



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
WASHINGTON, D.C. 20555-0001

December 6, 2017

Mr. Thomas P. McCann, Quality Manager
Konecranes Nuclear Equipment
& Services LLC
5300 S. Emmer Dr.
New Berlin, WI 53151

**SUBJECT: KONECRANES NUCLEAR EQUIPMENT & SERVICES LLC'S RESPONSE TO
THE U.S. NUCLEAR REGULATORY COMMISSION INSPECTION REPORT
NO. 99901451/2017-201, AND NOTICE OF NONCONFORMANCE**

Dear Mr. McCann:

Thank you for your October 9, 2017, and October 18, 2017, letters in response to the Notice of Nonconformance (NONs) that was discussed in the subject U.S. Nuclear Regulatory Commission (NRC) inspection report (IR).

We have reviewed your letters and the associated attachments and found that they are not fully responsive to NONs 99901451/2017-201-01 and 99901451/2017-201-02. Specifically:

1. Your response to NON 99901451/2017-201-01 failed to address several areas of concern to the NRC staff. Clarify your response as follows:
 - a. The response states, in part, that Konecranes Nuclear Equipment and Services (KNES) has updated proprietary calculations to clearly show that the stresses within the bottom block sheaves are within the allowable limits set by the original equipment manufacturer. Section 10.0, "Quality Assurance," of NUREG-0554, "Single-Failure-Proof Cranes for Nuclear Power Plants," states, in part, that a quality assurance program should be established to the extent necessary to include the recommendations of this report for the design, fabrication, installation, testing, and operation of crane handling systems for safe handling of critical loads. In addition, Section 5150 and Table 7200-1 in NOG-1-2004, identify the sheaves as critical items subject to special considerations for material, design, control of manufacturing processes, and examination of final product. Describe the quality measures that have been employed to ensure the allowable limits are applicable to the polymer sheaves as fabricated and appropriate for the design, given the difference in material properties between polymers and steel.
 - b. Section 5.35 of both the APS Main Hoist Reeving Calculation #36676-01, Revision 7, and APS Aux Hoist Reeving Calculation #36676-26, Revision 5, include the following statement:

Although NOG-1-2004, Section 5427.1 states that a sheave shall be steel, it goes on to only require sizing based on the wire rope plus discussion on lubrication of the center bearing. No structural

requirements are required of the sheave and Section 7000 has no requirements for a sheave other than certificate of Conformance from the manufacturer.

However, Section 4.3 of NUREG-0554 states that the individual component parts of the [dual] vertical hoisting system should each be designed to support a static load of 200 percent of the maximum critical load. Also, as stated previously, NOG-1-2004, Sections 5150 and Table 7200-1, identify the reeving system sheaves as critical items on a Type I crane that are subject to special considerations for material, design, control of manufacturing processes, and examination of final product. Reconcile the statement drawn from Section 5.35 of the reeving system calculations with the requirements specified in the purchase order with respect to conformance with NUREG-0554 and ASME NOG-1-2004.

- c. Noting that the use of sheave materials other than steel was not considered in NUREG-0554, the use of steel sheaves is required for Type I cranes by Section 5427.1 of ASME NOG-1-2004, and Section 5150 of ASME NOG-1-2004 states that sheaves are subject to special considerations in the selection of materials, provide justification that the polymer material is not subject to failure modes different from steel. At a minimum, address the potential for polymer creep over time and the potential for sudden, catastrophic failure under high load compared with the energy dissipating yielding of steel sheaves.
2. Your response to NON 99901451/2017-201-02 failed to address several areas of concern to the NRC staff. The response states, in part, that "Based on the reason for the nonconformance, as the action to prevent recurrence we are now implementing a process change going forward with a plan to test weld filler metal that will be used on safety related components. Testing will be done [to] verify the critical characteristics established by KNES engineering and quality to meet design requirements based on the applicable sections of AWS code by a KNES 3rd party lab accredited to ISO/IEC 17025 and/or 10CFR50 App. B KNES audited laboratory." Clarify your response as follows:
 - a. Confirm whether Konecranes plans on buying the weld filler metal as safety-related or as commercial grade and then perform commercial-grade dedication of the weld filler metal for its use on safety-related components.

In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 2.390 "Public Inspections, Exemptions, Requests for Withholding," of the NRC's "Rules of Practice," a copy of this letter, its enclosure(s), and your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's Agencywide Documents Access and Management System, accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>. To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the Public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request that such material is withheld from public disclosure, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or

financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21 "Protection of Safeguards Information: Performance Requirements."

Please contact Mr. Yamir Diaz-Castillo at 301-415-2228, or via electronic mail at Yamir.Diaz-Castillo@nrc.gov, if you have any questions or need assistance regarding this matter.

Sincerely,

/RA/

John P. Burke, Chief
Quality Assurance Vendor Inspection Branch-2
Division of Construction Inspection
and Operational Programs
Office of New Reactors

Docket No.: 99901451

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