



Registrar

National Electric Power Regulatory Authority

Islamic Republic of Pakistan

2nd Floor, OPF Building, G-5/2, Islamabad.

Ph : 9207200, Fax : 9210215

E-mail : office@nepra.org.pk

Direct Phone : (051) 9206500

No. NEPRA/R/LAG-25/12763-64

February 18, 2005

Chief Executive Officer
Lakhra Power Generation Company Ltd.
Room No. 106,
WAPDA House,
Lahore

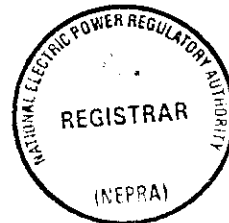
Subject: **Grant of Generation Licence GL/06/2005**
Licence Application No. LAG-25
Lakhra Power Generation Company Ltd.

Please refer to your Application No. CEO/LPGCL/130/5305-7, dated 05.04.2004 for a Generation Licence.

2. Enclosed here is Generation Licence No. GL/06/2005 granted by the Authority to Lakhra Power Generation Company Ltd. The Licence is granted pursuant to Section 15 of the Regulation of Generation, Transmission and Distribution of Electric Power Act (XL of 1997).

3. Please quote above mentioned Generation Licence No. in your future correspondence with the Authority.

DA/As above.



Mahjoob Ahmad Mirza
18.02.05.
(Mahjoob Ahmad Mirza)

Copy for information to Director General, Pakistan Environmental Protection Agency, 44-E, Office Tower, Blue Area, Islamabad

**National Electric Power Regulatory Authority
(NEPRA)
Islamabad – Pakistan**

GENERATION LICENCE

No. GL/05/2005

In exercise of the Powers conferred upon the National Electric Power Regulatory Authority (NEPRA) under Section 15 of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 (XL of 1997), the Authority hereby grants a Generation Licence to:

Lakhra Power Generation Company Limited
(Installed Capacity: 150 MW)

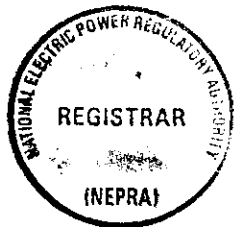
**Incorporated under the Companies Ordinance, 1984
Under Certificate of Incorporation**

No. L 10935 of 2001-2002 dated 21st February 2002.

to engage in generation business subject to and in accordance with the Articles of this Licence.

Given under my hand this 18th day of February, Two Thousand & Five, and expires on 17th day of February, Two Thousand & Twenty.

18.02.05.
Registrar



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Article 1
Definitions

In this Licence:

“Act” means the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 (XL of 1997);

“Authority” means the National Electric Power Regulatory Authority constituted under Section 3 of the Act;

“Licensee” means Lakhra Power Generation Company Limited; and

“Rules” mean the National Electric Power Regulatory Authority Licensing (Generation) Rules, 2000.

Words and expressions used but not defined herein bear the meaning given thereto in the Act or in the Rules.

Article 2
Application of Rules

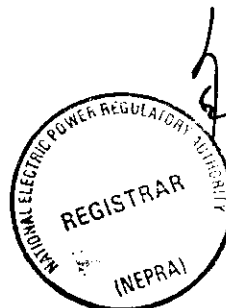
This Licence is issued subject to the provisions of the Rules, as amended from time to time.

Article 3
Generation Facilities

The location, size, technology, interconnection arrangements, technical limits, technical functional specifications and other details specific to the generation facilities of the Licensee are set out in Schedule I to this Licence.

The net capacity of the generation facilities is set out in Schedule II hereto.

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Article 4

Term

This Licence is granted for a term of fifteen [15] years.

Article 5

Licence Fee

The Licensee shall pay to the Authority the licence fee in the amount and manner and at the time specified in the National Electric Power Regulatory Authority (Fees) Rules, 2002.

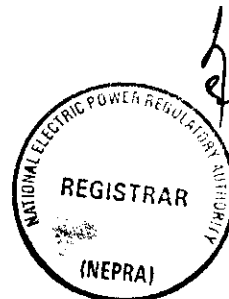
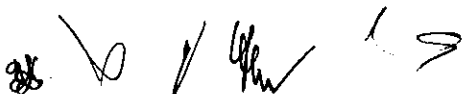
Article 6

Competitive Trading Arrangement

6.1. The Licensee shall participate in such measures as may be directed by the Authority from time to time for development of a Competitive Trading Arrangement. The Licensee shall in good faith work towards implementation and operation of the aforesaid Competitive Trading Arrangement in the manner and time period specified by the Authority:

Provided that, any such participation shall be subject to any contract entered into subsequent to the enactment of the Act between the Licensee and another party with the approval of the authority.

6.2. Any variation or modification in the above-mentioned contracts for allowing the parties thereto to participate wholly or partially in the Competitive Trading Arrangement shall be subject to mutual agreement of the parties thereto and such terms and conditions as may be approved by the Authority.



Article 7

Maintenance of Records

For the purposes of sub-rule (1) of Rule 19, copies of records and data shall also be retained in electronic form and all such records and data shall, subject to just claims of confidentiality, be accessible by authorized officers of the Authority.

Article 8

Compliance with Performance Standards

The Licensee shall conform to the relevant rules on performance standards as may be prescribed by the Authority from time to time.

Article 9

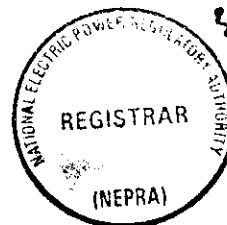
Compliance with Environmental Standards

The Licensee shall conform to the environmental standards as may be prescribed by the relevant competent authority from time to time.

Article 10

Provision of Information

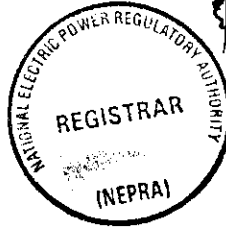
- 10.1 The obligation of the licensee to provide information to the Authority shall be in accordance with Section 44 of the Act.
- 10.2 The licensee shall be subject to such penalties as may be specified in the relevant rules made by the Authority for failure to furnish such information as may be required from time to time by the Authority and which is or ought to be or have been in the control or possession of the licensee.



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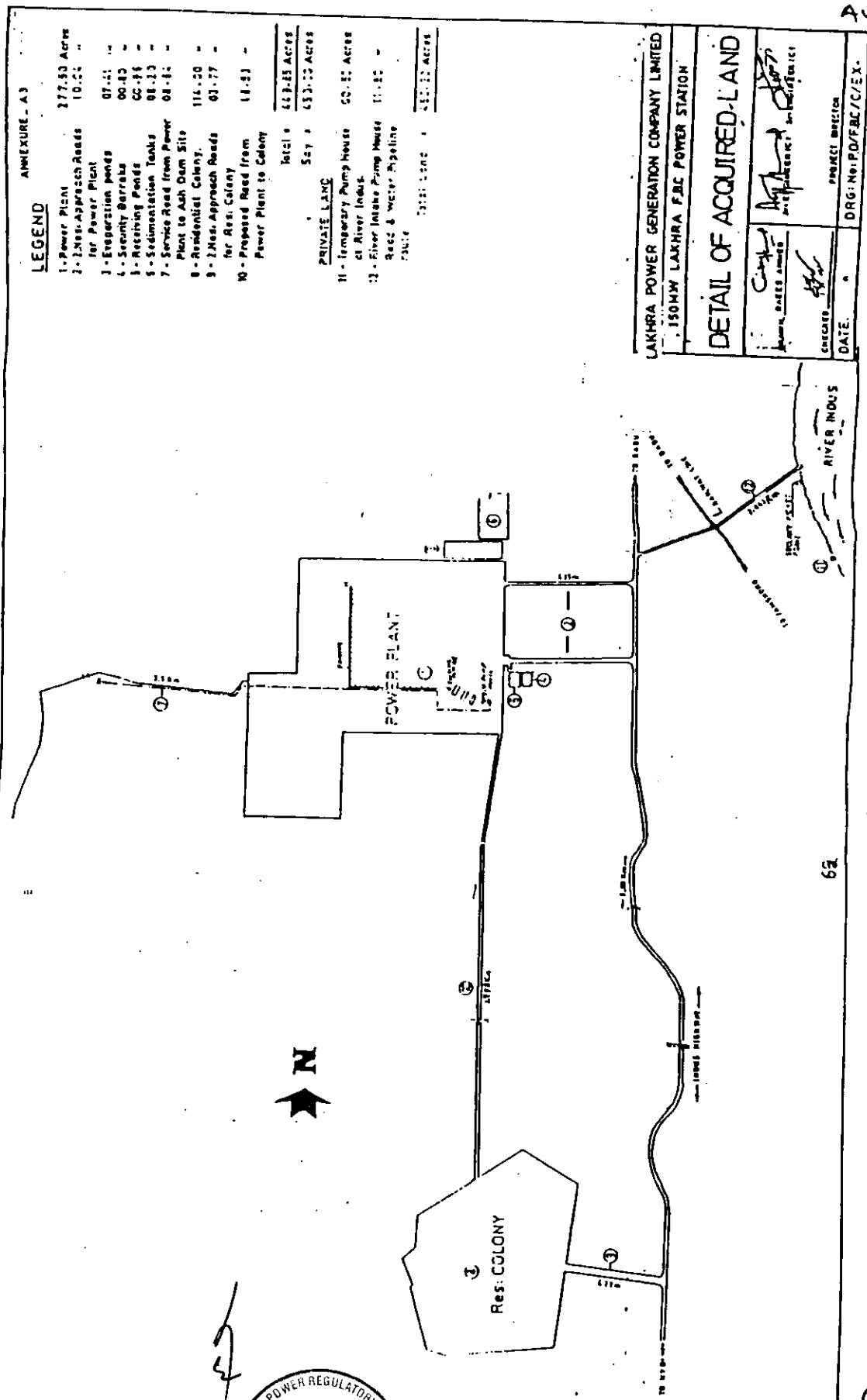
SCHEDULE-I

The location, size (capacity in MW) technology interconnection arrangements, technical limits technical functional specifications and other details specific to the generation facilities of the licensee



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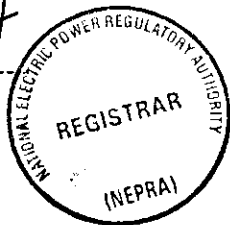
Ann



ANNEXURE - A3
LEGEND

- 1- Power Plant 177.50 Acres
 - 2- 2 Nos. Approach Roads for Power Plant 10.00 "
 - 3- Evaporation Ponds 07.41 "
 - 4- Security Barracks 00.00 "
 - 5- Receiving Ponds 00.36 "
 - 6- Sedimentation Tanks 08.23 "
 - 7- Service Road from Power Plant to Ash Dam Site 08.82 "
 - 8- Residential Colony 116.00 "
 - 9- 2 Nos. Approach Roads for Res. Colony 03.77 "
 - 10- Proposed Road from Power Plant to Colony 11.51 "
- Total = 429.83 ACRES
Say = 430.00 ACRES
- PRIVATE LAND**
- 11- Temporary Pump House at River Indus 00.00 ACRES
 - 12- River Intake Pump House Recd & water Pipeline 11.80 "
- Total = 451.83 ACRES

LAKHRA POWER GENERATION COMPANY LIMITED	
150 MW LAKHRA FBC POWER STATION	
DETAIL OF ACQUIRED LAND	
 PROJECT DIRECTOR	 ENGINEER IN CHARGE
CREATED DATE:	DRG: No: PD/FBC/EX-



ATTN: A-5

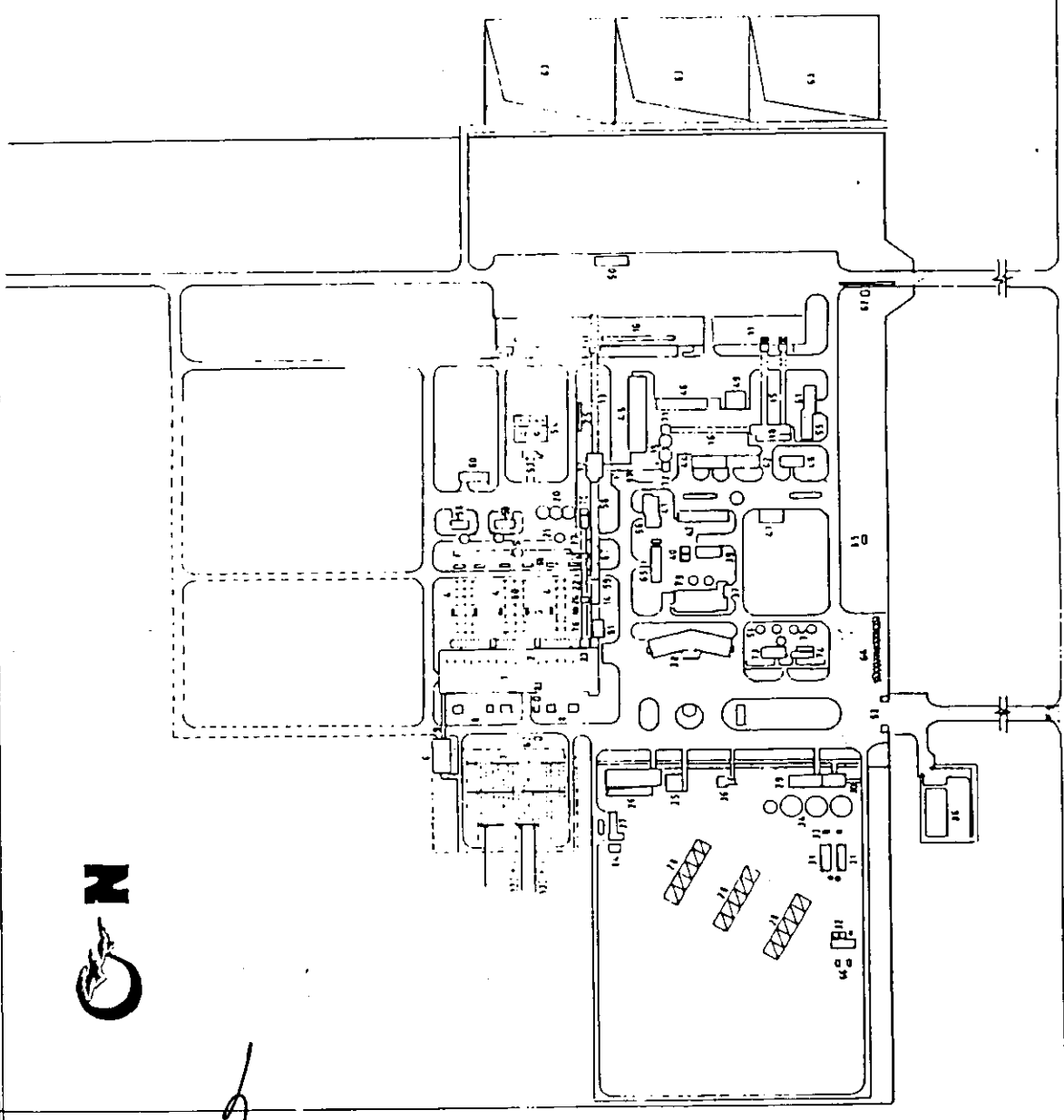
LIST OF BUILDINGS/STRUCTURES

NO	BUILDINGS/STRUCTURES	NO	BUILDINGS/STRUCTURES
41	TURBINE HALL	41	WELDING AND FORGING SHOP
42	DEADEND COAL BUNKER B.T.	42	MATERIAL WARE HOUSE
43	BOILER	43	MATERIAL SHED
44	BAG HOUSE	44	GARAGE AND FIRE STATION
45	CHIMNEY/GAS DUCT	45	CARPENTER SHOP
46	MAIN CONTROL BUILDING	46	HOUSEHOLD OBJECTS STORAGE
47	TIE-UP SWITCH YARD	47	BUILDING GARAGE
48	MAIN TRANSDUCER	48	WATER TOWER
49	OVERHEAD CORRIDOR	49	GUARD AND JANITOR ROOM
50	COAL SHED	50	SMELTING PLANT HOUSE
51	LIMESTONE SHED	51	WRITING TABLE
52	COAL CRUSHER HOUSE	52	BATH ROOM 1st FLOOR
53	COAL CONVEYER No. 1	53	FRAMING BASKET HOUSE
54	COAL CONVEYER No. 2	54	BELETO
55	LIMESTONE CONVEYER No. 1	55	NEGATIVE PRESS FAN ROOM
56	LIMESTONE CONVEYER No. 2	56	AM COMPRESSOR ROOM
57	LIMESTONE CONVEYER No. 3	57	CINDER DISPOSAL ROOM
58	STONE CRUSHER HOUSE	58	COAL HANDLING MAINT. SHOP
59	LIMESTONE SHED	59	DESIGNING
60	SLAG SHED	60	EVAPORATING POOL
61	ASH SHED	61	GARAGES
62	REFRIGERATION PLANT	62	REFRIGERATION PLANT
63	SLUDGE TRANSFER TOWER No. 1	63	SEWAGE WATER TREAT. DEVICE
64	SLUDGE TRANSFER TOWER No. 2	64	CHIMNEY DISPOSAL SWITCH ROOM
65	INDUCED FAN FOUNDATION	65	INDUCED FAN FOUNDATION
66	SLUDGE TO ASPEN TOWER No. 1	66	SLUDGE TRANSFER TOWER No. 1
67	SLUDGE TRANSFER TOWER No. 2	67	SLUDGE TRANSFER TOWER No. 2
68	MECH. DRAFT COOLING TOWER	68	SLUDGE TRANSFER TOWER No. 3
69	COMPRESSOR WATER PACKAGE	69	SLUDGE TRANSFER TOWER No. 4
70	CHEMICAL INJECTING ROOM	70	SOFT WATER TREATMENT
71	CLAMP ROOM	71	SOFT WATER TREATMENT
72	SEWAGE WATER PUMP HOUSE	72	GLASS FIBRE COOLING TOWER
73	VALVELESS RITENING BASIN	73	SLUDGE SCRAPPER HILL
74	PURIFIED WATER BASIN	74	SLUDGE SCRAPER No. 1
75	S.W. SWITCH ROOM	75	BELETO
76	HYDROGEN STATION	76	DEMINERALITE WATER TANK
77	CHEMICAL WATER TREAT. PLANT	77	CONTROL ROOM OF BAGHOUSE
78	OFFICE BUILDING	78	DIESEL GENERATOR ROOM
79	ACID AND BASE STORAGE	79	NO. 1 EMERGENCY OIL TANK
80	NEUTRALISING POOL	80	NO. 2 EMERGENCY OIL TANK
81	COAL HANDLING SWITCH ROOM	81	ACID INJECTING ROOM OF W.C.
82	ELECT. MAINTENANCE SHOP	82	GAS REGULATION STATION
83	MECH. SHOP	83	FINE SEDIMENTATION POND

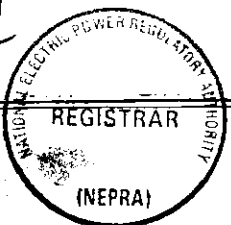
LAKHRA POWER GENERATION COMPANY LIMITED
TUMUW LAKHRA FBC POWER PLANT Khanote

GEN. LAYOUT PLAN

DRAWN BY: *[Signature]*
CHECKED BY: *[Signature]*
DATE: MAY 1995
RESIDENT ENGINEER
DRAWING NO. RE/LOPIC/IPS/001



INDUS HIGHWAY



PLANT DETAILS

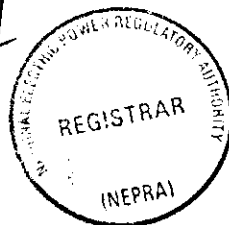
- | | | |
|----|-------------------|---|
| 1. | Name of Applicant | Lakhra Power Generation Company Limited |
| 2. | Registered Office | 158 WAPDA House, Lahore. |
| 3. | Plant Location | Khanote, Dadu District, Sind |
| 4. | Type of Facility | Thermal Power Plant |

Plant Configuration

- | | | |
|-----|---|---|
| 5.a | Plant size | 150 MW (3 x 50 MW) |
| 5.b | Type of Technology | Fluidized Bed Combustion Units (Steam Turbines) |
| 5.c | Number of Units | Three |
| 5.d | Unit Size | 50 MW Each |
| 5.e | Unit Make and Model
Date of Manufacture. | All 3 units manufactured by M/S Dongfong Electric Corporation, China in 1994. |
| 5.f | Date of Commissioning | Unit 1: 23-3-1994
Unit 2: 28-9-1994
Unit 3: 23-12-1994 |

Fuel Use

- | | | |
|------|-----------------------------|--|
| 6.a. | Fuel Type | Lignite Coal |
| 6.b | Fuel (imported/ indigenous) | Indigenous |
| 6.c | Fuel Supplier | M/S Lakhra Coal Development Company(LCDC) |
| 6.d | Supply Agreement | Yes |
| 6.e | No. of Tanks | 2 (HSD used for firing starting fuel) |
| 6.f | Storage Capacity/Tank | 100 Cubic Meters |
| 6.g | Gross Storage | 200 Cubic Meters |



Emission Values (M.Tons Per Year) 2000-2001

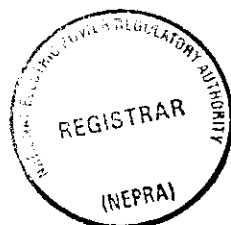
7.a	SO ₂	188.384
7.b	NO _x	0
7.c	CO ₂	177240
7.d	Particulate	397.497
8	Cooling Water Source	River Indus
9.	Installed Capacity	150 MW
10.	Derated Capacity	120 MW
11.	Expected Remaining Life of the Facility	15 years
12.	Operational Record	Provided

Project Cost

13.a	Local (Million Rupees)	Rs. 3587.630 Million
13.b	Foreign (Million Rupees)	Rs. 1990.100 Million
13.c	Total Project Cost (Million Rupees)	Rs.5577.730 Million

Plant Characteristics

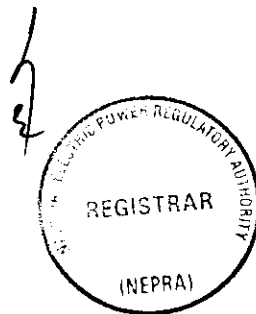
14.a	Generation Voltage	10.5 KV
14.b	Frequency	50 Hz
14.c	Power Factor	0.8 Lagging
14.d	Ramping Rate (MW/Min)	2.0
14.e	Alternative Fuel	Nil
14.f	Auxiliary Consumption	23%
14.g	Time Required: cold start up to synchronize to Grid	07-08 Hours



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LAKHRA POWER GENERATION COMPANY LIMITED

TECHNICAL INFORMATION



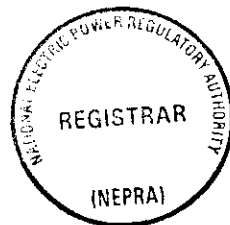
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LAKHRA POWER GENERATION COMPANY LIMITED

F.B.C. Power Station, Lakhra.

Operational Record

Year	Unit No.	Generation MKWH	Load Factor (%)	Coal Consumption (Ton)	Limestone Consumption (Ton)	HSD Oil Consumption (Ltr.)
1995-96	1	103.903	23.72	93370.688	25026.908	138181
	2	167.119	38.15	151615.68	30205.346	201834
	3	129.792	29.63	123825.568	17348.473	174711
1996-97	1	106.572	24.33	103544.544	8157.791	84680.47
	2	93.127	21.26	87092.569	7094.547	127525.26
	3	139.505	31.85	126548.454	12390.985	307913.51
1997-98	1	117.001	29.68	96935.957	7417.311	67404.00
	2	116.338	28.28	102043.468	11131.336	20827.95
	3	143.798	36.47	122629.515	9695.947	150465.85
1998-99	1	124.034	33.71	97756.377	488.781	37786.68
	2	135.506	36.83	96250.279	481.251	57192.925
	3	216.824	58.93	199921.188	959.650	125125.27
1999-2000	1	64.798	17.15	53508.657	1299.667	111467.00
	2	175.0643	45.07	147803.061	3797.965	108501
	3	164.333	44.47	141364.871	3146.774	63620
2000-2001	1	130.365	35.43	110348.49	2214.62	76496
	2	8.029	3.06	7013.819	136.300	--
	3	102.072	29.13	88420.683	1733.984	85069



ANALYSIS OF WASTE WATER
150 MW FBC POWER STATION, LAKHRA

1996-2000

Year	PH	Conductivity	Total Dissolved solids ppm	Total hardness	Chemical Oxygen demand	Oil	Chloride
1996	Min: 7.0	120	78.0	126	5.1	Nil	28.5
	Max: 9.8	1057	792.7	418	8.3	Traces	360.0
1997	Min: 7.4	366	237.9	95	5.0	Nil	35.0
	Max: 9.8	11856	888.7	275	13.6	Traces	258.0
1998	Min: 7.2	598	388.7	86	7.5	Nil	60.0
	Max: 8.5	1260	945.0	598	9.9	Nil	262.0
1999	Min: 7.4	282	183.3	152	7.5	Nil	32.0
	Max: 8.1	859	558.3	480	10.7	Nil	215.0
2000	Min: 7.5	292	189.8	160	8.2	Nil	23.8
	Max: 8.3	1061	795.7	410	9.2	Nil	326.0

EMISSIONS DATA 1995 TO 2001

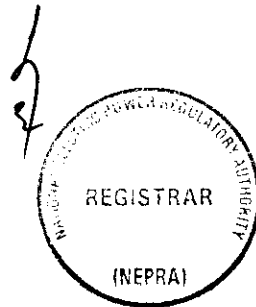
YEAR	FUEL CONSUMPTION COAL CONSUMED (M.TONS)	EMISSIONS TONS PER YEAR			
		SO2 (M.Tons)	Nox	CO2 (M.T)	Particulate Matter (M.Tons)
1995-96	366738	368.671	0	228600	1071.408
1996-97	317185	348.442	0	232602	950.401
1997-98	321609	317.194	0	247638	897.932
1998-99	393928	379.674	0	333512	849.738
1999-2000	342677	320.216	0	291629	681.366
2000-2001	205783	188.384	0	177240	397.497



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LAKHRA POWER GENERATION COMPANY LIMITED

PLANT EQUIPMENT SPECIFICATIONS



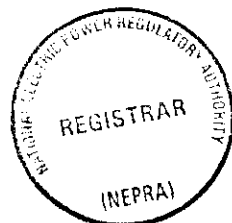
28

PLANT EQUIPMENT SPECIFICATIONS

FBC POWER STATION, LAKHRA

1. BOILERS

S.NO.	GENERAL	UNIT NO.1,2 & 3
01.	TYPE	(DG-220.9.8-5) BUBBLING BED
02.	DESIGN	M S FOSTER WHEELER OF USA
03.	MANUFACTURER	M.S DONGFONG ELECTRIC WORKS, CHINA
04.	RATED OUTPUT	200 T/H
05.	MAX: CONTINUOUS OUTPUT	220 T/H
06.	STEAM PRESSURE	100 Kg/Cm ² (9.8Mpa)
07.	STEAM TEMPERATURE	540°C
08.	FURNACE TEMPERATURE	843°C (1550°F)
09.	NO. OF COAL FLIPPERS FEEDS	10
10.	NO. OF LIME STONE FEEDS	07
11.	BOILER DRUM LENGTH	6.4 METERS
12.	BOILER DRUM DIA (INTERNAL)	1.6 METERS
13.	HEIGHT OF CHIMNEY	100 METERS
14.	COAL CONSUMPTION	51.60 T/H
15.	LIMESTONE CONSUMPTION	26.45 T/H



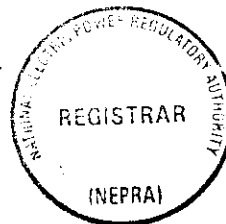
PLANT EQUIPMENT SPECIFICATIONS

FBC POWER STATION, LAKHRA

2. STEAM TURBINES

S.NO.	GENERAL	UNIT NO.1,2 & 3
01.	TYPE	H.P CONDENSING SINGLE CYLINDER
02.	RATED OUTPUT	50 MW
03.	MAX: OUTPUT	57 MW
04.	RATED STEAM CONSUMPTION	194 T/H
05.	LIVE STEAM TEMP:	535°C
06.	LIVE STEAM PRESS:	8.83 Mpa
07.	COOLING WATER TEMPERATURE	31°C
08.	EXHAUST PRESS:	0.082 ata 0.00804 Mpa
09.	TOTAL WEIGHT	140 Tons
10.	NO. OF STAGES	21 (INCLUDING CURTIS WHEEL)
11.	NO. OF EXTRACTIONS	6

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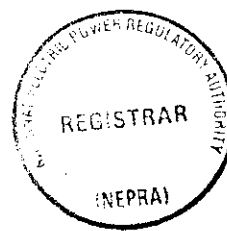


PLANT EQUIPMENT SPECIFICATIONS

FBC POWER STATION, LAKHRA

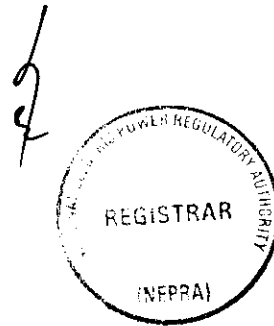
3. GENERATOR

S.NO.	DESCRIPTION	UNIT NO.1,2 & 3
01.	TYPE	2-POLE HYDROGEN COOLED
02.	RATED POWER (MVA)	62.5
03.	RATED VOLTAGE (KV)	10.5
04.	RATED CURRENT (A)	3440
05.	NO. OF PHASES	3
06.	CONNECTION	DOUBLE Y
07.	RATED HYDROGEN PRESS: (Mpa)	0.1
08.	WEIGHT OF STATOR (Tons)	105
09.	WEIGHT OF ROTOR (Tons)	25
10.	CRITICAL SPEED (RPM)	1st 1765 2 nd 4985



LAKHRA POWER GENERATION COMPANY LIMITED

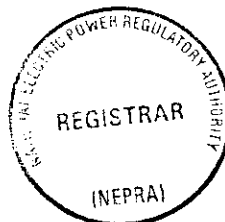
PERFORMANCE INDICATORS



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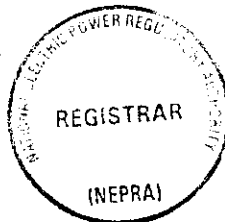
LAKHRA POWER GENERATION COMPANY LIMITED
JULY 2001 TO JUNE 2002

POWER STATIONS		PERFORMANCE INDICATORS										
SR. #	FBC POWER STATION LAKHRA	TOTAL INSTALLED CAPACITY (MW)	DERATED CAPACITY (MW)	MAX. LOAD (MW)	TOTAL UNITS GENERATED (MWH)	LOAD FACTOR (%)	PLANT UTILIZATION FACTOR (%)	PLANT AVAILABILITY FACTOR (%)	PLANT CAPACITY FACTOR (%)	GROSS HEAT RATE (BTU/KWH)	THERMAL EFFICIENCY (%)	
1	Unit # 01	50	40	41	156.560	43.59%	44.60%	51.85%	80.00%	12140	28.10%	
2	Unit # 02	50	40	0	0.000	0.00%	0.00%	0.00%	0.00%	0	0.00%	
3	Unit # 03	50	40	40	127.932	36.51%	36.51%	40.95%	80.00%	12500	27.30%	
Total		150	120	80	284.492	40.60%	27.06%	30.93%	66.66%	12304	27.74%	



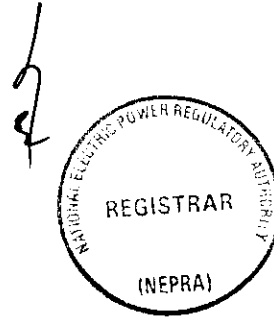
LAKHRA POWER GENERATION COMPANY LIMITED
JULY 2002 TO JUNE 2003

POWER STATIONS		PERFORMANCE INDICATORS										
SR. #	FBC POWER STATION LAKHRA	TC INSTALLED CAPACITY (MW)	DERATED CAPACITY (MW)	MAX: LOAD (MW)	TOTAL UNITS GENERATED (MWH)	LOAD FACTOR (%)	PLANT UTILIZATION FACTOR (%)	PLANT AVAILABILITY FACTOR (%)	PLANT CAPACITY FACTOR (%)	GROSS HEAT RATE (BTU/KWH)	THERMAL EFFICIENCY (%)	
1	Unit # 01	50	40	36	95.771	30.36%	27.33%	34.97%	80.00%	12346	27.64%	
2	Unit # 02	50	40	0	0.000	0.00%	0.00%	0.00%	0.00%	0	0.00%	
3	Unit # 03	50	40	36	135.381	42.93%	38.63%	46.59%	80.00%	12385	27.55%	
Total		150	120	71	231.152	37.16%	22.00%	27.18%	59.17%	12369	27.60%	



LAKHRA POWR GENERATION COMPANY LIMITED

HISTORY OF MAJOR MAINTENANCE ACTIVITIES



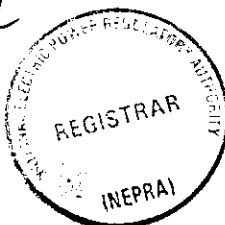
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HISTORY OF THERMAL UNITS
MAJOR MAINTENANCE ACTIVITIES
(SINCE COMMISSIONING)

F.B.C POWER STATION, LAKHRA

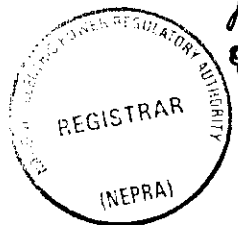
Unit No. date of commissioning	Activity No.	Boiler Inspection		Outage days	REMARKS
		From	To		
UNIT-1 23.03.94	1st 2nd 3rd 4th	25.06.1996	23.07.1996	29	Contractual
		28.05.1997	11.07.1997	45	Annual
		13.09.1999	06.11.1999	50	Annual
		25.01.2002	04.02.2002	11	Annual
UNIT-2 28.09.1994	1st	27.09.1996	15.12.1996	50	Contractual
UNIT-3 23.12.1994	1st 2nd 3rd 4th	19.12.1996	16.01.1997	29	Contractual
		31.08.1997	07.10.1997	38	Annual
		13.07.1999	16.09.1999	66	Annual
		15.08.2001	24.08.2001	10	Annual

F.B.C : Fluidized Bed Combustion



**INTER CONNECTION
WITH
NATIONAL GRID**

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INTERCONNECTION WITH NATIONAL GRID COMPANY

This power station is connected with National Grid via 132 KV Grid Station Lakhra at a distance of 5 Km and 500 KV/220KV/132KV Grids Station Jamshoro at a distance of 29 Kms.

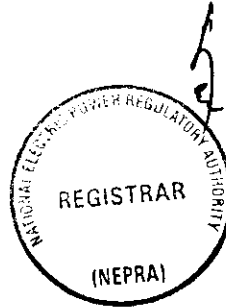
Voltage Level =132KV

as



SCHEDULE –II

- The net capacity of the licensee's generation facilities



21.

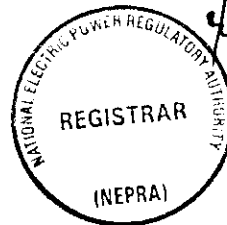
GENERATION CAPACITY

Unit No.	Date of Commissioning	Installed Capacity (MW)	Derated* Capacity (MW)	Net Capacity** After Aux. Consumption (MW)
1	23.03.1994	50	40	31
2	28.09.1994	50	40	31
3	23.12.1994	50	40	31
Total		150	120*	93*

* Any two units can be operated at a time

** **Indicative Figures only:** These figures have been based on historic average auxiliary consumption provided by the licensee. The net capacity available to NGC Licensee for dispatch and other purchasers will be determined through procedures contained in the Grid Code, applicable documents or bilateral contracts.

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NATIONAL ELECTRIC POWER REGULATORY AUTHORITY

DETERMINATION IN THE MATTER OF GRANT OF GENERATION LICENCE TO Lakhra Power Generation Company Limited (LPGCL)

Lakhra Power Generation Company Limited (LPGCL) was incorporated as a Public Limited Company for setting up a 150 MW Coal Fired Thermal Power Plant using Fluidized Bed Combustion (FBC) Technology. The 3x50 MW FBC Power Station Lakhra is located near Khanote in the District of Dadu on the right bank of Indus River about 46Km from Hyderabad. All the three units are based on lignite coal/lime stone which is being supplied by M/s Lakhra Coal Development Co., (LCDC) from their Lakhra Coal Mines, 25Km from Lakhra Power Station through trucks/dumpers. The units were commissioned in 1994 and the station is connected with National Grid via 132KV Grid Station Lakhra at a distance of 5Km and with 500Kv/220Kv/132Kv Grid station Jamshoro through a Transmission Line of 29Kms. LPGCL made an application to National Electric Power Regulatory Authority (NEPRA) on 8 April 2004 for a generation licence which NEPRA admitted for consideration on 26 August 2004.

2. Following Regulation 8 of the NEPRA Licensing (Application and Modification Procedure) Regulations 1999, the Authority on 29 August 2004 advertised salient features of the LPGCL application for a generation licence and invited comments from the public. After considering those comments, the Authority held a conference on 12 October 2004 in which the applicant and representatives of other organizations participated and expressed their view point in person.



3 LPGCL submitted that the FBC Power Station comprises of 3x50 MW FBC Units manufactured, supplied and commissioned by M/s Dongfong Electric Corporation(DEC), China. Boilers of this Power Station were made under FBC Technology. Main fuel is Coal (classified as lignite) which is burnt with the limestone. The coal is supplied by LCDC, a joint venture company with lead role of PMDC and participation of WAPDA and the Government of Sindh. The startup fuel is High Speed Diesel (HSD) Oil.

4 The LPGCL further submitted that the 3x50 MW FBC Power station is an experimental Power station. The FBC Technology is a relatively new technology utilizing low-grade, high sulphur coal for Power Generation. Further, the Contractor (DEC) faced a number of problems during the guarantee period. Still lot of technological problems are being faced due to which LPGCL is operating only one unit and that too at about 70% of rated capacity. The operation of the overall power station at approximately 30% installed capacity during last 3 years was also due to restricted spending on maintenance and rehabilitation activities awaiting privatization of the plant. The rehabilitation programme is under implementation to bring two units in operation simultaneously and the capacity would be increased from 35MW to 45MW per unit.

5 The Authority is of the view that regular maintenance of the Plant has not been carried out to provide the stated dependable capacity and reliable supply to the purchaser. Out of 150 MW of installed capacity, hardly 60 MW capacity is available to the grid. Timely expenditure on essential maintenance and overhaul could have prevented the loss of valuable capacity.

6 The Authority directs LPGCL to submit a detailed plan to recover lost capacity indicating the investment required and its justification.

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7 Dr. Muhammad Sadiq , Convenor Pakistan Poultry Association, Islamabad stated that Pakistan Poultry Industry is in favour of power generation supply by the private sector and recommended grant of generation licence to LPGCL.

8 PEPCO, HESCO and Ministry of Industries & Production supported the grant of Generation Licence to LPGCL. The WAPDA Power Privatization Organization (WPPO) informed that NTDC is being supplied electricity by LPGCL and a Power Purchase Agreement is in the process of being finalized. WPPO supported grant of Generation Licence to LPGCL.

9 KESC commented that the auxiliary consumption@23% was very high. Power generation with such high auxiliary consumption was economically not sustainable. LPGCL stated that Auxiliary consumption @23% of generation was due to the fact that generation was being done at 70% of the rated capacity of only one unit. If generation capabilities were improved and other units were brought into operation then this percentage would come down substantially. However in a coal power plant the number of auxiliaries involved like coal crushing and conveying system and ash handling system consume power to the extent of 18% of the generation at rated load.

10 Environmental Issues

Engr. Ansari Bashir Ahmad on behalf of M/s Bakht Business House claimed that LPGCL had failed to ascertain environment friendly atmosphere resulting in the emission of toxic gases, showering of toxic dust on the surrounding fields and drainage of polluted water into the river. Further, LPGCL had failed to monitor the environments (for polluted water/toxic gases, dust out from chimney and winds to inhabited areas). Skin and respiratory diseases due to gasses and dust were common in the surrounding. He was of the view that FBC system was not functioning properly as no environment system was available in the plant and surroundings and improper use of limestone etc.



11 The LPGCL stated that Lakhra Coal is classified as lignite with medium ash content and high sulphur (5-7%) and FBC Technology is mainly devised to nullify the environmental effects of burning high sulphur coal. One of the merits of the FBC Technology is that there is hardly any NO_x formation which is considered to be harmful. The emission results showed that SO_x, NO_x etc. were well below the limits given by the National Environmental Quality Standards (NEQS). With respect to the showering of toxic dust on the surrounding fields, the LPGCL stated that only particles of size less than 10 microns were emitted from a 100 meter high chimney. As such these are diluted and dispersed in an area of 3 Km radius having no significant impact on the living organisms. Further, the quality of effluent water is monitored on regular basis drained into river through pipelines, which does not contain any injurious particles/chemicals. As far as skin and respiratory diseases are concerned no such cases have been reported over a period of nine years.

12 The Authority considers that the Environmental issues raised by Engr. Ansari Bashir Ahmad are important in the context of their impact on the surroundings and atmosphere. However, the applicant will be under obligation to conform to the environmental standards as are prescribed by the relevant competent Authority. The applicant appears to be fully aware of its obligation to protect the environment and will be monitored through the Federal and Provincial Environmental Protection Agencies.

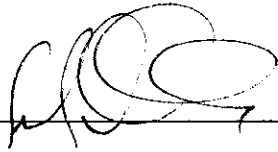
Term of Licence

13. The term of a Generation Licence under NEPRA Generation Rules is to be determined by the remaining useful life of the plant which in the instant case is 15 years; hence LPGCL is being granted a licence for a period of 15 years.

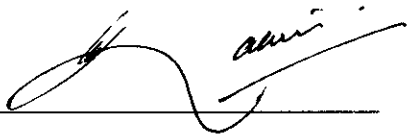


WITH THIS, the Authority hereby grants the Generation Licence to Lakhra Power Generation Company Limited in the terms and form as annexed to this determination. The grant of such a Licence would be subject to the provisions contained in the NEPRA Act and the relevant Rules framed there under.

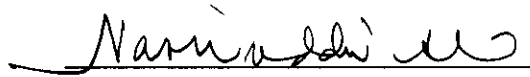
1. Mr. Fazlullah Qureshi, Member



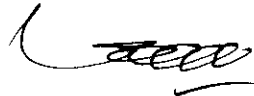
2. Mr. Abdul Rahim Khan, Member



3. Mr. Nasiruddin Ahmed, Member



4. Lt Gen (R) Saeed uz Zafar, Chairman



NATIONAL ELECTRIC POWER REGULATORY AUTHORITY

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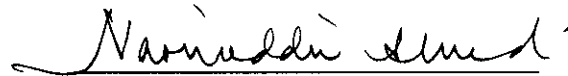
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