TRANSNET

ANNEXURE B – SPECIFICATION

[APRIL 2017] - TE21-GMX-8DU-01443

TECHNICAL SPECIFICATION FOR:

REPAIRS AND MAINTENANCE OF FIXED AUTOMATIC SPRINKLER SYSTEMS AT TRANSNET ENGINEERING GERMISTON PLANT

TRANSNET

STANDARD TECHNICAL SPECIFICATION FOR AN AUTOMATIC SPRINKLER FIRE EXTINGUISHING SYSTEM CONTENTS

1. Purpose of this document

To outline the requirements for Appointment of a Service Provider to conduct repairs and maintenance to Fixed Automatic Fire Sprinkler systems at Transnet Engineering (TE) Businesses, Germiston Plant.

2. Code of Compliance// Specifications:

Work done at all installations as per the attached schedule of requirements shall meet the following South African National Standards:

- SANS 10139 - Fire detection and alarm systems for Buildings – system design, installation and servicing
- SANS 10287:2010 - Automatic sprinkler installations for firefighting purposes
- SANS 10400 PART W - The application of the National Building Regulations – Part W: Fire Installation
- SANS 50054-7/ EN 54-7 – Fire detection and Fire alarm systems – Part 7
- Best Practices and Rational Design
- ASIB - The Automatic Sprinkler Inspection Bureau

3. Sprinkler Control Valves

- A complete set of approved sprinkler indicating control (I.C) valves shall be supplied and connected to the main supply.
- The control valves shall be of the "WET" type.
- The sprinkler control valves (I.C.) shall be of a type approved by the Automatic Sprinkler Inspection Bureau (A S I B) particularly in regard to their general assembly, namely the size and arrangement of ancillary equipment; drain valves, test and alarm cocks, pressure gauges and hydraulic alarms, etc.
- The direction of rotation of the main stop valve spindle and the "OPEN" and "SHUT" indicators attached thereto must also conform to the above requirements.
- The stop and alarm valves shall be flanged.

4. Booster pump and connections

- An electrically operated booster pump shall be included and hydraulically coupled through the control valves for the purpose of boosting the pressure in the sprinkler system after alarm tests.
- The capacity of the pump shall be not less than 9 litres per minute and it shall be capable of boosting the pressure in the installation to not less than 150 kPa above the maximum available water pressure.
- The pump shall be provided with both a stop valve and a non-return valve on the delivery side and also a stop valve on the suction side.
- The necessary electrical supply in the form of a 15 amp standard plug and switch will be provided by Transnet Engineering Electrical (PEMM) Department in the sprinkler valve cupboard.
- Provision shall be made for both manual and automatic starting and stopping.
- The latter shall be activated by means of a pressure switch.
- An amber flashing light, which will flash while the pump is operating, shall be installed in a suitable position above the control valve cupboard.
- Where there is more than one sprinkler control valve in the same valve cupboard, each shall be served by a separate booster pump.

5. Pressure Gauges

- The two pressure gauges required for the installation shall be not less than 100 mm diameter with porcelain faces registering 1 500 kPa.
- They shall be so connected to the control valves that one registers the pressure in the municipal supply and the other the pressure in the system.
- Their connections shall be taken from purpose made outlets on the valves and shall comprise a "U" tube without any fittings (elbows etc.) with all bends neatly executed.
- The gauges shall be fitted upright with brass shut-off cocks or other approved means of shutoff so as to permit their removal under pressure, if required.

6. Materials

- All piping, fittings and valves used in the installation shall be new and of an approved type capable of withstanding a test pressure of 2 000 kPa.
- All piping shall be non-galvanised mild steel manufactured in accordance with SABS 62 (medium grade), unless otherwise specified and shall be of an approved brand and the best obtainable.
- All pipes shall be free of rust, flakes or other faults.

7. Pipe Joints

- All threaded pipe joints shall be made with an approved cold water pipe-jointing compound and flanges when used shall be bolted together with approved gaskets.
- Pipe threads shall be standard right-hand Whitworth.
- Mechanical pipe-joints may be used provided they have been approved by the Automatic Sprinkler Inspection Bureau (A S I B) and are installed strictly in accordance with the instructions of the manufacturer.

8. Welding

- Welding in situ without the prior permission of the Risk and Safety Department will not be permitted.
- Welded joints shall be properly machined and the use of a welding torch for making holes shall not be permitted.
- Distribution pipes with welded crosses and tees shall be provided with female thread so that the branch pipes can be connected in the conventional way.
- All welded joints shall be hydraulically tested to 2 000 kPa.

9. Drains and Drain cocks

- Suitable drainpipes shall be provided for the 50mm outlet on the control valves and the 32mm outlet on the hydraulic alarms.
- Where distribution pipes are lower than the control valves, each separate section of the system shall be provided with a 20mm drain pipe.
- The pipe shall be properly secured to the wall and roof and carried down and plugged within 2 metres of the floor.

10. Sleeves and Pipe Supports

- All pipe supports, clamps and other suspension fittings shall be supplied and installed by the sprinkler contractor.
- Distribution and branch pipes shall be properly secured and branch pipes shall be anchored within 0,7m from the last sprinkler head.

11. Sprinklers

- All sprinklers (heads) which the contractor intends using shall be approved by the Automatic Sprinkler Inspection Bureau (A S I B).
- Unless otherwise specified in the Supplementary Specification the temperature rating of the sprinklers shall conform to SANS 10139.

12. Painting

- Painting of all portions of the sprinkler installation, including all hangers, valves and hydraulic alarms shall form part of the sprinkler contract.
- Before painting is undertaken, all work shall be thoroughly cleaned of rust, scale, etc., by brushing with a stiff wire brush wherever necessary.
- A prime coat of high-quality zinc chromate primer shall be applied before delivery to the site. After installation, all fittings shall also be primed with zinc chromate primer and where the primer has come off the pipes, these shall be re-primed where after two coats of high gloss paint shall be applied.
- Unless otherwise specified, the colour of the high gloss paint shall be similar to No. D 30 Post Office red of CKS 279.
- The final coat of paint shall be applied only after the system has been tested and the ceilings have been painted. The final coat shall not be applied without the express consent of the Engineer. Pipe supports and other fittings, which are not directly in contact with the pipe work, shall be painted the same colour as the ceilings or beams.
- The hydraulic alarm shall be painted with a prime coat and two coats of high gloss red paint as stated above.
- The words 'FIRE' and 'BRAND' shall appear thereon in white letters, 100mm in height.
- Should the construction of the alarm be such that it is impossible or difficult to paint the letters thereon, these shall be painted on a suitable steel plate and attached to the wall in a clearly visible position.

13. Framed Instructions

- A diagrammatic instruction chart clearly indicating the procedure for operating the sprinkler valves, shall be mounted in a strong teak or approved metal frame with Perspex front on the inside of the door to the valve cupboard.

14. Block Plan Lay-out Drawing

- A block-plan of the Sprinkler System which indicate the floor area covered; Sprinkler piping range and amount of sprinkler heads for each system must be provided at each Sprinkler valve.
- The minimum design pressure of the system shall be clearly indicated on the Plan.

15. Operating and Maintenance Instructions

- Full installation operating and maintenance instructions shall be supplied in triplicate with each system and shall include schematics and detailed wiring drawings with a full component list indicating not only component values but sources of supply.
- Equipment will not be accepted until this information has been handed to the Department.

16. Inspection and Maintenance

- Tenderers shall provide and allow for a full inspection of the sprinkler installation by the Automatic Sprinkler Inspection Bureau (A S I B) or any other organisation recommended or approved by Transnet Engineering, before the date of the initial taking over of the system.
- Tenderers shall provide and allow for annual servicing and maintenance which would include monthly flow test.
- An annual inspections and tests shall be carried out by the Automatic Sprinkler Inspection Bureau (A S IB) which will be arranged by the Contractor.

17. Warranty:

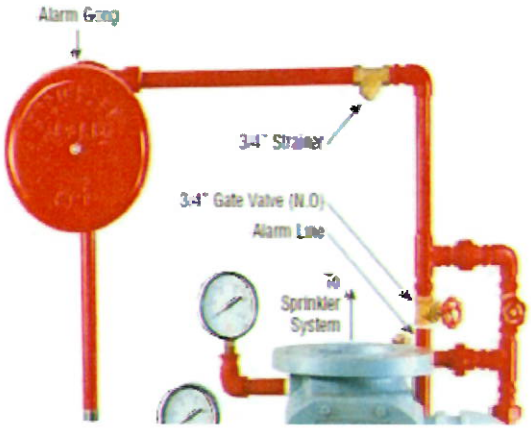
- The items shall carry a warranty period of not less than 12 months (Service Provider to state the warranty period).

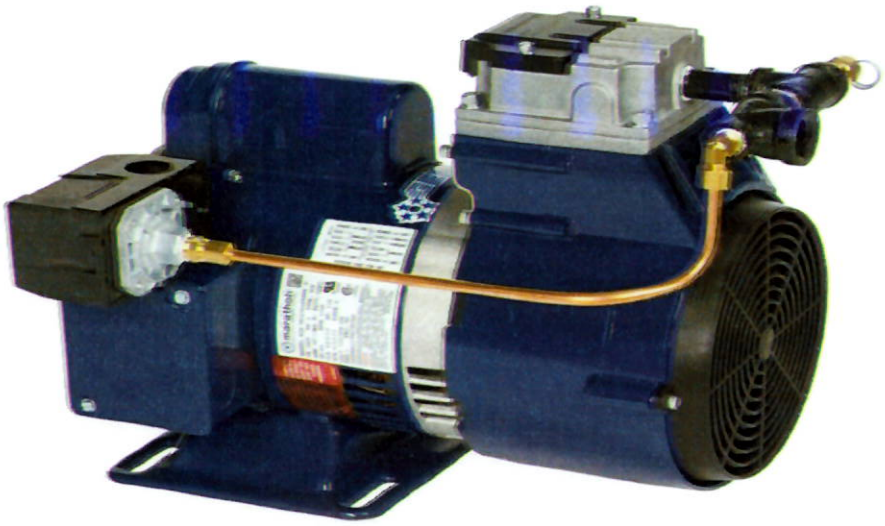
18. Parts availability:

- Parts and spares must be genuine and locally available.

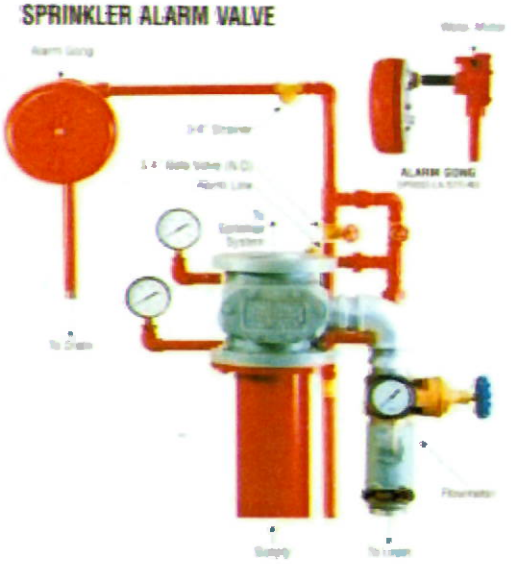
19. Annexures

Indicating Control Valves with Gauges and attachment


Alarm Gong
3/4" Strainer
3/4" Gate Valve (N.O)
Alarm Line
Sprinkler
System



SPRINKLER ALARM VALVE



20. Proposed Technical Evaluation

The tenderer that scores less than **80** in respect of "functionality" will be regarded as submitting a non-responsive tender and will be disqualified.

Criteria	Description of Criteria	Score	Criteria scoring
Experience	Tenderer must submit 3 written references in the relevant company's letterhead of similar services completed during the last three years. The reference letter must clearly indicate the services rendered and must be stamped by the company. Indicate which year was the work done, the rand value and for which company.	30	"30 = Three (3) reference letters or more submitted. 15 = One (1) or Two (2) reference letters submitted. 0 = No reference letter submitted"
SHEQ requirements	Compliance to the TE SHE Contractor Specification which will include but not limited to the following: • Letter of Good Standing	20	Zero point if none of the documents are not provided. Twenty (20) points for a valid letter of Good standing,
Certification Requirements	Letter of Affiliation with ASIB (Automatic Sprinkler Inspection Board) or Letter of Accreditation with SAQCC for SANS 10139	20	Zero (0) point if there is no Letter of Affiliation Twenty (20) points for Letter of Affiliation
Competency Requirements (Technicians)	Certificate of Competency of Technicians registered with SAQCC (SANS 10139)	20	20 = Proof of Registration submitted. 0 = No reference letter submitted".
Competency Requirements (Commissioner)	Certificate of Competency of Commissioner registered with SAQCC (SANS 10139)	10	10 = Proof of Registration submitted. 0 = No reference letter submitted".

21. Location of Sprinkler Valves:

Building Description	Building Number
Spray Booths - Route 1 and 2	1201204
Block B – Installation Control Valve Number 1	1201196
Block B – Installation Control Valve Number 2	1201196
Block B – Installation Control Valve Number 3	1201196
Paint Shop	1301659
SOE Welding School / Training Installation control valve number 5	120117
SOE Welding School / Training Installation Control Valve Number 6	120117

Technical Specifications compiled by:

Name: Desire Mnguni

Designation: Health and Safety Manager

Date:

Signature: _____

Technical Specifications approved by:

Name: Clarence Sinkfontein

Designation: Fire Specialist

Date: 07 October 2021

Signature: Clarence Sinkfontein _____

Flanges and Gaskets

Jockey Pump with fitted Pressure Swicth and Piping