TES COMMUNICATION SOLUTIONS

PROPOSAL DOCUMENT

TIER 3 TRUNKED DIGITAL RADIO SYSTEM

for

ESSAR OIL
(STANLOW & TRANMERE)

ESSAR

Reference
CRN36318
Date
3rd January 2018

KEY ACCREDITATIONS

Alcumus Safe Contractor is one of the largest Health and Safety pre-assessment schemes in the UK. Membership of the scheme compliments TES's BSI Health & Safety certification. TES is also a registered Constructionline supplier. This means that we have been pre-assessed to Government and Industry standards - bringing client confidence from the outset.

Our Integrated Management System is structured in accordance with PAS 99:2006, being Common Management System requirements and is composed of:

- ISO 9001 Quality
- ISO14001 Environmental
- OHSAS 18001 Occupational Health and Safety

BS EN ISO 9001:2008
Quality Management Systems
Certificate No: FM 45191

BS EN ISO 14001:2004
Environmental Management
Certificate No: EMS 95056

BS OHSAS 18001:2007
Health & Safety Management
Certificate No: OHS 545833

TES has applied the required controls to protect against cyber threats. Our risk based approach has been certified to Cyber Essentials standard.

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1. DOCUMENT CONTROL

1.1 Document Controller

Name	Title	Date
Andrew Griffiths	Projects Manager	09/01/18

1.2 Issue Control

Issue	Status	Reason for Change	Author	Date
00	Draft	Draft	Keith Edwards	
01	Issue	Issue	Keith Edwards	30/01/17
02	Issue	Updated following two site meetings	Keith Edwards	22/02/17
03	Issue	Updated following site survey	Keith Edwards	03/01/18

2. CONFIDENTIALITY & DISCLAIMER

The information contained within this document is confidential and to be used purely for the provision of equipment and services. It shall not, in part or in whole, be divulged to any third party without the express written permission of TES Limited.

The statements, technical information and recommendations contained herein are believed to be accurate as of the date hereof. Since the conditions and methods of use of the product and of the information referred to herein are beyond our control, TES expressly disclaims any and all liability as to any results obtained or arising from any use of the product or reliance on such information; No warranty of fitness for any particular purpose, warranty of merchantability or any other warranty, express or implied, is made concerning the goods described or the information provided herein. The information provided herein relates only to the specific product designated and may not be applicable when such product is used in combination with other materials or in any process.

3. INTRODUCTION

TES are delighted to present our response to your invitation to bid for the new radio system.

Having had many years' experience of operations at Stanlow and Tranmere – TES have a unique insight to formulate a proposal that optimally supports Essar's day to day needs.

Designed to accommodate hundreds of users (communicating across and between sites); multiple integrated dispatcher stations; enhanced Health & Safety applications; and utilising future proofed clear audio technology – means that our solution comprehensively addresses your long term radio communication needs.

4. EXECUTIVE SUMMARY

The TES solution has been carefully designed to offer seamless site-wide support to your specific operational needs.

Our proposal is based upon our mutually agreed preferred technology standard, being Tier 3 Digital Mobile Radio.

Enhanced radio coverage, system performance and integration are achieved via the application of a number of technical and technology solutions across both Stanlow & Tranmere.

Our system proposal comprises:

- A multi-site system to provide site wide coverage minimising 'not spots', with overlapping coverage
- System capacity to manage emergency incidents
- 5 Tier 3 radio sites - No 9 Pump House/Store/Shop/Sub 77/Tranmere
- Central node equipment housed in the Admin Building basement
- Tait TN9300 Express20 technology base
- New antenna/feeder/mounting poles and bracketry/earth kits/lightning protection
- 5 simultaneous calls per radio site
- Extending repeater for 'The Pit'
- IP despatcher terminals at Security/Backup Security/DFO Permits
- Fixed radio despatchers at CCR
- Focus on future scalability
- High resilience to failure with inherent reliability
- Full call management with remote system support
- Off site connection option for cellular users (UnifyVoice)

Key benefits include:

- Enhanced Health & Safety application (e.g. Lone Worker/Man Down/direct dial to a Hotline)
- Improved operational efficiency
- Secure system (encrypted communications)

Why TES:

- Extensive experience in providing a radio system support to Essar
- Security cleared personnel with global security and government agencies
- Full one stop solution provider (incl: system design; deployment [incl. rigging and mast work]; and comprehensive ongoing maintenance)
- 24/7 SLA monitored call out with remote system management
- Global system deployment experience, with specific expertise in ATEX applications.

5. CURRENT SITUATION

Essar currently uses a five site, Simoco Quasi Synchronous analogue voting system with five channels per site, supporting Entel handportable radios. The system is in use by various departments for voice communications in an intrinsically safe environment.

However, we understand the system is not fully operational due to issues with synchronisation between sites. This has led to the system being restricted to a single radio site which does not provide adequate site wide coverage, giving poor performance.

This system requirement has several factors to consider in implementing a site-wide radio communications system. These being:

- Large coverage area (8 sq miles)
- Significant topographical clutter, i.e. buildings and metal structures
- Building construction i.e. mainly metal clad (blocking RF signals) and brick
- Metal Storage Tank areas
- Blast Resistant Modules
- Hazardous areas with significant Health and Safety risk
- Operational requirements
- System expansion and scalability

TES conducted the survey using Tait Tier III equipment. This ensures that our survey and results are truly representative of the actual offering.

This is particularly important given the different nature of call set up and establishment between Tier II and Tier III and a true representation of voice call quality.

6. TES DIGITAL RADIO SYSTEM SOLUTION

6.1 Overview

TES proposes a five site system interconnected via Essar's IP network, except for Sub 77 which will use a microwave link installed by TES to connect to an appropriate point of presence on the Essar IP network.

Each radio site will be capable of 5 simultaneous calls, providing a spread of call loading and local coverage, overlapping with adjacent radio sites.

Two full feature Despatcher terminals will be installed for Security (one back-up), with limited functionality despatchers at the DFO. The CCR will use fixed radio despatchers in each pod.

Handportables are IIC ATEX approved, and all come with full display and keypad as standard. This reduces the spares requirement and maintains uniformity for training. Handportables can have reduced functionality programmed into them.

6.2 Radio System Technology

TES's design philosophy ensures longevity, reliability and maintainability, which digital systems inherently provide.

All equipment offered is standard 'off-the-shelf' type, with no bespoke modifications. The equipment proposed is current and in accordance with all legal and other requirements.

TES has determined the system shall be trunked using the DMR Tier 3 standard. By trunking all available repeaters, all users share the same resource on an availability basis, meaning fewer repeaters are required and yet provide greater capacity. Users are allocated a channel/repeater automatically without being tied to a specific one, eliminating congestion issues. For this reason,

This system type uses a dedicated Control Channel, meaning the system is always available regardless of how busy it is. All call types are supported, and also provide queuing and priority calling. Pre-emptive emergency call is assured, meaning that regardless of how busy the system is an emergency call will be processed.

TES are offering an infrastructure and terminal solution based on a single manufacturer to ensure all call types are supported. TES do not recommend that multiple vendor radios are used.

6.3 Principles of TES's Design for Essar

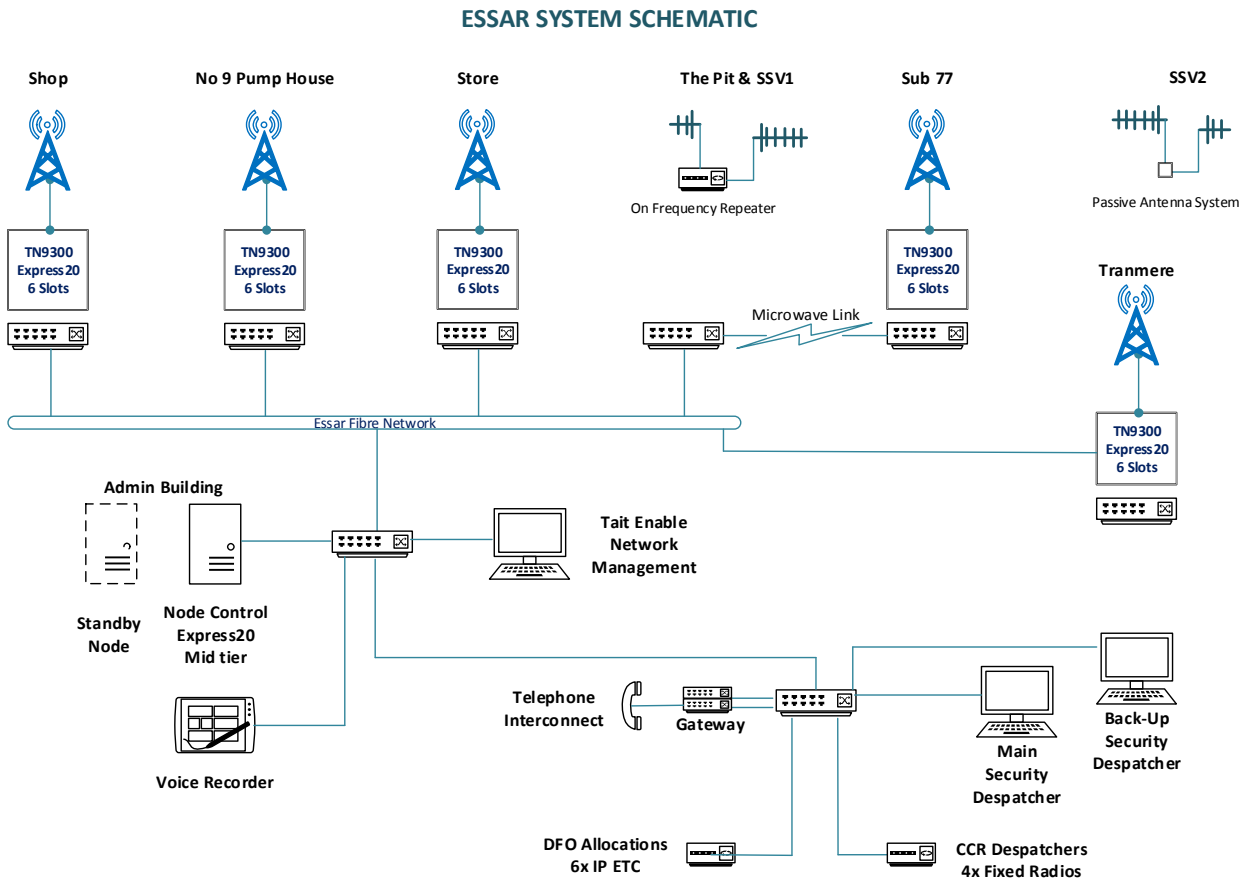
It is important to define a design based on the radio system being available for operational use in the event of an emergency incident. During such times, the radio system is used by more people and across the whole site.

This means there must be sufficient radio coverage and capacity for all eventualities.

TES's design is such that the most critical areas, such as the 'Cracker' and 'Aromatics', there is overlapping coverage from as many sites as is possible and with capacity enough to handle increase radio traffic. This also has the benefit of overcoming communication issues in the event of loss of a radio site during an emergency incident.

TES thereby define four sites are required at Stanlow and one site at Tranmere, each with 3 channels (1 signalling + 5 voice call slots).

6.4 System Drawing



6.5 Availability & Capacity

Taking into consideration that approximately 400 radios, multiple despatcher locations and features such as man-down/lone-worker are to be applied to the system infrastructure, capacity is a key element of the TES design.

The manner of operational use is also vital, as primary communication uses group calls. It is therefore important to ensure that the main system at Stanlow has a balanced number of channels at each site. Group calls are typically processed on all sites, and can be configured so that the group call will only become possible if there is free capacity on all sites, or process the group call irrespective of whether there is capacity available. This could mean that a group call is made though some users do not receive the call due to limited channel availability.

The means to minimise this, is to have an equal number of channels on all sites. This also ensures adequate capacity and increased resilience during emergency incident events. TES recommend 3 frequency pairs per site, meaning this offers 5 talk/data channels and 1 dedicated signalling channel.

TES proposes to apply for 15 new exclusive frequency pairs from Ofcom to enable this.

It is understood that normal operational use is relatively low, but capacity must be available at critical times and at shut down/start up busy periods.

In addition to the importance of capacity and availability, TES reiterate that the Tier III technology offers call queuing and pre-emptive calling as standard. To clarify, the system is 'always on and available' and will process an emergency call regardless of how busy the channels are.

6.6 Radio System Site Locations

TES has based this on consultation with site representatives, whom specified that coverage *'must be site-wide and improved on current levels'*, and TES's technical assessment of our survey and the digital radio systems' inherent improvement on coverage over analogue (based on audio quality).

All sites will be engineered in accordance with ETSI TR100 053 DMR Site Engineering and FCS1362. Thereby TES will provide (in addition to radio system hardware) new feeders, antennas, poles and bracketry, earth kits and lightning protection at all locations.

The radio sites are proposed to be located at:

- **Store -** provides site wide radio coverage
- **No 9 Pump** – site coverage and SSV1/2
- **Sub 77** – site, CCR and Admin Building coverage
- **Shop** – Control Room and site coverage

TES note that Sub 77 has no fibre interconnectivity available, so we offer a short-range microwave link between a POP (Administration Building or local site whichever is easier) and this location.

All sites will be connected via a central node located in the basement of the Admin Building via the site fibre optic network using ip interfaces. A duplicated central node is offered for resilience as an optional item in our proposal.

6.6.1 Coverage Areas of Special Interest

- **SSV1/2 BRM's**

The radio survey identified that SSV2 is very close to No 9 Pump House and that communications are possible within this building. However, SSV1 is some distance between No 9 Pump House and Store, meaning that there is no internal coverage.

TES has produced calculations based on the distances involved and can confirm that a passive antenna system will **not** work for SSV2. TES therefore propose using IP despatchers at these locations for uniformity of a solution, with SSV2 benefiting from handportable coverage.

- **The 'Pit'**

In order to provide radio coverage to the base of the Pit, a low power on frequency repeater will be deployed.

6.7 Tait TN9300 Express20 Tier 3 DMR Solution

TES has selected the **Tait TN9300 Tier 3 solution**.

The TN9300 Express20 system supports up to 20 radio sites with multiple channels, and is fully scalable for efficient and cost effective network deployment. Please refer to the TN9300 Specification Sheet for further details.

6.7.1 TN9300 Features

Centralized node based architecture

The Tait DMR Tier 3 solution uses a centralized node base architecture. By removing the network control from the individual sites to a node controller, the amount of traffic and synchronisation needed between sites significantly reduces, resulting in a much lower capacity bandwidth requirement for linking.

High availability

TES offer an optional duplicated standby node, which will have a synchronised database and configuration so if the main node becomes unavailable the standby node will take over functionality.

Failsoft mode

If circumstances result in a site losing all connections to the node controller, the site will revert to single site trunking operation. One of the channels will become the control channel and operation within the site remains as normal.

Dynamic channel assignment
Unlike conventional systems, the trunked network works with a pool of available channels, maximising network capacity while coping with peaks in capacity demand.

Hot pluggable
Tait DMR Tier 3 base stations contain hot pluggable RF modules. While the system is running a power amplifier or receiver/exciter can be removed and the second channel in the same rack will continue to operate as normal.

Network Management
EnableFleet provides a single source of information, allowing Essar to manage the fleet of mobile and portable radios.
EnableMonitor is one component of Tait Enable that provides real-time monitoring, giving assurance that the network is operating as expected, and helps to minimise impacts if problems occur.

Dynamic voice and data channel sharing
The Tait platform can dynamically adjust priority between various types of voice and data, making Tait DMR Tier 3 one of the most adaptive radio platforms available. The Tait system also supports a number of techniques allowing data to keep flowing even when voice has priority access.

Dynamic call types for Individual and Group calling
The DMR Tier 3 platform can dynamically assign different call types to each conversation depending on their nature.

Priority call timers
Managed in the control system, these call timers discretely cut in to restrict call duration to an appropriate length, depending on current system loading or time of day.

Call queuing
The Tait solution ensures that all calls are queued and will be connected during the most extreme local peaks in network usage.

Call priority and pre-emption
DMR Tier 3 is capable of dynamically assigning different priority levels to different types of traffic. Reverse Channel Signalling is a DMR specific technique that enables channels to be freed up for higher priority calls.
Another method to distinguish between low and high priority calls, is call priority and pre-emption protocols and both have been built in to the Tait platform.

Easier administration and maintenance
Taits' TN9300 DMR Tier 3 offers dynamic channel allocation without user or administrator intervention, workgroup based dialling to make group calling quicker and easier, and centralized management of network configuration and maintenance. The unique Tait network management system provides usage reporting for more proactive and efficient network management.

Interface to Smartphone Users
The Tait solution offers an optional interface to Smartphone users using UnifyVoice PTT over Cellular (PTToC), which is enabled through a simple mobile phone app and enables group call communications to radio users.

Please refer to the UnifyVoice Specification Sheet for further detail.

6.7.2 Voice Recording

TES assumes that all calls on the radio system must be recorded, thereby we offer the Eventide voice recorder with multiple channels and internal storage.

All radio system voice calls are logged and recorded in digital format (with instant replay).

The call recording solution offered, is based on a Linux platform, with an embedded SQL database and internal storage.

The recorder features multi-tier security, comprehensive user auditing and a web based configuration management tool.

Password policies, active directory authentication and SNMP are supported.

Please note that whilst the despatcher terminals offer voice recording, these units only record calls made to and from the despatcher, therefore an external ip voice recorder is offered. This applies to all manufacturer despatcher terminals.

6.7.3 Despatcher Terminals

CCR

The CCR is proposed to have four fixed radios, one for each pod installed. These radios are as described in the following section 6.7.4 and specifically the TM9335 model.

These radios support all voice call types, including voice, lone worker and man down alarms.

This solution complies with Essar's requirement for controllers in the CCR to have limited radio system functionality.

Security

TES offer a fully functional ip based despatcher that, in addition to full voice and data calls, also provides GPS tracking, man down and lone worker operation.

The Reditalk despatcher offers:

- Customisable user interface
- Designed for keyboard and touchscreen
- Flexible menu structure to display most used
- Simple and intuitive to use minimising training requirements
- IP connected

Operators can make individual or group calls, send and receive text/data messages, record and playback all calls to and from the terminal. The terminal will provide real time mapped GPS position and status information.

This solution includes a back-up despatcher position in the event the main terminal is inaccessible.

DFO Permit Allocations
Purpose Built Push to Talk (PTT). The CS-74 is an ideal solution for enabling multi-channel Push-to-Talk (PTT) capability for VoIP-RoIP communications.

The current deployment uses six fixed radios with whip antennas mounted above each station. TES have calculated that this will be problematic if more than one radio is transmitting at any one time potentially causing RF blocking and interference. Furthermore, we have been advised there is very low RF signal levels in this area, meaning any RF connected radio is subject to call reliability issues. Therefore, TES propose this directly connected ip despatcher.

The current deployment uses six fixed radios with whip antennas mounted above each station. TES have calculated that this will be problematic if more than one radio is transmitting at any one time potentially causing RF blocking and interference. Furthermore, we have been advised there is very low RF signal levels in this area, meaning any RF connected radio is subject to call reliability issues. Therefore, TES propose this directly connected ip despatcher.

- (4) simultaneous SIP calls, PTT/Handsfree
- Standards based SIP Stack
- Compact Design for Maximum Portability
- Simple to Set up and Use
- Backlit easy to read Display
- Microphone, handset or headset options
- Rotary volume control for quick access
- PoE and built in Ethernet hub for expansion

6.7.4 Fixed Radios

Each radio is allocated a unique identity, meaning this is uniquely authorised for access to the radio system and is configurable to allow/restrict all user functions as applicable to that operator. Furthermore, this allows operational grouping to be easily achieved, supports individual calling and system access rights.

A range of fixed (desktop and vehicle) radios are available, such as with or without keypad and display.

TES propose the TM9300 range of handportables from Tait. Each of the range supports all DMR functionality, with varying level of feature accessibility. All radios in the range support voice calls and Lone Worker operation and Emergency Call key.

Please refer to the TM9300 Specification Sheet for more detail.

6.7.5 Handportable Radios

Each radio is allocated a unique identity, meaning this is uniquely authorised for access to the radio system and is configurable to allow/restrict all user functions as applicable to that operator. Furthermore, this allows operational grouping to be easily achieved, supports individual calling and system access rights.

A single handportable type is offered, with full keypad and display. By having one handportable type, this reduces the spares holding, training requirement and maintains a uniformity in product.

TES offer the Tait TP9361 ATEX IIC handportable, supporting extended battery life with a 2300mAh battery.

- IP67 rating
- OTAP – (Over The Air Programming)
- Supporting worker safety with man down alerts and built in GPS positioning
- Text messaging and status calls to enhance your communications environment

The key advantage of one handportable type is that the radio is fully programmable to enable/disable the keypad and functions as required.

Ensuring the radio stock is fully adaptable to user requirements and transferrable to all departments.

Please refer to the TP9361 Specification Sheet for further details.

6.8 In Summary

- Four Sites at Stanlow / One Site at Tranmere
- Central Node with optional resilience package
- Use of existing fibre network
    - short range microwave link between Sub 77 and a POP (Admin Building)
- Each site deployed with three repeaters (five voice channels per site)
- Intersite calls between Stanlow and Tranmere
- Security Despatcher positions with:
    - Voice Recording
    - GPS positioning
- CCR Fixed Radios
- DFO IP despatchers with 2 call facility
- All system calls recorded using an interfaced ip recorder
- Full system control and alarm reporting using the Enable suite

6.9 Adapting to Design Variations

TES's design recommendations ensure a site wide reliable and resilient radio system solution, fulfilling the coverage and quality of voice and data call requirement.

We recognise that there may be operational or commercial reasons why elements of our design may not be realised. Therefore, TES will work consultatively with Essar throughout the functional design specification process and provide viable solutions to mitigate any matters arising.

For instance, our design proposes ip based Despatcher terminals in the DFO office, though this may be of concern due to a reliance on the Essar ip network or an operational matter not currently identified by Essar. TES's viable alternative will be fixed radios using a simple despatcher terminal/tablet or simple speaker/microphone. There may be several such instances, and so we wish to convey our adaptability to design requirements.

7. TES SERVICES

TES offer consultancy services to a wide range of clients, from oil pipeline system operators in the UAE to public transport operators across the UK.

7.1 Consultancy Service

TES are an independent systems house, which means assess client needs on a requirement basis, rather than what a particular manufacturer can offer. We provide worldwide Consultancy services, including:

- **Tender Writing and Evaluation**
  Where a wireless communication system forms part of a much larger infrastructure project TES is often asked to prepare and review tenders.
  In this instance we act as "internal consultants" to prepare documents that minimise overall risk to our clients.
- **Upgrade Road Maps**
  System designs should always be made with a view to the future. Scalability & technology road maps give our clients comfort about return on investment.
  Even for existing systems, we often suggest phased upgrades & replacements.
- **Technology Definition**
  We investigate through consultation with you the most appropriate technology for your operational requirement.
  This involves writing a brief on your needs and assessing available technologies and products to meet client needs. A high level design is then produced, stating the base technology requirement.
- **Training Courses**
  We offer interactive courses to make sure you get the best out of your system.
  We offer onsite training, but also have extensive facilities to train up to 25 people at a time.
  Our training rooms are equipped with all types of radio hardware to give hands on experience.
  Off site training permits focus, and allows attendees to learn without affecting live systems.

7.2 Radio System Auditing

TES provides an independent radio system evaluation and review, and draws conclusions and recommendations from its findings. The audit consists of the following as standard; with additional processes available on request (e.g. asset lists).

- Non-intrusive assessment of radio system performance
  - Site wide radio coverage survey
- Assessment of system configuration
  - System build evaluation
  - Measurement to ensure conformity to licensing regulations
  - Evaluates suitability for client operation
- System RAM's evaluation
  - Assesses reliability and maintainability
  - Potential equipment obsolescence
  - Identifies any available upgrades to the system (typically software)
- Handportable and Despatcher equipment status
  - Assess condition and performance
  - Battery and antenna condition check
- System Enhancements
  - Providing operational improvements
  - Identifying product innovations that can be used with the existing system
- Conclusions and Recommendations
  - Full Audit Report provided

7.3 System Design

Having taken time to understand operational/cost/deployment needs, our engineers formulate a bespoke technical solution. TES use sophisticated modelling tools, technical knowledge and, above all, experience.

With an eye on both functionality and cost, our Engineers prescribe the best solution, taking into account your aims, your environment, available technology, & integration.

A Functional Design Specification is produced, detailing the technology, configuration of equipment and installation details.

Planning tool results for system coverage and performance are provided as part of the project realisation, to ensure awareness of post deployment performance.

No single RF environment is the same as another, so TES model the RF environment using sophisticated software, survey results, & many years of RF experience.

There are many variables that can impact on radio performance. These include construction materials, surrounding buildings, furniture, trees & vegetation, expanses of water, & typical weather conditions.

On-site surveys involve TES Engineers mapping your site using a calibrated receiver taking signal level measurements from a known transmitting reference. Additionally, test calls using calibrated survey radios are made to measure reciprocal paths between radios and repeaters.

This information is mapped on site plans where possible and fully documented to clarify to non-technical stakeholders the extent of radio coverage performance.

7.4 Systems Integration

TES operates a team of departments, as noted below, each working together to ensure total client satisfaction. Increased client focus is introduced through the formation of a dedicated Team whom will meet regularly to discuss the projects' milestones.

- Projects and Design
- Sales & Support
- Installation and Commissioning
- Integrated Management Systems
- Maintenance and Support

TES will conduct site surveys, which will define where the base station equipment and radiating antenna shall be located.

TES will undertake all testing, installation and commissioning, including operator training.

TES will manage the Ofcom licence application for the radio system, and ensure that all levels are set to legal and regulatory requirements.

The system will be designed to provide for ease of expansion for additional sites and channels.

TES and the customer will work to an agreed Project Plan and Quality Plan to ensure that client satisfaction is maintained and forms an inherent culture of 'right first time, every time' expectations.

7.5 Programme of Works

An exact programme of works will be defined early in the contract period in the form of a Project Plan. This document will be produced and updated by the TES Project Manager.

The following activities as a minimum will be included in the Project Plan:

- Scope of Works in GANTT format
- Provision of TES's Project Communication Strategy
- OFCOM Licence applications
- On site RF survey using temporary repeater deployment
- Site RF Survey Report
- Production of Functional Design Specification (FDS) document
- Essar agreement to FDS
- Licence issue by OFCOM
- Equipment ordered
- Production of Site Acceptance Test and Factory Acceptance Test documents
- System build at TES
- FAT carried out and witnessed at TES
- TES installation and testing of new repeater and radios
- SAT system testing including coverage testing, and handover
- Ongoing preventative maintenance programme

The above timescales are indicative and will be formalised into a GANTT format early in the project, however the biggest single risk to the project will be the allocation of frequencies by OFCOM. We are currently getting licences through within three weeks; however, the official OFCOM service level is six to eight weeks. Some equipment required is frequency specific and will require the issuance of the licences prior to being ordered.

7.6 Installation, Test & Commissioning

Acceptance of the radio equipment shall be based on a series of tests designed to provide a formal basis for verifying that the operation of equipment provided meets the overall requirements of the specification.

All testing shall be fully documented and both test format and documentation shall be subject to approval by the customer prior to commencement of tests.

Formal testing shall be applicable at the following levels:

- RF Survey
- Integrated system testing (Factory Acceptance Tests)
- Site testing (Site Acceptance/Handover Tests)
- Deployed system RF Survey

FAT tests shall be carried out at TES following the completion of assembly. Selected tests shall be repeated on site (SATs) after delivery, installation and commissioning. A detailed procedure for Factory Acceptance Tests (FATs) including working arrangements shall be prepared by TES and agreed with the customer at least two weeks prior to the commencement of testing. The customer shall be given the opportunity of attending all or part of each test and witnessing its successful completion.

Installation will be in accordance with ETSI TR100 053 and conducted by qualified TES engineers, each stage of installation will follow all site H&S rules, with Method Statements and Risk Assessments provided.

7.7 Documentation

TES will provide as a minimum:

- Functional Design Specification
- Factory Test Specification
- Site Acceptance Test Specification
- Project Plans (GANTT)
- Weekly Project Status Reports (plus ad hoc updates as required)
- System User Guide
- System Use Protocol Guide
- System Handbook
- Configuration Data
- Maintenance Visit Reports

7.8 Training

TES will provide training sessions on the system at several levels.

Training will be provided on the dispatcher terminals to ensure users are familiar with all the functions. This will be both class room based at TES and hands on experience with the system whilst it is at TES.

Short training sessions can be conducted at Stanlow for the operation of the new radios. These sessions are typically 20 minutes each. We recommend no more than 15 trainees per session. We would also issue each trainee with a small crib card as an aide memoire whilst they become familiar with the new hand set.

7.9 Project Management

To ensure that the contract is administered and run effectively and efficiently a Project Manager will be appointed to co-ordinate activities and manage associated tasks within TES Limited. The Project Manager will also have responsibility for the production of all specifications relating to the project along with project support documentation.

The Project Manager will have the responsibility for being the single point of contact within TES Limited. An alternative, secondary point of contact will be notified to ensure that correspondence, requirements are responded to, and actions completed in the shortest possible time.

Throughout the contract period, the Project Manager will arrange and be available for a progress meeting with representatives of Essar. Minutes from these meeting will be produced by the Project Manager to ensure any outstanding items can be completed and then reviewed at future meetings. These minutes will be circulated to all attendees nominally two weeks after the meeting to ensure that all action points are distributed.

A project plan in the form of a Gantt chart will be produced by the Project Manager early in specific project periods and submitted to the customer using Microsoft Project™. This plan will be maintained and updated on a requirement basis and used at the contracts meetings to update the customer of progress and to highlight any areas of concern or potential problems.

8. ABOUT TES

This section is presented to convey TES's expertise in delivering radio system solutions for blue chip clients, and to bring to your attention our qualifications and experience in this market sector.

TES Limited was formed in 1991 by a management buyout of the Communications and Services Division of a major UK utility company and have unrivalled experience of Turnkey solutions in the communications field. Over the last 21 years we have expanded our portfolio to include all the latest communications technology including MESH networks for Mobile Broadband, Wireless Data Point to Point & Point to Multi Point Systems, Digital Radio (DMR), TETRA, MPT1327 Trunk Systems & traditional Radio (PMR).

We are a leading wireless communication specialist in the UK. Using state of the art systems, TES provides solutions and technical advice regardless of size or complexity. As a true independent, TES is able to offer our clients a comprehensive range of solutions backed by a wealth of experience including:

- Secure Radio Communications
- Man-Down and Lone Worker Applications
- Hazardous Environments
- Mission Critical Communications
- Emergency Systems
- MESH Mobile Broadband
- Wireless Broadband

TES capitalises on its expertise and competencies with mobile radio networks and terminals, telemetry, and wireless broadband delivery to provide a comprehensive range of services, including:

- **Radio network design, supply and integration**
- **Full maintenance, facility management and repair workshops**
- **Design and consultancy for legacy and forefront technologies**
- **Total communication solutions provision**

TES provides the highest levels of customer support and service. This philosophy is supported by our accredited Management Systems integrated in accordance with PAS 99; Quality Assurance ISO9001; Occupational Health & Safety 18001: Environmental 14001, all certified with BSI.

- **BS EN ISO 9001:2008** – Quality Management Systems - Certificate Number: FM 45191
- **BS EN ISO 14001:2004** – Environmental Management Systems - Certificate Number: EMS 95056
- **BS OHSAS 18001:2007** – Occupational Health & Safety Management Systems – Certificate Number: OHS 545833

TES operates a team of departments, trained to ensure complete customer satisfaction at every stage from consultation to completion:

- Operations - Installation, Maintenance & Service Support
- Projects
- Business Support
- Quality, Health & Safety, Environmental Management
- Customer Support & Sales

Our client base includes many and various business models ranging from local authorities to major transportation companies, multi-national pharmaceutical and petro-chemical companies, major security, and facilities management companies, all of whom appreciate our consultative approach to solving their communication needs.

With our knowledge and experience we can address special requirements. Our in-house design team can enhance a standard package to suit your bespoke needs. We are not tied to any one manufacturer and are always able to achieve compatible integration using best of breed products from major manufacturers enhanced by our own in house engineering and design team. With our wealth of experience we can source the right product to meet your needs.

Complimenting our range of services we offer full maintenance and support packages tailored to match your individual needs - including 24/7 cover, remote monitoring and flexible Service Level Agreements to ensure availability of mission critical systems and protect your investment.

Key elements of customer service in the facility management sector are secure, reliable and honest transactions in a timely manner and enquiries to be dealt with in a discreet, professional manner. TES offers the same qualities in our service to customers. All enquiries are treated as confidential; we shall act in a professional manner at all times, with honesty and fairness forming a key part of our mission statement.

Please visit our web site **www.tesradio.com**.

9. TES Unique Selling Factors

- Proven experience in supplying and maintaining radio systems, including metro operations
- >30 years experience in providing full facility management as well as supply, maintenance and radio logistic tracking
- Proven track record in meeting Service Level Agreement targets
- Innovative approach to total radio site services asset management to maximise efficiency
- Ongoing technical support and rapid response to operational requirements
- Access to in house experienced technical consultancy support
- Committed, enthusiastic team dedicated to providing a high quality service
- ISO9001 / ISO 14401 / OHAS 18001 BSI accredited quality assured supplier
- Alcumus & Cyber Essentials certified
- Independent and objective advice, as TES are not tied to one supplier/manufacturer