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

Registrar

No. NEPRA/R/LAG – 27/12954-55

4 - 3 - 2005

General Manager
Karachi Nuclear Power Complex
P.O. Box No. 3183
Karachi – 75400

Subject: **Grant of Generation Licence GL/022/2005**
Licence Application No. LAG - 27
Pakistan Atomic Energy Commission (PAEC)
for its Karachi Nuclear Power Plant (KANUPP)

Please refer to your application No. TD-611.4/2004/02 dated January 16, 2004 to NEPRA for a Generation Licence.

2. Enclosed here is Generation Licence No. GL/022/2005 granted by the Authority to Pakistan Atomic Energy Commission for its Karachi Nuclear Power Plant. The Licence is granted to you 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.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
REGISTRAR
(NEPRA)

4.03.05.
(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/022/2005

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:

PAKISTAN ATOMIC ENERGY COMMISSION
KARACHI NUCLEAR POWER PLANT (KANUPP)

Licence for 50 MWe

(Installed Capacity:137 MWe)

an approved Public Sector Project operating under the management and control of Pakistan Atomic Energy Commission (PAEC)

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

Given under my hand this 4th **day of** March**, Two Thousand & Five, and expires on** 3rd **day of** March**, Two Thousand &** Twenty**.**

4.03.05

Registrar

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY REGISTRAR (NEPRA)

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 Pakistan Atomic Energy Commission for Karachi Nuclear Power Plant (KANUPP); 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.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
REGISTRAR
(NEPRA)

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.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
REGISTRAR
(NEPRA)

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
Compliance with Nuclear Safety Standards

The Licensee shall conform to all nuclear safety standards and regulations prescribed by the relevant competent authorities from time to time.

Article 11
Provision of Information

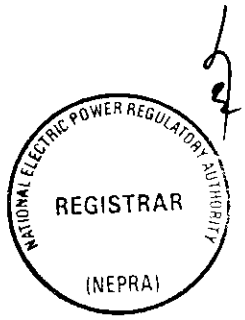
11.1 The obligation of the licensee to provide information to the Authority shall be in accordance with Section 44 of the Act.

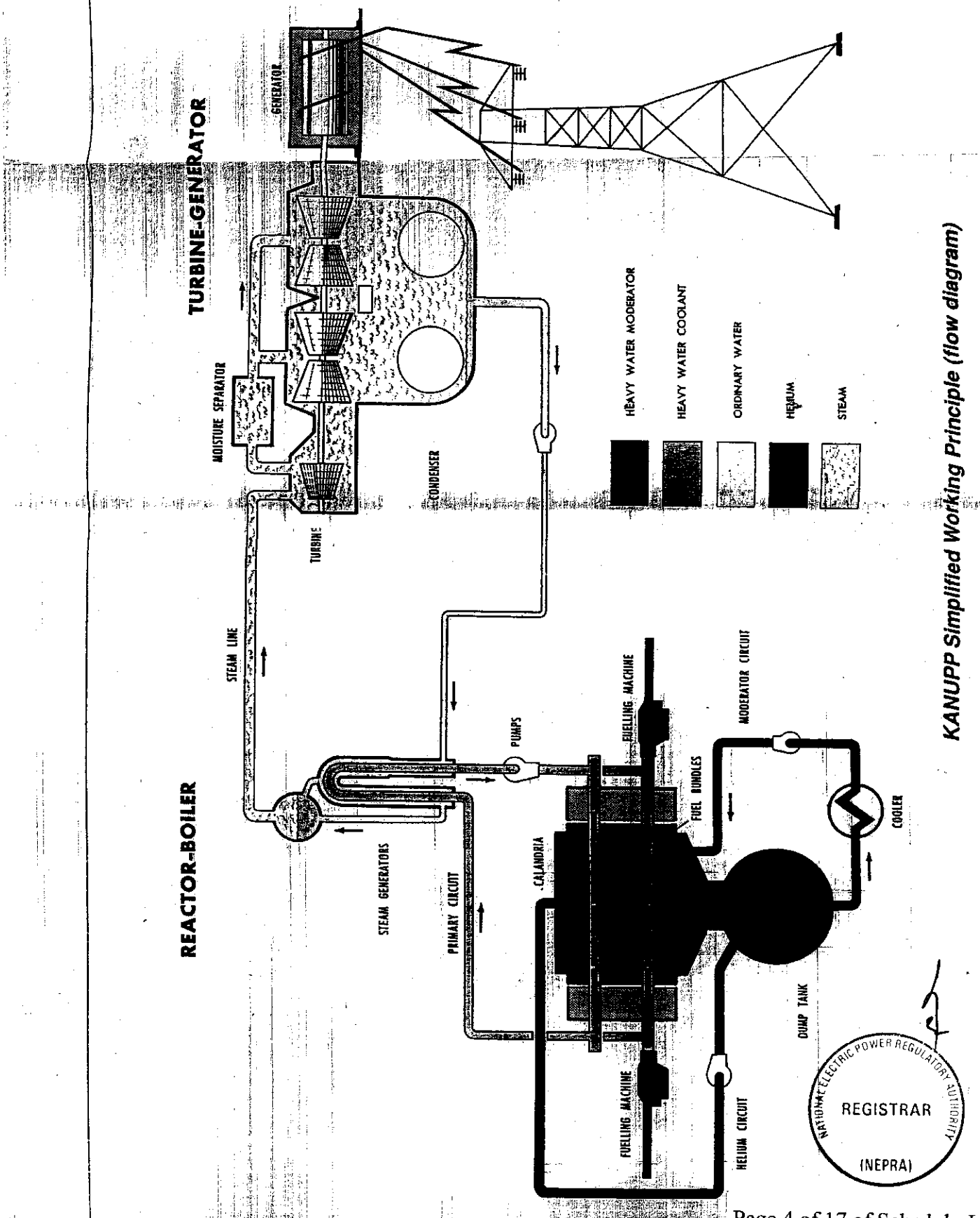
11.2 The licensee shall be subject to such penalties as may be specified in the relevant rules made by the Authority for failure to furnish such information as may be required from time to time by the Authority and which is or ought to be or have been in the control or possession of the licensee.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
REGISTRAR
(NEPRA)

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





KANUPP Simplified Working Principle (flow diagram)

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
REGISTRAR
(NEPRA)

PLANT DETAILS

1.	Name of Applicant	Pakistan Atomic Energy Commission(PAEC) for its Karachi Nuclear Power Plant(KANUPP)
2.	Plant Location	20 Km west of Karachi on the Arabian Sea Coast near Paradise Point, Karachi.
3.	Type of Facility	Nuclear Power Plant

Plant Configuration

4.a	Plant size	137 MWe
4.b	Type of Technology	Pressurized Heavy Water Reactor (PHWR) type Nuclear Power Plant
4.c	Number of Units	One
4.d	Unit Size	137 MWe
4.e	Moderator Coolant	Heavy Water Heavy Water
4.f	Date of Commissioning	December 1972

Fuel Use

5.a.	Fuel Type	Natural Uranium
5.b	Fuel (imported/ indigenous)	Indigenous

Emission Values

6	Emission Values	At KANUPP there is no emission of combustion gases and particulates as in the case of thermal power plants. However, there are emissions of radioactive gases and liquids, but their release to the atmosphere and sea water is always kept well below the limits prescribed by the International Commission on Radiological Protection.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
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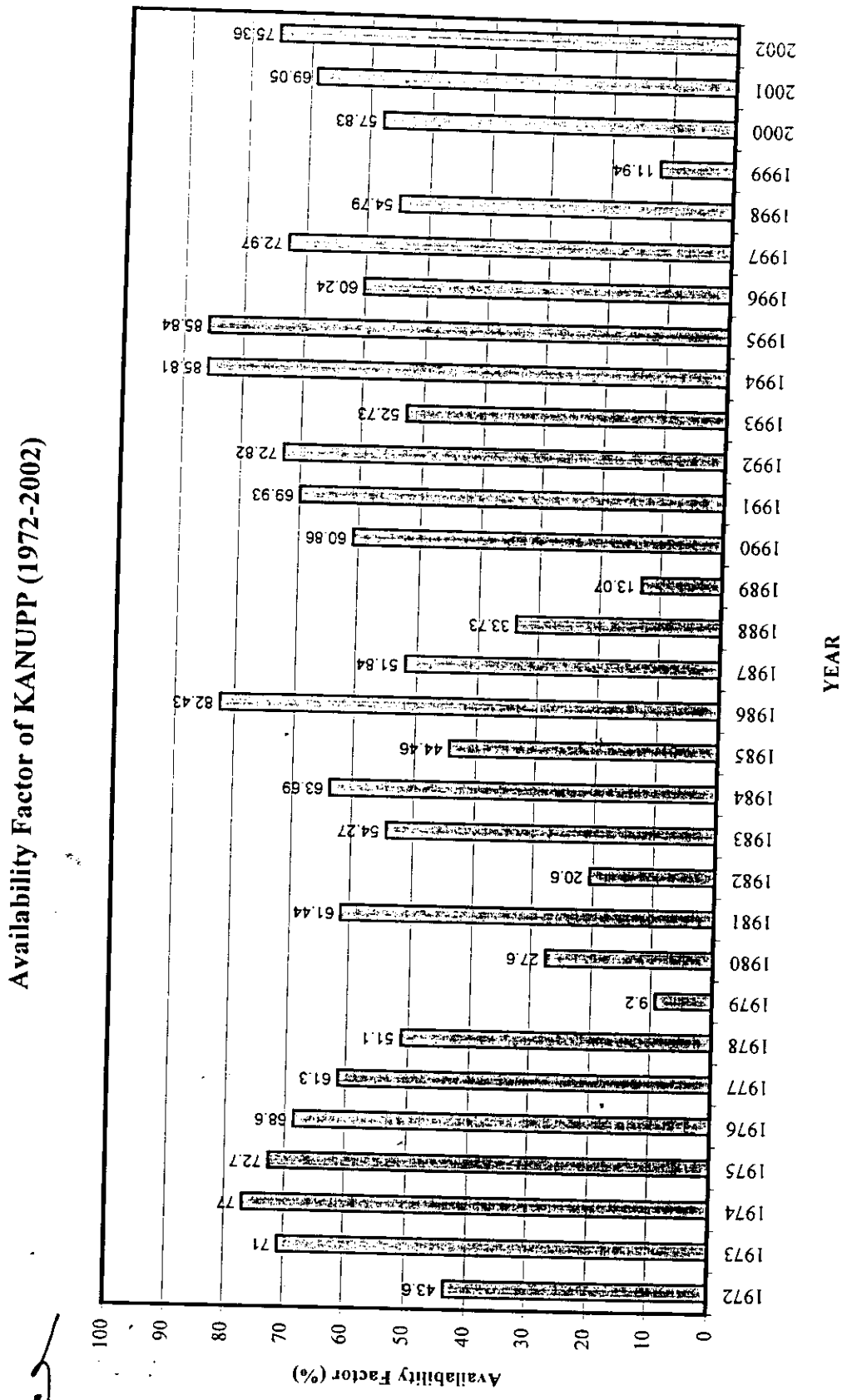
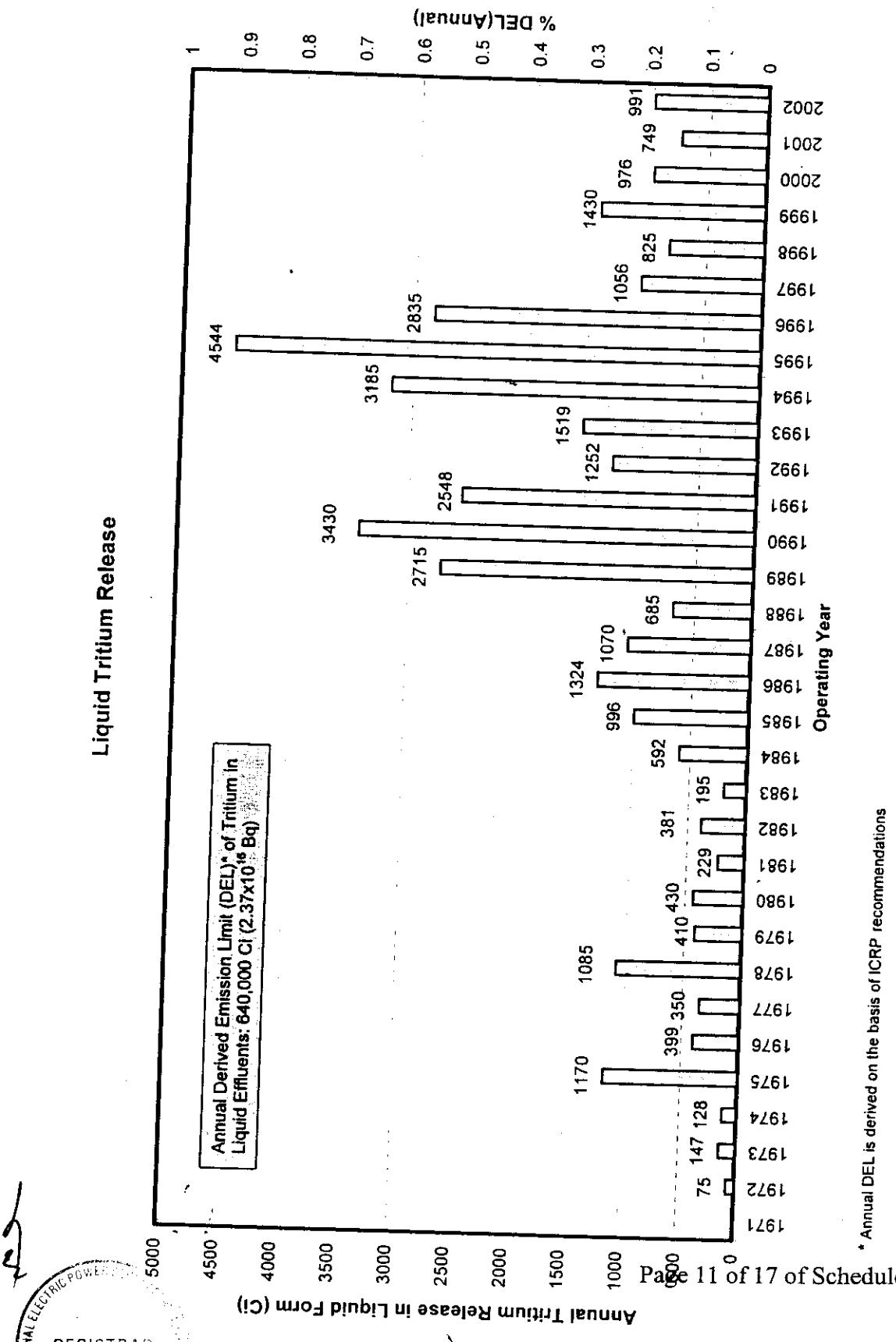
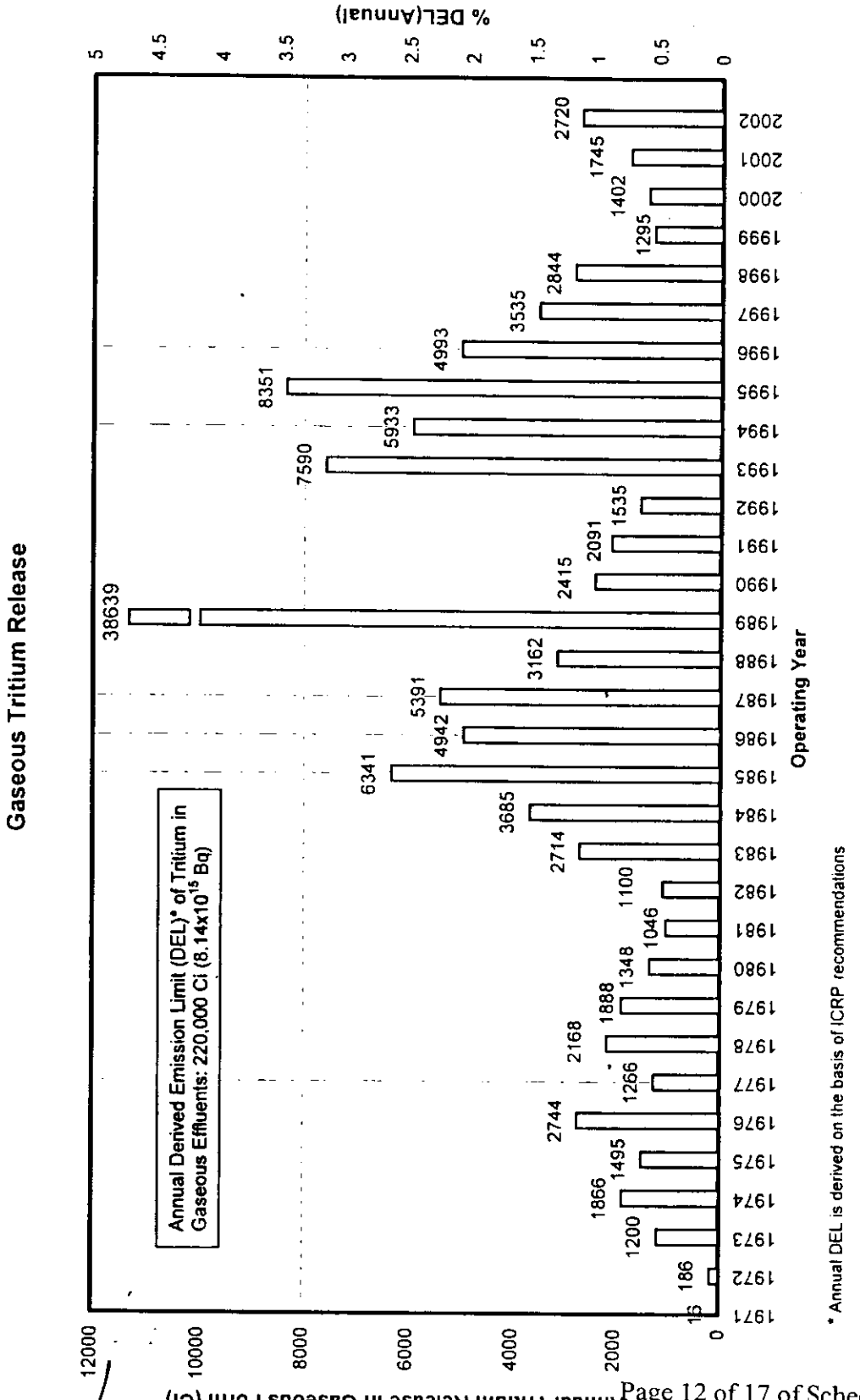
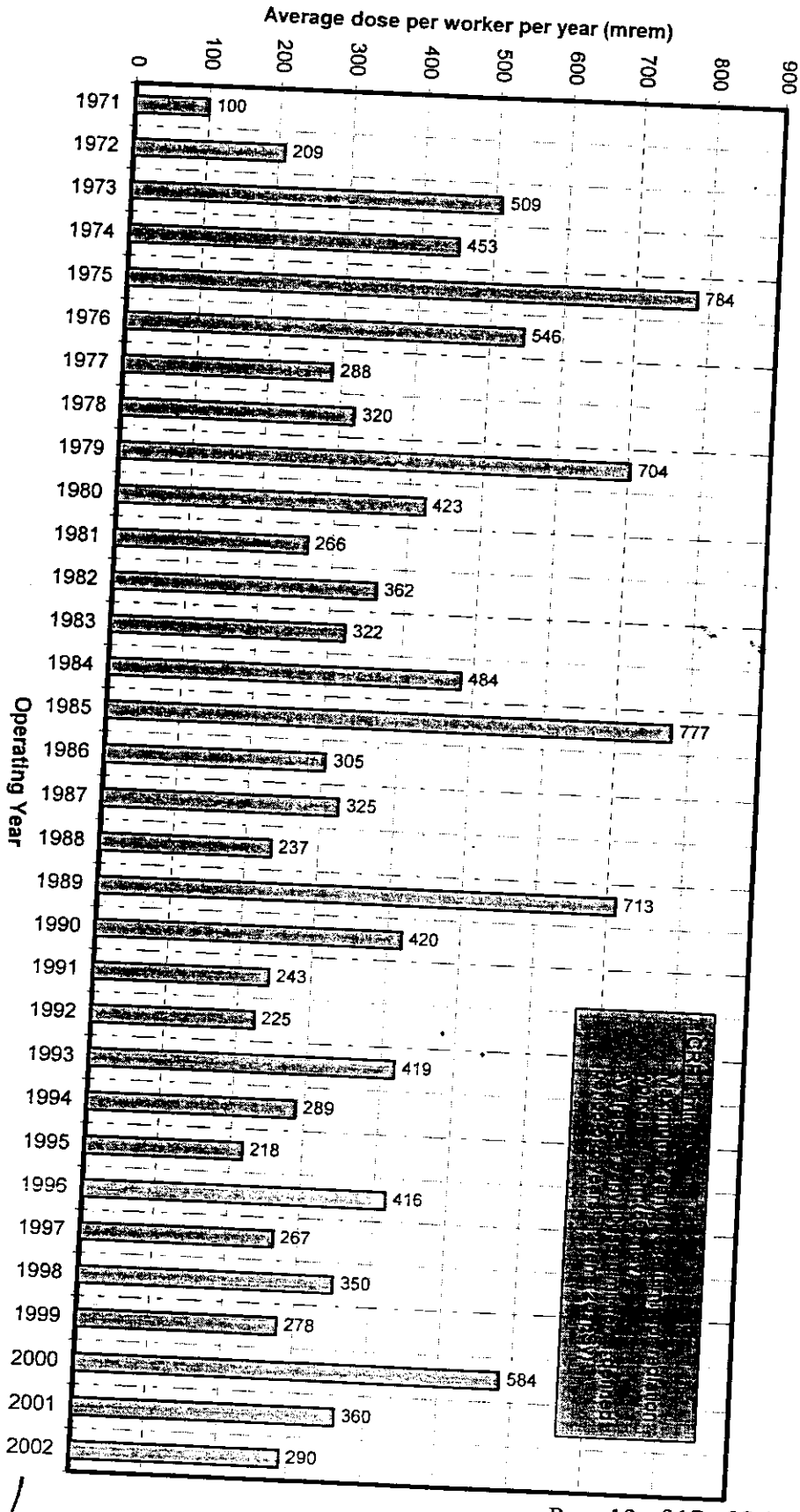




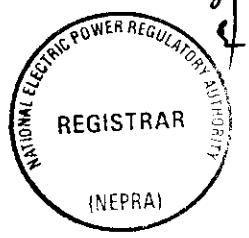




INTER CONNECTION

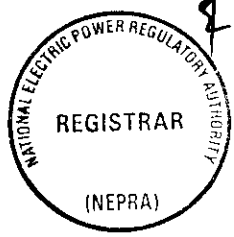
WITH

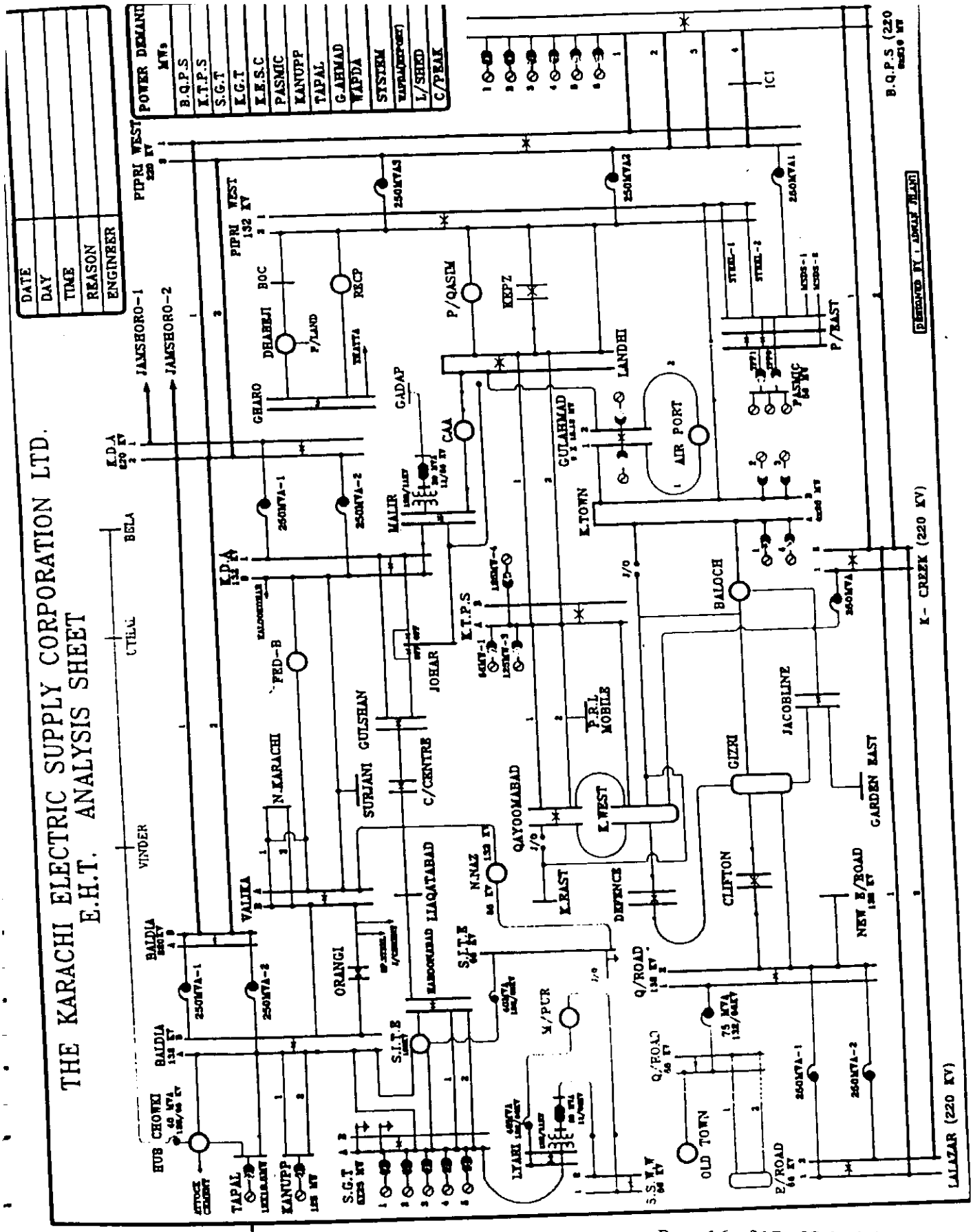
KESC GRID

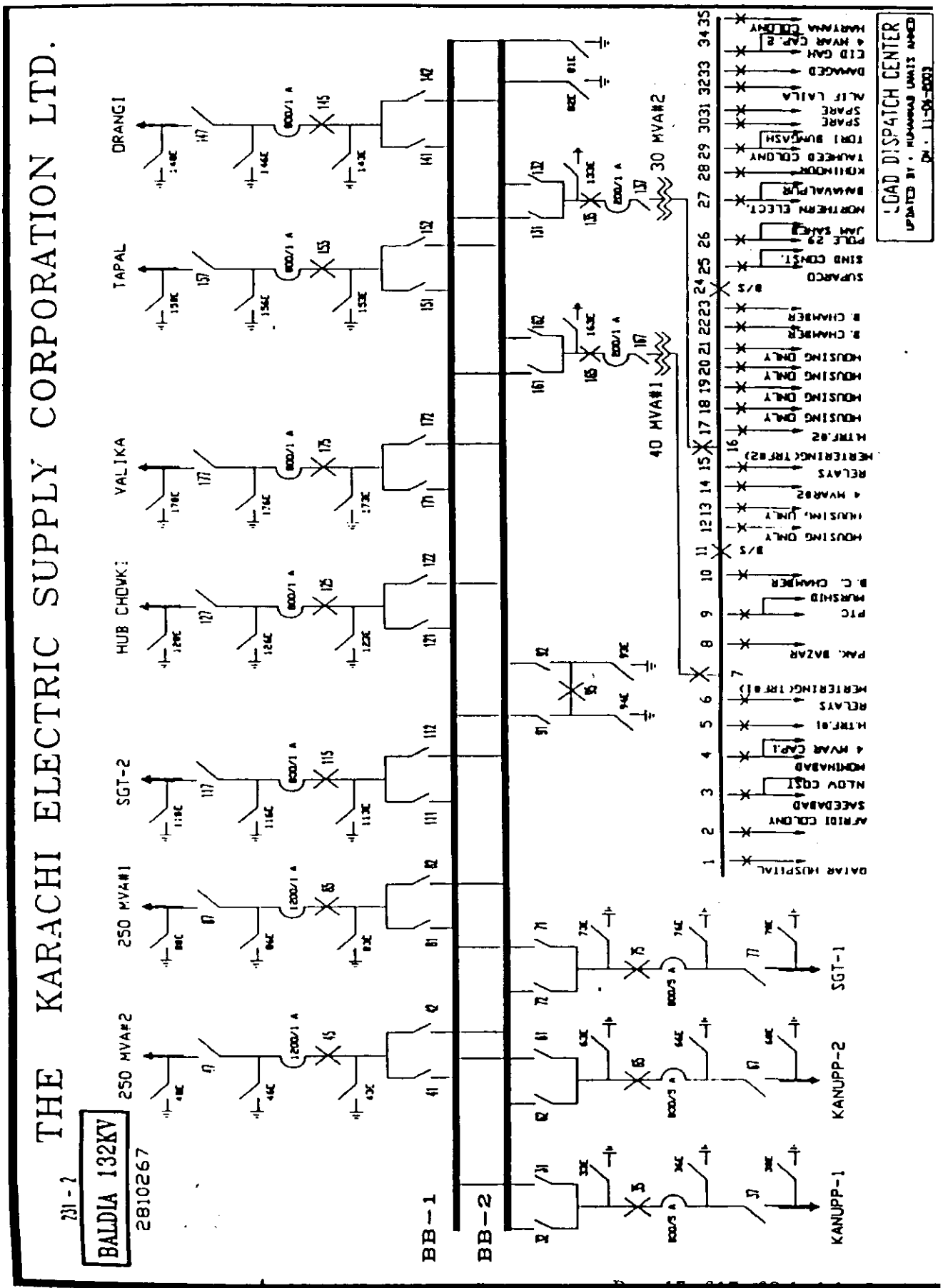


INTERCONNECTION WITH KESC GRID

This power station is connected with KESC Grid through 18 Km long, double circuit, 132kv transmission lines which are terminated at Baldia Grid Station. These lines are used to export power to KESC grid. Power back-feed for plant auxiliary systems is also received through these lines, in the case of shutdown of KANUPP.

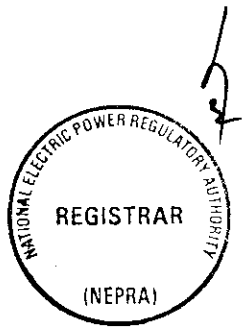






SCHEDULE –II

- The net capacity of the licensee's generation facilities



1.	GROSS INSTALLED CAPACITY	=	137 MWe
2.	NET CAPACITY OF THE PLANT	=	105 MWe
3.	CAPACITY PERMITTED FOR OPERATION (AS ALLOWED BY PNRA)	=	50 MWe

Note: Pakistan Nuclear Regulatory Authority (PNRA) has informed that the present operation of KANUPP at lower power, maximum of 44% of Reactor power (nominally equivalent to 50 MWe gross) has been allowed by PNRA. The allowed power operation is considered to be a limit where credible events do not pose undue risk to the public and the environment. KANUPP has to complete all the safety requirements for re-licensing to operate at full power (105 MWe) which they intend to complete by 2005. PNRA further stated that NEPRA may consider granting of generation licence to KANUPP for upto 50MWe.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
REGISTRAR
(NEPRA)

Term of the Licence
(Article 4 of the Licence)
Pakistan Atomic Energy Commission for its
Karachi Nuclear Power Plant

The Rule 5 of the Licensing (Generation) Rules - 2000 stipulates that the Term of Licence shall be commensurate with the maximum expected useful life of the units comprised in a generation facility demonstrated to the satisfaction of the Authority unless the applicant consents to a shorter period.

Pakistan Atomic Energy Commission/Karachi Nuclear Power Plant has shown in its application No. TD-611.4/2004/02 dated 16-1-2004 to NEPRA expected remaining life of its generation facility also included in Schedule-I of this Licence.

The maximum expected remaining life of the unit (after necessary up gradation) installed at the Karachi Nuclear Power Plant is claimed as 15 years.

The Licensing Group considers that the Pressurized Heavy Water Reactor type Nuclear Power Plant normally have useful life of around 30 years. The unit of Karachi Nuclear Power Plant was commissioned in 1972.

The Licensing Group has considered all the details provided with the licence application including the date of commissioning of generating unit of Karachi Nuclear Power Plant and normal expected life for the plants of the same type and technology. The Licensing Group agrees with the maximum expected remaining life claimed by the applicant of its generation facility, and recommends that the Generation Licence be issued to Pakistan Atomic Energy Commission for its Karachi Nuclear Power Plant by the Authority for a period of **(fifteen) 15 years** from the date of grant of Licence by the Authority.

AUTHORITY DECISION

The Authority agrees with the Licensing Group recommendations about the term of this Generation Licence. The Licence is granted for a term of **(fifteen) 15 years**.

Authority

Lt Gen (R) Saeed uz Zafar, Chairman

Mr. Abdul Rahim Khan, Member

Mr. Fazlullah Qureshi, Member

Mr. Nasiruddin Ahmed, Member

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(Article 4 of the Licence)
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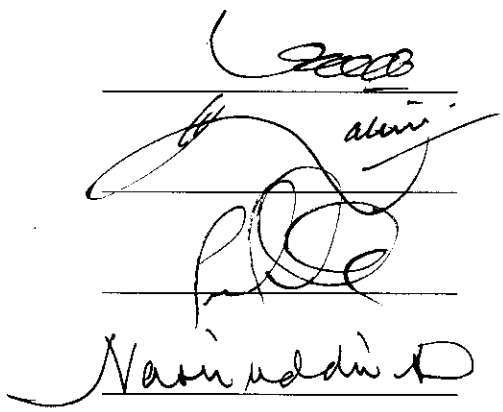

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
DETERMINATION IN THE MATTER OF GRANT OF GENERATION LICENCE TO PAKISTAN ATOMIC ENERGY COMMISSION FOR ITS KARACHI NUCLEAR POWER PLANT (KANUPP)

The Karachi Nuclear Power Plant (KANUPP), owned and operated by Pakistan Atomic Energy Commission (PAEC), is a 137MWe CANDU Pressurized Heavy Water Reactor (PHWR). It is situated 20Km west of Karachi on the coast of Arabian Sea. The plant started commercial operation in 1972 and completed its nominal design life of 30 years in December 2002. The unit is connected with KESC Grid through 18 Km long, double circuit, 132kv transmission lines which are terminated at Baldia Grid Station. These lines are used to export all of the power from KANUPP to KESC grid. Power back-feed for plant auxiliary systems is also received through these lines, in the case of shutdown of KANUPP.

2. Pursuant to Section 15 of the Regulation of the Generation, Transmission and Distribution of Electric Power Act (XL of 1997), (hereinafter referred to as the 'Act'), no person shall construct, own or operate a generation facility without a licence granted by the Authority under the Act. Accordingly, KANUPP filed an application with the Authority on 20 January 2004 for grant of generation licence.

3. Upon receiving necessary information (which had earlier not been provided with the application) the Authority admitted the application on 23 June 2004 for consideration in accordance with the Application and Modification Procedure Regulations, 1999.

4. The notice for admission, which provided the salient features of KANUPP, was published in the daily newspapers. Notices were also sent to interested/affected persons according to Regulation 8 of Application and Modification Procedure Regulations 1999 and comments were invited from them. After considering these comments, the Authority decided to hold a conference for further consideration of the application. The Authority also circulated a draft

generation licence to KANUPP and other invitees of the conference. The main issues framed for the conference were Term of Licence, Plant Safety Issues and Environmental Issues. The conference was held in NEPRA Head Office Islamabad on 26 October 2004. The participants of the conference expressed their concerns, pertaining mainly, to the reliability, safety and environmental aspects of KANUPP.

5. During the conference, PAEC presented the salient features and background of its power plant and highlighted the importance of nuclear power generation for the country. PAEC briefly mentioned as to how KANUPP had been performing during its design life of 30 years and plans for extending its life for another 15 years. PAEC submitted that the biggest challenge was to fabricate its own fuel (Natural Uranium) and production of its own nuclear material (heavy water), both of which were essential for running KANUPP. The two elements are now within the capability of PAEC.

6. PAEC further submitted that since early eighties, KANUPP had been working on an integrated plan for plant life extension(PLEX) which included safety up-grades , Ageing Management, Easy fixes, equipment replacement, Periodic Safety Review, etc. Many of the tasks under the project Safe Operation of KANUPP (SOK), Technical Up-gradation Project (TUP) and Balancing, Modernization and Rehabilitation (BMR) have been completed. These major projects were undertaken to combat aging and extend plant life by another 15 years. Subsequently, KANUPP applied to Pakistan Nuclear Regulatory Authority (PNRA) for re-licensing of its operation (for operating the plant at maximum power of 105MWe). The plant has been shut down since 2002 to implement various safety related projects and to meet the re-licensing requirement of PNRA. PNRA had allowed KANUPP to operate initially at reduced power (50MWe) till all the testing, safety up grades and commissioning is completed. The KANUPP plant once upgraded will not only help KESC in meeting the peak demand but shall also provide voltage regulation and power supplements to the SITE industrial area where KESC has no generating unit.

7. Plant Safety/Reliability Issues

KANUPP stated that it is operating under the safeguards of International Atomic Energy Agency (IAEA) and is also a member of the World Association of Nuclear Operators (WANO) and CANDU Owners Group (COG). Performance and safety reviews had been conducted by these organizations periodically. It was further submitted by KANUPP that the plant was shutdown in December 2002 for re-licensing work. During the re-licensing outage, KANUPP made tremendous efforts in implementing various tasks of safety upgrades and improvements. As a part of safety up-gradation and to meet the regulatory requirement, it was decided to provide redundancy in the Emergency System. It was further decided to operate the plant at a reduced and safer power level till redundancy to the Emergency System is provided. This has also been accepted by the PNRA.

8. As regards the reliability of its power supply to KESC, KANUPP submitted that its performance record was comparable to some international utilities. It provided assurance that it would be able to maintain its reliability in the supply of power to the KESC

9. With respect to the safety of the plant, PNRA elaborated its regulatory role and highlighted the need of a close monitoring of KANUPP according to the guidelines of International Atomic Energy Agency. KANUPP stated that it was following the regulations of PNRA and that there was close liaison between the applicant and the regulator.

10. Environmental Issues

The environmental and safety aspects of nuclear power generation are a real concern for all stakeholders and were thoroughly deliberated during the conference. KANUPP asserted that it is in compliance with the national and international regulations on environmental protection as prescribed by the concerned authorities. KANUPP informed the Authority that it had regularly

obtained necessary environmental certification from the relevant authorities. KANUPP submitted that at KANUPP there was no emission of combustion gases and particulates as in the case of thermal power plants. However, there were emissions of radioactive gases and liquids, but their release to the atmosphere and sea water was always kept well below the limits prescribed by the International Commission on Radiological Protection (ICRP). KANUPP further submitted that during last 30 years of operational life of KANUPP there had never been any abnormal release of radioactivity. As regards chemical waste releases these were negligible. Environmental Protection Agency, Government of Sindh, had already issued a No Objection Certificate for Operation of KANUPP.

11. According to Section 46(2)(j) of the Act, the Authority may prescribe rules for the safe, reliable and least environmentally harmful supply of electric power. In view of the stringent regulations of Pakistan Nuclear Regulatory Authority and the requirements of the National Environmental Quality Standards of Environmental Protection Department, Sind, the Authority is of the opinion that these agencies provide adequate guidelines for the maintenance of safety and environmental standards for the time being. The Authority in due course intends to prescribe its own standards for compliance if found essential. The Authority has therefore inserted separate clauses on compliance with environmental standards and safety regulations as may be prescribed by relevant competent authorities from time to time. Similarly, the reliability aspects of the plant shall be dealt with in performance standards for generation, which may be prescribed by the Authority from time to time. Until such time that separate rules for safe, reliable and least environmentally harmful supply of power are found essential and prescribed by the Authority, the provisions of the licence require the Licensee to comply with all pertinent standards and regulations prescribed by the relevant competent authorities. The concerns of PNRA regarding the safety standards have therefore been covered in the provisions of the licence.

12. Syed Rafique Hussain Zaidi, Senior Outdoor Electric Inspector, North Zone, Karachi supported the grant of Generation Licence to KANUPP but

showed concern regarding the effect of KANUPP Operation on the residents of Hawks Bay Scheme. He further commented that KANUPP may be advised to save foreign exchange in importing costly fuel. KANUPP stated that the proposed scheme is situated outside the KANUPP Exclusion Zone of one kilometer and the inhabitants of the said scheme would not be affected by the operation of KANUPP. KANUPP further stated that they do not import fuel rather they use fuel (Natural Uranium) indigenously manufactured by PAEC.

13. Planning and Development Division, Government of Pakistan supported the grant of Generation Licence to KANUPP. KESC also supported the grant of Generation Licence to KANUPP. KESC requested NEPRA to assist in expediting augmentation of power supply to KESC by KANUPP, in view of acute power shortage in Karachi area.

14. PNRA stated that the present operation of KANUPP at lower power, maximum of 44% of Reactor power (nominally equivalent to 50 MWe gross) had been allowed by PNRA. The allowed power operation is considered to be a limit where credible events do not pose undue risk to the public and the environment. KANUPP shall have to complete all the safety requirements for re-licensing to operate at full power (105 MWe). PNRA further stated that NEPRA may consider granting of generation licence to KANUPP for upto 50MWe. It was submitted by KANUPP that the gross installed capacity of the plant is 137MWe, while the derated capacity is 105MWe. After necessary upgradation and subsequent re-licensing by PNRA, the plant shall be operated at maximum power of 105MWe.

15. The Authority strongly feels that public and the environment may not be put to any risk and safety hazards. Therefore it fully agrees with the restrictions imposed by PNRA on the operation of the Power plant. Accordingly the licence is to be granted for 50 MWe as recommended by PNRA. Operation of the plant at higher capacities will only be acceptable after necessary certification from PNRA is obtained by KANUPP. The Authority also considers that specific

monitoring of the operation of the plant may be required in this case. Therefore Authority directs KANUPP to submit its report of plant operation on quarterly basis to the Authority.

16. After the certification by the PNRA, KANUPP will apply to NEPRA for Modification in its Licence according to NEPRA's Application and Modification Procedures 1999.

17. Pursuant to Rule 6 of the Generation Rules 2000 the Authority advises PAEC to bring its contract with KESC for sale of Power from KANUPP before the Authority for its approval.

Term of Licence

18. The term of a Generation Licence under NEPRA Generation Rules is to be determined by the remaining useful life of the plant; hence KANUPP is being granted a licence for a period of 15 years.

WITH THIS, the Authority hereby grants the Generation Licence to Pakistan Atomic Energy Commission for its Karachi Nuclear Power Plant 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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6. PAEC further submitted that since early eighties, KANUPP had been working on an integrated plan for plant life extension(PLEX) which included safety up-grades , Ageing Management, Easy fixes, equipment replacement, Periodic Safety Review, etc. Many of the tasks under the project Safe Operation of KANUPP (SOK), Technical Up-gradation Project (TUP) and Balancing, Modernization and Rehabilitation (BMR) have been completed. These major projects were undertaken to combat aging and extend plant life by another 15 years. Subsequently, KANUPP applied to Pakistan Nuclear Regulatory Authority (PNRA) for re-licensing of its operation (for operating the plant at maximum power of 105MWe). The plant has been shut down since 2002 to implement various safety related projects and to meet the re-licensing requirement of PNRA. PNRA had allowed KANUPP to operate initially at reduced power (50MWe) till all the testing, safety up grades and commissioning is completed. The KANUPP plant once upgraded will not only help KESC in meeting the peak demand but shall also provide voltage regulation and power supplements to the SITE industrial area where KESC has no generating unit.

7. Plant Safety/Reliability Issues

KANUPP stated that it is operating under the safeguards of International Atomic Energy Agency (IAEA) and is also a member of the World Association of Nuclear Operators (WANO) and CANDU Owners Group (COG). Performance and safety reviews had been conducted by these organizations periodically. It was further submitted by KANUPP that the plant was shutdown in December 2002 for re-licensing work. During the re-licensing outage, KANUPP made tremendous efforts in implementing various tasks of safety upgrades and improvements. As a part of safety up-gradation and to meet the regulatory requirement, it was decided to provide redundancy in the Emergency System. It was further decided to operate the plant at a reduced and safer power level till redundancy to the Emergency System is provided. This has also been accepted by the PNRA.

8. As regards the reliability of its power supply to KESC, KANUPP submitted that its performance record was comparable to some international utilities. It provided assurance that it would be able to maintain its reliability in the supply of power to the KESC

9. With respect to the safety of the plant, PNRA elaborated its regulatory role and highlighted the need of a close monitoring of KANUPP according to the guidelines of International Atomic Energy Agency. KANUPP stated that it was following the regulations of PNRA and that there was close liaison between the applicant and the regulator.

10. Environmental Issues

The environmental and safety aspects of nuclear power generation are a real concern for all stakeholders and were thoroughly deliberated during the conference. KANUPP asserted that it is in compliance with the national and international regulations on environmental protection as prescribed by the concerned authorities. KANUPP informed the Authority that it had regularly

obtained necessary environmental certification from the relevant authorities. KANUPP submitted that at KANUPP there was no emission of combustion gases and particulates as in the case of thermal power plants. However, there were emissions of radioactive gases and liquids, but their release to the atmosphere and sea water was always kept well below the limits prescribed by the International Commission on Radiological Protection (ICRP). KANUPP further submitted that during last 30 years of operational life of KANUPP there had never been any abnormal release of radioactivity. As regards chemical waste releases these were negligible. Environmental Protection Agency, Government of Sindh, had already issued a No Objection Certificate for Operation of KANUPP.

11. According to Section 46(2)(j) of the Act, the Authority may prescribe rules for the safe, reliable and least environmentally harmful supply of electric power. In view of the stringent regulations of Pakistan Nuclear Regulatory Authority and the requirements of the National Environmental Quality Standards of Environmental Protection Department, Sind, the Authority is of the opinion that these agencies provide adequate guidelines for the maintenance of safety and environmental standards for the time being. The Authority in due course intends to prescribe its own standards for compliance if found essential. The Authority has therefore inserted separate clauses on compliance with environmental standards and safety regulations as may be prescribed by relevant competent authorities from time to time. Similarly, the reliability aspects of the plant shall be dealt with in performance standards for generation, which may be prescribed by the Authority from time to time. Until such time that separate rules for safe, reliable and least environmentally harmful supply of power are found essential and prescribed by the Authority, the provisions of the licence require the Licensee to comply with all pertinent standards and regulations prescribed by the relevant competent authorities. The concerns of PNRA regarding the safety standards have therefore been covered in the provisions of the licence.

12. Syed Rafique Hussain Zaidi, Senior Outdoor Electric Inspector, North Zone, Karachi supported the grant of Generation Licence to KANUPP but

showed concern regarding the effect of KANUPP Operation on the residents of Hawks Bay Scheme. He further commented that KANUPP may be advised to save foreign exchange in importing costly fuel. KANUPP stated that the proposed scheme is situated outside the KANUPP Exclusion Zone of one kilometer and the inhabitants of the said scheme would not be affected by the operation of KANUPP. KANUPP further stated that they do not import fuel rather they use fuel (Natural Uranium) indigenously manufactured by PAEC.

13. Planning and Development Division, Government of Pakistan supported the grant of Generation Licence to KANUPP. KESC also supported the grant of Generation Licence to KANUPP. KESC requested NEPRA to assist in expediting augmentation of power supply to KESC by KANUPP, in view of acute power shortage in Karachi area.

14. PNRA stated that the present operation of KANUPP at lower power, maximum of 44% of Reactor power (nominally equivalent to 50 MWe gross) had been allowed by PNRA. The allowed power operation is considered to be a limit where credible events do not pose undue risk to the public and the environment. KANUPP shall have to complete all the safety requirements for re-licensing to operate at full power (105 MWe). PNRA further stated that NEPRA may consider granting of generation licence to KANUPP for upto 50MWe. It was submitted by KANUPP that the gross installed capacity of the plant is 137MWe, while the derated capacity is 105MWe. After necessary upgradation and subsequent re-licensing by PNRA, the plant shall be operated at maximum power of 105MWe.

15. The Authority strongly feels that public and the environment may not be put to any risk and safety hazards. Therefore it fully agrees with the restrictions imposed by PNRA on the operation of the Power plant. Accordingly the licence is to be granted for 50 MWe as recommended by PNRA. Operation of the plant at higher capacities will only be acceptable after necessary certification from PNRA is obtained by KANUPP. The Authority also considers that specific

monitoring of the operation of the plant may be required in this case. Therefore Authority directs KANUPP to submit its report of plant operation on quarterly basis to the Authority.

16. After the certification by the PNRA, KANUPP will apply to NEPRA for Modification in its Licence according to NEPRA's Application and Modification Procedures 1999.

17. Pursuant to Rule 6 of the Generation Rules 2000 the Authority advises PAEC to bring its contract with KESC for sale of Power from KANUPP before the Authority for its approval.

Term of Licence

18. The term of a Generation Licence under NEPRA Generation Rules is to be determined by the remaining useful life of the plant; hence KANUPP is being granted a licence for a period of 15 years.

WITH THIS, the Authority hereby grants the Generation Licence to Pakistan Atomic Energy Commission for its Karachi Nuclear Power Plant 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