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**Docket:** NRC-2021-0096  
Control of Heavy Loads at Nuclear Facilities

**Comment On:** NRC-2021-0096-0001  
Control of Heavy Loads at Nuclear Facilities; Public Comment Period Extended

**Document:** NRC-2021-0096-DRAFT-0005  
Comment on FR Doc # 2021-09275

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## Submitter Information

**Email:** atb@nei.org  
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## General Comment

See attached file(s)

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## Attachments

07-02-21\_NEI Comments on draft Reg Guide 1381 - Control of Heavy Loads at Nuclear Facilities

**TIMOTHY RITI**

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July 2, 2021

Office of Administration  
Mail Stop: TWFN-7 A60M  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001  
Attn: Program Management, Announcements and Editing Staff

**Subject:** Industry Comments on Draft Regulatory Guide, (DG) 1381, "Control of Heavy Loads at Nuclear Facilities," 86 FR 23750-23751; Docket ID NRC-2021-0096

*Submitted via Regulations.gov*

**Project Number: 689**

Dear Program Management, Announcements and Editing Staff:

On behalf of our members, the Nuclear Energy Institute (NEI)<sup>1</sup> appreciates the opportunity to review and provide comments on Draft Regulatory Guide, DG-1381, "Control of Heavy Loads at Nuclear Facilities."

As described in a letter from the NRC to the American Society of Mechanical Engineers (ASME) dated March 9, 2020<sup>2</sup>, the NRC staff recognized the value of updating and endorsing crane and material handling standards as described in ASME NML-1 -2019, "Rules for the Movement of Loads Using Overhead Handling Equipment in Nuclear Facilities." As stated in the letter, *"The staff has reviewed the recently issued ASME NML-1 standard and determined that it offers many regulatory benefits. In particular, the standard provides for greater consideration of risk-management actions, increased flexibility in the selection of equipment, and contains updates to necessary inspections and testing."* At a February 2020 public meeting<sup>3</sup> NEI and industry representatives provided feedback to the NRC that improvements in safety and efficiency could be gained through the standardization of heavy load handling programs as described in ASME NML-1-2019.

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<sup>1</sup> The Nuclear Energy Institute (NEI) is responsible for establishing unified policy on behalf of its members relating to matters affecting the nuclear energy industry, including the regulatory aspects of generic operational and technical issues. NEI's members include entities licensed to operate commercial nuclear power plants in the United States, nuclear plant designers, major architect and engineering firms, fuel cycle facilities, nuclear materials licensees, and other organizations involved in the nuclear energy industry.

<sup>2</sup> NRC letter from Louise Lund to Richard Porco, Chair – ASME Board on Nuclear Codes and Standards; dated March 9, 2020. (ML20059N958)

<sup>3</sup> NEI regulatory issues task force public meeting held on February 20, 2020. (ML20043G046)

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The attachment provides our comments on the draft regulatory guide, and includes suggestions for enhancement by better clarifying the relationship to other load handling standards and existing guidance and adding detail to address specific load handling situations encountered by licensees.

If you have questions on the content of this letter or the attached comments, please contact me at (202) 739-8137, [txr@nei.org](mailto:txr@nei.org).

Sincerely,

A handwritten signature in black ink, appearing to read 'Timothy Riti', with a long horizontal flourish extending to the right.

Timothy Riti

c: Mr. Joseph Donoghue, NRR/DSS  
Mr. Steve Jones, NRR/DSS/SCPB  
Mr. Stanley Gardocki, RES/DE/RGGIB

Attachment: Comments on Draft Regulatory Guide (DG-1381), “Control of Heavy Loads at Nuclear Facilities”

No.	Section	Comment/Basis	Recommendation
<b>B. Discussion</b>			
1	Background, Page 6	With the planned endorsement of applicable ASME Standards NOG-1, NML-1, and parts of BTH-1, the document does not emphasize the need to include requirements of related standards of the ASME B30 series (e.g., B30.1 through B30.33).	Include related standards as references to the regulatory guide.
2	Background, Page 6	<p>As stated in the draft guidance, <i>“Compared to NUREG-0612 guidelines, the standard covers a broader scope in terms of the types of overhead handling systems and the safety significance of the load handling activities.”</i></p> <p>It is unclear how additional devices that are considered “special” may use load tests/inspections in lieu of meeting material requirements.</p>	Clarify how load tests/inspections may be used.
3	Background, Page 6	Some licensees may not wish to fully adopt ASME NML-1 due to the effort required to fully update Heavy Load Handling program procedures, general heavy load handling procedures, general lifting and rigging procedures, crane procedures, and specific component lift procedures to name a few. However, there are isolated aspects of the ASME NML-1 standard that could be of great benefit to the licensees. For example, a utility may wish to utilize only the requirements of ASME NML-1 for designing, fabricating, testing, maintaining, and operating a special lifting device to ASME BTH-1, as amended by the Draft Guidance. For example, an existing crane may perform the lift that falls under the existing NUREG-0612 Heavy Loads program; however, the special lifting device would be designed to the full extent of ASME NML-1 and ASME BTH-1, as amended by the Draft Guidance.	Clarify in the guidance that this is an acceptable approach to implementation.
4	Background, Page 7	<p>We recommend adding language to the draft guidance that is similar to that found in NRC RIS 2008-28. The applicable language from the RIS is copied below with <b>amended text provided in brackets [ ]</b>.</p> <ul style="list-style-type: none"> <li>• RIS 2008-28, Pg. 2 – “licensees may consider the guidelines of NEI-08-05 <b>[change to ASME NML-1]</b> as providing methods approved by the NRC for the</li> </ul>	Clarify that a licensee incorporating ASME NML-1 into their Heavy Load program can do so within the 10 CFR 50.59 process and that this change is considered a change in methodology that is approved by the NRC and is not a departure from a method of

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		<p>specified applications when implementing the requirements of 10 CFR 50.59. With NRC staff clarifications and conditions noted in the safety evaluation <b>[change “in the safety evaluation” to “herein”]</b>, licensees may use these guidelines to voluntarily establish a revised licensing basis for handling of <b>[delete this phrase “reactor vessel heads and other”]</b> heavy loads consistent with the provisions of 10 CFR 50.59.”</p> <p>RIS 2008-28 Pg. 3, Backfit Discussion – “Licensees may choose to retain the facility’s current licensing basis with respect to handling of heavy loads. However, licensees that choose to clarify the facility’s licensing basis with respect to handling of heavy loads consistent with the industry initiative may find that NRC acceptance of the guidelines in NEI 08-05 <b>[change to ASME NML-1]</b> facilitates the associated changes to the safety analysis report. Pursuant to Paragraph (a)(2)(ii) of 10 CFR 50.59, a change from a method described in the safety analysis report to another method approved by the NRC for the intended application does not constitute a departure from a method of evaluation described in the safety analysis report.”</p>	evaluation described in the safety analysis report.
5	Background, Page 7	Using the License Amendment Request process to adopt NML-1 to a currently licensed facility will not be efficient. The draft guidance alludes to the use of the 10 CFR 50.59 process as a means to adopt the new standard.	Considering reinforcing that using the 10 CFR 50.59 process is an acceptable means to modify a station’s licensing basis from NUREG-0612 to NML-1 as provided by NML-1 Nonmandatory Appendices A and B.
6	Background, Page 7	For stations whose licensing bases reference NUREG-0612, Phase I, please clarify that any Phase I commitments that are NOT requirements under ASME NML-1 can be removed from the station’s licensing basis as provided by NML-1 Nonmandatory Appendix B, Paragraph B-2.	Provide clarity as described.
7	Background, Page 7	For stations whose licensing bases reference NUREG-0612, Phase II, please clarify that any Phase II commitments that are NOT requirements under ASME NML-1 can be removed from the station’s licensing basis as provided by NML-1 Nonmandatory Appendix B, Paragraph B-2.	Provide clarity as described.

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No.	Section	Comment/Basis	Recommendation
<b>C. Staff Regulatory Guidance</b>			
8	C.1, page 10	Hydraulic gantry cranes per ASME B30.1 are commonly used for rigging and lifting activities at NPPs (e.g., turbine rotor replacements, generator stator replacements, upending transformers in haul paths, etc.). ASME B30.1 has very similar requirements to ASME B30.2, and both ASME standards require testing certification. ASME B30.1 is not discussed or referenced in the NML-1 list.	Add related standards as references to the proposed regulatory guide.
9	C.1.a (1) 1st bullet, page 10	There are no safety factors described to the margin for tipping including if the tip over is due to a seismic event.	Add clarification on how safety factors are considered.
10	C.1.a(1) 2nd bullet, page 10	It is not clear how redundancy and separation can be considered for the exclusion of components from within the range of motion.	Clarify how redundancy and separation can be used.
11	C.1.b (2), page 10	For lifts using an alternative lifting scheme, reference is made to ASME NML-1, Section 4-1.1. It is unclear how the use of Mobile Cranes meets ASME NML-1, Section 4-1.2. Also, it is unclear how the use of an Engineering Temporary Lift Assembly meets ASME NML-1, Section 4-1.3.	Add clarification on the use of mobile cranes and engineering temporary lift assemblies.
12	C.1.b (2) 2nd bullet, page 10	Please provide examples for the second bullet, like examples provided in the first bullet: <ul style="list-style-type: none"> <li>• outside of nuclear power plant structures (e.g., operations related to an independent spent fuel storage facility),</li> <li>• involves an infrequent major component replacement (<b><i>please provide examples here</i></b>), or...</li> </ul>	Similar to the first bullet, consider adding examples for the second bullet.
13	C.1.b (2) (a), page 11	Currently NML-1 is the only consensus standard that addresses Engineered Temporary Lift Assemblies (ETLA). It is not clear if the use of an ETLA is permitted if the remaining items b through g are met.  It is not clear if the term "applicable national consensus standard(s)" includes all such standards or only the ones endorsed by the NRC.	Add clarify on the use of ETLA and national consensus standards.

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No.	Section	Comment/Basis	Recommendation
14	C.1.b (2) (b) & (g), page 11	It is unclear if quality assurance means meeting either ASME NQA-1 or 10 CFR 50 Appendix B. Also, it is unclear how NOG-1 Section 6170 or equivalent applies.	Add clarity on the use of quality control measures.
15	C.1.b (2) (c) & (d), page 11	As described, it is unclear how “conservative design criteria” is applied.	Add clarity on the use of conservative design criteria.
16	C.1.b (2) (e), page 11	<p>Providing redundancy may prove to be difficult in some situations. The use of higher design margins or administrative controls (similar to those allowed for Single-Failure-Proof-Equivalency per NEI 08-05) would be beneficial.</p> <p>Higher safety factors should also be considered in lieu of redundancy.</p> <p>Design criteria specified in the applicable national consensus standards should be referenced.</p>	Add clarity on the use of safety factors and applicable national consensus standards.
17	C.1.b (3), page 11	It is unclear if the attachment point referenced in this statement refers to a fixed attachment point on the load being lifted (such as a reactor head or steam generator) or the attachment points on the lifting device. ASME BTH-1 does not address attachment points on the load.	Add clarity.
18	C.1.b (4), page 11	The use restrictions described in NML-1 Section 5-1.2.1 require a D/d ratio of 25:1. While appropriate for wire rope slings, this D/d ratio is very restrictive for synthetic slings. For example, using a shackle to connect a round sling to a load attachment point. It is unclear how to apply guidance of other ASME standards for standard lifting/rigging components.	Add clarification to allow for the use of other applicable standards in addition to NML-1.
19	C.2 (b), page 12	Unclear what should be done in cases where the NOG-1 load combinations are different than the facility design basis load combinations.	Add clarity.
20	C.3, page 12	The draft regulatory guidance does not refer to ANSI N14.6. This ANSI standard is embodied into NUREG-0612 5.1.1(4).	Confirm that by endorsing NML-1 and BTH-1, the intent of the draft regulatory guidance is to eliminate usage of ANSI

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No.	Section	Comment/Basis	Recommendation
			N14.6 for stations that transition to NML-1 and BTH-1.
21	C.3, Page 12	In Chapter 1 of ASME BTH-1, it states: “Lifting devices designed to this Standard shall comply with ASME B30.20, Below-the-Hook Lifting Devices. ASME B30.20 includes provisions that apply to the marking, construction, installation, inspection, testing, maintenance, and operation of below-the-hook lifting devices.” Therefore, ASME BTH-1 is not a replacement for B30.20, but rather, ASME BTH-1 supplements the requirements of ANSI B30.20.	Add this clarification to the RG to ensure compliance with the ASME B30.20 standard.
<b>Other Comments</b>			
22	General Comment	ASME NUM-1, Rules for Construction of Cranes, Monorails, and Hoists (With Bridge or Trolley or Hoist of the Underhung Type). NUM-1 – Type I (Type 1A and 1B) lifting devices are allowed in NML-1 -2019. These devices are regularly used at nuclear plants inside containment and other areas of the power block to perform heavy load lifts.	Consider including as part of this endorsement.
23	General Comment	The DG does not clearly describe how the guides, codes, and standards do, or do not, apply to lifts of spent fuel casks outside of the Part 50 facility. This would include devices like cask crawlers, mobile cranes, and canister/cask transfer facilities	Clarify how ISFSI license or CoC holders should consider how to apply the codes and standards.
24	General Comment	ASME-NML-1 Sect. 2-6.1(c)(1), (2), & (3) contains guidance crediting the range of motion, specific requirements for enhanced handling system reliability, and postulated load drop requirements.  The draft RG should consider additional administrative measures, other measures and controls for cases where range of motion can not be qualified, use of control of motion when enhance handling system reliability requirements cannot be met, or when postulated load drop analyses will be required.	Consider clarifying and including where administrative measures, other measures, and controls can be used to support the guidance.