

FIJI ELECTRICITY AUTHORITY



TENDER SPECIFICATIONS

TENDER NO: MR 68/2016

DESIGN, INSTALLATION AND COMMISSIONING OF A FIRE SPRINKLER SYSTEM FOR FEA'S TAVEUNI HYDRO POWER STATION

1. Scope of Works

The complete design, fabrication, supply, installation, testing, commissioning, demonstrating, training and maintenance of the following necessary to complete the intent of the project:

1. Provide a proposed design compliant to NZS 4541-2007 standard for approval
2. Provide a full hydraulic calculation of the proposed automatic sprinkler system
3. Negotiate with all authorities. Attendance at meetings, contract administration and coordination with the client's representatives, other trades, utility providers, and local authorities.
4. Mobilize to the site and set up all necessary equipment's including scissor lifts
5. Prepare and table weekly detailed report of the progress of works
6. Installation and Commissioning works inclusive of all fire sprinkler system pipework, sprinkler heads, connections, pipe supports, fittings, hangers, diesel fire pump, batteries, electric jacking pump, diesel day tank , tank supports, straps, fuel lines, oil/water filters, vent, pressure gauges, valves. electrical control panels, brigade booster connections, meters and all other associated accessories
7. Provide a fully hydraulically calculated automatic fire sprinkler system coverage complete with back up water supply volume and tanks. Diesel fire pump, electric jockey pump, control panels, piping, valves. gauges, diesel day tank, fuel filters, mimic panel including a detailed workshop drawing and all associated accessories
8. Supply and install a fully automatic sprinkler system pipework, sprinkler heads including water spray system, wet alarm, deluge valves, connections, pipe supports, fittings, hangers, diesel fire pump, electric jacking pump, pressure gauges, valves, brigade booster connections, meters, diesel day tank , fuel pump, supply and return fuel lines, fuel filters, mimic panel. sprinkler coverage to fire pump room and all other associated accessories to fully comply with the designed system
9. Portable fire extinguisher to be installed in the pump room complete with signage, fittings, supports and all associated accessories
10. Supply and install a fire services stand-by water tank complete with structural concrete base, fittings, valves, pipework, ladder with safety features, depth gauges and all associated accessories. Volume of required fire services tank to be determined as per the hydraulic requirements of the automatic sprinkler system and the applicable NZS 4541-2007. The Fire Water tank must come with

all the compliant fire tank signage, level indicators, anti-vortex outlets and other relevant nozzles.

11. All trenches, base fill. water proofing of below ground pipes and joints, marker tapes, back-fill and compaction
12. Sealing and fire proofing of all existing redundant penetrations and new penetrations through any fire wall
13. Supply and install mimic panel with fault identification on fire pump or fire alarm activation with a relay signal to the National Control Center (NCC) at Vuda Power Station for 24 hours remote surveillance
14. All coordination between fire sprinkler installation and other existing services , both above and below ground and the existing building structure
15. Preparation and submission of As Built drawings
16. Commissioning of mimic panel and FIP with full remote signal capability
17. Provide a fully tested, operational, commissioned and completed automatic fire sprinkler system complete with a full fire certification by an approved fire sprinkler system certifier to comply with NZS 4541-2007 and hand over to the client before the start of the 12 months maintenance period
18. Supply and install spare sprinkler heads with spanner on a mounted cabinet clearly labelled and visible
19. Supply a fully bound automatic sprinkler system operational maintenance manual together with a laminated copy of a block plan of the entire system mounted on the internal wall of the fire pump room. A laminated copy of the pump hydraulic performance must also be mounted in the fire pump room
20. Provide a laminated copy of the certificate of compliance which shall be displayed in a permanent holder/frame at the control valve of sprinkler system
21. Provide training to the Taveuni Power Station staff on the full operation. fault finding and basic house-keeping of the pump room and its associated accessories
22. Supply and Installation of Fire Hydrants inclusive of a Fire Cabinets complete with fire hose and accessories
23. Supply, Installation and commissioning of a Fire detection system
24. Demobilize and cleanup of all work areas
25. The 12 months defects liability period from date of practical works completion

Note: Any omissions from the above scope does not relieve the contractor of the design intent.

2. Subcontractors

Submit with the tender bid the details of any subcontractors. Failure to provide details will make the tender bid non-compliant.

3. Design Requirements

1. Undertake and submit the following design and documentation work:

- Separation from unsprinklered area fire loads
- Density and assumed area of operation
- Water supplies and Method of alarm

This shall not be limited to:

- Details of unprotected fire loads within 10m of protected premises
- The nature of any concealed spaces within the protected premises
- The means by which separation from unprotected areas or fire loads will be achieved
- Relevant details of ceiling, roof, floors, exterior walls and walls separating sprinklered areas and non-sprinklered areas
- The occupancies and the hazard classifications, densities and area of operation proposed each part of the protected building
- The height of the highest sprinkler
- The size of the heads and number designed to operate for external sprinklers
- The class of system proposed
- The type of system proposed
- A description of the nature and performance of the water supplies accompanied by a hydraulic graph of each, on which the design flows and pressures shall be marked together with the method and time of test.
- The type and location of the fire brigade receiving equipment or other alarm to which the system will be connected
- The number, size and location of the valves and the area to be protected

- The number and type of hand operated fire-fighting equipment appliances which will be provided
- A plan showing the following information:
 - Scale
 - North point
 - Fire separations and doors
 - External sprinklers
 - Hazard classifications, densities and assumed maximum areas of operation
 - Height of highest sprinkler for each hazard classification area
 - Area protected by each installation
 - Location of fire sprinkler inlet and control valves
 - Location of drains
 - Water supplies showing all valves between the source and alarm valve
 - The power supply route for electric motor driven pumps (Jacking pump) including all switchgear
 - The position of any fire alarm panel
- A typical cross-section showing the highest head, height of the alarm valves, pump house, pump, water tanks and suction inlet
- Details and location of alarm devices including pressure switches, isolation switches and any flow switches

4. Work Program

Submit a construction program in the form of a bar chart. Typical milestones must be indicated. Critical Path must be clearly indicated.

5. Method statements and QC

Submit method statements describing details of all works within 2 weeks of contract award. Tenderer must submit details of quality control for these works.

6. Standards

- General requirements to NZS 4541: 2007
- Sprinklers: to NZS 4541:2007 and NFPA 13:2007
- Fire water storage tanks to AS2419, AS2304, NFPA 22
- Drencher (wall wetting) system to ANSI/ NFPA 15-1990 and ANSI/ NFPA 750-2003
- Deluge system to ANSI NFPA 16-2003
- Electricity generation and distribution to ANSI NFPA 13-2002
- Pumpsets. to NZS 4541:2007
- Valve monitors to NZS 4118.1.4
- Fire brigade booster connection to NZS 4541:2007
- Piping material: To conform to ANSI /ASME Standards
- Plumbing and drainage: To AS/ NZS 3500.0, AS/NZS 3500.1. AS/NZS 3500.2, AS/NZS 3500.3, AS/ NZS 3500.4

7. Price Schedule

| Item | Description | \$ Price (VEP FJD) |
|------------|--|--------------------|
| 1.0 | Mobilisation and Site establishment | |
| 2.0 | Demobilization, Site Clearing & Handover | |
| 3.0 | Site Works | |
| 3.1 | Provide a full hydraulic calculation of the automatic sprinkler system for coverage of the Hydro Power Station, high voltage electric control room, control and administration office and external wet spray systems including stand-by water tanks capacities. | |
| 3.2 | Supply and install a stand-by Fire water tanks complete with all accessories. Allow for concrete plinth, steelwork and all associated works as per tank manufacturers specification for the base | |
| 3.3 | Supply and install new pipes, valves, Bends, Pipe adaptors and associated fittings. Allow for trenching works for pipes below ground including all associated works. (Contractor to provide a schedule of all pipes, Valves, bends and associated fittings) | |
| 3.4 | Supply and Install new diesel fire pump and electric jockey pump in pump room including suction in-let and out-let together with all pressure meters, test valves, monitored valves, gate valves, wet alarm, horns, etc to complete the installation. Allow for all accessories and associated works | |
| 3.5 | Supply and install new stand-by diesel fuel day tank at high level. Complete with cradle, Vent pipe, flexible hose, fuel pump and all accessories. | |
| 3.6 | Supply and install new fire pump control panels including all electrical cabling and connection to F.I.P. and mimic panel in control and administration room and all accessories | |
| 3.7 | Supply and install new fire extinguishers and automatic sprinkler protection to fire pump room complete with signage, fittings and all associated accessories | |
| | | |
| 4.0 | Power Station Works | |
| 4.1 | Preparation and submission of workshop drawings | |

| | | |
|------|--|--|
| 4.2 | Supply and install a fully automatic fire sprinkler system throughout the Power Station, high voltage control room, store room and transformer pads to complete the design intent | |
| 4.3 | Supply and install new mimic panel at the external wall of the control/administration office. Allow for fault identification on fire pump or fire alarm activation with a relay signal to the National Control Center at Vuda Power Station for 24 hours remote surveillance | |
| 5.0 | Supply and Installation of Fire Hydrants inclusive of a Fire Cabinets complete with fire hose and accessories | |
| 6.0 | Supply, Installation and commissioning of a Fire detection system | |
| 7.0 | Preparation of As-Built drawings together with a complete maintenance and operations manual and laminated and framed block plan of the complete installation | |
| 8.0 | Supply and installation of spare sprinkler heads with spanner and all accessories | |
| 9.0 | Commissioning of mimic panel and FIP with full remote signal capability | |
| 10.0 | Testing and commissioning of the complete automatic fire sprinkler system by an approved fire sprinkler certifier to NZS4541:2007 with a full commissioning certificate handed over to the client before the start of the 12 months maintenance period | |
| | | |
| | | |
| | | |
| | TOTAL FJD LUMP SUM PRICE (VEP) | |
| | VALUE ADDED TAX(VAT) | |
| | TOTAL FJD LUMP SUM PRICE (VIP) | |
| | | |

Submission of Tender

Two (2) hard copies of the tender bids in sealed envelope shall be deposited in the tender box located at the Supply Chain Office at the FEA Head Office, 2 Marlow Street, Suva, Fiji.

Courier charges for delivery of Tender Document must be paid by the bidders.

This tender closes at 4:00pm, on Wednesday 17th of August, 2016.

Each tender shall be sealed in an envelope with:

The envelope bearing only the following marking:

**Tender- MR 68/2016 – Design, Installation and Commissioning of a Fire Sprinkler System
for FEA's Taveuni Hydro Power Station**

The Secretary, Tender Committee
Fiji Electricity Authority
Supply Chain Office
Private Mail Bag, Suva

It must also indicate the name and address of the tenderer on the reverse of the envelope.

All late tenders, unmarked Envelopes and envelopes without bidder's name and address on the reverse of the envelope. (Bids via e-mail or fax will not be considered).

For further information or clarification please contact our Supply Chain Office on phone **(+679) 3224360 or (+679) 9991587.**