



Information to Support Dedicated Isotope Facilities 2007 Licence Renewal

2007 June 22



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Dedicated Isotope Facilities (DIF)



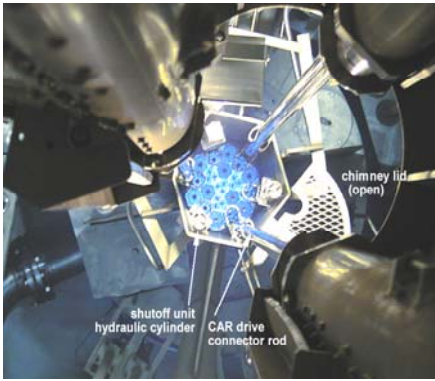
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MAPLE Reactors

- Pool-type reactors
- Designed and licensed for the purpose of producing medical isotopes




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New Processing Facility

- Series of Hot Cells
- Target processing, medical isotope extraction,
- Waste Processing



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Outline

- **Presentation will cover**
 - Capability and Knowledge Management
 - Waste Management
 - Safety Related Performance
 - Performance Assurance
 - Operating Performance
 - Communication
- **Supports application for Licence Renewal**

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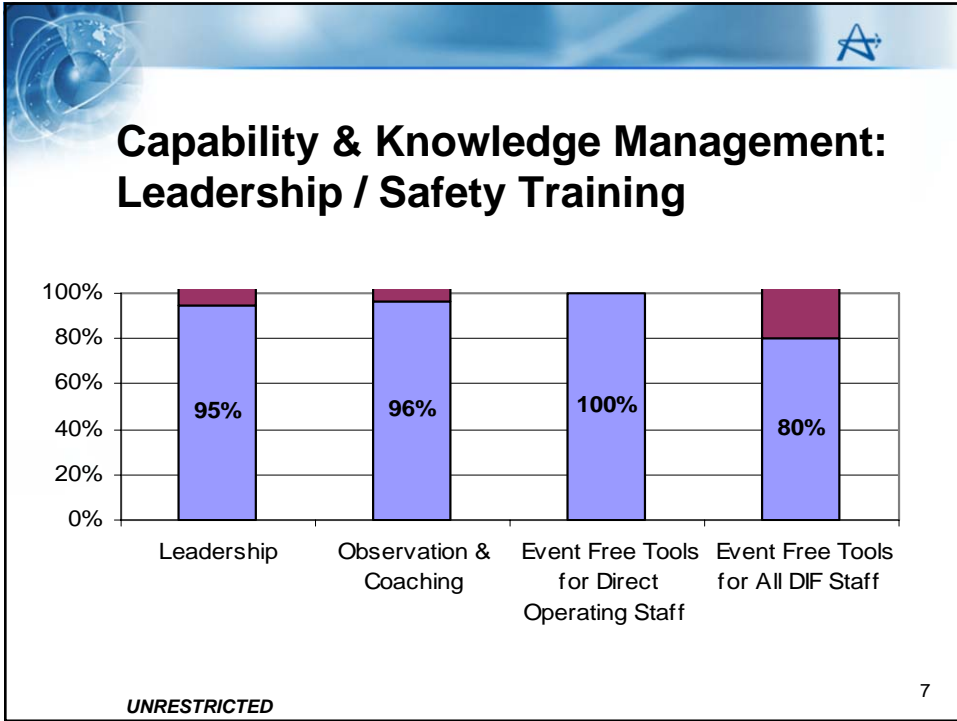


Capability & Knowledge Management: Staff Qualifications


- **Sufficient Number of Qualified and CNSC Certified Staff to operate the facilities safely as per the Operating Limits and Conditions:**
 - CNSC Certified MAPLE Staff
 - Manager, Operations = 8
 - Reactor Operators = 13
 - Qualified NPF Staff
 - Supervisors = 7
 - Hot-Cell Technicians = 13
 - Update / Refresher Training Provided As Required (e.g. Prior to 5MW Operations)

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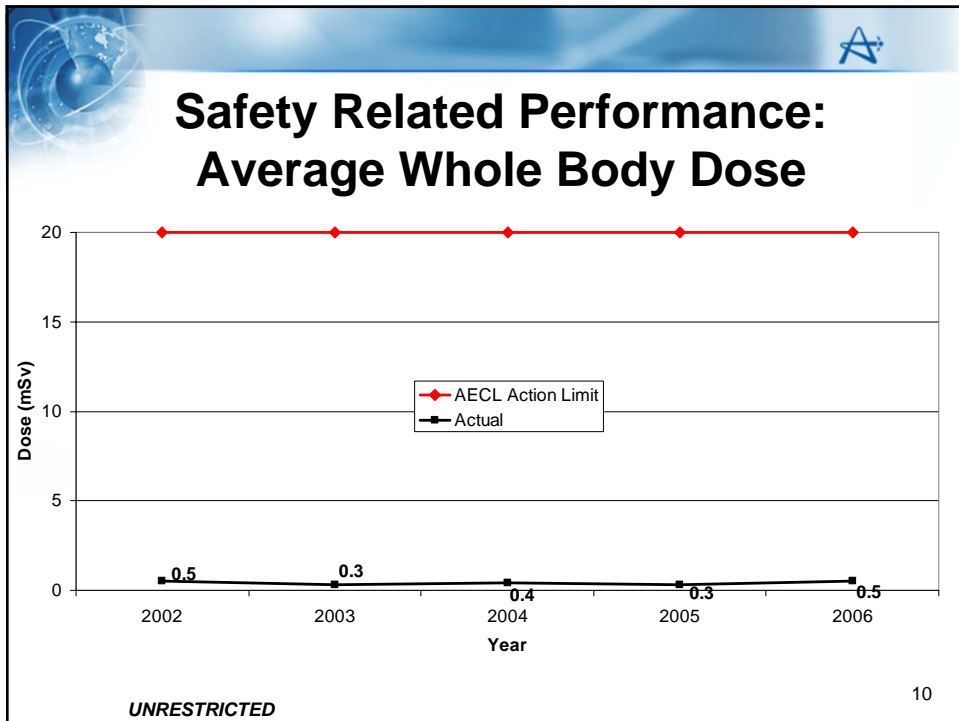
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- Waste Management**
- Fully integrated with CRL Site
 - Waste Characterization Plan is in place
 - Minimal Radioactive Wastes generated in DIF
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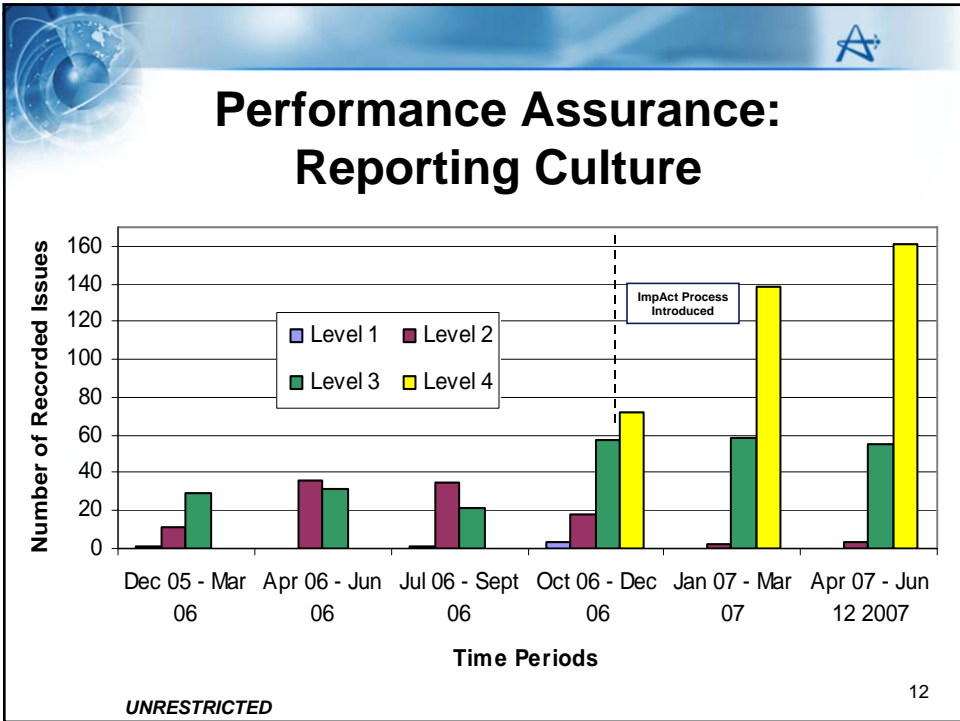


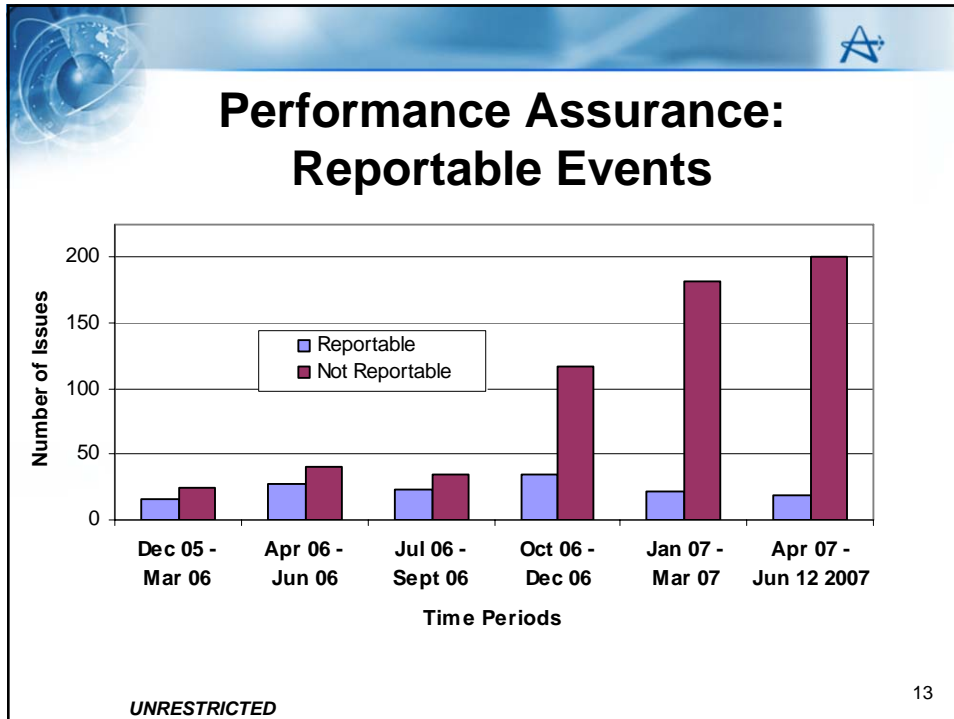
Safety Related Performance

- **During the Current Licence Period in DIF:**
 - No Personal Contamination Events
 - No Occurrences of Loss of Contamination Control
 - No Unplanned Radiation Exposure to any Personnel
 - Air and Liquid Effluent Sampling Programs are Established and in place
 - Did NOT Exceed any Derived Release Limit (DRL)
 - Fire Protection fully integrated with CRL Site
 - No significant issues from Third Party Independent Reviews and Fire Drills Performed
 - In the current licence period there have been zero unsafe faults of Safety Systems

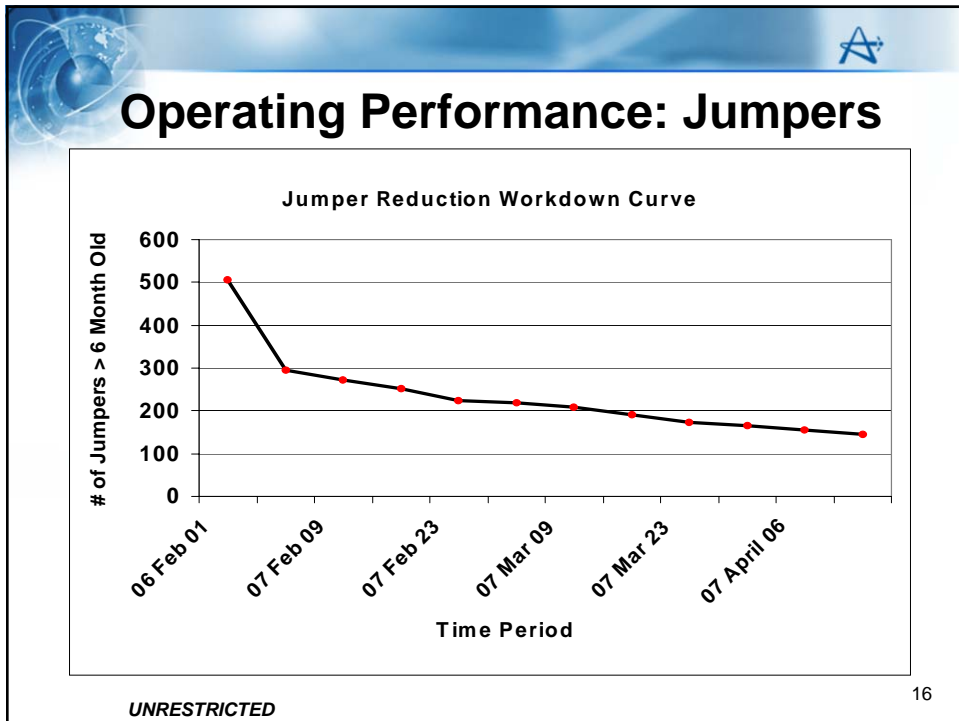
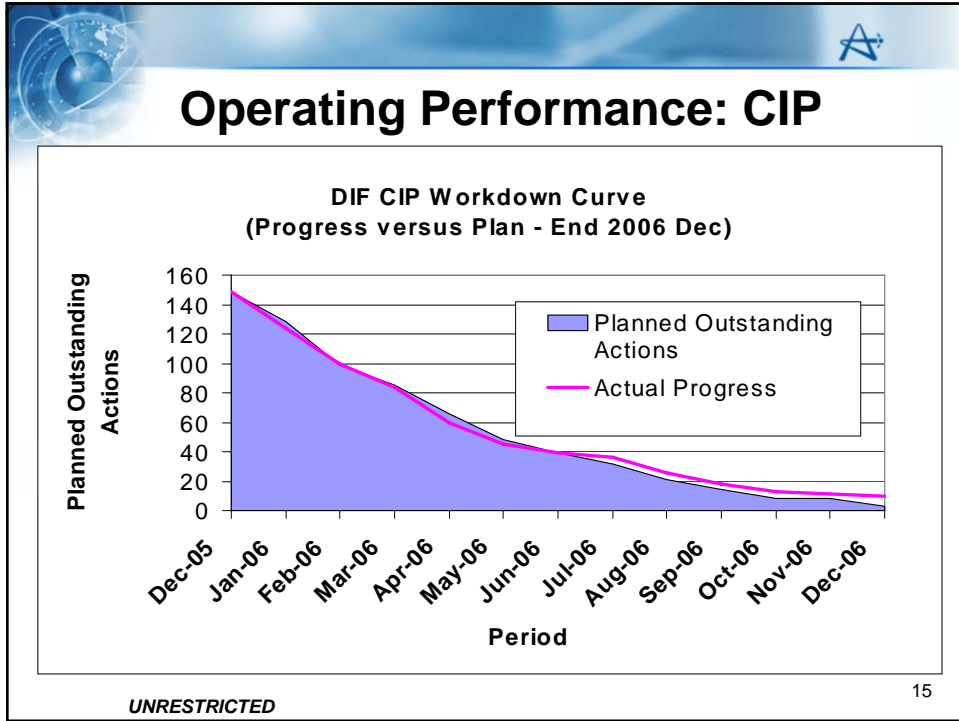
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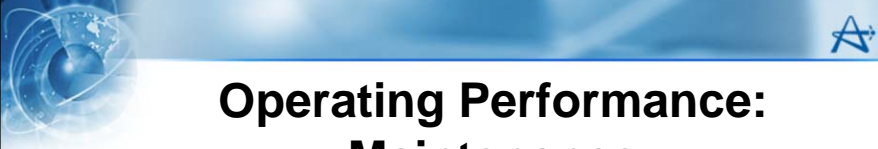






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- ## Performance Assurance: Operating Experience (OPEX)
- **Use of OPEX:**
 - Daily conference call
 - Weekly History Lesson
 - Lessons Learned
 - External and Internal
 - Gentilly 2 inconel spring relaxation led to raising of a MAPLE ImpAct
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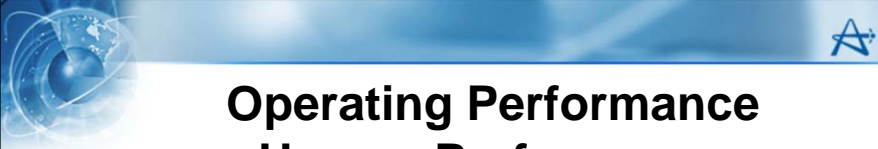






Operating Performance: Maintenance

| Facility | Completion of Operator Routines | Completion of Operator Test Procedures | Completion of Reliability PMs |
|----------|---------------------------------|--|-------------------------------|
| MAPLE 1 | 100% | 100% | 100% |
| MAPLE 2 | 100% | 100% | 100% |
| NPF | 100% | N/A | 88% |

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- ## Operating Performance Human Performance
- **Human Performance Related Events**
 - **Significant Events**
 - Cause determined / preventive actions set
 - Senior management oversight for action effectiveness
 - Trending for low significance level events
 - **Repeat Events**
 - Team investigation for significant events
 - Root cause oversight by NLBU senior management
 - Further improvement needed
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Operating Performance CIP Effectiveness

- **95% of actions completed**
- **Effectiveness of CIP being evaluated**
 - Self Assessments
 - Observation & Coaching Results
 - ImpAct Trending
 - Effectiveness Reviews

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Communication

- **AECL continues to improve its Public Information Program**
 - Environmental Stewardship Council
 - Breakfast meetings with local community residents
 - Regular updates to the AECL website
 - “Contact”, a quarterly bilingual community newsletter

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A Canadian Gift to the World: Cancer Therapy and Nuclear Medicine

Iodine-131
Thyroid imaging and therapy

Technetium-99m
Cancer and heart disease diagnosis

Xenon-133
Lung imaging


Did you know?
More than 50,000 nuclear medicine procedures are carried out daily around the world.



- AECL's Chalk River Laboratories produce about half of the world's supply of short-lived medical isotopes used in 34,000 diagnoses/day.
- Cobalt-60 cancer therapy was invented at Chalk River. Each year, 12 million cancer treatments are administered using Cobalt-60 from NRU (~33,000 treatments/day).
- ***In other words, EVERY DAY, ~67,000 people around the world receive a direct benefit from our operations, either through medical diagnostics or cancer treatments.***







Summary

During the next licensing period, AECL will continue to:

- Safely operate DIF
- Resolve technical issues
- Implement improvement programs
- Meet all regulatory criteria

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