

RESEARCH REACTOR DECOMMISSIONING DEMONSTRATION PROJECT: COST ESTIMATES

Manila, Phillipines
30 March to 3 Abril 2009

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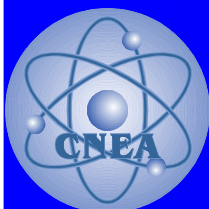


OUTLINE

- **Nuclear Facilities**
- **Legal Frame**
- **Local Scenario**
- **Works in Progress**

NNP's, RESEARCH REACTORS, FACILITIES AND CRITICAL ASSEMBLIES

NUCLEAR INSTALLATIONS	NUCLEAR INSTALLATIONS	NUCLEAR INSTALLATIONS
Atucha1 NNP	DIOXITEK UO2 Conversion Plant	UF6-UO2 Conversion Plant
Embalse NNP	ECRI Fuel Elements for Research Reactors	Co 60 Plant
RA0 Critical Assembly	CONUAR Fuel Elements for NNP's	Mo99 Plant Production
RA-1 RR Pool Reactor	U Enriched Lab	Radioisotopes Plant Production
RA3 RR Radioisotopes Production	U Enriched Processing Lab	Accelerator TANDAR
RA4 Research Reactor	Industrial Irradiation Plant	Irradiation Plant for Hazardous Waste
RA6 Research Reactor	UO2 Pellets production Lab	Radiochemistry Lab
RA8 Critical Assembly	Waste Management Area	
U Enrichment Diffusion Plant	Hot Cells Lab	



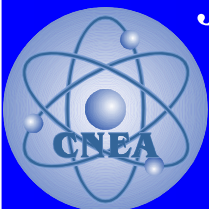
LEGAL FRAME

According to chapter I, Art. 2.e of the National Law N° 24804 ruling nuclear activities CNEA “ Is responsible for determining the procedure for decommissioning Nuclear Power Plants and any other relevant radioactive facilities.”

The implementation the Nuclear Law, states that CNEA is responsible for decommissioning of all relevant radioactive facilities in the country, at end of life.

Regulatory Body

Joint Convention : Contracting Party



LOCAL SCENARIO (1/4)

•Background

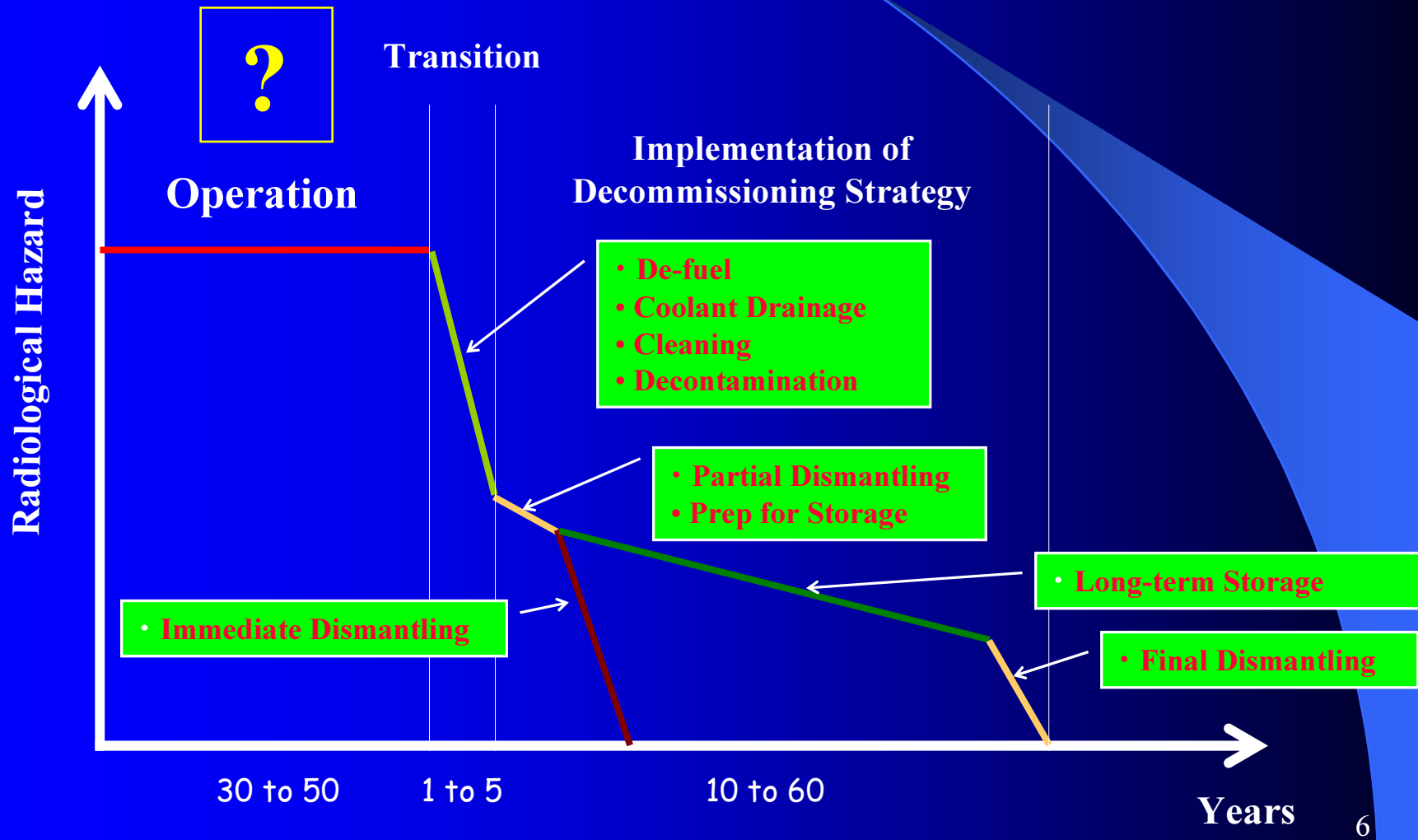
“All the research reactors and small nuclear facilities are in operation”.

There are many structural components from the NPP's , research reactors which were stored during many years which must be treated and other which must be removed because design problems or ageing.



LOCAL SCENARIO (2/4)

REACTOR LIFECYCLE



LOCAL SCENARIO (3/4)

Two main activities are in progress:

- .- Preliminary Planning for Research Reactors and small Nuclear Facilities**
- .- Treatment of structural components (metals and no metals)**



LOCAL SCENARIO (4/4)

How to perform this “REALITY”?

An “agreement” was made with the RB in order to prepare a Preliminary Decommissioning Plan and cost calculation and updated it yearly.

The activity are peerformed together with the Waste Management Group and the Operators.



LOCAL SCENARIO (1/2)

- Preliminary Planning throughout the operational lifetime:

Phase 1

Physical description of the site and facility

Operational history and significant events

Systems and equipment

Characterization and inventory of radiological and hazardous materials.

Waste type , volumens and routes.

Training

LOCAL SCENARIO (2/2)

- Preliminary Planning throughout the operational lifetime:

Phase 2

Decommissioning alternatives

Dose prediction for tasks

Cost estimates

Decontamination techniques

Dismantling techniques

WORKS IN PROGRESS (1/8)

Treatment of structural components (metals and no metals)

Characterize structural components ,valves, flanges, and other contaminated materials.

Selecting Decontamination Techniques

Evaluate the decontamination and the treatment of the liquids generated.

WORKS IN PROGRESS (2/8)

**CHARACTERIZE STRUCTURAL COMPONENTS , VALVES, FLANGES
and OTHER CONTAMINATED MATERIALS**



WORKS IN PROGRESS (3/8)

CHARACTERIZE STRUCTURAL COMPONENTS , VALVES, FLANGES and OTHER CONTAMINATED MATERIALS



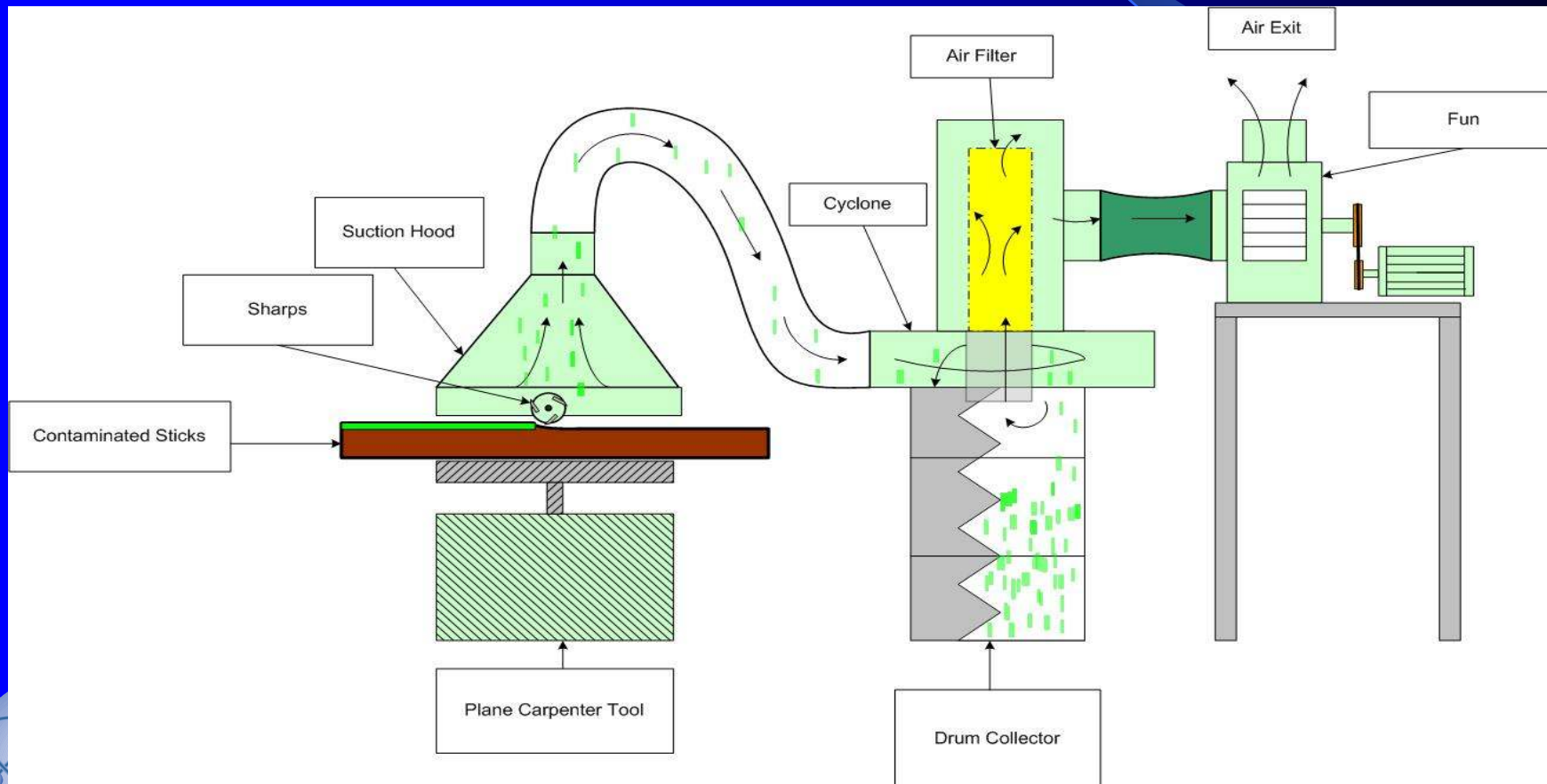
**WORKS IN PROGRESS (4/8)
CHARACTERIZE STRUCTURAL COMPONENTS , VALVES, FLANGES
and OTHER CONTAMINATED MATERIALS**



WORKS IN PROGRESS (5/8)

Decontamination of Wooden Structures:

Electric plane: conventional tool used by carpenters. The shavings produced are put in drums and compacted and the main structure is released from regulatory control.



WORKS IN PROGRESS (6/8)



WORKS IN PROGRESS (7/8)



WORKS IN PROGRESS (8/8)

Decontamination of Metallic Structures:

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Chemical Method

Electrochemical method

Ultrasonic with chemical agents

Mechanical method

Decontamination by Abrasion in Vibratory Tumblers

The system is based on a chemical-mechanical action which is used to smooth, clean and polish metals.

Samples to be treated, solid abrasive media and liquid media are set up into a metallic vessel.

Liquid media contains surfactants and detergents which “captures” the suspended particles produced by the impact with the abrasive media.



**THANK YOU FOR YOUR
ATTENTION**