistic Risk Assessment Procedures Guide for NASA Managers and Practitioners, chapter 13.)	S	Y	Y	PRA	CxP 70059	6	PRA-6
NPR 8705.5	1.4.5.5.1	33023	If the residual risk, as shown through the use of PRA, is deemed unacceptable as defined by program requirements, the program/project manager shall consider	S	Y	Y	PRA	CxP 70059	6	PRA-1
								CxP 70059	6	PRA-2
NPR 8705.5	2.01.2(1)	33029	The process that shall be used for conducting a typical scenario-based PRA involves objective definition, system familiarization, identification of initiating events, scenario modeling, failure modeling, quantification, uncertainty analysis, sensitivity analysis, importance ranking, and data analysis (Requirement 33029).	S	Y	Y	PRA	CxP 70059	6	PRA-1
								CxP 70059	6	PRA-10
								CxP 70059	6	PRA-11
								CxP 70059	6	PRA-12
								CxP 70059	6	PRA-7
								CxP 70059	6	PRA-8
								CxP 70059	6	PRA-9
NPR 8705.5	2.01.3(1)	33031	The process and techniques provided in the Probabilistic Risk Assessment Procedures Guide for NASA Managers and Practitioners shall be used for conducting PRAs in accordance with this NPR (Requirement 33031).	S	Y	Y	PRA	CxP 70059	6	PRA-1
NPR 8705.5	2.02.1(2)	33035	The objective of the risk assessment shall be well defined and, associated with it, the appropriate undesirable consequences of interest (called end states) that are	S	Y	Y	PRA	CxP 70059	6	PRA-1
								CxP 70059	6	PRA-7
NPR 8705.5	2.02.2(1)	33037	Depending on the scope of the PRA, applicable configuration, time frame, and rules for considering initiators (i.e., whether to include external events such as micrometeoroids) shall be defined (Requirement 33037).	S	Y	Y	PRA	CxP 70059	6	PRA-1
								CxP 70059	6	PRA-11
								CxP 70059	6	PRA-7
NPR 8705.5	2.03(2)	33040	If the PRA is performed on an existing system that has been operated for some time, the engineering information shall be on an as-built and as-operated basis; if	S	Y	Y	PRA	CxP 70059	6	PRA-1
								CxP 70059	6	PRA-6
NPR 8705.5	2.04.1	33043	The complete set of initiating events (see Probabilistic Risk Assessment Procedures Guide for NASA Managers and Practitioners, sections 15.1.7/8 and 15.2.5) shall be identified (Requirement 33043).	S	Y	Y	PRA	CxP 70059	6	PRA-1
								CxP 70059	6	PRA-13
								CxP 70059	6	PRA-7
NPR 8705.5	2.04.1.2(1)	33045	The initiating events shall be identified, analyzed, and screened to ensure that they have the potential to initiate accident scenarios leading to the defined end states (Requirement 33045).	S	Y	Y	PRA	CxP 70059	6	PRA-1
								CxP 70059	6	PRA-13
								CxP 70059	6	PRA-7
NPR 8705.5	2.04.1.3(2)	33048	When initiating events are treated as a group, their frequencies shall be logically summed up to derive the group initiator frequency (Requirement 33048). (See Probabilistic Risk Assessment Procedures Guide for NASA Managers and Practitioners, chapters 4, 5, and 15.)	S	Y	Y	PRA	CxP 70059	6	PRA-1
NPR 8705.5	2.05(1)	33050	Scenario Modeling. The PRA shall identify and evaluate potential scenarios leading to undesired consequences (Requirement 33050).	S	Y	Y	PRA	CxP 70059	6	PRA-1
								CxP 70059	6	PRA-7
NPR 8705.5	2.06(1)	33052	Failure Modeling. The PRA shall evaluate the failure (type and probability) of each event in the scenarios identified above (Requirement 33052).	S	Y	Y	PRA	CxP 70059	6	PRA-1
								CxP 70059	6	PRA-10
								CxP 70059	6	PRA-7
								CxP 70059	6	PRA-8
								CxP 70059	6	PRA-9
NPR 8705.5	2.07(1)	33054	Quantification. The PRA shall quantify the scenarios (Requirement 33054).	S	Y	Y	PRA	CxP 70059	6	PRA-1
								CxP 70059	6	PRA-7
NPR 8705.5	2.08(2)	33057	Any PRA insights reported to decision-makers shall include an appreciation of the overall degree of uncertainty about the results and an understanding of which	S	Y	Y	PRA	CxP 70059	6	PRA-1
								CxP 70059	6	PRA-7
NPR 8705.5	2.11(1)	33061	Data Analysis. The PRA shall conduct data analyses to support quantification (Requirement 33061).	S	Y	Y	PRA	CxP 70059	6	PRA-1
								CxP 70059	6	PRA-7
NPR 8705.5	3.1.2(1)	33068	The PRA team shall include a PRA expert who has had training and extensive experience in the application and conduct of PRAs, preferably for several different	S	Y	Y	PRA	CxP 70059	6	PRA-1
								CxP 70059	6	PRA-4
NPR 8705.5	3.1.2.1	33070	The PRA Technical Authority shall guide or facilitate the process and keep Headquarters Office of Safety and Mission Assurance informed of PRA activities and status (Requirement 33070).	S	Y	Y	PRA	CxPMD-017	0	CxPMD-017

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NPR 8705.5	3.1.2.2	33071	Selection of the PRA Technical Authority shall be made with guidance from Center SMA organizations or Headquarters Office of Safety and Mission Assurance (Requirement 33071).	S	Y	Y	PRA	CxP 70055	3.1	3.1
NPR 8705.5	3.2.2(2)	33075	Terminology shall also be consistent with what is used in the program/project in order to facilitate risk communication (Requirement 33075).	S	Y	Y	PRA	CxP 70059	6	PRA-1
								CxP 70059	6	PRA-10
								CxP 70059	6	PRA-11
								CxP 70059	6	PRA-12
								CxP 70059	6	PRA-7
								CxP 70059	6	PRA-8
NPR 8705.5	3.2.3(2)	33077	Contributors to undesired events shall be quantified on the basis of existing data (Requirement 33077). This requires that some analyses of previous mission failures be performed. (See Probabilistic Risk Assessment Procedures Guide for NASA Managers and Practitioners, chapter 13.)	S	Y	Y	PRA	CxP 70059	6	PRA-1
								CxP 70059	6	PRA-7
								CxP 70059	6	PRA-8
								CxP 70059	6	PRA-9
NPR 8705.5	3.4.1(1)	33085	A PRA shall follow quality assurance principles and practices that are analogous to those in other engineering fields and practices (Requirement 33085).	S	Y	Y	PRA	CxP 70059	6	PRA-1
NPR 8705.5	3.5.1	33101	In order to enhance the quality and credibility of a PRA study, an independent peer review of the work shall be conducted for all full-scope PRAs (Requirement 33101) and should also be conducted for all other PRAs.	S	Y	Y	PRA	CxP 70059	6	PRA-1
NPR 8705.5	3.5.1.1	33102	This review shall be carried out by independent peers, that is, recognized PRA experts who are not involved in the study and have no stake in it (Requirement 33102).	S	Y	Y	PRA	CxP 70059	6	PRA-1
NPR 8705.5	3.5.1.3	33104	In general, this review shall concentrate on the appropriateness of methods, information, sources, judgments, and assumptions as well as their application to the program/project/system being evaluated and its objective(s) (Requirement 33104).	S	Y	Y	PRA	CxP 70059	6	PRA-1
NPR 8705.5	4.1.1	33108	A PRA shall be comprehensive, balanced, and tailored (Requirement 33108).	S	Y	Y	PRA	CxP 70059	6	PRA-1
								CxP 70059	6	PRA-12
								CxP 70059	6	PRA-7
NPR 8705.5	4.1.1.1	33109	A comprehensive PRA shall consider the complete environment and all factors that pertain to the system being assessed, including, as appropriate to satisfy its stated objective(s), the safety of the public, astronauts, pilots, and the NASA workforce; protection of high-value equipment and property; adverse impacts on the environment; national interests; and security (Requirement 33109).	S	Y	Y	PRA	CxP 70059	6	PRA-1
								CxP 70059	6	PRA-11
								CxP 70059	6	PRA-12
								CxP 70059	6	PRA-13
								CxP 70059	6	PRA-7
NPR 8705.5	4.1.1.2	33110	A balanced PRA shall ensure that the scope considers issues of safety, operation, and mission assurance; is conducted at a level commensurate with the level of risk; and is timely to assist program/project management in limiting risk (Requirement 33110).	S	Y	Y	PRA	CxP 70059	6	PRA-1
								CxP 70059	6	PRA-11
								CxP 70059	6	PRA-12
								CxP 70059	6	PRA-13
								CxP 70059	6	PRA-7
NPR 8705.5	4.1.1.3	33111	A tailored PRA shall ensure that the level of detail is commensurate with the complexity of the hazards, scope, and objective(s) of the mission/project being evaluated (Requirement 33111).	S	Y	Y	PRA	CxP 70059	6	PRA-1
								CxP 70059	6	PRA-11
								CxP 70059	6	PRA-12
								CxP 70059	6	PRA-13
								CxP 70059	6	PRA-7
NPR 8705.5	4.1.2	33112	PRA implementation procedures shall reflect and incorporate the results of project risk analysis (Requirement 33112), including:	S	Y	Y	PRA	CxP 70059	6	PRA-12
								CxP 70059	6	PRA-13
NPR 8705.5	4.1.2.a	33113	PRA implementation procedures shall reflect and incorporate the results of project risk analysis (Requirement 33113), including: Identification of the elements of risk (initiators, hazards, scenarios, probabilities, and consequences) (Requirement 33113).	S	Y	Y	PRA	CxP 70059	6	PRA-1
								CxP 70059	6	PRA-12
								CxP 70059	6	PRA-13
								CxP 70059	6	PRA-7
NPR 8705.5	4.1.2.b	33114	PRA implementation procedures shall reflect and incorporate the results of project risk analysis (Requirement 33114), including: Recommended controls (preventive	S	Y	Y	PRA	CxP 70059	6	PRA-12
								CxP 70059	6	PRA-13
NPR 8705.6	3.2.07.1	42384	Program/Project Managers shall: Incorporate PA&R process activities into program/project plans, including a program/project-unique mission assurance	S	Y	Y	Mgmt	CxP 70059	1.16	MGT-106
								CxP 70059	1.16	MGT-28
NPR 8705.6	3.2.07.2	42385	Program/Project Managers shall: Support the PA&R process (either Headquaters-led or Center-led) by providing logistic and resource support required for successful	S	Y	Y	Mgmt	CxP 70059	1.16	MGT-106
								CxP 70059	1.16	MGT-28
NPR 8705.6	3.2.07.3	42386	Program/Project Managers shall: Coordinate with Center SMA and Center procurement to ensure that contracts provide for adequate contractor support of	S	Y	Y	Mgmt	CxP 70059	1.16	MGT-106
								CxP 70059	1.16	MGT-28
NPR 8705.6	3.2.07.4	42387	Program/Project Managers shall: Provide the PA&R Audit/Review Lead with the applicable programmatic BRS and OQE to facilitate PA&R process activities.	S	Y	Y	Mgmt	CxP 70059	1.16	MGT-106
								CxP 70059	1.16	MGT-28
NPR 8705.6	3.2.07.5	42388	Program/Project Managers shall: Provide authorization for the program/project contractors to support PA&R process activities. (Requirement 42388)	S	Y	Y	Mgmt	CxP 70059	1.16	MGT-106
								CxP 70059	1.16	MGT-28
NPR 8705.6	3.2.07.6	42389	Program/Project Managers shall: In concert with the Center Director, Center SMA Director, and Program/Project SMA Manager, provide a Corrective Action Plan to	S	Y	Y	Mgmt	CxP 70059	1.16	MGT-106
								CxP 70059	1.16	MGT-28
NPR 8705.6	3.2.07.7	42390	Program/Project Managers shall: In concert with the Program/Project SMA Manager, provide a Corrective Action Plan to the Center Director for resolution of	S	Y	Y	Mgmt	CxP 70059	1.16	MGT-106
								CxP 70059	1.16	MGT-28
NPR 8705.6	3.2.08.1	42392	SMA Managers Reporting (matrixed or direct) to the Program/Project Manager shall: Support the program/project manager in the development and maintenance of	S	Y	Y	Mgmt	CxP 70059	1.16	MGT-106
								CxP 70059	1.16	MGT-28
NPR 8705.6	3.2.08.2	42393	SMA Managers Reporting (matrixed or direct) to the Program/Project Manager shall: Develop and maintain a program-specific Mission Assurance Portfolio which	S	Y	Y	Mgmt	CxP 70059	1.16	MGT-106
								CxP 70059	1.16	MGT-28
NPR 8705.6	3.2.08.3	42394	SMA Managers Reporting (matrixed or direct) to the Program/Project Manager shall: Identify to the PA&R Audit/Review Lead (either Headquarters-led or Center-	S	Y	Y	Mgmt	CxP 70059	1.16	MGT-106
								CxP 70059	1.16	MGT-28
NPR 8705.6	4.2.6.1	42441	Program/Project Managers shall: Provide the necessary logistics and resources required to support the preparation and conduct of Headquarters-led or Center-led	S	Y	Y	Mgmt	CxP 70059	1.16	MGT-28
								CxP 70059	1.16	SAF-78

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NPR 8705.6	4.2.6.2	42442	Program/Project Managers shall: Coordinate with Center SMA and Center procurement to ensure that contracts provide for adequate contractor support of	S	Y	Y	Mgmt	CxP 70059	1.16	MGT-28
								CxP 70059	1.16	SAF-78
NPR 8705.6	4.2.7.1	42444	SMA Managers reporting (matrix or direct) to the Program/Project Manager shall: Help to identify all independent organizations which have assessed portions of the	S	Y	Y	Mgmt	CxP 70059	1.16	MGT-28
								CxP 70059	1.16	SAF-78
NPR 8705.6	4.2.7.2	42445	SMA Managers reporting (matrix or direct) to the Program/Project Manager shall: Compile the program/project SMARR material, including the program's assessment	S	Y	Y	Mgmt	CxP 70059	1.16	MGT-28
								CxP 70059	1.16	SAF-78
NPR 8705.6	4.2.7.3	42446	SMA Managers reporting (matrix or direct) to the Program/Project Manager shall: Coordinate the presentation of the Center and program/project SMARR material to	S	Y	Y	Mgmt	CxP 70059	1.16	MGT-28
								CxP 70059	1.16	SAF-78
NPR 8705.6	4.2.7.4	42447	SMA Managers reporting (matrix or direct) to the Program/Project Manager shall: Coordinate within the program/project and support Headquarters-led and Center-led	S	Y	Y	Mgmt	CxP 70059	1.16	MGT-28
								CxP 70059	1.16	SAF-78
NPR 8705.6	4.2.7.5	42448	SMA Managers reporting (matrix or direct) to the Program/Project Manager shall: Participate in SMARR polling as described in paragraphs 4.2.3.2. and 4.2.6.3.	S	Y	Y	Mgmt	CxP 70059	1.16	MGT-28
								CxP 70059	1.16	SAF-78
NPR 8715.3C	01.02.1.a	45566	Institutional and Programmatic Safety Requirements: NASA General Safety Program Roles and Responsibilities: Ensure that their safety planning and direction; the development of safety requirements, safety policies, safety methodology, and	S	Y	Y	Mgmt	CxP 70055	3.1	3.1
								CxP 70059	1.1	MGT-1
								CxP 70059	1.2	MGT-2
NPR 8715.3C	01.02.1.b	45567	Institutional and Programmatic Safety Requirements: NASA General Safety Program Roles and Responsibilities: Ensure the conduct of assessments of quantitative and/or qualitative safety risks to people, property, or equipment, and	S	Y	Y	Safety	CxP 70055	3.1	3.1
								CxP 70059	2.2.1.2	SAF-12
								CxP 70059	2.2.1.2	SAF-182
NPR 8715.3C	01.02.1.c	45568	Institutional and Programmatic Safety Requirements: NASA General Safety Program Roles and Responsibilities: Ensure that safety assessments of all system changes are conducted, prior to changes to these systems being implemented, so	S	Y	Y	Safety	CxP 70059	2.2.1	SAF-1014
								CxP 70059	2.2.1	SAF-6
NPR 8715.3C	01.02.1.d	45569	Institutional and Programmatic Safety Requirements: NASA General Safety Program Roles and Responsibilities: Ensure that employees are informed of any risk acceptance when the employees are the ones at risk. (Requirement 45569)	S	Y	Y	Mgmt	CxP 70055	3.1	3.1
								CxP 70059	1.1	MGT-1
								CxP 70059	1.2	MGT-2
NPR 8715.3C	01.02.1.e	45570	Institutional and Programmatic Safety Requirements: NASA General Safety Program Roles and Responsibilities: Ensure that safety surveillance and periodic inspections are conducted to assure compliance with NASA safety policies and to	S	Y	Y	Mgmt	CxP 70059	1.9	MGT-25
								CxP 70059	2.1.6	SAF-175
								CxP 70059	2.2.2.2	SAF-40
NPR 8715.3C	01.02.1.f	45571	Institutional and Programmatic Safety Requirements: NASA General Safety Program Roles and Responsibilities: Ensure that technical reviews of the safety of	S	Y	Y	Safety	CxP 70055	4.6.1.2	4.6.1.2
								CxP 70059	1.16	SAF-78
NPR 8715.3C	01.02.1.g	45572	Institutional and Programmatic Safety Requirements: NASA General Safety Program Roles and Responsibilities: Ensure that trained individual(s) determine the corrective actions needed for mitigating or controlling safety risk for all activities. (Requirement 45572)	S	Y	Y	Mgmt	CxP 70059	2.1.12	SAF-1009
								CxP 70059	2.1.12	SAF-1010
								CxP 70059	2.1.12	SAF-87
								CxP 70059	2.2.1.2.1	SAF-20
NPR 8715.3C	01.02.1.h	45573	Institutional and Programmatic Safety Requirements: NASA General Safety Program Roles and Responsibilities: Ensure that NASA employees and safety professionals are trained for their roles and responsbilities associated with specific safety functions. (Requirement 45573)	S	Y	Y	Safety	CxP 70059	2.2.2.2	SAF-45
NPR 8715.3C	01.02.1.i(1)	45574	Institutional and Programmatic Safety Requirements: NASA General Safety Program Roles and Responsibilities: Ensure that software safety is included in their safety programs (Requirement 45574).	S	Y	Y	Safety	CxP 70059	2.2.3	SAF-183
								CxP 70059	2.2.3	SAF-70
								CxP 70059	2.2.3	SAF-71
								CxP 70059	2.2.3	SAF-72
NPR 8715.3C	01.02.1.L	45578	Institutional and Programmatic Safety Requirements: NASA General Safety Program Roles and Responsibilities: Ensure the integrity of information and information systems, where compromise may impact safety, by adherence to NASA information technology security procedures as required by NPR 2810.1, Security of Information Technology. (Requirement 45578)	S	Y	Y	PP&C	CxP 70073	0	SCM-002P
NPR 8715.3C	01.03.1.a(1)	45581	Institutional and Programmatic Safety Requirements: Public Safety: Center Directors, project managers, supervisors and NASA employees shall: Eliminate risk or the adverse effect of NASA operations on the public, or provide public protection by exclusion or other protective measures where the risk or the adverse effect of NASA operations on the public cannot be eliminated. (Requirement 45581)	S	Y	Y	Mgmt	CxP 70059	1.1	MGT-1
NPR 8715.3C	01.05.2.a	45652	Institutional and Programmatic Safety Requirements: Program Management Roles and Responsibilities in the NASA Safety Program: Project managers shall ensure	S	Y	Y	Mgmt	CxP 70059	1.13	MGT-31
								CxP 70059	1.13	MGT-32
NPR 8715.3C	01.05.2.b	45653	Institutional and Programmatic Safety Requirements: Program Management Roles and Responsibilities in the NASA Safety Program: Project Managers shall ensure	S	Y	Y	Mgmt	CxP 70059	1.13	MGT-31
								CxP 70059	1.13	MGT-32
NPR 8715.3C	01.05.2.c	45654	Institutional and Programmatic Safety Requirements: Program Management Roles and Responsibilities in the NASA Safety Program: Project managers shall ensure	S	Y	Y	Mgmt	CxP 70059	1.13	MGT-31
								CxP 70059	1.13	MGT-32
NPR 8715.3C	01.05.2.d	45655	Institutional and Programmatic Safety Requirements: Program Management Roles and Responsibilities in the NASA Safety Program: Project managers shall ensure	S	Y	Y	Mgmt	CxP 70059	1.13	MGT-31
								CxP 70059	1.13	MGT-32
NPR 8715.3C	01.05.2.e	45656	Institutional and Programmatic Safety Requirements: Program Management Roles and Responsibilities in the NASA Safety Program: Project managers shall ensure	S	Y	Y	Mgmt	CxP 70059	1.13	MGT-31
								CxP 70059	1.13	MGT-32
NPR 8715.3C	01.05.2.f.01	45658	Institutional and Programmatic Safety Requirements: Program Management Roles and Responsibilities in the NASA Safety Program: Project managers shall ensure	S	Y	Y	Mgmt	CxP 70059	1.13	MGT-31
								CxP 70059	1.13	MGT-32
NPR 8715.3C	01.05.2.f.02	45659	Institutional and Programmatic Safety Requirements: Program Management Roles and Responsibilities in the NASA Safety Program: Project managers shall ensure	S	Y	Y	Mgmt	CxP 70059	1.13	MGT-31
								CxP 70059	1.13	MGT-32
NPR 8715.3C	01.05.2.f.03	45660	Institution:Project managers shall ensure that the SMA Plan: As a minimum, addresses the following topics and associated requirements: Risk assessment per	S	Y	Y	Mgmt	CxP 70059	1.13	MGT-31
								CxP 70059	1.13	MGT-32
NPR 8715.3C	01.05.2.f.04	45661	Institutional and Programmatic Safety Requirements: Program Management Roles and Responsibilities in the NASA Safety Program: Project managers shall ensure	S	Y	Y	Mgmt	CxP 70059	1.13	MGT-31
								CxP 70059	1.13	MGT-32
NPR 8715.3C	01.05.2.f.05	45662	Institutional and Programmatic Safety Requirements: Program Management Roles and Responsibilities in the NASA Safety Program: Project managers shall ensure	S	Y	Y	Mgmt	CxP 70059	1.13	MGT-31
								CxP 70059	1.13	MGT-32
NPR 8715.3C	01.05.2.f.06	45663	Institutional and Programmatic Safety Requirements: Program Management Roles and Responsibilities in the NASA Safety Program: Project managers shall ensure	S	Y	Y	Mgmt	CxP 70059	1.13	MGT-31
								CxP 70059	1.13	MGT-32

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NPR 8715.3C	01.05.2.f.07	45664	Institutional and Programmatic Safety Requirements: Program Management Roles and Responsibilities in the NASA Safety Program: Project managers shall ensure	S	Y	Y	Mgmt	CxP 70059	1.13	MGT-31
								CxP 70059	1.13	MGT-32
NPR 8715.3C	01.05.2.f.08	45665	Institutional and Programmatic Safety Requirements: Program Management Roles and Responsibilities in the NASA Safety Program: Project managers shall ensure	S	Y	Y	Mgmt	CxP 70059	1.13	MGT-31
								CxP 70059	1.13	MGT-32
NPR 8715.3C	01.05.2.f.09	45666	Institutional and Programmatic Safety Requirements: Program Management Roles and Responsibilities in the NASA Safety Program: Project managers shall ensure	S	Y	Y	Mgmt	CxP 70059	1.13	MGT-31
								CxP 70059	1.13	MGT-32
NPR 8715.3C	01.05.2.f.10	45667	Institutional and Programmatic Safety Requirements: Program Management Roles and Responsibilities in the NASA Safety Program: Project managers shall ensure	S	Y	Y	Mgmt	CxP 70059	1.13	MGT-31
								CxP 70059	1.13	MGT-32
NPR 8715.3C	01.05.3	45668	Institutional and Programmatic Safety Requirements: Program Management Roles and Responsibilities in the NASA Safety Program: Project Managers shall ensure	S	Y	Y	Quality	CxP 70059	5.2.6.3	QAS-73
								CxP 70059	5.2.7.7.2	QAS-37
NPR 8715.3C	01.06.1.1.a(1)	45672	Institutional and Programmatic Safety Requirements: Risk Assessment and Risk Acceptance: Risk Assessment: Project managers for flight systems and line	S	Y	Y	Safety	CxP 70059	2.2.1.2	SAF-12
								CxP 70059	2.2.1.2	SAF-182
NPR 8715.3C	01.06.2.1.a	45676	Institutional and Programmatic Safety Requirements: Risk Assessment and Risk Acceptance: Risk Acceptance: Center Directors and project managers shall: Establish and document a formal, closed loop, transparent decision-making process for accpeting residual risk for their assigned activities, personnel, and/or property. (Requirement 45676)	S	Y	Y	Safety	CxP 70059	2.2.2.2	SAF-36
NPR 8715.3C	01.06.2.1.b	45677	Institutional and Programmatic Safety Requirements: Risk Assessment and Risk Acceptance: Risk Acceptance: Center Directors and project managers shall: Meet Federal safety and health standards when making risk-informed decisions to accept residual risk. (Requirement 45677)	S	Y	Y	Safety	CxP 70059	2.2.2.2	SAF-43
NPR 8715.3C	01.06.2.1.c(1)	45678	Institutional and Programmatic Safety Requirements: Risk Assessment and Risk Acceptance: Risk Acceptance: Center Directors and project managers shall: Reduce the risk to an acceptable level using the technical safety requirements	S	Y	Y	Safety	CxP 70059	2.2.1	SAF-1015
								CxP 70059	2.2.1	SAF-181
NPR 8715.3C	01.06.2.1.d	45680	Institutional and Programmatic Safety Requirements: Risk Assessment and Risk Acceptance: Risk Acceptance: Center Directors and project managers shall: Only accept residual risk consistent with NASA requirements and, in all cases, ensure the acceptance of risk to NASA employees and/or equipment does not endanger the public or NASA employees. (Requirement 45680)	S	Y	Y	Safety	CxP 70059	2.2.1.2	SAF-1018
								CxP 70059	2.2.1.2	SAF-1019
								CxP 70059	2.2.1.2	SAF-44
NPR 8715.3C	01.06.2.1.e	45681	Institutional and Programmatic Safety Requirements: Risk Assessment and Risk Acceptance: Risk Acceptance: Center Directors and project managers shall:	S	Y	Y	Safety	CxP 70056	4.2.3	4.2.3
								CxP 70059	2.2.2.2	SAF-43
NPR 8715.3C	01.06.2.1.f(1)	45682	Institutional and Programmatic Safety Requirements: Risk Assessment and Risk Acceptance: Risk Acceptance: Center Directors and project managers shall: Communicate to: 1) the cognizant office of primary responsibility (OSMA, Office of the Chief Engineer (OCE), Office of the Chief Health and Medical Officer (OCHMO) for review, decisions regarding residual risk acceptance and (Requirement 45682)	S	Y	Y	Mgmt	MD013	0	MD013
NPR 8715.3C	01.06.2.1.f(2)	45683	Institutional and Programmatic Safety Requirements: Risk Assessment and Risk Acceptance: Risk Acceptance: Center Directors and project managers shall: Communicate to: 2) to any employee or person for whom the risk has been accepted. (Requirement 45683)	S	Y	Y	Mgmt	MD013	0	MD013
NPR 8715.3C	01.07.1.1.a	45689	Institutional and Programmatic Safety Requirements: Technical Safety Requirements for NASA-Unique Designs and Operations: Risk Reduction Protocol: Project managers shall ensure that hazards are mitigated according to the following stated order of precedence: Eliminate hazards. (Requirement 45689)	S	Y	Y	Safety	CxP 70059	2.2.1.1	SAF-1041
NPR 8715.3C	01.07.1.1.b	45690	Institutional and Programmatic Safety Requirements: Technical Safety Requirements for NASA-Unique Designs and Operations: Risk Reduction Protocol: Project managers shall ensure that hazards are mitigated according to the following stated order of precedence: Minimize the hazard risk through design/operation. (Requirement 45690)	S	Y	Y	Safety	CxP 70059	2.2.1.1	SAF-1041
NPR 8715.3C	01.07.1.1.c	45691	Institutional and Programmatic Safety Requirements: Technical Safety Requirements for NASA-Unique Designs and Operations: Risk Reduction Protocol: Project managers shall ensure that hazards are mitigated according to the following stated order of precedence: Incorporate safety devices. (Requirement 45691)	S	Y	Y	Safety	CxP 70059	2.2.1.1	SAF-1041
NPR 8715.3C	01.07.1.1.d	45692	Institutional and Programmatic Safety Requirements: Technical Safety Requirements for NASA-Unique Designs and Operations: Risk Reduction Protocol: Project managers shall ensure that hazards are mitigated according to the following stated order of precedence: Provide cautions and warning devices. (Requirement 45692)	S	Y	Y	Safety	CxP 70059	2.2.1.1	SAF-1041
NPR 8715.3C	01.07.1.1.e(1)	45693	Institutional and Programmatic Safety Requirements: Technical Safety Requirements for NASA-Unique Designs and Operations: Risk Reduction Protocol: Project managers shall ensure that hazards are mitigated according to the following stated order of precedence: Develop administrative procedures and training. (Requirement 45693)	S	Y	Y	Safety	CxP 70059	2.2.1.1	SAF-1041
NPR 8715.3C	01.07.4	45723	Institutional and Programmatic Safety Requirements: Technical Safety Requirements for NASA-Unique Designs and Operations: System Safety Managers	S	Y	Y	Mgmt	CxP 70055	3.1.b	3.1.b
								CxP 70055	4.1	4.1
NPR 8715.3C	01.13.4.a	45793	Institutional and Programmatic Safety Requirements: Safety Variances: Center Directors (or designees) and project managers shall: Establish and implement	S	Y	Y	Mgmt	CxP 70059	1.5	MGT-14
								CxP 70059	1.5	MGT-47
NPR 8715.3C	01.13.4.b	45794	Institutional and Programmatic Safety Requirements: Safety Variances: Center Directors (or designees) and project managers shall: Ensure that all variance	S	Y	Y	Mgmt	CxP 70059	1.5	MGT-14
								CxP 70059	1.5	MGT-47
NPR 8715.3C	01.13.4.c	45795	Institutional and Programmatic Safety Requirements: Safety Variances: Center Directors (or designees) and project managers shall: Ensure all variance requests	S	Y	Y	Mgmt	CxP 70059	1.5	MGT-14
								CxP 70059	1.5	MGT-47
NPR 8715.3C	01.13.4.d	45796	Institutional and Programmatic Safety Requirements: Safety Variances: Center Directors (or designees) and project managers shall: Ensure all requests for	S	Y	Y	Mgmt	CxP 70059	1.5	MGT-14
								CxP 70059	1.5	MGT-47
NPR 8715.3C	01.13.4.e	45797	Institutional and Programmatic Safety Requirements: Safety Variances: Center Directors (or designees) and project managers shall: Ensure variance requests are	S	Y	Y	Mgmt	CxP 70059	1.5	MGT-14
								CxP 70059	1.5	MGT-47
NPR	01.13.4.f	45798	Institutional and Programmatic Safety Requirements: Safety Variances: Center	S	Y	Y	Mgmt	CxP 70059	1.5	MGT-14

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8715.3C			Directors (or designees) and project managers shall: Provide copies of all approved					CxP 70059	1.5	MGT-47
NPR 8715.3C	01.13.4.g	45799	Institutional and Programmatic Safety Requirements: Safety Variances: Center Directors (or designees) and project managers shall: Forward any request for	S	Y	Y	Mgmt	CxP 70059	1.5	MGT-14
								CxP 70059	1.5	MGT-47
NPR 8715.3C	02.5.1.1.a	45892	System Safety: Core Requirements for System Safety Processes: System Safety Technical Plan (SSTP): Project managers shall: Ensure, for Category I projects/programs, that the SSTP is approved by the governing Program Management Council (PMC) and has concurrence by the cognizant SMA managers and the project's senior engineer. (Requirement 45892)	S	Y	Y	Safety	CxP 70055	0	CxP 70055
NPR 8715.3C	02.5.1.1.b	45893	System Safety: Core Requirements for System Safety Processes: System Safety Technical Plan (SSTP): Project managers shall: Ensure that the System Safety Manager and the prime contractor (for out-of-house projects) have the resources to implement the SSTP. (Requirement 45893)	S	Y	Y	Safety	CxP 70059	2.2.2.2	SAF-32
NPR 8715.3C	02.5.1.1.c	45894	System Safety: Core Requirements for System Safety Processes: System Safety Technical Plan (SSTP): Project managers shall: Ensure, for Category I projects/programs, that changes to the SSTP are approved by the governing PMC and have concurrence by the Chief, Safety and Mission Assurance. (Requirement 45894)	S	Y	Y	Safety	CxP 70055	0	CxP 70055
NPR 8715.3C	02.5.1.1.d	45895	System Safety: Core Requirements for System Safety Processes: System Safety Technical Plan (SSTP): Project managers shall: When the SSTP is not an integral part of the SEMP, ensure that the SSTP is coordinated with the SEMP for the integration of system safety activities with other system engineering technical processes. (Requirement 45895)	S	Y	Y	Safety	CxP 70055	0	CxP 70055
NPR 8715.3C	02.5.1.3.a	45901	System Safety: Core Requirements for System Safety Processes: System Safety Technical Plan (SSTP): The assigned System Safety Manager shall: Develop a SSTP during the project formulation phase and update the plan throughout the system life cycle. (Requirement 45901)	S	Y	Y	Safety	CxP 70055	0	CxP 70055
NPR 8715.3C	02.5.1.3.b	45902	System Safety: Core Requirements for System Safety Processes: System Safety Technical Plan (SSTP): The assigned System Safety Manager shall: Ensure that the scope of system safety technical processes in the SSTP follows the graded approach specified in Tables 2.1 and 2.2. (Requirement 45902)	S	Y	Y	Safety	CxP 70055	0	CxP 70055
NPR 8715.3C	02.5.1.3.c	45903	System Safety: Core Requirements for System Safety Processes: System Safety Technical Plan (SSTP): The assigned System Safety Manager shall: Ensure that the SSTP provides the specifics of the system safety modeling activities and their application to risk-informed decision making and safety monitoring throughout the project life cycle. (Requirement 45903)	S	Y	Y	Safety	CxP 70055	0	CxP 70055
NPR 8715.3C	02.5.1.3.d	45904	System Safety: Core Requirements for System Safety Processes: System Safety Technical Plan (SSTP): The assigned System Safety Manager shall: In consultation with the project managers, establish and document, in the SSTP, the objectives and scope of system safety tasks and define applicable safety deliverables and performance measures. (Requirement 45904)	S	Y	Y	Safety	CxP 70055	0	CxP 70055
NPR 8715.3C	02.5.1.3.e	45905	System Safety: Core Requirements for System Safety Processes: System Safety Technical Plan (SSTP): The assigned System Safety Manager shall: Provide technical direction and manage implementation of system safety activities as specified in the SSTP. (Requirement 45905)	S	Y	Y	Safety	CxP 70055	0	CxP 70055
NPR 8715.3C	02.5.1.3.f	45906	System Safety: Core Requirements for System Safety Processes: System Safety Technical Plan (SSTP): The assigned System Safety Manager shall: Ensure that system safety engineering activities are integrated into system engineering technica processes. (Requirement 45906)	S	Y	Y	Safety	CxP 70055	0	CxP 70055
NPR 8715.3C	02.5.1.3.g	45907	System Safety: Core Requirements for System Safety Processes: System Safety Technical Plan (SSTP): The assigned System Safety Manager shall: Determine the acceptability of residual risk stemming from safety assessments. (Requirement 45907)	S	Y	Y	Safety	CxP 70055	0	CxP 70055
NPR 8715.3C	02.5.1.3.h	45908	System Safety: Core Requirements for System Safety Processes: System Safety Technical Plan (SSTP): The assigned System Safety Manager shall: Ensure that specific safety requirements are integrated into overall programmatic requirements and are reflected in applicable program and planning documents including the statement of work for contractor designs. (Requirement 45908)	S	Y	Y	Safety	CxP 70055	0	CxP 70055
NPR 8715.3C	02.5.1.3.i	45909	System Safety: Core Requirements for System Safety Processes: System Safety Technical Plan (SSTP): The assigned System Safety Manager shall: Maintain appropriate safety participation in the program design, tests, operations, failures and mishaps, and contractor system safety activities at a level consistent with mishap potential for the life of the program. (Requirement 45909)	S	Y	Y	Safety	CxP 70059	2.2.2.3	SAF-57
NPR 8715.3C	02.5.1.3.j	45910	System Safety: Core Requirements for System Safety Processes: System Safety Technical Plan (SSTP): The assigned System Safety Manager shall: Establish an	S	Y	Y	Mgmt	CxP 70055	3.2	3.2
								CxP 70059	1.8	MGT-18
NPR 8715.3C	02.5.1.3.k	45911	System Safety: Core Requirements for System Safety Processes: System Safety Technical Plan (SSTP): The assigned System Safety Manager shall: Support	S	Y	Y	Mgmt	CxP 70059	1.9	MGT-27
								CxP 70059	2.1.6	SAF-175
NPR 8715.3C	02.5.2.1	45915	System Safety: Core Requirements for System Safety Processes:System Safety Modeling: System Safety Managers shall ensure that the system safety modeling activities are fully integrated into system engineering and are supported by domain, systems and specialty engineers. (Requirement 45915)	S	Y	Y	Safety	CxP 70059	2.2.2.2	SAF-42
NPR 8715.3C	02.5.2.2.a	45917	System Safety: Core Requirements for System Safety Processes: System Safety Modeling: System safety engineers shall: Ensure that system safety models use systematic, replicable, and scenario-based techniques to identify hazards, to characterize the risk of accidents, to identify risk control measures, and to identify key uncertainties. (Requirement 45917)	S	Y	Y	Safety	CxP 70059	2.2.1	SAF-181
NPR 8715.3C	02.5.2.2.b	45918	System Safety: Core Requirements for System Safety Processes: System Safety Modeling: System safety engineers shall: Initially conduct system safety analyses	S	Y	Y	Safety	CxP 70059	2.2.1	SAF-181
								CxP 70059	2.2.1	SAF-6

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NPR 8715.3C	02.5.2.2.c	45919	System Safety: Core Requirements for System Safety Processes: System Safety Modeling: System safety engineers shall: Ensure, for Category I and II	S	Y	Y	Safety	CxP 70059	2.2.1.2	SAF-12
								CxP 70059	6	PRA-1
NPR 8715.3C	02.5.2.2.d	45920	System Safety: Core Requirements for System Safety Processes: System Safety Modeling: System safety engineers shall: Ensure that the system safety models are developed in an iterative process to allow model expansion, model updating, and model integration as the design evolves and operational experience is acquired. (Requirement 45920)	S	Y	Y	Safety	CxP 70059	2.2.2.3	SAF-66
NPR 8715.3C	02.5.2.2.f	45922	System Safety: Core Requirements for System Safety Processes: System Safety Modeling: System safety engineers shall: Use system-specific and all relevant data including failure histories, mishap investigation findings, and the NASA LLIS in system safety analysis. (Requirement 45922)	S	Y	Y	Safety	CxP 70059	2.2.1	SAF-181
NPR 8715.3C	02.5.2.2.g	45923	System Safety: Core Requirements for System Safety Processes: System Safety Modeling: System safety engineers shall: Maintain an up-to-date database of identified hazards, accident scenarios, probabilities and consequences, and key	S	Y	Y	Safety	CxP 70059	2.2.2.3	SAF-1024
								CxP 70059	2.2.2.3	SAF-56
NPR 8715.3C	02.5.2.2.h	45924	System Safety: Core Requirements for System Safety Processes: System Safety Modeling: System safety engineers shall: Document the bases for the system safety analyses including key assumptions, accident scenarios, probabilities, consequence severities, and uncertainties such that they are traceable. (Requirement 45924)	S	Y	Y	Safety	CxP 70059	2.2.1	SAF-181
NPR 8715.3C	02.5.3.1.a	45928	System Safety: Core Requirements for System Safety Processes: Application of System Safety Models for Risk-informed Decisions: Program/project managers shall: Ensure that a framework is constructed for systematically incorporating system safety analysis results into the evaluation of decision alternatives. (Requirement 45928)	S	Y	Y	Safety	CxP 70059	2.2.2.2	SAF-1020
NPR 8715.3C	02.5.3.1.b	45929	System Safety: Core Requirements for System Safety Processes: Application of System Safety Models for Risk-informed Decisions: Program/project managers	S	Y	Y	Safety	CxP 70059	2.2.2.2	SAF-36
								CxP 70059	2.2.2.2	SAF-43
NPR 8715.3C	02.5.3.1.c	45930	System Safety: Core Requirements for System Safety Processes: Application of System Safety Models for Risk-informed Decisions: Program/project managers shall: Ensure acceptable residual risks^19 are accepted in writing. (See paragraph 1.6 of this NPR.) (Requirement 45930) ^19 Residual risk is the level of risk that remains present after the applicable safety-related requirements have been satisfied. In a risk-informed context, such requirements may include measures and provisions intended to reduce risk from above to below a defined acceptable level.	S	Y	Y	Safety	CxP 70056	0	CxP 70056
								CxP 70059	2.2.1.2	SAF-1018
								CxP 70059	2.2.1.2	SAF-1019
								CxP 70059	2.2.1.2	SAF-44
								CxP 70059	2.2.2.2	SAF-43
NPR 8715.3C	02.5.3.1.d	45931	System Safety: Core Requirements for System Safety Processes: Application of System Safety Models for Risk-informed Decisions: Program/project managers	S	Y	Y	Safety	CxP 70059	1.16	SAF-78
								MD013	0	MD013
NPR 8715.3C	02.5.3.1.e	45932	System Safety: Core Requirements for System Safety Processes: Application of System Safety Models for Risk-informed Decisions: Program/project managers shall: Where residual risks have been determined by either the cognizant technical authority or the cognizant SMA authority as "unacceptable," initiate risk	S	Y	Y	Safety	CxP 70056	0	CxP 70056
								CxP 70059	2.2.2.4	SAF-1027
NPR 8715.3C	02.5.3.1.f	45933	System Safety: Core Requirements for System Safety Processes: Application of System Safety Models for Risk-informed Decisions: Program/project managers shall: Ensure that the requirements of this chapter are specified in related contracts, memoranda of understanding, and other agreement documents. (See Chapter 9 of this NPR.) (Requirement 45933)	S	Y	Y	Safety	CxP 70059	2.1.2	SAF-1001
								CxP 70059	2.1.9	SAF-179
								CxP 70059	2.1.9	SAF-23
								CxP 70059	2.2.2.2	SAF-38
								CxP 70059	2.2.2.2	SAF-39
NPR 8715.3C	02.5.3.2.a	45935	System Safety: Core Requirements for System Safety Processes: Application of System Safety Models for Risk-informed Decisions: The System Safety Manager	S	Y	Y	Safety	CxP 70059	1.16	SAF-78
								CxP 70059	2.2.2.3	SAF-60
NPR 8715.3C	02.5.3.2.b	45936	System Safety: Core Requirements for System Safety Processes: Application of System Safety Models for Risk-informed Decisions: The System Safety Manager shall: Ensure that the system safety models incorporate all the safety attributes important to risk-informed decision making by working with the project manager and other decision makers as deemed appropriate. (Requirement 45936)	S	Y	Y	Safety	CxP 70059	2.2.2.2	SAF-42
NPR 8715.3C	02.5.3.2.c	45937	System Safety: Core Requirements for System Safety Processes: Application of System Safety Models for Risk-informed Decisions: The System Safety Manager shall: Establish the methods and tools that are used in the risk-informed framework.	S	Y	Y	Safety	CxP 70059	2.2.2.3	SAF-1022
								CxP 70059	2.2.2.3	SAF-65
NPR 8715.3C	02.5.3.2.d	45938	System Safety: Core Requirements for System Safety Processes: Application of System Safety Models for Risk-informed Decisions: The System Safety Manager shall: Check and validate the methods and tools before implementation and obtain concurrence from the project manager. (Requirement 45938)	S	Y	Y	Safety	CxP 70059	2.2.2.3	SAF-1023
NPR 8715.3C	02.5.3.2.e	45939	System Safety: Core Requirements for System Safety Processes: Application of System Safety Models for Risk-informed Decisions: The System Safety Manager shall: Document the bases for the methods and tools used and analytical results. (Requirement 45939)	S	Y	Y	Safety	CxP 70059	2.2.2.3	SAF-1026
NPR 8715.3C	02.5.4.1	45942	System Safety: Core Requirements for System Safety Processes: Performance Monitoring: Project managers shall ensure that the performance attributes and precursors that are identified as being important indicators of system safety are monitored. (Requirement 45942)	S	Y	Y	Safety	CxP 70059	2.2.2.2	SAF-1021
NPR 8715.3C	02.5.4.2.a	45944	System Safety: Core Requirements for System Safety Processes: Performance Monitoring: The System Safety Manager shall: Establish the methods and tools that are used in the performance monitoring and precursor assessments. (Requirement 45944)	S	Y	Y	Safety	CxP 70059	2.2.2.3	SAF-1022
NPR 8715.3C	02.5.4.2.b	45945	System Safety: Core Requirements for System Safety Processes: Performance Monitoring: The System Safety Manager shall: Check and validate the methods and tools used for performance monitoring and precursor assessments before implementation. (Requirement 45945)	S	Y	Y	Safety	CxP 70059	2.2.2.3	SAF-1023

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NPR 8715.3C	02.5.4.2.c	45946	System Safety: Core Requirements for System Safety Processes: Performance Monitoring: The System Safety Manager shall: Maintain an up-to-date databse of the performance monitoring results and precursor results. (Requirement 45946)	S	Y	Y	Safety	CxP 70059	2.2.2.3	SAF-1024
NPR 8715.3C	02.5.4.2.d	45947	System Safety: Core Requirements for System Safety Processes: Performance Monitoring: The System Safety Manager shall: Ensure that the performance monitoring and precursor data are fed back into system safety analyses and the results updated. (Requirement 45947)	S	Y	Y	Safety	CxP 70059	2.2.2.3	SAF-1025
NPR 8715.3C	02.5.4.2.e	45948	System Safety: Core Requirements for System Safety Processes: Performance Monitoring: The System Safety Manager shall: Document the bases for the methods and tools that are used in the performance monitoring and precursor assessments. (Requirement 45948)	S	Y	Y	Safety	CxP 70059	2.2.2.3	SAF-1026
NPR 8715.3C	02.6.1.a	45952	System Safety: System Safety Reviews: The program/project manager shall: Conduct periodic system safety and mission success reviews of their program/project depending on the complexity of the system. Note: The greater the risks, complexity of systems, or visibility of the programs, the greater the	S	Y	Y	Mgmt	CxP 70059	1.16	MGT-39
								CxP 70059	1.16	SAF-78
								CxP 70059	1.9	MGT-27
NPR 8715.3C	02.6.1.b	45953	System Safety: System Safety Reviews: The program/project manager shall: Document the periodicity of the System Safety and Mission Success Program Reviews in the SSTP. (Requirement 45953)	S	Y	Y	Safety	CxP 70059	2.2.2.2	SAF-35
NPR 8715.3C	02.6.1.c	45954	System Safety: System Safety Reviews: The program/project manager shall: Ensure that the System Safety and Mission Success Program Reviews focus on the evaluation of management and technical documentation, hazard closure, and the safety residual risks remaining in the program at that stage of development. (Requirement 45954)	S	Y	Y	Safety	CxP 70059	1.16	SAF-78
NPR 8715.3C	02.6.1.d	45955	System Safety: System Safety Reviews: The program/project manager shall: Establish and maintain dedicated independent assessment activities for Priority I programs and projects, such as the Constellation Program. (Requirement 45955)	S	Y	Y	Safety	CxP 70059	2.2.2.3	SAF-55
NPR 8715.3C	02.6.2.a	45957	System Safety: System Safety Reviews: The System Safety Manager shall: Conduct periodic independent reviews of the system safety tasks keyed to project milestones (Requirement 45957)	S	Y	Y	Safety	CxP 70059	2.2.2.3	SAF-54
NPR 8715.3C	02.6.2.b	45958	System Safety: System Safety Reviews: The System Safety Manager shall: Assist and support independent review groups established to provide independent assessments of the program. (Requirement 45958)	S	Y	Y	Safety	CxP 70059	2.2.2.3	SAF-55
NPR 8715.3C	02.6.2.c	45959	System Safety: System Safety Reviews: The System Safety Manager shall: Support the OSMA independent safety assessment process to determine readiness to conduct tests and operations having significant levels of safety risks. (Requirement 45959)	S	Y	Y	Safety	CxP 70059	2.2.2.3	SAF-59
NPR 8715.3C	02.7.1.a	45963	System Safety: Change Review: The project manager and the System Safety Manager shall: Update the system safety analyses to identify any change in risk.	S	Y	Y	Safety	CxP 70038	4.1	78-4.1
								CxP 70059	2.2.1	SAF-181
NPR 8715.3C	02.7.1.b	45964	System Safety: Change Review: The project manager and the System Safety Manager shall: Ensure that safety personnel assess the potential safety impact of	S	Y	Y	Safety	CxP 70038	4.1	78-4.1
								CxP 70059	2.2.1	SAF-181
NPR 8715.3C	02.7.1.c	45965	System Safety: Change Review: The project manager and the System Safety Manager shall: Ensure that proposed changes to correct a safety problem are	S	Y	Y	Safety	CxP 70038	4.1	78-4.1
								CxP 70059	2.2.1	SAF-181
NPR 8715.3C	02.7.1.d	45966	System Safety: Change Review: The project manager and the System Safety Manager shall: Ensure that the safety impact for every change that is proposed to a program baseline (even if the statement is "No Impact") is documented. (Requirement 45966)	S	Y	Y	Safety	CxP 70059	2.2.1	SAF-1014
								CxP 70059	2.2.2.3	SAF-64
								CxP 70059	2.2.4	SAF-73
NPR 8715.3C	02.8.1.a	45970	System Safety: Documentation: The project manager (or designated agent) and the System Safety Manager shall: Ensure that all pertinent details of the system safety analysis and review are traceable from the initial identification of the risks through their resolution and any updates in the SSTP. (Requirement 45970)	S	Y	Y	Safety	CxP 70059	2.2.1	SAF-6
NPR 8715.3C	02.8.1.b	45971	System Safety: Documentation: The project manager (or designated agent) and the System Safety Manager shall: Ensure that records are maintained per NPR 1411.1, NASA Records Retention Schedules. (Requirement 45971)	S	Y	Y	PP&C	CxP 70059	A.1.4.2.4	QAS-61
NPR 8715.3C	02.8.2.a	45973	System Safety: Documentation: The System Safety Manager shall: Submit a system safety analysis report to the program/project manager at each milestone (formulation, evaluation, implementation, or other equivalent milestones [e.g., Safety Requirements Review^20, Preliminary Design Review, Critical Design Review, and Flight Readiness Review]) detailing the results of the system safety analyses completed to date to document the status of system safety tasks. (Requirement 45973) ^20 Safety requirements include both deterministic and risk-informed requirements. A deterministic safety requirement is the qualitative or quantitative definition of a threshold of action or performance that must be met by a mission-related design item, system, or activity in order for that item, system, or activity to be acceptably safe. A risk-informed requirement is a safety requirement that has been established, at least in part, on the basis of the consideration of a safety-related risk metric and its associated uncertainty.	S	Y	Y	Safety	CxP 70059	2.2.2.3	SAF-60
NPR 8715.3C	02.8.2.b	45974	System Safety: Documentation: The System Safety Manager shall: Ensure that each submitted revision to the system safety analysis report lists the risks that have been addressed, the risks that have yet to be addressed, and expected residual risks that will remain following the implementation of risk reduction strategies. (Requirement 45974)	S	Y	Y	Safety	CxP 70059	1.16	SAF-78
NPR 8715.3C	02.8.2.c	45975	System Safety: Documentation: The System Safety Manager shall: Ensure that the system safety analysis report documents management and technical changes that affect the established safety baseline (by changes in the planned approach, design, requirements, and implementation) and is revised when required. (Requirement 45975)	S	Y	Y	Safety	CxP 70059	1.16	SAF-78

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NPR 8715.3C	02.8.2.d	45976	System Safety: Documentation: The System Safety Manager shall: Ensure that a final approved system safety analysis report is produced that contains a verification of the resolution of the risks and a written acceptance of the residual risks from the program/project manager to complete the audit trail (Requirement 45976)	S	Y	Y	Safety	CxP 70059	2.2.2.2	SAF-43
NPR 8715.3C	03.05.1	46031	Operational Safety: Pressure System Safety: Center Directors and Project Managers shall use NPD 8710.5, NASA Safety Policy for Pressure Vessels and Pressurized Systems, to protect personnel and property from hazards posed by pressure vessels and pressurized systems. Note: This document assigns responsibility for the various aspects of a NASA pressure vessel and pressurized systems program, references the codes, standards, guides, and Federal regulations that must be followed, and establishes unique NASA requirements. (Requirement 46031)	S	Y	Y	Safety	CxP 70059	2.5	SAF-1033
NPR 8715.3C	03.08.2.a	46070	Operational Safety: Hazardous Operations: Center Directors and project managers shall: Identify, assess, analyze, and develop adequate safety controls for all hazardous operations. (Requirement 46070)	S	Y	Y	Safety	CxP 70059	2.1.13	SAF-1011
								CxP 70059	2.1.13	SAF-1012
NPR 8715.3C	03.08.2.b	46071	Operational Safety: Hazardous Operations: Center Directors and project managers shall: Ensure that all hazardous operations have a Hazardous Operating Procedure or a Hazardous Operating Permit (HOP). (Requirement 46071) Note: HOPs consist of a detailed plan listing step-by-step functions or tasks to be performed on a	S	Y	Y	Safety	CxP 70059	2.1.13	SAF-1011
								CxP 70059	2.1.13	SAF-1012
NPR 8715.3C	03.08.2.c	46072	Operational Safety: Hazardous Operations: Center Directors and project managers shall: Ensure that all HOPs developed at NASA sites or for NASA operations have concurrence from the responsible fire protection or safety office. (Requirement 46072)	S	Y	Y	Safety	CxP 70059	2.1.13	SAF-1011
								CxP 70059	2.1.13	SAF-1012
NPR 8715.3C	03.08.2.d	46073	Operational Safety: Hazardous Operations: Center Directors and project managers shall: Ensure that all HOPs are approved by the NASA Center safety office or the contractor safety office to assure that a review has been performed. (Requirement 46073)	S	Y	Y	Safety	CxP 70059	2.1.13	SAF-1011
								CxP 70059	2.1.13	SAF-1012
NPR 8715.3C	03.08.2.e	46074	Operational Safety: Hazardous Operations: Center Directors and project managers shall: Ensure that deviations or changes to HOPs are also approved by the cognizant NASA Center safety office or contractor safety office to assure that a review has been preformed. (Requirement 46074) Note: If deviations or changes to	S	Y	Y	Safety	CxP 70059	2.1.13	SAF-1011
								CxP 70059	2.1.13	SAF-1012
NPR 8715.3C	03.08.2.f	46075	Operational Safety: Hazardous Operations: Center Directors and project managers shall: Ensure facility operating instructions and changes are developed based on the facility mission and operational requirements. (Requirement 46075)	S	Y	Y	Safety	CxP 70059	2.1.13	SAF-1011
								CxP 70059	2.1.13	SAF-1012
NPR 8715.3C	03.08.2.g	46076	Operational Safety: Hazardous Operations: Center Directors and project managers shall: Ensure that all procedures include sufficient detail to identify residual hazards and cautions to NASA personnel. (Requirement 46076)	S	Y	Y	Safety	CxP 70059	2.1.13	SAF-1011
								CxP 70059	2.1.13	SAF-1012
NPR 8715.3C	03.08.2.h	46077	Operational Safety: Hazardous Operations: Center Directors and project managers shall: Ensure that hazardous procedures are marked conspicuously on the title page; e.g., "THIS DOCUMENT CONTAINS HAZARDOUS OPERATIONS PROCEDURES," to alert operators that strict adherence to the procedural steps	S	Y	Y	Safety	CxP 70059	2.1.13	SAF-1011
								CxP 70059	2.1.13	SAF-1012
NPR 8715.3C	03.08.2.i	46078	Operational Safety: Hazardous Operations: Center Directors and project managers shall: Ensure that specific personnel certificaiton requirements are established, as listed in Chapter 7, in cases where hazardous operations (e.g., rigging, high voltage) depend on adherence to specific standards, guidelines, and training. (Requirement 46078)	S	Y	Y	Safety	CxP 70059	2.2.2.2	SAF-45
NPR 8715.3C	03.08.2.k	46080	Operational Safety: Hazardous Operations: Center Directors and project managers shall: Ensure that personnel use the buddy system whereby an adjacent or nearby person not directly exposed to the hazard serves as an observer to render assistance where the risk of injury is high. (Requirement 46080)	S	Y	Y	Safety	CxP 70059	2.1.13	SAF-1011
								CxP 70059	2.1.13	SAF-1012
NPR 8715.3C	03.09.2.d	46088	Operational Safety: Laboratory Hazards: Center Directors and project managers shall ensure that: The design, fabrication, or modification of laboratories used for experimentation, testing, or analyses performed on human or animal subjects are coordinated in advance with the OCHMO at (202) 358-2390. (Requirement 46088)	S	Y	Y	Safety	CxP 70059	2.1.13	SAF-1011
								CxP 70059	2.1.13	SAF-1012
NPR 8715.3C	03.14.2	46195	Operational Safety: Test Operations Safety: Center Directors and project managers shall ensure that test plans are developed and evaluated to assure test performance within safe operating limits. (Requirement 46195) Note: Evaluations will address the test article, test facility, testing procedures, test conditions, operator involvement, and potential risk to adjoining facilities and personnel.	S	Y	Y	Safety	CxP 70059	2.1.13	SAF-1011
NPR 8715.3C	03.14.3.2	46198	Operational Safety: Test Operations Safety: Safety Documentation: Center Directors and project managers shall ensure that established test controls are clearly identified in test drawings, facility drawings, and test procedures. (Requirement 46198)	S	Y	Y	Safety	CxP 70059	2.1.13	SAF-1011
								CxP 70059	2.1.13	SAF-1012
NPR 8715.3C	03.14.4.1.a	46201	Operational Safety: Test Operations Safety: Test System Requirements: Project managers responsible for developing test systems shall: Design test systems such that test personnel or critical test hardware are not subject to a test environment wherein a credible single-point failure (e.g., power loss) could result in injury, illness	S	Y	Y	Safety	CxP 70059	2.1.13	SAF-1011
								CxP 70059	2.1.13	SAF-1012
NPR 8715.3C	03.14.4.1.b	46202	Operational Safety: Test Operations Safety: Test System Requirements: Project managers responsible for developing test systems shall: Construct all systems (electrical, mechanical, pneumatic, and/or hydraulic) so that no single failure could cause a critical condition. (Requirement 46202)	S	Y	Y	Safety	CxP 70059	2.1.13	SAF-1011
								CxP 70059	2.1.13	SAF-1012
NPR 8715.3C	03.14.4.1.c	46203	Operational Safety: Test Operations Safety: Test System Requirements: Project managers responsible for developing test systems shall: Ensure that software may	S	Y	Y	SWA	CxP 70059	7.1	SWA-1
								CxP 70059	7.5.7.4.3	SWA-72
NPR 8715.3C	03.14.4.1.d	46204	Operational Safety: Test Operations Safety: Test System Requirements: Project managers responsible for developing test systems shall: Calibrate and certify safety-critical instrumentation before test operations and as required by test documentation or the test organization's internal procedures. (Requirement 46204)	S	Y	Y	Safety	CxP 70059	2.1.13	SAF-1011
								CxP 70059	2.1.13	SAF-1012

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NPR 8715.3C	03.14.4.1.e	46205	Operational Safety: Test Operations Safety: Test System Requirements: Project managers responsible for developing test systems shall: Ensure all personnel involved in test are informed of potential hazards, safety procedures, and protective measures. (Requirement 46205)	S	Y	Y	Safety	CxP 70059	2.1.13	SAF-1011
								CxP 70059	2.1.13	SAF-1012
NPR 8715.3C	03.14.4.1.f	46206	Operational Safety: Test Operations Safety: Test System Requirements: Project managers responsible for developing test systems shall: Ensure the availability of appropriate emergency medical treatment facilities. (Requirement 46206)	S	Y	Y	Safety	CxP 70059	2.1.13	SAF-1011
								CxP 70059	2.1.13	SAF-1012
NPR 8715.3C	03.14.4.1.g	46207	Operational Safety: Test Operations Safety: Test System Requirements: Project managers responsible for developing test systems shall: Conduct formal reviews of engineering designs that are complicated or potentially hazardous to facilities. (Requirement 46207)	S	Y	Y	Safety	CxP 70059	2.1.13	SAF-1011
								CxP 70059	2.1.13	SAF-1012
NPR 8715.3C	03.14.4.1.h	46208	Operational Safety: Test Operations Safety: Test System Requirements: Project managers responsible for developing test systems shall: Ensure test results report include anomalies, safety implications, and lessons learned. (Requirement 46208)	S	Y	Y	Safety	CxP 70059	2.1.13	SAF-1011
								CxP 70059	2.1.13	SAF-1012
NPR 8715.3C	03.14.5.1.a	46211	Operational Safety: Test Operations Safety: Test Readiness Review: Center Directors and project managers shall ensure that Test Readiness Reviews: Are conducted for tests involving new or modified hardware and/or procedures. (Requirement 46211)	S	Y	Y	Safety	CxP 70059	2.1.13	SAF-1013
NPR 8715.3C	03.14.5.1.b	46212	Operational Safety: Test Operations Safety: Test Readiness Review: Center Directors and project managers shall ensure that Test Readiness Reviews: Determine and document the safety, technical, and operational readiness of the	S	Y	Y	Safety	CxP 70059	2.1.13	SAF-1013
								CxP 70059	2.1.13	SAF-90
NPR 8715.3C	03.14.6.1	46214	Operational Safety: Test Operations Safety: Pre-test Meeting: Center Directors and project managers shall ensure that a pre-test meeting is conducted with all involved personnel to discuss the facility, design, instrumentation, safety, and operator training and certification. (Requirement 46214) Note: The meeting should also establish the test plan, identify test constraints to ensure facility safety, and determine test article readiness, ground support equipment readiness, and procedural readiness.	S	Y	Y	Safety	CxP 70059	2.1.13	SAF-1011
NPR 8715.3C	03.14.7.2.a	46218	Operational Safety: Test Operations Safety: Human Research Subjects: Center Directors and project managers shall ensure that: Tests involving hazardous substances, where human test subjects or test team personnel may be exposed, are reviewed for adequacy of test team safeguards, including direct communication between the test subjects and the test conductors. (Requirement 46218)	S	Y	Y	Safety	CxP 70059	2.1.13	SAF-1011
NPR 8715.3C	03.14.7.2.b	46219	Operational Safety: Test Operations Safety: Human Research Subjects: Center Directors and project managers shall ensure that: A facility environmental control system failure or failure in the distribution system affecting one pressure-suited occupant shall not affect any other pressure-suited occupant for test requiring crew participation in a pressure suit. (Requirement 46219)	S	Y	Y	Safety	CxP 70059	2.1.13	SAF-1011
								CxP 70059	2.1.13	SAF-1012
								CxP 70059	2.1.13	SAF-90
								CxP 70059	2.2.2.2.e	SAF-1035
								CxP 70059	2.5	SAF-1033
NPR 8715.3C	03.14.7.2.c	46220	Operational Safety: Test Operations Safety: Human Research Subjects: Center Directors and project managers shall ensure that: A means exists for immediately detecting an incipient fire or other hazardous condition in each crew compartment o any test area. (Requirement 46220)	S	Y	Y	Safety	CxP 70059	2.1.13	SAF-1011
								CxP 70059	2.1.13	SAF-1012
								CxP 70059	2.1.13	SAF-90
								CxP 70059	2.2.2.2.e	SAF-1035
								CxP 70059	2.5	SAF-1033
NPR 8715.3C	03.14.7.2.d	46221	Operational Safety: Test Operations Safety: Human Research Subjects: Center Directors and project managers shall ensure that: Automatic fire detection is provided for critical areas not suitable for visual monitoring. (Requirement 46221)	S	Y	Y	Safety	CxP 70059	2.1.13	SAF-1011
								CxP 70059	2.1.13	SAF-1012
								CxP 70059	2.1.13	SAF-90
								CxP 70059	2.2.2.2.e	SAF-1035
								CxP 70059	2.5	SAF-1033
NPR 8715.3C	03.14.7.2.e	46222	Operational Safety: Test Operations Safety: Human Research Subjects: Center Directors and project managers shall ensure that: Crewed test systems are designed for timely and unencumbered rescue of incapacitated crew members. (Requirement 46222)	S	Y	Y	Safety	CxP 70059	2.1.13	SAF-1011
								CxP 70059	2.1.13	SAF-1012
								CxP 70059	2.1.13	SAF-90
								CxP 70059	2.2.2.2.e	SAF-1035
								CxP 70059	2.5	SAF-1033
NPR 8715.3C	03.14.7.2.f	46223	Operational Safety: Test Operations Safety: Human Research Subjects: Center Directors and project managers shall ensure that: Software controlling crewed test systems are thoroughly analyzed to ensure that no command results in death or injury to the test subjects (Requirement 46223) Note: Policies and requirements for software are given in NPD 2820.1, NASA Software Policy, and NPR 7150.2, NASA Software Engineering Requirements.	S	Y	Y	Safety	CxP 70059	2.1.13	SAF-1011
								CxP 70059	2.1.13	SAF-1012
								CxP 70059	2.1.13	SAF-90
								CxP 70059	2.2.2.2.e	SAF-1035
								CxP 70059	2.5	SAF-1033

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NPR 8715.3C	03.14.7.2.g	46224	Operational Safety: Test Operations Safety: Human Research Subjects: Center Directors and project managers shall ensure that: Crewed test systems are designed to provide for manual overrides of critical software commands to ensure the safety of test subjects during any system event or test scenario (normal operation, malfunction, emergency). (Requirement 46224)	S	Y	Y	Safety	CxP 70059	2.1.13	SAF-1011
								CxP 70059	2.1.13	SAF-1012
								CxP 70059	2.1.13	SAF-90
								CxP 70059	2.2.2.2.e	SAF-1035
								CxP 70059	2.5	SAF-1033
NPR 8715.3C	03.14.7.2.h	46225	Operational Safety: Test Operations Safety: Human Research Subjects: Center Directors and project managers shall ensure that: Manual overrides of critical software commands support safe test termination and egress of test subjects. (Requirement 46225)	S	Y	Y	Safety	CxP 70059	2.1.13	SAF-1011
								CxP 70059	2.1.13	SAF-1012
								CxP 70059	2.1.13	SAF-90
								CxP 70059	2.2.2.2.e	SAF-1035
								CxP 70059	2.5	SAF-1033
NPR 8715.3C	03.14.7.2.i	46226	Operational Safety: Test Operations Safety: Human Research Subjects: Center Directors and project managers shall ensure that: Medical resources and facilities needed for response are alerted, on-call, and immediately available as needed. (Requirement 46226)	S	Y	Y	Safety	CxP 70059	2.1.13	SAF-1011
								CxP 70059	2.1.13	SAF-1012
								CxP 70059	2.1.13	SAF-90
								CxP 70059	2.2.2.2.e	SAF-1035
								CxP 70059	2.5	SAF-1033
NPR 8715.3C	03.15.3	46230	Operational Safety: Non-Ionizing Radiation Center Directors and project managers shall comply with these regulations unless a specific exemption is obtained from the U.S. Department of Health and Human Services, Food and Drug Administration. (Requirement 46230)	S	Y	Y	Safety	CxP 70059	2.1.9	SAF-23
NPR 8715.3C	03.15.4.a	46232	Operational Safety: Non-Ionizing Radiation: Center Directors and project managers shall ensure that: Only trained and certified employees are assigned to install, adjust, and operate laser equipment. (Requirement 46232)	S	Y	Y	Safety	CxP 70059	2.1.12	SAF-1010
NPR 8715.3C	03.15.4.b	46233	Operational Safety: Non-Ionizing Radiation: Center Directors and project managers shall ensure that: Personnel operating lasers are trained and certified in accordance with Chapter 7 of this NPR. (Requirement 46233)	S	Y	Y	Safety	CxP 70059	2.1.12	SAF-1010
NPR 8715.3C	03.15.4.d	46235	Operational Safety: Non-Ionizing Radiation: Center Directors and project managers shall ensure that: Laser operation conforms to the principles and requirements set forth in ANSI Z136.1, American National Standard for Safe Use of Laser, and ANSI Z136.2, Safe Use of Optical Fiber Communication Systems utilizing Laser Diode and LED Sources. (Requirement 46235)	S	Y	Y	Safety	CxP 70038	0	CxP 70038
NPR 8715.3C	03.15.4.e	46236	Operational Safety: Non-Ionizing Radiation: Center Directors and project managers shall ensure that: Exposure of personnel to laser radiation does not exceed the permissible exposure levels provided in ANSI Z136.1, American National Standard for Safe Use of Laser. (Requirement 46236)	S	Y	Y	Safety	CxP 70038	0	CxP 70038
NPR 8715.3C	03.15.4.f	46237	Operational Safety: Non-Ionizing Radiation: Center Directors and project managers shall ensure that: To the maximum extent practicable, laser hazards to personnel are eliminated by engineering design before they become operational, or procedures are developed and equipment provided to reduce the risk for those hazards that cannot be eliminated. (Requirement 46237)	S	Y	Y	Safety	CxP 70038	0	CxP 70038
NPR 8715.3C	03.15.7.1.a	46254	Operational Safety: Non-Ionizing Radiation: Airborne Operations Using Class III-B and IV Lasers: Project managers shall: Identify the airborne use of Class III-B and IV lasers early in the system acquisition process and track their use throughout the program life cycle. (Requirement 46254) Note: A realistic and timely application of safety engineering to laser systems can avoid or reduce the costs involved in redesign, time lost in modification, and loss of mission capacity.	S	Y	Y	Safety	CxP 70038	0	CxP 70038
NPR 8715.3C	03.15.7.1.b	46255	Operational Safety: Non-Ionizing Radiation: Airborne Operations Using Class III-B and IV Lasers: Project managers shall: Ensure the design of laser systems for NASA aircraft and spacecraft includes a system of interlocks to prevent inadvertent laser beam output. (Requirement 46255)	S	Y	Y	Safety	CxP 70038	0	CxP 70038
NPR 8715.3C	03.15.7.1.c	46256	Operational Safety: Non-Ionizing Radiation: Airborne Operations Using Class III-B and IV Lasers: Project managers shall: When a test circuit switch is provided to override the ground interlock to aid ground test operations, maintenance, or service, ensure the design precludes inadvertent operation. (Requirement 46256)	S	Y	Y	Safety	CxP 70038	0	CxP 70038
NPR 8715.3C	03.15.7.1.d	46257	Operational Safety: Non-Ionizing Radiation: Airborne Operations Using Class III-B and IV Lasers: Project managers shall: Ensure that the crew will not operate the laser except in accordance with the prescribed mission profile. (Requirement 46257)	S	Y	Y	Safety	CxP 70038	0	CxP 70038
NPR 8715.3C	03.15.7.1.e	46258	Operational Safety: Non-Ionizing Radiation: Airborne Operations Using Class III-B and IV Lasers: Project managers shall: For long-range laser shots, designate as large an exclusion area as practical to minimize the risk to the people outside the area. (Requirement 46258) Note: A buffer area should be added around the exclusion area. Air Force AFOSH Standard 48-12, Health Hazard Control for Laser Operations, includes a guide for operation of lasers from aircraft. It can be used to develop the buffer zone for space-based laser shots directed at the ground. (See Range Commanders Council (RCC) Document 316-91, Laser Range Safety.)	S	Y	Y	Safety	CxP 70038	0	CxP 70038

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NPR 8715.3C	03.15.7.1.f	46259	Operational Safety: Non-Ionizing Radiation: Airborne Operations Using Class III-B and IV Lasers: Project managers shall: Ensure a hazard evaluation and written safety precautions are completed prior to airborne laser operations. (Requirement 46259)	S	Y	Y	Safety	CxP 70038	0	CxP 70038
NPR 8715.3C	03.15.7.1.g	46260	Operational Safety: Non-Ionizing Radiation: Airborne Operations Using Class III-B and IV Lasers: Project managers shall: Ensure that the hazard analysis considers catastrophic events and the need for very reliable, high-speed laser shutdown should such events occur. (Requirement 46260) Note: See ANSI Z136.1, American National Standard for Safe Use of Lasers, for hazard evaluation and control information.	S	Y	Y	Safety	CxP 70038	0	CxP 70038
NPR 8715.3C	03.15.7.1.h	46261	Operational Safety: Non-Ionizing Radiation: Airborne Operations Using Class III-B and IV Lasers: Project managers shall: Ensure that qualified personnel perform laser hazard evaluations to determine specific hazards associated with specific uses, establish appropriate hazard control measures, and identify crew and public-at-large protection requirements. (Requirement 46261)	S	Y	Y	Safety	CxP 70038	0	CxP 70038
NPR 8715.3C	03.15.7.1.i	46262	Operational Safety: Non-Ionizing Radiation: Airborne Operations Using Class III-B and IV Lasers: Project managers shall: When completing the hazard evaluation, consider and document the atmospheric effects of laser beam propagation, the transmission of laser radiation through intervening materials, the use of optical viewing aids, and resultant hazards; e.g., electrical, cryogenic, toxic vapors. (Requirement 46262)	S	Y	Y	Safety	CxP 70038	0	CxP 70038
NPR 8715.3C	03.15.7.3	46264	Operational Safety: Non-Ionizing Radiation: Airborne Operations Using Class III-B and IV Lasers: Program managers and safety evaluators shall assess the safety aspects, compliance with safety requirements, and resolution of laser safety-related problems. (Requirement 46264)	S	Y	Y	Safety	CxP 70038	0	CxP 70038
NPR 8715.3C	03.15.8.1.a	46267	Operational Safety: Non-Ionizing Radiation: Laser Software: Project managers shall ensure that: Laser software provides safety precautions for fast-moving lasers and	S	Y	Y	SWA	CxP 70059	7.1	SWA-1
								CxP 70059	7.5.7.4.3	SWA-72
NPR 8715.3C	03.15.8.1.b	46268	Operational Safety: Non-Ionizing Radiation: Laser Software: Project managers shall ensure that: Laser software development is subjected to a software safety analysis	S	Y	Y	SWA	CxP 70059	7.1	SWA-1
								CxP 70059	7.5.7.4.3	SWA-72
NPR 8715.3C	03.15.8.1.c	46269	Operational Safety: Non-Ionizing Radiation: Laser Software: Project managers shall ensure that: Existing laser software systems are reviewed to assure that safety precautions are provided. (Requirement 46269) Note: Se NASA-STD-8719.13, Software Safety Standard, for further information.	S	Y	Y	SWA	CxP 70038	0	CxP 70038
NPR 8715.3C	06.2.4.a	46409	Nuclear Safety for Launching of Radioactive Materials: Responsibilities: Mission Directorate Associate Administrators and program executives shall: Designate an individual responsible for ensuring the implementation of the requirements for nuclear launch safety approval in accordance with paragraph 9 of PD/NSC-25. (Requirement 46409)	S	Y	Y	Safety	CxP 70059	2.6	SAF-1034
NPR 8715.3C	06.2.4.b	46410	Nuclear Safety for Launching of Radioactive Materials: Responsibilities: Mission Directorate Associate Administrators and program executives shall: Notify the NASA Headquarters NFSAM, in writing, as soon as radioactive sources are identified for potential use on NASA spacecraft to schedule nuclear launch safety approval activities. (Requirement 46410)	S	Y	Y	Safety	CxP 70059	2.6	SAF-1034
NPR 8715.3C	07.4.1.a	46557	Safety Training and Personnel Certification: Personnel Safety Certification Programs for Potentially Hazardous Operations and Materials: Mission Directorate Associate Administrators, Center Directors, project managers, and line managers shall ensure that: Personnel who perform or control hazardous operations or use or transport hazardous material have been trained and certified with the necessary	S	Y	Y	Safety	CxP 70059	2.1.12	SAF-1009
								CxP 70059	2.1.12	SAF-1010
								CxP 70059	2.1.12	SAF-87
NPR 8715.3C	07.4.1.b	46558	Safety Training and Personnel Certification: Personnel Safety Certification Programs for Potentially Hazardous Operations and Materials: Mission Directorate Associate Administrators, Center Directors, project managers, and line managers shall ensure that: Personnel obtain hazardous operation safety certification for those tasks that potentially have an immediate danger to the individual (death/injury to	S	Y	Y	Safety	CxP 70059	2.1.12	SAF-1009
								CxP 70059	2.1.12	SAF-1010
								CxP 70059	2.1.12	SAF-87
NPR 8715.3C	07.4.1.c	46559	Safety Training and Personnel Certification: Personnel Safety Certification Programs for Potentially Hazardous Operations and Materials: Mission Directorate Associate Administrators, Center Directors, project managers, and line managers shall ensure that: All contractor personnel engaged in potentially hazardous operations or hazardous material handling are certified via a process similar to that	S	Y	Y	Safety	CxP 70059	2.1.12	SAF-1009
								CxP 70059	2.1.12	SAF-1010
								CxP 70059	2.1.12	SAF-87
NPR 8715.3C	07.5.3	46609	Safety Training and Personnel Certification: Mission Critical Personnel Reliability Program (PRP): Mission Directorate Associate Administrators, Center Directors, project managers, supervisors, Cos, and COTRs shall ensure that contracts cover mission-critical operations or areas referenced by 48 CFR Part 1852.246-70, NASA FAR Supplement, Mission Critical Space System Personnel Reliability Program. (Requirement 46609)	S	Y	Y	Safety	CxP 70059	2.1.9	SAF-1003
NPR 8715.3C	09.3.1.a	46670	Safety and Risk Management for NASA Contracts: Authority and Responsibility: Project managers shall: Work with cognizant safety officals to develop and approve safety requirements and objectives for efforts to be contracted, and advise COs and COTRS of specific safety concerns or issues related to contract performance. (Requirement 46670)	S	Y	Y	Safety	CxP 70059	2.2.2.2	SAF-37
NPR 8715.3C	09.3.1.b	46671	Safety and Risk Management for NASA Contracts: Authority and Responsibility: Project managers shall: Ensure that the application of the requirements in Chapter 2 of this NPR are specified in related contracts, memoranda of understanding, and other documents for joint ventures between NASA and other parties including commercial services, interagency efforts, and international partnerships. (Requirement 46671)	S	Y	Y	Mgmt	CxP 70059	1.14	MGT-35
NPR 8715.3C	09.3.1.c	46672	Safety and Risk Management for NASA Contracts: Authority and Responsibility: Project managers shall: Ensure that NASA responsibilities are specified in contracts, memoranda of understanding, and other documents for joint ventures between NASA and other parties including commercial services, interagency efforts, and international partnerships. (Requirement 46672)	S	Y	Y	Safety	CxP 70059	1.14	MGT-35

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NPR 8715.3C	09.3.1.d	46673	Safety and Risk Management for NASA Contracts: Authority and Responsibility: Project managers shall: Ensure that contracts contain safety, mission success, and risk management requirements for design, development, fabrication, test, and the operations of systems, equipment, and facilities in consultation with Center SMA Directors. (Requirement 46673)	S	Y	Y	Safety	CxP 70059	2.1.2	SAF-1001
								CxP 70059	2.1.9	SAF-179
								CxP 70059	2.1.9	SAF-23
								CxP 70059	2.2.2.2	SAF-38
								CxP 70059	2.2.2.2	SAF-39
NPR 8715.3C	09.3.1.e	46674	Safety and Risk Management for NASA Contracts: Authority and Responsibility: Project managers shall: Use the software safety requirements in NASA-STD-8719.13, Software Safety Standard, and NASA-STD-8739.8, Software Assurance Standard, as the basis for contracts, memoranda of understanding, and other documents related to software. (Requirement 46674)	S	Y	Y	Safety	CxP 70059	7.3.2	SWA-18
NPR 8715.3C	09.3.1.f	46675	Safety and Risk Management for NASA Contracts: Authority and Responsibility: Project managers shall: Provide specific safety tasks to the CO for incorporation into contracts. (Requirement 46675)	S	Y	Y	Safety	CxP 70059	2.2.2.2	SAF-39
NPR 8715.3C	09.3.1.g	46676	Safety and Risk Management for NASA Contracts: Authority and Responsibility: Project managers shall: Define the surveillance of contractor safety matters with respect to the nature of the procurement. (Requirement 46676)	S	Y	Y	Safety	CxP 70059	2.2.2.2	SAF-40
NPR 8715.3C	09.3.1.h	46677	Safety and Risk Management for NASA Contracts: Authority and Responsibility: Project managers shall: Ensure that performance-based contracts have a surveillance plan. (Requirement 46677)	S	Y	Y	Safety	CxP 70059	2.2.2.2	SAF-40
NPR 8715.3C	09.3.2.a	46679	Safety and Risk Management for NASA Contracts: Authority and Responsibility: System Safety Managers, COs, and COTRs shall: Develop safety requirements and objectives that are clearly delineated in contract specifications in conjunction with project officials. (Requirement 46679)	S	Y	Y	Safety	CxP 70059	2.2.2.2	SAF-38
NPR 8715.3C	09.3.2.b	46680	Safety and Risk Management for NASA Contracts: Authority and Responsibility: System Safety Managers, COs, and COTRs shall: Establish safety performance as an element to be evaluated in contracts with fee plans. (Requirement 46680)	U	Y	Y	Mgmt	CxP 70059	1.14	MGT-38
NPR 8715.3C	09.3.2.c	46681	Safety and Risk Management for NASA Contracts: Authority and Responsibility: System Safety Managers, COs, and COTRs shall: Require copies of MSDS for new hazardous materials as requested by the local NASA safety office. (Requirement 46681)	S	Y	Y	Safety	CxP 70059	2.1.9	SAF-1003
								CxP 70059	2.1.9	SAF-179
								CxP 70059	2.1.9	SAF-23
								CxP 70059	2.1.9	SAF-24
NPR 8715.3C	09.3.2.d	46682	Safety and Risk Management for NASA Contracts: Authority and Responsibility: System Safety Managers, COs, and COTRs shall: Participate in onsite visits and pre-bid conferences to ensure potential bidders understand safety provisions. (Requirement 46682)	S	Y	Y	Safety	CxP 70059	2.1.9	SAF-1003
								CxP 70059	2.1.9	SAF-179
								CxP 70059	2.1.9	SAF-23
								CxP 70059	2.1.9	SAF-24
NPR 8715.3C	09.3.2.e	46683	Safety and Risk Management for NASA Contracts: Authority and Responsibility: System Safety Managers, COs, and COTRs shall: Review, comment, and approve (or disapprove) the contractors' safety risk assessment, submitted in response to paragraph 9.3.3, before the start of any hazardous deliverable work or support operations. (Requirement 46683)	S	Y	Y	Safety	CxP 70059	2.1.9	SAF-1003
								CxP 70059	2.1.9	SAF-179
								CxP 70059	2.1.9	SAF-23
								CxP 70059	2.1.9	SAF-24
NPR 8715.3C	09.3.2.f	46684	Safety and Risk Management for NASA Contracts: Authority and Responsibility: System Safety Managers, COs, and COTRs shall: Coordinate any matter regarding proposed deviations to safety requirements of 48 CFR Part 1823.70, Safety and Health, with the OSMA, or designated representative. (Requirement 46684)	S	Y	Y	Safety	CxP 70059	2.1.9	SAF-1003
								CxP 70059	2.1.9	SAF-179
								CxP 70059	7.3.3	SWA-23
								CxP 70059	7.3.5	SWA-24
NPR 8715.3C	09.3.2.g	46685	Safety and Risk Management for NASA Contracts: Authority and Responsibility: System Safety Managers, COs, and COTRs shall: Implement NPR 5100.4, Federal Acquisition Regulation Supplement (NASA FAR Supplement). (Requirement 46685)	S	Y	Y	Safety	CxP 70059	2.1.9	SAF-1003
								CxP 70059	2.1.9	SAF-179
								CxP 70059	2.1.9	SAF-23
								CxP 70059	2.1.9	SAF-24
NPR 8715.3C	09.3.2.h	46686	Safety and Risk Management for NASA Contracts: Authority and Responsibility: System Safety Managers, COs, and COTRs shall: Implement 48 CFR Parts 1807, Acquisition Planning; 1823, Environment, Energy and Water Efficiency, Renewable Energy Technologies, Occupational Safety, and Drug-Free Workplace; 1842, Contract Administration and Audit Services; and 1846, Quality Assurance. (Requirement 46686)	S	Y	Y	Safety	CxP 70059	2.1.9	SAF-1003
								CxP 70059	2.1.9	SAF-179
								CxP 70059	2.1.9	SAF-23
								CxP 70059	2.1.9	SAF-24
NPR 8715.3C	09.3.4.a	46689	Safety and Risk Management for NASA Contracts: Authority and Responsibility: System Safety Managers shall: Assist the CO and COTR in evaluating the prospective contractor's safety record and safety program. (Requirement 46689)	S	Y	Y	Mgmt	CxP 70059	1.14	MGT-37
								CxP 70059	2.2.2.2	SAF-37
								CxP 70059	2.2.2.2	SAF-39
								CxP 70059	2.2.2.3	SAF-61
NPR 8715.3C	09.3.4.b	46690	Safety and Risk Management for NASA Contracts: Authority and Responsibility: System Safety Managers shall: Assist the CO and COTR in applying any special safety provisions to grants or cooperative agreements (see paragraph 2.7). (Requirement 46690)	S	Y	Y	Mgmt	CxP 70059	1.14	MGT-36
								CxP 70059	1.9	MGT-26
								CxP 70059	2.1.11	SAF-159
								CxP 70059	2.2.2.2	SAF-37
								CxP 70059	2.2.2.2	SAF-39
								CxP 70059	2.2.2.3	SAF-61
NPR 8715.3C	09.3.4.c	46691	Safety and Risk Management for NASA Contracts: Authority and Responsibility: System Safety Managers shall: During the pre-award phase of acquisition, develop, document and provide to the CO criteria for the safety performance elements to be evaluated in contracts with fee plans in a timely manner to ensure inclusion in the solicitation. (Requirement 46691)	S	Y	Y	Mgmt	CxP 70059	1.14	MGT-38
								CxP 70059	2.2.2.2	SAF-37
								CxP 70059	2.2.2.2	SAF-39
								CxP 70059	2.2.2.3	SAF-61

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NPR 8715.3C	09.7.1.a	46715	Safety and Risk Management for NASA Contracts: Grants: Project managers that select research projects that could contain possible safety issues shall: Identify the need for special safety conditions to be included in grants or cooperative agreement award documents. Note: A "special safety condition" addressing safety should be included in grants and cooperative agreements when contract performance involves NASA facilities, Government-Furnished Equipment, or hazardous or energetic materials or chemicals that may pose a significant safety or health risk to the public, NASA employees, and contractor employees when used. (Requirement 46715)	S	Y	Y	Safety	CxP 70059	2.1.10	SAF-26
NPR 8715.3C	09.7.1.b	46716	Safety and Risk Management for NASA Contracts: Grants: Project managers that select research projects that could contain possible safety issues shall: Identify special safety conditions that include provisions for applicable OSHA requirements and host institution and general industry-accepted practices to be followed during research to eliminate or control risks associated with implementing the grant or cooperative agreement. (Requirement 46716)	S	Y	Y	Safety	CxP 70059	2.1.10	SAF-27
NPR 8715.3C	11.3.5	57265	NASA Meteoroid Environment Program: Responsibility: NASA Space Flight Program/Project Managers shall evaluate ME risk mitigation measures for inclusion in spaceflight design and operations (Requirement 57265). Note: Upon request, the NASA MEO can provide technical expertise on ME. Note: The risk assessment and shielding/mitigation approach must combine MM and OD to be accurate and effective. Design, test, and evaluation of MMOD shielding and inherently technical/egineering functions, and have been responsibility's that have been managed directly by each NASA Space Flight Program/Project and tasked to the technical/engineering line organizations.	S	Y	Y	Safety	CxP 70038	0	CxP 70038
NPR 8715.5	1.3.4.1.d	42648	Roles and Responsibilities: Center Directors. A NASA Center may become involved in range safety activities through its assigned programs in a number of ways: such as a range, launch site, or landing site operator; range user; or as a range safety technology research and development site: The Center Director or NASA designee shall: Ensure that each program's timeline includes provisions for any necessary tailoring of range safety requirements and the apporval process to take place (Requirement 42648).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.3.4.1.e	42649	Roles and Responsibilities: Center Directors. A NASA Center may become involved in range safety activities through its assigned programs in a number of ways: such as a range, launch site, or landing site operator; range user; or as a range safety technology research and development site: The Center Director or NASA designee shall: Accept the risk associated with any waiver to a requirement of this NPR when people or property for which the Center is responsible are exposed to the range operation per paragraph 1.4 of this NPR (Requirement 42649).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.3.4.2.a	42651	Roles and Responsibilities: Center Directors. A NASA Center may become involved in range safety activities through its assigned programs in a number of ways: such as a range, launch site, or landing site operator; range user; or as a range safety technology research and development site: When functioning as the authority for a range, launch site (fixed or mobile), or landing site (including any airfield used for range operations); or when onsite personnel are affected by range operations, the Center Director or NASA designee shall: Establish the processes and associated Center-level requirements needed to ensure the requirements of this NPR are satisfied, including the risk management process of paragraph 3.2.4 of this NPR (Requirement 42651).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.3.4.2.b	42652	Roles and Responsibilities: Center Directors. A NASA Center may become involved in range safety activities through its assigned programs in a number of ways: such as a range, launch site, or landing site operator; range user; or as a range safety technology research and development site: When functioning as the authority for a range, launch site (fixed or mobile), or landing site (including any airfield used for range operations); or when onsite personnel are affected by range operations, the Center Director or NASA designee shall: Ensure all employees and visitors are informed of potential hazards associated with a range operation and the actions to take in the event of an emergency (Requirement 42652).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.3.4.2.c	42653	Roles and Responsibilities: Center Directors. A NASA Center may become involved in range safety activities through its assigned programs in a number of ways: such as a range, launch site, or landing site operator; range user; or as a range safety technology research and development site. When functioning as the authority for a range, launch site (fixed or mobile), or landing site (including any airfield used for range operations); or when onsite personnel are affected by range operations, the Center Director or NASA designee shall: Follow the variance process described in paragraph 1.4 of this NPR (Requirement 42653).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.3.4.2.d	42654	Roles and Responsibilities: Center Directors. A NASA Center may become involved in range safety activities through its assigned programs in a number of ways: such as a range, launch site, or landing site operator; range user; or as a range safety technology research and development site: When functioning as the authority for a range, launch site (fixed or mobile), or landing site (including any airfield used for range operations); or when onsite personnel are affected by range operations, the Center Director or NASA designee shall: Support range safety independent assessments and respond to all findings and recommendations for which the Center is accountable (Requirement 42654).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030

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NPR 8715.5	1.3.4.2.e	42655	Roles and Responsibilities: Center Directors. A NASA Center may become involved in range safety activities through its assigned programs in a number of ways: such as a range, launch site, or landing site operator; range user; or as a range safety technology research and development site: When functioning as the authority for a range, launch site (fixed or mobile), or landing site (including any airfield used for range operations); or when onsite personnel are affected by range operations, the Center Director or NASA designee shall: Support and ensure that the Certificate of Flight Readiness or equivalent review process includes range safety considerations (Reuirement 90101).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.3.4.2.f	42656	Roles and Responsibilities: Center Directors. A NASA Center may become involved in range safety activities through its assigned programs in a number of ways: such as a range, launch site, or landing site operator; range user; or as a range safety technology research and development site: When functioning as the authority for a range, launch site (fixed or mobile), or landing site (including any airfield used for range operations); or when onsite personnel are affected by range operations, the Center Director or NASA designee shall: Coordinate with the appropriate emergency response agencies on Center activities and potential effects on outside communities (Requirement 42656). Note: NPD 8710.1, NASA Emergency Preparedness Program, and NPR 8715.2, NASA Emergency Preparedness Plan Procedural Requirements, apply with regard to emergency preparedness.	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.3.4.2.h	42657	Roles and Responsibilities: Center Directors. A NASA Center may become involved in range safety activities through its assigned programs in a number of ways: such as a range, launch site, or landing site operator; range user; or as a range safety technology research and development site: When functioning as the authority for a range, launch site (fixed or mobile), or landing site (including any airfield used for range operations); or when onsite personnel are affected by range operations, the Center Director or NASA designee shall: When responsible for range facilities, ensure range safety systems provide for safe and reliable operations (Requirement 42657).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.3.4.2.i	42658	Roles and Responsibilities: Center Directors. A NASA Center may become involved in range safety activities through its assigned programs in a number of ways: such as a range, launch site, or landing site operator; range user; or as a range safety technology research and development site: When functioning as the authority for a range, launch site (fixed or mobile), or landing site (including any airfield used for range operations); or when onsite personnel are affected by range operations, the Center Director or NASA designee shall: Develop emergency response plans to prevent or mitigate the exposure of the public or employees to any hazard associated with a range operation (Requirement 42658).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.3.4.2.j	42659	Roles and Responsibilities: Center Directors. A NASA Center may become involved in range safety activities through its assigned programs in a number of ways: such as a range, launch site, or landing site operator; range user; or as a range safety technology research and development site: When functioning as the authority for a range, launch site (fixed or mobile), or landing site (including any airfield used for range operations); or when onsite personnel are affected by range operations, the Center Director or NASA designee shall: Approve the categorization of people located on NASA property as mission essential, Center essential, or public/visitors for the purposes of risk management (Requirement 42659).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.3.4.2.k	42660	Roles and Responsibilities: Center Directors. A NASA Center may become involved in range safety activities through its assigned programs in a number of ways: such as a range, launch site, or landing site operator; range user; or as a range safety technology research and development site: When functioning as the authority for a range, launch site (fixed or mobile), or landing site (including any airfield used for range operations); or when onsite personnel are affected by range operations, the Center Director or NASA designee shall: Review and approve each vehicle program's RSRMP (including any updates) per paragraphs 1.3.7.p and 3.2.4.4 of this NPR (Requirement 42660).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.3.4.3	42661	Roles and Responsibilities: Center Directors. A NASA Center may become involved in range safety activities through its assigned programs in a number of ways: such as a range, launch site, or landing site operator; range user; or as a range safety technology research and development site: When functioning as the authority for a range, the Center Director or NASA designee shall establish a Center range safety organization (direct or delegated) that is independent of all vehicle programs and has safety responsibility for all range operations that use the Center's range facilities (see paragraph 1.3.5 of this NPR) (Requirement 42661).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.3.5.a	42663	Roles and Responsibilities: Center Range Safety Organization. For all range operations that use a Center's range facilities, the Center range safety organization lead or NASA designee shall: Implement or oversee the implementation of this NPR and associated Center-level processes and requirements including the risk management process of paragraph 3.2.4 of this NPR (Requirement 42663).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.3.5.b	42664	Roles and Responsibilities: Center Range Safety Organization. For all range operations that use a Center's range facilities, the Center range safety organization lead or NASA designee shall: Identify program data requirements, perform or evaluate and approve required range safety analysis (Requirement 42664).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030

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NPR 8715.5	1.3.5.c	42665	Roles and Responsibilities: Center Range Safety Organization. For all range operations that use a Center's range facilities, the Center range safety organization lead or NASA designee shall: Evaluate and approve all range safety systems (Requirement 42665).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.3.5.d	42666	Roles and Responsibilities: Center Range Safety Organization. For all range operations that use a Center's range facilities, the Center range safety organization lead or NASA designee shall: Designate a qualified Range Safety Officer (RSO) to support each NASA mission that involves range operations (see paragraph 1.3.8 of this NPR for RSO responsibilities) (Requirement 42666).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.3.5.e	42667	Roles and Responsibilities: Center Range Safety Organization. For all range operations that use a Center's range facilities, the Center range safety organization lead or NASA designee shall: Establish a qualification and training program that satisfies paragraph 3.5 of this NPR for range safety personnel (including RSOs and personnel responsible for range safety systems and range safety analysis) appropriate to the types of vehicles and operations at the range (Requirement 42667).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.3.5.f	42668	Roles and Responsibilities: Center Range Safety Organization. For all range operations that use a Center's range facilities, the Center range safety organization lead or NASA designee shall: Set operational performance requirements and standards for all range safety systems (Requirement 42668).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.3.5.g	42669	Roles and Responsibilities: Center Range Safety Organization. For all range operations that use a Center's range facilities, the Center range safety organization lead or NASA designee shall: Ensure the readiness of the range safety systems to support each operation (Requirement 42669).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.3.5.h	42670	Roles and Responsibilities: Center Range Safety Organization. For all range operations that use a Center's range facilities, the Center range safety organization lead or NASA designee shall: Coordinate with maritime, aviation, and other authorities to ensure all range safety requirements are satisfied for all range operations (Requirement 42670).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.3.5.i	42671	Roles and Responsibilities: Center Range Safety Organization. For all range operations that use a Center's range facilities, the Center range safety organization lead or NASA designee shall: Evaluate requests for tailoring, deviations, or waivers to this NPR and coordinate with the approval authorities per paragraph 1.4 of this NPR (Requirement 42671)	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.3.5.j	42672	Roles and Responsibilities: Center Range Safety Organization. For all range operations that use a Center's range facilities, the Center range safety organization lead or NASA designee shall: Evaluate each vehicle program's RSRMP (including any updates) per paragraphs 1.3.7.p and 3.2.4.4 of this NPR and coordinate with the approval authorities (Requirement 42672).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.3.6.1.a	42675	Roles and Responsibilities: Range Safety Representative. The Range Safety Representative for a Center or a vehicle program shall: Monitor implementation of this NPR (Requirement 42675).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.3.6.1.b	42676	Roles and Responsibilities: Range Safety Representative. The Range Safety Representative for a Center or a vehicle program shall: Keep the NASA Range Safety Manager advised of activities related to range safety (Requirement 42676).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.3.6.1.c	42677	Roles and Responsibilities: Range Safety Representative. The Range Safety Representative for a Center or a vehicle program shall: Provide the NASA Range Safety Manager with an annual summary of all range safety activities associated with each program where applicable (Requirement 42677).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.3.6.1.d	42678	Roles and Responsibilities: Range Safety Representative. The Range Safety Representative for a Center or a vehicle program shall: Lead and/or participate in range safety activities as designated by the Center Director or vehicle program manager (Requirement 42678).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.3.6.1.e	42679	Roles and Responsibilities: Range Safety Representative. The Range Safety Representative for a Center or a vehicle program shall: Coordinate any requests for variance to a requirement of this NPR per paragraph 1.4 of this NPR.	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.3.6.2	42680	Roles and Responsibilities: Range Safety Representative. A Center Range Safety Representative shall satisfy paragraph 1.3.6.1 for all programs managed by the Center and may also perform as the Range Safety Representative for a vehicle program (Requirement 42680).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.3.6.3	42681	Roles and Responsibilities: Range Safety Representative. The Range Safety Representative for a vehicle program shall satisfy paragraph 1.3.6.1 for the program and may also perform as a Center Range Safety Representative (Requirement 42681).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.3.7.a	42683	Roles and Responsibilities: Vehicle Program Manager. For each range operation, the vehicle program manager or NASA designee shall: Establish the processes and associated program-level requirements needed to ensure the requirements of this NPR are satisfied, including the risk management process of paragraph 3.2.4 of this NPR (Requirement 42683).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.3.7.b	42684	Roles and Responsibilities: Vehicle Program Manager. For each range operation, the vehicle program manager or NASA designee shall: Coordinate all risk management related efforts with the range safety organization(s) and authority for any range, launch site, or landing site that support the range operation (Requirement 42684).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030

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NPR 8715.5	1.3.7.c	42685	Roles and Responsibilities: Vehicle Program Manager. For each range operation, the vehicle program manager or NASA designee shall: Coordinate with the range safety organization(s), including the RSO or equivalent, to develop and implement operational range safety requirements, plans, procedures, and checklists, icluding mission rules and flight commit criteria (see paragraph 3.4 of this NPR for operational requirements) (Requirement 42685).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.3.7.d	42686	Roles and Responsibilities: Vehicle Program Manager. For each range operation, the vehicle program manager or NASA designee shall: Designate a Range Safety Representative for the vehicle program (see paragraph 1.3.6) (Requirement 42686)	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.3.7.e	42687	Roles and Responsibilities: Vehicle Program Manager. For each range operation, the vehicle program manager or NASA designee shall: Involve range safety personnel and begin the tailoring process by the Systems Requirement Review (SRR), continuing throughout all pertinent vehicle and payload reviews and during operations (Requirement 42687).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.3.7.f	42688	Roles and Responsibilities: Vehicle Program Manager. For each range operation, the vehicle program manager or NASA designee shall: Ensure adequate resources and data are available to support all range safety requirements and activities, including the design, test, and implementation of vehicle range safety systems required to support range safety requirements, the range safety organization/authority supporting the review, and approval process and operational support (Requirement 42688).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.3.7.g	42689	Roles and Responsibilities: Vehicle Program Manager. For each range operation, the vehicle program manager or NASA designee shall: Incorporate the requirements of this document in all launch service provider contracts and flight or other range operation contracts or agreements (Requirement 42689).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.3.7.h	42690	Roles and Responsibilities: Vehicle Program Manager. For each range operation, the vehicle program manager or NASA designee shall: Coordinate any additional tailoring (not accounted for during the tailoring process), deviation, or waiver reques to this NPR with the Center Range Safety Manager responsible for the range operation or the NASA Range Safety Manager prior to submittal for final approval (Requirement 42690).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.3.7.i	42691	Roles and Responsibilities: Vehicle Program Manager. For each range operation, the vehicle program manager or NASA designee shall: Submit any request for tailoring, deviation, or waiver in accordance with the requirements and processes of the Independent Technical Authority per NPD 1240.4, NASA Technical Authority, paragraph 1.4 of this NPR, and any local range policies (Requirement 42691).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.3.7.j	42692	Roles and Responsibilities: Vehicle Program Manager. For each range operation, the vehicle program manager or NASA designee shall: In coordination with the range safety organization(s), generate a contingency action plan that describes roles and responsibilities in the event of a mishap and provides procedures to secure all data relevant to an investigation (Requirement 42692). Note: NPR 8621.1, NASA Procedural Requirements for Mishap Reporting, Investigating, and Recordkeeping, contains the applicable policy and procedural requirements for mishap reporting and investigating.	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.3.7.k	42693	Roles and Responsibilities: Vehicle Program Manager. For each range operation, the vehicle program manager or NASA designee shall: Develop and coordinate emergency response planning actions with the emergency planning community (including but not limited to, Center or local safety office, emergency responders, local jurisdictions, and the cognizant NASA environmental management organization) and the range safety organization(s) (Requirement 42693). Note: NPD 8710.1, NASA Emergency Preparedness Program, and NPR 8715.2, NASA Emergency Preparedness Plan Procedural Requirements, apply with regard to emergency preparedness.	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.3.7.L	42694	Roles and Responsibilities: Vehicle Program Manager. For each range operation, the vehicle program manager or NASA designee shall: In coordination with any Center that supports the range operation, ensure all employees and visitors are informed of potential hazards associated with a range operation and the actions to take in the event of an emergency (Requirement 42694).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.3.7.m	42695	Roles and Responsibilities: Vehicle Program Manager. For each range operation, the vehicle program manager or NASA designee shall: Ensure that employees whose duties involve the potential for exposure to hazardous materials are educated regarding hazardous materials in accordance with 29 CFR 1910.1200, Hazardous Communications (Requirement 42695). This includes toxic plume awareness training for the types of hazardous materials associated with range operations.	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.3.7.n	42696	Roles and Responsibilities: Vehicle Program Manager. For each range operation, the vehicle program manager or NASA designee shall: Provide the range safety organization(s) with all data pertinent to the range safety review and approval process (Requirement 42696).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030

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NPR 8715.5	1.3.7.o	42697	Roles and Responsibilities: Vehicle Program Manager. For each range operation, the vehicle program manager or NASA designee shall: Engage the Center range safety organization regarding, and establish a plan for, monitoring of vehicle and range processes during launches, entries, and other range operations and to ensure timely identification and resolution of any violation that might affect launch, entry, or other operational approval. Engage with the NASA Range Safety Manager to perform this function for range operations not supported by a Center range safety organization (Requirement 42697).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.3.7.p	42698	Roles and Responsibilities: Vehicle Program Manager. For each range operation, the vehicle program manager or NASA designee shall: Develop and approve a RSRMP for the vehicle program per paragraph 3.2.4.4 of this NPR (Requirement 42698).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.3.7.p.1	42699	Roles and Responsibilities: Vehicle Program Manager. For each range operation, the vehicle program manager or NASA designee shall: Develop and approve a RSRMP for the vehicle program per paragraph 3.2.4.4 of this NPR: Maintain the RSRMP to ensure its validity for each operation (Requirement 42699).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.3.7.p.2	42700	Roles and Responsibilities: Vehicle Program Manager. For each range operation, the vehicle program manager or NASA designee shall: Develop and approve a RSRMP for the vehicle program per paragraph 3.2.4.4 of this NPR: Perform a documented review and update of the RSRMP at least once every 2 years to reflect current operations and risk levels (Requirement 42700).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.3.7.p.3	42701	Roles and Responsibilities: Vehicle Program Manager. For each range operation, the vehicle program manager or NASA designee shall: Develop and approve a RSRMP for the vehicle program per paragraph 3.2.4.4 of this NPR: Coordinate the RSRMP and any updates with the responsible NASA range safety organization or the NASA Range Safety Manager prior to submittal for final approval (Requirement 42701).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.3.7.p.4	42702	Roles and Responsibilities: Vehicle Program Manager. For each range operation, the vehicle program manager or NASA designee shall: Develop and approve a RSRMP for the vehicle program per paragraph 3.2.4.4 of this NPR: Obtain approval of the RSRMP (including any updates) by the NASA Center Director responsible for the range, launch site or landing site (Requirement 42702).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.3.7.p.5	42703	Roles and Responsibilities: Vehicle Program Manager. For each range operation, the vehicle program manager or NASA designee shall: Develop and approve a RSRMP for the vehicle program per paragraph 3.2.4.4 of this NPR: If the vehicle program is not supported by a NASA Center range safety organization, obtain approval of the RSRMP (including any updates) by the NASA Chief Safety and Mission Assurance Officer or NASA designee (Requirement 42703)	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.3.7.q	42704	Roles and Responsibilities: Vehicle Program Manager. For each range operation, the vehicle program manager or NASA designee shall: With regard to range safety, implement or participate in the payload safety review process required by NASA and any other responsible entity (Requirement 42704). Note: NASA STD 8719.8, Expendable Launch Vehicle Payload Safety Review Process Standard, defines NASA's ELV payload safety review process. Space Shuttle Program safety policies and requirements for Space Shuttle payloads are specified in NSTS 1700.7B, Safety Policy and Requirements for Payloads Using the Space Transportation System, and KHB 1700.7, Space Shuttle Payload Ground Safety Handbook. The International Space Station (ISS) safety policies and requirements for ISS payloads are specified in NSTS 1700.7B ISS Addendum - Safety Policy Requirements for Payloads Using the International Space Station (ISS Addendum).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.3.7.r	42705	Roles and Responsibilities: Vehicle Program Manager. For each range operation, the vehicle program manager or NASA designee shall: Ensure that any vehicle program personnel who performs a range safety function are qualified and trained in accordance with paragraph 3.5 of this NPR.	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.3.8.1	42707	Roles and Responsibilities: Range Safety Officer (RSO) (or equivalent): The RSO or equivalent for each NASA range operation shall be a qualified NASA or DoD employee or a person operating under an FAA license (see paragraph 3.5 of this NPR for applicable personnel qualification requirements) (Requirement 42707).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.3.8.2.a	42709	Roles and Responsibilities: Range Safety Officer (RSO) (or equivalent): For each range operation, the RSO or equivalent shall: Undergo simulation scenarios that exercise hands-on operations of range safety system, safety decision-making tools or processes in conjunction with vehicle systems (Requirement 42709).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.3.8.2.b	42710	Roles and Responsibilities: Range Safety Officer (RSO) (or equivalent): For each range operation, the RSO or equivalent shall: Coordinate with the program to develop and implement operational range safety requirements, plans, procedures, and checklists, including mission rules and flight commit criteria (see paragraph 3.4 of this NPR for operational requirements (Requirement 42710).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.3.8.2.c	42711	Roles and Responsibilities: Range Safety Officer (RSO) (or equivalent): For each range operation, the RSO or equivalent shall: Coordinate with the program and responsible approval authorities on any tailoring or variance to range safety requirements (Requirement 42711).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030

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NPR 8715.5	1.3.8.2.d	42712	Roles and Responsibilities: Range Safety Officer (RSO) (or equivalent): For each range operation, the RSO or equivalent shall: Provide an independent safety assessment and ensure that all range safety flight commit criteria are satisfied prior to flight initiation (Requirement 42712).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.3.8.3.a	42714	Roles and Responsibilities: Range Safety Officer (RSO) (or equivalent): For any vehicle that has a Flight Termination System (FTS), the RSO or equivalent shall: Coordinate with the program to develop flight termination activation criteria (Requirement 42714).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.3.8.3.b	42715	Roles and Responsibilities: Range Safety Officer (RSO) (or equivalent): For any vehicle that has a Flight Termination System (FTS), the RSO or equivalent shall: Perform real-time monitoring of the vehicle flight path/trajectory, vehicle systems, range safety systems, and the performance of the FTS (Requirement 42715).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.3.8.3.c	42716	Roles and Responsibilities: Range Safety Officer (RSO) (or equivalent): For any vehicle that has a Flight Termination System (FTS), the RSO or equivalent shall: Make a flight termination decision when performance of the vehicle violates preplanned termination criteria or presents an unplanned, unacceptable hazard to the public, personnel, or property and activate the FTS (Requirement 42716).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.4.1	42718	Variance Process: A range user shall use this variance process when requesting tailoring, deviation, or waiver of the requirements of this NPR to support program objectives. See Appendix A for definitions for variance, tailoring, deviation, and waiver.	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.4.2	42719	Variance Process: For all requirements contained in this NPR, the approval of any tailoring, deviation, or waiver requests shall satisfy the processes and requirements of the Independent Technical Authority per NPD 1240.4, NASA Technical Authority.	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.4.3	42720	Variance Process: The Center or Vehicle Program Range Safety Representative shall coordinate variance requests with the range safety organization(s) and the approval authorities (Requirement 42720).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.4.4.a	42722	Variance Process: The variance approval process shall incorporate the following: The Center Range Safety Organization that supports the range operation shall evaluate all variance requests and provide input to the approval authorities. The NASA Range Safety Manager shall perform this function for each NASA range operation that is not supported by a Center Range Safety Organization (Requirement 42722).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.4.4.b	42723	Variance Process: The variance approval process shall incorporate the following: One of the three Independent Technical Authority-sponsored range safety technical warrant holders (Space Flight Range Safety, Atmospheric Flight Range Safety, or Suborbital Range Safety) shall approve any variance to a requirement of this NPR (Requirement 42723).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.4.4.c	42724	Variance Process: The variance approval process shall incorporate the following: The accountable technical warrant holder (per paragraph 1.4.4.b of this NPR) shall notify the Agency Chief Engineer and the Chief Safety and Mission Assurance Officer of any approved waivers to this NPR (Requirement 42724).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	1.4.4.d	42725	Variance Process: The variance approval process shall incorporate the following: The vehicle program manager and each Center Director (or NASA designee) responsible for people or property exposed to the associated range operation shall cosign each waiver to this NPR (indicating acceptance of the risk associated with the waiver) (Requirement 42725).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	2.2.2.a	42731	Commercial Launch and Entry: A NASA launch or entry does not require an FAA license if the activity is conducted by or for NASA and NASA is so substantially involved that it effectively directs or controls the activity. For such a launch or entry, NASA shall: Supervise the activities of each contractor providing a launch or entry service by approval of requirements and ongoing insight into the contractor's operations (Requirement 42731).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	2.2.2.b	42732	Commercial Launch and Entry: A NASA launch or entry does not require an FAA license if the activity is conducted by or for NASA and NASA is so substantially involved that it effectively directs or controls the activity. For such a launch or entry, NASA shall: Ensure that a government organization directly oversees and performs the range safety function during the activity (Requirement 42732).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	2.2.3	42733	Commercial Launch and Entry: A NASA program may require FAA licensing for commercial ventures funded by NASA or a commercial launch or entry carrying a NASA payload (as a primary customer) through a contract.	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	2.2.4	42734	Commercial Launch and Entry: A NASA program shall require FAA licensing for any launch or entry where there is no government organization directly overseeing and performing the range safety function during the activity (Requirement 42734).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	2.3.1	42736	National Airspace System: This paragraph applies to each NASA program that uses the National Airspace System during conduct of a range operation: A NASA program shall coordinate with the FAA on each range operation that uses the National Airspace System, including each launch and entry (Requirement 42736).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	2.3.2	42737	National Airspace System: This paragraph applies to each NASA program that uses the National Airspace System during conduct of a range operation: A NASA program shall obtain a Certificate of Authorization or equivalent written agreement from the FAA for each UAV operation within the National Airspace System (Requirement 42737).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030

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NPR 8715.5	2.3.3	42738	National Airspace System: This paragraph applies to each NASA program that uses the National Airspace System during conduct of a range operation: A NASA program shall coordinate the required information with range safety personnel prior to submitting the request to the FAA center(s) with authority over the planned areas of operation (Requirement 42738).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	2.4.1	42740	Foreign Participation in Range Operations Involving NASA: Foreign participation in any range operation involving NASA shall require prior coordination with the NASA Office of External Relations and be conducted in accordance with this NPR; NPD 1360.2, Initiation and Development of International Cooperation in Space and Aeronautics Programs; and NPD 1050.1, Authority To Enter Into Space Act Agreements (Requirement 42740).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	2.4.2	42741	Foreign Participation in Range Operations Involving NASA: Foreign participation in any Range Operation involving NASA, which requires access to NASA Installations or Facilities, shall also be conducted in accordance with paragraph 2.4.1 of this NPR; NPR 1371.2, Procedural Requirements for Processing Requests for Access to NASA Installations or Facilities by Foreign Nationals or U.S. Citizens Who are Representatives of Foreign Entities; and/or NPD 1371.5, Coordination and Authorization of Access by Foreign Nationals and Foreign Representatives to NASA (Requirement 42741).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.01	42745	Range Safety Analysis: Each range operation shall undergo a range safety analysis to establish any design or operational constraints needed to control risk to persons and property (Requirement 42745).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.02	42746	Range Safety Analysis: A range safety organization that is independent of the vehicle program shall review and approve the range safety analysis (Requirement 42746).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.03	42747	Range Safety Analysis: A range safety analysis shall incorporate the elements of risk management, risk assessment, containment, and risk mitigation (Requirement 42747). Note: Containment for the purpose of range safety is defined in Appendix A and related requirements are in paragraph 3.2.9 of this NPR.	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.04.1	42749	Range Safety Analysis: Risk Management Process: A Center's or vehicle program's risk management process shall include assessment of the risk to the public, workforce, and property in accordance with paragraph 3.2.5 of this NPR (Requirement 42749)	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.04.2	42750	Range Safety Analysis: Risk Management Process: A vehicle program's risk management process shall incorporate the applicable requirements of any range, launch site, or landing site that supports the program's range operations (Requirement 42750).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.04.3.a	42752	Range Safety Analysis: Risk Management Process: Within the risk management process, the vehicle program, the range safety organization(s), and the authority responsible for the range, launch site, or landing site shall coordinate to: Mitigate the risk to members of the public and the workforce (Requirement 42752).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.04.3.b	42753	Range Safety Analysis: Risk Management Process: Within the risk management process, the vehicle program, the range safety organization(s), and the authority responsible for the range, launch site, or landing site shall coordinate to: Identify any property in the vicinity of the flight that requires protection from potential debris impact, identify the potential damage of concern, and mitigate the associated risk (Requirement 42753). Note: In general, the requirements for managing risk to the public and workforce (i.e., people) also provide appropriate protection for property. However, local authorities may have risk management requirements that apply to certain property, or there may be specifice property for which the program requires risk management due to its proximity to the flight and the consequences associated with a potential debris impact.	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.04.3.c	42754	Range Safety Analysis: Risk Management Process: Within the risk management process, the vehicle program, the range safety organization(s), and the authority responsible for the range, launch site, or landing site shall coordinate to: Quantify and document any risk through the conduct of a formal risk assessment (Requirement 42754).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.04.3.d	42755	Range Safety Analysis: Risk Management Process: Within the risk management process, the vehicle program, the range safety organization(s), and the authority responsible for the range, launch site, or landing site shall coordinate to: Make risk acceptance/disposition decisions that integrate concerns for public risk, workforce risk, risk to any property identified under paragraph 3.2.4.3.b, mission risk, including the risk to the safety of any flight crew, and mission constraints (Requirement 42755).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.04.3.e	42756	Range Safety Analysis: Risk Management Process: Within the risk management process, the vehicle program, the range safety organization(s), and the authority responsible for the range, launch site, or landing site shall coordinate to: Make operational decisions needed to control risk prior to initiation of flight or each phase of flight (Requirement 42756).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.04.3.f	42762	Range Safety Analysis: Risk Management Process: Within the risk management process, the vehicle program, the range safety organization(s), and the authority responsible for the range, launch site, or landing site shall coordinate to: Document decisions concerning approval of operations, acceptance/disposition of safety risk including justification, and the application of any additional safety controls or constraints based on safety evaluations (Requirement 42762).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030

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NPR 8715.5	3.2.04.3.g	42763	Range Safety Analysis: Risk Management Process: Within the risk management process, the vehicle program, the range safety organization(s), and the authority responsible for the range, launch site, or landing site shall coordinate to: Inform operational personnel of the hazards and safety risk associated with the conduct of any range operation (Requirement 42763).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.04.3.h	42764	Range Safety Analysis: Risk Management Process: Within the risk management process, the vehicle program, the range safety organization(s), and the authority responsible for the range, launch site, or landing site shall coordinate to: Inform on-site public/visitors of hazards and safety risk associated with viewing a range operation from NASA-controlled property (Requirement 42764).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.04.4(1)	42765	Range Safety Analysis: Risk Management Process. Range Safety Risk Management Plan (RSRMP): The RSRMP shall be a formal written document that details a vehicle program's risk management process (Requirement 42765).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.04.4(2)	42766	Range Safety Analysis: Risk Management Process. Range Safety Risk Management Plan (RSRMP): The RSRMP shall be a formal written document that details a vehicle program's risk management process: The RSRMP shall demonstrate how the vehicle program satisfies the risk criteria of paragraph 3.2.4.5 (Requirement 42766).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.04.4(3)	42767	Range Safety Analysis: Risk Management Process. Range Safety Risk Management Plan (RSRMP): The RSRMP shall be a formal written document that details a vehicle program's risk management process: The RSRMP shall incorporate any acceptance of risk that exceeds the criteria of paragraph 3.2.4.5 (Requirement 42767).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.04.4(4)	42768	Range Safety Analysis: Risk Management Process. Range Safety Risk Management Plan (RSRMP): The RSRMP shall be a formal written document that details a vehicle program's risk management process: The RSRMP shall incorporate the risk management requirements and processes of any other organization that supports the program, such as the range, launch site, or landing site (Requirement 42768).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.04.4(5)	42769	Range Safety Analysis: Risk Management Process. Range Safety Risk Management Plan (RSRMP): The RSRMP shall be a formal written document that details a vehicle program's risk management process: Note: Approval of the RSRMP constitutes NASA acceptance of any range safety risks documented in the RSRMP. Paragraph 1.3.7.p of this NPR identifies the approval authorities.	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.04.5	42770	Range Safety Analysis: Risk Management Process: Risk Criteria. Each range operation shall satisfy the following criteria for assessed risk unless higher risk levels are specifically authorized for the operation (Requirement 42770). Note: These criteria are consistent with those used throughout the government and commercial range community and consistent with other industries' standards addressing operations that are potentially hazardous to the public and workforce. In general, these criteria define a level of assessed risk to the public, workforce, and property that the Agency accepts for all range operations without higher management review. If a range operation is to exceed any of these criteria, the variance process and associated requirements outlined in section 1.4 of this NPR apply.	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.04.5.a.1	42772	Range Safety Analysis: Risk Management Process: Risk Criteria. Each range operation shall satisfy the following criteria for assessed risk unless higher risk levels are specifically authorized for the operation: Individual Risk: Probability of casualty (Pc)<=1 less than or equal to 10^-6 for individual people who are not mission essential, applied separately for each hazard, each flight (Requirement 42772).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.04.5.a.2	42773	Range Safety Analysis: Risk Management Process. Risk Criteria: Each range operation shall satisfy the following criteria for assessed risk unless higher risk levels are specifically authorized for the operation: Individual Risk: Pc <=10 less than or equal to 10^-6 for mission essential personnel, applied separately for each hazard, each flight (Requirement 42773). Note: For purposes of consistency with DoD and FAA range safety policy, the specific hazards considered in a range safety risk assessment are defined in paragraph 3.2.5.6 of this NPR.	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.04.5.b	42774	Range Safety Analysis: Risk Management Process. Risk Criteria. Each range operation shall satisfy the following criteria for assessed risk unless higher risk levels are specifically authorized for the operation: Property Impact Probability. Probability of debris impact <= 1 less than or equal to 10^-3 for any property identified under paragraph 3.2.4.3.b that could result in the damage of concern identified under paragraph 3.2.4.3.b, applied for each flight (Requirement 42774).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.04.5.c.1	42776	Range Safety Analysis: Risk Management Process. Risk Criteria. Each range operation shall satisfy the following criteria for assessed risk unless higher risk levels are specifically authorized for the operation: Collective Risk: Collective Risk Criterion for Center Essential Personnel. Expectation of Casualty (Ec) <= 300 less than or equal to 10^-6 casualties per flight, applied separately for each hazard, each flight (Requirement 42776). Note: Center essential personnel include mission essential personnel.	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.04.5.c.2	42777	Range Safety Analysis: Risk Management Process. Risk Criteria. Each range operation shall satisfy the following criteria for assessed risk unless higher risk levels are specifically authorized for the operation: Collective Risk: Collective Public Risk Criteria for all Flights other than Controlled Entry (Requirement 42777):	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030

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NPR 8715.5	3.2.04.5.c.2.b	42779	Range Safety Analysis: Risk Management Process. Risk Criteria. Each range operation shall satisfy the following criteria for assessed risk unless higher risk levels are specifically authorized for the operation: Collective Risk: Collective Public Risk Criteria for all Flights other than Controlled Entry: Ec<= 1 less than or equal to 10^-3 casualties per year, applied separately for each hazard, for each individual range or launch site. Note: The 1 less than or equal to 10^-3 per year (i.e., one casualty in a thousand years) public risk criterion as a historical basis for the widely accepted 30 in a million launch risk criterion. (1 less than or equal to 10^-3 per year divided by an average of 33 launches per year from a given launch site yields the risk criterion of 30 casualties in a million launches.) NASA has adopted the per-year criterion as an acceptable option for both launch and entry. This approach allows some flexibility for addressing the operation of new or unique vehicles while remaining consistent with widely recognized criteria for acceptable risk to the public.	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.04.5.c.2.b.i	42780	Range Safety Analysis: Risk Management Process. Risk Criteria. Each range operation shall satisfy the following criteria for assessed risk unless higher risk levels are specifically authorized for the operation: Collective Risk: Collective Public Risk Criteria for all Flights other than Controlled Entry: Ec<= 1 less than or equal to 10^-3 casualties per year, applied separately for each hazard, for each individual range or launch site: Each vehicle program shall coordinate with the official(s) responsible for the range/site to establish the flight specific risk criteria and any other constraints needed to ensure that the range/site satisfies the annual criterion (Requirement 42780).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.04.5.c.2.b.i	42781	Range Safety Analysis: Risk Management Process. Risk Criteria. Each range operation shall satisfy the following criteria for assessed risk unless higher risk levels are specifically authorized for the operation: Collective Risk: Collective Public Risk Criteria for all Flights other than Controlled Entry: Ec<= 1 less than or equal to 10^-3 casualties per year, applied separately for each hazard, for each individual range or launch site: When applying this option, the flight rate shall be no less than one flight per year (Requirement 42781).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.04.5.c.2.b.ii	42782	Range Safety Analysis: Risk Management Process. Risk Criteria. Each range operation shall satisfy the following criteria for assessed risk unless higher risk levels are specifically authorized for the operation: Collective Risk: Collective Public Risk Criteria for all Flights other than Controlled Entry: Ec<= 1 less than or equal to 10^-3 casualties per year, applied separately for each hazard, for each individual range or launch site: When applying this option, the Ec for public outside NASA-controlled property shall not exceed 30 less than or equal to 10^-6 casualties per flight, applied separately for each hazard (Requirement 42782). Note: The per-flight risk to public outside NASA-controlled property shall be accounted for as part of the annual public risk; not in addition to the annual risk.	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.04.5.c.2.b.ii	42783	Range Safety Analysis: Risk Management Process. Risk Criteria. Each range operation shall satisfy the following criteria for assessed risk unless higher risk levels are specifically authorized for the operation: Collective Risk: Collective Public Risk Criteria for all Flights other than Controlled Entry: Ec<= 1 less than or equal to 10^-3 casualties per year, applied separately for each hazard, for each individual range or launch site: Each vehicle program's RSRMP shall document all associated criteria and constraints, including justification for the flight rate (Requirement 42783).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.04.5.c.3	42784	Range Safety Analysis: Risk Management Process. Risk Criteria. Each range operation shall satisfy the following criteria for assessed risk unless higher risk levels are specifically authorized for the operation: Collective Risk: Collective Public Risk Criteria for Controlled Entry (Requirement 42784): [For Space Shuttle entry operations, see paragraph 3.2.4.5.c.(4)]:	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.04.5.c.3.2.i	42786	Range Safety Analysis: Risk Management Process. Risk Criteria. Each range operation shall satisfy the following criteria for assessed risk unless higher risk levels are specifically authorized for the operation: Collective Risk: Collective Public Risk Criteria for Controlled Entry: [For Space Shuttle entry operations, see paragraph 3.2.4.5.c.(4)]: Ec<= 1 less than or equal to 10^-3 casualties per year, applied for a combination of all hazards, for each individual landing site: When applying this option, the entry rate shall be no less than one entry per year (Requirement 42786).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.04.5.c.3.2.ii	42787	Range Safety Analysis: Risk Management Process. Risk Criteria. Each range operation shall satisfy the following criteria for assessed risk unless higher risk levels are specifically authorized for the operation: Collective Risk: Collective Public Risk Criteria for Controlled Entry: [For Space Shuttle entry operations, see paragraph 3.2.4.5.c.(4)]: Ec<= 1 less than or equal to 10^-3 casualties per year, applied for a combination of all hazards, for each individual landing site: Each entry vehicle program shall coordinate with the official(s) responsible for the landing site to establish the entry specific risk criteria and any other constraints needed to ensure that the site satisfies the annual criterion (Requirement 42787).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.04.5.c.3.2.iii	42788	Range Safety Analysis: Risk Management Process. Risk Criteria. Each range operation shall satisfy the following criteria for assessed risk unless higher risk levels are specifically authorized for the operation: Collective Risk: Collective Public Risk Criteria for Controlled Entry: [For Space Shuttle entry operations, see paragraph 3.2.4.5.c.(4)]: Ec<= 1 less than or equal to 10^-3 casualties per year, applied for a combination of all hazards, for each individual landing site: Each vehicle program's RSRMP shall document all associated criteria and constraints, including justification for the flight rate (Requirement 42788).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030

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NPR 8715.5	3.2.04.5.c.3 .a	42789	Range Safety Analysis: Risk Management Process. Risk Criteria. Each range operation shall satisfy the following criteria for assessed risk unless higher risk levels are specifically authorized for the operation: Collective Risk: Collective Public Risk Criteria for Controlled Entry: [For Space Shuttle entry operations, see paragraph 3.2.4.5.c.(4)]: Ec <= 100 less than or equal to 10^-6 casualties per controlled entry, applied for a combination of all hazards; OR Note: Ec <= 100 less than or equal to 10^-6 casualties per entry is NASA's established and internationally accepted public risk criterion for uncontrolled entry of space hardware and is now adopted as an acceptable criterion for controlled entry operations. This criterion represents a total Ec for all hazards, unlike the Ec <= 30 less than or equal to 10^-6 launch criterion, which applies per hazard.	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.04.5.c.4 .a	42791	Range Safety Analysis: Risk Management Process. Risk Criteria. Each range operation shall satisfy the following criteria for assessed risk unless higher risk levels are specifically authorized for the operation: Collective Risk: Collective Public Risk for Space Shuttle Entry: The assessed collective public risk for Space Shuttle entries shall not exceed the highest risk associated with the ascending entry trajectories into Kennedy Space Center (KSC) from the International Space Station orbit inclination of 51.6 degrees except as described in paragraph 3.2.4.5.c(4)(b) (Requirement 42791).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.04.5.c.4 .b	42792	Range Safety Analysis: Risk Management Process. Risk Criteria. Each range operation shall satisfy the following criteria for assessed risk unless higher risk levels are specifically authorized for the operation: Collective Risk: Collective Public Risk for Space Shuttle Entry: If an entry must take place under off-nominal conditions or when critical crew safety factors (e.g. landing site weather, Orbiter consumables, crew health and duty day) require the consideration of alternate landing site opportunities, the Space Shuttle Program shall balance the mitigation of public and crew risk in selecting the entry opportunity and landing site (Requirement 42792). Note: This provision is necessary due to the Space Shuttle's established design and operational constraints. Any significant alterations to Space Shuttle entry operations would have the potential for negative effects on crew and mission. This provision allows the Space Shuttle Program to continue to use KSC as its primary landing site, with Edwards Air Force Base and White Sands Missile Range as backups. The Shuttle Program, in coordination with NASA Headquarters, has quant	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.05.1	42794	Range Safety Analysis: Range Safety Risk Assessment: A range safety risk assessment shall be a formal documented analysis that identifies and quantifies risk for input to the risk management process (Requirement 42794).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.05.2	42795	Range Safety Analysis: Range Safety Risk Assessment: The risk assessment shall provide a best estimate of the risks and include an evaluation of uncertainty bounds or sensitivities to inputs (Requirement 42795).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.05.3	42796	Range Safety Analysis: Range Safety Risk Assessment: The assessment documentation shall identify all assumptions made (Requirement 42796).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.05.4.a	42798	Range Safety Analysis: Range Safety Risk Assessment: The risk assessment shall account for variability associated with the following: Each source of hazard, including any associated with a payload, during flight (Requirement 42798).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.05.4.b	42799	Range Safety Analysis: Range Safety Risk Assessment: The risk assessment shall account for variability associated with the following: Normal flight and each appropriate foreseeable failure response mode of the vehicle for each flight phase (Requirement 42799).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.05.4.c	42800	Range Safety Analysis: Range Safety Risk Assessment: The risk assessment shall account for variability associated with the following: Each appropriate foreseeable external and internal vehicle flight environment (Requirement 42800).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.05.4.d	42801	Range Safety Analysis: Range Safety Risk Assessment: The risk assessment shall account for variability associated with the following: Public and worker population potentially exposed to the flight (Requirement 42801).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.05.4.e	42802	Range Safety Analysis: Range Safety Risk Assessment: The risk assessment shall account for variability associated with the following: Population growth rates in order to remain valid if a risk assessment will apply to a number of flights over a number of years (Requirement 42802).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.05.4.f	42803	Range Safety Analysis: Range Safety Risk Assessment: The risk assessment shall account for variability associated with the following: The performance of any range safety system, control, or constraint including all associated time delays (Requirement 42803).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.05.5.a	42805	Range Safety Analysis: Range Safety Risk Assessment: Input data used for the range safety risk assessment shall include: Quantitative assessment of vehicle reliability unless the vehicle will operate under full containment where any associated hazard cannot reach persons and property (Requirement 42805).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.05.5.b	42806	Range Safety Analysis: Range Safety Risk Assessment: Input data used for the range safety risk assessment shall include: Proposed trajectories (nominal, preplanned contingency, abort, and malfunction trajectories) (Requirement 42806).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.05.5.c	42807	Range Safety Analysis: Range Safety Risk Assessment: Input data used for the range safety risk assessment shall include: Description of any landing sites and/or flight paths (Requirement 42807).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030

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NPR 8715.5	3.2.05.5.d	42808	Range Safety Analysis: Range Safety Risk Assessment: Input data used for the range safety risk assessment shall include: Description of credible failure modes and their probability of occurrence resulting in a hazard to public safety (Requirement 42808).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.05.5.e	42809	Range Safety Analysis: Range Safety Risk Assessment: Input data used for the range safety risk assessment shall include: Reliability of any range safety system (Requirement 42809).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.05.5.f	42810	Range Safety Analysis: Range Safety Risk Assessment: Input data used for the range safety risk assessment shall include: All hazard controls and mitigation stategies (Requirement 42810).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.05.5.g	42811	Range Safety Analysis: Range Safety Risk Assessment: Input data used for the range safety risk assessment shall include: Pertinent vehicle information, such as size, weight, propellant types and amounts, and any explosives, toxic materials, or radionuclides (Requirement 42811).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.05.5.h	42812	Range Safety Analysis: Range Safety Risk Assessment: Input data used for the range safety risk assessment shall include: Other relevant data required for analysis in support of specific mission objectives, including related payload information (Requirement 42812).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.05.6	42813	Range Safety Analysis: Range Safety Risk Assessment: There are typically three types of hazards considered in a range safety risk assessment. These include debris, far-field blast overpressure, and toxic material release (see paragraphs 3.2.6, 3.2.7, and 3.2.8 respectively of this NPR).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.05.6.a	42814	Range Safety Analysis: Range Safety Risk Assessment: There are typically three types of hazards considered in a range safety risk assessment. These include debris, far-field blast overpressure, and toxic material release (see paragraphs 3.2.6, 3.2.7, and 3.2.8 respectively of this NPR): A risk assessment shall account for the risk due to each hazard where applicable for each flight unless the hazard is fully contained (Requirement 42814). Note: Containment for the purposes of range safety is defined in Appendix A and related requirements are in paragraph 3.2.9 of this NPR.	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.05.6.b	42815	Range Safety Analysis: Range Safety Risk Assessment: There are typically three types of hazards considered in a range safety risk assessment. These include debris, far-field blast overpressure, and toxic material release (see paragraphs 3.2.6, 3.2.7, and 3.2.8 respectively of this NPR): Other hazards may exist based on specific mission requirements, and these hazards shall be included in the assessment on a case-by-case basis (Requirement 42815).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.06.1	42817	Range Safety Analysis: Debris Risk Assessment: A range safety analysis shall assess any risk due to debris for input to the risk management process (Requirement 42817). For a launch, these requirements apply to any debris that does not achieve orbit. For an entry operation, these requirements apply to any debris that might be generated, intentionally or not, after the deorbit burn or sample return capsule release. Any orbital debris is subject to the requirements of NPD 8710.3, NASA Policy for Limiting Orbital Debris Generation.	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.06.2.a	42819	Range Safety Analysis: Debris Risk Assessment: An assessment of risk to the public and workforce due to debris shall account for each of the following as a function of flight-time or loss-of-control-time: All potential debris, generated intentionally or not, that could cause a casualty, including debris that could affect someone on the ground or on a waterborne vessel, or cause an aircraft accident (Requirement 42819). Note: Casualty models used in range safety risk assessments typically evaluate certain impact parameters, such as kinetic energy, and incorporate thresholds on those paramenters that define when a debris impact has the potential to cause a casualty or down an aircraft. These thresholds may change as our knowledge of human vulnerability/aircraft vulnerability evolves. Sources of the latest casualty and aircraft impact thresholds developed for use by the range safety community include RCC 321, Common Risk Criteria for National Test Ranges: Inert Debris, and AFSPCMAN 91-710, Range Safety User Requirements Manual.	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.06.2.b	42820	Range Safety Analysis: Debris Risk Assessment: An assessment of risk to the public and workforce due to debris shall account for each of the following as a function of flight-time or loss-of-control-time: All populated areas in the overflight area that could be impacted by the debris (Requirement 42820).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.06.2.c	42821	Range Safety Analysis: Debris Risk Assessment: An assessment of risk to the public and workforce due to debris shall account for each of the following as a function of flight-time or loss-of-control-time: The probability of the debris impacting each populated area, which accounts for the probability of vehicle failure (Requirement 42821).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.06.2.d	42822	Range Safety Analysis: Debris Risk Assessment: An assessment of risk to the public and workforce due to debris shall account for each of the following as a function of flight-time or loss-of-control-time: The effective casualty area of the impacting debris, which accounts for the cross-sectional area of the debris, average size of a person, and the effects of any overpressure due to any explosive debris (debris that would explode on or after impact) (Requirement 42822).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030

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NPR 8715.5	3.2.06.2.e	42823	Range Safety Analysis: Debris Risk Assessment: An assessment of risk to the public and workforce due to debris shall account for each of the following as a function of flight-time or loss-of-control-time: The population density of each populated area (Requirement 42823). The assessment should consider any risk mitigation factors associated with each population, such as sheltering and time of day of the flight.	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.06.2.f	42824	Range Safety Analysis: Debris Risk Assessment: An assessment of risk to the public and workforce due to debris shall account for each of the following as a function of flight-time or loss-of-control-time: Debris variability, including size, shape aerodynamic properties, weight, and potential to survive to impact (Requirement 42824).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.06.2.g	42825	Range Safety Analysis: Debris Risk Assessment: An assessment of risk to the public and workforce due to debris shall account for each of the following as a function of flight-time or loss-of-control-time: The sources of debris variability, including breakup conditions (Requirement 42825).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.06.2.h	42826	Range Safety Analysis: Debris Risk Assessment: An assessment of risk to the public and workforce due to debris shall account for each of the following as a function of flight-time or loss-of-control-time: The uncertainties in the state vector at the instant of jettison or destruct and any correlations used (Requirement 42826).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.06.2.i	42827	Range Safety Analysis: Debris Risk Assessment: An assessment of risk to the public and workforce due to debris shall account for each of the following as a function of flight-time or loss-of-control-time: Any velocity imparted to the debris fragments during jettison, destruct or breakup (Requirement 42827).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.06.2.j	42828	Range Safety Analysis: Debris Risk Assessment: An assessment of risk to the public and workforce due to debris shall account for each of the following as a function of flight-time or loss-of-control-time: The influence of atmospheric variability, including winds (Requirement 42828).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.06.3.a	42830	Range Safety Analysis: Debris Risk Assessment: A debris risk assessment for any property identified under paragraph 3.2.4.3.b shall account for: All potential debris (intentionally or unintentionally generated) that could cause property damage, which accounts for the specific nature of the property (Requirement 42830).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.06.3.b	42831	Range Safety Analysis: Debris Risk Assessment: A debris risk assessment for any property identified under paragraph 3.2.4.3.b shall account for: The cross-sectional area of the debris and the effects of any overpressure due to any explosive debris (debris that would explode on or after impact)(Requirement 42831).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.06.3.c	42832	Range Safety Analysis: Debris Risk Assessment: A debris risk assessment for any property identified under paragraph 3.2.4.3.b shall account for: Debris variability, including size, shape, aerodynamic properties, weight, and potential to survive to impact (Requirement 42832).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.06.3.d	42833	Range Safety Analysis: Debris Risk Assessment: A debris risk assessment for any property identified under paragraph 3.2.4.3.b shall account for: The sources of debris variability, including breakup conditions (Requirement 42833).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.06.3.e	42834	Range Safety Analysis: Debris Risk Assessment: A debris risk assessment for any property identified under paragraph 3.2.4.3.b shall account for: The uncertainties in the state vector at the instant of jettison or destruct and any correlations used (Requirement 42834).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.06.3.f	42835	Range Safety Analysis: Debris Risk Assessment: A debris risk assessment for any property identified under paragraph 3.2.4.3.b shall account for: Any velocity imparted to the debirs fragments during jettison, destruct, or breakup (Requirement 42835).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.06.3.g	42836	Range Safety Analysis: Debris Risk Assessment: A debris risk assessment for any property identified under paragraph 3.2.4.3.b shall account for: The influence of atmospheric variablity, including winds (Requirement 42836).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.06.3.h	42837	Range Safety Analysis: Debris Risk Assessment: A debris risk assessment for any property identified under paragraph 3.2.4.3.b shall account for: The probability of the debris impacting the property, which accounts for the probability of vehicle failure and the location, size, and shape of the property (Requirement 42837).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.06.4	42838	Range Safety Analysis: Debris Risk Assessment: A range safety analysis shall establish flight commit criteria and operational constraints, such as hazard areas and impact limit lines, needed to control any risk due to debris impacts (Requirement 42838).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.06.5	42839	Range Safety Analysis: Debris Risk Assessment. A range safety analysis shall establish hazard areas needed to control risk due to debris including aircraft and ship hazard areas for notices to mariners and notices to airmen (Requirement 42839).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.07.1	42841	Range Safety Analysis: Far-Field Blast Overpressure Effects Risk Assessment: A range safety analysis shall characterize the risk to the public and the workforce due to any far-field blast overpressure from potential explosions during vehicle operations for input to the risk management process (Requirement 42841).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.07.2	42842	Range Safety Analysis: Far-Field Blast Overpressure Effects Risk Assessment: The analysis shall establish flight commit criteria to control risk due to potential distance focus overpressure effects (Requirement 42842).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030

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NPR 8715.5	3.2.07.3	42843	Range Safety Analysis: Far-Field Blast Overpressure Effects Risk Assessment: A far-field blast overpressure analysis shall account for: The potential for distance focus overpressure or overpressure enhancement given current meteorological conditions and terrain characteristics (Requirement 42843).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.07.3.a	42844	Range Safety Analysis: Far-Field Blast Overpressure Effects Risk Assessment: A far-field blast opverpressure analysis shall account for: The potential for broken windows and related casualties (Requirement 42844).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.07.3.b	42845	Range Safety Analysis: Far-Field Blast Overpressure Effects Risk Assessment: A far-field blast opverpressure analysis shall account for: Characteristics of the potentially affected windows, including their size, location, orientation, glazing material, and condition (Requirement 42845).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.07.3.c	42846	Range Safety Analysis: Far-Field Blast Overpressure Effects Risk Assessment: A far-field blast opverpressure analysis shall account for: The hazard characteristics of the potential glass shards, such as falling from upper building stories or being propelled into or out of a shelter toward potentially occupied spaces (Requirement 42846).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.07.3.d	42847	Range Safety Analysis: Far-Field Blast Overpressure Effects Risk Assessment: A far-field blast opverpressure analysis shall account for: The explosive capability of the vehicle at or after impact and at altitude and potential explosions resulting from debris impacts, including the potential for mixing of liquid propellants (Requirement 42847).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.07.3.e	42848	Range Safety Analysis: Far-Field Blast Overpressure Effects Risk Assessment: A far-field blast opverpressure analysis shall account for: Characteristics of the vehicle flight and the surroundings that would affect the population's susceptibility to injury, for example, shelter types and time of day of the proposed activity (Requirement 42848).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.08.1	42850	Range Safety Analysis: Toxic Hazard Risk Assessment: In the case of a catastrophic failure of a vehicle in flight, rocket fuel and oxidizer residues (e.g., aerozine-50, nitrogen tetroxide, hydrogen chloride from solid rocket motors, and their combustion products) may be present. Under certain meteorological conditions, high concentrations of these materials may drift over populated areas at levels greater than emergency health standards permit. As a result, NASA shall protect the public and workforce from toxic hazards using either hazard containment or a risk mitigation approach (Requirement 42850). This paragraph does not apply to any potential release of radioactive materials. (See paragraph 3.3.7.3).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.08.2	42851	Range Safety Analysis: Toxic Hazard Risk Assessment: A range safety analysis shall establish flight commit criteria to control any risk due to potential toxic material release (Requirement 42851).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.08.2.a	42852	Range Safety Analysis: Toxic Hazard Risk Assessment: A range safety analysis shall establish flight commit criteria to control any risk due to potential toxic material release: The analysis shall assess any residual risk due to potential toxic material release not fully contained or mitigated for input to the program's risk management process (Requirement 42852).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.08.2.b.1	42854	Range Safety Analysis: Toxic Hazard Risk Assessment: A range safety analysis shall establish flight commit criteria to control any risk due to potential toxic material release: The analysis shall account for: Any foreseeable toxic material release during the proposed flight or in the event of a mishap (Requirement 42854).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.08.2.b.2	42855	Range Safety Analysis: Toxic Hazard Risk Assessment: A range safety analysis shall establish flight commit criteria to control any risk due to potential toxic material release: The analysis shall account for: Any operational constraints and emergency procedures that provide protection from toxic material release (Requirement 42855)	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.08.2.b.3	42856	Range Safety Analysis: Toxic Hazard Risk Assessment: A range safety analysis shall establish flight commit criteria to control any risk due to potential toxic material release: The analysis shall account for: All populations potentially exposed to any toxic material release, including all members of the public and workforce on land and on any waterborne vessels and aircraft (Requirement 42856).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.08.2.b.4	42857	Range Safety Analysis: Toxic Hazard Risk Assessment: A range safety analysis shall establish flight commit criteria to control any risk due to potential toxic material release: The analysis shall account for: Potential emissions from both nominal range operations and catastrophic events to ensure response actions are designed to prevent or mitigate possible exposures (Requirement 42857).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.08.3	42858	Range Safety Analysis: Toxic Hazard Risk Assessment: The American Industrial Hygiene Association - Emergency Response Planning Guidelines (ERPG) - shall be used for determining the need and requirements for emergency response action plans (Requirement 42858).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.09.1	42860	Range Safety Analysis: Containment: When controlling risk through containment, the range safety analysis shall provide the basis for establishing the geographical areas from which people and any property identified under paragraph 3.2.4.3.b shall be excluded during flight (Requirement 42860).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.09.2	42861	Range Safety Analysis: Containment: The analysis shall determine any operational controls needed to isolate each hazard and prevent/mitigate the risk due to hazard (Requirement 42861).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030

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NPR 8715.5	3.2.09.3	42862	Range Safety Analysis: Containment: The cognizant range safety organization, in conjunction with the program, shall establish the containment criteria for normal and malfunctioning vehilcle flight (Requirement 42862).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.09.4	42863	Range Safety Analysis: Containment: Any residual risk due to any hazard not fully contained shall undergo the risk management process of paragraph 3.2.4 (Requirement 42863).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.10.1	42865	Range Safety Analysis: Risk Mitigation: When controlling risk through mitigation, a range safety analysis shall establish the operational constraints that negate the risk or reduce it to a level that is acceptable with appropriate management approval (Requirement 42865).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.2.10.2	42866	Range Safety Analysis: Risk Mitigation: Any residual risk not fully mitigated shall undergo the risk management process of paragraph 3.2.4 (Requirement 42866).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.3.1	42868	Range Safety: Range Safety Systems: Flight Termination System (FTS). An FTS provides for hazard mitigation during vehicle flight and may be a major component of a vehicle program's risk management approach.	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.3.1.1	42869	Range Safety: Range Safety Systems: Flight Termination System (FTS). An FTS provides for hazard mitigation during vehicle flight and may be a major component of a vehicle program's risk management approach: Any vehicle, stage, or payload with propulsive capability that poses elevated risk to the public shall have an FTS as needed to satisfy the range safety analysis requirements of paragraph 3.2 of this NPR (Requirement 42869). Note: Based on a case-by-case assessment, an inhabited vehicle might incorporate an FTS only on certain components and not on the inhabited portion of the vehicle. NPR 8705.2, Human-Rating Requirements for Space Systems, contains requirements that apply when an FTS is used on any component of an inhabited vehicle.	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.3.1.2	42870	Range Safety: Range Safety Systems: Flight Termination System (FTS). An FTS provides for hazard mitigation during vehicle flight and may be a major component of a vehicle program's risk management approach: When designing future inhabited aerospace vehicles, NASA shall consider designs that provide controllability and high reliability, fuels and materials of low toxicity, and trajectories for launch and entry that limit exposure of hazards to populations to negate the need for an FTS (Requirement 42870).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.3.1.3	42871	Range Safety: Range Safety Systems: Flight Termination System (FTS). An FTS provides for hazard mitigation during vehicle flight and may be a major component of a vehicle program's risk management approach: When an FTS is used, the termination action shall inhibit further deviation in the instantaneous impact point of the vehicle, including any payload, and disperse any hazardous propellant in a predictable manner (Requirement 42871). This serves to limit further exposure of population to hazards associated with an errant vehicle.	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.3.1.4	42872	Range Safety: Range Safety Systems: Flight Termination System (FTS). An FTS provides for hazard mitigation during vehicle flight and may be a major component of a vehicle program's risk management approach: The FTS shall satisfy the design and test requirements of AFSPCMAN 91-710, Range Safety User Requirements Manual, RCC 313, Test Standards for Flight Termination Receiver/Decoders, or RCC 319, Flight Termination Systems-Commonality Standard (Requirement 42872).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.3.1.5	42873	Range Safety: Range Safety Systems: Flight Termination System (FTS). An FTS provides for hazard mitigation during vehicle flight and may be a major component of a vehicle program's risk management approach: When an FTS is used for a NASA or NASA-sponsored vehicle, the vehicle program shall implement a secure FTS in accordance with NPR 2810.1, Security of Information Technology (Requirement 42873).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.3.1.6	42874	Range Safety: Range Safety Systems: Flight Termination System (FTS). An FTS provides for hazard mitigation during vehicle flight and may be a major component of a vehicle program's risk management approach: The configuration of an installed approved FTS shall be controlled using a standard configuration control management process (Requirement 42874).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.3.1.7.a	42876	Range Safety: Range Safety Systems: Flight Termination System (FTS). An FTS provides for hazard mitigation during vehicle flight and may be a major component of a vehicle program's risk management approach: Criteria for activiation of the FTS for uninhabited vehicles shall include conditions for when: Valid data shows the vehicle violating a flight termination boundary, unless other documented mitigations are in effect (Requirement 42876).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.3.1.7.b	42877	Range Safety: Range Safety Systems: Flight Termination System (FTS). An FTS provides for hazard mitigation during vehicle flight and may be a major component of a vehicle program's risk management approach: Criteria for activiation of the FTS for uninhabited vehicles shall include conditions for when: Vehicle performance or location is unknown, the vehicle is capable of violating a flight termination boundary, and terminating flight would mitigate the risk (Requirement 42877).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.3.1.7.c	42878	Range Safety: Range Safety Systems: Flight Termination System (FTS). An FTS provides for hazard mitigation during vehicle flight and may be a major component of a vehicle program's risk management approach: Criteria for activiation of the FTS for uninhabited vehicles shall include conditions for when: There is a gross trajectory deviation or obvious erratic flight rendering the vehicle uncontrollable (Requirement 42878).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030

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NPR 8715.5	3.3.1.7.d	42879	Range Safety: Range Safety Systems: Flight Termination System (FTS). An FTS provides for hazard mitigation during vehicle flight and may be a major component of a vehicle program's risk management approach: Criteria for activiation of the FTS for uninhabited vehicles shall include conditions for when: Other mission-specific conditions present rationale for additional criteria (Requirement 42879).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.3.1.8	42880	Range Safety: Range Safety Systems: Flight Termination System (FTS). An FTS provides for hazard mitigation during vehicle flight and may be a major component of a vehicle program's risk management approach: When an inhabited vehicle or its launch system require an FTS, the range safety organization and the program shall coordinate to develop the flight terminaiton activation criteria (Requirement 42880). NPR 8705.2, Human-Rating Requirements for Space Systems, applies.	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.3.2.1	42882	Range Safety: Range Safety Systems: Recovery Systems: Recovery systems intended to save or preseve the flight vehicle in the event of a malfunction shall not be considered an FTS (Requirement 42882). A recovery system may be considered as risk mitigation and factor into the range safety risk assessment for the range operation where applicable.	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.3.2.2	42883	Range Safety: Range Safety Systems: Recovery Systems: Activation of a recovery system shall not increase the risk to people or property (Requirement 42883).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.3.3.2	42886	Range Safety: Range Safety Systems: Contingency Management System (CMS): A CMS shall not be considered an FTS (Requirement 42886).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.3.3.3	42887	Range Safety: Range Safety Systems: Contingency Management System (CMS): Activation of a CMS shall not increase the risk to people or property (Requirement 42887).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.3.3.4	42888	Range Safety: Range Safety Systems: Contingency Management System (CMS): A CMS may be considered as risk mitigation and factor into the range safety risk assessment for the range operation where applicable.	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.3.4.1.a	42891	Range Safety: Range Safety Systems: Vehicle Tracking: For a vehicle that is flown with an FTS: The range safety systems used to support a flight termination decision shall include at least two sources of vehicle tracking data; where the two sources are independent of each other and one of the sources is independent of the vehicle guidance system (Requirement 42891).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.3.4.1.b	42892	Range Safety: Range Safety Systems: Vehicle Tracking: For a vehicle that is flown with an FTS: The tracking data shall be of sufficient quality to determine the vehicle's real time position and instantaneous impact point throughout the entire period of time that the FTS is used to contain the hazard and make range safety decisions (Requirement 42892). Note: This tracking time period includes launch through orbital insertion for orbital vehicles, throughout the mission for suborbital or aeronautical vehicles, and upon entry through landing for entry vehicles.	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.3.4.2	42893	Range Safety: Range Safety Systems: Vehicle Tracking: For the flight of an uninhabited vehicle that is flown without an FTS, the range safety system shall include tracking or other data sources sufficient to determine the impact footprint of all vehicle components (Requirement 42893).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.3.5.1	42895	Range Safety: Range Safety Systems: Telemetry: All data systems that provide information used to evaluate range safety requirements shall undergo validation to ensure operational readiness prior to initiating any phase of flight such as launch or entry (Requirement 42895).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.3.5.2	42896	Range Safety: Range Safety Systems: Telemetry: The range safety telemetry system shall provide continuous, accurate data during preflight operations and during flight (Requirement 42896).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.3.5.3	42897	Range Safety: Range Safety Systems: Telemetry: The vehicle program shall coordinate with responsible range safety organization to identify the safety data required for each flight (Requirement 42897).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.3.5.4	42898	Range Safety: Range Safety Systems: Telemetry: For a vehicle that uses an FTS, the telemetry data shall include parameters that describe the health and status of the FTS and the vehicle needed to support a flight termination decision (Requirement 42898). These parameters may include:	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.3.6.1	42911	Range Safety: Range Safety Systems: FTS Command System: An FTS command system used to support missions that require an FTS shall incorporate fully redundant and independent command paths (Requirement 42911).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.3.6.2	42912	Range Safety: Range Safety Systems: FTS Command System: An FTS command system shall undergo validation to ensure operational readiness prior to every mission (Requirement 42912).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.3.6.3	42913	Range Safety: Range Safety Systems: FTS Command System: FTS command systems shall be under configuration control (Requirement 42913).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.3.7.1	42915	Range Safety: Range Safety Systems: Radiation Systems: NASA programs shall control radiation sources during all operational phases to ensure the protection of people, environment, facilities, and equipment and compliance with applicable Federal, State, and local regulations and NASA requirements (Requirement 42915). Note: Such radiation sources include radio-frequency/microwave emitters, radioactive materials, X-ray devices, lasers, and optical emitters.	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030

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NPR 8715.5	3.3.7.2	42916	Range Safety: Range Safety Systems: Radiation Systems: Nonionizing Radio Frequency (RF) Radiation Controls - All operations involving the use of RF transmitters (including FTS) shall be licensed, scheduled, and coordinated through the range and conform to the standards and regulations specified in IEEE C95.1-1991, American National Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 30 KHz to 100 GHz., and regulations of the range involved in the operation (Requirement 42916).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.3.7.3	42917	Range Safety: Range Safety Systems: Radiation Systems: Ionizing Radiation Controls - All operations involving the use of radioactive sources shall conform to the standards and regulations of the Nuclear Regulatory Comission and regulations of the range involved in the operation (Requirement 42917). Note: Policies and guidance for handling, use, and storage of radioactive material, including the approvals required, are contained in directives under the purview of NASA occupational health organizations (see NPD 1800.2, NASA Occupational Health Program). NPR 8715.3, NASA Safety Manual, Chapter 5, contains requirements and guidance applicable to launch of any radioactive materials.	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.3.7.4.1	42919	Range Safety: Range Safety Systems: Radiation Systems: Laser Hazard Controls: All operations involving the use of lasers shall comply with ANSI Z136.1, American National Standard for the Safe Use of Lasers (Requirement 42919).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.3.7.4.2	42920	Range Safety: Range Safety Systems: Radiation Systems: Laser Hazard Controls: All operations involving the use of lasers outdoors shall comply with ANSI Z136.6-2000, American National Standard for the Safe Use of Lasers Outdoors (Requirement 42920), which includes the following:	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.3.7.4.2.a	42921	Range Safety: Range Safety Systems: Radiation Systems: Laser Hazard Controls: All operations involving the use of lasers outdoors shall comply with ANSI Z136.6-2000, American National Standard for the Safe Use of Lasers Outdoors, which includes the following: Lasers entering the National Airspace shall have an FAA letter of nonobjection (Requirement 42921).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.3.7.4.2.b	42922	Range Safety: Range Safety Systems: Radiation Systems: Laser Hazard Controls: All operations involving the use of lasers outdoors shall comply with ANSI Z136.6-2000, American National Standard for the Safe Use of Lasers Outdoors, which includes the following: Programs that use a laser with the potential to strike orbiting satellites shall coordinate its operations with the DoD Laser Safety Clearinghouse (Requirement 42922).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.3.8.1	42924	Range Safety: Range Safety Systems: Safety Critical Software: Range safety systems that incorporate safety critical software that are used to support NASA missions shall have an independent verification and validation plan in accordance with the NPD 8730.4, Software Independent Verificaiton and Validation (IV&V) Policy (Requirement 42924).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.3.8.2	42925	Range Safety: Range Safety Systems: Safety Critical Software: NASA safety-critica software shall be developed in accordance with NPR 7150.2, NASA Software Engineering Requirements, and NASA STD 8719.13, Software Safety (Requirement 42925).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.4.1.1	42928	Range Safety: Operational Requirements: Flight Commit Criteria: The flight commit criteria for a range operation shall identify the conditions that must be met to initiate each flight or phase of flight (see paragraph 3.2.4.e.1 for requirements that apply to phases of flight) (Requirement 42928).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.4.1.2.a	42930	Range Safety: Operational Requirements: Flight Commit Criteria: The flight commit criteria shall provide for: Assurance that the collision avoidance requirements of paragraph 3.4.3 are satisfied for any launch or entry (Requirement 42930).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.4.1.2.b	42931	Range Safety: Operational Requirements: Flight Commit Criteria: The flight commit criteria shall provide for: Surveillance of any established hazard areas (Requirement 42931).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.4.1.2.c	42932	Range Safety: Operational Requirements: Flight Commit Criteria: The flight commit criteria shall provide for: Verification that all range safety systems are available and operational (Requirement 42932).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.4.1.2.d	42933	Range Safety: Operational Requirements: Flight Commit Criteria: The flight commit criteria shall provide for: Verification that the meteorological conditions, such as wind, lightning, and visibility, are within the limits defined by the range safety analysis (Requirement 42933).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.4.1.3	42934	Range Safety: Operational Requirements: Flight Commit Criteria: Implementation of the flight commit criteria shall include documenting the actual conditions at the time of flight or time of each phase of flight where applicable to verify that the flight commit criteria have been met (Requirement 42934).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.4.2.1	42936	Range Safety: Operational Requirements: Entry Operations. For an entry operation, the vehicle program and the receiving landing site have responsibility for range safety risk management. In this regime, range safety responsibility begins with concurrence with the decision to send the final command that initiates the entry and landing sequence: Commit to entry and landing shall be initiated (enabled) by vehicle operator control (Requirement 42936).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030

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NPR 8715.5	3.4.2.2	42937	Range Safety: Operational Requirements: Entry Operations. For an entry operation, the vehicle program and the receiving landing site have responsibility for range safety risk management. In this regime, range safety responsibility begins with concurrence with the decision to send the final command that initiates the entry and landing sequence: Entry and landing shall not be initiated until all conditions critical to safety have been confirmed (Requirement 42937).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.4.2.3	42938	Range Safety: Operational Requirements: Entry Operations. For an entry operation, the vehicle program and the receiving landing site have responsibility for range safety risk management. In this regime, range safety responsibility begins with concurrence with the decision to send the final command that initiates the entry and landing sequence: The reliability of the vehicle to achieve controlled entry to the targeted landing site or debris footprint shall be at least 0.99 with 50 percent confidence (Requirement 42938). Note: The intent is to provide appropriate assurance that the vehicle will be deorbited in a predictable manner (i.e., avoid skip out) and allow for appropriate risk management during the entry operation in accordance with paragraph 3.2.4.	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.4.3.1	42940	Range Safety: Operational Requirements: Collision Avoidance (COLA): A space vehicle program, in coordination with the responsible range safety organization, shall ensure that the vehicle, any jettisoned component, or payload does not pass closer than 200 kilometers to an orbiting inhabited on inhabitable spacecraft (Requirement 42940). Note: This applies throughout suborbital flight to landing and final impact. For orbital flight, this applies during ascent to initital orbital insertion and through at least one complete orbit. For any entry operation, this applies from the point that the commit to deorbit is initiated through landing or final impact.	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.4.3.2.a	42942	Range Safety: Operational Requirements: Collision Avoidance (COLA). The vehicle program or responsible range safety organization shall: Inform the United States Strategic Command of an upcoming launch or entry operation at least 15 days before the operation (Requirement 42942).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.4.3.2.b	42943	Range Safety: Operational Requirements: Collision Avoidance (COLA). The vehicle program or responsible range safety organization shall: Notify the United States Strategic Command immediately of an change in the planned launch or entry operations that occurs after the initial notification (Requirement 42943).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.4.3.2.c	42944	Range Safety: Operational Requirements: Collision Avoidance (COLA). The vehicle program or responsible range safety organization shall: Obtain a COLA analysis from the United States Strategic Command or perform an equivalent analysis needed to satisfy paragraph 3.4.3.1 of this NPR (Requirement 42944).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.4.3.2.d	42945	Range Safety: Operational Requirements: Collision Avoidance (COLA). The vehicle program or responsible range safety organization shall: Implement any constraints needed to satisfy paragraph 3.4.3.1 of this NPR (Requirement 42945).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.4.4.1	42947	Range Safety: Operational Requirements: Uninhabited Aerial Vehicles Operations: The RCC 323, Range Safety Criteria for Unmanned Air Vehicles, shall be used for guidance when operating, hosting, or sponsoring a UAV operation (Requirement 42947).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.4.4.2	42948	Range Safety: Operational Requirements: Uninhabited Aerial Vehicles Operations: Lead range safety responsibility for a UAV flight shall default to the initiating Center or range (where takeoff occurs) (Requirement 42948). Note: Each takeoff initiates a distinct range operation. Unless other agreements are made between the ranges involved, if a UAV lands at a site that has a different authority than the original takeoff site, lead range safety responsibility for future takeoff and subsequent flight from the new site transfers to the new range authority.	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.5.1.a	42951	Range Safety: Range Safety Personnel Qualifications and Training: Qualifications for personnel who perform a range safety function (including RSOs and personnel responsible for range safety systems and range safety analysis) shall include: Successful completion of knowledge-based training (self-study and/or classroom) applicable to the range safety function (Requirement 42951).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.5.1.b	42952	Range Safety: Range Safety Personnel Qualifications and Training: Qualifications for personnel who perform a range safety function (including RSOs and personnel responsible for range safety systems and range safety analysis) shall include: Successful completion of instructor-led, hands-on training on how to perform the range safety function followed by satisfactory on-the-job performance as a trainee, as applicable (Requirement 42952).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.5.1.c	42953	Range Safety: Range Safety Personnel Qualifications and Training: Qualifications for personnel who perform a range safety function (including RSOs and personnel responsible for range safety systems and range safety analysis) shall include: Proficiency demonstrated to a qualified range safety professional during simulation scenarios that exercise hands-on operations of range safety systems and use of safety decision-making tools or processes, as applicable (Requirement 42953).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.5.1.d	42954	Range Safety: Range Safety Personnel Qualifications and Training: Qualifications for personnel who perform a range safety function (including RSOs and personnel responsible for range safety systems and range safety analysis) shall include: Proficiency demonstrated to a qualified range safety professional during exercises of nominal and contingency actions, as applicable (Requirement 42954).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030

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NPR 8715.5	3.5.2.a	42956	Range Safety: Range Safety Personnel Qualifications and Training: The training program for range safety personnel shall: Provide qualified personnel to support nominal and contingency range operations (Requirement 42956).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.5.2.b	42957	Range Safety: Range Safety Personnel Qualifications and Training: The training program for range safety personnel shall: Include a recurring training process to ensure personnel retain their qualifications (Requirement 42957)	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.5.2.c	42958	Range Safety: Range Safety Personnel Qualifications and Training: The training program for range safety personnel shall: Include a requalification process for personnel who lose qualification status, such as, someone who exhibits substandard performance or has temporary health problems (Requirement 42958).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.5	3.5.2.d	42959	Range Safety: Range Safety Personnel Qualifications and Training: The training program for range safety personnel shall: Include a documentation process that captures the qualification, recurring training, and requalification status of all range safety personnel (Requirement 42959).	S	Y	Y	Safety	CxP 70059	2.3	SAF-1030
NPR 8715.6A	0.P.2.4.a	57283	Preface: APPLICABILITY: The following subparagraphs (a-d below) limit the scope of this NPR: NASA spacecraft, launch vehicles, and instruments that passed the Preliminary Design Review (PDR) prior to August 1995 (release of NSS 1740.14, Guidelines and Assessment Procedures for Limiting Orbital Debris) are not required to perform an ODA unless a large change in design, as determined by the SMA Technical Authority for Orbital Debris, or changes in space object capability or risk affect the ability to achieve compliance with the requirements. If one or more of these conditions occur, an ODA Report (ODAR) shall be performed (Requirement 57283)	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NPR 8715.6A	0.P.2.4.e	57290	Preface: APPLICABILITY: The following subparagraphs (a-d below) limit the scope of this NPR: All applicable programs not listed in paragraphs P.2.4.a through P.2.4.c shall use NASA-STD 8719.14 (Requirement 57290).	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NPR 8715.6A	0.P.2.5(1)	57291	Preface: APPLICABILITY: While this NPR has no automatic exclusions for any spaceflight program or project, it is recognized that the current state of spacecraft and launch vehicles precludes total compliance. For noncompliances, the spacecraft program or project shall asess the overall cost and technical impacts as described in paragraph 2.2.4 of this NPR to justify the noncompliance (Requirement 57291).	S	Y	Y	Safety			
NPR 8715.6A	1.3.13.1	56786	General Information: Roles and Responsibilities: NASA Program/Project Manager: The NASA Program/Project Manager shall establish an orbital debris mitigation activity as a part of every spaceflight program/project as defined by paragraph P.2.2. (Requirement 56786)	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NPR 8715.6A	1.3.13.2	56787	General Information: Roles and Responsibilities: NASA Program/Project Manager: The NASA Program/Project Manager shall provide copies of any plans describing generation of orbital debris to the SMA Technical Authority for Orbital Debris for review. (Requirement 56787)	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NPR 8715.6A	2.1.1	56793	Program/Project Development and Prelaunch Preparations: Orbital Debris Program Setup and Control: The NASA Program/Project Manager shall implement orbital debris requirements for those portions of a spaceflight program/project over which NASA has control as defined by paragraph P.2.2. (Requirement 56793)	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NPR 8715.6A	2.1.2	56794	Program/Project Development and Prelaunch Preparations: Orbital Debris Program Setup and Control: The NASA Program/Project Manager shall include the applicable design requirements stated in NSS 1740.14 in the program/project requirements unless a variance to the requirements has been granted per NPR 8715.3, paragraph 1.13. (Requirement 56794)	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NPR 8715.6A	2.1.3	56795	Program/Project Development and Prelaunch Preparations: Orbital Debris Program Setup and Control: The NASA Program/Project Manager and the contracting officer for the program/project shall include requirements in this NPR in agreements and contracts necessary to ensure compliance with this NPR unless a variance to the requirements has been granted per NPR 8715.3, paragraph 1.13. (Requirement 56795)	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NPR 8715.6A	2.1.4	57300	Program/Project Development and Prelaunch Preparations: Orbital Debris Program Setup and Control: When a spacecraft is jointly developed/built/managed by multiple NASA Centers/facilities using NASA-STD 8719.14, the Program/Project Manager at each NASA Center/facility shall deliver an abbreviated ODAR per NASA-STD 8719.14, Appendix A, Section A.3, as a part of the hardware delivery to the program/project integrator covering those spacecraft portions under their control (Requirement 57300).	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NPR 8715.6A	2.1.4.a	57301	Program/Project Development and Prelaunch Preparations: Orbital Debris Program Setup and Control: When a spacecraft is jointly developed/built/managed by multiple NASA Centers/facilities using NASA-STD 8719.14, the Program/Project Manager at each NASA Center/facility shall deliver an abbreviated ODAR per NASA-STD 8719.14, Appendix A, Section A.3, as a part of the hardware delivery to the program/project integrator covering those spacecraft portions under their control: When a spacecraft is jointly developed/built/managed by multiple NASA Centers/facilities using NSS 1740.14, the Program/Project Manager at each NASA Center/facility shall deliver either a full ODAR per NSS 1740.14, Chapter 8, or an abbreviated ODAR per NASA-STD 8719.14, Appendix A, Section A.3, as a part of the hardware delivery to the program/project integrator covering those spacecraft portions under their control (Requirement 57301).	S	Y	Y	Safety	CxP 70059	2.4	SAF-191

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NPR 8715.6A	2.1.5	57302	Program/Project Development and Prelaunch Preparations: Orbital Debris Program Setup and Control: When a spacecraft is jointly developed/built by multiple organizations where NASA is using NASA-STD 8719.14, and NASA is not the launching or lead Agency, the NASA Program/Project Manager shall provide an abbreviated ODAR to the non-NASA launching or lead Agency per NASA-STD 8719.14, Appendix A, Section A.3, as part of the delivery of the hardware data package covering only those spacecraft portions being developed/integrated by the NASA organization as permitted by International Traffic in Arms (ITAR) and other data restrictions (Requirement 57302).	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NPR 8715.6A	2.1.5.a(1)	57303	Program/Project Development and Prelaunch Preparations: Orbital Debris Program Setup and Control: When a spacecraft is jointly developed/built by multiple organizations where NASA is using NASA-STD 8719.14, and NASA is not the launching or lead Agency, the NASA Program/Project Manager shall provide an abbreviated ODAR to the non-NASA launching or lead Agency per NASA-STD 8719.14, Appendix A, Section A.3, as part of the delivery of the hardware data package covering only those spacecraft portions being developed/integrated by the NASA organization as permitted by International Traffic in Arms (ITAR) and other data restrictions: When a spacecraft is jointly developed/built by multiple organizations where NASA is using NSS 1740.14, and NASA is not the launching or lead Agency, the NASA Program/Project Manager shall provide either a full ODAR per NSS 1740.14 Chapter 8 or an abbreviated ODAR per NASA-STD 8719.14, Appendix A, Section A.3, to the non-NASA launching or lead Agency as a part of the delivery of the hardware data package covering only those spacecraft portions being developed/integrated by the NASA organization as permitted by International	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NPR 8715.6A	2.1.7	57306	Program/Project Development and Prelaunch Preparations: Orbital Debris Program Setup and Control: The NASA Program/Project Manager shall include a review of the orbital debris requirements derived from this NPR and NSS 1740.14 or NASA-STD 8719.14, as applicable per paragraph P.2.4, as a part of the program/project System Requirements Review (or equivalent early review) (Requirement 57306).	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NPR 8715.6A	2.2.1.01	57307	Program/Project Development and Prelaunch Preparations: Orbital Debris Risk Assessments: Orbital Debris Assessment Report (ODAR): The NASA Program/Project Managers shall assess the mission for compliance with this NPR and NSS 1740.14 or NASA-STD 8719.14, as applicable per paragraph P.2.4, for generation of orbital debris during all mission phases (Requirement 57307).	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NPR 8715.6A	2.2.1.02	57308	Program/Project Development and Prelaunch Preparations: Orbital Debris Risk Assessments: Orbital Debris Assessment Report (ODAR): The NASA Program/Project Managers shall prepare and deliver the mission orbital debris assessments to the MDAA in an ODAR per the format and content defined in NSS 1740.14 or NASA-STD 8719.14, as applicable per paragraph P.2.4, for all objects being launched as defined in paragraph P.2.2 (Requirement 57308).	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NPR 8715.6A	2.2.1.07	56810	Program/Project Development and Prelaunch Preparations: Orbital Debris Risk Assessments: Orbital Debris Assessment Report (ODAR): The Program/Project Manager shall submit the initial mission ODAR prior to the spacecraft PDR or equivalent NASA Program/Project or project milestone. (Requirement 56810)	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NPR 8715.6A	2.2.1.08	56811	Program/Project Development and Prelaunch Preparations: Orbital Debris Risk Assessments: Orbital Debris Assessment Report (ODAR): The Program/Project Manager shall submit the updated mission ODAR no later than 45 days prior to the spacecraft CDR or equivalent NASA program or project milestone. (Requirement 56811)	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NPR 8715.6A	2.2.1.09	56812	Program/Project Development and Prelaunch Preparations: Orbital Debris Risk Assessments: Orbital Debris Assessment Report (ODAR): The Program/Project Manager shall submit the final mission ODAR no later than 30 days prior to the opening of the launch window or 30 days prior to the NASA SMA readiness review described in NPR 8705.6, whichever comes first. (Requirement 56812)	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NPR 8715.6A	2.2.2.01	56815	Program/Project Development and Prelaunch Preparations: Orbital Debris Risk Assessments: End-of-Mission Plan (EOMP): Program/Project Managers shall assess the mission for compliance with this NPR and NSS 1740.14 for proper disposal of the spacecraft and the launch vehicle for the portion of the program/project funded, managed, or operated by NASA. (Requirement 56815)	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NPR 8715.6A	2.2.2.02	57309	Program/Project Development and Prelaunch Preparations: Orbital Debris Risk Assessments: End-of-Mission Plan (EOMP): Program/Project Managers shall prepare, update, and deliver an EOMP per the format and content defined in NSS 1740.14 or NASA-STD 8719.14, as applicable per paragraph P.2.4, for the configuration of the space vehicles anticipated at EOM for all objects as defined in paragraph P.2.2 (Requirement 57309).	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NPR 8715.6A	2.2.2.03	56817	Program/Project Development and Prelaunch Preparations: Orbital Debris Risk Assessments: End-of-Mission Plan (EOMP): The Program/Project Manager shall submit each draft EOMP to the Chief/OSMA, the AA/SOMD (for missions that could pose a risk to humans in space), and the cognizant MDAA for review. (Requirement 56817)	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NPR 8715.6A	2.2.2.08	56822	Program/Project Development and Prelaunch Preparations: Orbital Debris Risk Assessments: End-of-Mission Plan (EOMP): The Program/Project Manager shall submit the initial draft EOMP no later than 45 days prior to the spacecraft CDR or equivalent program or project milestone. (Requirement 56822)	S	Y	Y	Safety	CxP 70059	2.4	SAF-191

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NPR 8715.6A	2.2.2.09	56823	Program/Project Development and Prelaunch Preparations: Orbital Debris Risk Assessments: End-of-Mission Plan (EOMP): The Program/Project Manager shall submit the Prelaunch EOMP no later than 30 days prior to the opening of the launch window or 30 days prior to the SMA readiness review described in NPR 8705.6, whichever comes first. (Requirement 56823)	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NPR 8715.6A	3.1.1	56843	Program/Project Operations: Design: The NASA Program/Project Manager shall ensure that all NASA and NASA-funded or NASA-controlled spacecraft and launch vehicles are designed to be disposed of in accordance with the remainder of this Chapter. (Requirement 56843)	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NPR 8715.6A	3.1.2	57313	Program/Project Operations: Design: The NASA Program/Project Manager, with the NASA Center SMA organization, shall track and monitor the noncompliances (to this NPR and NSS 1740.14 or NASA-STD 8719.14, as applicable per paragraph P.2.4) with the design and operations of the spacecraft and orbital launch vehicle stages beginning at PDR and shall have the tracking reviewed by the Center SMA organization prior to CDR and launch (Requirement 57313).	S	Y	Y	Safety			
NPR 8715.6A	3.1.3(1)	57314	Program/Project Operations: Design: The NASA Program/Project Manager shall ensure that all spacecraft and launch vehicles placed in orbit about Earth or the Moon are designed to prevent/preclude, to the extent possible/feasibile, a self-initiated unintentional orbit breakup from launch through reentry (Requirement 57314).	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NPR 8715.6A	3.2.01	56848	Program/Project Operations: Monitoring During Spaceflight: The NASA Program/Project Manager shall monitor their spacecraft and launch vehicle stages, to the extent possible/feasible, to detect intended or unintended operations that generate orbital debris around Earth, the Moon, or Mars, or at an Earth-Sun Lagrange point. (Requirement 56848)	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NPR 8715.6A	3.2.02	56849	Program/Project Operations: Monitoring During Spaceflight: If the NASA Program/Project Manager has determined that a spacecraft in orbit around Earth or the Moon has (or may have) generated intended or unintended orbital debris which is outside of the ODAR or EOMP analyses, then the following offices shall be notified within 48 hours of identifying the release by the identifying party: MDAA, OSMA, and NASA ODPO and SOMD for debris generated in LEO. (Requirement 56849)	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NPR 8715.6A	3.2.03(1)	56850	Program/Project Operations: Monitoring During Spaceflight: The NASA Program/Project Manager shall ensure that all generated orbital debris in Earth orbit (planned and unplanned) is analyzed by the program/project to determine if within 3 months the orbital debris may either pose a risk to another spacecraft in a similar or crossing orbit or will return to Earth. (Requirement 56850)	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NPR 8715.6A	3.2.05	56853	Program/Project Operations: Monitoring During Spaceflight: The NASA Program/Project Manager shall, for orbits about the Earth or the Moon, monitor spacecraft and launch vehicle stage items defined as critical in the ODAR or EOMP which may lead to a breakup or loss of control function or any items which may affect the planned maneuvers, passivation, or disposal at EOM. (Requirement 56853)	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NPR 8715.6A	3.2.06	56854	Program/Project Operations: Monitoring During Spaceflight: For orbits about the Earth or the Moon, when an event is detected that may affect the generation of orbital debris or implementation of the EOMP, the NASA Program/Project Manager shall ensure that appropriate measures are taken to limit further generation of orbital debris that may preculded intended passivation and disposal of the spacecraft and launch vehicle stages. (Requirement 56854)	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NPR 8715.6A	3.2.07	56855	Program/Project Operations: Monitoring During Spaceflight: The Program/Project Manager shall notify the Program's MDAA, who in turn, shall notify the Chief/OSMA and the NASA Chief Engineer, and SOMD (for missions that could pose a risk to humans in space) for events in LEO, within 96 hours of identifying the event when any of the following conditions occur: (Requirement 56855)	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NPR 8715.6A	3.2.09	56861	Program/Project Operations: Monitoring During Spaceflight: The NASA Program/Project Manager shall provide copies of all actions per NPD 8010.3, Notification of Intent to Decommission or Terminate Operating Space Systems and Terminate Missions, to the OSMA with EOMP updates. (Requirement 56861)	S	Y	Y	Mgmt	CxP 70059	2.4	SAF-191
NPR 8715.6A	3.2.10	56862	Program/Project Operations: Monitoring During Spaceflight: The NASA Program/Project Manager shall inform the Department of Defense's Space Surveillance Network in the Cheyenne Mountain Operations Center prior to spacecraft and launch vehicle EOM maneuvers that result in a change of Earth orbit altitutde of greater than 1 km. (Requirement 56862)	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NPR 8715.6A	3.3.1.1	56865	Program/Project Operations: EOM Actions: EOM Planning: The MDAA and the NASA Program/Project Manager shall periodically review and update the EOMP as a part of the Mission Directorate senior management review process. (Requirement 56865)	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NPR 8715.6A	3.3.1.2	56866	Program/Project Operations: EOM Actions: EOM Planning: All spacecraft planned for reentry into Earth's atmosphere or remaining in orbit about the Earth or the Moon shall be passivated as part of the disposal. (Requirement 56866)	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NPR 8715.6A	3.3.1.3	56867	Program/Project Operations: EOM Actions: EOM Planning: When significant capabilities affecting the spacecraft's planned ability to passivate, maneuver, or reenter at end-of-life change either through graceful degradation, malfunction, or via command, the EOMP shall be updated/annotated by the NASA Program/Project Manager. (Requirement 56867)	S	Y	Y	Safety	CxP 70059	2.4	SAF-191

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NPR 8715.6A	3.3.1.5(1)	57317	Program/Project Operations: EOM Actions: EOM Planning: The following systems shall be analyzed when passivation is required (Requirement 57317). (for further information on passivation, see NSS 1740.14 or NASA-STD 8719.14, as applicable per paragraph P.2.4):	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NPR 8715.6A	3.3.1.5(1).a	57318	Program/Project Operations: EOM Actions: EOM Planning: The following systems shall be analyzed when passivation is required. (for further information on passivation, see NSS 1740.14 or NASA-STD 8719.14, as applicable per paragraph P.2.4): Electrical Systems: Batteries and charging circuits.	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NPR 8715.6A	3.3.1.5(1).b	57319	Program/Project Operations: EOM Actions: EOM Planning: The following systems shall be analyzed when passivation is required. (for further information on passivation, see NSS 1740.14 or NASA-STD 8719.14, as applicable per paragraph P.2.4): Mechanical Pressure Systems: Propulsion, fluid loop, gas-pressurized batteries, and cryogenics.	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NPR 8715.6A	3.3.1.5(1).c	57320	Program/Project Operations: EOM Actions: EOM Planning: The following systems shall be analyzed when passivation is required. (for further information on passivation, see NSS 1740.14 or NASA-STD 8719.14, as applicable per paragraph P.2.4): Chemical Systems: Propulsion and solid motors.	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NPR 8715.6A	3.3.1.5(1).d	57321	Program/Project Operations: EOM Actions: EOM Planning: The following systems shall be analyzed when passivation is required. (for further information on passivation, see NSS 1740.14 or NASA-STD 8719.14, as applicable per paragraph P.2.4): Mechanical Systems: Rotating machinery and springs.	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NPR 8715.6A	3.3.2.1(1)	56876	Program/Project Operations: EOM Actions: EOM Requirements for Spacecraft and Launch Vehicles Planned for Reentry Into Earth's Atmosphere or Remaining in Orbi About the Earth or the Moon: Maneuverable spacecraft that are terminating their operationsal phases at altitudes of less than 2000 km above the Earth shall be maneuvered to reduce their orbital lifetime, commensurate with 25-year low Earth orbit lifetime limitations, or relocated, when feasible, if analysis shows the probability of collision with alrge objects exceeds criteria for objects in these highly utilized orbi regions. (Requirement 56876)	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NPR 8715.6A	3.3.2.3	56880	Program/Project Operations: EOM Actions: EOM Requirements for Spacecraft and Launch Vehicles Planned for Reentry Into Earth's Atmosphere or Remaining in Orbi About the Earth or the Moon: All spacecraft and launch vehicles shall be passivated as a part of EOM disposal/decommissioning to a level where the remaining internal stored energy is insufficient to cause breakup. (Requirement 56880)	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NPR 8715.6A	3.3.2.4	56881	Program/Project Operations: EOM Actions: EOM Requirements for Spacecraft and Launch Vehicles Planned for Reentry Into Earth's Atmosphere or Remaining in Orbi About the Earth or the Moon: The Program/Project Manager shall include evaluation of the long-term perturbations on, and the future trajectories of, orbital spacecraft and launch vehicle stages in the EOMP. (Requirement 56881)	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NPR 8715.6A	3.3.2.5	56882	Program/Project Operations: EOM Actions: EOM Requirements for Spacecraft and Launch Vehicles Planned for Reentry Into Earth's Atmosphere or Remaining in Orbi About the Earth or the Moon: The NASA Program/Project Manager shall ensure tha all spacecraft and launch vehicles designed to be operated in GEO are designed to be able to maneuver at least 300 km above GEO altitude (closest approach to GEO greater than 300 km above GEO altitude). (Requirement 56882)	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NPR 8715.6A	3.3.3.1	56884	Program/Project Operations: EOM Actions: EOM Requirements While in Orbit About the Moon: The NASA Program/Project Manager shall not plan to leave objects in lunar orbit unless a documented need is stated in the ODAR. (Requirement 56884)	S	Y	Y	Mgmt	CxP 70059	2.4	SAF-191
NPR 8715.6A	3.3.3.2	56885	Program/Project Operations: EOM Actions: EOM Requirements While in Orbit About the Moon: The NASA Program/Project Manager shall document the orbital parameters of all objects intended to be left in lunar orbit in the EOMP. (Requirement 56885)	S	Y	Y	Mgmt	CxP 70059	2.4	SAF-191
NPR 8715.6A	3.3.3.3	56886	Program/Project Operations: EOM Actions: EOM Requirements While in Orbit About the Moon: For disposal of spacecraft left in lunar orbit, the NASA Program/Project Manager shall document consideration of a change to the orbital parameters of the spacecraft such that it is not in an orbit where it may interfere with another active spacecraft and include this analysis in the EOMP. (Requirement 56886)	S	Y	Y	Mgmt	CxP 70059	2.4	SAF-191
NPR 8715.6A	3.3.3.4	56887	Program/Project Operations: EOM Actions: EOM Requirements While in Orbit About the Moon: The plan for disposal of a spacecraft on the lunar surface shall be concurred in by the Chief/OSMA. (Requirement 56887)	S	Y	Y	Mgmt	CxP 70059	2.4	SAF-191
NPR 8715.6A	3.3.3.5	56888	Program/Project Operations: EOM Actions: EOM Requirements While in Orbit About the Moon: All spacecraft landing sites on the Moon, planned or anticipated after EOM, shall be chosen (or precluded) with due regard to the planned usage of those sites in future exploration or scientific study and the interests of other spacefaring nations, subject to NPR 8020.12. (Requirement 56888)	S	Y	Y	Mgmt	CxP 70059	2.4	SAF-191
NPR 8715.6A	3.4.1	56891	Program/Project Operations: Conjunction Assessments during Mission Operations (for Earth Orbiting spacecraft): The NASA Program/Project Manager shall have conjunction assessment analyses performed routinely for all maneuverable Earth orbiting spacecraft with a perigee height of less than 2000 km in altitude or within 200 km of GEO. (Requirement 56891)	S	Y	Y	Safety	CxP 70059	2.4	SAF-191

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NPR 8715.6A	3.4.2	56892	Program/Project Operations: Conjunction Assessments during Mission Operations (for Earth Orbiting spacecraft): Conjunction assessment analyses shall be performed using the USSTRATCOM high accuracy catalog as a minimum. (Requirement 56892)	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NPR 8715.6A	3.4.3	56893	Program/Project Operations: Conjunction Assessments during Mission Operations (for Earth Orbiting spacecraft): The NASA Program/Project Manager shall have a collision risk assessment and risk mitigation process in place for all maneuverable Earth orbiting spacecraft that are performing routine conjunction assessment analyses. (Requirement 56893)	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NPR 8715.6A	3.5.2	56896	Program/Project Operations: Special Requirements for Spacecraft Carrying Humans: The Program/Project Manager shall notify the Chief/OSMA 48 hours in advance of a planned jettison of an object(s). (Requirement 56896)	S	Y	Y	Safety	CxP 70059	2.4	SAF-191
NPR 8735.1B	1.2.4.a	57144	General Requirements: Responsibilities: Program, Project, and Operations/Institutional Managers shall: Review all contracts to ensure	S	Y	Y	RMS	CxP 70059	0	RMS-117
								CxP 70059	3.4.1.1	RMS-62
NPR 8735.1B	1.2.4.b	57145	General Requirements: Responsibilities: Program, Project, and Operations/Institutional Managers shall: Ensure that all applicable GIDEP ALERTS, GIDEP SAFE-ALERTS, GIDEP Problem Advisories, GIDEP Agency Action Notices, and NASA Advisories are reveiwed and dispositioned for impact to all levels under their purview (Requirement 57145).	S	Y	Y	RMS	CxP 70059	3.4.1.4	RMS-60
NPR 8735.1B	1.2.4.c	57146	General Requirements: Responsibilities: Program, Project, and Operations/Institutional Managers shall: Ensure that all significant parts, material,	S	Y	Y	RMS	CxP 70059	3.4.1.1	RMS-62
								CxP 70059	3.4.1.5	RMS-58
NPR 8735.1B	1.2.4.d	57147	General Requirements: Responsibilities: Program, Project, and Operations/Institutional Managers shall: Ensure that the status of all applicable GIDEP ALERTS, GIDEP SAFE-ALERTS, GIDEP Problem Advisories, GIDEP Agency Action Notices, and NASA Advisories are reviewed at program milestones and readiness reviews (Requirement 57147).	S	Y	Y	RMS	CxP 70059	3.4.1.3	RMS-61
NPR 8735.1B	4.1.a	57193	Evaluation and Disposition of GIDEP ALERTS, GIDEP SAFE-ALERTS, GIDEP Problem Advisories, GIDEP Agency Action Notices, and NASA Advisories: Upon receipt of a GIDEP ALERT, GIDEP SAFE-ALERT, GIDEP Problem Advisory, GIDEP Agency Action Notice, or NASA Advisory, all Program, Project, and Operations/Institutional Managers shall evaluate and disposition the GIDEP ALERT, GIDEP SAFE-ALERT, GIDEP Problem Advisory, GIDEP Agency Action Notice, or NASA Advisory by: Determining its relevance and impact to programs, projects, and institutions (Requirement 57193). (See paragraph 4.2 and 4.3 for exceptions to Program and Project Managers' requirements for closed-loop GIDEP reporting).	S	Y	Y	RMS	CxP 70059	3.4.1.4	RMS-60
NPR 8735.1B	4.1.b	57194	Evaluation and Disposition of GIDEP ALERTS, GIDEP SAFE-ALERTS, GIDEP Problem Advisories, GIDEP Agency Action Notices, and NASA Advisories: Upon receipt of a GIDEP ALERT, GIDEP SAFE-ALERT, GIDEP Problem Advisory, GIDEP Agency Action Notice, or NASA Advisory, all Program, Project, and Operations/Institutional Managers shall evaluate and disposition the GIDEP ALERT, GIDEP SAFE-ALERT, GIDEP Problem Advisory, GIDEP Agency Action Notice, or NASA Advisory by: Identifying actions to be taken to reduce or eliminate any detrimental effects on programs, projects, and institutions or identifying other disposition actions to be taken (e.g., risk accepted after assessment, parts replaced, parts placed in segregated stores, additional testing performed) (Requirement 57194).	S	Y	Y	RMS	CxP 70059	3.4.1.3	RMS-61
NPR 8735.1B	4.1.c	57195	Evaluation and Disposition of GIDEP ALERTS, GIDEP SAFE-ALERTS, GIDEP Problem Advisories, GIDEP Agency Action Notices, and NASA Advisories: Upon receipt of a GIDEP ALERT, GIDEP SAFE-ALERT, GIDEP Problem Advisory,	S	Y	Y	RMS	CxP 70059	3.4.1.2	RMS-63
								CxP 70059	3.4.1.3	RMS-61
								CxP 70059	3.4.1.6	RMS-59
NPR 8735.1B	4.1.c(01)	57196	Evaluation and Disposition of GIDEP ALERTS, GIDEP SAFE-ALERTS, GIDEP Problem Advisories, GIDEP Agency Action Notices, and NASA Advisories: Upon receipt of a GIDEP ALERT, GIDEP SAFE-ALERT, GIDEP Problem Advisory,	S	Y	Y	RMS	CxP 70059	3.4.1.2	RMS-63
								CxP 70059	3.4.1.3	RMS-61
								CxP 70059	3.4.1.6	RMS-59
NPR 8735.1B	4.1.d(1)	57199	Evaluation and Disposition of GIDEP ALERTS, GIDEP SAFE-ALERTS, GIDEP Problem Advisories, GIDEP Agency Action Notices, and NASA Advisories: Upon receipt of a GIDEP ALERT, GIDEP SAFE-ALERT, GIDEP Problem Advisory, GIDEP Agency Action Notice, or NASA Advisory, all Program, Project, and Operations/Institutional Managers shall evaluate and disposition the GIDEP ALERT, GIDEP SAFE-ALERT, GIDEP Problem Advisory, GIDEP Agency Action Notice, or NASA Advisory by: Collecting additional information as requested by the NASA Advisory initiator (Requirement 57199).	S	Y	Y	RMS	CxP 70059	3.4.1.5	RMS-58
NPR 8735.1B	4.3	57205	Evaluation and Disposition of GIDEP ALERTS, GIDEP SAFE-ALERTS, GIDEP Problem Advisories, GIDEP Agency Action Notices, and NASA Advisories: Program and Project Managers shall ensure that the baselining of the parts list includes a check of historical GIDEP ALERTS, GIDEP SAFE-ALERTS, GIDEP Problem Advisories, GIDEP Agency Action Notices, and NASA Advisories (Requirement 57205).	S	Y	Y	RMS	CxP 70059	3.4.1.4	RMS-60
NPR 8735.1B	4.4(1)	57206	Evaluation and Disposition of GIDEP ALERTS, GIDEP SAFE-ALERTS, GIDEP Problem Advisories, GIDEP Agency Action Notices, and NASA Advisories: For human flight operations and safety critical systems, Program, Project, and Operations/Institutional Managers shall continue closed-loop GIDEP processing throughout the entire program/project life until disposal (Requirement 57206).	S	Y	Y	Safety	CxP 70059	3.4.1.3	RMS-61
NPR 8735.2A	1.2.04.a	43042	Introduction: Roles and Responsibilities: Program and/or project managers are responsible for the quality of their assigned products and services. To that end, they shall: Plan and budget for implementation of Government contract quality assurance functions. (Requirement 43042)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11

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NPR 8735.2A	1.2.04.b	43043	Introduction: Roles and Responsibilities: Program and/or project managers are responsible for the quality of their assigned products and services. To that end, they shall: Identify high-risk and low-risk item acquisitions using input/support provided by the Center SMA office. (Requirement 43043)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	1.2.04.c	43044	Introduction: Roles and Responsibilities: Program and/or project managers are responsible for the quality of their assigned products and services. To that end, they shall: Develop Program/Project Quality Assurance Surveillance Plans (PQASP) per Chapter 3 of this NPR using input/support provided by the Center SMA office. (Requirement 43044)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
								CxP 70059	5.2.9.2	QAS-135
								CxP 70059	5.2.9.2	QAS-48
								CxP 70059	5.2.9.2	QAS-49
NPR 8735.2A	1.2.04.d	43045	Introduction: Roles and Responsibilities: Program and/or project managers are responsible for the quality of their assigned products and services. To that end, they shall: Appoint a program/project SMA Lead, or request SMA Director assignment/provision of a NASA SMA Lead, in accordance with local Center organizational governance procedures. (Requirement 43045)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	1.2.05.a	43047	Introduction: Roles and Responsibilities: Contracting officers ensure performance of all necessary actions for effective contracting and safeguard the interests of the	S	Y	Y	Quality	CxP 70059	5.2.6.3	QAS-73
								CxP 70059	5.2.7	QAS-11
NPR 8735.2A	1.2.05.b	43048	Introduction: Roles and Responsibilities: Contracting officers ensure performance of all necessary actions for effective contracting and safeguard the interests of the	S	Y	Y	Quality	CxP 70059	5.2.6.3	QAS-73
								CxP 70059	5.2.7	QAS-11
NPR 8735.2A	1.2.05.c(1)	43049	Introduction: Roles and Responsibilities: Contracting officers ensure performance of all necessary actions for effective contracting and safeguard the interests of the United States in its contractual relationships. To implement requirements of this NPR, contracting officers shall: Incorporate appropriate clauses or provisions into the prime contract that allow NASA, delegated Federal agency personnel, and/or quality assurance support contractors timely access to contractor and subcontractor facilities to perform quality assurance functions required by this NPR. (Requirement	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
								CxP 70059	A.1.7.4.1	QAS-100
								CxP 70059	A.1.7.4.1	QAS-101
								CxP 70059	A.1.7.4.2.b	QAS-170
								CxP 70059	A.1.8.2.2	QAS-122
NPR 8735.2A	1.2.07.a	43060	Introduction: Roles and Responsibilities: The NASA SMA Lead appointed by the program/project manager or the Center SMA Director shall: Identify key processes, products, documents, records, and performance characteristics requiring Government assurance actions and determine the appropriate level and type of Government contract quality assurance actions to be applied. (Requirement 43060)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
								CxP 70059	5.2.9.2	QAS-135
								CxP 70059	5.2.9.2	QAS-48
								CxP 70059	5.2.9.2	QAS-49
NPR 8735.2A	1.2.07.b	43061	Introduction: Roles and Responsibilities: The NASA SMA Lead appointed by the program/project manager or the Center SMA Director shall: Support the program/project manager and contracting officer in the development of the PQASP, LODs, and/or quality assurance support contracts. (Requirement 43061)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
								CxP 70059	5.2.9.2	QAS-135
								CxP 70059	5.2.9.2	QAS-48
								CxP 70059	5.2.9.2	QAS-49
								CxP 70059	A.1.7.4.2.b	QAS-170
NPR 8735.2A	1.2.07.c	43062	Introduction: Roles and Responsibilities: The NASA SMA Lead appointed by the program/project manager or the Center SMA Director shall: Provide detailed information concerning the resource(s) required to perform required quality assurance activities, including preparation of the NASA Center estimate of required delegated agency or surveillance support contract support (Requirement 43062)	S	Y	Y	Quality	CxP 70059	5.2.6.1	QAS-71
								CxP 70059	5.2.6.2.a	QAS-72
								CxP 70059	5.2.7	QAS-11
								CxP 70059	5.2.9.2	QAS-48
								CxP 70059	5.2.9.2	QAS-49
								CxP 70059	A.1.7.4.2.b	QAS-170
NPR 8735.2A	1.2.07.d	43063	Introduction: Roles and Responsibilities: The NASA SMA Lead appointed by the program/project manager or the Center SMA Director shall: Ensure clear and mutual understanding of delegated/assigned quality assurance functions between NASA, the delegated agency, and quality assurance support contractors. (Requirement 43063)	S	Y	Y	Quality	CxP 70059	5.2.6.1	QAS-71
								CxP 70059	5.2.6.2.a	QAS-72
								CxP 70059	5.2.7	QAS-11
								CxP 70059	5.2.9.2	QAS-48
								CxP 70059	5.2.9.2	QAS-49
								CxP 70059	A.1.7.4.2.b	QAS-170
NPR 8735.2A	1.2.07.e	43064	Introduction: Roles and Responsibilities: The NASA SMA Lead appointed by the program/project manager or the Center SMA Director shall: Ensure that delegated/assigned quality assurance functions are properly and effectively performed over the life of the program/project in accordance with the LOD or support contract. (Requirement 43064)	S	Y	Y	Quality	CxP 70059	5.2.6.1	QAS-71
								CxP 70059	5.2.6.2.a	QAS-72
								CxP 70059	5.2.7	QAS-11
								CxP 70059	5.2.7.5.1	QAS-23
								CxP 70059	5.2.7.5.1	QAS-24
								CxP 70059	5.2.7.5.1	QAS-25
								CxP 70059	5.2.7.5.1.d	QAS-77
								CxP 70059	5.2.9.2	QAS-48
								CxP 70059	5.2.9.2	QAS-49
								CxP 70059	A.1.7.4.2.b	QAS-170
NPR 8735.2A	1.2.07.f	43065	Introduction: Roles and Responsibilities: The NASA SMA Lead appointed by the program/project manager or the Center SMA Director shall: Continuously evaluate	S	Y	Y	Quality	CxP 70059	5.2.9.2	QAS-135
								CxP 70059	5.2.9.2	QAS-48
NPR 8735.2A	1.2.07.g	43066	Introduction: Roles and Responsibilities: The NASA SMA Lead appointed by the program/project manager or the Center SMA Director shall: Coordinate and integrate quality assurance functions performed by different parties to ensure that all of the requirements of Chapter 2 of this NPR are satisfied and to avoid duplication of effort. (Requirement 43066)	S	Y	Y	Quality	CxP 70059	5.2.6.1	QAS-71
								CxP 70059	5.2.6.2.a	QAS-72
								CxP 70059	5.2.7	QAS-11
								CxP 70059	5.2.9.1	QAS-133
								CxP 70059	5.2.9.1	QAS-134
								CxP 70059	5.2.9.3	QAS-136
NPR 8735.2A	2.1.1	43074	Government Contract Quality Assurance Requirements: Low-Risk Items: Program/project managers shall identify low-risk item acquisitions in accordance with the criteria specified in paragraph 2.1.3 below. (Requirement 43074)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	2.1.2.a	43076	Government Contract Quality Assurance Requirements: Low-Risk Items: Government contract quality assurance for acquisitions involving the supply of low-risk items shall be performed in accordance with: FAR Part 46 and NFS Part 1846.	S	Y	Y	Quality	CxP 70059		SAF-11

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NPR 8735.2A	2.1.2.b	43077	Government Contract Quality Assurance Requirements: Low-Risk Items: Government contract quality assurance for acquisitions involving the supply of low-risk items shall be performed in accordance with: Procurement quality assurance requirements provided in the procuring organization?s quality standard (e.g., AS9100 or ISO 9001 Section 7.4.3, Verification of Purchased Product).	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	2.1.2.c	43078	Government Contract Quality Assurance Requirements: Low-Risk Items: Government contract quality assurance for acquisitions involving the supply of low-risk items shall be performed in accordance with: Government Mandatory Inspection Point (GMIP) requirements per Chapter 8 of this NPR.	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	2.2.1(1)	43090	Government Contract Quality Assurance Requirements: High-Risk Items: Program/project managers shall identify high-risk item acquisitions. (Requirement 43090)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	2.3.1	43094	Government Contract Quality Assurance Requirements: Document Review: Contractor quality system procedures, technical products (e.g., data, drawings), and manufacturing process instructions shall be reviewed to ensure compliance with contract requirements. (Requirement 43094)	S	Y	Y	Quality	CxP 70059	5.2.7.2.2	QAS-18
NPR 8735.2A	2.3.1.1	43095	Government Contract Quality Assurance Requirements: Document Review: Document review shall be performed on a periodic basis and whenever document changes are made that affect quality system processes or product attributes. (Requirement 43095)	S	Y	Y	Quality	CxP 70059	5.2.7.2.2	QAS-19
NPR 8735.2A	2.3.1.2	43096	Government Contract Quality Assurance Requirements: Document Review: Selection of documents for review shall be based on the criticality, complexity, cost and importance of the product or process that is documented, and past product/process performance. (Requirement 43096)	S	Y	Y	Quality	CxP 70059	5.2.7.2.2	QAS-20
NPR 8735.2A	2.4.1.1	43100	Government Contract Quality Assurance Requirements: Product Assurance: Contractor hardware products shall be assured by product examination, process evaluation, and record review as follows: Product Examination: Supplier products shall be physically inspected, measured, and/or tested to ensure conformity to contract requirements. (Requirement 43100)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	2.4.1.2(1)	43101	Government Contract Quality Assurance Requirements: Product Assurance: Contractor hardware products shall be assured by product examination, process evaluation, and record review as follows: Process Witnessing: Supplier work processes shall be personally witnessed to ensure compliance with prescribed work instructions and contract requirements. (Requirement 43101)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	2.4.1.3(1)	43103	Government Contract Quality Assurance Requirements: Product Assurance: Contractor hardware products shall be assured by product examination, process evaluation, and record review as follows: Record Review: Recorded evidence demonstrating conformance to contract requirements shall be reviewed to ensure product and process conformance to contract requirements. (Requirement 43103)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	2.4.2	43105	Government Contract Quality Assurance Requirements: Product Assurance: The selection of product assurance actions and the sample size/frequency of attribute selection shall be based on the following risk factors: 1) the criticality, complexity, cost, and importance of product supplied, 2) the complexity and maturity of the process performed, 3) personnel safety considerations, and 4) the supplier?s past quality performance related to the product supplied or process performed. (Requirement 43105)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	2.4.4	43107	Government Contract Quality Assurance Requirements: Product Assurance: Product assurance attributes shall be pre-identified on checklists or by other documented methodology. (Requirement 43107)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	2.4.5(1)	43108	Government Contract Quality Assurance Requirements: Product Assurance: Accomplishment of product assurance actions shall be attested to by signature, legible printed name, and date or by an inspection control system such as inspection stamps or electronic medium. (Requirement 43108)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	2.4.5.1(1)	43110	Government Contract Quality Assurance Requirements: Product Assurance: Signatures, stamps, and data entries shall identify the discrete item examined (including any unique product identification/traceability information), process witnessed, or record verified. (Requirement 43110)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	2.4.5.2.a	43113	Government Contract Quality Assurance Requirements: Product Assurance: Where stamps or an electronic medium is used, the inspection control system shall: Indicate the date of acceptance. (Requirement 43113)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	2.4.5.2.b	43114	Government Contract Quality Assurance Requirements: Product Assurance: Where stamps or an electronic medium is used, the inspection control system shall: Ensure the legibility and durability of stamp impressions and ensure that stamps do not interlock with other stamps. (Requirement 43114)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	2.4.5.2.c	43115	Government Contract Quality Assurance Requirements: Product Assurance: Where stamps or an electronic medium is used, the inspection control system shall: Ensure that only properly authorized and qualified persons are permitted to apply stamps or make data entries and that individuals who are authorized to use stamps maintain control of their assigned stamp at all times. (Requirement 43115)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	2.4.5.2.d	43116	Government Contract Quality Assurance Requirements: Product Assurance: Where stamps or an electronic medium is used, the inspection control system shall: Ensure that data entries and/or stamp impressions provide direct traceability to the individual applying the stamp or making the data entry. (Requirement 43116)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11

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NPR 8735.2A	2.4.5.3	43117	Government Contract Quality Assurance Requirements: Product Assurance: Where product assurance accomplishment is attested by application of stamps to inspected supplies, the stamp shall not be applied in a manner prohibited by drawings or specifications or which may degrade the quality of the product. (Requirement 43117)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	2.4.6	43118	Government Contract Quality Assurance Requirements: Product Assurance: Product assurance actions shall be performed at subcontractor locations only where necessary to ensure that the contracted organization maintains effective oversight of subcontractors or to ensure compliance with critical product attributes (see paragraph 8.3.f). (Requirement 43118)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	2.4.7	43119	Government Contract Quality Assurance Requirements: Product Assurance: Product assurance actions shall be performed by persons properly qualified and trained concerning the quality assurance technique being practiced and the specific product or processes for which assurance is being provided. (Requirement 43119)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	2.4.8	43120	Government Contract Quality Assurance Requirements: Product Assurance: The control of monitoring and measuring devices used to perform product assurance actions shall comply with the same/applicable requirements invoked upon the contractor. (Requirement 43120)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	2.4.9	43121	Government Contract Quality Assurance Requirements: Product Assurance: Product assurance actions performed on a sampling basis, for which there is a measurable population of items, shall be performed using statistically valid sampling plans to achieve prescribed confidence level objectives. (Requirement 43121)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	2.5.1(1)	43123	Government Contract Quality Assurance Requirements: Quality System Evaluation: The contractor?s quality system shall be reviewed to ensure compliance with invoked quality program requirements, including internally developed procedures. (Requirement 43123)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
								CxP 70059	5.2.7.5.1	QAS-23
								CxP 70059	5.2.7.5.1	QAS-24
NPR 8735.2A	2.5.2	43125	Government Contract Quality Assurance Requirements: Quality System Evaluation: The frequency of quality system audits shall be based on the contracted	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
								CxP 70059	5.2.7.5.1	QAS-23
NPR 8735.2A	2.5.3	43126	Government Contract Quality Assurance Requirements: Quality System Evaluation: The following quality system elements shall be reviewed where applicable and where invoked upon the contractor (Requirement 43126):	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
								CxP 70059	5.2.7.5.3	QAS-27
								CxP 70059	5.2.7.5.3	QAS-28
NPR 8735.2A	2.5.3.p	43142	Government Contract Quality Assurance Requirements: Quality System Evaluation: The following quality system elements shall be reviewed where applicable and where invoked upon the contractor: Other quality program elements considered to represent unacceptable risk.	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	2.5.4	43143	Government Contract Quality Assurance Requirements: Quality System Evaluation: Quality system audits shall be performed and documented following written audit attributes, such as provided in AS9101, Quality Management Systems Assessment.	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
								CxP 70059	5.2.7.5.4.1	QAS-79
NPR 8735.2A	2.5.5	43144	Government Contract Quality Assurance Requirements: Quality System Evaluation: Quality system audit attribute selection shall be based on the importance of the attribute toward achieving product conformity. (Requirement 43144)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
								CxP 70059	5.2.7.5.4.1	QAS-79
NPR 8735.2A	2.5.6	43145	Government Contract Quality Assurance Requirements: Quality System Evaluation: Quality system auditing shall include product sampling, where applicable, to validate quality system effectiveness. (Requirement 43145)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
								CxP 70059	5.2.7.5.1.d	QAS-77
NPR 8735.2A	2.5.6.1	43146	Government Contract Quality Assurance Requirements: Quality System Evaluation: Product sampling shall be based on the criticality, complexity, and maturity of the product, personnel safety considerations, and the supplier?s past quality	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
								CxP 70059	5.2.7.5.1.d	QAS-78
NPR 8735.2A	2.6.1	43148	Government Contract Quality Assurance Requirements: Quality Data Analysis: Contractor quality data shall be collected and analyzed to identify problem areas (e.g., projects, products, processes, operations, organizations), common deficiency causes, quality trends, defect anomalies, and process variations. (Requirement 43148)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	2.6.2	43149	Government Contract Quality Assurance Requirements: Quality Data Analysis: Sources of data shall include contractor-generated metrics, NASA-identified nonconformances, post-delivery quality escapes, and quality data reported by delegated parties (e.g., DCMA, quality assurance support contractors, and accredited quality system registrars). (Requirement 43149)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	2.6.3.a	43151	Government Contract Quality Assurance Requirements: Quality Data Analysis: Data shall be evaluated at established periodic intervals for the purpose of: Adjusting the frequency and content of customer oversight actions, including allocation of quality assurance personnel resources. (Requirement 43151)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	2.6.3.b	43152	Government Contract Quality Assurance Requirements: Quality Data Analysis: Data shall be evaluated at established periodic intervals for the purpose of: Providing supporting rationale for acceptance/rejection of the contractor?s quality system and/or written procedures. (Requirement 43152)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	2.6.3.c	43153	Government Contract Quality Assurance Requirements: Quality Data Analysis: Data shall be evaluated at established periodic intervals for the purpose of: Initiating corrective action based on identification of systemic problems and trends. (Requirement 43153)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	2.7.1	43156	Government Contract Quality Assurance Requirements: Nonconformance Reporting and Corrective/Preventive Action: Government-identified nonconformances shall be documented and reported to the contractor for performance of corrective and preventive actions. (Requirement 43156)	S	Y	Y	Quality	CxP 70059	5.2.7.7.2	QAS-34

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NPR 8735.2A	2.7.2	43157	Government Contract Quality Assurance Requirements: Nonconformance Reporting and Corrective/Preventive Action: Corrective action requests shall be elevated to the appropriate level of contractor management based on problem criticality, recurrence, and/or nonresponsiveness. (Requirement 43157)	S	Y	Y	Quality	CxP 70059	5.2.7.7.2	QAS-35
NPR 8735.2A	2.7.3	43158	Government Contract Quality Assurance Requirements: Nonconformance Reporting and Corrective/Preventive Action: Corrective action requests shall require identification of: (Requirement 43158)	S	Y	Y	Quality	CxP 70059	5.2.7.7.2	QAS-34
NPR 8735.2A	2.7.3.d	43162	Government Contract Quality Assurance Requirements: Nonconformance Reporting and Corrective/Preventive Action: Corrective action requests shall require identification of: Measures taken/planned to prevent recurrence of the nonconformity.	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	2.7.4(1)	43163	Government Contract Quality Assurance Requirements: Nonconformance Reporting and Corrective/Preventive Action: Government follow-up shall be	S	Y	Y	Quality	CxP 70059	5.2.7.7.2	QAS-36
								CxP 70059	5.2.7.7.2	QAS-37
NPR 8735.2A	2.7.5	43165	Government Contract Quality Assurance Requirements: Nonconformance Reporting and Corrective/Preventive Action: Government identified nonconformances and corrective action reports shall be entered into an electronic nonconformance reporting and corrective action tracking system and, as appropriate for source evaluation/selection purposes, a past performance information management system. (Requirement 43165)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	2.8.1.a	43168	Government Contract Quality Assurance Requirements: Final Acceptance: Final acceptance constitutes acknowledgement that the supplies or services conform with applicable contract quality and quantity requirements, except where acceptance of nonconforming supplies is determined to be in the Government?s interest (see FAR Section 46.407 and Subpart 46.5) or where provided for by other terms and conditions of the contract. The Government shall formally accept delivery of product or services based on performance of the following actions: Final product inspection. (Requirement 43168)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	2.8.1.b	43169	Government Contract Quality Assurance Requirements: Final Acceptance: Final acceptance constitutes acknowledgement that the supplies or services conform with applicable contract quality and quantity requirements, except where acceptance of nonconforming supplies is determined to be in the Government?s interest (see FAR Section 46.407 and Subpart 46.5) or where provided for by other terms and conditions of the contract. The Government shall formally accept delivery of product or services based on performance of the following actions: Validation that there are no outstanding corrective actions resulting from contracting activity or contractor-identified nonconformances affecting acceptability of product. (Requirement 43169)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	2.8.1.c	43170	Government Contract Quality Assurance Requirements: Final Acceptance: Final acceptance constitutes acknowledgement that the supplies or services conform with applicable contract quality and quantity requirements, except where acceptance of nonconforming supplies is determined to be in the Government?s interest (see FAR Section 46.407 and Subpart 46.5) or where provided for by other terms and conditions of the contract. The Government shall formally accept delivery of product or services based on performance of the following actions: Validation that there are no outstanding engineering departures/waivers/deviations impacting acceptability of product and that all applicable engineering departures/waivers/deviations have been approved by the proper technical authority. (Requirement 43170)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	2.8.1.d	43171	Government Contract Quality Assurance Requirements: Final Acceptance: Final acceptance constitutes acknowledgement that the supplies or services conform with applicable contract quality and quantity requirements, except where acceptance of nonconforming supplies is determined to be in the Government?s interest (see FAR Section 46.407 and Subpart 46.5) or where provided for by other terms and conditions of the contract. The Government shall formally accept delivery of product or services based on performance of the following actions: Validation that all required GMIPs have been accomplished. (Requirement 43171)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	2.8.2	43172	Government Contract Quality Assurance Requirements: Final Acceptance: Performance of final acceptance is an inherently Governmental function which is the responsibility of the NASA contracting officer or his/her Government delegate. Performance of final acceptance shall not be delegated to a non-Governmental entity. (Requirement 43172)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	3.2.1.a	43177	Program/Project Quality Assurance Surveillance Plan (PQASP): PQASP Preparation and Content: The PQASP shall: Describe the activities, metrics, control mechanisms, and organizations that will be conducting quality assurance functions for the program/project. (Requirement 43177)	S	Y	Y	Quality	CxP 70059	5.2.9.2	QAS-49
NPR 8735.2A	3.2.1.b(1)	43178	Program/Project Quality Assurance Surveillance Plan (PQASP): PQASP Preparation and Content: The PQASP shall: Be a consolidated and integrated document (i.e., not divided among various/separate documents). (Requirement 43178)	S	Y	Y	Quality	CxP 70059	5.2.9.2	QAS-49
NPR 8735.2A	3.2.1.b(2)	43179	Program/Project Quality Assurance Surveillance Plan (PQASP): PQASP Preparation and Content: The PQASP shall: The PQASP may be a part of a larger program/project safety and mission assurance plan or may be a stand-alone document.	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	3.2.1.c(1)	43180	Program/Project Quality Assurance Surveillance Plan (PQASP): PQASP Preparation and Content: The PQASP shall: Incorporate applicable requirements from FAR Part 46, NFS Part 1846, NPD 8730.5, Chapter 2 of this NPR, and other related documents (e.g., Program/Project Plan, Risk Management Plan, contract, GMIP schedule). (Requirement 43180)	S	Y	Y	Quality	CxP 70059	5.2.6.3	QAS-74
								CxP 70059	5.2.7	QAS-11
								CxP 70059	5.2.9.2	QAS-48
								CxP 70059	5.2.9.2	QAS-49

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NPR 8735.2A	3.2.1.d(1)	43182	Program/Project Quality Assurance Surveillance Plan (PQASP): PQASP Preparation and Content: The PQASP shall: Be initially prepared in conjunction with preparation of the Statement of Work and periodically adjusted thereafter based on changing risk factors as the program/project progresses through pre-award activities, Request for Proposal responses, and post-award activities. (Requirement	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
								CxP 70059	5.2.9.2	QAS-135
								CxP 70059	5.2.9.2	QAS-48
								CxP 70059	5.2.9.2	QAS-49
NPR 8735.2A	3.2.2.1	43185	Program/Project Quality Assurance Surveillance Plan (PQASP): PQASP Preparation and Content: PQASPs shall contain the following: Introduction. Identify the program/project under surveillance; summarize the program/project objectives; and summarize the contents of the applicable contract(s). (Requirement 43185)	S	Y	Y	Quality	CxP 70059	5.2.9.2	QAS-49
NPR 8735.2A	3.2.2.2	43186	Program/Project Quality Assurance Surveillance Plan (PQASP): PQASP Preparation and Content: PQASPs shall contain the following: Objectives. Identify the specific outcomes of quality assurance actions in terms that are quantifiable and measurable. (Requirement 43186)	S	Y	Y	Quality	CxP 70059	5.2.9.2	QAS-49
NPR 8735.2A	3.2.2.3	43187	Program/Project Quality Assurance Surveillance Plan (PQASP): PQASP Preparation and Content: PQASPs shall contain the following: Reference Documents. Identify documents related to performance of quality assurance functions (e.g., NASA Directives, the Program/Project Plan, the Risk Management Plan, program/project requirements documents, the contract, invoked quality system requirements). (Requirement 43187)	S	Y	Y	Quality	CxP 70059	5.2.9.2	QAS-49
NPR 8735.2A	3.2.2.4	43188	Program/Project Quality Assurance Surveillance Plan (PQASP): PQASP Preparation and Content: PQASPs shall contain the following: Surveillance	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
								CxP 70059	5.2.9.2	QAS-49
NPR 8735.2A	3.2.2.6	43218	Program/Project Quality Assurance Surveillance Plan (PQASP): PQASP Preparation and Content: PQASPs shall contain the following: Surveillance Organization. Identify the organizational entities of the program/project that will be performing surveillance (i.e., NASA, the delegated agency, and/or quality assurance support contractors), their assigned responsibilities, and their authority to act. (Requirement 43218)	S	Y	Y	Quality	CxP 70059	5.2.9.2	QAS-49
NPR 8735.2A	3.2.2.7	43219	Program/Project Quality Assurance Surveillance Plan (PQASP): PQASP Preparation and Content: PQASPs shall contain the following: Quality Assurance Resources. Identify the personnel, funding, and material resources to be applied to the program/project quality assurance effort. (Requirement 43219)	S	Y	Y	Quality	CxP 70059	5.2.9.2	QAS-49
NPR 8735.2A	4.2	43224	Performance of Quality Assurance Functions by Non-NASA Organizations: NASA Technical Direction: The NASA SMA Lead shall act as a liaison for providing	S	Y	Y	Quality	CxP 70059	5.2.6.2.a	QAS-72
								CxP 70059	5.2.7	QAS-11
NPR 8735.2A	4.3.a	43235	Performance of Quality Assurance Functions by Non-NASA Organizations: Coordination of NASA Quality Assurance Functions: When there are multiple NASA delegations and/or tasks at a contractor's facility, duplication of effort and inconsistent surveillance methodologies are to be avoided. Prior to providing a new delegation and/or quality assurance support contractor tasking, NASA SMA Leads shall coordinate their efforts to: Establish agreement among the delegating activities for interpretation of common requirements. (Requirement 43235)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	4.3.b	43236	Performance of Quality Assurance Functions by Non-NASA Organizations: Coordination of NASA Quality Assurance Functions: When there are multiple NASA delegations and/or tasks at a contractor's facility, duplication of effort and inconsistent surveillance methodologies are to be avoided. Prior to providing a new delegation and/or quality assurance support contractor tasking, NASA SMA Leads shall coordinate their efforts to: Establish agreement among the delegating activities for acceptance or rejection of delegated agency or surveillance support contractor operational methods. (Requirement 43236)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	4.3.c	43237	Performance of Quality Assurance Functions by Non-NASA Organizations: Coordination of NASA Quality Assurance Functions: When there are multiple NASA delegations and/or tasks at a contractor's facility, duplication of effort and inconsistent surveillance methodologies are to be avoided. Prior to providing a new delegation and/or quality assurance support contractor tasking, NASA SMA Leads shall coordinate their efforts to: Place common requirements on the delegated agency or surveillance support contractor for similar supplies and services. (Requirement 43237)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	4.4.1	43239	Performance of Quality Assurance Functions by Non-NASA Organizations: Selection of Organizations Performing Quality Assurance Functions:	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
								CxP 70059	5.2.7.4	QAS-22
NPR 8735.2A	4.4.2	43240	Performance of Quality Assurance Functions by Non-NASA Organizations: Selection of Organizations Performing Quality Assurance Functions: The following	S	Y	Y	Quality	CxP 70059	5.2.6.2.a	QAS-72
								CxP 70059	5.2.7	QAS-11
NPR 8735.2A	4.5.2	43254	Performance of Quality Assurance Functions by Non-NASA Organizations: Planning Conference: The NASA SMA Lead, in coordination with the contracting office technical representative and other interested/authorized contracting office attendees, shall conduct the planning conference prior to the post-contract award conference. (Requirement 43254)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	4.5.3.a	43256	Performance of Quality Assurance Functions by Non-NASA Organizations: Planning Conference: The NASA SMA Lead shall ensure that the planning conference includes discussions of the following: Contract and subcontract quality requirements. (Requirement 43256)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	4.5.3.b	43257	Performance of Quality Assurance Functions by Non-NASA Organizations: Planning Conference: The NASA SMA Lead shall ensure that the planning conference includes discussions of the following: End-use and criticality of supplies and services. (Requirement 43257)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	4.5.3.c	43258	Performance of Quality Assurance Functions by Non-NASA Organizations: Planning Conference: The NASA SMA Lead shall ensure that the planning conference includes discussions of the following: Current procedures and general operations, particularly those applicable to supplies and services similar to those being procured. (Requirement 43258)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11

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NPR 8735.2A	4.5.3.d	43259	Performance of Quality Assurance Functions by Non-NASA Organizations: Planning Conference: The NASA SMA Lead shall ensure that the planning conference includes discussions of the following: Technical direction to be given to the contractor. (Requirement 43259)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	4.5.3.e	43260	Performance of Quality Assurance Functions by Non-NASA Organizations: Planning Conference: The NASA SMA Lead shall ensure that the planning conference includes discussions of the following: Functions to be delegated or tasked and the performance desired. (Requirement 43260)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	4.5.3.f	43261	Performance of Quality Assurance Functions by Non-NASA Organizations: Planning Conference: The NASA SMA Lead shall ensure that the planning conference includes discussions of the following: Special skills, knowledge, qualifications, training, and certifications required. (Requirement 43261)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	4.5.3.g	43262	Performance of Quality Assurance Functions by Non-NASA Organizations: Planning Conference: The NASA SMA Lead shall ensure that the planning conference includes discussions of the following: Quality assurance functions to be performed at the contractor's facility by NASA personnel. (Requirement 43262)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	4.5.3.h	43263	Performance of Quality Assurance Functions by Non-NASA Organizations: Planning Conference: The NASA SMA Lead shall ensure that the planning conference includes discussions of the following: Channels of communication. (Requirement 43263)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	4.5.3.i	43264	Performance of Quality Assurance Functions by Non-NASA Organizations: Planning Conference: The NASA SMA Lead shall ensure that the planning conference includes discussions of the following: Past quality assurance history of the contractor, known contractor deficiencies, and the contractor's progress in correcting deficiencies. (Requirement 43264)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	4.5.3.j	43265	Performance of Quality Assurance Functions by Non-NASA Organizations: Planning Conference: The NASA SMA Lead shall ensure that the planning conference includes discussions of the following: MRB authority. (Requirement 43265)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	4.5.3.k	43266	Performance of Quality Assurance Functions by Non-NASA Organizations: Planning Conference: The NASA SMA Lead shall ensure that the planning conference includes discussions of the following: Redelegation and flowdown of requirements. (Requirement 43266)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	4.5.3.L	43267	Performance of Quality Assurance Functions by Non-NASA Organizations: Planning Conference: The NASA SMA Lead shall ensure that the planning conference includes discussions of the following: Interface situations arising from partial delegations, Department of Defense delegations, or other NASA delegations in the same facility. (Requirement 43267)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	4.5.3.m	43268	Performance of Quality Assurance Functions by Non-NASA Organizations: Planning Conference: The NASA SMA Lead shall ensure that the planning conference includes discussions of the following: Response time for mandatory inspections. (Requirement 43268)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	4.5.3.n	43269	Performance of Quality Assurance Functions by Non-NASA Organizations: Planning Conference: The NASA SMA Lead shall ensure that the planning conference includes discussions of the following: NASA, delegated agency, and contractor responsibilities related to the reporting, tracking, corrective action resolution, and closure of contract nonconformances. (Requirement 43269)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	4.7.1	43276	Performance of Quality Assurance Functions by Non-NASA Organizations: Monitoring of Delegated Agency and Support Contractor Performance: NASA SMA	S	Y	Y	Quality	CxP 70059	5.2.6.2.a	QAS-72
								CxP 70059	5.2.7	QAS-11
NPR 8735.2A	4.7.2(1)	43277	Performance of Quality Assurance Functions by Non-NASA Organizations: Monitoring of Delegated Agency and Support Contractor Performance: NASA SMA Leads shall evaluate performance on a continuing basis to ensure that LOD and support contract requirements are complied with and remain current. (Requirement 43277)	S	Y	Y	Quality	CxP 70059	5.2.7.2.1	QAS-16
NPR 8735.2A	4.7.3	43279	Performance of Quality Assurance Functions by Non-NASA Organizations: Monitoring of Delegated Agency and Support Contractor Performance: NASA SMA Leads shall provide evaluation results to the delegated agency/quality assurance support contractor. (Requirement 43279)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	4.7.4	43280	Performance of Quality Assurance Functions by Non-NASA Organizations: Monitoring of Delegated Agency and Support Contractor Performance: Contracting officers shall incorporate requirements into LODs and support contracts for delegated agencies and quality assurance support contractors to monitor their own performance and resource utilization and provide performance measurement data to NASA on a specified periodic basis. (Requirement 43280)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	4.8.1	43282	Performance of Quality Assurance Functions by Non-NASA Organizations: Inadequate Quality Assurance Support: Upon discovery that the delegated agency or the quality assurance support contractor is providing inadequate quality assurance support that does not comply with the LOD or support contract, as applicable, the contracting officer, in coordination with the NASA SMA Lead, shall formally request corrective action from the delegated agency or support contractor. (Requirement 43282)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	5.2.2.1	43298	NASA Letters of Delegation: Planning Delegations: Contracting officers shall: Issue delegations within 10 calendar days of contract award. (Requirement 43298)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	5.2.2.2	43299	NASA Letters of Delegation: Planning Delegations: Contracting officers shall: Request that delegated agencies provide notification of LOD acceptance within 30 calendar days of receipt. (Requirement 43299)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11

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NPR 8735.2A	5.2.2.3(1)	43300	NASA Letters of Delegation: Planning Delegations: Contracting officers shall: Specify that authorized redelegations be issued within 15 calendar days of acceptance of the original delegation. (Requirement 43300)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	5.3.1	43303	NASA Letters of Delegation: LOD Content: Contracting officers shall incorporate the applicable requirements and text from the template provided in Appendix C of this NPR into their LODs. (Requirement 43303)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	5.3.2.a	43305	NASA Letters of Delegation: LOD Content: Contracting officers shall include the following in their LODs: Name, location, and telephone number of the designated SMA Point of Contact (POC) who serves as NASA?s principal POC and technical/contractual authority liaison for matters pertaining to the delegation and a request for the delegated agency to include this information in letters of redelegation. (Requirement 43305)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	5.3.2.b	43306	NASA Letters of Delegation: LOD Content: Contracting officers shall include the following in their LODs: The identification of any quality assurance decisions which require review by the NASA SMA Lead prior to, and after acceptance for, the Government. (Requirement 43306)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	5.3.2.c	43307	NASA Letters of Delegation: LOD Content: Contracting officers shall include the following in their LODs: Point of contact for obtaining assistance with locating any NASA-unique documents. (Requirement 43307)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	5.3.2.d	43308	NASA Letters of Delegation: LOD Content: Contracting officers shall include the following in their LODs: Dates, frequency, and distribution for submittal of required delegated agency reports. (Requirement 43308)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	5.3.2.e	43309	NASA Letters of Delegation: LOD Content: Contracting officers shall include the following in their LODs: Information concerning assignment of NASA technical representatives at the contractor's facility, including names and functions to be performed. (Requirement 43309)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	5.3.2.f	43310	NASA Letters of Delegation: LOD Content: Contracting officers shall include the following in their LODs: Request for the name of the delegated agency representative to serve as the principal point of contact for the facility where the delegated functions are to be performed. (Requirement 43310)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	5.3.2.g	43311	NASA Letters of Delegation: LOD Content: Contracting officers shall include the following in their LODs: Extent of redelegation authority. (Requirement 43311)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	5.3.2.h	43312	NASA Letters of Delegation: LOD Content: Contracting officers shall include the following in their LODs: Identification of surveillance functions to be performed by the delegated agency utilizing the template provided in Appendix C of this NPR. (Requirement 43312)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	5.3.2.i	43313	NASA Letters of Delegation: LOD Content: Contracting officers shall include the following in their LODs: Criteria for delegated agency selection of mandatory actions, if applicable. (Requirement 43313)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	5.3.2.j	43314	NASA Letters of Delegation: LOD Content: Contracting officers shall include the following in their LODs: Special instructions on preparation and distribution of shipping and acceptance documents. (Requirement 43314)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	5.3.2.k	43315	NASA Letters of Delegation: LOD Content: Contracting officers shall include the following in their LODs: Identification of the delegated agency?s responsibility for interim acceptance and for support at the remote site where final acceptance is to occur (for circumstances where final acceptance of supplies and services is not to occur at the contractor's facility). (Requirement 43315)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	5.3.2.L	43316	NASA Letters of Delegation: LOD Content: Contracting officers shall include the following in their LODs: Instructions regarding the respective responsibilities and authority of the delegated agency and NASA personnel (for circumstances where the delegated activities involve interface with NASA personnel (e.g., end item test and inspection)). (Requirement 43316)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	5.3.2.m	43317	NASA Letters of Delegation: LOD Content: Contracting officers shall include the following in their LODs: Identification of special training and qualification requirements for personnel performing delegated functions, including special process certifications (e.g., nondestructive testing, workmanship) and job classifications or competencies of personnel needed (e.g., safety engineer). (Requirement 43317)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	5.3.3	43318	NASA Letters of Delegation: LOD Content: Contracting officers shall maintain a central file of LODs for their Center. (Requirement 43318)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	5.5.1	43321	NASA Letters of Delegation: Action upon Completion of Delegated Functions: The contracting officer shall maintain delegations at all tiers for the same period of time as required for records to be maintained in the contract/subcontract under surveillance. (Requirement 43321)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	5.5.3	43323	NASA Letters of Delegation: Action upon Completion of Delegated Functions: Delegations may be reopened within one year after contract completion and shall be retained for easy retrieval. (Requirement 43323)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	5.5.4	43324	NASA Letters of Delegation: Action upon Completion of Delegated Functions: The contracting officer shall advise the delegated agency to hold the delegation open when conditions exist or are expected that would justify extension of the contract period of performance. (Requirement 43324)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	6.2	43327	Quality Assurance Support Contracts: Planning Quality Assurance Support Contracts: Contracting officers shall issue quality assurance support contracts in sufficient time to permit accomplishment of assigned quality assurance functions coincident with the commencement of contractor work operations (Requirement 43327).	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11

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NPR 8735.2A	6.3.1.a	43330	Quality Assurance Support Contracts: Quality Assurance Support Contract Contents: Contracting officers shall include the following contents in quality assurance support contracts: Applicable requirements and text from the template provided in Appendix C of this NPR. (Requirement 43330)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	6.3.1.b	43331	Quality Assurance Support Contracts: Quality Assurance Support Contract Contents: Contracting officers shall include the following contents in quality assurance support contracts: Identification of quality assurance surveillance functions to be performed by the support contractor utilizing the template provided in Appendix C of this NPR. (Requirement 43331)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	6.3.2(1)	43332	Quality Assurance Support Contracts: Quality Assurance Support Contract Contents: Quality assurance support contracts are not to include performance of inherently Governmental functions as defined in 48 CFR 7, Subpart 7.5. (Requirement 43332)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	8.2.1	43342	Government Mandatory Inspection Points (GMIPs): Selection and Assignment of GMIPs: Program/project Offices, with NASA SMA Lead and SMA office support, shall define GMIPs based on an analysis of risks related to contract noncompliance. This includes the following: (Requirement 43342)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	8.2.1.a	43343	Government Mandatory Inspection Points (GMIPs): Selection and Assignment of GMIPs: Program/project Offices, with NASA SMA Lead and SMA office support, shall define GMIPs based on an analysis of risks related to contract noncompliance. This includes the following: Safety-critical GMIPs are defined in order to assure conformance to hardware characteristics, manufacturing process requirements, operating conditions, and functional performance criteria that, if not met, can result in loss of life. A safety-critical GMIP shall be assigned for every (i.e., 100 percent) attribute/requirement where noncompliance could credibly result in loss of life. (Requirement 43343)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	8.2.1.b(1)	43344	Government Mandatory Inspection Points (GMIPs): Selection and Assignment of GMIPs: Program/project Offices, with NASA SMA Lead and SMA office support, shall define GMIPs based on an analysis of risks related to contract noncompliance. This includes the following: For circumstances where noncompliance could not credibly result in loss of life, but could result in serious injury, loss of mission, or loss of a significant mission resource, GMIPs shall be assigned to attain heightened confidence of contract compliance. (Requirement 43344)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	8.2.1.c(1)	43346	Government Mandatory Inspection Points (GMIPs): Selection and Assignment of GMIPs: Program/project Offices, with NASA SMA Lead and SMA office support, shall define GMIPs based on an analysis of risks related to contract noncompliance. This includes the following: Where analysis indicates an unacceptable likelihood of conformance with a key product attribute or process requirement, GMIPs shall be assigned to attain satisfactory confidence of contract compliance. (Requirement 43346)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	8.2.1.d	43348	Government Mandatory Inspection Points (GMIPs): Selection and Assignment of GMIPs: Program/project Offices, with NASA SMA Lead and SMA office support, shall define GMIPs based on an analysis of risks related to contract noncompliance. This includes the following: Program/project offices shall consider the following sources of information during the GMIP definition process: (Requirement 43348)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	8.2.1.e	43360	Government Mandatory Inspection Points (GMIPs): Selection and Assignment of GMIPs: Program/project Offices, with NASA SMA Lead and SMA office support, shall define GMIPs based on an analysis of risks related to contract noncompliance. This includes the following: Program/project offices shall consider the following conditions, operations, and quality assurance functions during the GMIP definition process: (Requirement 43360)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	8.3.a	43374	Government Mandatory Inspection Points (GMIPs): Performance of GMIPs: Personnel responsible for the administration and performance of GMIPs shall: Perform 100 percent of all assigned GMIPs in strict accordance with the prescribed technical criteria. (Requirement 43374)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	8.3.b(1)	43375	Government Mandatory Inspection Points (GMIPs): Performance of GMIPs: Personnel responsible for the administration and performance of GMIPs shall: Request formal disposition/authorization for GMIP omissions, waivers, or deviations from the designated NASA technical authority. (Requirement 43375)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	8.3.c	43377	Government Mandatory Inspection Points (GMIPs): Performance of GMIPs: Personnel responsible for the administration and performance of GMIPs shall: Indicate as acceptable only those characteristics that have been personally examined, witnessed, or verified. (Requirement 43377)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	8.3.d	43378	Government Mandatory Inspection Points (GMIPs): Performance of GMIPs: Personnel responsible for the administration and performance of GMIPs shall: Perform GMIPs after contractor personnel have made their acceptance decisions, except in those cases where concurrent inspections/tests are necessary to avoid the need for destructive testing or to prevent excessive costs or potential time delays. (Requirement 43378)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	8.3.e	43379	Government Mandatory Inspection Points (GMIPs): Performance of GMIPs: Personnel responsible for the administration and performance of GMIPs shall: Perform GMIPs as late as practicable in the material fabrication/installation/delivery cycle for circumstances where GMIP attributes can be altered (e.g., contamination). (Requirement 43379)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11

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NPR 8735.2A	8.3.f	43380	Government Mandatory Inspection Points (GMIPs): Performance of GMIPs: Personnel responsible for the administration and performance of GMIPs shall: Perform GMIPs at subcontractor facilities only when required in the Government?s interest, as specified in FAR Section 46.405. (Requirement 43380)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	8.3.g	43381	Government Mandatory Inspection Points (GMIPs): Performance of GMIPs: Personnel responsible for the administration and performance of GMIPs shall: Attest to the completion of GMIPs in accordance with the requirements of paragraph 2.4.5 of this NPR. (Requirement 43381)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	8.3.h	43382	Government Mandatory Inspection Points (GMIPs): Performance of GMIPs: Personnel responsible for the administration and performance of GMIPs shall: Periodically sign a statement indicating that they understand that their signature, application of a stamp, or data entry is a professional, individual warranty (guarantee) that they personally examined the product, witnessed the process, or verified the record as literally stated for the GMIP acceptance criteria. (Requirement 43382)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	8.3.i	43383	Government Mandatory Inspection Points (GMIPs): Performance of GMIPs: Personnel responsible for the administration and performance of GMIPs shall: Maintain positive controls which assure that all assigned GMIPs are incorporated into planning documents, where applicable, and accomplished. (Requirement 43383)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	8.3.j	43384	Government Mandatory Inspection Points (GMIPs): Performance of GMIPs: Personnel responsible for the administration and performance of GMIPs shall: Report, track, and ensure proper resolution of nonconformances identified during the conduct of GMIPs in accordance with section 2.7 of this NPR. (Requirement 43384)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	8.3.k	43385	Government Mandatory Inspection Points (GMIPs): Performance of GMIPs: Personnel responsible for the administration and performance of GMIPs shall: Where GMIP accomplishment is attested to by stamps/signatures on contractor developed/maintained planning records or data, ensure that such records are readily retrievable. (Requirement 43385)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	8.4.a	43387	Government Mandatory Inspection Points (GMIPs): Special Requirements for Safety-Critical GMIPs: Safety-critical GMIPs shall be performed by Government	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
								CxP 70059	5.2.7.4	QAS-22
NPR 8735.2A	8.4.b	43388	Government Mandatory Inspection Points (GMIPs): Special Requirements for Safety-Critical GMIPs: When safety-critical GMIPs are assigned to non-	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
								CxP 70059	5.2.7.4	QAS-22
NPR 8735.2A	8.4.c	43389	Government Mandatory Inspection Points (GMIPs): Special Requirements for Safety-Critical GMIPs: Safety-critical GMIPs shall include product examination or process witnessing versus record review whenever practicable. (Requirement 43389)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	8.4.d	43390	Government Mandatory Inspection Points (GMIPs): Special Requirements for Safety-Critical GMIPs: Contracting officers shall include in contracts a statement expressly prohibiting the contractor from continuing work operations planned subsequent to the performance of designated safety-critical GMIPs until Government accomplishment of the mandatory inspection point. (Requirement 43390)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	8.4.e	43391	Government Mandatory Inspection Points (GMIPs): Special Requirements for Safety-Critical GMIPs: For circumstances where destructive testing would be necessary to assure compliance with a safety-critical attribute, contractor assurance actions and associated GMIPs shall involve, wherever possible, the testing of a product sample that is determined to reliably/accurately represent the final product attribute. (Requirement 43391)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	8.5.a	43393	Government Mandatory Inspection Points (GMIPs): Contractor Interface for Performance of GMIPs: The onsite Government representatives (i.e., NASA, delegated agency, or support contractors) shall work with the contractor to: Incorporate GMIPs as hold points on contractor work planning documents. (Requirement 43393)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	8.5.b	43394	Government Mandatory Inspection Points (GMIPs): Contractor Interface for Performance of GMIPs: The onsite Government representatives (i.e., NASA, delegated agency, or support contractors) shall work with the contractor to: Develop a GMIP notification process that assures sufficiently advance Government notification of work operations involving GMIPs, that results in timely performance of GMIPs, and that results in minimal disruption to contractor work operations. (Requirement 43394)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11
NPR 8735.2A	8.5.c	43395	Government Mandatory Inspection Points (GMIPs): Contractor Interface for Performance of GMIPs: The onsite Government representatives (i.e., NASA, delegated agency, or support contractors) shall work with the contractor to: Establish specific guidelines and requirements regarding contractor continuance of work operations in the event that the Government does not arrive within a specified agreed-to time frame to perform an assigned GMIP. (Requirement 43395)	S	Y	Y	Quality	CxP 70059	5.2.7	QAS-11

Opinion/Impl'n Key: Y = Yes, N = No, U = Unassigned, F = Future, C = Conditional, O = Other, D = Program Disagrees, I = Institutional, X = Not SMA Requirement, R = Resolve, P = Partial

Tech Auth Key: S = SMA, E = Engineering, A = Adminstrator, H = Heath, I = Informaton, P = Planet Protection, F = Facility Admin, U = Unassigned