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U.S. Nuclear Regulatory Commission
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Cc: Chief, Quality Assurance Vendor Inspection Branch-2, Division of Construction Inspection and Operational Programs, Office of New Reactors.

This letter serves as the Konecranes Nuclear Equipment & Services, LLC (KNES) Reply to a Notice of Nonconformance.

Reference: Inspection Report No. 99901451/2017-201

Issue identified as Nonconformance 99901451/2017-201-01

KNES plan of action is as follows:

Reason for the nonconformance:
There are two issues in this non-conformance that need to be addressed separately. First, Konecranes Nuclear Equipment and Services (KNES) used the polymer material for the sheaves to reduce the weight of the trolley per the customer specification. KNES has used this polymer for numerous other nuclear plants in relatively the same application. Based on an abundance of documented transactions with the customer concerning the use of the Nylatron in this application, KNES improperly assumed this was sufficient acceptance by the customer. Since the NRC audit, KNES has provided additional data and calculations on this issue to the customer and the customer has promised we will be issued an official acceptance in the near future. New calculations in proprietary KNES Calculation #36676-01 and #36676-26 provide quantifiable results the stresses in the sheaves are well within the allowables set by the polymer's OEM.

The second issues deals with the reeving calculations for the Main and Auxiliary Hoist. Specifically, the NRC identified that KNES failed to adequately demonstrate that the main hoist lower blocks did not exceed the maximum allowable stress values as specified in Section 5473 of ASME NOG-1, 2004 Edition. The main hoist lower block structure retains the drum sheave pin that bears the load from the drum sheaves and the drum sheaves retain the hoist rope. However, failure of multiple drum sheaves or failure to retain the drum sheave pin due to overload would prevent the crane from holding the load. To resolve this issue, KNES has updated the proprietary #36676-01 and #36676-26 calculations to clearly show that the bottom block sheaves stresses are within the allowable limits set by the OEM and the stresses in the lower block structure due to vertical and horizontal loads resulting from fleet angles are within the NOG-1 allowable limits and thus can retain the sheave pin and wire rope.

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Corrective Action:

1. KNES will obtain a letter from the customer specifically allowing the deviation from NOG-1-2004 for the sheaves to be made from a polymer versus the standard's requirement of steel sheaves.
2. KNES has updated the proprietary Main Hoist Reeving calculation #36676-01 and Auxiliary Hoist Reeving calculation #36676-26 to evaluate the sheave material against the OEM's allowables plus clearly demonstrate the lower block structure meets the NOG-1 allowable stress requirements and thus will have the ability to retain the sheave pins and wire rope due to overload.

We will provide the customer acceptance letter / information and proprietary calculations to the NRC within 10 days of receipt of the acceptance letter from the customer.

KNES has no extent of condition concerns on this issues since the calculations show the stresses are well within the allowables for all load cases.

Issue identified as Nonconformance 99901451/2017-201-02.

Reason for the nonconformance:
Konecranes Nuclear Equipment and Services (KNES) had the understanding that it could use the current ASME Quality Systems Certificate (QSC) from Lincoln Electric after further reviewing and accepting the certificate for appropriate scope, manufacturing address and expiration date compliance and did so based on that understanding. During the NRC inspection KNES learned that Information Notice 8621 allows the use of a suppliers QSC certifying that they have an ASME Boiler and Pressure Vessel quality program, but also states that an implementation audit is to be completed. Lessons learned from that.

NRC Inspection identified case:
The Lincoln Electric Co. weld filler metal that was supplied for the identified components was furnished with Certified Material Test Reports for the actual weld filler metal LOT from Lincoln Electric Co. with the statement that it was manufactured under Lot Control per AWS A5.0.1:2008, and that the product was manufactured and supplied in accordance with the Quality System program of the Lincoln Electric Co., Cleveland, Ohio, U.S.A. as outlined in their Quality Assurance Manual and accepted by ASME.

Additionally, NDE is performed to provide assurance. The welds were visually examined by AWS qualified CWI's, and 100% Magnetic Particle tested and fully accepted.
During our Factory Acceptance Testing the drums were repeatedly load tested with up to 125% rated loads in both lifting and lowering cycles during the customer witness and the NRC inspection visit and the components operated with complete success in each case during the testing and inspection phases of the Factory Acceptance Test.

The contract requirements for filler metal was only to meet AWS D1.1 welding code with a typical analysis C of C. There is no requirement to meet filler metal ASME BPV codes or other standards. In addition, both Nupic and NIAC perform audits of Lincoln Electric Co. Lincoln Electric Co. has a well-known industry wide reputation as a world class weld filler metal manufacturer.

Corrective actions:
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 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 approved 3rd party lab accredited to ISO/IEC 17025 and/or 10CFR50 App. B KNES audited laboratory.

Corrective action to prevent recurrence has already been completed as of 10/09/17. KNES has no extent of condition concerns on this issue.

Konecranes Nuclear Equipment & services, LLC

Tom McCann

Tom McCann
Global Director of Nuclear Quality