

Traceability Solution for Containers with RFID for SPIE Nuclear

In 2013, SPIE DEN subsidiary of SPIE Nuclear launches a project for the setting up of a container management solution using RFID to facilitate picking and warehousing, improve and optimize the traceability of regulatory inspections. The main objective of this project is to automate the management, track handling operations and manage regulatory inspections of each container.

To answer these needs, Nexess has deployed on one Nuclear Power Plant site (CNPE) the RFID application NexCap® Mobile Assets Tracking for the management of containers.



Management, Tracking and Inspections of Containers with RFID in the Energy Industry

Nexess was selected by SPIE Nuclear on one Nuclear Power Plant site, Centre Nucléaire de Production d'Electricité (CNPE), to provide a RFID solution to manage, track and control their containers.

This solution, deployed on the entire business park of the NPP, allows fork-lift driver and logistic operators to have an instant overview of all movements (sending / receiving) and containers location but also to control the monitoring of regulatory controls.

SPIE Nuclear, leader of maintenance and services on the French nuclear market realizes Nuclear Facility Management services on 2 of the 20 sites of nuclear electricity production of its customer EDF. It is through SPIE DEN (Nuclear Decommissioning Environment), a subsidiary responsible for Facility Management operations, that are carried out the picking services and warehousing of sensitive materials on Fessenheim site.

SPIE DEN has over 400 containers subjected to internal guidelines and rules concerning the traceability and regulatory controls of these containers (external and internal controls).

These internal guidelines require the traceability of movements and regulatory controls applied to each container, allowing people and environment safety.

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EDF FESSENHEIM KEY FIGURES

- **2** pressurized water reactors
- Power : **900 MW/reactors**
- Annual production : **10 billion kWh**
- **3** container storage areas
- **400** references (containers)
- **1 000** permanent EDF Fessenheim employees



SPIE NUCLEAR KEY FIGURES

- **5** fields of activity : construction, works on sites in operation, maintenance, facility management, dismantling
- **460** locations in 36 countries
- **Between 65 and 180** SPIE Nuclear employees in CNPE Fessenheim site

Automate Management and Control of Containers

The main objective of SPIE Nuclear is to “ensure the management of handling operations and the compliance of regulatory controls”, says Olivier Ventron, Field Operation Manager.

Indeed, a poor management of containers (damaged containers, indeterminate content, etc.) may have important consequences in terms of logistics. Therefore, containers should always be identified, localised and in a perfect operating condition.

However, the daily management of containers is done manually through spreadsheet files to know the movements and the location of containers, the monitoring of regulatory controls, etc. This manual update, “usually source of errors and time consuming, do not guarantee the reliability and the accuracy of the information contained in this spreadsheet”, certify Ventron.

Seeking for a management and traceability solution using RFID technology, SPIE Nuclear wants to guarantee the status of the storage area at any time : real-time inventory, automatic tracking of regulatory controls, geolocation of containers, logging movements etc. This solution aims to ensure the traceability and the conformity of containers during daily operations.

“Ensuring the management of handling operations and the compliance of regulatory controls”

SPIE Nuclear chose NexCap® Mobile Assets Tracking solution by Nexess, to carry out the monitoring of its containers with RFID. Nexess has an extensive experience of the traceability of sensitive material with RFID in many industries : Nuclear, Oil & Gas, Aerospace, etc.



Each container is equipped with a UHF RFID tag EPC Gen 2.



Each SPIE operator is equipped with an Industrial PDA UHF RFID to identify containers and manage them.

This solution is composed of three elements :

1. RFID tags UHF EPC Gen2 from XERAFY, to identify containers.
Tags to be embedded into the concrete were supplied for the identification of storage area.
2. Industrial Mobile Readers (PDA) Workabout Pro 3 from Zebra technologies, equipped with UHF RFID readers 500mW.
3. NexCap® Software Platform, developed by Nexess with a business interface installed on mobile readers and a web interface deployed on the entire container logistic department of SPIE Nuclear in Fessenheim.

Getting to business functions on the mobile readers, NexCap® Software Platform allows logistic operators to easily trace every container movements through a friendly interface : receiving (going in stock), sending (to a distant storage area), displacements, plannings, etc. Thanks to the RFID reader embedded in the PDA, control agents can quickly identify, remotely and without vis-à-vis, all data related to containers divided across storage areas of CNPE site of Fessenheim (dose rate, type of material transported, date of the last regulatory control, last

movement, etc.). They can also perform specific research of containers and locate them in an instant (storage location, unique identifier, etc.).

Control agents can also perform external and internal visual inspections of containers and regulatory controls related to radiation protection.

Equipped with a mobile RFID reader, they can for example, monitor the status of each container, their movements and their contents.

Information entered on the PDA allow to update automatically and instantly the material properties of each container. Moreover, in case of non-compliance (damaged containers, indeterminate content, etc.), control agents have the opportunity to take picture of damaged equipment and save it.

All data related to movements, controls, inventories and loggings are then remotely available with the NexCap® Web application.

GAINS

- **OPTIMIZATION** : real-time planning of handling operations from the logistic cell to forklift truck operators
- **PRODUCTIVITY** : drastic reduction of manual steps during returns/ borrowings of containers
- **AUTOMATION** : automatic updates and real-time inventory by storage areas
- **GEOLOCATION** : real-time location of containers and knowledge of their material properties

NexCap® Mobile Assets Tracking

RFID Mobile Solution for the Management of Connected Objects

An innovative solution for visible and clear results

After using NexCap® Mobile Assets Tracking solution for few months, SPIE Nuclear notice a significant improvement in quality assurance, safety and traceability, materialized with gain of time and productivity.

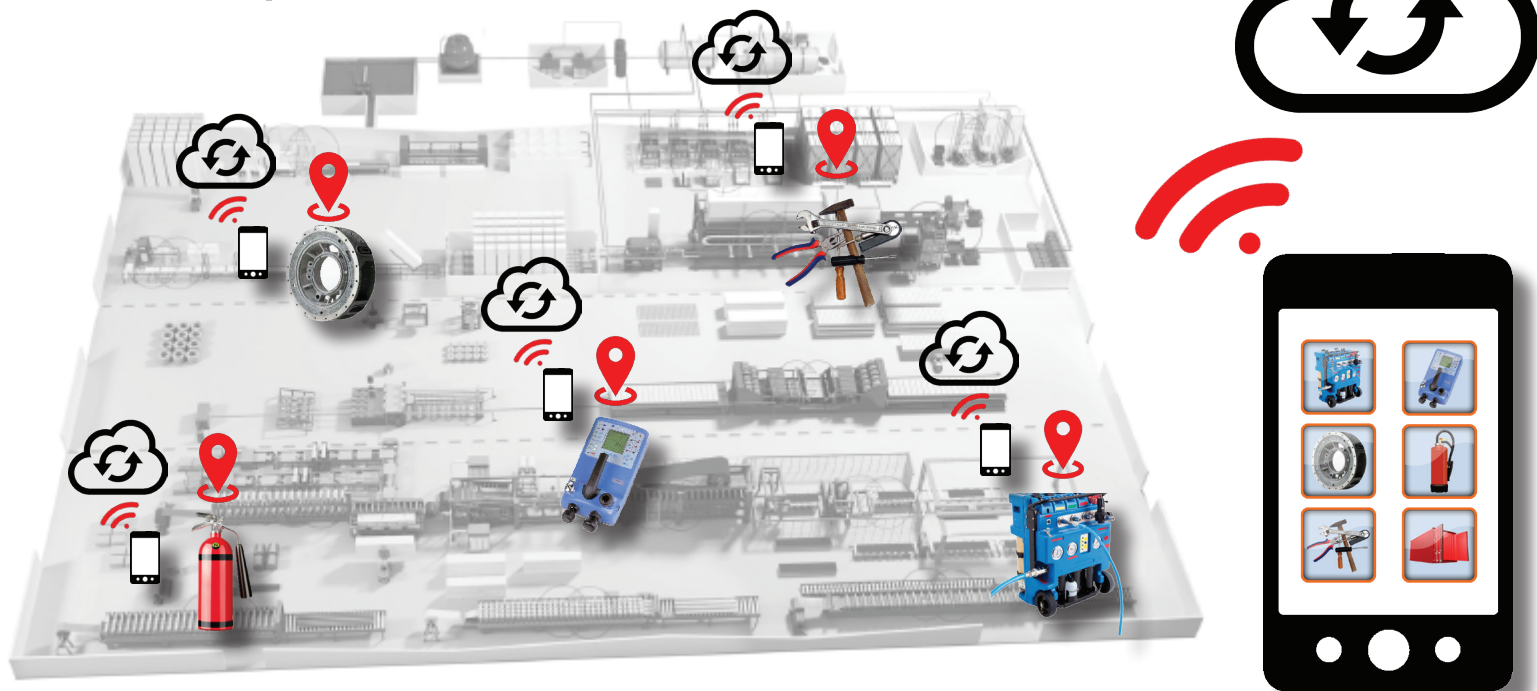
Nexcap® Mobile Assets Tracking is a mobile RFID solution for the management of connected objects in the Industry. Equipped with mobile devices (PDA, Tablets, Smartphones), users have a library of business "Apps" available according to the connected objects they wish to manage and track : Tools, Spare Parts, Metrology Equipment, Fire Equipment, Containers, etc.

Each "Apps" is composed of business functionalities to manage connected objects and help users in their day-to-day activities : sending/receiving materials from stock or remote site, proceedings scheduled tasks concerning the handling of particular material, realization of controls on products submitted to regulations, etc.

Operations carried out on mobile devices (connected via Ethernet, WiFi or 3G/4G application server) are tracked and logged on NexCap® Web Platform in real time. Inventories, monitoring reports, planned field operations, dashboard alerts, etc. are all features allowing to supervise and connect the "field" to the theoretical data from information systems.

NexCap® Software Platform is a real RFID middleware allowing at the same time the connection of RFID infrastructures (Cabinets, Counters, Portals, etc.), Mobile devices or even ERP software. This software is available in SAAS (Software As A Service) or hosted on the client information system.

NexCap®



ABOUT NEXESS

Nexess, leader in Connected Objects for the Industry, implement RFID solutions for the Supply Chain, Manufacturing, Maintenance and Exploitation in Energy and Aerospace sectors

- Smart RFID Infrastructures : Cabinets, Counters, Portals
- Software "businesses" applications mobile or cloud (tools, spare parts, containers, etc.)
- Industrial Connected Objects (passive, active, semi-passive, tags)

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