# WA iron ore export facility installs RFID traffic management system from RAMP RFID

When operating a major iron ore export facility it is crucial that the management of heavy vehicles arriving at and moving through the facility be precise, reliable and safe. To ensure the most efficient traffic management at its Utah Point facility, QUBE has installed an RFID-based vehicle traffic management system developed in conjunction with Australian RFID solution developer Ramp RFID.

Operating in 28 ports throughout Australia, QUBE is Australia's largest bulk and general stevedore with annual revenues exceeding $260 million. The company's Utah Point bulk export facility serves the mining industry in Western Australia's Pilbara region. Throughput of the facility is up to 24 metric tonnes per annum comprised of various bulk products, primarily iron ore and manganese.
The facility exported its first shipment in September 2010 when 70,000 tonnes or iron ore was loaded onto the Bergen Max cargo ship.
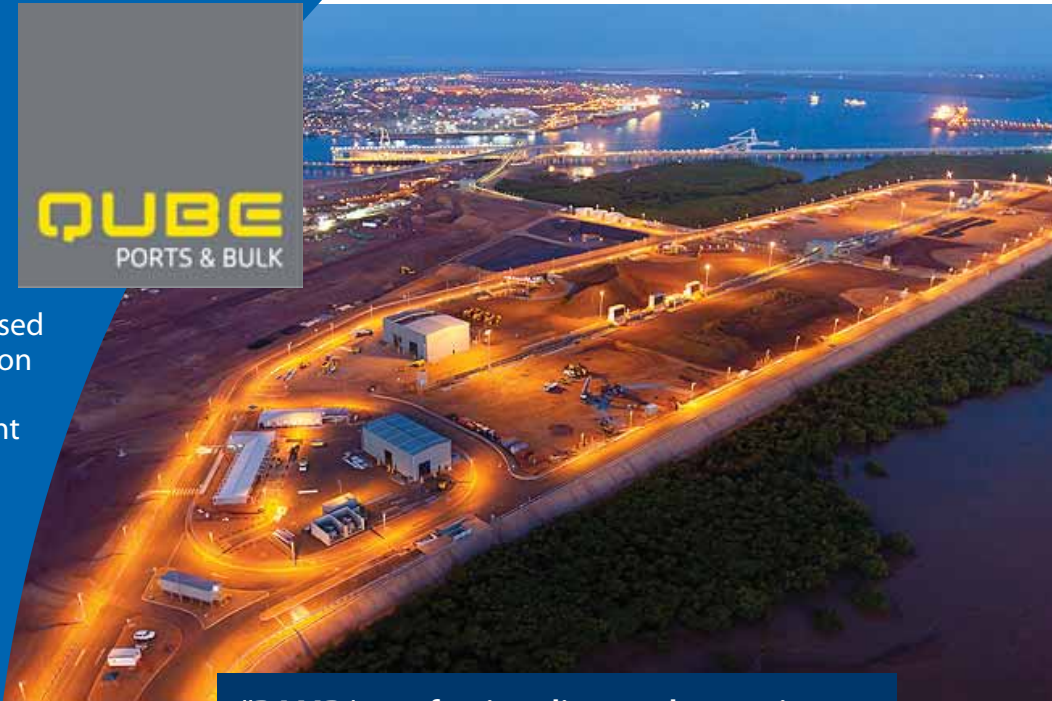
Utah Point manages approximately 370 heavy vehicles per day, one of which arrives at the facility, on average, every four and a half minutes, 24 hours a day, seven days a week. Thereare 13 stockpile locations within the facility. The high volume of heavy traffic to and within the facility provided a number of significant challenges for QUBE: Firstly, to ensure the efficient flow of heavy vehicle traffic to allocated stockpiles and availability of inload equipment avoiding queuing and delays. Secondly, to ensure the accurate tipping of product to the correct stockpile to prevent contamination. Thirdly to limit the manpower required to operate the facility and manage the heavy traffic volumes. Of course, this style of operation requires a high level of visibility of both light and heavy vehicles at all times.

To meet these challenges QUBE sought a traffic management system (TMS) that could integrate with the company's inloading infrastructure which includes truck receiving hoppers, transfer conveyors and radial stackers. After evaluating the product and service offerings of various technology providers QUBE decided on a solution from Ramp RFID. The traffic management system uses Identec Solutions' Intelligent Long Range (ILR) RFID technology to track road trucks inbound from a mine site to arrival at the facility, identify each vehicle during the route, and automate all traffic management and material unloading processes.

> "RAMP 's professionalism and commitment to delivering an innovative solution on-time has been exemplary and I would highly recommend them."
>
> **Ray Connell**
> QUBE General Manager IT
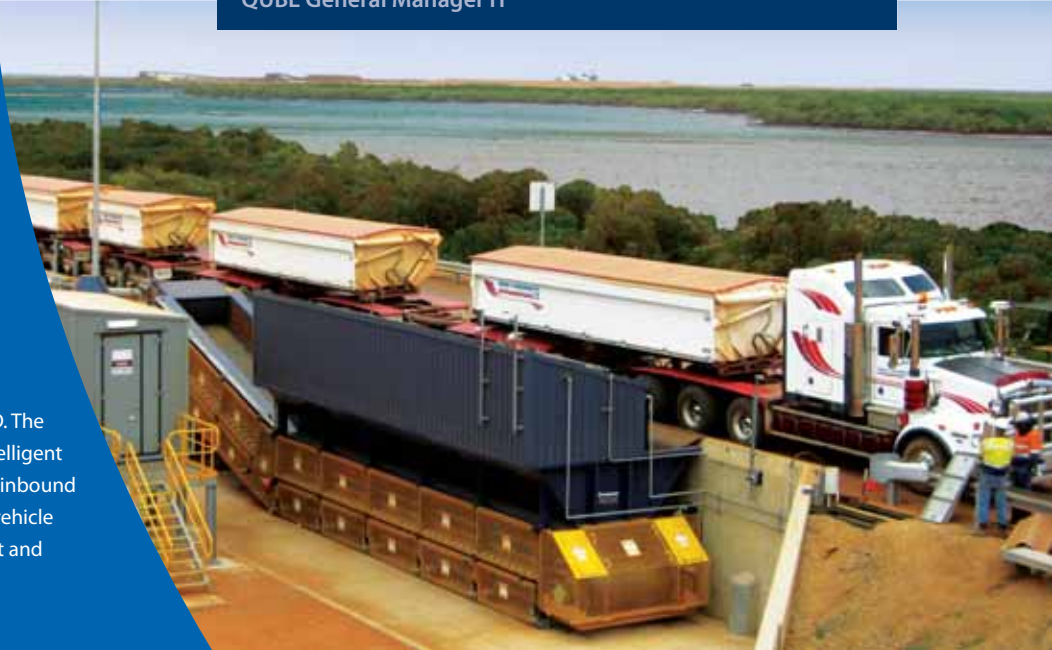
QUBE purchased 3,500 Active RFID tags for the Utah Point terminal with tags being allocated to truck drivers on a per-trip basis. Twenty RFID readers located outside and within the facility identify vehicles and direct them to the appropriate vehicle queue, using a number of electronic Variable Message Signs) based on traffic queue logic assigned stockpile. The traffic management system provides a high level of vehicle movement visibility as Ray Connell, QUBE General Manager Information Technology, explains:

"The Utah Point facility does not receive any notification from the mine sites about which trucks are en route to our facility, the materials they are carrying or the destination stockpile", said Mr Connell. "The Traffic Management System allows us to track vehicles that are headed to the facility and direct them accordingly. Amongst other benefits this visibility allows us to effectively manage demand for space at the facility, monitor in-loading equipment status and keep truck turnaround times to a minimum."

As trucks move through the facility they are tracked by the RFID readers which in turn pick up messages from the RFID tags. These tags, which are placed inside each truck cabin, communicate with the central control system over the network. The TMS software is integrated with QUBEs CCS SCADA (Supervisory Control and Data Acquisition) system to coordinate and control the operation of the hoppers over 11 Low Profile Feeder (LPF) belt modules that feed the stockpiles.

According to Mr Connell the Traffic Management System delivers significant risk mitigation benefits to QUBE:

"Once a truck enters the Utah Point precinct our TMS automates the scheduling of that truck through the facility and to a particular stockpile", said Ray Connell. "If a truck arrives at a stockpile and it shouldn't be there the TMS identifies that vehicle and informs the control room operator that they have the wrong truck at the wrong stockpile. At that point the equipment is not initiated, effectively preventing the truck from unloading at that stockpile. This capability of the TMS largely insulates us from the risk of costly errors when it comes to unloading truck material."

RFID tags are well recognised as an effective truck fleet management tool in container terminal applications where they are typically installed on every road truck serving a port. QUBEs Utah Point facility faced an implementation process that involved testing and rolling out the solution in a very remote and considerably harsh environment and involved a variety of stakeholder organisations.

"There were many complexities involved in installing the traffic management system at Utah Point, largely because the facility is located within one of Australia's more remote locations", said Mr Connell. "First we had to prove the technology and the system integration offsite. Once the system was ready for deployment we had to very carefully plan every step of the installation – a process made more complex by the fact that the facility was still being built at the time. Working around civil, electrical and mechanical construction teams and commissioning groups provided various challenges yet we managed to complete the implementation within four months. We were very pleased with that achievement."
Now equipped with an RFID-based traffic management system that has delivered on its promise, QUBE anticipates further project collaborations with Ramp RFID.
"We are currently looking at new opportunities in similar setups and solutions with Ramp", said Mr Connell. "For our existing TMS we went to Ramp with project requirements that were very specific and relatively complex. Ramp did an excellent job in taking on the challenge and meeting our requirements for the Utah Point facility. We look forward to building on that experience in the near future."

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