

**BUSINESS ITEM 2012-221:**  
**AUTHORIZATION TO AWARD AND  
EXECUTE CONSTRUCTION CONTRACT  
FOR METROPOLITAN WWTP SOLIDS  
PROCESSING EQUIPMENT SYSTEM  
IMPROVEMENTS, MCES PROJECT NO.  
805946, CONTRACT NO. 12P005A**

Environment Committee, June 10, 2012





Metro SMB

# Today's Presentation

- Context of Project
- Facility Description
- Project Description
- Construction Contract

# Metro Plant Solids Processing Facilities

## 1998 Facility plan

- 3 fluidized bed incinerators
  - Maximum Energy Recovery
  - Maximum Air Pollution Control
- Supplemented by alkaline stabilization/land application

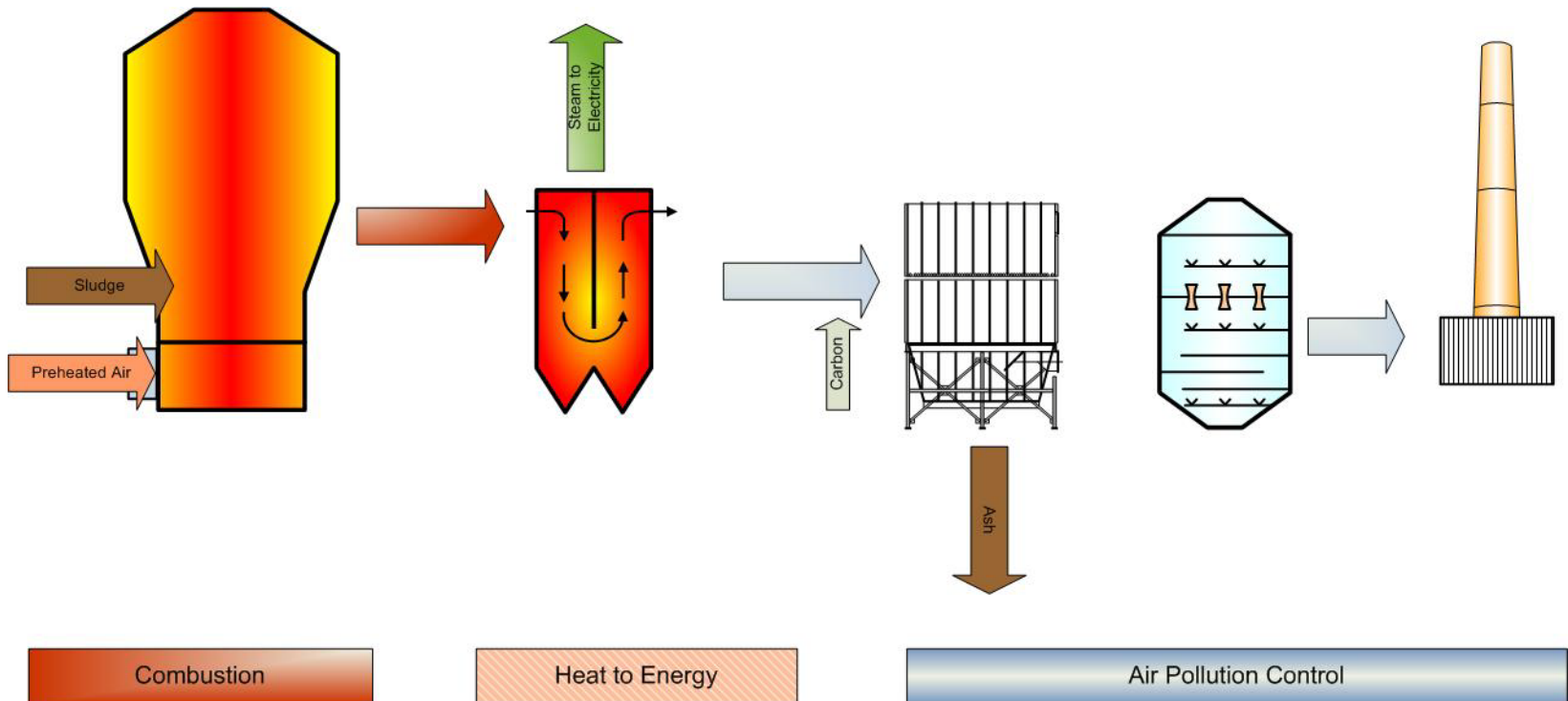
# Basis of Recommended Plan

- Efficiency (low lifecycle cost)
- Reliability (proven process)
- Sustainability
  - Maximum energy recovery
  - Minimize air emissions (mercury, particulates, et. al)

# Plan Implementation

- Incineration/energy recovery began service in 2005
- Alkaline stabilization implemented for backup only; land application elements deferred

# Metro Plant Solids Processing: Process Description



# Metro Plant Solids Processing: Distinguishing Features

- Maximum energy recovery
  - One of the only incinerators with energy recovery
  - Produces electricity and steam
- Maximum air pollution control
  - Mercury
  - Particulates
  - SO<sub>2</sub>, NO<sub>x</sub>
- State-of-the-Art facility



# Metro Plant Solids Processing: Performance

- Sludge processing

- 240 dry tons daily
- Average of 2.5 of 3 units in service

- Energy recovery

- Steam heating (219,000 MMBTU/YR)
- Electricity (4.7 MW turbine @ 80% effcy = 115,000 MMBTU/YR)
- Preheat fluidizing air (autogenous burn)

- Air emissions

- 99% mercury removal
- 85% lower particulate emissions (compared to MHIs)
- 93% lower SO<sub>2</sub> emissions (compared to MHIs)
- 90% lower No<sub>x</sub> emissions (compared to MHIs)

# Metro Plant Solids Processing: Condition Assessment

- Expectation
  - Large amount of equipment for energy recovery and air pollution control
  - Inherently aggressive operating conditions (e.g., acid gas corrosion) for system with maximum energy recovery
  - Periodic equipment renewal (i.e. capital project)
- Current condition
  - All equipment operating as intended
  - Significant corrosion of primary heat exchangers, waste heat boilers and “bag houses”

# Metro Plant Solids Processing: Capital Project

- Objectives

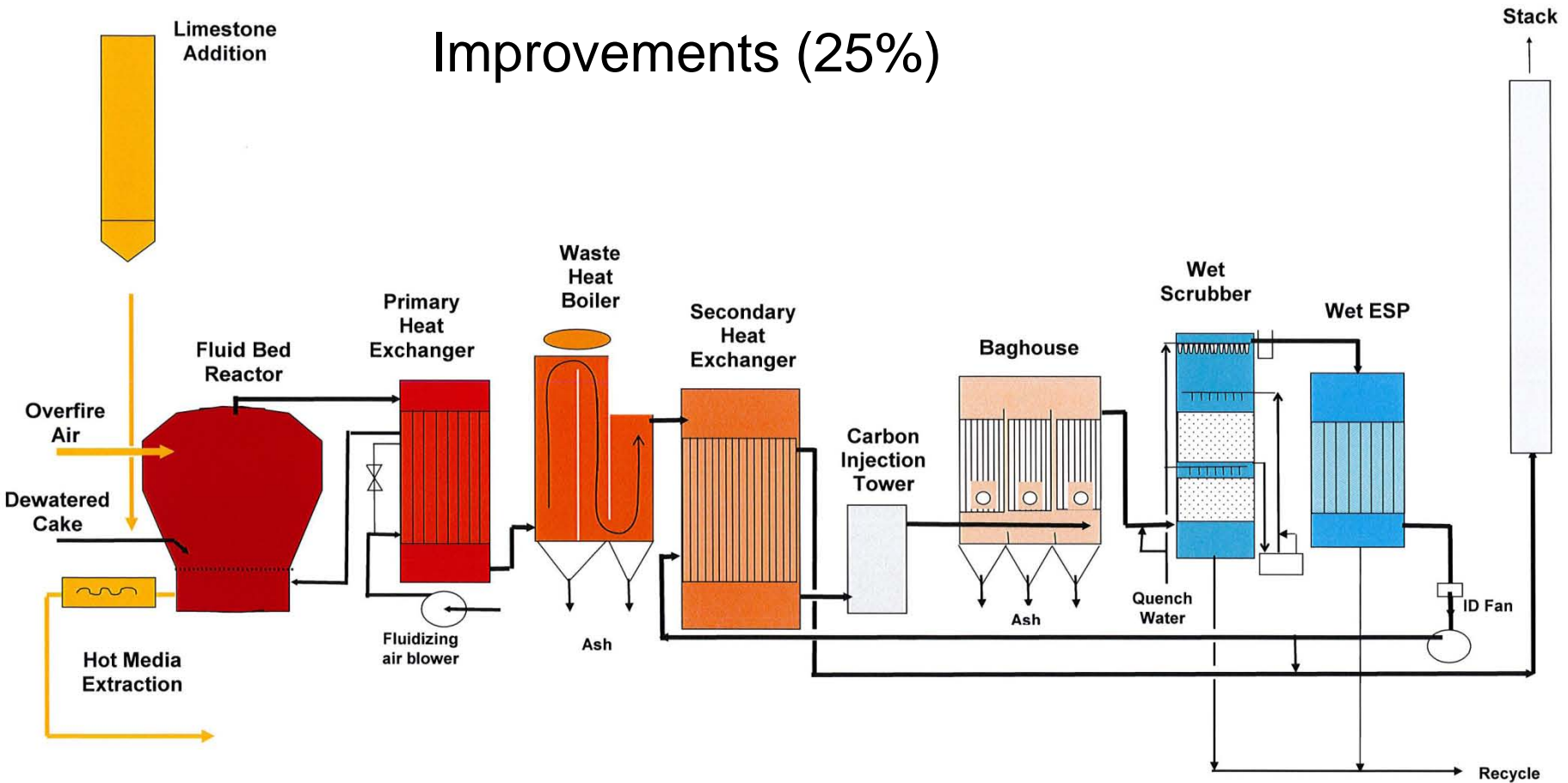
- Renew process equipment
- Increase efficiency/reduce corrosion

- Construction Schedule

- Summer 2012      Award contract
- Fall 2012          Plan work and order equipment
- 2013-2014        Construction

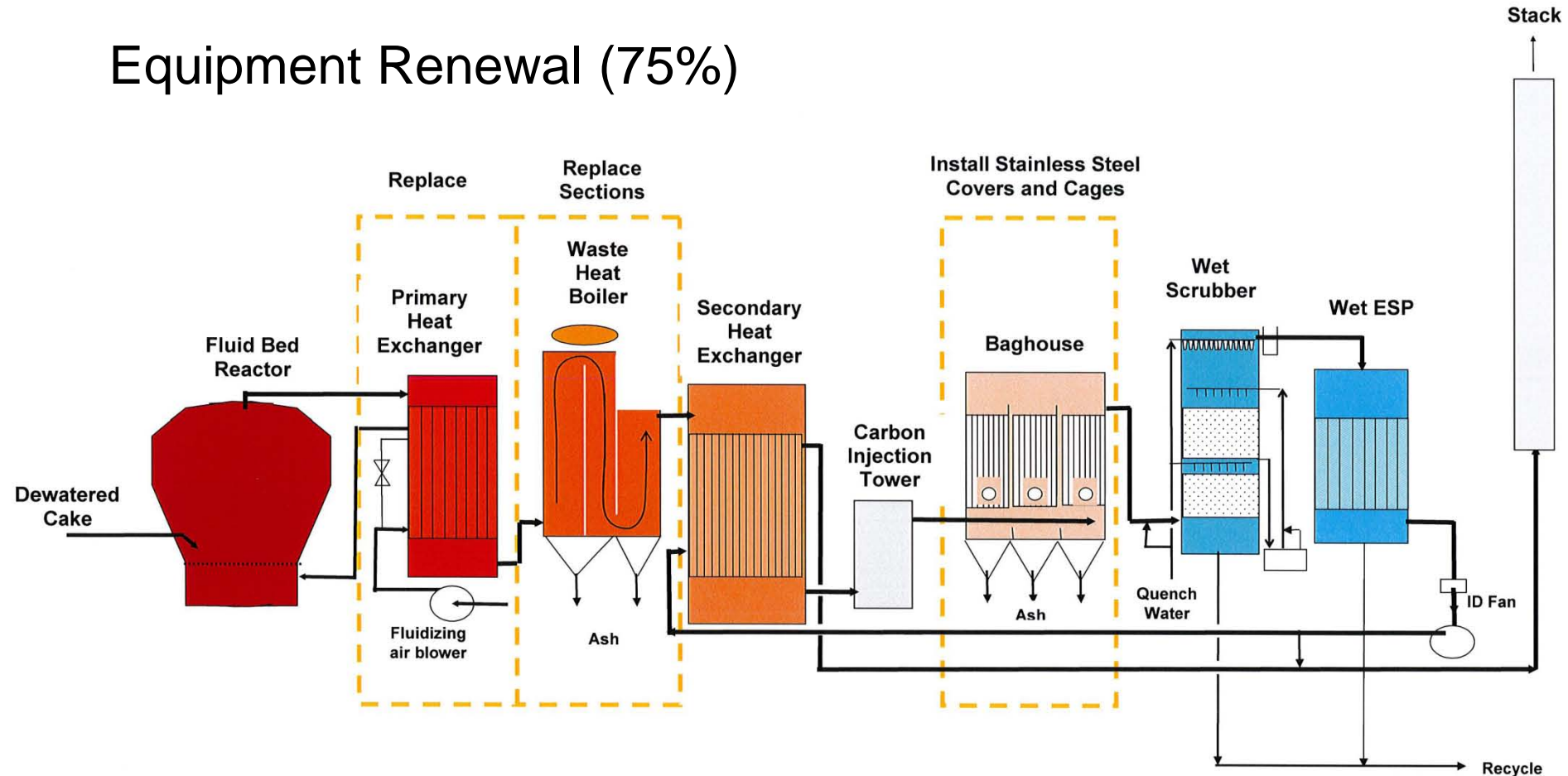
# Metro Plant Solids Processing: Scope of Capital Project

Improvements (25%)



# Metro Plant Solids Processing: Scope of Capital Project

Equipment Renewal (75%)



# Metro Plant Solids Processing: Construction Contract Award

- Two bids received June 14, 2012
- Low bid \$17,911,826.62  
Harris Companies
- Engineer's estimate \$19,939,000.00
- Diversity goals 5% MBE 10% WBE
- Proposed participation 7.4% MBE 12.4% WBE

# Metro Plant Solids Processing: Cost Perspective

- At current prices, SMB has replacement value of \$250 million
- Maintenance and periodic renewal would be expected to cost 2-4% of capital cost, or \$5-\$10 million annually
- Our maintenance and renewal costs (this project) are within expected cost range

# Long-range Solids Planning: Evaluating Alternatives to Increase Capacity

- Fourth incinerator
- Drying and product distribution
- Alkaline stabilization/land application



