

Developing a Hose Management Plan: Utilizing NAHAD Hose Safety Institute for Consultation

As we reflect on the one-year anniversary of the World Health Organization's declaration of the novel coronavirus (COVID-19) as a global pandemic, the dramatic changes every individual has experienced become apparent. Social distancing, facemask usage, frequent handwashing, and minimization of human-to-human contact have become the new daily norms. These changes have also had a significant impact on American businesses. The need to manage financial resources more closely, and limit the number of personnel, has led to a reduction of readily available resources in the industrial hose and hose accessories sectors. It is therefore imperative for end users to formulate relationships with their distributors and establish a Hose Management Plan.

By Brent Lilly, Director of Sales & Marketing



Hose training session.

Impact on Industrial Businesses

Since the crisis began in March of 2020, there has been a significant amount of uncertainty surrounding the economy, the financial impact of a looming crisis, and the duration of potentially hard economic times. In response, numerous businesses instituted measures designed to protect employees from virus exposure. As the crisis stretched from '45 days to stop the spread', to 12 months and counting, many businesses have limited their own resources in the form of personnel, including limiting outside visitors, except in cases of emergency. This has been accomplished through reductions in employee hours, temporary furloughs, and even permanent reductions in staff.

Financial resources for businesses have also been managed more closely due to these uncertainties. This has meant, in many cases, that end-users have reduced on-hand inventory

for Maintenance Repair Operations (MRO), creating a higher level of dependency on their distributor suppliers. Ironically, many distributor suppliers, facing these same financial uncertainties, were also forced to make conscious efforts to more closely manage their own inventory investments, through less speculative on-hand levels. Distributor suppliers therefore simultaneously developed a greater dependency on their manufacturer suppliers to supplement these needs through their inventory maintenance. The result of these changes is fewer readily available component products.

The institution of all of these precautions has therefore created: pressure to have on-hand inventory investment for MRO activities; a reduction in personnel dedicated to process/project engineering, safety activities and expertise; and fewer planned maintenance shutdowns (limited production capacity/personnel/hours for revenue generation

tends to take precedence over this typically). While these consequences are present in every industry, the focus of this discussion will be on how businesses that focus on industrial hoses, end fitting attachments, end fitting adapters & reducers, and hose assembly identification and management technologies can mitigate the risk of these outcomes.

Hose Distribution Relationships

Traditionally, hose users are called on by a variety of geographically close industrial hose distributors. These distributors are sometimes accompanied by sales, engineering, and training personnel of hose, fitting, and hose management technologies. Occasionally, plant engineers, production managers, or safety directors will instead request to have a specific application looked at by a distributor and/or product manufacturers to make specific product recommendations; especially in instances where enhanced performance is desired.

On other occasions, interactions with distributor suppliers relate to urgent product replacement needs, due to failed hose assemblies, or production equipment changes that require a new application design and selection. In replacement scenarios, the interaction with suppliers is often 'reactive' and the product solutions are not necessarily readily available; especially in cases where there are a number of economic pressures.

In light of the current economic factors, it can be argued that, while the current dynamic is functional, a more direct approach to obtaining product solutions would be highly beneficial to all those connected by the industrial hose supply chain.

Hose Management Plan

Formulating a relationship with distributors who are prepared to meet their needs can make a significant impact on end users. In this ever-changing business climate, unplanned disruptions to manufacturing, while awaiting hose assemblies, can be detrimental to a user's production requirements and performance. A solution to minimize, and even eliminate this type of scenario, can be found by working with NAHAD HSI distributors, and their NAHAD HSI manufacturers to create a Hose Management Plan specifically for each interested end-user operation.

Each end user operation has a variety of specific needs depending on the position in question. For example, plant purchasing departments have a budget, designed to maintain, or reduce, per unit prices on items purchased, while also limiting the quantity of unit purchases annually. Production management is challenged with maintaining a production schedule, with limited personnel to work, limited hours to produce (shift reductions are currently playing a role here), while avoiding unplanned production disruptions through production equipment failures. Plant and process engineers are constantly challenged to redesign the workflow to improve manufacturing speeds and efficiencies, and plant safety personnel are under continued pressure to identify unsafe working conditions, pro-actively mitigate failures and work-related injuries. All of these needs would benefit from a Hose Management Plan. A Hose Management Plan can go from the barest of distributor/manufacturer involvement, all the way up to a full partnership. The latter would entail having a chosen distributor supplier help manage, track, and prepare hose assembly needs for various locations.

Selecting a Distributor

A NAHAD HSI distributor is different from other industrial distributors, in that they have thoroughly invested in their personnel, their equipment, their choice of products (from manufacturers who are also NAHAD HSI listed suppliers), the training of their personnel, and their utilization of best practices, and processes, in the industry. These are all found within the NAHAD HSI – Hose Assembly Guidelines. The Institute is founded on the NAHAD Hose Assembly Guidelines; consensus-based performance standards for hose assembly specification, design, fabrication, handling, and management. In order to remain an active member, distributors must commit to these guidelines, and provide constant training, and testing of their employees (including those responsible for assembly: selection, fabrication, and integrity testing).

Through these qualified distributors, a user can begin to collaborate on hose inspections, recommendations for safe handling, storage, and proper support during operations. In addition, they supply information on how to identify and create a proper assembly testing protocol, which is structured to identify problem areas, and is complete with standardized testing recommendations. NAHAD HSI distributors can also enlist their HSI listed manufacturers, to help with conduct training sessions targeting plant engineers, production, and maintenance personnel. They can also provide recommendations for altering internal processes and standard work, resulting in safer employee activities, enhanced hose assembly longevity, and improved facility performance through reducing unplanned shutdowns.

To really take this a step further, and more fully utilize the resources provided by NAHAD HSI distributors, and manufacturers, all of the above elements can be combined into a singular active Hose Assembly Management Plan. This is often done through harnessing technologies developed specifically for this purpose. There are a variety of tools available from numerous manufacturers to accomplish this, such as: utilizing unique assembly identifiers, tracking software, and system prompted suggestions towards maintaining inspections and assembly re-certification protocols, for prompted testing frequency as prescribed by the manufacturer experts.

The Three-Step Process

To bring all of these elements together: training, inspections, planned component inventory, testing frequency and protocols, predictive service life, and recommendations of best practice concepts, a three-step process is recommended. This would be arranged and managed through the NAHAD HSI distributors, who in turn will involve and collaborate with their NAHAD HSI manufacturers.

Part 1: Initial Survey

The purpose of this initial survey is twofold: identify each assembly through proper labeling and data capture, and provide initial observation relating to hose assembly recommendations, which include handling, support, and storage.

Part 2: Recommendations

The purpose of the recommendations includes several elements:

1. Categorizing each assembly
 - a. **Critical applications:** These require more frequent inspections, and/or testing, relating to one of the following factors: the transfer of dangerous



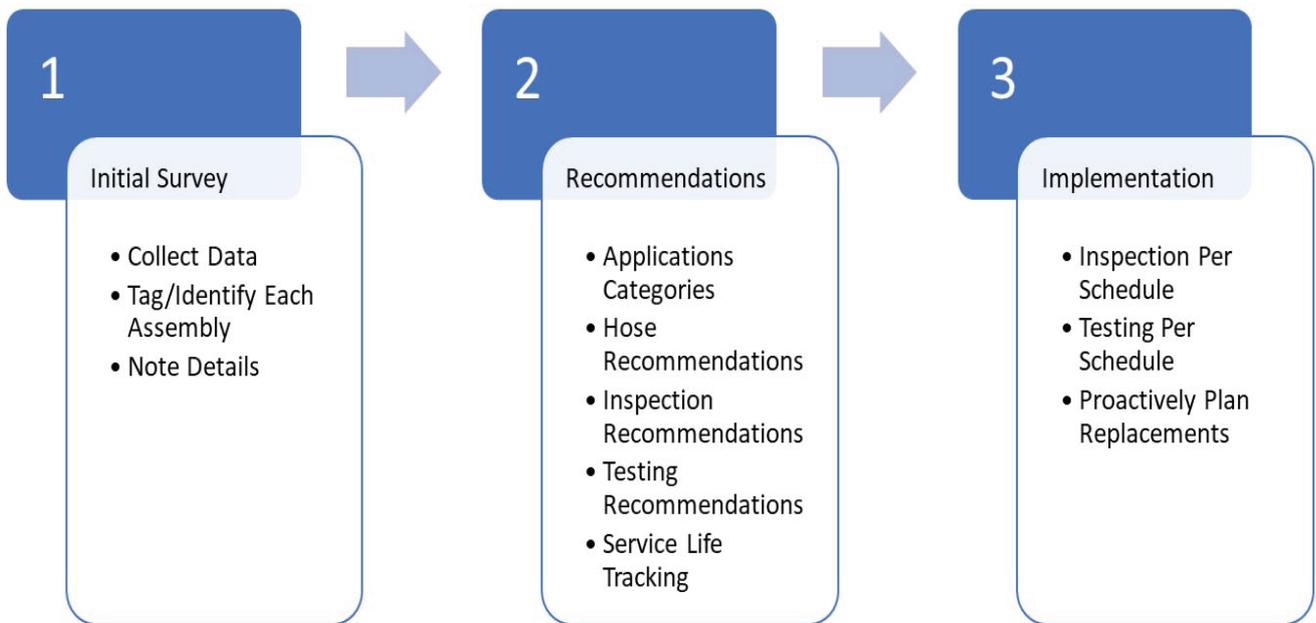


Chart 1: Brief summary of the three-step Hose Management Process.

or volatile media, difficulty of replacing assembly elements (often requiring multiple personnel, and some surrounding equipment disassembly), protracted lead times, expenses, and inspection and/or testing frequency established by regulatory requirements.

- b. **Normal applications:** These require less frequent inspections, and/or testing relating to the assembly operations. The elements of these assemblies are often easier to source, and have normal lead times with 'stock and off of the shelf' components. In addition, these assemblies are easy to replace, and do not require large numbers of personnel to do so.
- c. **Non-critical applications:** These require even less frequent inspections than normal applications and almost no testing. The product is replaced when it begins to show visible signs of wear, or fails completely. These applications also typically transfer harmless media such as water/low pressure air, etc., and are easily replaced; hose or fitting components are readily available from stock items (from which to fabricate assemblies).

2. Include a recommended frequency of testing for each type of assembly based on:
 - a. Regulatory Requirement
 - b. Forecasted predictable service life (based on history, and/or eventually derived from the data indicated through monitoring the Hose Tracking software).
3. Include an Inspection protocol/worksheet and inspection frequency recommendation, (conducted at a cadence prescribed by Applications: 'A', 'B', or 'C' types) for each type of assembly.

Part 3: Implementation

To implement this three-step process a training session is conducted for all those involved in the process. Among other elements, the training introduces templates to be

used for: inspections, testing, listing of facility assemblies according to application type (A, B, or C), and the recommended schedule. The HSI distributor should be a part of conducting the tests, as well as training appropriate user personnel in test protocol and procedures. For safe conducting of these tests, use the recommended schedule.

Final Thoughts

For more information relating to these recommendations, contact NAHAD HSI distributors and HSI manufacturers. A properly constructed Hose Management Plan, will lead to improved product performance, reduce unplanned shut-downs due to unexpected failures, a reduction in delays awaiting out of stock hose and fitting component materials, and last but certainly not least, a much safer work environment surrounding industrial hose assemblies.

This article is an expansion of a presentation made at the Hose + Coupling World Americas Conference & Expo 2020 in Houston with co-presenter Jim Daniel, President, Mid-State Fluid Power.

ABOUT THE AUTHOR

Brent Lilly is the Director of Sales & Marketing for PT Couplings, an Enid, OK-based manufacturer of hose fittings, fitting attachment systems, adapter & reducers, accessories, government/mil spec products, transportation product systems, and hose management systems. He has over 38 years' experience in the hose industry with a variety of engineering, sales, and marketing positions. Brent is currently serving a term on the NAHAD (The Association for Hose and Accessories Distribution) Board of Directors and has long been a member of the NAHAD Standards and Education Committees. He has presented a variety of topics relating to his areas of knowledge and expertise, at several national conferences and trade shows.

