Idaho National Laboratory

RTC/STC

CY-2006 ALARA Exposure Goals

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Total Projected Dose for 2006
26.263 person-rem

Nuclear Energy Infrastructure - .645 rem

1. ***Nuclear Operations Facilities – .270 rem***
   (Building & Infrastructure Management)
2. ***ATR Life Extension Program – .145 rem***
   (System Walk Down Inspections)
3. ***RTC Hot Cell – .230 rem***
   (Minimum Operations and Maintenance)

Work For Others Program – 1.550 rem

1. ***Laser Ultrasound Spectroscopy Experiment - .010 rem*** (Gamma Tube Irradiations)
2. ***RTC R&D Laboratory Operations – 1.460 rem*** (Routine Lab Ops, PINS, STAR, Xe/I Processing)
3. ***IRC Laboratory Operations - .030 rem***
4. ***CFA Laboratory Operations - .030 rem*** (HPIL & R&DL Operations, RCT support)
5. ***Critical Infrastructure Test Range - .020 rem*** (Accelerator and Neutron Generator Operations)

Nuclear Operations – 24.068 rem

1. Experiment Programs – 15.337 rem

- Rebuild/Repair Loop Valves – 0.800 rem
- Loop Pump Maintenance – 0.130 rem
- Secondary Cubicle Ripout – 0.070 rem
- Routine Preventive/Corrective Maint. – 0.350 rem
- Isotope and Experiment Transfers - 0.600 rem
- 138A-1 Outage – 13.312 rem
- Remainder – 0.075 rem

Nuclear Operations (continued)

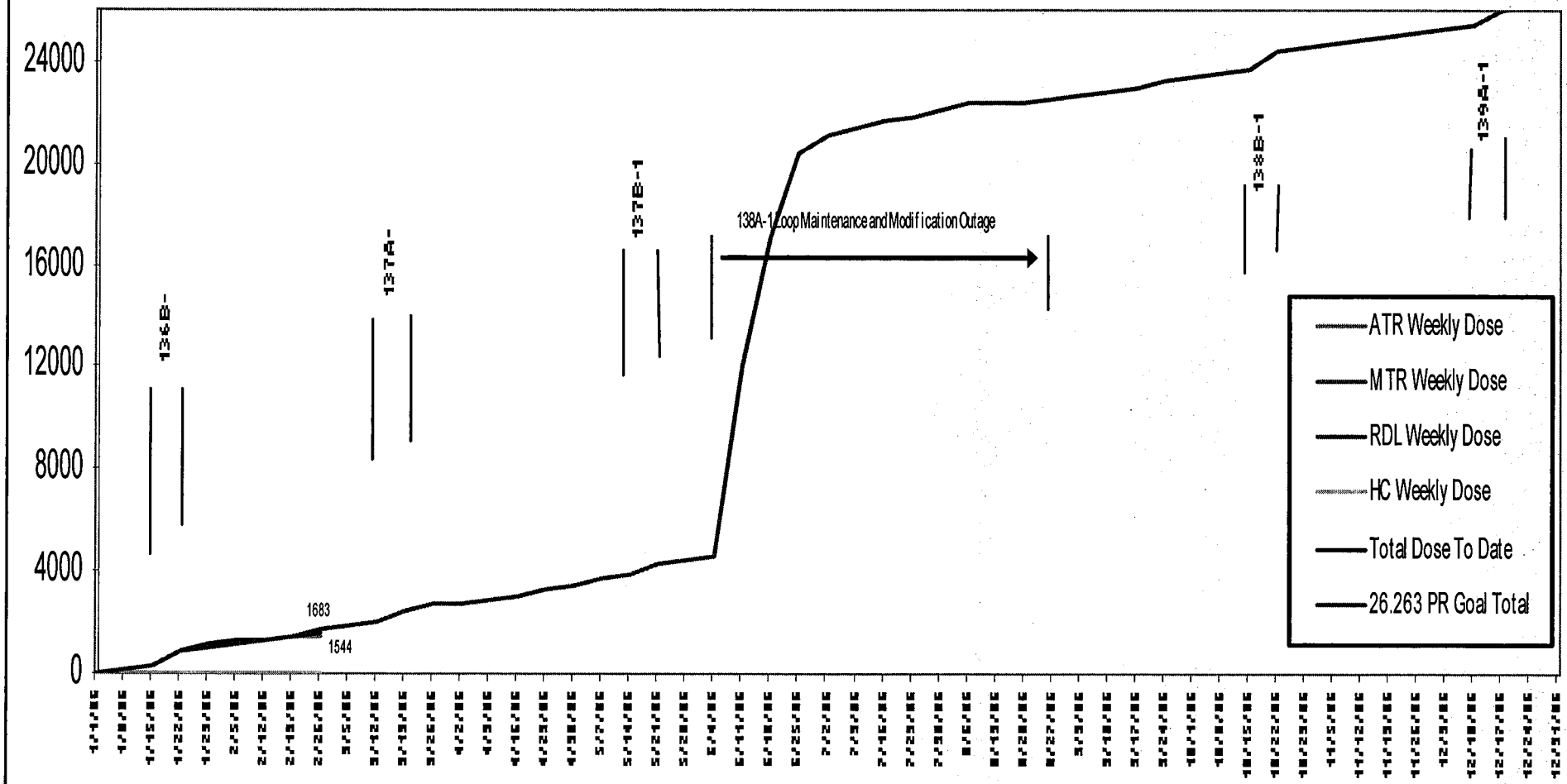
2. *ATR Operations – 3.464 rem*

(Routine Operations and Online Maintenance)

3. *ATR Outage Operations – 5.267 rem*

- Normal Shutdown Operations and Minor Maintenance – 1.300 rem
- 138A-1 Outage
  - Experiment Loop Maintenance and Modifications (See Item 1 Above)
  - Outage Operations - 1.342 rem
  - Heat Exchanger Inspection – 0.305 rem
  - Bottom Head EFIS Valve Replacement – 1.000 rem
  - Miscellaneous Plant Maintenance – 1.320 rem

Reactor Technology Complex Cummulative Dose CY-2006 (Electronic Dosimeter Dose to 2/26/06)



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2006 ALARA Protective Measures

1. Tents and Enclosures

- *Cubicle entrances during major loop maintenance*
- *Inspection/repackaging area at TRA 634*
- *Play-pen area around primary coolant check valve*

2. Containment Devices

- Catch basins for routine valve work
- Special ventilated catch basins for neck shim rod removal

3. Ventilation

- Adapters for cubicle exhaust to provide localized ventilation at the work site
- HEPA filtered vacuums and/or portable air movers for localized ventilation during work on other valves and components

2006 ALARA Protective Measures

4. Temporary Shielding

- *Shielding plan for each loop cubicle during valve and pump maintenance*
- *Use of mobile shield racks to localize the effects of background radiation within the cubicle*

5. Misting and In-process Decontamination

- Airborne suppression during opening of contaminated systems
- Spot reduction of source term at the job site
- Reduction in use of respiratory protection

2006 ALARA Protective Measures

6. Source Reduction

- Chemical decontamination of three experiment loops to reduce radiation levels prior to major maintenance.
- Chemical decontamination of the canal recycle system and heat exchanger to reduce operating exposures.
- Monitoring of primary coolant activity levels and implementation of extended recirculation or feed and bleed operations to reduce coolant activity prior to extended reactor top operations.
    - Reduction in potential for skin/clothing contamination from handling tools and equipment.
    - Minimize potential contamination spread to the reactor top work area.

Pipe Fitters are the limiting resource regarding individual exposures.

Extensions of ALARA Goals above the ACL are anticipated for up to five Pipe Fitters.

ALARA Protective Measures applied above may be sufficient to maintain all crafts to below the ACL.

Implemented an extremity monitoring program to track extremity exposures to selected craft and operations personnel, to establish a baseline for anticipated annual exposures for various routine tasks and maintenance activities.