Regulated Recordkeeping:
An Accurate Solution From SpreadBoss® and DocuVista®

As regulators in Washington, DC remind record custodians to "preserve and verify data," SpreadBoss® and DocuVista® can keep your records accessible, accurate, compliant, secure, traceable, and verifiable.

Monitor and Control Inventory Using Barcodes, SpreadBoss® and DocuVista®

What is an Inventory Control System (ICS)?

Inventory Control

The technology and strategy companies employ to secure a continuous supply of production materials to create the assets to deliver to customers is generally known as inventory control. The goal of inventory control is to minimize stocking excessive or inadequate inventory, both of which are costly if not properly constrained. Also, industry regulations demand accurate, traceable and verifiable recordkeeping over the life cycle of the product adding another dimension to the inventory control matrix.

Typical Components of an ICS

An advanced ICS uses state-of-the-art technology to track assets from production through retirement. It employs an array of sophisticated tools to computerize the management of tracking inventory. The tools include hardware, mated to a flexible software package, as a means of collecting data to track inventory. And, correspondingly important, the tools must include a rigorous business strategy for employing the ICS. Closely monitoring inventory movement or turnover at each phase of production is crucial to balancing inventory levels and, later on, is vital to tracking the assets. Currently, most inventory control systems use a computer, barcode software and barcode hardware to collect asset data and track the items. Barcode technology is easily adapted to a wide variety of data collection, storage and retrieval. Real-time data collection and retrieval offered by advanced, all-in-one, web-based and wireless applications like SpreadBoss® and DocuVista® facilitate accurate inventory monitoring and asset tracking.

Barcode Component Technology

Barcode Symbol

There are several kinds of barcode symbols commonly grouped into three general categories. The first category is the numeric-only 1-dimensional barcode. The next is the alpha-numeric 1-dimensional barcode. The last category is the 2-dimensional barcode.

A 1-dimensional barcode contains of a sequence of lines of different width and spacing. The information encoded in a 1-dimensional barcode is either numeric or alpha-numeric. A 2-dimensional barcode contains an image a barcode scanner reads across two dimensions, length and width. The information encoded in a 2-dimensional barcode can include characters, images, or music.

Barcode Printer

A barcode printer must be capable of printing the proper symbology at a high quality on the appropriate label material. The purpose, location and environment of the barcode printer determine the features necessary on the device. A number of technologies can print barcodes. Two of the most commonly used printers are direct thermal and thermal transfer printers. The direct thermal printer is less expensive but the printed codes are vulnerable to changes caused by chemicals, heat, or light. The thermal transfer barcode label printer prints any figure or icon. The thermal transfer process uses a heated strip to produce a resilient image on the label material.

Barcode Symbol Label Material

The barcode symbol label material selection, like the barcode printer, depends on the application and environment. There are several alternatives to suit various needs. Fragile vinyl is a worthy pick for tamper-resistant labels. Paper is a good choice for inexpensive, short-term service. Plastic film is a more durable choice for indoor application. Polyester film is a highly-durable, moderately chemical and temperature resistant option. And, most hard-wearing, metallic polyester film has greater durability and high chemical and heat resistance.

Barcode Scanner

Barcode scanners can be distinguished by technology type, housing and interface. Typical barcode scanner technology includes single-line laser, series-line laser, and camera or CCD. The case design, fixed, hand-held, or pen, further defines the scanner. Finally, the type of interface, wired or wireless completes the barcode scanner description. You can find a barcode scanner to read every barcode style at any location or in any situation.

Barcode Software

Barcode software connects the computer (data storage) with the barcode scanner. The software application serves the purposes of creating and printing barcode labels and reading the labels and storing the data. An ICS demands accurate, traceable and verifiable recordkeeping over the life cycle of the product. The real-time data collection and hyper-intuitive search retrieval offered by SpreadBoss® and DocuVista®, an advanced, all-in-one, web-based and wireless application, facilitates accurate inventory monitoring and asset tracking.

Computer

Choosing the appropriate computer to properly link to the barcode scanner through the software application is an important step in the design of an ICS and depends on the purpose and environment. There are three types of computer systems and two options for the system types. The simplest system is a single-user computer and lone barcode scanner. An extension of the single-user system is a single-user

computer and multiple barcode scanners. The third system connects multiple computers and users through a network connection to a central database for real-time data collection and retrieval.

One option for the combinations of computer and barcode scanner above is to construct the system as a fixed-location unit. A more flexible option is to utilize a mobile computer and barcode scanner. A mobile computer may be a hand-held, laptop, tablet, or vehicle mount terminal.

Results

Combining the right business strategy with suitable hardware and a state-of-the-art application like SpreadBoss® or DocuVista® produces the desired outcome: accurate, traceable and verifiable recordkeeping from fabrication to retirement of the product.

How Do SpreadBoss® and DocuVista® Control Inventory?

An automated ICS functions by scanning a barcode on the asset. Then, software translates the data encoded in the barcode into understandable information. The software organizes and stores the information in the database or it may compare the scan with data previously stored in the database.

Let's use a pipe purchase order as an example of how the system operates. The purchase order itemizes a number of assets (pipe) for delivery. The SpreadBoss® or DocuVista® program performs a range of functions in the example. It guides the specialist directly to the location of the assets listed on the purchase order at the mill, yard, or right-of-way. It retrieves archived shipping documents, customer information, project data, heat numbers, pipe dimensions, master joint numbers, and sending and receiving locations. The program subtracts the list of assets from the inventory to maintain an accurate summary of pipe assets. All of these applications work collectively to provide customers with real-time inventory tracking information. SpreadBoss® and DocuVista® make it simple to locate assets and analyze inventory information in real-time with a simple database search.

Tracking the Inventory

The capabilities of SpreadBoss® and DocuVista® make them exceptionally effective for capturing and retrieving the data from product fabrication, projects, modifications, transfers and installations. The applications are not limited to using barcode technology alone. They also interface with radio-frequency identification, RFID, and global positioning system, GPS, technology in the same way they interface with a barcode tag. Below is a more complete description of data collection and asset tracking by the specialists using SpreadBoss® and DocuVista® for traceable recordkeeping during the life cycle of a gas line pipe. For simplicity, the example illustrates the most common technology, barcode tag only.

Validating Mill Data

Data collection begins at the pipe mill after the fabrication process. Specialists use the original item material history and the stenciling in the pipe to verify the identity of the asset at hand. Two specialists carefully validate critical information for regulated recordkeeping. Information captured and linked to the asset includes client, contractor, project, manufacturer, location of manufacture, pipe properties, heat number, and coating type. Template field data entry tables and drop-down menu options ensure complete and accurate data capture and verification.

Once the specialists agree on the identity of the asset and confirm the pipe information, they attach a total of four durable, heat-resistant barcode tags, two on each end of the pipe. Each unique barcode tag is pipe-specific and pipe-end specific and is linked to the other three barcode tags through the SpreadBoss® or DocuVista® program. Adding the barcode tags to the pipe enhances the security of the pipe stencil information and facilitates metadata retrieval through SpreadBoss® or DocuVista® for later operations such as coating, jointing, transporting, or welding.

The program logic rejects duplicate barcode tags and alerts the specialist. At this point, the specialists accept the verified data and the pipe becomes part of the inventory. The entire process of validating the mill data takes less than one minute for each asset.

Sending Inventory

Next in the example, the asset needs a protective coating applied at the coating facility. Any asset movement away from the current location, the fabrication mill, requires recording the movement in the history for tracking purposes.

Specialists capture movement of assets at key logistical points. In this case, they record the data concerning the asset at the loading rack of the fabrication mill and link it to the destination, the coating facility.

Template field tables linked to the customer open when the specialists enter the client's name. The template fields reduce human error by limiting hand-entered information. Carefully customized drop-down menus, designed for the client, guide the specialist's record collection efforts to ensure accurate data capture.

The specialists scan the barcode tags. The application captures, links, and stores information regarding time and date, current location, method of transportation, entity responsible for transporting the asset, destination, estimated arrival and all the barcode tag information describing the asset. When the specialist verifies the movement, a bill of lading prints for the assets.

Any movement of an asset away from its current location to any other location will follow the scenario described above.

Receiving Inventory

Continuing the example, the asset arrives at the coating facility for application of the protective coating. Any asset movement into a new location, the coating facility, requires recording the movement in the history for tracking purposes.

Again, specialists capture movement of assets at key logistical points. In this case, they record the data concerning the asset at the arriving boat, train, or truck at the coating facility and link it to the destination, the coating facility.

Template field tables linked to the customer open when the specialists enter the client's name. Carefully customized drop-down menus, designed for the client, guide the specialist's record collection efforts to

ensure accurate data capture. Specialists verify arrival information using the drop-down menus and the barcode tag scan of the assets completing the data entry at the destination.

View Inventory

The final stop for the asset is at the right-of-way for stringing, bending, and welding prior to laying the pipe. Each additional movement of the pipe is handled through a "send" or "receive" inventory transaction as described above.

There may be a time when it becomes necessary to determine the status of an asset somewhere along the line between fabrication and retirement. Using SpreadBoss® and DocuVista® the user can be sure the results of the search are relevant to the search text, listed in order of importance, and returned quickly. They find the data needed with fewer clicks, using multiple methods of search, chart and graph links, and informational roll-overs. The SpreadBoss® and DocuVista® solution have the capability to do this through accurate data capture, secure storage and real-time, on-demand access through hyper-intuitive searches.

So let's look at an example of the need to determine, while in the field, if your company has any pipe, without a coating, from a certain mill heat. The pipe could be in the inventory, at the coater, in transit, or installed at the right-of-way. SpreadBoss® and DocuVista® would have the heat number in the company database since specialists collect and validate the metadata from the original pipe markings and install durable barcode tags linking the individual pipe to the metadata as the pipe rolls off the line. The pipe location and condition updates, in real-time, each time the asset moves.

Use a desktop, laptop, tablet, smartphone, vehicle mount terminal, or even a CD with current data to access the database and determine if any pipe have the heat number in question. A SpreadBoss® or DocuVista® template field search of the database for the heat number links, in real-time, to any metadata or related document, either online and offline. The data the search retrieves displays in an easily read table with links to related metadata and documents to ensure you know if any of the pipe in question is anywhere in your company's inventory. SpreadBoss® and DocuVista® give your company confidence the data is accurate, verified and traceable.

Results

Using the SpreadBoss® and DocuVista® solution, a business can be reasonably certain it has accessible, accurate, compliant, secure, traceable, and verifiable records. Barcode tags correctly capture the activity it documents using state-of-the-art technology. The records are complete; they contain all of the information necessary to thoroughly record and verify the data from all activities. Virtually every organization with a large recordkeeping requirement can benefit from using the SpreadBoss® and DocuVista® solution and ensure accurate data capture, secure storage and real-time, on-demand access.

More SpreadBoss® and DocuVista® White Papers:

Part One of a Two-Part Series: Convert Paper Documents to Digital
Part Two of a Two-Part Series: Regulated Recordkeeping: Hyper-Intuitive Searches From SpreadBoss® and DocuVista®
Monitor and Control Inventory With Radio Frequency Identification, SpreadBoss® and DocuVista®
Track Assets Through GPS, SpreadBoss® and DocuVista®