

**U.S. Nuclear Regulatory
Commission Region II
Atlanta, Georgia**

Proposed MOX Facility Construction
and Inspection Planning Meeting
November 12, 2002

Agenda

1:00 pm	Introduction: - Participants - Category 1 Public Meeting	NRC
1:15 pm	Discussion of Plans and Schedule for the Proposed Construction of a MOX FFF	Duke, Cogema, Stone & Webster (DCS)
3:15 pm	NRC Inspection Program Closing Remarks Questions from the Public	NRC NRC NRC

**U.S. Nuclear Regulatory
Commission**

NRC Inspection Program for the
Construction of the Proposed
MOX FFF

NRC Inspection Program

- Purpose
 - To review the applicant's compliance and performance relative to the commitments in the Quality Assurance Plan, the Construction Authorization Request, and NRC Regulations through the following:
- Inspection
- Assessment
- Enforcement

Enclosure 2



NRC Inspection Program

- Objectives
 - Provide NRC Senior Management reasonable assurance that the proposed MOX FFF was constructed i.a.w. the QAP, CAR, and regulatory requirements
 - Provide an integrated assessment across key functional areas
 - Provide input for determining the issuance of an operating license



NRC Inspection Program

- Methodology
 - Onsite announced and unannounced inspections by specialists from either Region II or Headquarters
 - Onsite inspections by a Resident Inspector
 - Performance assessment
 - Inspection input presented with supporting data
 - Consensus achieved
 - Changes in the inspection program based on possible trends considered



NRC Inspection Program

- Methodology (continued)
 - Emphasis placed on the applicant's readiness review and deviation resolution program
 - Inspection results are communicated to the applicant through inspection reports



NRC Inspection Program

- Process
 - Construction Inspection Activities
 - Pre-Operational Inspection Activities
 - Start-up Testing Inspections
 - Operational Readiness Review Inspections
 - Fuel Cycle Facility Operational Safety and Safeguards Inspection Program



NRC Construction Inspection Program

- Typical Areas of Construction Inspections
 - Quality Assurance Program
 - Contractor Quality Assurance Activities
 - Pre-Operational Environmental Protection
 - Geotechnical Foundation
 - Structural Concrete
 - Piping, Supports, and Restraints



NRC Construction Inspection Program

- Typical Areas of Inspection (continued)
 - Structural Steel
 - Mechanical Components and Installation
 - Electrical Components and Installation
 - Instrument Components and Installation
 - Ventilation Systems



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NRC Construction Inspection Program for the Proposed MOX FFF

Closing Remarks



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NRC Construction Inspection Program for the Proposed MOX FFF

Questions from the Public



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STONE & WEBSTER

Mixed Oxide Fuel Fabrication Facility

Briefing to NRC Region II

Atlanta, GA

12 November 2002



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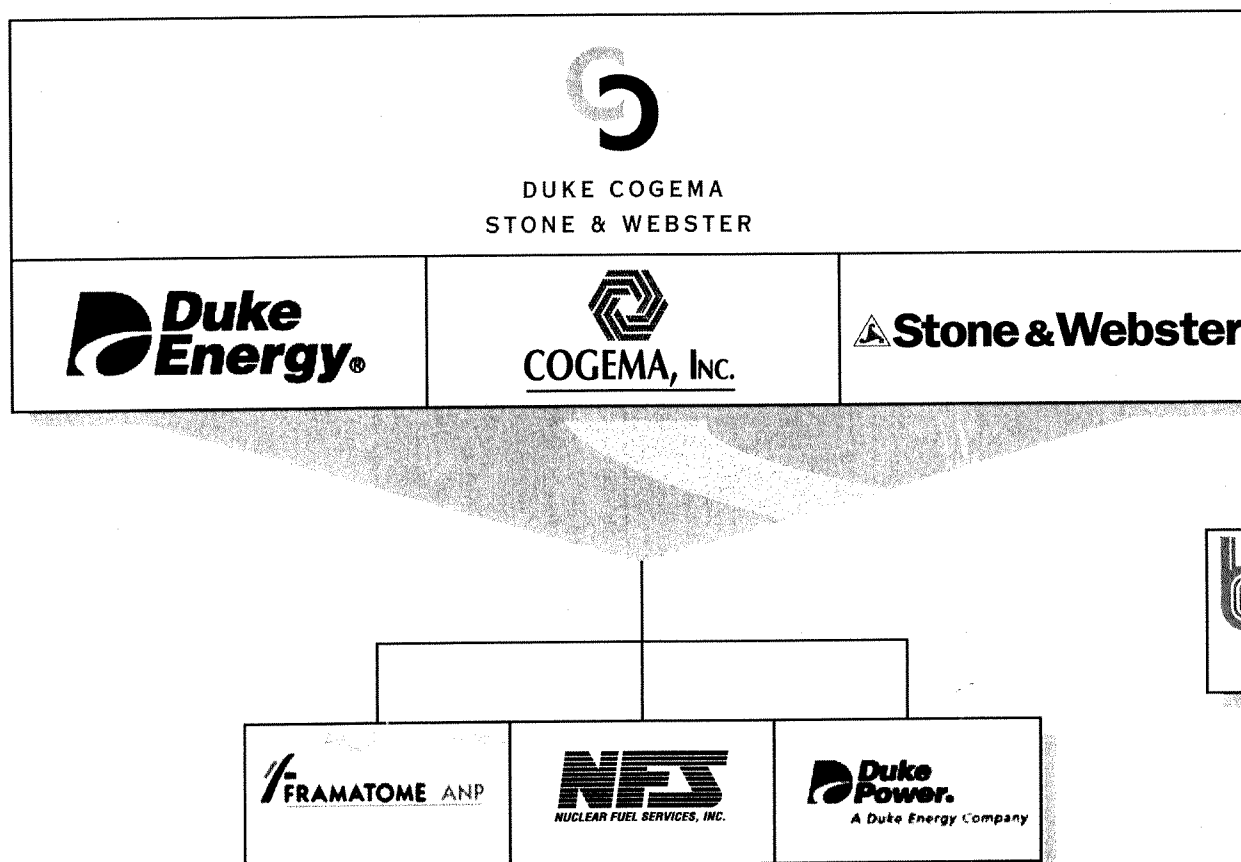
Scope/Agenda

- MOX Project Overview (Hastings/Alley)
 - Introduction
 - Site/structures
 - MFFF Processes
 - Licensing
- Construction Plans (Touchstone)
- NRC Construction Inspection Planning (NRC)



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Duke Cogema Stone & Webster



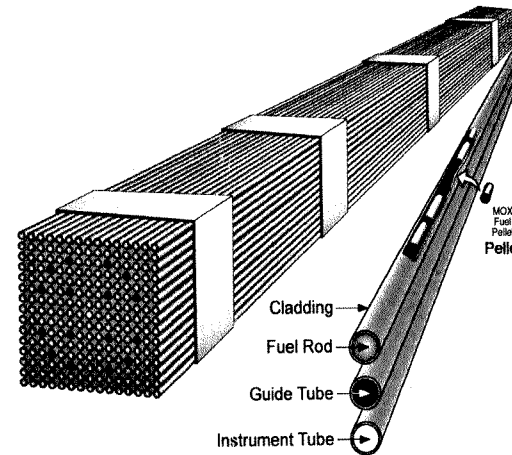


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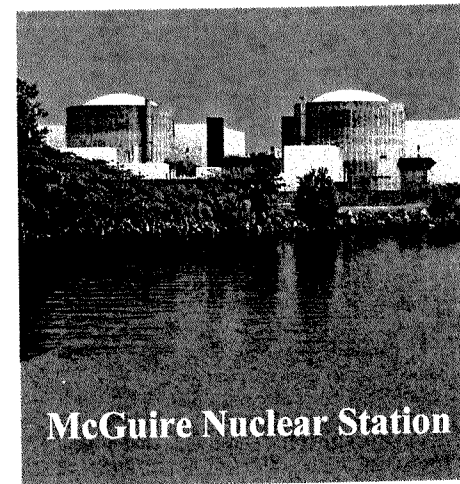
MFFF Mission

Convert surplus plutonium to spent nuclear fuel form for nonproliferation purposes

- Design, license, construct, and operate a MOX Fuel Fabrication Facility (MFFF)
- Perform qualification program for MOX fuel lead assemblies
- Design shipping containers for MOX fuel assemblies
- Irradiate MOX fuel at commercial reactors



MOX Fuel Assembly





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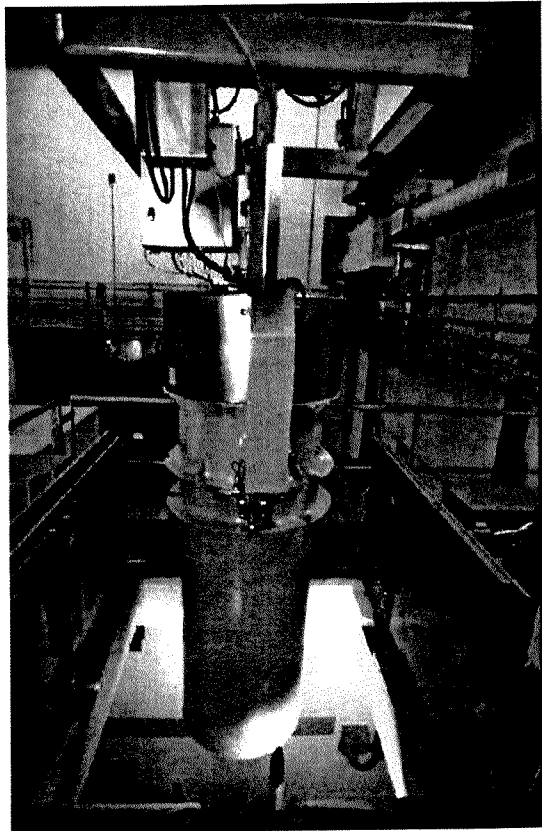
Overall MFFF Schedule

➤ Award of MOX Contract to DCS	3/1999
➤ Environmental Report	12/2000
➤ Construction Authorization Request (CAR)	2/2001
➤ Environmental Report Revision	7/2002
➤ CAR Revision	10/2002
➤ Start Construction	10/2003



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Current Activities in Support of MFFF



FS47 Pu Container Arrival Area

Completion of Licensing Activities

- CAR/ER Support
- Application for Possession and Use of SNM
- Integrated Safety Analysis

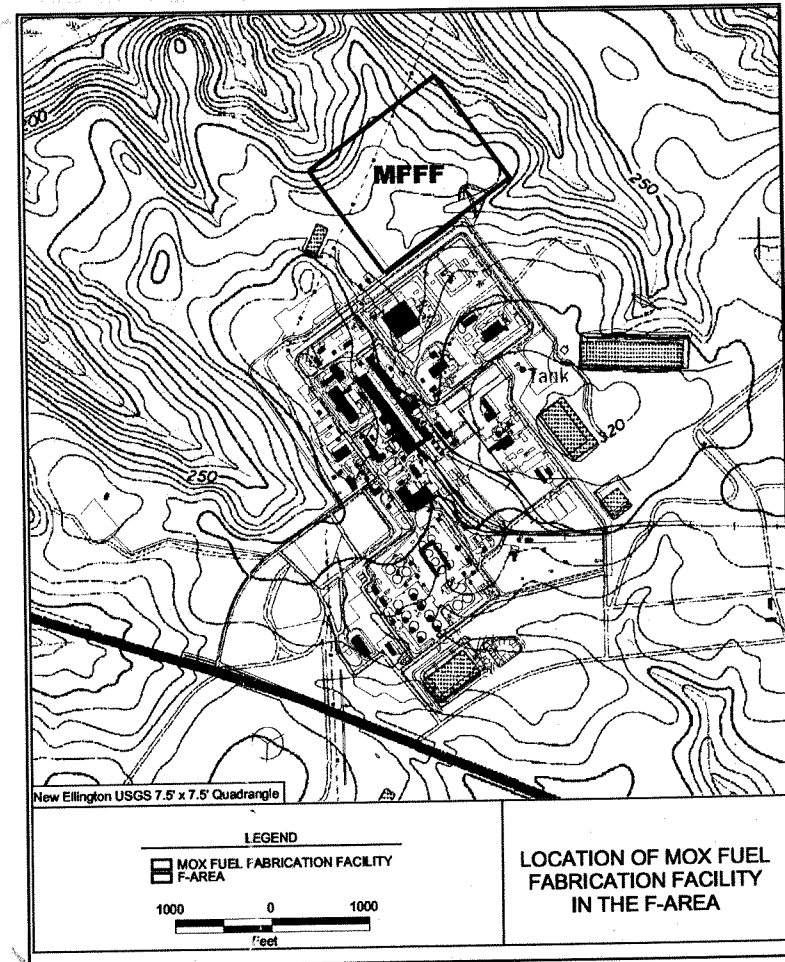
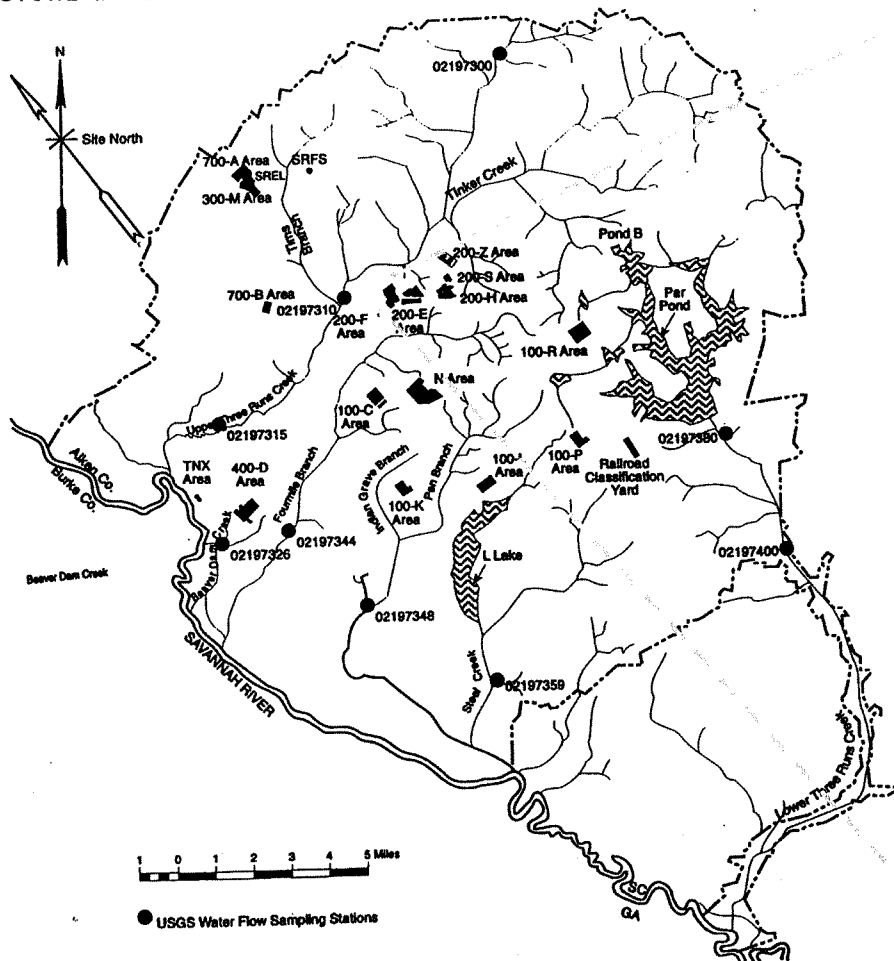
Equipment Design to Support Long Lead Procurement

Completion of Final Design



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General Location and Site Description





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MFFF Site/Structures

- MFFF Site
 - Approximately 41 acres
 - Approximately 17 acres developed for building, facilities or paving
- MFFF Structures
 - MOX Fuel Fabrication Building
 - Reinforced concrete shear walls, floors, and roof slab
 - Interior partitions are reinforced concrete
 - MOX Processing - 285 ft x 272 ft
 - Aqueous Polishing – 120 ft x 175 ft
 - Shipping and Receiving area – 120 ft x 167 ft
 - Emergency Generator Building
 - Emergency Fuel Storage Vault



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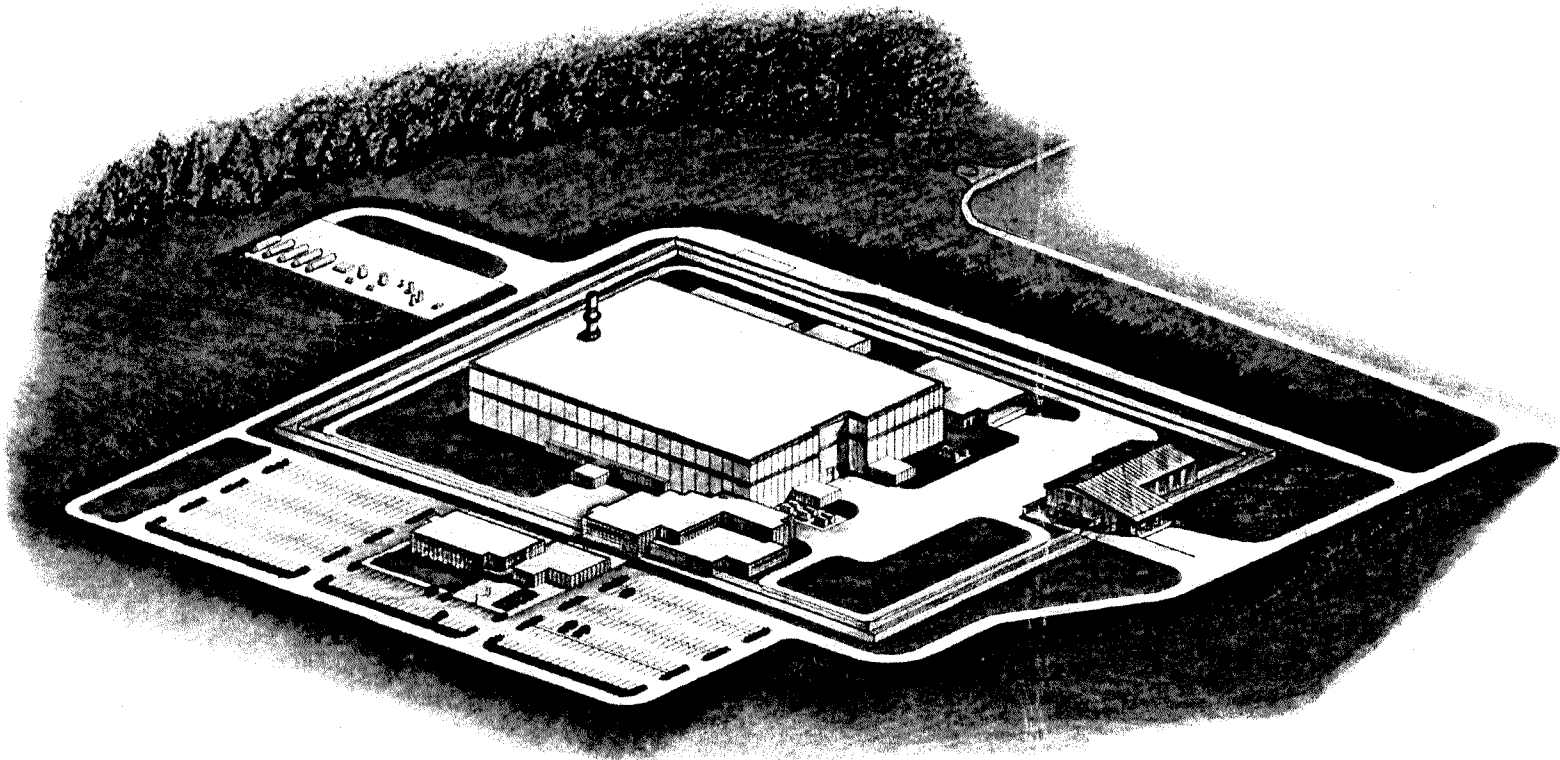
MFFF Site/Structures

- MFFF Structures (con't)
 - Secured Warehouse Building
 - Safe Haven Buildings
 - Reagent Process Building
 - Administration Building
 - Technical Support Building
 - Standby Generator Building
 - Receiving Warehouse Building
 - Miscellaneous Site structures



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MOX Fuel Fabrication Facility (MFFF) Process Overview



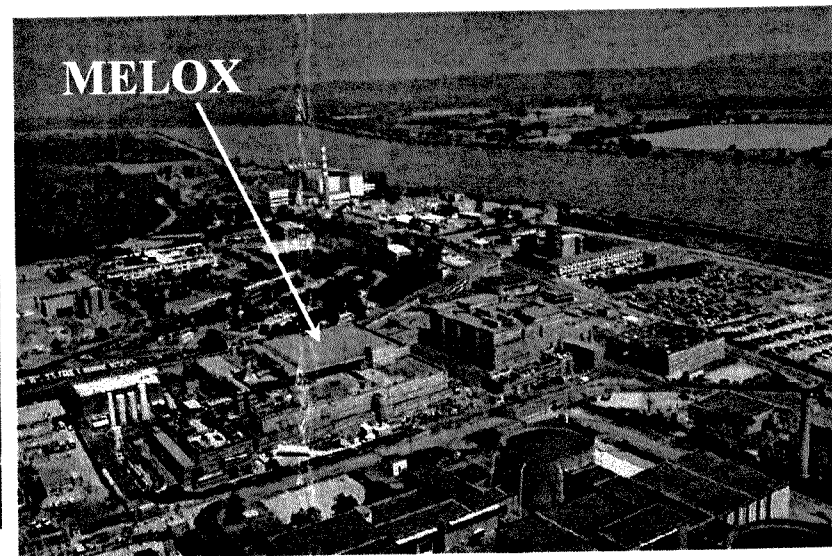
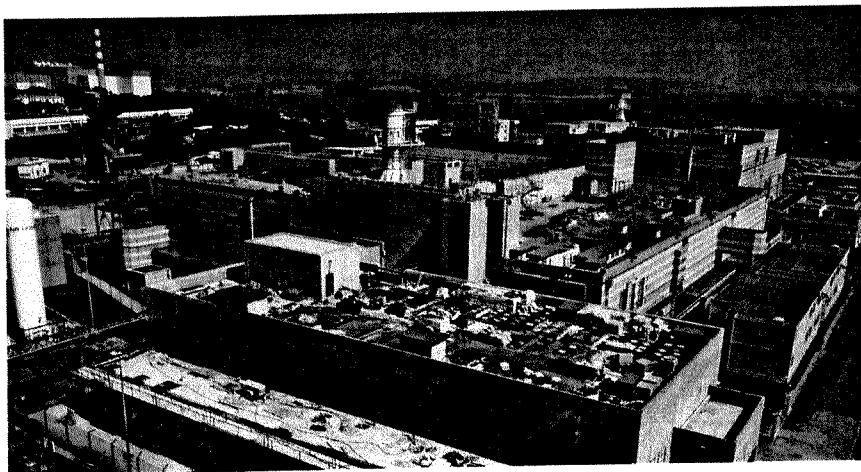


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Fuel Fabrication Facility

- Based on European Design (MELOX and La Hague)
- 10 CFR 70 / Standard Review Plan Licensing Approach
- Transfer of Proven Technology

Marcoule Site, France



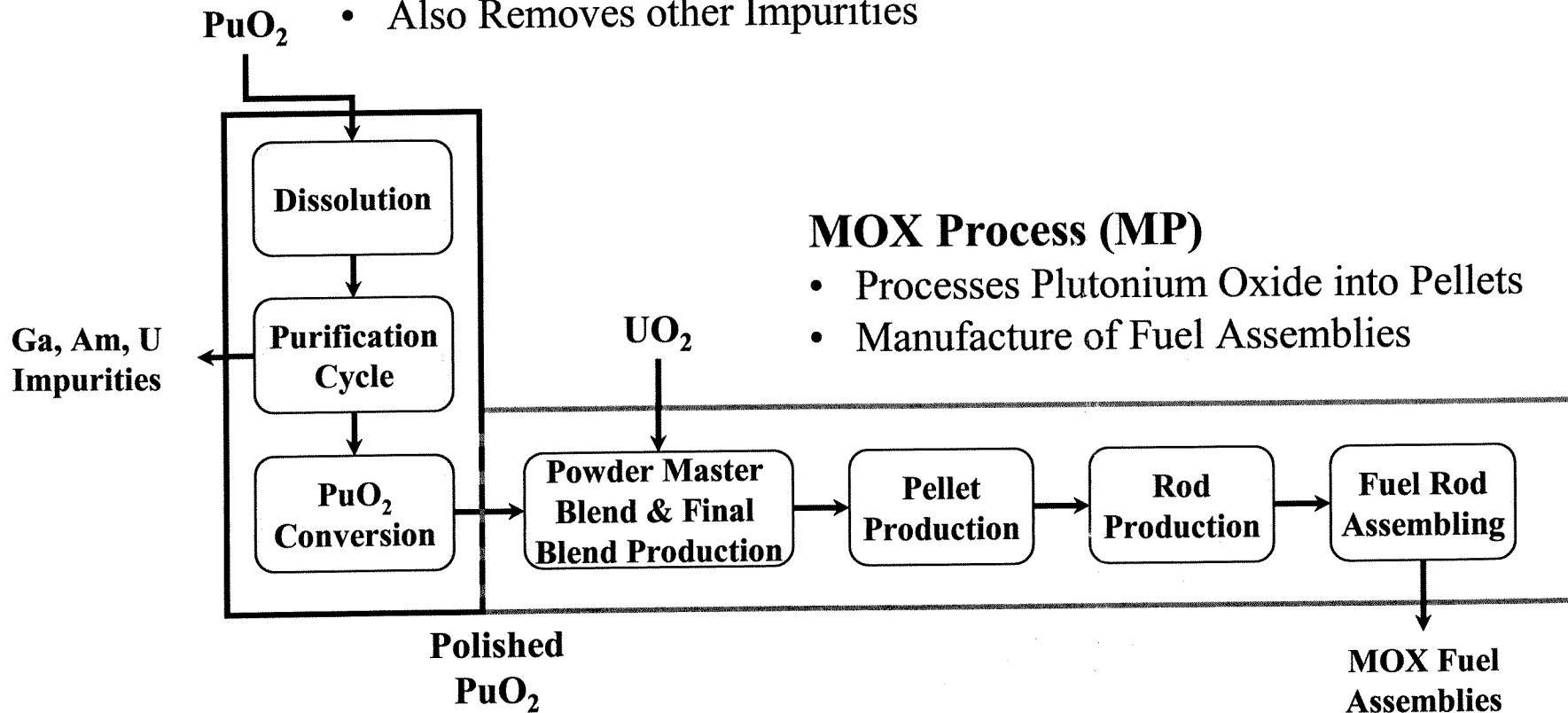


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Overview of MFFF Processes

Aqueous Polishing (AP)

- Primarily Used to Remove Gallium
- Also Removes other Impurities



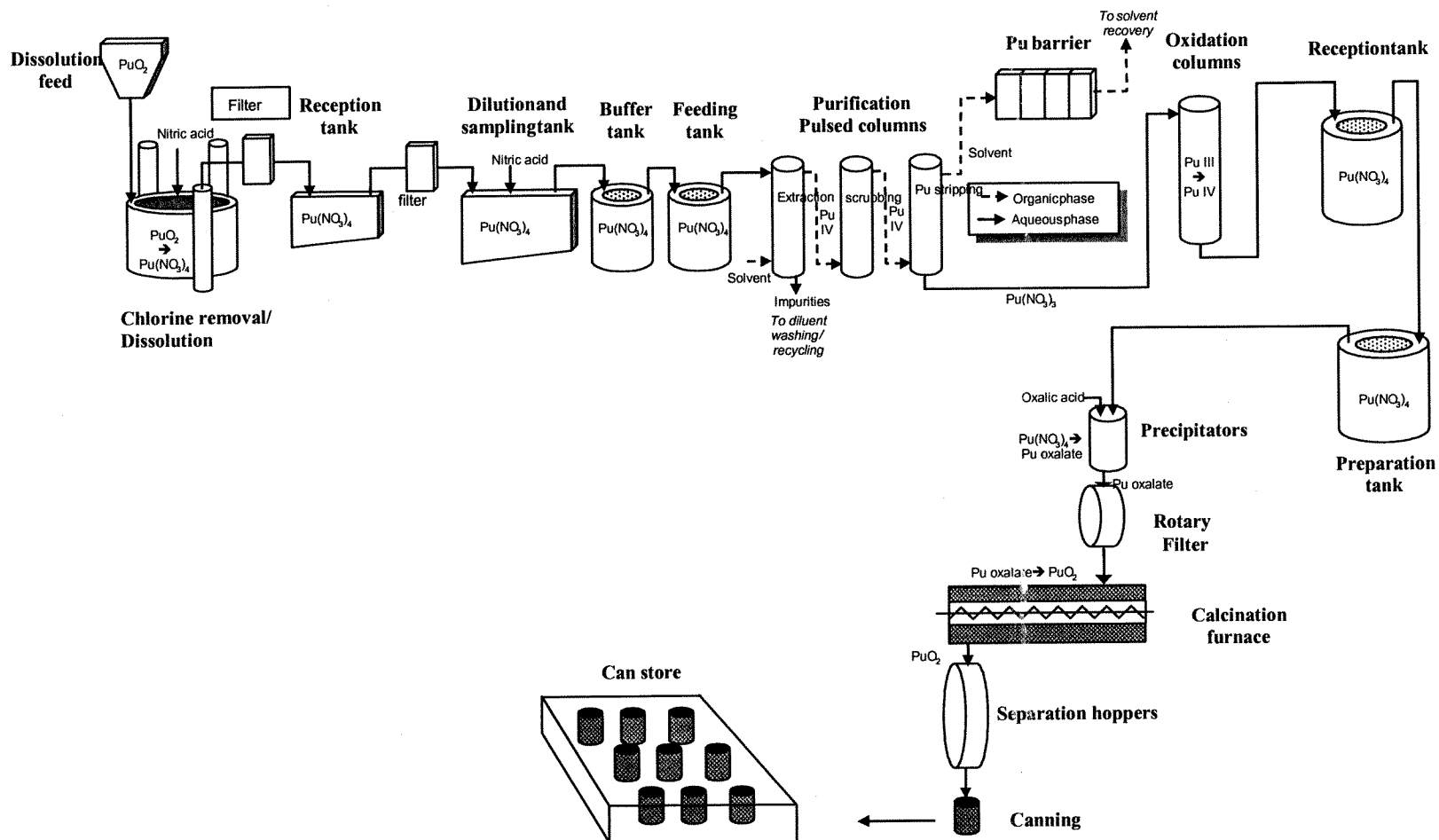
MOX Process (MP)

- Processes Plutonium Oxide into Pellets
- Manufacture of Fuel Assemblies



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Simplified AP Process





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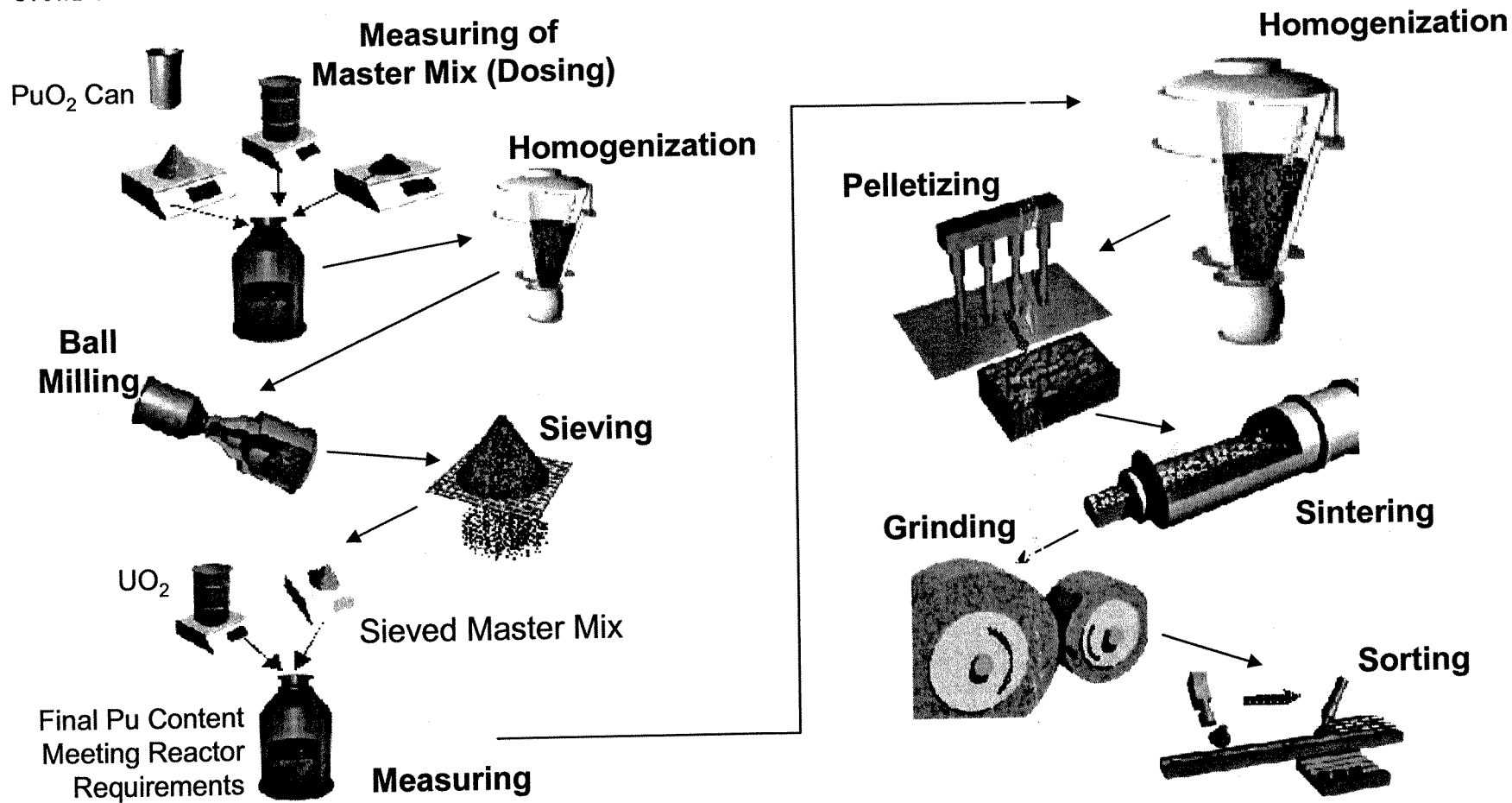
Aqueous Polishing Design Criteria

- Proven Dissolution, Purification, Conversion Processes
- All AP tanks Closed and Vented to Off-gas System
- All Equipment Closed and Contained within a Glovebox
- Minimal Maintenance Performed during Operations
- Aqueous Polishing Process Throughput: 3.5 MT/Year
- Significant Product Recovery (99.97% Product Utilization)
- All Gloveboxes Ventilated and Filtered (HEPA) to Minimize Releases
- Negative Pressure in Glovebox to Surrounding Area



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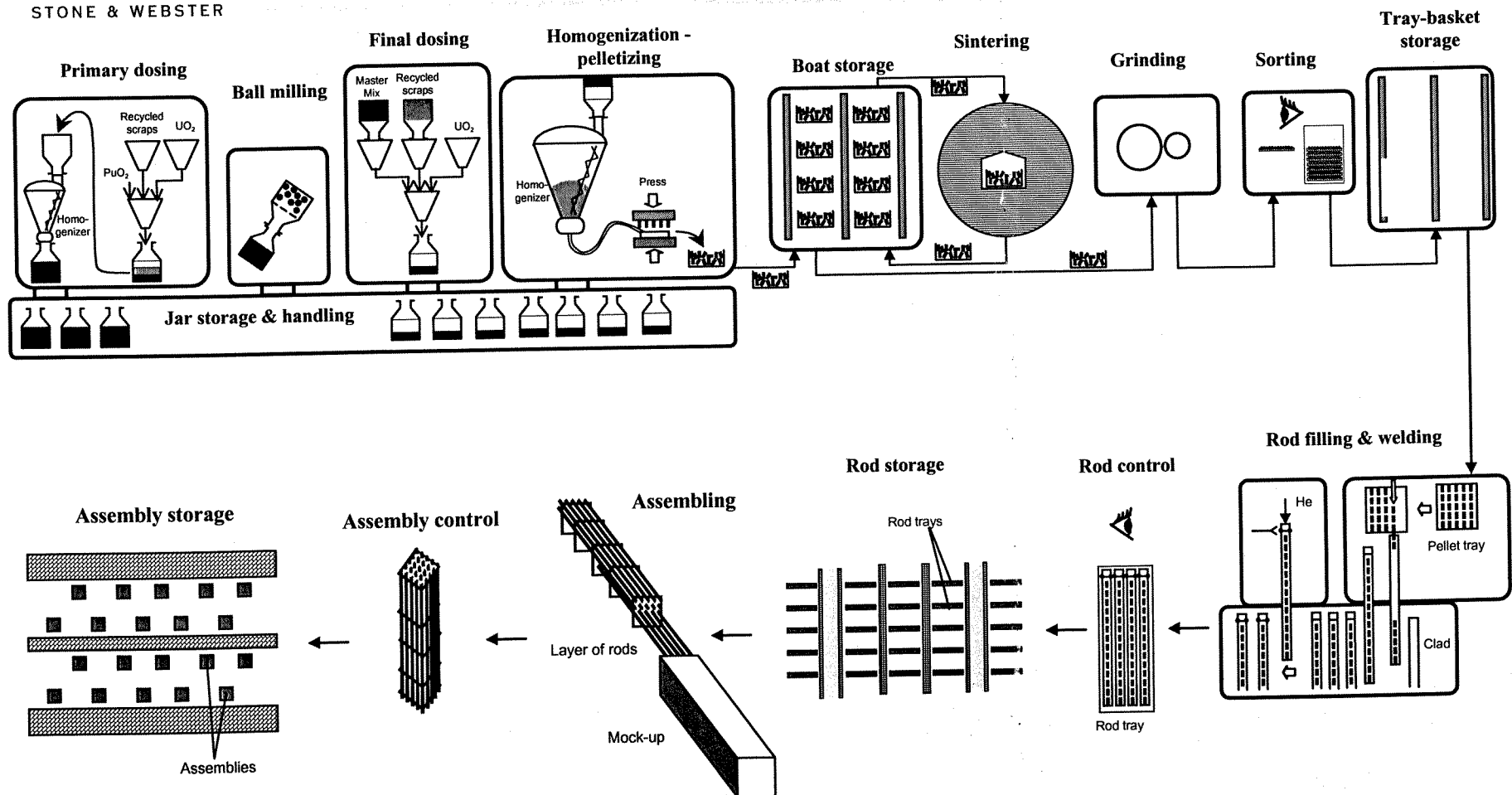
Brief Overview of MOX Process





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MP Process Units Flow Diagram





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MOX Process

Melox Videotape

3
7





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Construction Authorization Request Revision

- Capture changes to accept feed material other than PDCF (e.g., alternate feedstock)
- RAIs and clarification letters
- Draft SER open items
- Significant design changes



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Construction Authorization Request Open Items

- Committed to providing resolutions to NRC staff no later than January 2003
 - Expect to have all but one or two complete by December 2002

Open issues

HEPAs

HAN

Financial data

KWG - Offgas

Criticality

Worker chemical exposure



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Construction Plans

- Initial construction activities
 - Tree removal
 - Transmission line relocation
 - Construction access road
 - Site clearing and grading
 - Concrete batch plant
 - Underground utilities



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Construction Plans

- Site-specific considerations
 - Disposition of excess soil
 - Development of utility infrastructure from F-area
 - Subsurface contamination
 - Security/access



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Construction Plans

- Temporary construction facilities
 - Aiken office or onsite space leased from Site M&O (WSRC)
 - Construction management and Subcontractor Trailer area
 - Accountability and security offices
 - Craft change facility
 - Sanitary facilities
 - Subcontractor Lay-Down, Fabrication, and Storage area



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Construction Plans

- Temporary facilities
 - Temporary roads installation
 - Fire protection
 - Temporary construction power
 - Temporary communications
 - Site drainage and erosion control
 - Temporary ventilation



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Construction Management

- Fully Scoped RFPs
- One Set of Job Rules
- Integrated Project Schedule
- Detail Contractor Schedules
- Earned Value Process
- Integration & Planning Meetings
- Punchlist Completion Approach
- Turnover Process



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Construction Management

- Subcontract Management
 - Construction Superintendent
 - Contract Administrator
 - Construction Engineer
 - Safety Professional
 - Project Control Technician
 - Quality Assurance Technician



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Construction Packages

- Early construction
- Support buildings
- Site preparation
- Site services
- MFFF contracts
- Other contracts



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Construction Plans

- Major construction schedule & milestones
 - Receive construction authorization 9/2003
 - Initial construction activities 10/2003
 - Start major construction 3/2004



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NRC Construction Inspection Process

Plans and Procedures Overview

