

CONCEPT SWP-25: BRASS POLICY, INSPECTION & CHECKLIST

SVASD COMMITTEE DISCLAIMER: THIS “SAFE WORK PRACTICE” GUIDELINE PREPARED BY SVASD COMMITTEE (MAY 2012) IS INTENDED TO SERVE AS A REFERENCE FOR FACILITY PERSONNEL IN THEIR DEVELOPMENT OF PROCEDURES RELATED TO AMMONIA REFRIGERATION SYSTEM; BUT NOT AS A SUBSTITUTE FOR SITE SPECIFIC PROCEDURES.

PART A: BRASS POLICY

POLICY STATEMENT:

1 prohibits brass, copper, or bronze (referenced as “brass”) components (valves, fittings, caps, any hoses with brass components) to ever be connected to any ammonia systems or ammonia containing components (*including nurse tanks*)

[Possible]*1* Exceptions:

- Ammonia pump brass seals as originally constructed by ammonia pump manufacturer within oil reservoir.
- Brass Components required for temporary Test Equipment - with Pre-use* inspection (i.e., no degradation) and Post-use* inspection to confirm brass component was removed.
- Component required for temporary pumpdowns – vacuum pumps with Pre-use* inspection (i.e., no degradation) and Post-use* inspection to confirm brass component was removed.

[*IDEA –Reference your Line Entry (Break) Procedure/Permit and then detail these inspections in the Line Entry (Break) Procedure.]

REQUIREMENTS:

1. Facility refrigeration personnel are responsible to ensure *1*'s brass prohibitions are adhered to. Complete reviews of the ammonia refrigeration system work areas during and after work by in-house personnel or contractor [IDEAL –Reference your Line Entry (Break) Procedure/Permit] Complete reviews of the ammonia refrigeration system at least annually [IDEAL – Reference and complete in conjunction with the IAR Bulletin 109 Inspection] and any additional reviews deemed necessary by *1* Refrigeration Management. Follow the review process as outlined below and in Part B: Brass Inspection & Checklist

2. If brass is found in the system, the refrigeration personnel should:

CAUTION – Do not attempt to remove the brass component if you are not trained, protected (PPE) and equipped to handle a possible ammonia release.

2.1 Treat the brass component as if it could leak ammonia at any time

2.2 Contact *1* Refrigeration Management to have brass component isolated and removed as soon as possible by qualified, properly protected (with PPE) Ammonia Refrigeration Technician.

2.3 . The goal for a qualified, properly protected (PPE) Ammonia Refrigeration Technician is to:

- a. Clear area
- b. Write out an Action Plan (procedure) [IDEA –Reference/follow your Line Entry (Break) Procedure/Permit]
- c. Clear the Action Plan with Refrigeration Management. The Action Plan must adhere to the *1* Emergency Response Plan.
- d. Carry out Action Plan: Stop ammonia flow to the brass component; Isolate and pump down and remove the brass component; Install steel plug or new component using compatible material to correct the ammonia system and confirm no trapping.

PART A: BRASS POLICY (continued)

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3. **RMP Reviews:** As part of the Annual Management System OR SOP Reviews, review this SWP and review *1* documents to confirm the following *1* requirements are satisfactorily met. Where deficiencies are found, establish plan and follow-up to assure deficiencies are corrected.

3.1 Confirm that*1*'s written Contractor Qualification Program and documentation for each Refrigeration Contractor is accurate, current, and includes the following:

- a. Contractor accepts *1* prohibition use of ANY brass components (valves, fittings, caps and any hoses with brass components),except as noted above in Policy Statement.
 - i. [IDEA – If brass exceptions are allowed, include requirement that Contractor tag or paint any temporary brass component, such as neon pink or other unusual color, for ease of Post-use review and removal.]
- b. Contractor agrees to confirm that their technicians are trained on the immediate danger of using brass components on ammonia systems.
- c. Contractor agrees to train their personnel and adhere to this SWP-25.
- d. Confirm the *1* Facility Contractor Site Entrance/Exit Policy includes prohibition of brass components and references this SWP -25 for details (such as details on exceptions).

3.2 Confirm *1* Training Program and documentation for each *1* refrigeration personnel is accurate, current, and includes:

- a. Training confirmation for all refrigeration personnel on the immediate danger of using brass components on ammonia systems.
- b. Training confirmation for all refrigeration personnel on how and when to inspect for brass, referencing this SWP-25.
- c. Training confirmation for all refrigeration personnel on what to do if a brass component is found, referencing this SWP-25.

3.3 Confirm Mechanical Integrity Program includes:

- a. Reference to this SWP-25.
- b. Triggers (such as checklist item on Work Orders, Pre-Commissioning Forms, etc.) to review in-house and Contractor work for brass components during and immediately after work (before ammonia charge, where applicable).
- c. Confirmation that PM includes OEM recommended maintenance of brass/bronze ammonia pump seals (sufficient oil in oil reservoirs, defined use intervals, etc.)

3.4 Confirm Management of Change Program includes:

- a. Reference to this SWP-25.
- b. Triggers (such as checklist item on MCF forms) to review in-house and Contractor work for brass components during and immediately after work (before ammonia charge

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where applicable).

3.5 Confirm Pre-Start-up Safety Program includes:

- a. Reference to this SWP-25.
- b. Triggers (such as checklist item on PSSR forms) to review in-house and Contractor work for brass components during and immediately after work (before ammonia charge where applicable).

DECISION:

- SWP-25: BRASS POLICY, INSPECTION & CHECKLIST and the noted RMP Reviews were reviewed and found to be complete
- SWP-25: BRASS POLICY, INSPECTION & CHECKLIST and the noted RMP Reviews were reviewed and found to be incomplete as noted (attached __ pages) with corrections are planned by _____. Follow-up review is schedule no later than _____.

Signed: _____ Date: _____

Print Name/Title: _____

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PART B: BRASS INSPECTION & CHECKLIST

Reason for Inspection:

- During Project Work OR After Project Work

Project Work by: _____

MCF # and Project Name: _____

Description & Area of Project Work: _____

- General Review of (list areas reviewed): _____

Review Steps for trained Refrigeration Personnel:

1. Review Part A Brass Policy and *1* Emergency Action Plan
2. Photo copy P&ID for areas to be reviewed.
3. With proper PPE (per _____), visually look for brass component and mark any with *red* tape
4. Indications/Signs to watch for:
 - a. Color: Blue, Green, White on component surface or residue
 - b. Shape: Flare Fittings, Quick-Connections, Hose Barbs, “JIC”, Tubing/Tubing Fittings, Pressure Switches or Gauges without “Ammonia” duty noted on label/face,
 - c. Size: Usually small components
 - d. Places: Small gauge valves (3/8”, 1/4”) – especially one that open to atmosphere, PRV vent lines, ADT components (valves and sights),
 - e. Special – Electrical Panels: No ammonia component (even stainless steel tubing or pressure gauges/switches) should be located inside Electrical Panels. Any ammonia leaks will damage the brass, copper, bronze wiring/components within the Panel.
5. Check suspicious components with magnet. If magnet does not stick, the component could be brass or stainless steel. (This helps distinguish anodized steel valves which may look like brass but are OK.)
6. On copy of P&ID, mark-off piping, piece –by –piece, as reviewed. Note any component that is not on the P&ID. Circle any suspicious components.
7. If possible, photograph suspicious component.

Findings and Initial Action:

- I reviewed the above area(s) and found no brass components
- I reviewed the above area(s) and found brass components OR suspicious (possibly brass) component. URGENT ACTION NEEDED (see PART A “IF BRASS IS FOUND...”).
List and reference P&ID/photo: _____
Actions Taken: _____

Additional Follow-up Action Required:

- None needed.
- YES-Describe: _____

Signed: _____ Date: _____

Print Name/Title: _____

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Follow-up Action is Complete and Concerns are Resolved:

YES-Optional Comments: _____

NO – Next Steps: _____

Signed: _____ Date: _____

Print Name/Title: _____