

Pipeline Asset Tracking

OPPORTUNITY

An oil and gas pipeline contractor looking for a solution to improve the method by which they tracked the movement of pipe. This company wanted a solution that could track pipe joints beginning with receiving it from the mill all the way to the Right of Way. As the pipeline they needed to track was already underway, they had immediate need to track pipe joints being installed at the Right of Way. Due to the fact that most pipeline Right of Ways are in remote areas, we could not count on WiFi access in that area.

JPL RFID's **Get a Grip on your Assets**® combination Cloud web service and handheld solution provided all of the solution elements needed to satisfy this client.

SOLUTION

JPL RFID's **Get a Grip on your Assets**® asset tracking solution offered a complete answer for all of their needs. It allowed them to automate importing pipe attributes, print and program RFID labels to uniquely identify each joint of pipe, and track each joint location by GPS coordinates.

- **Pipe Attribute Data**

- It allowed the company to automate capturing pipe attributes such as heat number, OD, length, etc. by importing data currently received from the mill in an Excel spreadsheet.
- The spreadsheet data was easily uploaded and imported into JPL RFID's Cloud web service solution. Previously, engineers had to manually cut and paste this information into separate reports.
- This proved especially important since the job was already underway and we needed to provide an onsite solution immediately.
- We were able to upload, store, and generate labels quickly to match all the necessary pipe joints for the job. The pipe already had labels with barcode identifiers that were uploaded with the other attribute data. At the Right of Way, the pipe barcode was scanned which confirmed the pipe. The operator then attached to that pipe a new label that was generated from the JPL RFID system. The label is scanned and the tag ID is associated to the existing pipe.

General Details	Manufacturer Details	QC Details	Dimensions Details	RFID Tags	User Defined fields
Asset Number*	Z14067478	Asset Name*	PIPE0399	Location*	
Barcode	2093	Parent Company*		Parent Asset	
Serial Number*	Z14067478	PO Number			
Classification*					
Asset Class (1)	PIPE	Asset Subclass (2)		Asset Type (3)	
Asset Description (4)		Secondary Asset Description (5)			

General Details	Manufacturer Details	QC Details	Dimensions Details	RFID Tags	User Defined fields
Length	64.45	Width		Height	
Dimension Units	Feet	Weight		Weight Units	
Pipe OD	16 Inch(es)	Coating	FBE		
Wall Thickness	0.375 Inch(es)	Grade	X52M	Standard	API 5L PSL2

SOLUTION (continued)

- **Remote Operation**

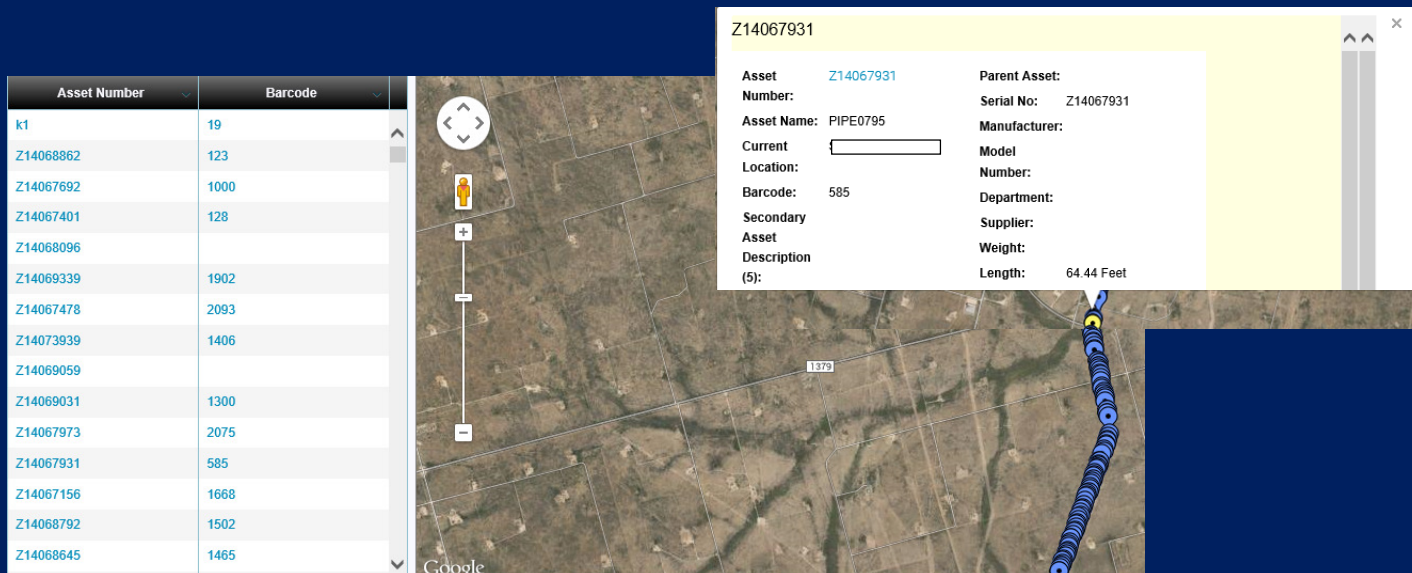
- JPL RFID's handheld software is designed to operate with WiFi connectivity to the Cloud web service. This allows real time verification and storage of all data collected.
- For this solution, the handhelds needed to operate at the Right of Way without a WiFi connection and still collect location data.
- JPL RFID's handheld software solution was capable of being configured to allow for updating individual pipe information offline to deliver this solution. The entire pipe asset database was downloaded and stored on the handheld for remote operation.
- Each pipe was scanned and location updated on the handheld.
- When the handheld was moved within a WiFi signal it could use, the handheld remotely connected to the Cloud service and uploaded all data collected during the time it was operating offline.

- **GPS location tracking**

- Besides being able to automatically upload the pipe attributes, it was imperative that each pipe joint was tracked by GPS coordinates when moved to the Right of Way.
- The handhelds used are fully GPS capable. When the pipe tag is scanned and the pipe is confirmed to be identified, the pipe location is saved. The location is stored with GPS coordinates and associated to that unique pipe joint.

- **Map View Report**

- Once the data is uploaded to the Cloud web service, you can use the Map View Report which uses Google Maps to display the pipe's geographic location.
- You can visually verify each piece of pipe joint that has been laid at the Right of Way by seeing its geographic location and how each pipe maps together with the other pipe joints to form the entire pipeline.
- You can also select a map pin representing a joint of pipe and see the individual attribute data.



Asset Number	Barcode
k1	19
Z14068862	123
Z14067692	1000
Z14067401	128
Z14068096	
Z14069339	1902
Z14067478	2093
Z14073939	1406
Z14069059	
Z14069031	1300
Z14067973	2075
Z14067931	585
Z14067156	1668
Z14068792	1502
Z14068645	1465

Z14067931

Asset Number: Z14067931	Parent Asset:
Asset Name: PIPE0795	Serial No: Z14067931
Current Location: <input type="text"/>	Manufacturer:
Barcode: 585	Model:
Secondary Asset Description (5):	Number:
	Department:
	Supplier:
	Weight:
	Length: 64.44 Feet



BENEFITS using JPL RFID's **Get a Grip on your Assets**® Asset Tracking Solution

- **Increased efficiency, decreased labor, improved data accuracy**
 - Before using JPL RFID's system, capturing data on the movement of pipe joints was two totally separate processes
 - We increased efficiency and decreased labor by 100%.
 - Improved the accuracy and efficiency of records by having each pipe automatically recorded
 - Capturing joint location by using GPS coordinates at the same time as identifying the pipe joint increased efficiency in capturing location data as well as improving the accuracy of the data.
- **Simplified data import**
 - The ability to upload spreadsheet data directly into the JPL RFID asset tracking system eliminated previous errors made trying to copy and paste information between separate spreadsheets.
 - This also previously resulted in sometimes missing data altogether.
- **GPS coordinate location capture**
 - Using the Orbit GPS attachment coupled with JPL RFID's software, the location of each individual pipe joint is captured with GPS coordinates.
- **Visual location display**
 - The location of each pipe joint is displayed in the Map View Report using Google Maps.
 - Daily progress of pipeline construction was easily monitored at the home office while the work took place hundreds of miles away.
- **Easy Access to Individual Pipe Data**
 - You can select an individual pipe joint in the Map View. View all attribute data associated with that specific joint.
 - The main dashboard also allows you to select a location to get a comprehensive list of all pipe joints in that named location. Or if the pipe is mapped only by GPS coordinates, you get a full list of those pipe joints as well. See basic information of each joint.
 - Select a specific joint and get a screen with all data associated with that joint including the entire move history and any documents, photos, or video attachments.

KEY PRODUCT FEATURES - JPL RFID's **Get a Grip on your Assets**® Asset Tracking Solution

Handheld:

- **WiFi Connectivity**
 - Synchronizes all data with Cloud Web Service using WiFi connection
- **Supports both Barcode and RFID technology**
- **GPS Coordinate location capture**
- **Inventory**
 - Perform inventory of assets in a location
 - Confirm what assets are there, any assets missing, any assets in wrong location
- **Geiger Function**
 - Tune down the antenna power to locate an individual asset
 - Color bar raises and lowers as you get near or far from the selected asset
- **Attribute Details**
 - View any asset attribute details on the handheld

KEY PRODUCT FEATURES (continued)

Cloud Web Service:

- **24/7 Global Data Access**
 - All data is synchronized with the Cloud web service.
 - Allows any authorized user to access data anytime and anywhere via Internet connection on your PC, tablet, or smartphone.
- **Main Dashboard**
 - Provides overall asset count, locations listed, number of assets by location, maintenance details (due, past due, etc.).
- **Real Time Data**
 - Using handheld, fixed readers, and/or GPS enabled tags, asset data is updated and synchronized with the Cloud web service with every transaction performed.
- **Asset Taxonomy**
 - Create your own levels of associated characteristics
- **Parent/Child Association**
 - Associate a piece of equipment that is tagged and tracked and then built into a larger piece of equipment (parent) that needs to be tagged and tracked.
 - All moves of the parent asset result in an automatic move of the child part.
- **Automated Data Import via Excel spreadsheet**
 - Import asset attribute data using Excel spreadsheet rather than using the manual data entry template.
- **Automated Data Transfer with existing ERP systems**
 - Can interface to popular ERP system such as SAP, Oracle, etc. to port data.
 - Capability to develop interface with other industry systems or custom systems as well.
- **Asset Movement Alerts**
 - Receive alert when any asset is received or exits a selected location.
 - Receive alert anytime a selected asset makes a location change.
- **File Attachment**
 - Files such as Word, Excel, Powerpoint, PDF, etc. can be associated to any asset.
 - Photos and video files can also be associated to any asset.
 - File attachment can be done through the Cloud Web Service or Smartphone app.
- **Barcode/RFID Printer Support**
 - Print your own custom label template including Barcode
 - Program RFID tags with your own unique identifier
 - Save data to tag User Memory
- **Maintenance Scheduling and Tracking**
 - Define your own maintenance tasks, assign maintenance tasks to be performed
 - Assign scheduled maintenance times including recurring (weekly, monthly, etc.)
 - Set priorities for maintenance tasks
 - Receive alerts when maintenance is due for a selected asset, set reminder interval
 - Maintenance dashboard/reports show assets status (due, past due, etc)
- **Smartphone App Support**
 - Authorized users can access the Cloud web service on their smartphone using the iOS or Android app.
 - Find location of asset, see all attribute details, attach photos to selected asset.
- **Customization Services Available**

PRODUCTS USED

- Handheld: Motorola MC9190z with Orbit GPS attachment
 - This handheld PC contains both barcode and RFID technology support. Allows to leverage any existing barcode label in use and add the improved efficiency of RFID technology.
 - UHF frequency
 - JPL RFID's 'Geiger' function emulates the limited range of HF frequency allowing a user to find an individual piece of pipe among a stack of tagged pipe.
- Labels: On metal labels with the Alien Squiggle H3
 - UHF frequency
 - GS1 EPCglobal Class1 Gen2 compliant
- Printer: Zebra RZ400
 - UHF RFID enabled label printer
 - Capable of printing labels and programming RFID tag memory

COMPANY OVERVIEW

JPL RFID was founded with the ultimate goal of assisting companies improve their operations by sharing our resources of experience and expertise. Our team possesses a wealth of intellectual property in the I.T., Logistics and Oil & Gas industry. With headquarters in the Technology Corridor of Houston, TX, JPL RFID provides superior RFID Solutions for the implementation of Asset & Warehouse Management Systems in the Oil & Gas Industry, serving both the domestic and international sectors. JPL RFID brings a fresh and innovative approach to RFID consulting services providing turn-key solutions including software, hardware, RFID Tags and accessories that support the Internet of Things.

Our mission is to utilize our knowledge and expertise in RFID, I.T. and Logistics to deliver comprehensive solutions that will enable our clients to increase profitability. We accomplish this by integrating the latest technologies to improve safety, efficiency and visibility of assets and people.

Our goal is to exceed the expectations of every client by offering outstanding customer service, increased flexibility, and greater value, thus optimizing system functionality, corporate profitability and improving operation efficiency. Our associates are distinguished by their functional and technical expertise combined with their hands-on experience, thereby ensuring that our clients receive the most effective and professional service.

Our vision is to embrace the Internet of Things to improve access to analytical Big data by the integrated adoption of leading edge technologies including RFID.

Visit www.jplrfid.com and www.pipelinetrack.com for more details.