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JRR-3 MAINTENANCE PROGRAM UTILIZING ACCUMURATED OPERATION DATA

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Introduction

Modified JRR-3 :

/ In 1990, completion of modification works

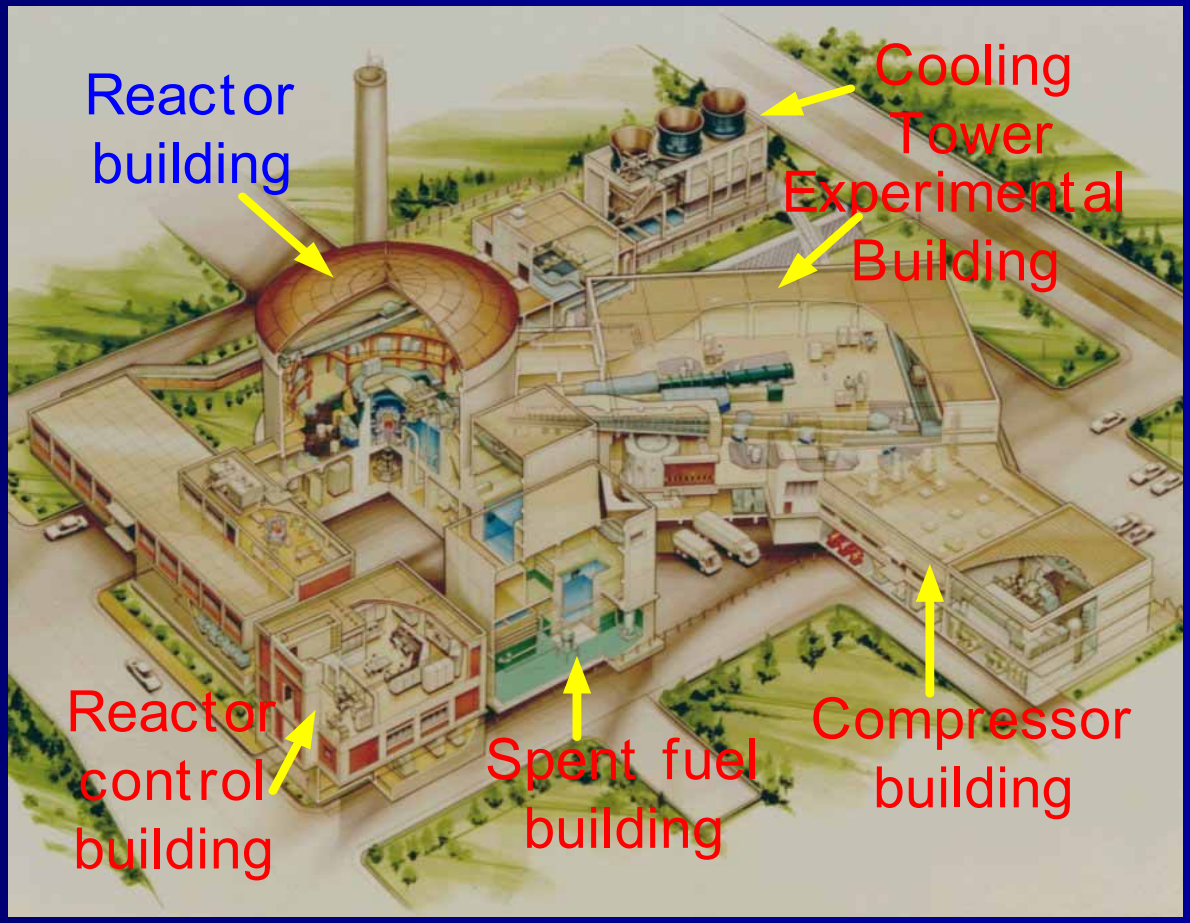
/ All the facilities except the reactor building were renewed

/ Light water cooled and moderated swimming pool type

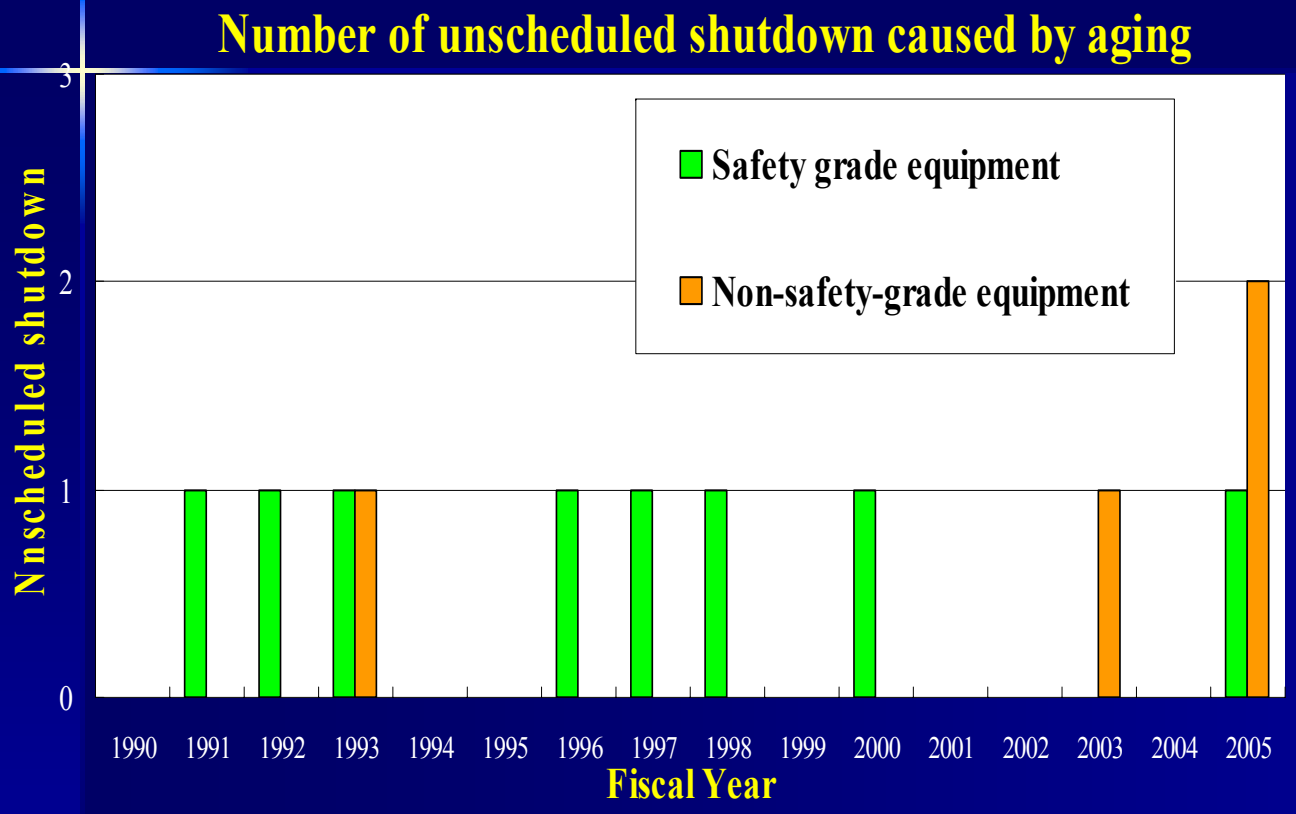
/ Nominal thermal power of 20MW

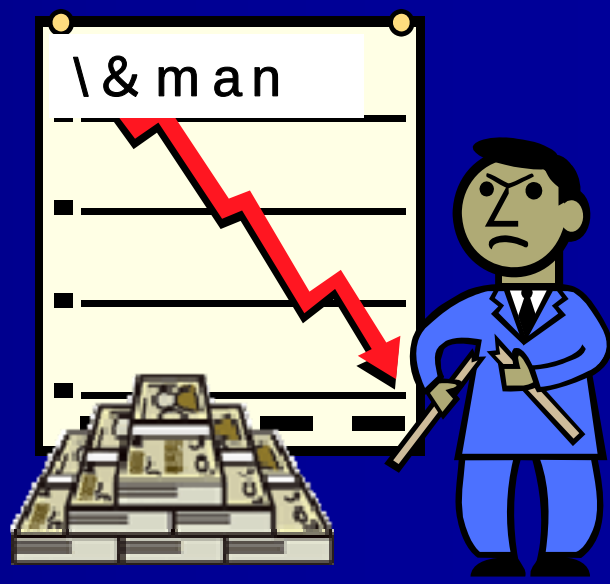
/ An operation cycle is 26 days

/ Operated without any significant troubles for 15 years



Introduction





Search an efficient maintenance program more than present

JRR-3 Equipment

Safety grade equipment

Cooling Pump

Heat Exchanger

Non-safety grade equipment

Cooling Fan

Air Blower

System of Maintenance Program, and Present Maintenance

Maintenance

Preventive Maintenance (P.M)

Time Based preventive Maintenance (T.B.M)

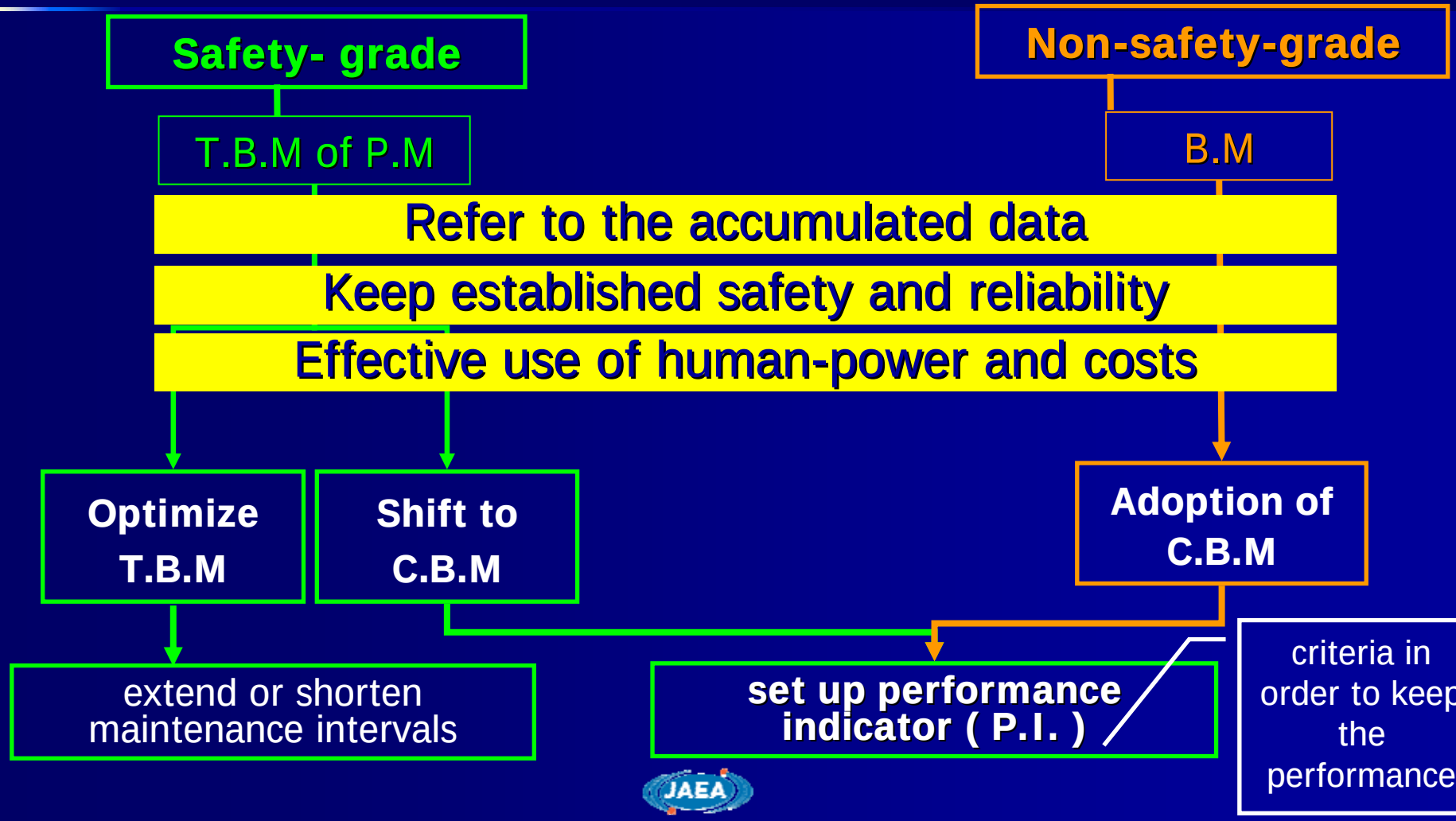
Periodic Maintenance (PE.M)

Age based Maintenance (A.M)

Condition Based preventive Maintenance (C.B.M)

Break down Maintenance (B.M)

Review Policy of Maintenance Program

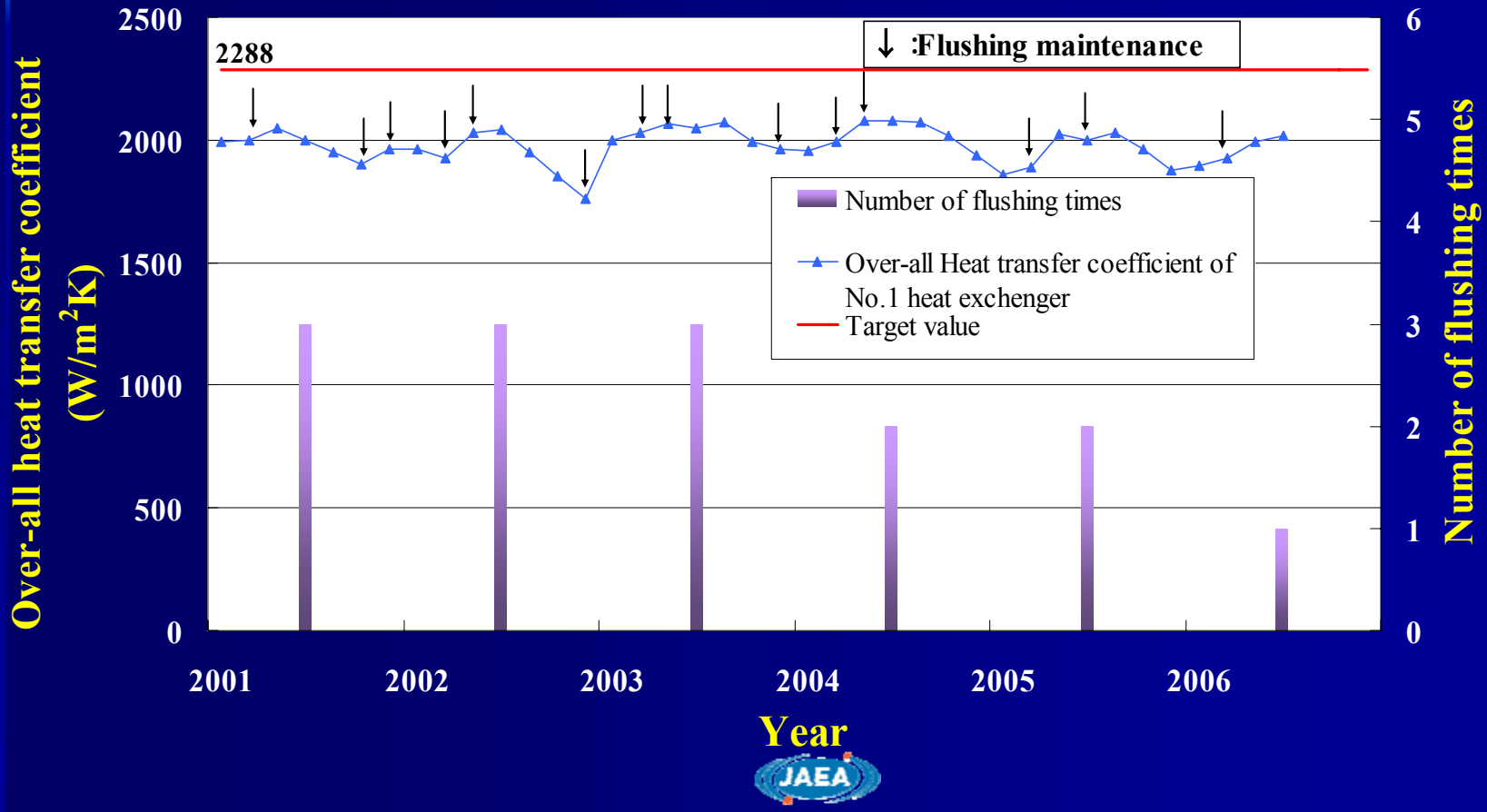


Evaluation example T.B.M→C.B.M

Review of Maintenance for Safety-grade

" Flushing maintenance of heat-exchanger "

Relation between flushing maintenance and Over-all Heat Transfer Coefficient



Evaluation example T.B.M→C.B.M

Review of Maintenance for Safety-grade

" Flushing maintenance of heat-exchanger "

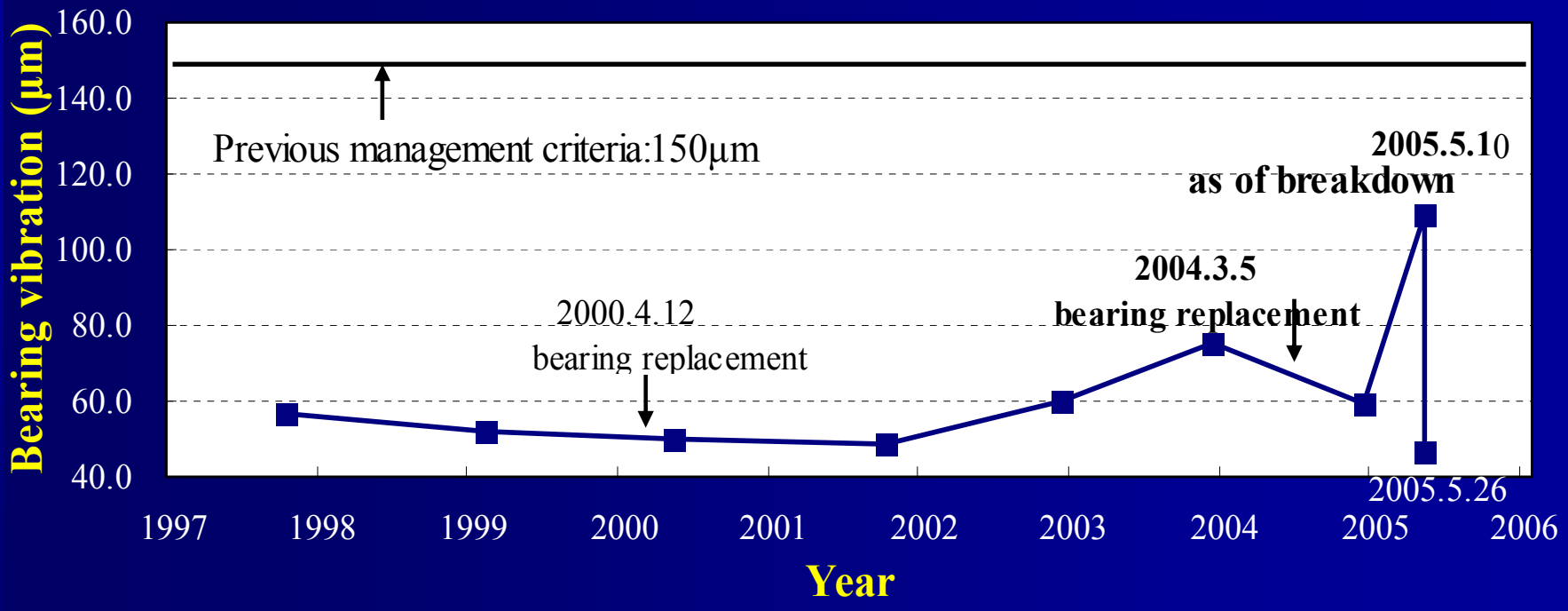
Evaluation Item		Result	Notes
Shift to C.B.M.		Shift	Possibility of excessive maintenance
P.I.	Observe item and interval	Over-all Heat Transfer Coefficient / Cycle	–
	Criteria	1900W/m^2・K	Maintenance will be planned in next cycle

Evaluation example B.M→C.B.M

Review of Maintenance for Non-safety-grade

" Air blower for ventilation of the reactor room "

Vibration data of air blower



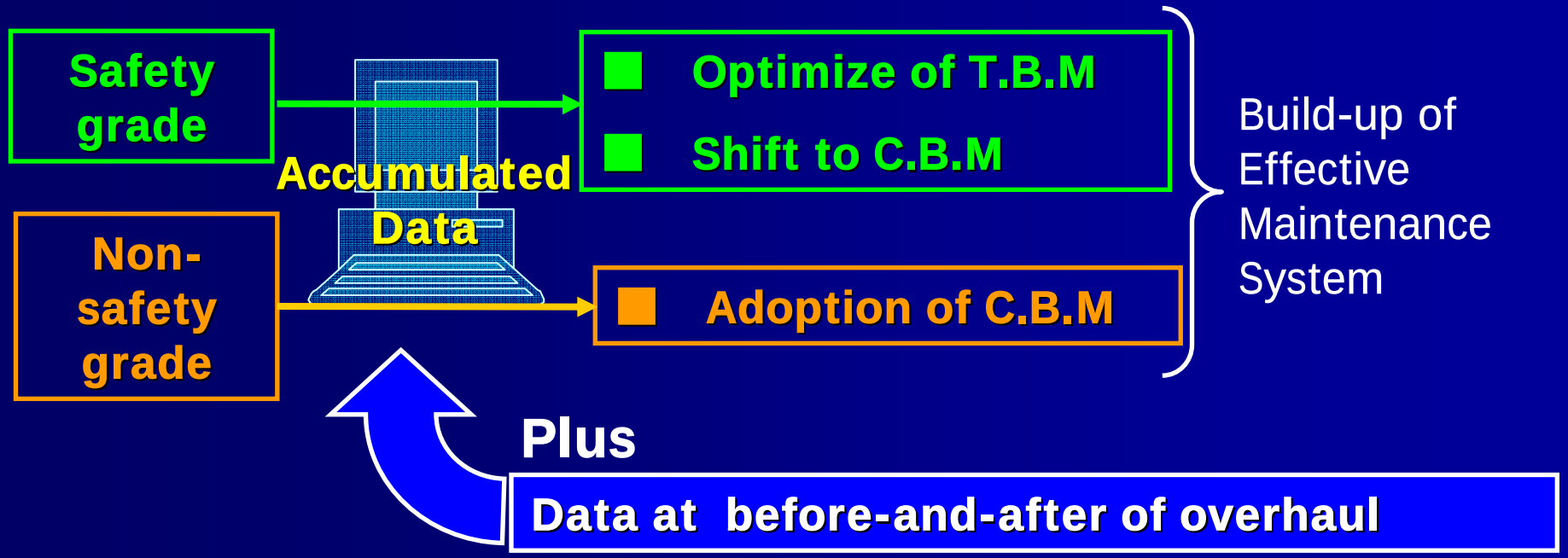
Evaluation example B.M→C.B.M

Review of Maintenance for Non-safety-grade

“ Air blower for ventilation of the reactor room ”

Evaluation Item		Result	Notes
P.I.	Observe item and interval	Vibration measurement and the sound detection inspection / once per half a year	–
	Criteria	60μm	The overhaul which includes both the bearing replacement and the shaft size-measurement would be planned

JRR-3 Maintenance Program in Future



Conclusions

- Effective use of the maintenance resource can be expected by establishing the effective maintenance program using the accumulated data.
- By optimizing T.B.M and adopting C.B.M, reliability and condition of equipment would be better.
- Future data accumulated by this maintenance program would be useful to JRR-3 safety operation.