The Licensing for Decommissioning of Research Reactors in Indonesia

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Contents

- Regulatory Body
- Rules and Regulations
- Decommissioning Licence
- Release from Regulatory Control
- Decommissioning Programme
- Conclusions
BAPETEN (Nuclear Energy Regulatory Agency) 1/3

- Bapeten was established in 1998, as stipulated by Nuclear Energy Act Year 1997.
- BAPETEN has the The duty to control the use of nuclear energy
- The duty is carried out in three main functions:
  - Regulations development
  - Licensing
  - Inspection
- These three main duties of BAPETEN are meant for the interest of *people, environment* and *world’s peace*. 
The objectives:

- For the security and peace
- For the safety of workers, public, and environment
- To main the legal order in the use of nuclear energy
- To promote awareness and enhance safety culture among the users
- To carry out safeguards measures according to NPT
Main objects of regulatory control:

- Radiation facilities and radioactive materials (hospitals, industry)
- Nuclear installations and materials (Research reactors, NPP)
Research Reactors In Indonesia

TRIGA 2000 Reactor

- Location: Bandung, West Java
- Type: TRIGA reactor
- Thermal power: 2000 kW
- First critical in 1964 (250 kW)
- Upgraded to 1000 kW in 1971
- Upgraded to 2000 kW in 2000
- Licence: valid up to 2016
Research Reactors In Indonesia

Kartini Reactor

- Location: Yogyakarta (Central Java)
- Type: TRIGA reactor
- Thermal power: 100 kW
- Some components/structures were provided from the first upgrading of Bandung reactor (1971)
- First critical in 1979
- Licence: valid up to 2010
Research Reactors in Indonesia

G.A. Siwabessy MPR (RSG-GAS)

- Location: Serpong, Banten (West Java)
- Type: Multi Purpose Reactor
- Thermal power: 30 MW
- Fuel: $U_3Si_2Al$
- First critical in 1987
- Licence: valid up to 2020
Status of Research Reactors In Indonesia

- All reactors are in operation → operated by BATAN
- Long operation periods:
  - TRIGA 2000: ± 34 years
  - Kartini: ± 26 years
  - RSG-GAS: ± 18 years
- Currently Research Reactors Licensee (BATAN) is preparing the programme for extended operation:
  - Safety Analysis Report
  - Operation activity report
  - Ageing Assessment report
  (GR No. 43 Year 2006 on “Licensing of Nuclear Reactors” Article 23-3)
- According to the government regulations requires BATAN to prepare decommissioning programme.
  (GR No. 43 Year 2006 on “Licensing of Nuclear Reactors” Article 18-2a)
LAW

Government regulations

Presidential regulations

Regulations of Chairman of BAPETEN

Nuclear Energy Act 10 Year 1997

Mandate from the Act

Government Regulation “Licensing of Nuclear Reactors” No. 43 Year 2006

Mandate from government regulations or The act

Mandate from Gov Regulations or Pres. Regulations

(Further requirements on the decommissioning licence of nuclear reactors and the preparation of the documents, as stated in GR No. 43/2006 article 24-27)
Decommissioning Licence Requirements

- Licensing for the Decommissioning of Research Reactors in Indonesia is governed by the Government Regulation No. 43 Year 2006 on “Licensing of Nuclear Reactors” Article 24-27.

- Commissioning License,
  
  the requirement is financial guarantee for decommissioning programme

- Decommissioning activities shall be performed when:
  - There is a severe accident or an event threatening the safety and/or security in the operation of nuclear reactor.
  - Application for operation licence renewal is rejected by the Chairman of BAPETEN on the ground of safety and/or security.

- The application for decommissioning licence shall be submitted within 3 (three) years before the operation licence expires.
Decommissioning Licence
Licensing Procedure

Nuclear Inst. Operator

BAPETEN

Proposal for decommissioning activities

Order from BAPETEN for decommissioning

Review and Assessment

Decommissioning Activity

Decommissioning Licence

1. Decommissioning Programme
2. Quality assurance programme on decommissioning

Order from BAPETEN for decommissioning

Proposal for decommissioning activities

Review and Assessment
In case the decommissioning activities have been completed, the licensee may submit the application for release from the regulatory control to the Chairman of BAPETEN.

The application shall be submitted to the Chairman of BAPETEN by enclosing the following technical documents:

- decommissioning activities implementation report;
- radioactive waste management activity report; and
- the report on the implementation of environment monitoring programme, including reports on radiological monitoring and contamination on nuclear installation surroundings.
Decommissioning Programme

Stipulated in IAEA Safety Guides

| A. Structure of Operating Organization | F. Documentation and Reporting |
| B. Decommissioning Methods             | G. Safety Analysis             |
| C. Decommissioning Schedule            | H. Emergency Preparedness Programme |
| E. Radiation Protection Programme      | J. Quality Assurance          |
|                                        | K. Cost Estimation            |
Conclusions

- There are 3 (three) research reactor operating in Indonesia. All the reactors are operated by BATAN. It is possible to extend its operation licence, but BATAN has to prepare ageing management and decommissioning programmes.

- BAPETEN stipulates several regulations except specific regulations related to reactor decommissioning which is still in deliberation.
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