ACCELERATOR SHUTDOWN

Plans for Industrial Cooling

Water (ICW) System Flushing

V. Kuchler
ICW System Overview

- Water Source for Equipment Cooling
- Water Source for Fire Protection
- System Size Approximately 16.5 Miles
- In-Line Automatic Strainers Exist at SwitchYard, Industrial Area, WH, New Muon, Meson Cryo, FCC, CHL and Casey’s Pond
- In-Line Manual Strainers Exist at IB4, WH Duplicating, Linac, Lab A, HIL, MDB, MP9 and MW9 Service Buildings
Normal Flushing Process

• Flushing Procedure Was Developed in Conjunction with Outside A/E in 1993
• Provides an Engineered Process Based on Pipe Size, Pipe Length and Achievable Flow Rates
• Additions to the System have been Incorporated into the Flushing Plan
• Flushing Always Begins at Casey’s Pond
• Normal Flushing Involves 20 Individual Sections
Communication Process

- **FESS Operations Issues Utility Work**
  Notifications Whenever Work is Being Accomplished on Any Utility System
- **Distribution to Over 150 Individuals Across the Laboratory**
- **Specific Attention is Given to On-Going Operations and Strainer Locations**
- **Building Managers are the Points of Contact for Difficulties Noted During the Flushing Process**
Purpose and Duration

• The Purpose is to Clean as Much Debris from the System as Possible Prior to the Flushing for Zebra Mussel Treatment
• Flushing Has Been Accomplished on an Annual Basis Since 1995
• Duration is the Variable that Precludes Exact Scheduling of the Overall Process
• Pipe Sections Can Take 15 min or “As Long as it Takes” to Clear
Precautions

• History has Proven that the Flushing Process Identifies Weaknesses in the System
• FESS has Stockpiled Valves and Other Repair Materials
• We Also have T&M Contracts in Place to Respond to Needed Repair Efforts
• How many Valves/Pipes Fail During the Process Also Affects the Overall Time Needed
Zebra Mussel Treatment

• Our Strategy is to Do Normal Flushing First to Remove as Much Debris as Possible Now
• Treatment for Zebra Mussels is Non-Productive at Water Temps Below 65 F
• If Pond Temperatures Reach 65 F with Enough Time Left in the Shutdown Window We Will Proceed with Mussel Treatment and Another Flushing Cycle
• Flushing Sections will be Reduced in Size (60 Sections vs 20)
Summary

• **FESS has a Proven Procedure in Place and Experience in its Execution**
• **We Believe this Strategy will Sustain System Operation Even if Only the Normal Flushing is Accomplished**
• **We are Prepared to Respond Quickly to Needed Repairs**
• **We will Alert Building Managers of All Extraordinary Work Required During the Flushing System**