

ME/Water Group

Staff Members

- Asu Alp
- Ralph Bechtold
- Bob Dortwegt
- Mark Jaski
- Leonard Morrison
- Rick Putnam
- Gene Swetin
- Ed Theres

➤ **OUTLINE :**

- Mission and Responsibilities
- Specific Tasks
 - ❖ **System Monitoring and Maintenance**
 - ❖ **ME Support – Diagnostics Group**
 - ❖ **ME Support – RIA Project**
- Staffing and Budget

Mission Statement

- Deliver engineering support for the various mechanical, water and cryogenic subsystems of the APS, and to pursue R&D activities in support of future upgrades.

Major Tasks

- Monitor and maintain mechanical subsystems.
- Provide ME support – *RF, Diagnostics, CF and Beamlines.*
- Training – *professional growth, cross-training and safety.*
- R&D for the future enhancements.

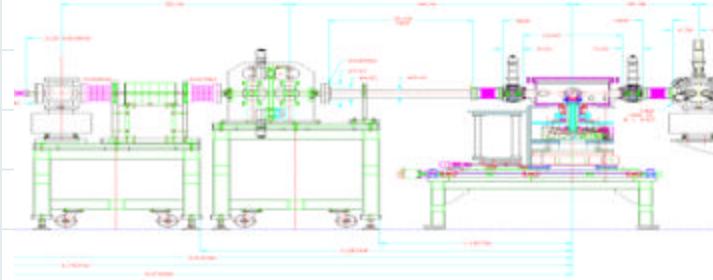
➤ ME Group - Responsibilities

- DC magnets
- Pulsed magnets
- SR X-ray Absorbers
- Bellows and RF shields
- Ceramic chambers
- Vacuum chambers (PAR, SY, SR-Injection)
- RF cavities, tuners, couplers, and HOM dampers
- Diagnostics flags, scrapers and current monitors
- Support systems
- Water subsystems



➤ ME Group – Responsibilities

- Diagnostics Beamlines: *masks, photon and safety shutters, slits, Be windows, mirrors and a monochromator*



35-ID Beamline

- Water subsystems for front-ends and beamlines.
- LN2 cryo-coolers.



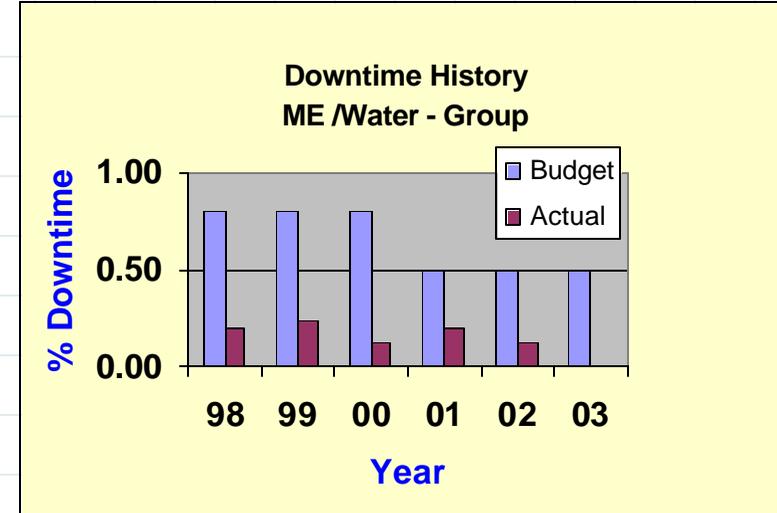
DI water connections



A cryo-cooler

➤ System Monitoring and Maintenance

- Excellent availability/MTBF statistics.
- Machine availability is the top priority task for all engineers and technicians.
- Emphasis on preventive maintenance.
- Detailed fault analysis reports.

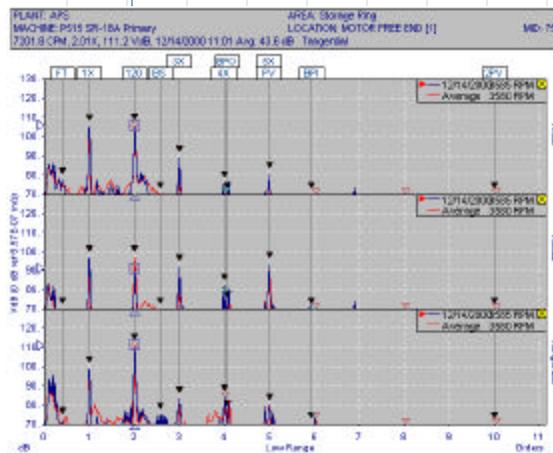


Fault Analysis Reports

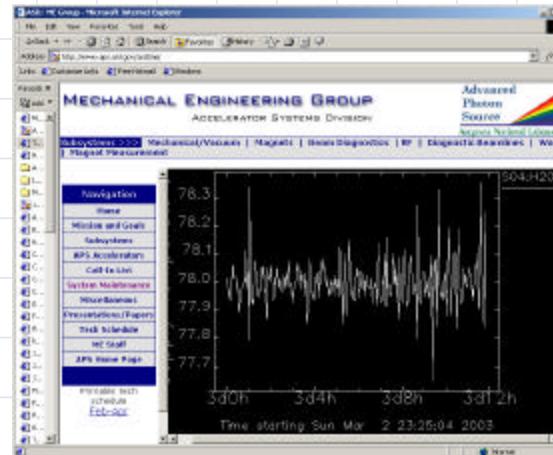
Date:	Submitted by:	Title:
03-21-2003	Mark Jaski	Hose Leak
03-20-2003	Bob Dortwegt	Beamline 2-ID-E
03-12-2003	Bob Dortwegt	Beamline 1-BM-C
02-13-2003	Bob Dortwegt	LINAC KLYSTRON NO. 1 TRIP
01-31-2003	Bob Dortwegt	31 ID PSS Fault
12-03-2002	Mark Jaski	Overheating Scrapers
12-20-2002	Bob Dortwegt	6ID PSS Trip
11-11-2002	Leonard Morrison	Kicker Blower Fault
10-14-2002	Rick Putnam	IK:4 Temperature Alarm
10-04-2002	Leonard Morrison	S.R. RF Coupler Water Temp Alarm

➤ System Monitoring and Maintenance

- Emphasis on system monitoring.
- PV monitoring on the web.
- Spare parts and maintenance procedures on the web
- Extensive cross-training



Vibration Monitoring



Temperature PV on web



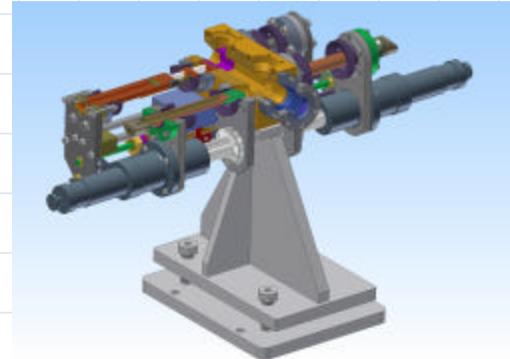
Spare parts

➤ ME Support – Diagnostics Group

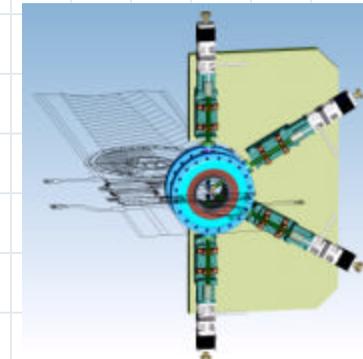
- Design and Fabrication.
- Installation.
- Spare parts.



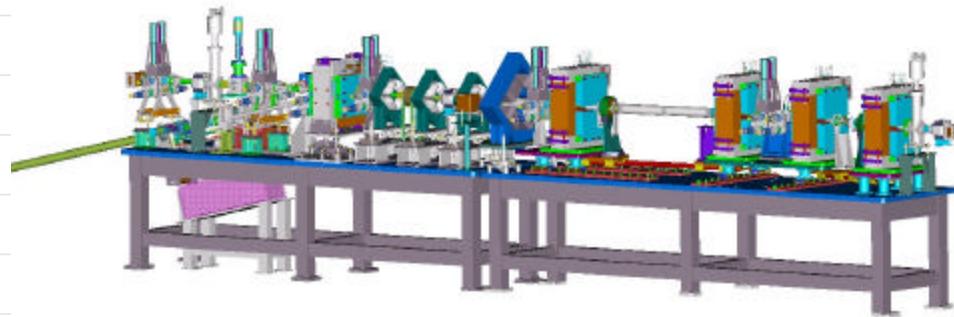
Camera



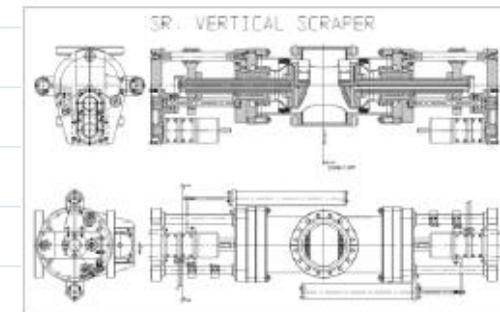
Flag Actuator



4-Blade Pinhole

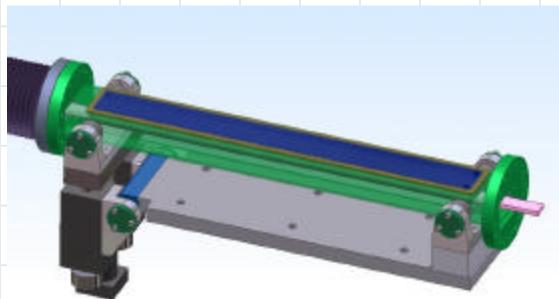


Bunch Compressor Diagnostics

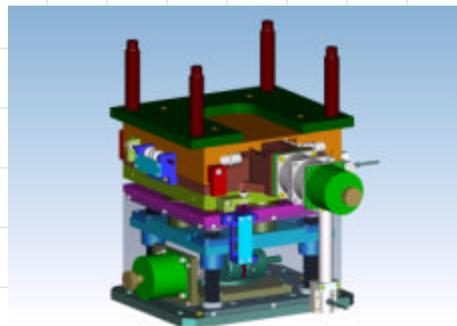


SR Vertical Scraper

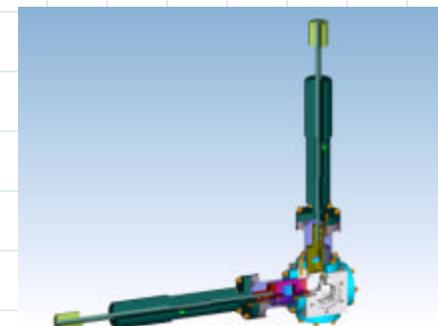
➤ ME Support - Diagnostics



Photon Shutter



XBPM Translation Stages



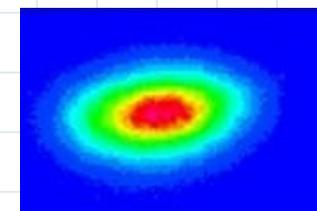
2-Position YAG



35-ID Mask

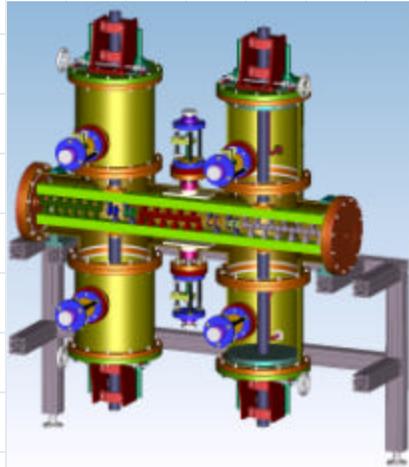


35-ID Monochromator

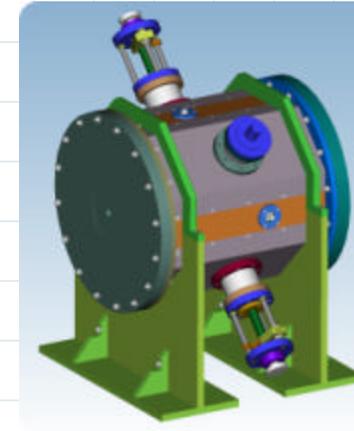


Beam Image

➤ ME Support – RIA Project

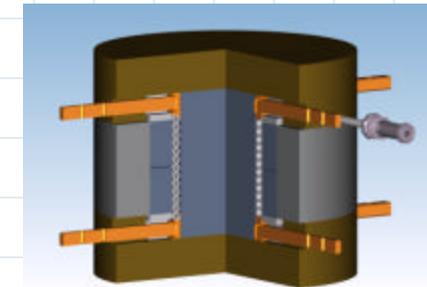


12 MHz Hybrid RFQ Model



57 MHz RFQ Prototype

- Substantial engineering support until recently.
- Continuing drafting and fabrication support.



Lithium Pump

➤ Staffing:

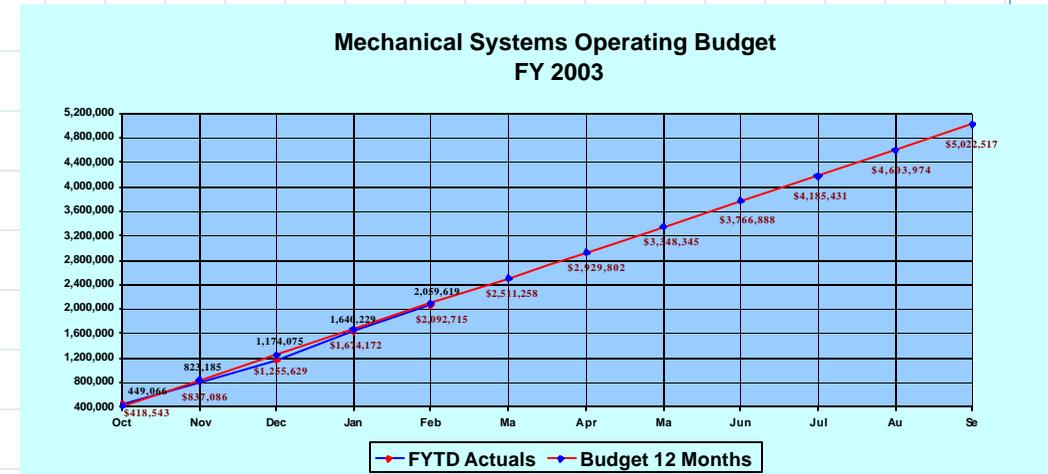
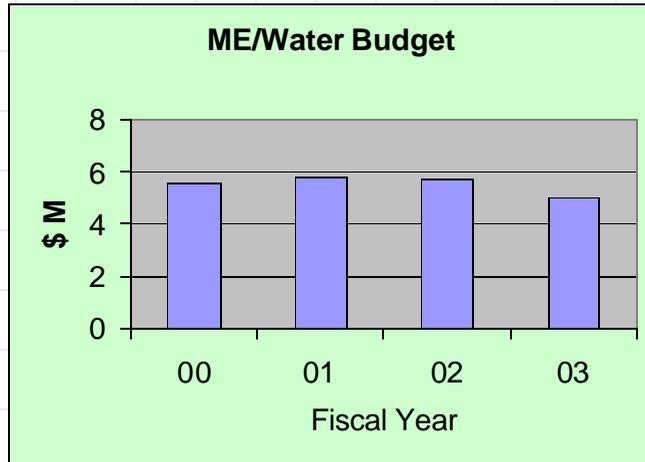
- **Lost 5 ½ engineers in the recent reorganization – Biggs, Doose, Gorski (STA), Jagger, Kelly and Rotela.**
- **Gained two technicians (Burke, Croupat).**
- **Gained responsibilities for the front-end and beamline DI water subsystems and LN2 cryo-coolers.**
- **Major reorganization within the ME Group – new responsibilities for the staff members**
- **Retraining and professional growth:**
 - ❖ **Extensive training**
 - ❖ **Several short courses**
 - ❖ **Collaboration with other light sources and IIT**

➤ Staffing - Impact

Tasks Delayed or Cancelled

- **Air-blower system design for the SR RF cavities**
- **SR Scrapers**
- **High power RF couplers**
- **Support for the Diagnostics Group**
- **Analytical work for the higher current operation**
- **Experimental tests for erosion and fatigue**
- **Design work on Sector-14 hutch**
- **Engineering support to RIA (12 MHz RFQ)**

➤ ME Group's Operating Budget



- FY03 Operating budget: \$ 5.02 M
- Increased expenses for users' support
 - ❖ Reduction in Effort Cost
 - ❖ Deferred Tasks