



DECOMMISSINING PLAN FOR TAJOURA RESEARCH REACTOR

Manila-Philippines

15-19-SEPTEMBER 2008

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Introduction:-

Tajoura research reactor is a pool type with nominal power of 10MW.

The reactor core surrounded by beryllium reflector and enclosed within aluminum vessel covered by about 7 meters of light water.

Water is used as coolant, moderator, reflector and biological shield.

The reactor has been converted in 2006 to use IRT-4M LEU fuel with enrichment less than 20%. Before conversion the fuel was IER-2M HEU with enrichment of 80%.

The reactor is designed to carry out research in the following areas:

- **nuclear physics**
- **Solid state physics**
- **Neutron physics**
- **Radiation biology**
- **Radiation chemistry**
- **Activation analysis**
- **Study of behavior of structural materials**

The reactor is also utilized in the following areas:

- **Training of students and new engineers**
- **Production of radioactive isotopes.**

Decommissioning plan Guidelines

- **Safety analysis report.**
- **Reactor Log books.**
- **Documents of facilities and buildings related to the reactor.**
- **IAEA standards and guides .**
- **Rules and regulations set by the regulatory body.**

Tajoura Research Reactor Decommissioning Plan

Introduction

The introduction of the decommissioning plan is ready and it includes facility and sitting description.

Facility site description

- ‰ The nearest civilian housing and hospital is more than 4km away from the center.
- ‰ Tajoura research reactor is located 34km east of Tripoli along the sea coast.

Exciting drawings and documents

The reactor department is holding the operation and maintenance documents and some of the design drawings. These documents are not enough for preparing a complete decommissioning plan.

Effort is still going on to collect all the design and construction documents and drawings so that the decommissioning plan can be prepared

All the operation log books and the cartograms of the fuel are available.

operation records

The history of the irradiations carried out in the core, log books of the these irradiations and samples including their position in the core are available

Information of all the maintenance carried out in all systems of the reactor and auxiliary systems and modifications has been made to any system are also available

Experience gained from Transporting NSF

Transporting the Tajoura spent nuclear fuel provides an excellent experience in areas of dealing, handling and managing radioactive materials which lies in the decommissioning activities. This includes

- ‰ Calculations of spent fuel parameters and burn up
- ‰ Choosing the proper container
- ‰ Transport planning and route choosing
- ‰ Facility preparation and updating
- ‰ Dose and activity measurements

CONCLUSIONS

- ‰ Part of the documents and design parameters still need to be collected
- ‰ Due to reactor conversion the SAR need to be reviewed and relevant chapters are to be rewritten.
- ‰ A complete plan for decommissioning need to be prepared.
- ‰ Personal training is needed
- ‰ Duties and responsibilities of decommissioning staff members need to be specified.
- ‰ Tools and equipment necessary for decommissioning need to be specified .
- ‰ It is very important that the IAEA helps in carrying out a practical training program for those how need it and to makes the necessary arrangements so that the project member states share the decommissioning experience .

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