Coded Note Number: **LI113**
Revision: **C009**
Date: **July 20, 2012**
Title: **STR-4P38 Steam Plant Detrimental Material Controls**

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********** NOTE **********
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WHEN EB STANDARD CLAUSE 12-41 AND THIS CODED NOTE ARE BOTH SPECIFIED IN A PURCHASE ORDER, THIS CODED NOTE TAKES PRECEDENCE.
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1. Quantity: One (1) Copy – STR-4P38 Certificate of Compliance
   An STR-4P38 certificate of compliance shall provided. This certificate shall itemize all piece parts which meet the applicability paragraph 2 below, state if each of those parts has been exudate tested or exempted per paragraph 6 below, and state the applicable acceptable material or drawing/specification per paragraph 7 below.

2. Applicability: This coded note only applies to non-metallic parts which contact system fluid. This includes o-rings, packing, elastomers, plastics, sealing compounds, lubricants, locking compounds, adhesives, etc.

3. Deficiencies: If any materials are found which do not comply with this coded note, then a VIR shall be submitted to NGSB-NN for resolution. The VIR must include sufficient information to establish the manufacturer and product number of each material which does not comply.

4. Packaging Identification: Hardware or piece-part packaging shall include a suitable marking, sticker, or tag which indicates the material is STR-4P38 compliant.

5. O-Rings: O-Rings shall not contain sulfur or halogens in their chemical structure. For examples, flouorocarbon (e.g. viton) or chlorocarbon (e.g.chloroprene (Neoprene)) rubber shall not be used.

6. Exudate Test Requirement: All elastomers which are compressed in their intended application shall be exudate tested.

   Exceptions: The exudate test does not apply to silicon rubber, items 0.250 inches thick and less, and o-rings of any size.

One sample shall be selected from the compound. The sample shall have dimensions similar to those of the thickest piece to be fabricated or shall be in the form of a disc, 1.0 to 1.2 inches in diameter and no less than one quarter inch thick. Pierce the sides on the circumference of the specimen in at least four locations approximately 90 degrees apart. Place the sample in a compression device consisting of two or more flat steel plates held together by two or more bolts. The compression device illustrated in ASTM D 395, or equivalent device, may be used. The flat plate dimensions shall exceed the contact area of the sample and shall be of sufficient thickness to withstand 550 pounds per square inch (psi) without bending. A tensile test machine or equivalent instrument capable of applying 550 psi shall be used. Apply a compression load of 450 to 550 psi to the compression device. Then tighten the device's bolt until the bolts exert the same compression load as that applied by the loading machine. Remove the compression device (with the sample) from the loading machine and place it in a clean area at room temperature. Maintain the sample under compression for four hours minimum. At the end of the compression period and preceding the release of the sample from the compression device, visually examine the sample for the presence of oily/liquid exudate. If the sample exhibits any liquid/oily exudate, the compound represented by that sample shall be rejected.

7. Detrimental Material Review Requirements:
Prior to manufacture, the supplier shall conduct a review of all non-metallic items or piece parts which contact system fluid to determine whether they are acceptable or unacceptable as defined below.

Acceptable Materials:
polyethylene, polypropylene,
polyiscyanate-polyether or polyester,
polytetrafluoroethylene (Teflon),
polyamide (Nylon), silicone rubber,
ethylene propylene (EPM or EPDM) rubber,
polysiloxane (Silicone), polyarimid (Kevlar)
polycarbonate (Lexan), Delrin,
polyetheretherketone (PEEK) provided no
fluorocarbons are added to the formulation,
polyurethane, Derakane (Dow Chemical 470-36
styrene and vinyl ester epoxy, silicon carbide,
tungsten carbide, and
buna-n bellows in mechanical pump seals.

Acceptable Drawings and Specifications:
MIL-P-24503 Class 2, MIL-P-24583 Class 2,
MIL-G-24696, MIL-G-24716, MIL-G-24740,

MIL-PRF-24790, MIL-PRF-2863 Rev. C or later,
Pratt Drawing 42-10-70051,
Pratt Drawing 42-10-70054,
Pratt Drawing 42-10-70057,
Pratt Drawing 42-55-7074,
NN Specification 2070-22,
NN Specification 2070-26,
NN Specification 4122T-MOD25-26,
EB Specification 2548,
EB Specification 3328,
EB Specification 3968,
Murdock Engineering Co. Drawing 30042,
NAVSEA Drawing 8451889818,
Murdock Engineering Co Drawing 298075,
NAVSEA Drawing 2091595,
NAVSEA Drawing 2082005692,
Oil States Industries Drawing 299945,
Murdock Engineering Co. Drawing 298365,
Murdock Engineering co. Drawing 292900,
Oil States Industries Drawing 300154,
EB Specification 3543

Unacceptable Elastomers and Plastics:
All other elastomers and plastics not listed as acceptable must be submitted for approval per step 3 above.

Unacceptable Liquids and Pastes:
All sealing compounds, lubricants, locking compounds and adhesives must be submitted for approval per step 3 above.
Exception: Colloidal graphite in isopropanol per MIL-L-24131 (NEOLUBE #1 manufactured by Huron Industries) is the only approved assembly lubricant.