

# KONECRANES®

Lifting Businesses™

Konecranes Nuclear Equipment & Services  
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Date: 2/26/18

99901451

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555-0001

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

References.:

1. NRC letter dated December 6, 2017 to Konecranes Nuclear Equipment & Services, LLC.
2. Konecranes Nuclear Equipment & Services, LLC letter dated February 14, 2018 to U.S. Nuclear Regulatory Commission from Tom McCann.
3. APS Main Hoist Reeving Calculation #36676-01, Revision 8
4. APS Aux Hoist Reeving Calculation #36676-26, Revision 6,

Attachment: Anderson Laboratories Material Analysis, Project P18-0296, dated 22 Feb. 2018

In Reference 2, Konecranes issued our response which addressed areas of concern by the NRC staff as detailed in Reference 1.

In Reference 2, one of the commitments Konecranes made was to perform an additional safe guard / defense-in-depth check to ensure the Nylatron sheave material we received from the vendor had the necessary mechanical properties we required for the design. Konecranes has subsequently sampled one of the sheaves by removing a portion of the web and provided the sample to our third-party 10CFR50 Appendix B qualified testing lab (Anderson Labs.) The results from this testing are included as an Attachment.

The results of the compressive and tensile properties of the sample of the Nylatron are better than the published data from the Original Equipment Manufacturer and envelop the minimum allowables we used in our calculations (Reference 3 and 4).

Since this sheave has been modified (sample removed from sheave web in two places), Konecranes will be performing a rated load test to qualify the sheave prior to returning to service.

Konecranes believes it has performed all our commitments for this audit. If you have any further questions, do not hesitate to contact me at your earliest convenience.

Konecranes Nuclear Equipment & Services, LLC



Tom McCann  
Global Director of Nuclear Quality

IED9

NRD



February 22, 2018

Mr. Rod Janka  
Konecranes Nuclear Equip and Services K182  
5300 South Emmer Drive  
New Berlin, WI 53151

Dear Mr. Janka:

Project Number: P18-0296

We have completed the evaluation of the trolley sheave submitted to us recently. This work was done according to your Purchase Order dated February 13, 2018. This work will be invoiced against your purchase order number 4501098224.

### Objective

We were requested to determine the tensile and compressive strength of the base material of the trolley sheave. One sample was submitted and identified as *Drawing Number 54215490, Trolley, SRI-Sheave; Rope Sheave, Aux Hoist Sheave*. The material was specified as a Cast Nylatron GSM Blue.

### Procedures and Data

Two "core" sections were removed from the sheave in the approximate locations indicated on the supplied drawing. From these "core" sections a tensile specimen and a compression specimen was prepared.

The mechanical properties were determined by machining a nominal 0.250" reduced section round specimen from the material. The testing was performed according to the requirements of ASTM D638. The results of this testing are as follows:

Sample	Sheave	Nylatron GSM
File Number	B8-08334	Cast
Tensile Stress (psi)	10,400	10,000 nominal
Yield Stress 0.2% offset (psi)	5,800	Not specified
Elongation in 1" (%)	50.0	Not specified

The compressive properties were determined by machining a nominal 0.500" cylindrical specimen from the material. The testing was performed according to the requirements of ASTM D695. The results of this testing are as follows:

Sample	Sheave	Nylatron GSM
File Number	B8-08335	Cast
Compressive Stress (psi)	17,800	Not specified
Compressive Stress 10% strain (psi)	13,800	13,000 nominal

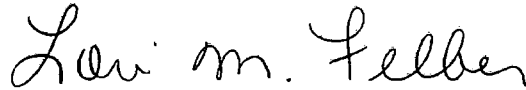
The sheave is being returned under a separate cover.

Anderson Laboratories, Inc.



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Rick Pearson  
Mechanical Testing Group Leader  
AWS Certified SCWI 10080028



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Lori Felber  
Quality Assurance Manager

The above tests were performed using one or more of the following specifications: ASTM A48, A247, A262, A370, B117, B328, B368, B748, E2 (SM 11-22), E3, E8, E9, E10, E18, E21, E23, E34, E45, E92, E112, E212, E290, E340, E350, E352, E353, E381, E384, E404, E407, E415, E562, E663, E766, E883, E986, E1019, E1024, E1077, E1086, E1251, E1508, G053, G154, ASME IX, AWS D1.1, MIL-S-867A, NAVSEA S9074-AQ-GIB-010/248, SAE J81, EN 10002 Part 1, EN 10045 Parts 1 & 2, EN 10204 Section 3.1.C and Anderson Laboratories Quality Manual Revision N dated 1/30/17. This report is confidential and shall not be reproduced except in full, without the written approval of Anderson Laboratories, Inc.