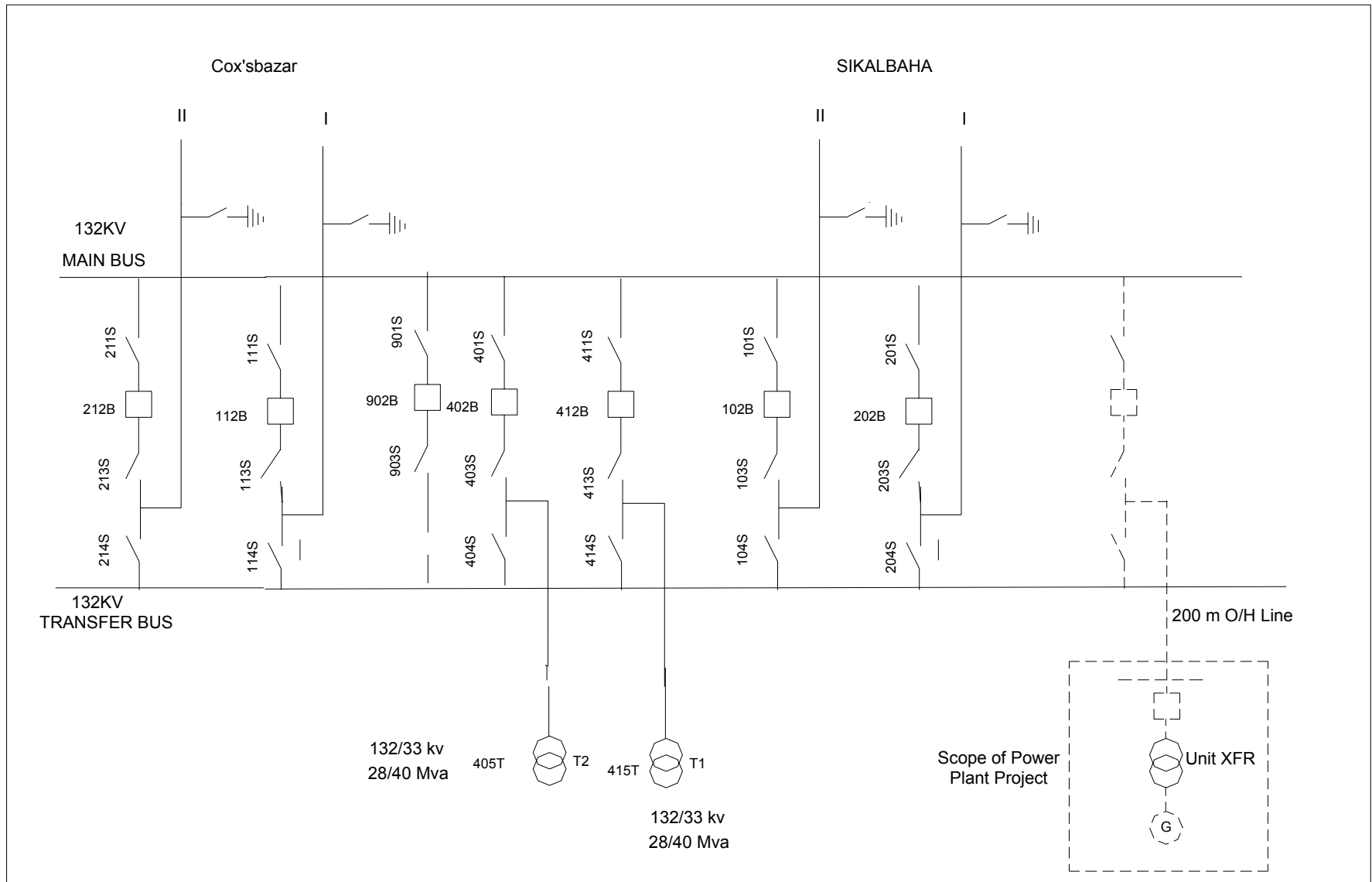


20.3 Sub-station Single Line Diagram

SLD of Dohazari 132 kV S/S showing provision of connecting proposed 100 MW Power Plant



20.4

Fuel Analysis

Specification of LIGHT DIESEL OIL

Tests	Method	Limit
Density at 15°C, kg/L	ASTM D 1298	Max.0.890
Neutralization value	ASTM d G64	
a) Strong acid no. , mg KOH/g		Nil
b) Total acid no. , mg KOH/g		Max. 0.5
Ash, % mass	ASTM D 482	Max. 0.02
Carbon residue (conradson),% mass	ASTM D 189	Max. 2.0
Pour Point, °C	ASTM D 97	Max. 12 for Winter* use Max. 18 for Summer* use.
Flash point PM (cc), °C	ASTM D 93	Min. 66
Cinematic Viscosity at 38°C, cst	ASTM D 445	Max. 16
Sediment, % mass	ASTM D 473	Max. 0.1
Water content , % vol	ASTM D 95	Max. 0.25
Sulphur, total, % mass	ASTM D 2622	Max. 1.8

*** Winter shall be the period from November to February (both months inclusive) and rest of the months of the year shall be called as Summer.**

Specification of HIGH SULPHUR FURNACE OIL

Tests	Method	Limit
Density at 15°C, kg/L	ASTM D 1298	Min. 0.890 Max. 0.960
Flash Point PM(cc), °C	ASTM D 93	Min. 66
Sediment, % mass	ASTM D 473	Max. 0.25
Water Content	ASTM D 95	Max. 0.5
Kinomatic Viscosity at 50 °C, cat	ASTM D 445	Min. 45 Max. 180
Pour Point, °C	ASTM D 97	Max. 33
Sulphur content, % mass	ASTM D 2622	Max. 3.5
Carbon residue (conradson),%mass	ASTM D 189	Max. 10
Calorific Valuc, Kcal/kg	ASTM D 240	Min. 10250

20.5 Seismic Zone Map of Bangladesh

BANGLADESH SEISMIC ZONES MAP

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23

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LEGEND



VERY ACTIVE SEISMIC REGION SEISMIC FACTOR $1/5g$ TO $1/10g$ FOR BUILDING.



ACTIVE SEISMIC REGION SEISMIC FACTOR $1/10g$ TO $1/20g$ FOR BUILDING.

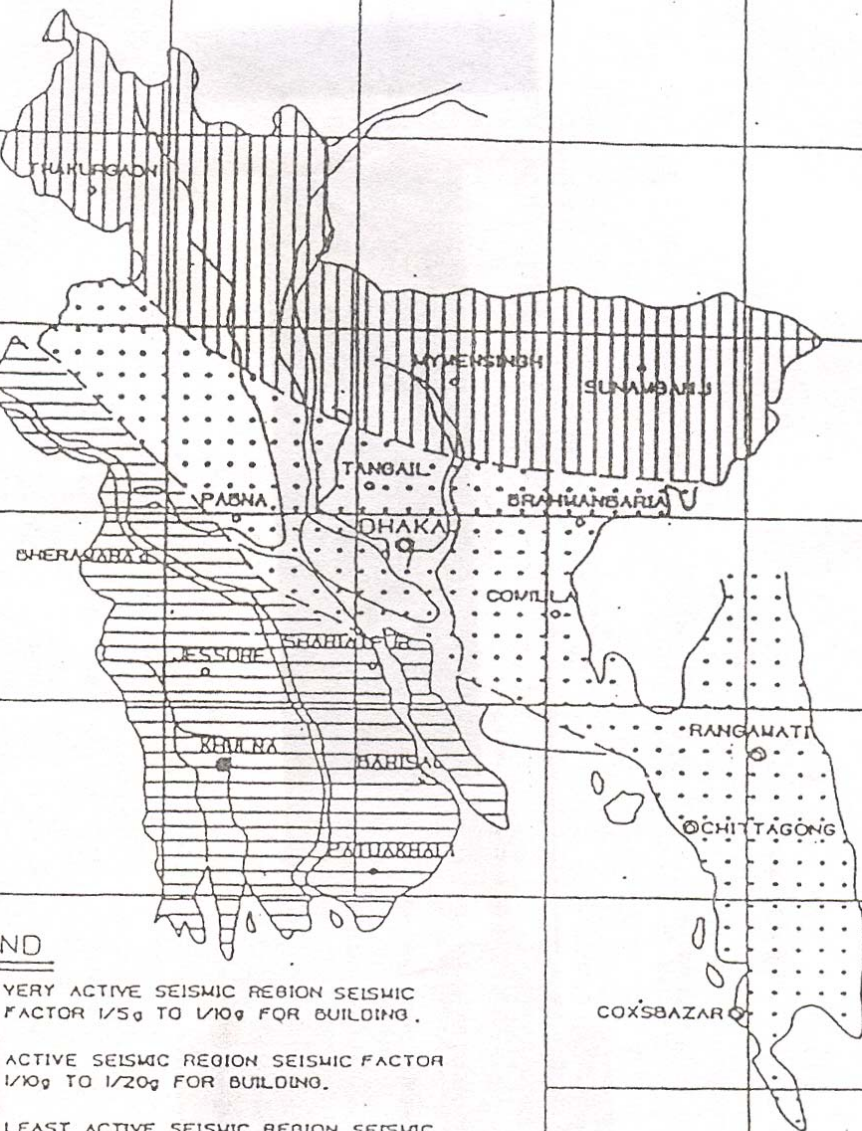


LEAST ACTIVE SEISMIC REGION SEISMIC FACTOR $1/20g$ OR LESS

89

91

93



20.6 Environmental Standards

Environmental Standard

1. Flue Gas Emission Regulation

The environmental conservation regulation defines different flue gas emission standards according to output scale of power plants. The power plant considered have to comply with the standard shown in table-1 if not updated by new regulations:

Table 1: FLUE GAS EMISSION STANDARD

Smoke Type	Emission Standard	Remark
NOx	30 ppm	Power Plant Smaller than 200 MW
SOx		A coal-burning power plant is regulated but a gas turbine power plant is not.
Dust	350 mg/Nm ²	Power Plant smaller than 200 MW

2. Noise Regulation

The environmental conservation regulation defines noise standards according to the type of use of the area. The power plant site is classified in residential area and must comply with the standard shown below if not updated by new regulations:

Table 2: NOISE STANDARD

Area	Standard (db)	
	Day	Night
Quiet area	45	35
Residential Area	50	40
Complex area (Complex of residential commercial and industrial area)	60	50
Commercial area	70	60
Industrial area	70	10

Note 1: Day is 6 a.m. to 9 p.m.

Note 2: Night is 9 p.m. to 6 a.m.

3. Effluent Regulation

The environmental conservation regulation defines *effluent* standards according to area where the power plant's effluent is discharged the Power Plant have to comply with standard shown in Table - 3 if not updated by new regulations:

TABLE 3: EFFLUENT STANDARD

No	Item	Unit	Standard
1.	Nitrogen including ammonia (N molecule)	Mg/l	50
2.	Ammonia (Free ammonia)	Mg/l	5
3.	Arsenic (As)	Mg/l	0.2
4.	BGD ^{TV} 20 ⁰ C	Mg/l	50
5.	Boron	Mg/l	2
6.	Cadmium (Cd)	Mg/l	0.05
7.	Chloride	Mg/l	600
8.	Chromium (Total Cr)	Mg/l	0.5
9.	COD	Mg/l	200
10.	Chromium (Hexavalent chromium)	Mg/l	0.1
11.	Copper (Cu)	Mg/l	0.5
12.	Dissolve Oxygen (DO)	Mg/l	4.5-8
13.	Conductance	Micromho/cm	1.200
14.	Total soluble matters	Mg/l	2.100
15.	Fluoride (F)	Mg/l	7
16.	Sulfide (S)	Mg/l	1
17.	Iron(Fe)	Mg/l	2
18.	Total Kjeldahi nitrogen (N)	Mg/l	100
19.	Lead (Pb)	Mg/l	0.1
20.	Manganese (Mn)	Mg/l	5
21.	Mercury (Hg)	Mg/l	0.01
22.	Nickel (Ni)	Mg/l	1.0
23.	Nitrate (N molecule)	Mg/l	10.0
24.	Grease	Mg/l	10
25.	Phenol compound (C ₆ H ₆ OH)	Mg/l	1.0
26.	Dissolve phosphorus (P)	Mg/l	8
27.	Radio active substance : Defined by Bangladesh nuclear Committee		
28.	pH	Mg/l	6-9
29.	Selenium	Mg/l	0.05
30.	Zinc(Zn)	Mg/l	5.0
31.	Total dissolve evaporation residue	Mg/l	2.100
32.	Temperature Summer Winter	Celsius	40 04
33.	Suspended solid (SS)	Mg/l	150
34.	Cyanide (CN)	Mg/l	0.1