

FROM: SA-G2/M. Glenn

February 6, 2014

SUBJECT: KSC Lifting Devices and Equipment Committee (LDEC) Meeting Minutes

A KSC LDEC meeting was held on Wednesday, February 5, 2014, at 10:30 am, in Operations Support Building 1 conference room 5118.

The update to the NASA Lifting Standard, NASA-STD-8719.9, currently in work was the main topic discussed. Background/status of the update was provided and comments were reviewed. See the enclosed Excel file for the comments reviewed at the meeting and the associated disposition. In the Disposition column, **A** is for accept, **R** is for reject, **AC** is for accept with comment and **I** is for information. All commenters were represented at the meeting and I touched base with each commenter before or after the meeting.

Please contact me if you have any questions about the comments. There will be other opportunities to comment on the update to this Standard, as NASA HQ is now at the step of collecting comments from all the NASA Centers.

The meeting attendee list is enclosed.

Please contact me if you have any questions.  
Thanks.

Malcolm Glenn 2/6/14  
Malcolm Glenn  
KSC Lifting Devices and Equipment Manager

Item	Paragraph Number	Comment or Change To	Rationale	Center/ Org	Reviewer	Disposition	Comments
1	4.13.2.g Certification (Licensing) Program	Extend license/certification validity to 5 years to match OSHA 1926.1427.	Requires more frequent recertification, particularly if NCCCO is necessary.	KSC/TOS C Heavy Equipment	M. Henry	R	It is the discretion of NASA to stipulate more stringent recent period than OSHA. The 4 year recent period in the lifting standard is not a new requirement, and we believe that it is adequate.
2	6.2 a Mobile Cranes and Derricks, Operations	Delete to allow 100% of rated capacity for critical lifts.	Maximize investments and flexibility in current lifting equipment, particularly since maintenance & operations is split between contractors. Confidence in equipment maintenance, testing, inspections and operator certifications.	KSC/TOS C Heavy Equipment	M. Henry	A	Standard industry practice. It is safe to operate within the capacity of the equipment.
3	6.2.c (1) Mobile Cranes and Derricks, Operations	Delete to allow 100% of rated capacity for load tests.	Maximize investments and flexibility in current lifting equipment, particularly since maintenance & operations is split between contractors. Confidence in equipment calibrations, maintenance, testing, inspections and operator certifications.	KSC/TOS C Heavy Equipment	M. Henry	AC	Can go to 100% when item to be load tested is freely suspended, but must limit to 75% when pulling against a fixed object in order to have acceptable margin from overload.
4	7.4 h (1) Hoists and Winches, Operations	Allow 75% of rated capacity for load tests.	Maximize investments and flexibility in current lifting equipment. Confidence in equipment calibration, maintenance, testing, inspections and operator certifications.	KSC/TOS C Heavy Equipment	M. Henry	AC	Can go over 50% capacity when using dedicated hoist and with approval from LDEM.
5	7.4 h (4) Hoists and Winches	Delete to allow immovable objects.	Performed with load sensing devices; precludes the repetitive handling/transportation of weights; trade off of repetitive weight related hazards with single lift related failure hazard. Maximize investments and flexibility in current lifting equipment. Confidence in equipment calibration, maintenance, testing, inspections and operator certifications.	KSC/TOS C Heavy Equipment	M. Henry	AC	Can load test by pulling against an object only when the object is not fixed to the ground; the weight of the object is within the rated capacity of the hoist/winch, and hoist/winch is dedicated to load testing. Removed the term "immovable object" from the language in the standard in order to avoid confusion.
6	1.2.c	Delete "as necessary"	Eliminate useless statement.	KSC/NE- M7	Rob Summers	A	
7	1.3	add "of" between "case" and "conflict" at end of first sentence. First sentence ending should read as follows: "...take precedence in case of conflict."	Clarity.	KSC/NE- M7	Rob Summers	A	
8	3.2	Hoist Supported Personnel Lifting Device definition replace "including" with "include."	Clarity.	KSC/NE- M7	Rob Summers	A	
9	3.2	NDT definition actually contains some elements of Nondestructive Evaluation (NDE). It is a fine line between NDT and NDE so it might be best to make the definition NDT/NDE.	Clarity.	KSC/NE- M7	Rob Summers	A	
10	3.2	Proof Load Test definition - verify removal of comma between "first use" and "major modification" was intended and it's consequence is acceptable.	Verify initial P/L requirement.	KSC/NE- M7	Rob Summers	AC	Commas were added for clarity.
11	4.3.3	Delete "as necessary"	Eliminate useless statement.	KSC/NE- M7	Rob Summers	A	
12	8.2.3.c	Is the word "hook" appropriate at the end of this sentence?	What if the hoist supported a personnel lifting device does not terminate in a hook?	KSC/NE- M7	Rob Summers	AC	Removed words "on the hook"
13	13.2.c(2)	Is this the hook capacity or weight?	Clarity.	KSC/NE- M7	Rob Summers	A	Capacity. Added words to clarify.
14	11.1.1b	11.2.3 change to: 11.1.3	There isn't a step: 11.2.3 of Draft, there is a 11.2.3 in Master Guide.	Indyne CCAES	G. Hartman	A	

15	Global	Recommend deleting fall protection requirements from the document.	Center fall protection programs are required by NPR 8715.3.3.18.3 and should be outside the scope of this document.	KSC/SA-E Gary Hendricks	A	
16	Foreword	Recommend revising "National Consensus Standards" to "national consensus standards"	In the draft, fall protection is required in sections 8 & 9 but is not required in section 10. Having fall protections in some sections, and not in others, may lead personnel to believe fall protection is not required for these sections [many industrial trucks (section 10) do require fall protection]	KSC/SA-E Gary Hendricks	A	
17	Foreword	Recommend revising "National Consensus Standards" to "national consensus standards" 1st paragraph: Recommend revising to "... Alternative Standard for Suspended Load Operations contained in Appendix A, this standard is not a substitute for OSHA or additional governmental requirements (including applicable host country requirements) which apply to NASA operations in full."	It is a general term and should not be capitalized as a proper name Requirements other than OSHA can be federal, state, or local. In addition, only "applicable" host country requirements should apply to NASA operations in full.	KSC/SA-E Gary Hendricks	A	
18	1.3 Order of Precedence	Recommend revising "National Consensus Standards" to "national consensus standards"	It is a general term and should not be capitalized as a proper name	KSC/SA-E Gary Hendricks	A	
19	2.2.1 Specifications, Standards, and Handbooks	(8) Recommend deleting "Hoisting personnel"	There are additional parts of 29 CFR 1926, Subpart CC that apply to NASA center construction areas, in addition to the hoisting personnel (1926.1431) requirement stated.	KSC/SA-E Gary Hendricks	A	
20	2.3 Non-Government Publications b.	b. Recommend revising to "American Society for Nondestructive Testing (ASNT), SNT-TC-1A, Personnel Qualification and Certification in Nondestructive Testing"	Document changed to SNT-TC-1A (from SNC-TC-1A). This also makes this section compatible with section 4.13.1e.	KSC/SA-E Gary Hendricks	A	
21	2.3 Non-Government Publications	c. Recommend adding the following to this list of publications: - WSTDA-T-3, Winches Standard" - WSTDA-TH-1, Thread Standard" - WSTDA-WB-1, Synthetic Webbing for Slings"	These standards are probably applicable to lifting standard content	KSC/SA-E Gary Hendricks	R	Current list represents the most commonly applicable documents.
22	2.3 Non-Government Publications	e. Recommend revising to "European Committee for Standardization (CEN), DIN EN 13000 Cranes-Mobile Cranes"	Typo - the DIN EN 13000 listed is for security/locks	KSC/SA-E Gary Hendricks	A	
23	3.1 Abbreviations and Acronyms	Recommend adding the following used acronyms: Cal: California CFR: Code of Federal Regulations E-Stop: Emergency Stop NASA: National Aeronautics and Space Administration NPR: NASA Procedural Regulations NSS/GO: NASA Safety Standard/Ground Operations SALA: Scaffold & Access Industry Association [formerly the Scaffold Industry Association, Inc. (SIA)] STD: Standard W/TRB: Wire Rope Technical Board		KSC/SA-E Gary Hendricks	AC	SALA was not added and SIA was retained.
24	3.1 Abbreviations and Acronyms	Recommend deleting "NPG"	I don't think there are any more NPGs left	KSC/SA-E Gary Hendricks	A	
25	3.2 Definitions Used in this Standard	Recommend aligning definition for "Critical Lift" with that of section 4.3.1, Classification of Lifts:	The definition does not include "injury" (as does section 4.3.1's definition): - "3.2 Critical Lift: ...where failure/loss of control could result in loss of life..." - "4.3.1: ...when failure/loss of control presents an elevated risk of serious injury, loss of life..."	KSC/SA-E Gary Hendricks	A	

26	3.2 Definitions Used in this Standard	Definition: National Consensus Standard (NCS): Recommendation revising to "Scaffold & Access Industry Association (SAAI)	Name changed from "SIA" to "SAAI"	KSC/SA-E	Gary Hendricks	R	SIA still appears in document names per ANSI and SAAI websites.
27	4.2.7 Electrical	Recommend not deleting section, but modifying it to be easier to meet:  Maybe something similar to:  "The electrical system shall be designed to ensure that the crane will not inadvertently cause an unsafe condition, including unacceptable speed range changes, unplanned directional shifts, and/or loss of load control."	Although crane software/hardware is proprietary, the OEM should be able to back up that their crane will not inadvertently induce damage or hazards.	KSC/SA-E	Gary Hendricks	R	A state of the art crane designed per national consensus and industry standards such as ASME B30.2 and CIMA Spec 70 is acceptable for the vast majority of uses. It is up to the program/project/organization purchasing a crane to impose additional design requirements above and beyond the NASA Lifting Standard and industry standards if it so chooses.
28	4.3.1 Classification of Lifts	Recommend aligning definition for "critical lift" in section 4.3.1, Classification of Lifts with that of section 3.2.	The definition includes "injury" (the definition in 3.2 does not)  - "3.2 Critical Lift: ..where failure/loss of control could result in loss of life." - "4.3.1: ...when failure/loss of control presents an elevated risk of serious injury, loss of life..."	KSC/SA-E	Gary Hendricks	A	
29	4.3.1 Classification of Lifts	a. Recommend deleting new revision: "Lifting and movement of flight hardware packaged per its applicable shipment specification is typically not considered a critical lift."	Unless the spacecraft shipping container can protect the spacecraft from any damage resulting from a drop, due to LDE failure, recommend reassessing how the change in lift classification will retain acceptable lift risk ?	KSC/SA-E	Gary Hendricks	R	This wording is based on precedent that has been in place for a long time. The flight hardware shipping container provides some protection from damage. Wording provides some flexibility and does not preclude the program from classifying the lifting of the flight hardware in its shipping container as a critical lift if it so chooses.
30	4.4 Safety and Design	a. Note: Recommend replacing "Commercial equipment" with "Commercial Off The Shelf (COTS)"	"Commercial equipment" can include custom-made systems that are "one of a kind." COTS would not.	KSC/SA-E	Gary Hendricks	A	
31	4.8.1	b. (1) - Recommend keeping this sub bullet in its entirety	NASA-STD-8719.12 does provide general ordnance lightning/grounding/bonding requirements, but does not discuss lifting or hook potential checks. (There have been cases where cranes systems have failed voltage checks due to stray voltage, wheel contact issues, etc.)	KSC/SA-E	Gary Hendricks	R	Out of scope. NASA-STD-8719.12 is sufficient. We checked with explosives safety SMEs before deleting.
32	5.3 Operations	g. Recommend revising to "Any time a final upper limit switch is activated, the cause shall be determined and resolved before further movement of the load, and documented."	Tipping upper switch events probably should be documented in a crane log, etc.	KSC/SA-E	Gary Hendricks	R	Not necessary. 4.12 D requires documenting LDE problems and discrepancies.
33	5.7 Operators	Recommend keeping and revising to something similar to:  "The crane/derrick shall be capable of lowering a load in the event of crane/derrick failure or other contingency."	A mobile crane should be able to perform this action, if needed.	KSC/SA-E	Gary Hendricks	R	This would be difficult to implement for a mobile crane. Mobile cranes/derricks are off the shelf equipment, therefore levying design requirements such as the proposed is undesirable.
34	6.2.7 Electrical	Recommending keeping and revising to something similar to:  "The electrical system shall be designed to ensure hazards are not induced by inadvertently increased hoist or winch speed, unplanned directional shifts, and/or loss of control."	Although controls may be proprietary, the OEM should be able to ensure that their crane/hoist/winch operation will not induce hazards	KSC/SA-E	Gary Hendricks	R	Mobile cranes/derricks are off the shelf equipment, therefore levying design requirements such as the proposed is undesirable.
35	8.4 Operations	e.: Recommend deleting	Center fall protection programs are required by NPR 8715.3.3, 18.3 and probably should be outside the scope of this document.	KSC/SA-E	Gary Hendricks	A	

36	9.2 Training	Recommend deleting	Center fall protection programs are required by NPR 8715.3.3.18.3 and probably should be outside the scope of this document. Recommend added training for operating aerial lifts to this section	KSC/SA-E	Gary Hendricks	AC	There are no aerial lift specific training/certification requirements in this chapter. General Personnel training and certification requirements for LDE are covered in section 4.13.
37	Section 10	Recommend adding a training section	To be consistent with other sections requiring training.	KSC/SA-E	Gary Hendricks	R	There are no industrial truck specific training/certification requirements in this chapter. General Personnel training and certification requirements for LDE are covered in section 4.13.
38	14.4.3 Rejected Slings and Rigging Hardware	Recommend revising to: "All slings rejected during inspection shall be marked and separated from accepted slings."	To ensure rejected hardware can not be inadvertently put into action.	KSC/SA-E	Gary Hendricks	A	
39	1.2 Applicability	last sentence of para. b. – This is not correct. We should not reference the "latest version" of each standard listed. We need to state in 2.2.1 applicable standards (that we adopt). These standards must be applicable only as referenced (e.g. AGMA 2001 C95 we should adopt, AGMA 2001 D04 has not been adopted by industry, even though it was published almost 10 years ago).		KSC/NE-M6	Brad Lytle	A	Will update standard to reflect revision level of referenced documents. Also will change wording in the paragraph to say that rev doc revisions are the ones in effect on the effective published date of the standard.
40		Rewrite the last sentence, something like this... "The local LDEM at the specific NASA Center has the final say to adjudicate/ interpret these requirements."	1. I think it's important we at the local center can act autonomously.	KSC/NE-M6	Brad Lytle	R	Document already allows for this. Center can act autonomously on most issues.
41	2.2.1 References to OSHA documents	1. these standards are required by law and are referenced in total and form a part of this document. All requirements of these documents must be complied with. We need to say this.		KSC/NE-M6	Brad Lytle	I	Document does say this. Refer to 1.1.c and the accompanying note.
42	2.3 First paragraph	Same comment as item 3 above. We say later editions of standards may be accepted by the LDEM if they provide an equal or greater level of safety. This is hard to bid, each standard must be applicable only as referenced		KSC/NE-M6	Brad Lytle	A	Will add rev of each document referenced. Deleted the last sentence of the paragraph.
43	2.3.c. item 36	1. Has ASME B30.30 "Ropes" been published?		KSC/NE-M6	Brad Lytle	A	Will delete reference.
44	3.2 Definitions	Critical Lift comments... LDEM decides what lift is critical and what lift is not critical. I think we need to add that language.		KSC/NE-M6	Brad Lytle	R	Definition as written is sufficient. LDEM always reserves authority to interpret the standard. No need to specifically say this.
45	3.2 Equivalent Entity	Editorial. Where is this needed?		KSC/NE-M6	Brad Lytle	I	Per OSHA, it is needed in order for NASA to be able to proof load test certain types of slings.
46	3.2 National Consensus Standard (NCS)	1. Editorial. NCS includes many industry not just those item listed please clarify (we are not restricted to those items listed).		KSC/NE-M6	Brad Lytle	R	The listed items are just examples. Definition is not all inclusive.
47	2 Periodic Load Test	Editorial. do not define the value of periodic load test (1.00 to 1.05 times rated capacity) in this definition (we may decide to change it).		KSC/NE-M6	Brad Lytle	R	The word "typically" allows for change of the load test value. It is given as an example only. Not a requirement.
48	3.2 Regular Service LDE	never heard of this. Why is it here?		KSC/NE-M6	Brad Lytle	I	This definition has always been in the lifting standard. It refers to LDE that are not idle or standby, for which the testing, and inspection requirements in the standard apply in full.
49	4.3.1 Classification of Lifts	1. Question, should we address lifts of explosive, ordnance, vessels of high pressure gas, or other items here?		KSC/NE-M6	Brad Lytle	I	No. No need to get that specific. These types of lifts are covered by the current critical lift definition.

50	4.5 Labeling and Tagging	1. What are the OSHA or B30 requirements? How do our requirements differ from these requirements? We should only cover items that are specific to NASA. So should say "labeling and tagging shall comply with OSHA and B30 requirements in addition ..."		KSC/NE-M6	Brad Lytle	I	These are unique to NASA. 4.5.a is covered in OSHA, but we thought it was important to repeat it here for clarity and to give context to the rest of the requirements in this section.
51	4.6 Testing	same type comment as above. We should address testing requirements that are over and above OSHA and B30 requirements.		KSC/NE-M6	Brad Lytle	I	Testing, which encompasses proof load testing, periodic load testing, and operational testing is covered in the individual LDE chapters throughout the standard.
52	4.13.1 Item f	1. Why list these five items? Is this special requirement for us: did this come out of a standard somewhere? Who makes the determination on whether a lift is critical or not? Does that determination need to be made for every single lift at KSC? How is the criticality or non-criticality of a lift documented?		KSC/NE-M6	Brad Lytle	I	NASA unique requirements.
53	3.2 Critical Lift Definition		Clarification Questions	KSC/GP-G3	Lauren Price	I	4.3.3 addresses the process for determination of whether a lift is critical or not. Determination must be made for every lift. 4.3.3.b. requires written procedures be prepared for a critical lift. Other than that, there are no specific requirements for documenting this.
54	3.2.4.1 Requests for Relief	What is process for relief? There is lots of information in the various referenced NPRs. Do approvals to deviate from a "shall" in the standard need to go to NASA HQ or can they be fielded at each installation by the local LDEM?	Clarification Questions	KSC/GP-G3	Lauren Price	I	KSC follows KNPR 8715.3 for requests for relief.
55	4.13.2 e	"The operator certification program shall be reviewed at least annually to ensure..." Who does the annual review?	Clarification Question	KSC/GP-G3	Lauren Price	I	This is not specified, although it would most likely be the same organization that conducts the training and runs the certification program.
56	5.3 d	Delete	Unnecessary. Load will be under LDE rated capacity. Confidence in equipment calibration, maintenance, testing, inspections and operator certifications.	KSC/GP-G3	Lauren Price	A	Adequately covered by OSHA and ASME; test brakes each time lifting load approaching the rated load.
57	6.2 d	Delete	Unnecessary. Load will be under LDE rated capacity. Confidence in equipment calibration, maintenance, testing, inspections and operator certifications.	KSC/GP-G3	Lauren Price	A	Adequately covered by OSHA and ASME; test brakes each time lifting load approaching the rated load.
58	7.4 i	Delete	Unnecessary. Load will be under LDE rated capacity. Confidence in equipment calibration, maintenance, testing, inspections and operator certifications.	KSC/GP-G3	Lauren Price	A	Adequately covered by respective ASME.
59	11.2.2	Incorrectly references Section 11.3.1, should be 11.2.1	Typo	KSC/GP-G3	Lauren Price	A	
60	14	Add requirements for periodic load tests for slings and rigging	Currently only covers proofload tests for slings and rigging	KSC/GP-G3	Lauren Price	R	We specifically removed this.
61	14.4	Add requirements for inspection of slings (non-structural) and rigging	Currently only covers inspections for structural slings	KSC/GP-G3	Lauren Price	R	Inspections of all other types of slings and rigging covered by ASME 30.9, ASME B30.26, and OSHA 1910.184(d).

# 2/5/14 KSC LDEC Mtg Attendance

<u>NAME</u>	<u>Organization</u>
Malcolm Glenn	SA-C2
Navy Hartman	INDYNE-CCARS
Jim Blake	GP-G3
Lauren Price	GP-G3
MICHAEL PINE	NE-M7
DAN DENABURG	ATK
PHIL FALK	SA-E2
ART SHUTT	JSC-ES + M JSC-1100
M. PONTICORVO	NE M7
JOHN GARRETT	JSOC SAF ENG
PHIL JOHNSON	SAE2 MARCH STAFF
Matt Henry	TOSC Heavy Equipment
EMERY LAMAR	SA-G2-APT
Rob Summers	NE-M7
BRAD LYTLE	NE-M6
GARY HENDRICKS	SA-E3
RALPH GORDON	YANG-ISC
RANDY ROBBINS	YANG-ESC
Alan Alemany	SA-L2