

National Aeronautics and Space Administration

Headquarters  
Washington, DC 20546-0001



June 29, 2012

Reply to Attn of: Safety and Assurance Requirements Division

TO: Associate Administrator for Human Exploration  
and Operations Mission Directorate

FROM: Chief, Safety and Mission Assurance

SUBJECT: Establishment of Space Launch System (SLS) Safety and Mission Assurance  
(SMA) Requirements

During the past year, a team from the SLS SMA organization and my office convened to identify the NASA-level SMA requirements which are applicable to overall SLS activities. Requirement applicability was determined at the document, chapter, and requirement levels. The complete results of this effort are enclosed.

By this memorandum, per NPR 8715.3, paragraph 1.13, I am specifying that the SMA requirements listed in the enclosure are applicable to SLS. Any SMA Technical Authority NPD, NPR, and NASA-STD requirements that are not specified as applicable in the enclosure are hereby determined to be not applicable, and further requirement relief requests are not required. However, when any of the documents listed in the enclosure are modified, the changes will have to be examined to determine applicability to SLS. This activity will be especially important prior to issuing Requests for Proposals or contractual agreements. Additionally, this memorandum does not preclude host Center Directors or human-rated programs from imposing additional requirements.

Thank you for your support in tracing NASA-level SMA requirements to SLS. Please express my thanks to the SLS SMA organization for their superior work. This effort is already serving as a guide for helping other emerging NASA programs to quickly ascertain which SMA requirements are applicable to their program. Dr. Michael G. Stamatelatos, of my staff is coordinating the Office of Safety and Mission Assurance support for this effort. He can be reached at (202) 358-0006 or by e-mail at [michael.g.stamatelatos@nasa.gov](mailto:michael.g.stamatelatos@nasa.gov). An electronic copy of all of our analyses will be provided separately.

  
Terrence W. Wilcutt

Enclosure

cc:

Associate Administrator/Mr. Lightfoot

Chief Engineer/Dr. Ryschkewitsch

Chief Health and Medical Officer/Dr. Williams

Office of Safety and Mission Assurance/Dr. Stamatelatos

Dr. Lyver

bcc:

Office of Safety and Mission Assurance/Mr. Whitmeyer  
Ms. Healey

NSC/Mr. Phillips

MSFC/Mr. Goldman

Mr. Cash

Mr. May

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Mr. Mullane

Ms Wise

**Table of SMA Documents Applicable to SLS**

	Document	Rev, Change #, Date	Document Title	Applicable?	Rationale & Notes
1	<a href="#">NPD 8700.1</a>	E 10/28/08	NASA Policy for Safety and Mission Success	Yes  Applicable per the note	Only paragraphs 5.f, 5.g, 5.j, & 5.k apply.
2	<a href="#">NPD 8710.5</a>	D 3/12/08	Policy for Pressure Vessels and Pressurized Systems	Yes  Applicable per the note	Only paragraph 5.b applies.
3	<a href="#">NPD 8720.1</a>	C 4/18/08	NASA Reliability and Maintainability (R&M) Program Policy	Yes  Applicable per the note	Only paragraphs 5.c, and 5.d apply.
4	<a href="#">NPD 8730.1</a>	C 6/27/11	Metrology and Calibration	Yes  Applicable per the note	Only paragraphs 1.a thru 1.d, and 5.c.1 apply.
5	<a href="#">NPD 8730.2</a>	C 11/3/08	NASA Parts Policy	Yes  Applicable per the note	Only Chapter 1, paragraphs 5.e, & 5.f, and Attachment A apply.
6	<a href="#">NPD 8730.5</a>	B 10/25/05 w/ Chg 1 revalidated 6/29/11	NASA Quality Assurance Program Policy	Yes  Applicable per the note	Only paragraphs 1.b, 5.d, 5.e.1, 5.e.2, & Attachment A apply. <i>(Note: See lines 7 and 38 for NID modifications to NPD 8730.5)</i>
7	<a href="#">NASA Interim Directive (NID 8730-98) to NPD 8730.5B</a>	Initial 10/17/11	Changes to NPD 8730.5B	Yes	This NASA Interim Directive fully applies to the SLS. <i>(Note: See line 38 for further applicability of NID modification)</i>
8	<a href="#">NPR 8000.4</a>	A 12/16/08	Agency Risk Management Procedural Requirements	Yes  Applicable per the note	Only Chapter 3 and paragraph 2.2.b apply.
9	<a href="#">NPR 8621.1</a>	B 5/23/06 w/ Chg 6 10/24/11	NASA Procedural Requirements for Mishap and Close Call Reporting, Investigating, and Recordkeeping	Yes  Applicable per the note	Use of this document is as a part of the MSFC Center Mishap Investigation Program.  Additionally, paragraphs 1.4.8, 1.4.9, 1.4.26, 1.4.27, 2.2, 2.3.1, 2.3.2, 2.3.4, 2.4.1, 3.1.3, 7.4.1, & 7.4.2 are directly applicable to SLS.

	Document	Rev, Change #, Date	Document Title	Applicable?	Rationale & Notes
10	<a href="#">NPR 8705.2</a>	B 5/6/08 w/ Chg 3 11/10/11	Human-Rating Requirements for Space Systems	Yes  Applicable per the note	This document is fully applicable to SLS except for the following requirements which may be imposed by the Cross Program Human Rating Team: Paragraphs 1.4.1 thru 1.4.6, 1.4.8, 1.4.9, 2.3.9, 3.2.4, 3.2.5, 3.2.11, 3.4.2, 3.5.1, 3.5.2, & 3.6.2 thru 3.6.7
11	<a href="#">NPR 8705.4</a>	Initial 6/14/04 w/ Chg 1 7/9/08 revalidate 7/8/08	Risk Classification for NASA Payloads	No	NPR 8705.4 has no direct requirements that are applicable to SLS.
12	<a href="#">NPR 8705.5</a>	A 6/7/10	Technical Probabilistic Risk Assessment (PRA) Procedures for Safety and Mission Success for NASA Programs and Projects	Yes  Meets intent per the note	NPR 8705.5 is fully applicable to SLS.
13	<a href="#">NPR 8705.6</a>	B 5/24/11	Safety and Mission Assurance (SMA) Audits, Reviews, and Assessments	Yes  Applicable per the note	Use of this document is as a part of the MSFC SMA audits process.  Paragraphs 2.2.7, 3.2.6, & 3.2.7 are directly applicable to SLS.
14	<a href="#">NPR 8715.1</a>	A 3/5/12	NASA Occupational Safety and Health Programs	No	Use of this document is part of the MSFC worker protection program. There are no requirements directly applicable to SLS.
15	<a href="#">NPR 8715.3</a>	C 4/17/09 w/ Chg 7 2/25/11	NASA General Safety Program Requirements	Yes  Applicable per the note	Use of this document is as a part of the MSFC SMA Program.  <i>See the addendum spreadsheet for specific requirements which are directly applicable to SLS.</i>
16	<a href="#">NPR 8715.5</a>	A 9/17/10	Range Flight Safety Program	Yes  Applicable per the note	Use of this document is as a part of the KSC Range Safety Program.  NPR 8715.5 is fully applicable to SLS with the following exceptions: Paragraphs 1.3.6.2, 1.3.8, 2.2, 2.4, & 2.5.
17	<a href="#">NPR 8715.6</a>	A 5/14/09 w/ Chg 1 5/14/09	NASA Procedural Requirements for Limiting Orbital Debris	Yes  Applicable per the note	NPR 8715.6 is fully applicable to SLS with the following exceptions: Paragraphs 1.3.1 thru 1.3.12, 1.3.14, 2.1.4.a, 2.1.5.a, 2.2.1.3 thru 2.2.1.6, 2.2.2.2 thru 2.2.4.6, 3.2.8, 3.2.9, 3.3,
18	<a href="#">NPR 8715.7</a>	Initial 5/30/08	Expendable Launch Vehicle (ELV) Payload Safety Program	No	There are no requirements directly applicable to SLS.

	Document	Rev, Change #, Date	Document Title	Applicable?	Rationale & Notes
19	<a href="#">NPR 8735.1</a>	B 12/28/07	Procedures For Exchanging Parts, Materials, and Safety Problem Data Utilizing the Government-Industry Data Exchange Program and NASA Advisories	Yes  Applicable per the note	Use of this document is as a part of the MSFC GIDEP Program.  Only paragraphs are directly applicable to SLS: 1.2.4, & 4.1.
20	<a href="#">NPR 8735.2</a>	A 8/2/06 w/ Chg 1 8/9/10	Management of Government Quality Assurance Functions for NASA Contracts	Yes  Applicable per the note	Use of this document is as a part of MSFC SMA quality program.  NPR 8735.2 is fully applicable to SLS with the following exceptions: 1.2.1, 1.2.2, 1.2.3, 1.2.6, & 4.6.
21	<a href="#">NASA-STD 2202-93</a>	Initial 4/93	Software Formal Inspections Standard	No	NASA-STD 2202-93 is not applicable to SLS.
22	<a href="#">NASA-STD 8709.20</a>	Initial 8/6/10	Management of Safety and Mission Assurance Technical Authority (SMA TA) Requirements	Yes	NASA-STD 8709.20 is fully applicable to SLS.
23	<a href="#">NASA-STD 8709.22</a>	Initial 8/6/10 w/ Chg 1 1/7/11	Safety & Mission Assurance Acronyms, Abbreviations, & Definitions	No	Use of this document is as a part of the MSFC SMA program. There are no requirements directly applicable to SLS.
24	<a href="#">NASA-STD 8719.7</a>	Initial 1/30/98	Facility System Safety Guidebook	No	Use of this document is as a part of the MSFC SMA program. There are no requirements directly applicable to SLS.
25	<a href="#">NASA-STD 8719.9</a>	Initial w/ Chg 1 5/9/02	Standard for Lifting Devices and Equipment	No	Use of this document is as a part of the MSFC SMA program. There are no requirements directly applicable to SLS.
26	<a href="#">NASA-STD 8719.10</a>	Initial 11/16/06	Standard for Underwater Facility and Non-Open Water Operations	No	Use of this document is as a part of the MSFC SMA program. There are no requirements directly applicable to SLS.
27	<a href="#">NASA-STD 8719.11</a>	A 11/19/08	Safety Standard for Fire Protection	No	Use of this document is as a part of the MSFC SMA program. There are no requirements directly applicable to SLS.
28	<a href="#">NASA-STD 8719.12</a>	Initial 8/93 w/ Chg 2 12/12/11	Safety Standard for Explosives, Propellants, and Pyrotechnics	No	Use of this document is as a part of the MSFC SMA program. There are no requirements directly applicable to SLS.
29	<a href="#">NASA-STD 8719.13</a>	B w/ Chg 1 7/8/04	Software Safety Standard	Yes  Applicable per the note	Use of this document is as a part of the MSFC software engineering/quality process.  Only Chapters 4, 6, & 7 and paragraphs 5.1.2 thru 5.1.4.2, 5.2.1 thru 5.2.6, 5.2.7 1 <sup>st</sup> , 2 <sup>nd</sup> & 5 <sup>th</sup> requirements, and 5.3 thru 5.15.2, are directly applicable to SLS.

	Document	Rev, Change #, Date	Document Title	Applicable?	Rationale & Notes
30	<a href="#">NASA-STD 8719.14</a>	A 12/8/11	Process for Limiting Orbital Debris	Yes  Applicable per the note	NASA-STD 8719.14 is fully applicable to SLS with the following exceptions: paragraphs 1.2.e, 4.2.2, 4.3.2.1.a, 4.3.2.2, 4.6.2.2, 4.6.2.3, 4.6.2.5.c, 4.6.3.f, 4.6.3.j, 4.6.2.3.m & Appendix B. EOMPs are not required for SLS.
31	<a href="#">NASA-STD 8719.17</a>	A 11/6/09	NASA Requirements for Ground-Based Pressure Vessels and Pressurized Systems (PV/S)	No	Use of this document is as a part of the MSFC SMA facility program. There are no requirements directly applicable to SLS.
32	<a href="#">NASA-STD 8719.24 with Annex</a>	Initial 8/26/11 w/ Chg 1 10/28/11	NASA Expendable Launch Vehicle (ELV) Payload Safety Requirements	No	Use of this document is as a part of the MSFC Range Safety Program. There are no requirements directly applicable to SLS.
33	<a href="#">NASA-STD 8729.1</a>	Initial 12/1/98	Planning, Developing and Managing an Effective Reliability and Maintainability (R&M) Program	No	There are no requirements directly applicable to SLS.
34	<a href="#">NASA-STD 8739.1</a>	A 3/4/08 w/ Chg 2 3/29/11	Workmanship Standard for Polymeric Application on Electronic Assemblies	Yes	Use of this document is as a part of the MSFC quality workmanship program. NASA-STD 8739.1 is fully applicable to SLS.
35	<a href="#">NASA-STD 8739.4</a>	Initial 2/9/98 w/ Chg 6 3/29/11	Crimping, Interconnecting Cables, Harnesses, and Wiring	Yes	Use of this document is as a part of the MSFC quality workmanship program. NASA-STD 8739.4 is fully applicable to SLS.
36	<a href="#">NASA-STD 8739.5</a>	Initial 2/9/98 w/ Chg 2 3/29/11	Fiber Optic Terminations, Cable Assemblies, and Installation	Yes	Use of this document is as a part of the MSFC quality workmanship program. NASA-STD 8739.5 is fully applicable to SLS.
37	<a href="#">NASA-STD 8739.8</a>	Initial w/ Chg 1 5/5/05	Software Assurance Standard	Yes  Applicable per the note	Use of this document is as a part of the MSFC software engineering/quality process.  Only Chapters 6 & 7 are directly applicable to SLS.
38	<a href="#">IPC J-STD-001E &amp; IPC J-STD-001ES</a>	Initial 12/1/10	Requirements for Soldered Electrical and Electronic Assemblies	Yes  Applicable per the note	Use of this document is as a part of the MSFC quality workmanship program. IPC J-STD-001E/ES is fully applicable to SLS. <i>(Note: Documents added to NPD 8730.5 per line 7 above.)</i>

### Addendum to the SLS Traceability of SMA Requirements

NPR 8715.3 Paragraph	Requirement ID	Applicable?
1.2.1.a-1.2.1.L	45565 - 45578	No
1.3.1	45581 - 45583	Yes
1.3.2 – 1.5.1	45585 – 45651, 59132 - 59134, & 59173 - 59177	No
1.5.2.a - 1.7.4	45652 - 45721 & 45641	Yes
1.8 - 1.12.3	45728 - 45779	No
1.13.4	45793 – 45799 & 70620 - 70624	Yes
1.13.5 – End of Chapter 1	45801 – 45811 & 59196 - 59293	No
2.2.1 - 2.2.2	45818 - 45819	No
2.5.1.1	45892 - 45895	Yes
2.5.1.2	45897 - 45899	No
2.5.1.3 - End of Chapter 2	45901 - 45976	Yes
3.1 - 3.4	45981 - 46028	No
3.5.1	46031	Yes
3.6.1 - 3.7	46035 - 46066	No
3.8.2.a – 3.8.2.i	46070 – 46078 & 70625	Yes
3.8.2.j	46079	No
3.8.2.k	46080	Yes
3.8.3 - 3.9	46081 - 46104	No
3.10 – 3.11.2	46197 - 46110	Yes
3.11.3 – 3.13.4.4	46111 – 46152 & 70610 - 70613	No
3.14.2	46195	Yes
3.14.3.1	46197	No
3.14.3.2 – 3.14.6	46198 – 46214	Yes
3.14.7	46216 - 46226	No
3.15.3 - 3.15.4	46230 - 46238	Yes
3.15.5	46240 – 46244	No
3.15.6 – 3.15.8	46247 - 46269	Yes
3.17 - End of Chapter 3	46275 – 46280, & 60203 - 60228	No
Chapter 4	46285 – 46314 & 70627 - 70631	No
Chapter 5	46322 - 46378	No
6.1 - 6.3	46383 - 46517	No
6.4.2.1	46523 & 60249	Yes
6.4.2.2	46524	No
7.1 – 7.3	46528 - 46554	No
7.4.1	46557 - 46559	Yes
7.4.2 – 7.5.2	46560 - 46608	No
7.4.3	46609	Yes
7.6 – End of Chapter 7	46612 - 46613	No
Chapter 8	46625 - 46662	No
9.2 – 9.3.2	46666 – 46686 & 70632	Yes
9.3.3	46687	No
9.3.4	46689 - 46691	Yes
9.4.1 – 9.4.3	46694 - 46705	No
9.5 – 9.6	46707 - 46712	Yes
9.7 - End of Chapter 9	46715 - 46716	No
Chapter 10	46727 - 46765 & 60271	No
Chapter 11	57254 - 57279	No