MR 262/2020

Testing of Exhaust Emission for Stationary Power Plant at all EFL's Power Stations

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1.0 TECHNICAL SPECIFICATION

1.1 General Information

Subject to local Air pollution regulation, every commercial or industrial facility in Fiji that emits exhaust gases, smoke, steam or dust from any of its premises, must hold an air pollution permit in respect of the emission.

A facility does not require an air pollution permit if the emissions from the facility comply with the national air quality standards for such emissions, taking into account:

- The type of substance emitted;
- the quantity and frequency of the emissions; and
- the surrounding environmental factors.

EFL requires a service provider to test exhaust emission of all Stationary Thermal Plant; HFO & Diesel Plants and report on the quality of emissions. In order to meet the emission standards, the concentration of a point source (Generator) of substance must not exceed the concentration as indication in the specifications (Section 1.3).

1.1.1 Preliminary and General Conditions

The contractor shall furnish all labour, equipment, transportation and services as necessary to complete all projected work included in this specification.

1.1.2 Site Location

Region	Location	Number of Plant
Central	Kinoya Depot	10
	Korovou Power Station	2
	Rokobili Power Station	5
	Deuba Power Station	3
Ovalau	Levuka Power Station	5
Western	Veda Power Station	5
	Sigatoka Power Station	9
	Nadi Power Station	5
	Qeleloa Power Station	3
	Rakiraki Power Station	2
Northern	Cawaira Power Station	12
	Savusavu Power Station	5
Taveuni	Waiyevo Power Station	2
Total		68

1.1.3 OHS Requirements

The contractor shall at times comply with all Energy Fiji Limited’s HSE Regulations.

1.1.4 Building Conditions

The contractor is advised to visit and assess the site and existing premises prior to tendering, as no claim will be allowed on the grounds of ignorance of the conditions existing.

1.1.5 Work Plan

The contractor shall prepare a Work Programme, Work Safety Plan/Risk Assessment Plan in accordance and shall submit the plan to the property officer for his approval before commencing with work on the site.

1.1.6 Site Safety Management System

The contractor shall establish and maintain a Site Safety Management that ensures the safety of all persons on the site in accordance with the requirements of the Energy Fiji Limited Occupational Health and Safety Policy and the Health and Safety at Work Act, 1996 requiring strict compliance by the parties here to. The Contractor is to obtain all approvals from Ministry of Labour for any scaffolding to be used on the site. All PPE's and other safety equipment's will be checked by EFL's Health and Safety Department (HSE) to confirm if they are in compliance with the relevant current safety standards. No work shall commence prior to approvals given from EFL's HSE Department.

EFL will carry out an induction for the contractor and its members to familiarize with the Energy Fiji Limited Occupational Health and Safety Policy.

1.1.7 Environmental Control

Comply with all environmental protection provisions in the contract and the requirements of any statute, by law, standard and the like related to environmental protection.

1.1.8 Protection of People and Property

The contractor shall keep all persons (workers) under control and within the boundaries of the site. He will be held responsible for the care of the existing premises and works generally until completion.

1.1.9 Duration of Service

The expected duration for these services will be contracted for 1 year.

1.1.10 Storage of Materials and Equipment's

Materials and equipment's stored on site must not pose any danger to property and minimize hazards to persons, materials and equipment. Keep storage area neat and tidy.
Take proper precautions to keep poisonous and other injurious substance in place secured against access by unauthorised person.

1.1.11 Diary Reports

Inspection reports shall be submitted per inspection on a standardized form.

1.1.12 Care of the Works

The contractor shall keep all persons under control and within the boundaries of the site. He will be held responsible for the care of the existing premises and works generally until completion.

1.1.13 Clearing Away

The contractor shall take the removed rubbish and debris to a location which will be advised in the **site visit**.

1.1.14 Tobacco/Alcohol/Drug Free Environment

EFL maintains tobacco, alcohol and drug free environment. Any personnel of the contractor found violating the policy will be requested to remove the product and themselves from the sites. Offensive language or actions are not acceptable. The EFL shall have the absolute right to require replacement of any employee the EFL deems objectionable to work on EFL premises.

1.2 Insurances

The Contractor shall be solely responsible for all relevant insurance covers for person, tools, plants and equipment involved in carrying out the Works. The Contractor must obtain and maintain all relevant insurance covers at all material times sufficient to cover any loss or costs that may be incurred which the Contractor is liable for in connection with the duration and Scope of Works, including:

- Contractors All Risk
- Public Liability and
- Workmen's Compensation

1.3 Specification

1.3.1 Classification of substances

Substances are classified in Tables below are in the following categories according to toxic, persistent and carcinogenic qualities;

Category 1 - Environmentally Toxic and Persistent or Carcinogenic Substances The concentration of solid substances must not exceed 2.5 mg/Nm^3 at the point of the exhaust. The concentration of a gas, vapour or haze of a substance must not exceed the MAC-value specified in Table 3 at the point of the exhaust.

Category 2 - Environmentally Toxic and Non-Persistent Substances The concentration of solid substances must not exceed 25 mg/Nm^3 at the point of the exhaust. The concentration of a gas, vapour or haze of a substance, if exhausted at roof level, must not exceed 10 x the MAC-value specified in Table 3 at the point of the exhaust.

Category 3 - Mildly Toxic but Environmentally Persistent Substances. The concentration of solid substances in this category must not exceed 75 mg/Nm^3 at the point of the exhaust. The concentration a gas, vapour or haze of a substance, if exhausted at roof level, must not exceed 10 x the MAC-value specified in Table 3 at the point of the exhaust.

Category 4 - Non-Toxic and Non-Persistent Substances The concentration of solid substances must not exceed 100 mg/Nm^3 at the point of the exhaust. The concentration of gas, vapour or haze of a substance, if exhausted at roof level, must not exceed 10 x the MAC-value specified in Table 3 at the point of the exhaust.

1.3.2 Emission Standards

Table 1 Dioxins and Furans and other Substance

	Emission Standard	
1	2,3,7,8-Tetrachlorodibenzo-P-Dioxin,	should not exceed, at the point of the exhaust, 0.5 nanograms/Nm^3 in any emission
2	1,2,3,7,8-Pentachlorodibenzo-P-Dioxin	
3	1,2,3,6,7,8-Hexachlorodibenzo-P-Dioxin	
4	1,2,3,7,8,9-Hexachlorodibenzo-P-Dioxin	
5	1,2,3,4,7,8-Hexachlorodibenzo-P-Dioxin	
6	2,3,7,8-Tetrachlorodibenzofuran	
7	2,3,4,7,8-Pentachlorodibenzofuran	
8	1,2,3,6,7,8-Hexachlorodibenzofuran	

Table 2 Solid Substances

Substance	Category	Air Quality guideline mg/m^3	Compliance
Ammonium compounds	3	0.03	solid substances should not exceed 2.5 mg/Nm^3 at the point of the exhaust
Antimony compounds	2	0.01	
Arsenic compounds	1	0.001	
Asbestos	1	0.001	
Barium sulfate	3	0.03	
(Other) Barium compounds	2	0.01	
Bitumen	3	0.03	
Bone-meal	2	0.01	
Cadmium	1	0.001	
Calcium hydroxide	3	0.03	
Calcium oxide	3	0.03	
Chromium and Chromium compounds	1	0.001	
Copper and Copper compounds	2	0.01	
Corn or flour dust	4	0.03	
Cyanides (Sodium and Calcium compounds)	1	0.001	
DDT and related compounds	1	0.001	
Fertilizer (phosphates)	3	0.03	
Lead and Lead compounds	1	0.001	
Magnesium compounds	3	0.03	
Nickel compounds	1	0.001	
Soot	2	0.01	
Tar	2	0.01	
Tobacco	3	0.03	
Wood dust	2	0.01	
Zinc and Zinc compounds	2	0.01	

Table 3 Gas, Vapour or Haze Substance

Substance	Category	MAC-value mg/m^3	Scent limit mg/m^3	Air Quality guideline mg/m^3

Acetic acid	2	25	0.25	0.25
Acetic anhydride	2	20	-	0.2
Acetone	4	2400	1	70
Acetylene	4	-	-	-
Acrolein	2	0.25	0.05	0.003
Acrylonitrile	1	9	-	0.001
Ammonia	2	18	0.1	0.18
Benzene	1	30	3	0.005
Butane	4	1430	-	40
normal-Butanol	2	150	0.2	1.5
normal-Butyl acetate	2	710	0.03	0.2
Carbon monoxide	4	29	-	1
Carbon disulphide	2	60	0.05	0.05
Chlorine	2	3	0.06	0.03
Chloroform	1	120	30	0.12
Cyclohexane	2	1050	2	10
Cyclohexanone	2	200	0.02	0.03
1,2 Dichloroethane	1	200	17	0.2
Dichloromethane	1	350	4	0.35
Diethyl ether	2	1200	-	0.35
Epichlorohydrin	1	4	-	0.3
Ethane	4	-	-	-
Ethanol	4	1900	7	30
Ethyl acetate	2	1400	0.6	3
Ethylene oxide	2	90	-	0.9
Formaldehyde	2	1.5	0.07	0.015
Furfuryl alcohol	2	20	-	0.02
normal-Heptane	2	1600	-	16
normal-Hexane	2	360	-	3.6
Hydrazine	1	0.13	-	0.001
Hydrochloric acid	2	7	0.2	0.07
Hydrogen	4	-	-	-
Hydrogen fluoride	1	2	-	0.006
Hydrogen phosphide	2	0.4	0.1	0.004
Hydrogen sulphide	2	15	0.0001	0.001
Isobutyl acetate	2	700	0.6	0.3
Isopropyl alcohol	2	980	2	10
Methane	4	-	-	-
Methanol	2	260	4	2.6
Methyl acetate	2	610	0.002	0.005
Methyl bromide	1	20	-	0.02
Methylene bisphenylisocyanate (MDI)	2	0.2	-	0.002
Methyl ethyl ketone	2	590	0.7	5
Methyl formate	2	250	-	2.5

Methyl isobutyl ketone	2	410	0.4	0.5
Methyl methacrylate	2	410	0.2	0.1
alpha- Methylstyrene	2	480	0.04	0.03
Monochloroben zene	1	350	-	0.35
Naphthalene	2	50	0.004	0.01
Nitric oxide (NO)	2	30	-	0.05
Nitrous oxide (N_2O)	2	4	0.1	-
Ozone	2	0.2	0.015	0.002
normal-Pentane	2	360	-	3.6
Perchloroethyle	2	240	12	2.4
ne Phenol	2	19	0.02	0.1
Phosgene	2	0.4	0.5	0.004
normal-Propyl acetate	2	840	-	8.4
Propylene oxide	2	240	-	2.4
Prussic acid	2	11	-	0.11
Pyridine	2	15	0.04	0.05
Styrene monomer	2	420	0.02	0.03
Sulphur dioxide	2	5	0.9	0.08
Sulphuric acid	2	1	-	0.01
Toluene	2	375	0.08	1
Toluene diisocyanate (TDI)	2	0.14	-	0.001
1,1,1- Trichloroethane	1	1080	-	1
1,1,2- Trichloroethane	2	45	-	0.045
Trichloroethylene	2	190	-	1.9
Vinyl chloride	1	8	-	0.008
Xylene	2	435	0.6	1

2.0 SCOPE OF WORKS

All work must comply with the Environment Management (waste disposal and recycling) regulations 2007, and applicable emission sampling standards.

1. Inspection and testing exhaust emission twice a year.
2. Submit detail report for all EFL sites and;
3. Ensure full compliance to the Environment Management (waste disposal and recycling) regulations 2007.

2.1 Methodology

1. A point source of an air polluting substance should not, in isolation or combination with any other source of that substance, cause a concentration of that substance in the ambient air to exceed the emission standards set out in the tables 1,2 & 3.
2. The concentration of a point source of a substance may be calculated by using any of the following methods -
    - The relevant modelling protocol contained in Industrial Source Complex (ISC3) Dispersion Models (United States Environmental Protection Agency, Office of Air Quality Planning and Standards, Emissions, Monitoring, and Analysis Division, USEPA-454/B-95-003a), or other equivalent model approved by the Department of Environment;
    - surface meteorological data from an appropriate source;
    - Mixing height data from an appropriate source;
    - Emission temperature and volume data;
    - The height of emission;
    - Any other relevant data or criteria as specified in the standard models stated above.

The service provider may provide EFL with an alternate methodology that is compliant to the Environment Management (waste disposal and recycling) regulations 2007.

3.0 PRICE SCHEDULE

Testing of Exhaust Emission for Stationery Plant at all EFL's Power Station

Region	Location	Number of Plants	Price (Testing and Report) FJD (VIP)
Central	Kinoya Depot	10	
	Korovou Power Station	2	
	Rokobili Power Station	5	
	Deuba Power Station	3	
Ovalau	Levuka Power Station	5	
Western	Veda Power Station	5	
	Sigatoka Power Station	9	
	Nadi Power Station	5	
	Qeleloa Power Station	3	
	Rakiraki Power Station	2	
Northern	Cawaira Power Station	12	
	Savusavu Power Station	5	
Taveuni	Waiyevo Power Station	2	
Total FJD (VIP)			

TENDER SUBMISSION CHECK LIST

The Bidders must ensure that the details and documentation mention below must submitted as part of their tender Bid

Tender Number _____

Tender Name _____

1. Full Company Name: _____

   (Attach copy of Registration Certificate)

2. Director/Owner(s): _____
3. Postal Address: _____
4. Phone Contact: _____
5. Fax Number: _____
6. Email address: _____
7. Office Location: _____
8. TIN Number: _____

   (Attach copy of the VAT/TIN Registration Certificate - Local Bidders Only)

9. Company Registration Number: _____

   (Attach copy of the Business License)

10. FNPF Employer Registration Number: _____

    (For Local Bidders only)

11. Contact Person: _____

I declare that all the above information is correct.

Name: _____

Position: _____

Sign: _____ Date: _____

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 EFL Head Office, 2 Marlow Street, Suva, Fiji.

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

This tender closes at 4:00 p.m. (16.00hrs Fiji time) on Wednesday 2nd December, 2020.

Each tender shall be sealed in an envelope with the envelope bearing only the following marking:

MR 262/2020
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The Secretary, Tender Committee
Energy Fiji Limited
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 on the envelope will be returned to the Tenderers unopened. (Bids via e-mail or fax will not be considered).

The bidders must ensure that their bid is inclusive of all Taxes payable under Fiji Income Tax Act and must have the most current Tax Compliance Certificate.

For further information or clarification please contact our Supply Chain Office on phone **(+679) 3224360 or (+679) 9992400.**

Bidders are requested to submit a:

- **Valid Tax Compliance Certificate**
- **FNPF Compliance Certificate**
- **FNU Compliance Certificate**

The Tender Bids particularly the "Price" must be typed and not hand written.

(Tender Submission via email or fax will not be accepted)