

Audit of Process Hoses, Steam, Water, Air, Nitrogen, & Hydrocarbon Drain

JGB's Audit Process

Step 1. Detailed Observations

Our observations describe the necessary processes or products that are not in place or omitted in the hose policy, procedures and specifications.

- **Current State**
- **Hose/Fittings - approved by mfg for intended application**
- **Hose routing and manifold configuration**
- **Working Pressure and temperature verification**
- **The Tracking and Lifecycle Management of assemblies**
 - *Digital*
 - *Traceable*
 - *How deployed*
 - *Testing & Certification*
- **Do hose assets comply with NAHAD Hose Safety Institute Handbook 1.2 and industry best practices?**
- **Complete catalog of all hose assets by unit, hose type, mfg, & applications**

Some examples of hose & fitting problems:



This metal braided hose has stressed and kinked behind the weld collar, due to inadequate routing.



Double Bolt Clamp, which were used on Steam hose service.



Exposed wire seen on chemical hose due to severe abrasion or chemical exposure.



Air / water hose with only a single band, attached to a garden hose fitting, and kinked behind the band.

Liverpool Location ISO 9001:2015 Certified QMS by Intertek

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Step 2. Recommendations

- **Assembly standardization with approved fittings**
- **Hose Policy & Specifications**
 - Nahad and STAMPED data & best practices
 - Assistance in rewriting and improving site specs
- **Visual Inspection Checklist**
- **Testing/Recertifications & Storage recommendations**
- **Process Improvement**
- **Cost Savings**
- **Hose Tracking System (HTS)**

JGB's tracking system establishes management for traceability of each asset, determining life cycle, establishing visual inspection, preventive maintenance, hose testing protocols, and risk avoidance.

It will:

- Establish a tagging system and asset number for each hose onsite
- Load each hose by asset number into the system and determine when asset get decommissioned and/or removed from plant and tracking system
- Establish protocols for who gains access to tracking website
- Determine frequency of hose visual inspection and hose testing for each hose asset; (annual hose testing for Steam, Water, Air, Nitrogen, Chemical & Metal Braided hoses)

Based on Mark's Standard Handbook for Mechanical Engineers and the Grashof formula; steam leaks and cost savings are calculated as follows;

- Leak @ $.17^1/\text{min}$, 10.2lbs/hr, 244.8/day(24hrs)
- **\$4.22²/1000lbs**, steam production costs
- $244.8\text{lbs/day} \times .00422$ ($\$4.22 \div 1000\text{lbs}$) = \$1.033/day per steam hose
- $\$1.033/\text{day} \times 365\text{days}$ = \$377.05/yearly per orifice leak
- YTD, steam hoses = 851³ assemblies (50% of hoses leak⁴)
- $425.5(\text{hoses}) \times \$377.05/\text{per yr.} = \mathbf{\$160,432.65/ \text{annually}}$

*Example from 300,000+ bpd Refinery

JGB's HTS Login Screen

Download the JGB® Mobile App



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