1. Coded Note Number: **IC079**
   Revision: **C016**
   Date: **August 3, 2012**

2. Title: **Steam Plant Cleanliness**

3. Quantity: **one (1) copy**
   Steam Plant Cleanliness Report - A report of satisfactory cleanliness inspection signed and dated by the seller's authorized representative, shall be attached to the certificate of compliance. The report shall indicate compliance with coded note IC079. Exception: at the supplier's option, in lieu of indicating compliance with IC079, the report may indicate compliance with oxygen cleaning specifications MIL-STD-1330 or ASTM G-93. Due to several unacceptable requirements in these oxygen cleaning standards, the report must also indicate that the final cleaning/rinsing solutions were limited to trisodium phosphate, denatured alcohol, isopropanol, acetone, distilled water and/or demineralized water and that no unauthorized lubricants, sealants, preservatives, or desiccants were utilized.

4. Applicability: This coded note applies to internal, fluid wetted, surfaces. It does not apply to external surfaces or lube oil or seawater wetted surfaces. Surfaces for which no other cleanliness requirements are specified shall be cleaned and shall be free from dirt, corrosion, oil, grease, and foreign residue.

5. Cleanliness Acceptance Criteria: All applicable hardware internal surfaces and parts shall be dry and visually clean (e.g. free of dirt, loose corrosion products, grease, non-approved preservative, oil, flux, scale, water residue, machining particles and other foreign material). No temporary markings (e.g., paint stick, magic marker, layout dye, grease pencil, chalk marks, PT developer or dye, mechanically applied inks, etc.) are allowed. A few discrete lint fibers (less than one fourth inch in length) are acceptable. Superficial soft rusting, as caused by short time exposure to the atmosphere, is acceptable on carbon or alloy steel. Thin, tightly adherent temper or oxidation film, as caused by heat treatment or welding, is acceptable on carbon or alloy steel and nickel-copper alloys. A light tarnish film is acceptable on copper and copper alloys. Hard rust, that which can be broken off in pieces but cannot be removed by rubbing with a cloth, and heavy rust, as caused by lengthy exposure to a humid atmosphere and/or water or condensate, is not acceptable.

6. Optional Cleanliness Training for Suppliers: Suppliers have the option to provide cleanliness training to their personnel who will be performing cleanliness and inspection duties. This training is available from NNS at no charge. For more information, contact the NNS contact person listed in the purchase order.

7. Build Clean Philosophy: Internal surfaces and parts, which cannot be cleaned after assembly, shall be cleaned and inspected prior to the assembly operation that precludes further cleaning. During subsequent assembly operations (including any required

performance testing of the finished assembly), such parts shall be protected from entry of dirt, grit, cutting oils and other foreign material. See paragraph 5 for cleanliness acceptance criteria for piece parts. Assembling non-clean piece parts with the intent of flushing later is not acceptable, unless approved by NNS on a case by case basis.

8. Lubricant and Sealant Prohibition: The only approved assembly lubricant is collodial graphite in isopropanol per MIL-l-24131 (Neolube #1 manufactured by Huron Industries). Lubricants, sealants, teflon tape, etc. shall not be utilized on final cleaned parts unless specifically required by the purchase order requirements. If the hardware cannot be assembled properly or will not function properly without lubricants/sealants, the seller shall submit a VIR listing the products recommended to be used by the manufacturer. When these products are authorized to be applied to sealing and operating surfaces, they must not be present on other surfaces in contact with system fluid. Lubricants, sealants, and other materials approved for use during assembly must be used sparingly on fluid-wetted surfaces and all visible residue shall be removed following completion of work. Special care shall be used when mating flange faces where joint closure could force sealant into fluid-wetted surfaces.

9. Preservative and Desiccant Prohibition: Preservatives and desiccants shall not be applied to internal wetted surfaces unless they are specifically required by other purchase order documents or approved by the purchaser on a case basis.

10. Final Inspection: When the component is ready for shipment, a visual inspection through all hardware openings shall be performed to the maximum extent practical per the cleanliness acceptance criteria listed in paragraph 5 above. If foreign material is found, the component must be disassembled as necessary and re-cleaned.

11. Cleanliness Protection: Final cleaned hardware shall be individually sealed in bags or all hardware openings shall be sealed with temporary caps, covers or plugs. Typically, smaller items are bagged and larger items are capped/covered/plugged.

- **Bags shall be made of polyethylene or polyurethane. Clear bags are not allowed.**
- **Bags shall be heat sealed or taped sealed.**
- **Caps/covers/plugs shall be made of silicon rubber, stainless steel, aluminum, rigid Teflon, rigid polyethylene, or rigid polyurethane. Clear materials are not allowed.**
- **Sealing tape, if required, shall be 3M Performance Plus Duct Tape 8979N, slate blue in color.**
- **When cleanliness covers are taped on flanges, the back of the bolt holes must be taped unless the cover is secured inside the bolt hole diameter.**

Any deviation from these requirements requires prior NNS approval.

12. Support System Cleanliness - Support systems which are utilized for testing or drying clean components shall be maintained to the same cleanliness level as this coded note. If the entire support system is not maintained clean, then following filter(s) shall be

installed as near as practical to the clean component: (a) liquid support systems: 80 micron or finer stainless steel mesh or edge type filter, and (b) gaseous support system: 10 micron or finer fiber filter followed by an 80 micron or finer stainless steel mesh or edge type filter.

13. Order of Precedence: Where this coded note (IC079) and EBSC 16-16 are both invoked for the same part number, IC079 takes precedence.

14. Conflicts: Any conflict between this coded note and other contract requirements shall be brought to the attention of the NNS contact person listed in the purchase order as soon as practical.