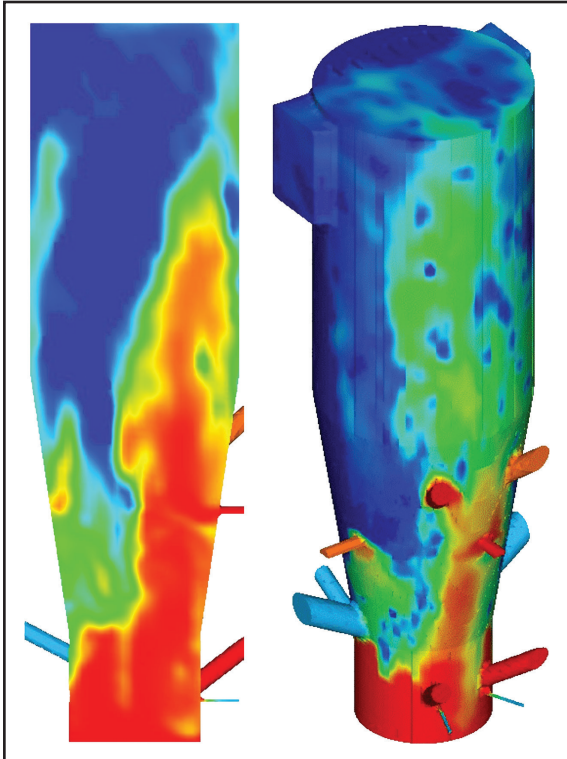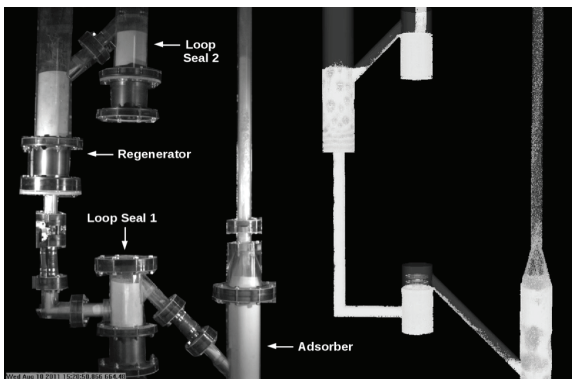# BARRACUDA VIRTUAL REACTOR®

ENGINEERING SOFTWARE FOR CLEAN COAL TECHNOLOGY

Oxygen maldistribution problems in a German CFB combustor with co-fired feed

USDOE's NETL CO_2 capture experiments and hot pilot plant are being optimized using Barracuda Virtual Reactor

Improve the operation of your CFB combustor

- Coal composition details (proximate analysis)
- Volatile and moisture releases
- Coal only or co-firing with bio-materials, limestone
- Fuel & Air residence time distributions
- Fuel mass flux 3-D profiles, e.g., wall downflows
- Local air-fuel mixing effectiveness
- Temperature profiles (hot/cold spots)
- Wall heat transfer
- Fluidized bed heat exchanger model
- Wear on internals, walls, cyclones and other components
- Influences of secondary air jets and coal feed

Clean Coal R&D and Pilot Plants

- Chemical Looping Combustor (CLC)
  - Coal or methane fueled
- Carbon Capture and Storage (CCS) Units
  - Sorbent-based scrubbing of CO2
- Sulfur removal from gasifiers syngas
- Entire CFB loop in a single model enables system design optimization
- Solid-to-solid heterogeneous reactions
- Detailed NETL reports available

COMPUTATIONAL
PARTICLE
FLUID DYNAMICS