core

OIL AND GAS SOLUTION **OVERVIEW**

ECSG

Delivering visibility to the oil and gas industry to improve safety and uncover business intelligence for better decision making.

Core offers an integrated solution that maximises the real benefits from RFID and RTLS technologies in the oil and gas industry. It provides the automated end-to-end visibility needed to streamline everyday tracking of all materials, equipment and personnel. Core offers a complete solution – including software, asset tags, mobile apps and professional services – to increase the safety of employees and contractors, maximize up time, respond faster to business needs and restore production more rapidly in the event of an incident.

Summary

Often located in harsh environments and dispersed locations, operators of oil and gas facilities face a number challenges in ensuring staff safety, security, productivity and efficiency.

Key challenges for healthcare providers include:

- **Safety** – complete visibility of personnel is essential for safe evacuation and quick response to distress alerts and man-down incidents. Work carried out by lone workers in remote and hazardous locations raise safety issues. In addition, safety and compliance are compromised when workers do not have the right tools and equipment for each particular job.
- **Security** – unauthorised access to controlled areas increases safety and security risks including injury, damage and theft.
- **Asset management** – with thousands of assets including machinery, equipment and vehicle fleet in multiple locations, oil and gas facility operators need to track each item in real time to increase efficiency, reduce search times, minimise theft and loss, and increase the ROI on assets.
- **Inventory and stock take** – tracking thousands of assets with multiple unintegrated systems can lead to human error and lack of asset visibility. Missing crucial parts and equipment that is difficult to replace can cause operations to come to an abrupt halt. Conventional paper-based and barcode supply chain systems can be labour-intensive and prone to human error, while not providing real-time information.
- **Environmental and operational conditions** – harsh conditions, geographically dispersed locations and obstructions on sites increase the challenge in delivering essential information at all times.

In order to meet these challenges, oil and gas facilities use barcode, RFID and RTLS technologies that are not integrated, so they are not able to utilise a technology-independent, comprehensive solution that improves safety and efficiency. The lack of an integrated solution results in more time and resources spent on training staff and managing systems. It also leads to higher capital expenditure and running costs, an increased risk of data loss and security breaches, and less informed decision-making.

ECSG's Core Solution

Core by ECSG offers an integrated RTLS, RFID and barcode solution that delivers tangible benefits from these technologies to assist the oil and gas industry in meeting the challenges of improving safety and security, asset management, and productivity.

Core provides search capabilities, rules-based alerts and advanced reporting, and enables multi-modal tracking of staff and equipment.

Besides being a tracking and management software, Core empowers oil and gas companies with expanded resource visibility and transactional data – collecting it from thousands of assets in single or multiple facilities – to provide real-time intelligence that increases safety while improving operational efficiency.

The ECSG Core solution is designed to be used by staff at any level of the organisation, reducing the time necessary for system training and management.

Key Challenges in Oil and Gas Facilities

The challenging nature of oil and gas industry makes real-time visibility of people and key assets a necessity.

Key challenges facing healthcare organisations include:

- **Safety** — providing a safe work environment is critical to ensure high morale and productivity, and compliance with stringent international standards. With workers dispersed in large sites and in remote locations, individual distress alerts need to provide information accurately and quickly to enable rescue operations. In addition, workers need to have access to the right tools, equipment and machinery for the job to ensure safe work practices.
- **Mustering** — leaving a care location without authorisation increases risk and reduces safety for both patients and staff, especially in mental health and aged care facilities.
- **Security** — unauthorised access by staff, contractors and visitors to controlled areas increases safety and security risks. In addition, the lack of integration between access control, CCTV and personnel tracking solutions results in decreased security.
- **Asset management** — the range, number of assets in dispersed locations makes efficient management a major challenge. Companies need to track each item in real time to increases efficiency, reduce search times, minimise theft and loss, schedule maintenance and increase the ROI on assets. Not having a complete and real picture of their assets compromises decision-making and widens the gap between corporate strategy and operational reality.
- **Inventory and stock take** — oil and gas facilities often use multiple tracking systems for inventory and stock take. This leads to the human error and no real visibility of an asset during its lifecycle. Missing crucial parts and equipment can cause operations to come to an abrupt halt. Paper-based and barcode supply chain systems can be labour-intensive and prone to human error, while not providing real-time information.
- **Environmental and operational conditions** — robust and reliable solutions are required to deliver information at all times in harsh conditions and geographically dispersed locations. Traditional tracking technologies such as GPS can be disrupted by dense metallic structures found in oil and gas facilities. In addition, barcode labels can deteriorate in the harsh conditions.

Lack of integration results in higher costs and less efficiency

Many oil and gas facilities use existing RFID and RTLS technologies to meet these challenges. Unfortunately, these solutions are usually not integrated, so several systems are used separately.

The lack of an integrated solution results in:

- Decreased safety and security as a result of inefficient communication between systems, including access control, personnel tracking and CCTV
- Staff needing to learn to use more than one system — this can hinder the adoption of new technology and requires increased time and expense for training
- More time and resources spent managing multiple systems
- Higher upfront infrastructure capital expenditures with higher running and support costs
- Greater risk of data loss and security breaches
- Lack of ability to integrate data from multiple sources to make decisions that drive business efficiency and intelligence.

Core Solution

Core offers an integrated solution to gain real benefits from RFID and RTLS technologies in the oil and gas industry. It provides the automated end-to-end visibility needed to streamline everyday tracking of all materials, equipment and personnel. Core offers a suite of tools to maximize up time, respond faster to business needs, restore production more rapidly in the event of an incident and increase the safety of employees and contractors

The Core solution enables multi-modal tracking of personnel and assets to:

- Increase safety
- Enhance security
- Expand and enhance resource visibility across the organisation
- Increase operational efficiency and reduce costs
- Monitor multiple locations
- Support decision-making and improve asset utilisation
- Improve productivity
- Increase business intelligence.

Overcoming integration challenges in oil and gas facilities with Core

ECSG's Core solution eliminates the technological obstacles that prevent the implementation of integrated RFID and RTLS solutions in oil and gas facilities.

Core is a web-based, enterprise-wide software solution for viewing location, status and condition information from any source — Wi-Fi-based RTLS, passive RFID and barcode technologies. The system provides:

- Search capabilities
- Rules-based alerts
- Advanced reporting

Core can cost-effectively track up to 100,000 items in a single facility and up to one million items in multi-facility environment. By using an existing wireless network and ECSG Core technologies to provide precise asset tracking, staff can locate equipment from any computer or mobile device — in real time, from anywhere in the facility or an offsite control centre.

Core provides Asset Status instantly to inform staff if machinery and equipment is available, in use, or not available. The Core software provides both map-based and list views of the status and location of items with an intuitive computer interface that enables personnel to search for equipment, machinery and tools by type, state or ID.

Oil and Gas Applications

The Core solution provides a multitude of applications that can be selected and scaled according to each facility's requirements.

Staff safety

ECSG Core integrates with 802.11 W-Fi-based RTLS B4 and W4 tags to track personnel in real time. UHF RFID wrist bands as well as RTLS tags can also be used with Core to track employees, contractors and visitors.

Mobile distress alarm/emergency communications

Core integrates with 802.11 Wi-Fi-based RTLS badge tags to provide mobile distress alarms to improve worker safety in man-down situations. Badge tags have a safety switch to activate the mobile distress alarm and can send and receive pre-programmed text messages to and from the Core system.

Staff mustering

In emergencies and drills, Core tracks all tagged personnel in real-time to ensure they are at predetermined gathering points. Workers, contractors and visitors failing to gather at mustering points can be quickly located.

Security

Using RTLS and RFID tags, Core initiates theft and unauthorised access alerts. This is achieved by setting zones within a facility and creating alerts when a tagged person or asset goes beyond a set zone boundary. Core can be integrated with access control solutions to ensure instant and accurate alerts when personnel move into restricted areas.

Asset management

Core has a built-in asset management capability with integrated return on investment (ROI) reporting which makes it easy to measure the hard and soft-dollar savings delivered through increased efficiency and reduced search times. High-value equipment can be effectively tracked and maintained so that it is available and in working order when needed.

The Inventory Search functions enable users to search for items several ways, including:

- **Inventory Search Grid grouped by type** — users can look up the item location and movement tracking records.
- **Inventory Search View grouped by location** – the Core map view shows each asset grouped by type on a facility map. Clicking on an icon reveals item data and tracking information.
- **Detailed information on each item** – the Core system includes 90 fields of information about each unique item it manages, including barcode IDs, RFID, RTLS and Universal IDs. It can store OEM information such as item image, serial number, make, model, version, description and other information. The system also holds descriptions and other information about every location in the facility where items can be moved.
- **Searching by status** – the system provides searchable information about the status of items, such as available, in-use, being serviced.
- **Asset movement history** – the Core solution holds the history of an asset's path or movement for at least 12 months. This information is displayed and available for export.
- **Asset search capabilities** – the easy to use search feature enables users to search all data fields in the Inventory, Item and Location tables, similar to a Google search.
- **Location menu** – the system holds information about every location in the facility and is organised to include maps of production, processing, refining, control and storage facilities. Search parameters include asset type, asset ownership, location, status, and more.

Inventory and stock take

ECSG Core software provides an easy to use interactive drop-down menu to perform mobile stock takes as well as inventory counts for all items that are tagged with barcodes, RFID and RTLS devices.

Benefits

Core delivers a range of benefits including:

- Improved staff a safety
- Improved mustering and evacuation
- Increased security
- Enhanced productivity
- More efficient asset management
- Reduced data gathering and analysis costs.

Increased staff safety

Using a Wi-Fi based distress system provides instant notification to nearby staff and security departments. Workers can call for immediate help by pressing the device alert button on an active RTLS device. The Core software can be configured to respond to man-down and other incidents with urgent alerts to specified staff. RTLS personnel tags with motion sensors can be configured to send alerts if there is a lack of motion for a specific time period. The software also can send alerts when personnel enter unauthorised areas that pose a risk to personal and plant safety. In addition, real-time asset management makes it possible to find the right machinery, equipment and tools for each job, enhancing safe work practices.

Improved mustering and evacuation

Core tracks all tagged personnel in real-time to ensure they are at predetermined gathering points during emergency evacuations and drills. Missing workers, contractors and visitors failing to gather at mustering points can be quickly located in the event of an emergency. In addition, the Core solution saves time by reducing the length of evacuation drills.

Increased security

Monitoring the movement and location of staff, contractors and site visitors in real-time prevents unauthorised access to controlled areas by notifying security staff. Core prevents personnel from accidentally moving into restricted hazardous areas. In addition, the solution can be integrated with access control, CCTV and solutions to enhance security in oil and gas facilities.

Enhanced productivity

The ability to manage and quickly locate equipment, machinery, vehicles and other assets reduces the time searching or waiting for equipment. With Core, users can search for an asset and find its location on a map in real time. Up-to-date condition status enables preventive maintenance that enables keeping production at peak capacity.

More efficient use of assets resulting in lower capital investment costs

Managers can determine if equipment is in use, misplaced or unused, making it possible to identify equipment usage patterns and ensure that items are used efficiently.

Assets can be found quickly by logging into the Core software suite to locate a specific piece of equipment or machinery. The system can also be used to determine specific assets based on their role as well as other parameters. Up to 90 fields of specific information about each asset, including a photo image, can be included in the system.

By comparing item use and down time, managers can assess facility needs and determine whether additional equipment, machinery, vehicles and other assets are required. Linking this information to maintenance records enables confident assessment of equipment utilisation. This information can be used to ensure that adequate stocks are maintained and surplus inventory is disposed of or distributed to other facilities if needed.

Lower costs and less time spent on data gathering and analysis

Utilising large amounts of data gathered by systems may require specialised storage and data mining technologies. However, the Core software provides in-house data analysis, resulting in:

- Increased usability of data
- Ease of integration
- Insightful reports with minimal cost and effort.

The Core RFID and RTLS software suite reduces costly staff effort in gathering data from hand-held barcode scanners and manually updating the information stored.

Key Components

Core Web Module

Provides a web interface to the Core data stored on the local Core servers, for staff on the go to quickly search for and locate an item. This application can be activated with an additional software licensing option.

Core Workstation Module

Installed on a PC, the Core client application can be configured to control access – from full administration control to lower-level user functions. The client workstation can also be configured for a remote offsite standalone unit. This provides the ability to edit, delete or change assets in the system and to create or alter rules sets.

Core Multi-Facility Module Viewer

This option, using Core Server Software, enables data aggregation and sharing from multiple sites, making it possible for tracking information to be securely distributed and synchronised across multiple oil and gas facilities in both connected and disconnected networks. The Core Campus Viewer provides the option of seeing tracking information for a network of campuses simultaneously using a Core Intra-Campus server.

Core Reporting Module

This utility and workflow reporting option requires the Core Server software. It includes a number of key business performance reports, including utilisation and ROI reports.

Core Handheld Module

The Core Mobile software application integrated with the leading mobile handheld readers available in the market provides a broad range of asset tracking and asset inventory management functionalities using barcode and RFID technologies. For mobile handheld RFID readers, it includes an intuitive dropdown menu and a docking cradle to synchronise records with Core workstations. Mobile RFID handheld scanners receive system and parent table updates during the synchronisation process.

Core Fixed Reader Module

The Core Mobile software is integrated with the ECSG Core RFID Portal. The interface includes full monitoring and tracking functionality of any RFID tag with the use of the ECSG RFID Portal.

Barcode, RFID and RTLS Tags

The Core system is able to track any barcode, passive RFID and Wi-Fi based RTLS tags, which can be mounted on a broad range of materials and equipment. Each type of tag provides different benefits for its selected applications.


Maintenance facility
On-campus tools storage facility
Staff room/ kitchen
Staff Muster point
Remote storage facilities
Offshore storage facilities
Onshore maintenance facility
Onshore storage facilities
REMOTE FACILITY 1
Staff Muster point
Staff room/kitchen
On-campus tools storage facility
Maintenance facility
Remote storage facilities
Offshore storage facilities
Onshore maintenance facility
Onshore storage facilities
REMOTE FACILITY 2
core
Multi-Facility View
Staff Muster point
Remote storage facilities
Staff room/ kitchen
Offshore storage facilities
On-campus tools storage facility
Onshore maintenance facility
Maintenance facility
Onshore storage facilities
REMOTE FACILITY 3

We would be glad to discuss your specific challenges and how we can create a solution to improve your oil and gas organisation.

ISO 9001

BUREAU VERITAS
Certification

ECSG

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