SCOPE OF WORK FOR DESIGN, MANUFACTURE, SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF EMERGENCY RESCUE EQUIPMENT (ELECTRICALLY OPERATED) IN CONFINED SPACES FOR BAYHEAD WAGONS.
KINGS REST, BAYHEAD.

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Signature of Bidder/s: _____ Date: _____

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Signature of Bidder/s: _____ Date: _____

1. INTRODUCTION

Transnet Engineering identified work inside the tankers at Tank Washout Depot as the safety hazard.

The confined spaces may contain atmospheric hazards, electrical hazards, flooding or engulfment risks, poor lighting, fall hazards and chemical hazards.

There is a need for emergency rescue equipment in confined spaces because an incident inside a tanker can quickly become life-threatening, while access to and removal of an injured or unconscious person can be extremely difficult.

Transnet Engineering requests bidders to quote for design, manufacture, supply, installation, testing and commissioning of emergency rescue equipment.

This specification is for the:

#	TASK	REQUIRED
1	Design	✓
2	Supply	✓
3	Delivery	✓
4	Installation	✓
5	Documentation	✓
6	Testing	✓
7	Training	✓
8	Commissioning	✓

Of the specified:

#	ITEM	REQUIRED
1.1	Design, manufacture, supply, installation, testing and commissioning of emergency rescue equipment (electrically operated) in confined spaces.	Yes
1.2	The system to be installed at Wash bay area (1 off) and Barrel testing (1 off)	Yes
1.3	Submission of project completion documents.	Yes

This must be commissioned at Kings Rest, tank washout depot.

- **Material (metals) from the alterations unless otherwise stated, will become property of Transnet and all rubbish and debris shall be removed from TE premises and disposed of responsible by the contractor.**
- **Items described as "removed" shall mean removed from site.**
- **Transnet reserves the right to procure materials if it deems that as cost effective.**
- **THE CONTRACTOR TO NOTE THAT THE FOLLOWING MATERIALS SHALL NOT BE REMOVED FROM TRANSNET ENGINEERING PREMISES DURING AND AFTER THE IMPLEMENTATION OF THIS PROJECT: COPPER, BRASS, ALUMINIUM, STAINLESS STEEL, CABLING, CABLING CUT-OFFS, BUSSBARS, TAP OFF BOXES, MOTORS, GEAR BOXES, CONTROL BOXES, TRANSFORMERS, TRANSFORMER AND MOTOR WINDINGS AND ALL OTHER METALS.**

2. SITE INSPECTION

2.1 All prospective contractors shall be required to undertake a compulsory site inspection to fully acquaint themselves with all aspects involved.

Signature of Bidder/s: _____ Date: _____

2.2 Arrangements to visit the site and confirmation of the date and time of the site inspection shall be made with Transnet Engineering Contract Manager.

2.3 The site inspection certificate shall be completed and countersigned by the Contract Manager on the day of the visit and must be submitted with the tender documents.

3. INFORMATION REQUIRED

3.1 Offers will not be considered unless full particulars and sufficient literature are provided at the tendering stage to enable Transnet Engineering Technical Officers the opportunity to assess each technical offer properly.

3.2 Should there be insufficient space for furnishing full details; contractors shall provide the additional details in their covering letter. The additional details shall be numbered in accordance with the applicable clause specified in the specification.

4. TECHNICAL REQUIREMENTS

The following regulation and codes must be complied with:-

- The Occupational Health and Safety Act – Act 85 of 1993.

4.1 Except where otherwise provided for in the specification, all equipment offered will comply with the requirements of the relevant standard specifications of the SABS and/or NRCS.

4.2 Where equipment offered complies with the recognized standards of the country of manufacture and not specifically with the standards required by this specification, such equipment will be considered at the discretion of Management. In this case, tenders shall state fully all respects in which the equipment departs from the standard laid down in this specification.

4.3 The successful tender will at the conclusion of the installation provide a document along the lines "that the installation complies with national/international requirements and that all selected /designed items are compliant with Act 85 of 1995 and SABS practices applicable to the installation. The equipment has been commissioned/ calibrated and employees as specified have been trained and found competent to operate the plant."

5. SPECIFIC REQUIREMENTS

Any person with the intention of procuring equipment shall ensure that the information below is complied with.

5.1 Scope of work

	REQUIREMENTS **The below listed information is the minimum requirements, equivalent or superior product and accessories may be proposed.**
5.5.1	This scope of work shall be read with annexure 1 (Transnet Engineering safety, health and environmental management requirements).
5.5.2	The main purpose of this project is to ensure that a person that is working inside the tanker is speedily and effectively rescued during emergency eventualities, without further injury.

Signature of Bidder/s: _____ Date: _____

	REQUIREMENTS **The below listed information is the minimum requirements, equivalent or superior product and accessories may be proposed.**
5.5.3	Design, manufacture, supply, installation, testing and commissioning of rescue equipment (electrically operated). In the barrel testing area, the supplier is to design a winch system which would be operated by an electric system to hoist someone in the event of an evacuation.
5.5.4	The successful supplier shall design the rescue equipment that is suspended from the existing monorail, able to pull out a person from a confined tank space in case of an emergency.
5.5.5	The emergency equipment shall consist of the following items as a minimum:- - Full body harness. - Intrinsically safe headlamp. - Self-Contained Breathing Apparatus (2 off). - Breathing Apparatus Cylinder (2 off). - Respirator Cartridges. - Steel Carabiners. - Alloy Carabiners. - Tog bag. - Rescue Haulage System in Bag.
5.5.6	The rescue system shall be specifically designed and rated for lifting and lowering a person during confined-space rescue. It shall include a positive load-holding brake, emergency stop, upper and lower travel limits, overload protection and controlled lowering. The complete rescue load path, trolley, anchor points, connectors, rope/cable and attachment arrangement, shall be verified by the supplier as suitable for the specified rescue load before commissioning.
5.5.7	The emergency equipment shall have 250kg capacity and be electrically powered and controlled (to have a remote control). • The load test certificate shall be submitted on completion. • The rescuing board shall be made of durable material (e.g. hardened plastic/pvc, etc) to withstand a weight of a person. • The rescuing board shall be fitted with straps for securing the injured person whilst being pulled out of the tank.
5.5.8	It shall be possible to manually operate the emergency equipment during power failures.
5.5.9	The equipment shall have ICASA approval, since it will be electronically operated.
5.5.10	The equipment shall not interfere with any electronic equipment.
5.5.11	All statutory safety requirements shall be adhered to.
5.5.12	<u>During bidding stage</u> The proposed system of rescue and product literature shall be attached in the bid documents. <u>On project completion</u> • The contractor shall submit operating manuals, maintenance manuals, spare/part list, blown out electrical and mechanical drawings in 1 set of hard copies and 2 sets of pdf files in disks. • There shall be a training of 4 operators, 5 Maintenance staff (Electrician) and 5 Maintenance staff (Mechanical). • The training manuals shall be submitted to the project manager, 2 weeks before the commencement of training. • The contractor shall conduct training on safe operation of the installation before handover.
5.5.12	Test and commission.
5.5.13	Supply 1 (one) multi-gas detectors.

Signature of Bidder/s: _____ Date: _____

5.2 Supply and delivery

- The equipment shall be supplied at Kings Rest, Bayhead.

5.3 Markings

- All labels and markings shall be indelible and only removable by deliberate intent.

5.4 Recommended Technical Requirements

The following clauses are recommended to close safety, design, acceptance and maintainability gaps. Final statutory/standard references shall be verified by the appointed competent persons during design review.

5.4.1 Hazardous-area suitability

The contractor shall assess and document whether flammable gases or vapours can be present in the tanker, wash-bay or barrel-testing rescue zone. Where a hazardous location is identified, all electrical equipment used in or exposed to that zone, including the winch/hoist, pendant/remote control, lighting, connectors and associated accessories, shall be suitable for the classified hazardous location and supported by applicable certification. General ICASA approval for radio equipment shall not be accepted as a substitute for hazardous-location certification.

5.4.2 Power supply and controls

The bidder shall state the required supply voltage, phases, frequency, full-load current and power rating. The installation shall include a lockable local isolator, short-circuit and overload protection, emergency-stop devices at accessible operating positions, clearly identified controls, and protection appropriate to the environmental conditions. A loss and restoration of power shall not cause unexpected movement or automatic restart.

5.4.3 Emergency manual recovery

Manual emergency lowering/raising shall remain available following loss of electrical power. The manual recovery arrangement shall be demonstrated at commissioning under a representative rescue load and shall not depend on energising the main drive.

5.4.4 Wireless and hard-wired control

Where radio remote control is offered, the supplier shall provide evidence of applicable ICASA type approval for the radio apparatus and shall demonstrate reliable operation at the installation. A hard-wired/local backup control shall also be provided so that rescue is not dependent solely on a wireless link.

5.4.5 Rescue harness and casualty interface

The supplied full-body rescue harness and all connectors shall be intended for rescue/person lifting and compatible with the retrieval system. The supplier shall specify harness sizes/range, attachment points and method of casualty connection. The rescue board/stretcher shall secure the casualty against unintended movement during lifting and shall be suitable for passage through the actual tanker access opening.

5.4.6 Monorail, trolley and anchorage verification

Before manufacture/installation, the contractor shall survey the existing monorail and mounting arrangement and submit design calculations/drawings confirming the adequacy of the supporting structure and all interfaces for rescue loading. Any required strengthening or modification shall be identified at tender stage and shall not be carried out without Transnet Engineering approval.

Signature of Bidder/s: _____ Date: _____

5.4.7 Load rating and proof/load testing

The safe working load shall be not less than the specified 250 kg. The bidder shall state the rated load of each load-bearing component and the complete assembled system. Proof/load testing and functional testing shall be performed after installation by a competent person in accordance with the applicable equipment standard and manufacturer requirements, and signed certificates/reports shall be submitted before handover.

5.4.8 Rope/cable, drum and guarding

The lifting medium, drum/sheaves and termination system shall be designed for personnel rescue duty. The arrangement shall prevent uncontrolled payout, bird-nesting, derailment or entanglement. Moving parts and pinch points accessible to personnel shall be effectively guarded without obstructing emergency operation, inspection or maintenance.

5.4.9 Environmental protection

All installed components shall be suitable for the stated 0 to 45 deg C, 50% to 100% relative humidity and heavy saline atmosphere. The bidder shall state enclosure/IP ratings and corrosion-protection systems proposed for motors, controls, enclosures, fasteners, structural steel and exposed components. Materials and coatings shall be selected to minimise corrosion in the Bayhead environment.

5.4.10 Multi-gas detector

The multi-gas detector shall be portable, suitable for confined-space atmospheric testing, and supplied with calibration/bump-test accessories or a stated compatible arrangement. The bidder shall state the gases/sensors fitted, measuring ranges, alarm functions, battery/runtime information and applicable approvals. Calibration certificates traceable to the manufacturer's requirements shall be supplied at handover.

5.4.11 Breathing apparatus

The contractor shall state the Self-Contained Breathing Apparatus (SCBA) make/model, cylinder working pressure, nominal duration and applicable product standard/certification. Cylinders shall be supplied in test, full and ready for service, with test/inspection records and instructions for inspection, filling and periodic testing. Respirator cartridges shall be selected only for the identified contaminants and shall not be presented as a substitute for SCBA where an oxygen-deficient or immediately dangerous atmosphere may exist.

5.4.12 Rescue readiness and drills

Before handover, the contractor shall participate with Transnet in a practical rescue demonstration at each installation location using the supplied equipment.
Training shall include pre-use inspection, casualty attachment, powered recovery, manual recovery, emergency stop, communications, equipment limitations and post-use inspection. Attendance and competency records shall be submitted.

5.4.13 Inspection, maintenance and identification

Each major item shall have a unique identification/serial number and rated-capacity marking. The contractor shall provide pre-use, periodic inspection and preventive-maintenance checklists, rejection criteria for damaged equipment, lubrication/servicing requirements, calibration requirements and recommended inspection intervals based on the OEM instructions and applicable legislation/standards.

Signature of Bidder/s: _____ Date: _____

5.4.14 Documentation required with tender

In addition to product literature, the bidder shall submit a system layout / concept drawing, load-path description, preliminary electrical/control architecture, proposed equipment data sheets, certificates / approvals, hazardous-area suitability information where applicable, proposed anchorage / monorail interface, deviations from this specification, and a clause-by-clause compliance schedule.

5.5 Testing

- All prescribed tests shall be carried out on equipment
- Transnet also reserves the right to carry out any check tests on the equipment and installation.
- Notwithstanding the successful completion of tests, the contractor will still be responsible for the efficient operation of the equipment.
- Test certificates shall be submitted to Transnet Engineering.

5.6 Maintenance

- The maintenance plan shall be for 2 years. The tenderers shall include the maintenance plan. The quote for maintenance plan shall be added on the Schedule of prices.

5.7 Spares

- The successful tenderer shall supply Transnet Engineering with three sets of blown out diagrams and schematics of the complete machine as well as detailed copies of the list of critical spares for all equipment including OEM numbers.
- The tenderers shall indicate the availability and required lead times for the spares considered to be critical for the successful operation of the equipment.

5.8 Warranty

- The contractor shall undertake to repair all faults due to bad workmanship and/or faulty materials during a period of 24 calendar months, calculated from the date that the completed plant installation is accepted by Transnet Engineering.
- Any latent defects that become apparent during the guarantee period shall be rectified to the satisfaction of Transnet Engineering at the cost of the supplier.
- The contractor shall undertake work on the rectification of any defects that may arise during the guarantee period within 7 days of being notified of such defects.
- **The warranty shall be 2 years.**
- **A maintenance contract for the warranty period shall be included in the quoted price and shall involve Transnet employees to learn.**

5.9 After-Sales Service

- The successful tenderer shall provide Transnet Engineering with acceptable proof that spares can be easily and speedily procured for the equipment within 7 working days through agents locally.

5.10 Commissioning

- A testing period of 1 month (744 hours for 24/7 shifts and 248 hours for 8 hour shifts) this shall depend on what shift the business requiring the specified items.
- No equipment will be accepted by Transnet without the satisfaction of the conditions above.

The following must be supplied on commissioning:

1 set of PDF Files in a disk and 3 sets of hard copies.

- Performance test certificate.
- Parts catalogue.
- Operator and maintenance staff training.

Signature of Bidder/s: _____ Date: _____

- Engineering drawings and blown out electrical/mechanical components drawings.
- Operating and maintenance manuals and parts catalogues shall be supplied.
- Maintenance schedule for all components shall be supplied

Note: All work to be completed in each respect by suitably qualified person.

6. OTHER INFORMATION RELATED TO THE SCOPE

6.1 This specification states the minimum requirements relating to the work and in no way absolves the contractor from responsibility for good engineering practice and ethical behaviour.

6.2 Any matter relating to this work, which requires a decision from Transnet Engineering shall be Presented to the Project Manager in charge.

6.3 All offers shall be completed in every respect with this specification. Only completed tenders shall be considered.

7. HEALTH AND SAFETY REQUIREMENTS

7.1 All equipment and installation whether detailed in this specification or not shall comply with the requirements of the Occupational Health and Safety Act 85 of 1993 as amended and all other applicable legislation including specific set of regulations and local authority bylaws where applicable. All equipment shall be designed **to be fail safe.**

7.2 All the necessary safety equipment such as guards over rotating equipment shall be supplied and the equipment shall comply fully with all the requirements of the South African Occupational Health and Safety Act, Act 85 of 1993 and all other applicable legislation including specific set of regulations and local authority bylaws where applicable. At all times during the manufacture, assembly and testing of the equipment the contractor will be responsible for the safety of all persons on site and the equipment.

7.3 SHE specification

Prior to commencement of contract, the contractor shall be issued with a SHE specification in order to compile a SHE file in line with TE requirements.
Prior to establishing on site, it is an explicit requirement of this contract that all of the Contractor's personnel directly involved with this contract, including those of sub-contractors, attend a **Safety induction course**. Transnet will provide the
course free of charge and attendance is compulsory for all personnel under the control of the Contractor who, during the duration of the contract, will be present on site whether on a full time or adhoc basis.

The contractor must allow for all additional charges because of these requirements as no claims for extras will be accepted in connection with the foregoing.

7.4 **As part of the legislative and TE SHE requirements.**

The successful contractor is required to conduct a risk assessment to ascertain all potential risks associated with this project. The completed risk assessment is to be formally submitted to the Risk department via the project manager at least two weeks prior to the commencement of the actual project.

Signature of Bidder/s: _____ Date: _____

The safety file and associated documents will be required from a successful tenderer and such will be communicated by the Risk department.

8. SPECIALIST SUB-CONTRACTORS

8.1 Only specialist sub-contractors who have previously successfully completed work of the type and extent specified in this document should be engaged.

The tenderer shall provide the technical officer with sufficient proof of having suitable experience regarding the design and manufacturing of similar equipment. To this end, complete and detailed reference list shall be submitted with the tender. Reference list shall include addresses as well as contact person who may be visited for inspection of the equipment during the adjudication period.

8.2 The tender shall submit a complete list of proposed sub-contractors and suppliers of major components with his tender.

8.3 The tenderer shall be prepared to commit themselves in writing to the technical officer with an adequate, experienced and stable project team for the duration of the contract.

8.4 Transnet Engineering will not consider any Tenderer's offer that, in the sole opinion of Transnet Engineering, does not have adequate experience in the design and manufacture of such equipment

8.5 Contractors shall do the installation simultaneously with other contractors on-site busy with other work and shall plan work that it integrates with other work performed.

9. MATERIAL AND WORKMANSHIP

9.1 The equipment shall be offered complete in all respects.

9.2 The equipment, as made and supplied, shall be complete in every respect, of modern design, using the most advanced proven technology extensively supported by reputable local companies, and be built to good engineering practices. Tenderers shall supply a list of all the main components (mechanical, electrical etc.) proposed as well as the addresses of the local support companies

9.3 All parts and components shall be adequately protected against damage and corrosion during shipping, transport and storage.

Should any of the items called for be standard equipment, then the words "Standard Equipment" shall appear against the item.

9.4 Tenderers shall indicate clause-by-clause either that they comply in every respect with the specific requirements, or if not, exactly how it differs.

10. DEFINITIONS AND ABBERVIATIONS

CLIENT	Transnet Engineering Durban
TECHNICAL OFFICER	Project Manager, Transnet Engineering Durban
CONTRACTOR	Contractor appointed under this specification document
SABS	South African Bureau of Standards

Signature of Bidder/s: _____ Date: _____

SANS	South African National Standard
ISO	International Organisation for Standardisation
PRODUCT	Emergency rescue equipment

11. GENERAL

11.1 The successful tenderer may be subjected to a workshop inspection by Transnet Engineering, to ensure that the facilities are to the satisfaction of the Transnet Engineering in terms of the quality control and equipment capabilities for manufacturing such type of equipment.

11.2 The tenderers shall guarantee that the rating and size etc. of the equipment offered, will be adequate to perform the duties required.

12. SITE ESTABLISHMENT

12.1 The contractor shall be solely responsible for safety of his staff and for providing security to safeguard his works and material on site, until such a time.

12.2 The contractor shall be required to attend site meetings when convened by the Project Leader controlling the contract.

12.3 The contractor shall be responsible for any damages caused by his staff to the building and civil works on site.

13. PENALTY CLAUSES

13.1 Due to the criticality of this project, penalties will be levied for late deliveries.

Signature of Bidder/s: _____ Date: _____