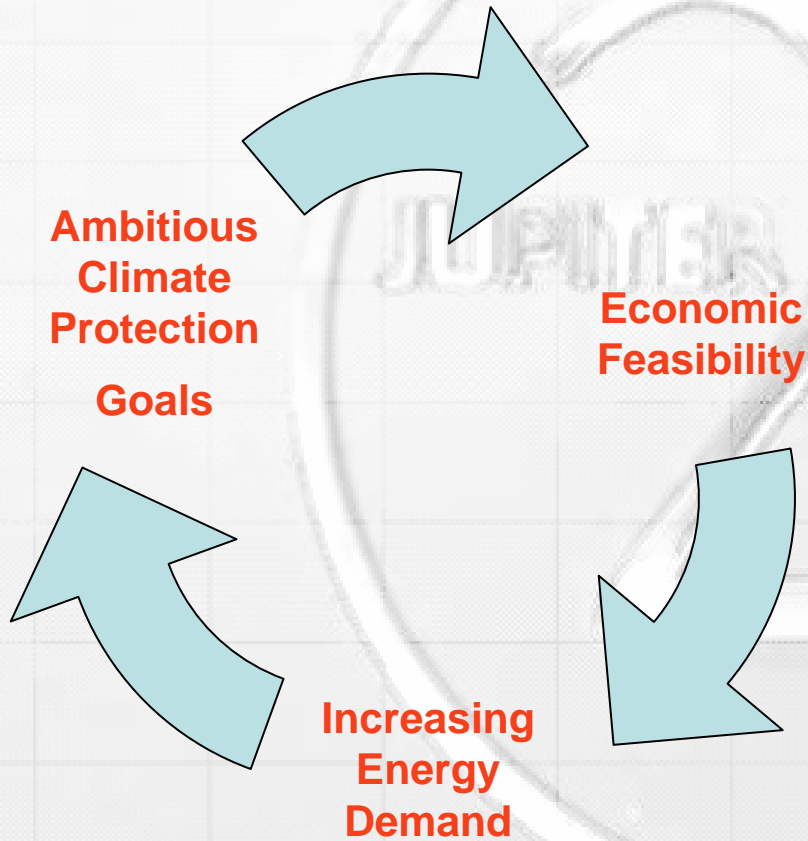
A large, faint watermark of the Jupiter logo is centered on the page. It features a circular border with the word 'JUPITER' and the number '4' inside, rendered in a light blue, semi-transparent style.

3rd Workshop
IEAGHG Oxy Fuel Network
Yokohama, Japan
March 5th and 6th 2008

Brian R. Patrick
Director of Development
Jupiter Oxygen Corporation (USA)
www.jupiteroxygen.com

Keys for Carbon Capture Technology



→ Key for successful carbon capture technology development:

- Reduce parasitic power losses associated with carbon capture
- Use cost effective technology for carbon capture
- Create a practical approach for retrofits
- Design a truly CO₂ capture ready concept

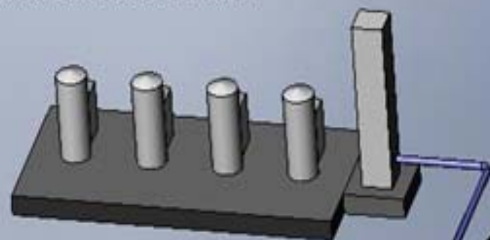
Jupiter Oxygen – Hammond Indiana 15 MWth Test Facility



JOC OXY-FUEL IPR* CLEAN COAL POWER GENERATION

*Integrated Pollutant Removal (IPR) System, NETL US DOE

AIR SEPEARATION UNIT



COAL SUPPLY

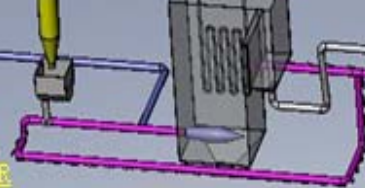


POWER GENERATION



OXYGEN SUPPLY

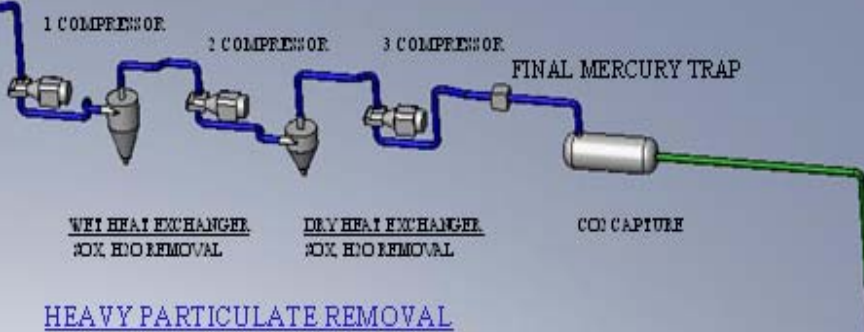
COAL PULVERIZER



OXY-FUEL BURNER & FLAME

FLUE GAS RECIRCULATION

IPR SYSTEM – CO2 COMPRESSION TRAIN



HEAVY PARTICULATE REMOVAL
PM REMOVAL - MERCURY REMOVAL

CO2 PIPELINE

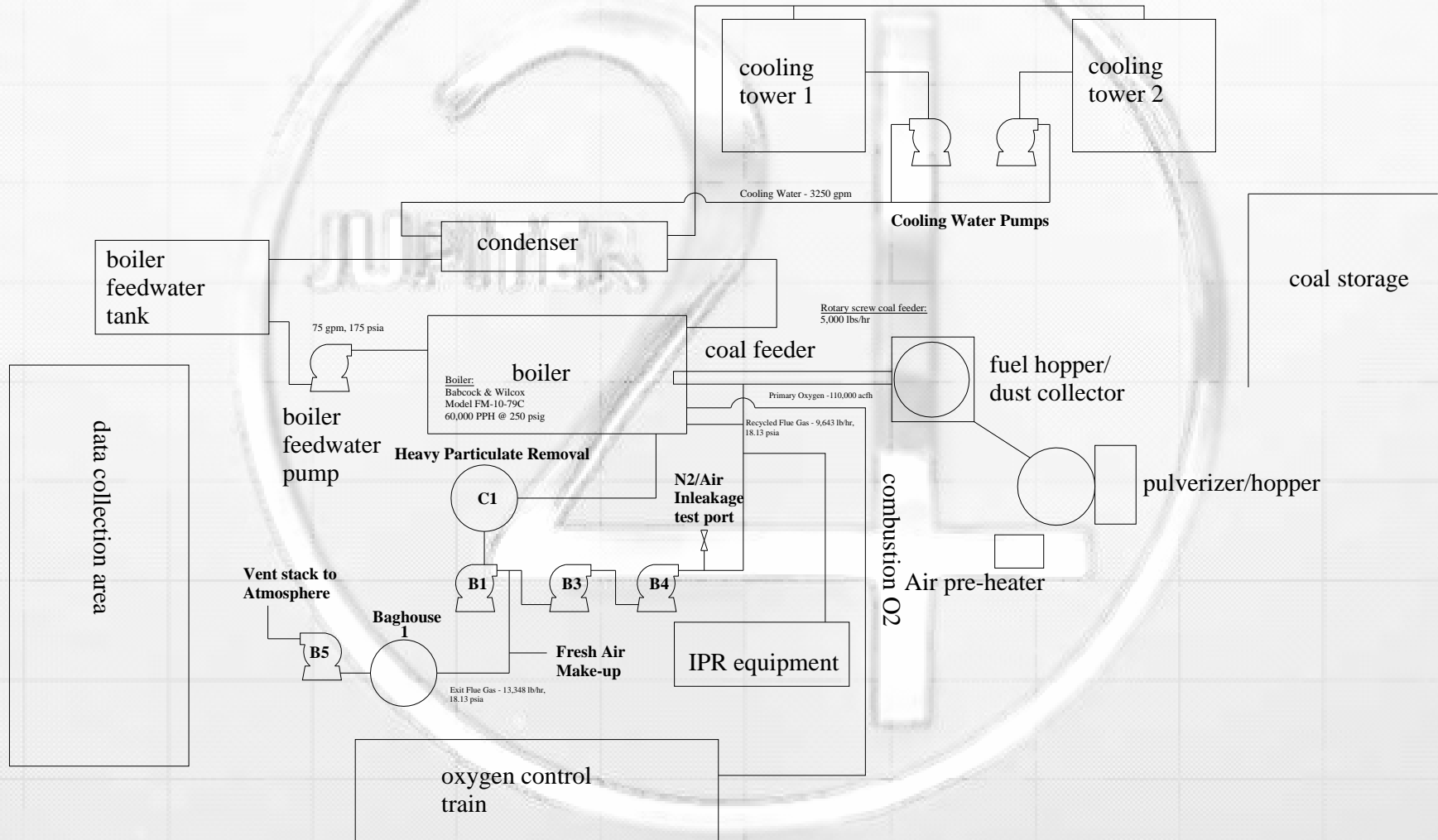
CO2 – UNDERGROUND STORAGE AND USE

- SPECIFIC GEOLOGICAL FORMATIONS
- ENHANCED OIL/NATURAL GAS RECOVERY

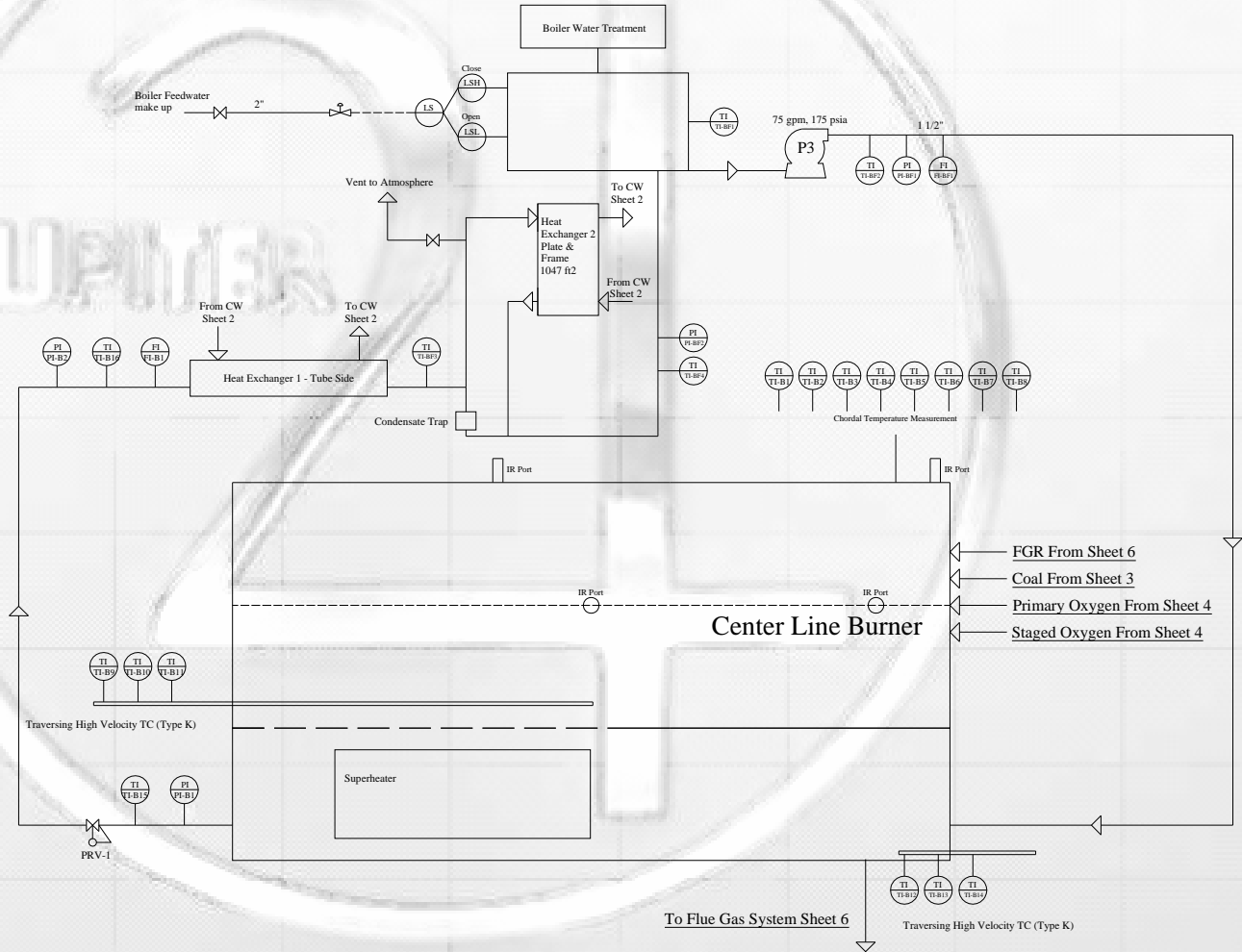
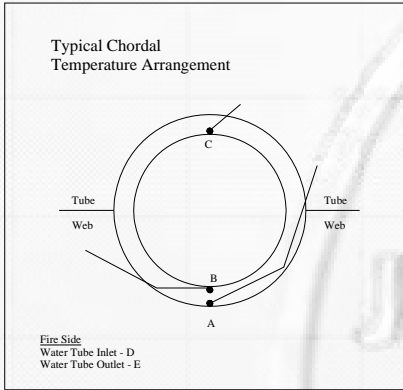


JUPITER OXYGEN CORPORATION

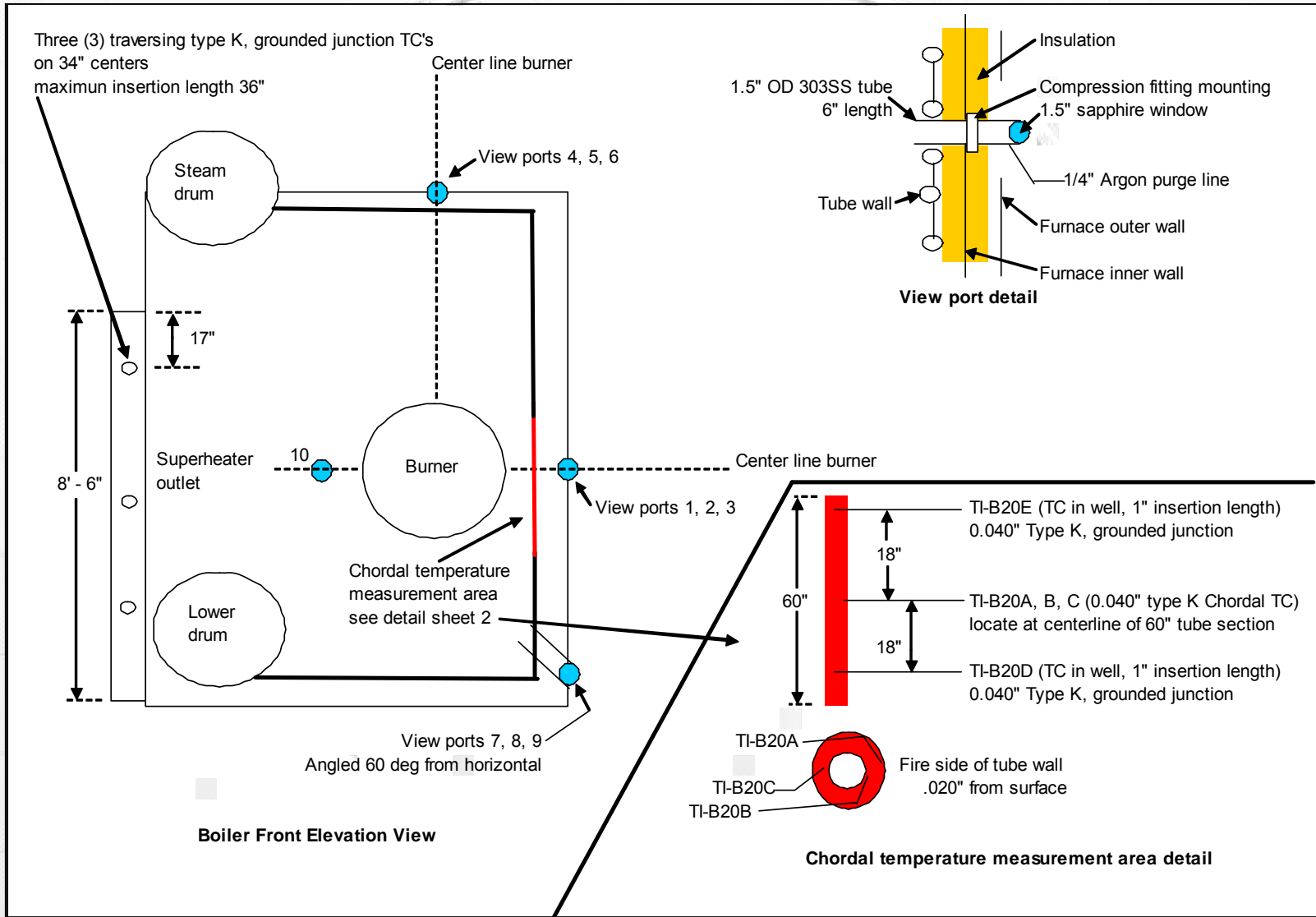
15 MWth Oxy-Fuel Test Facility - Hammond, Indiana



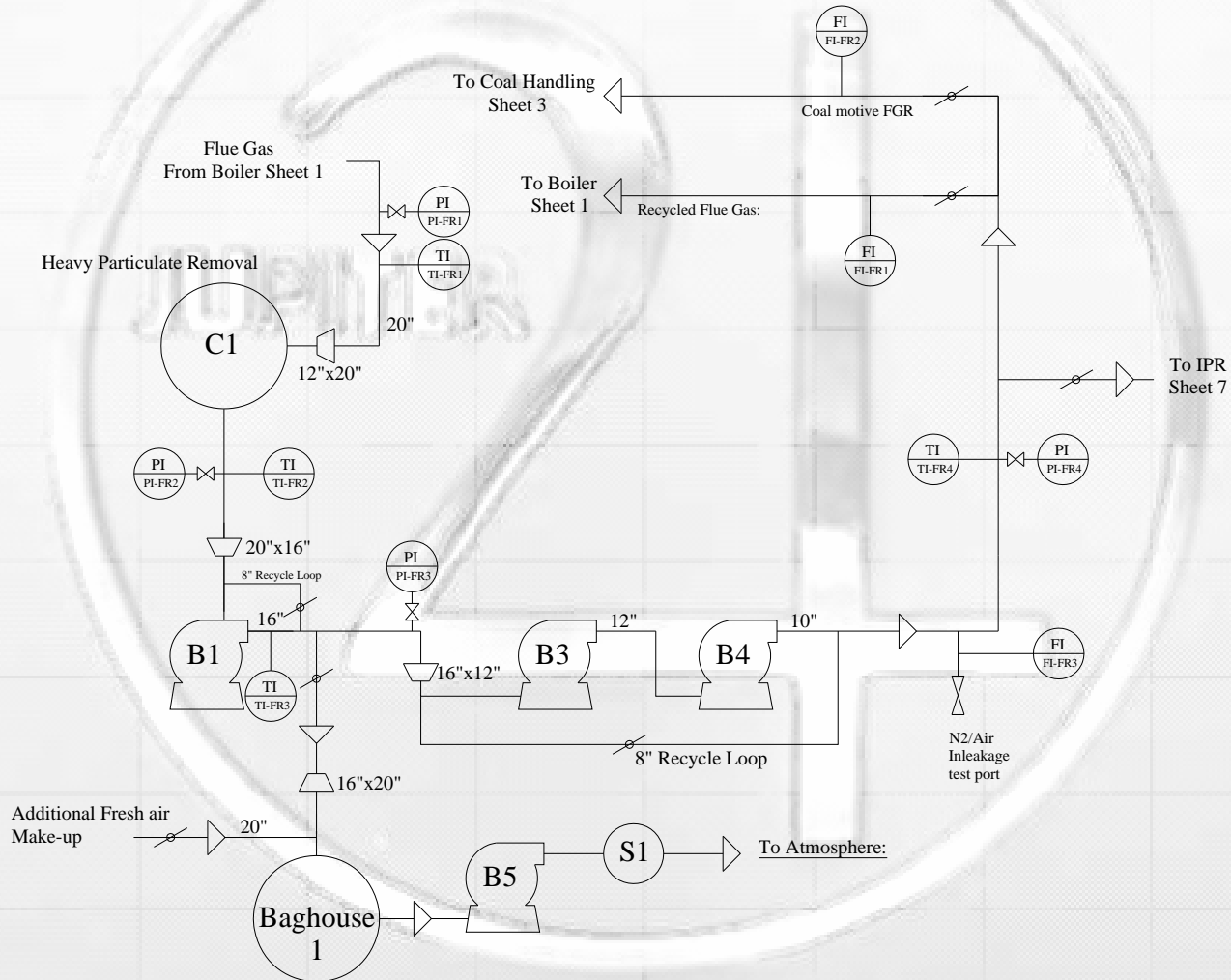
Boiler PID Loop



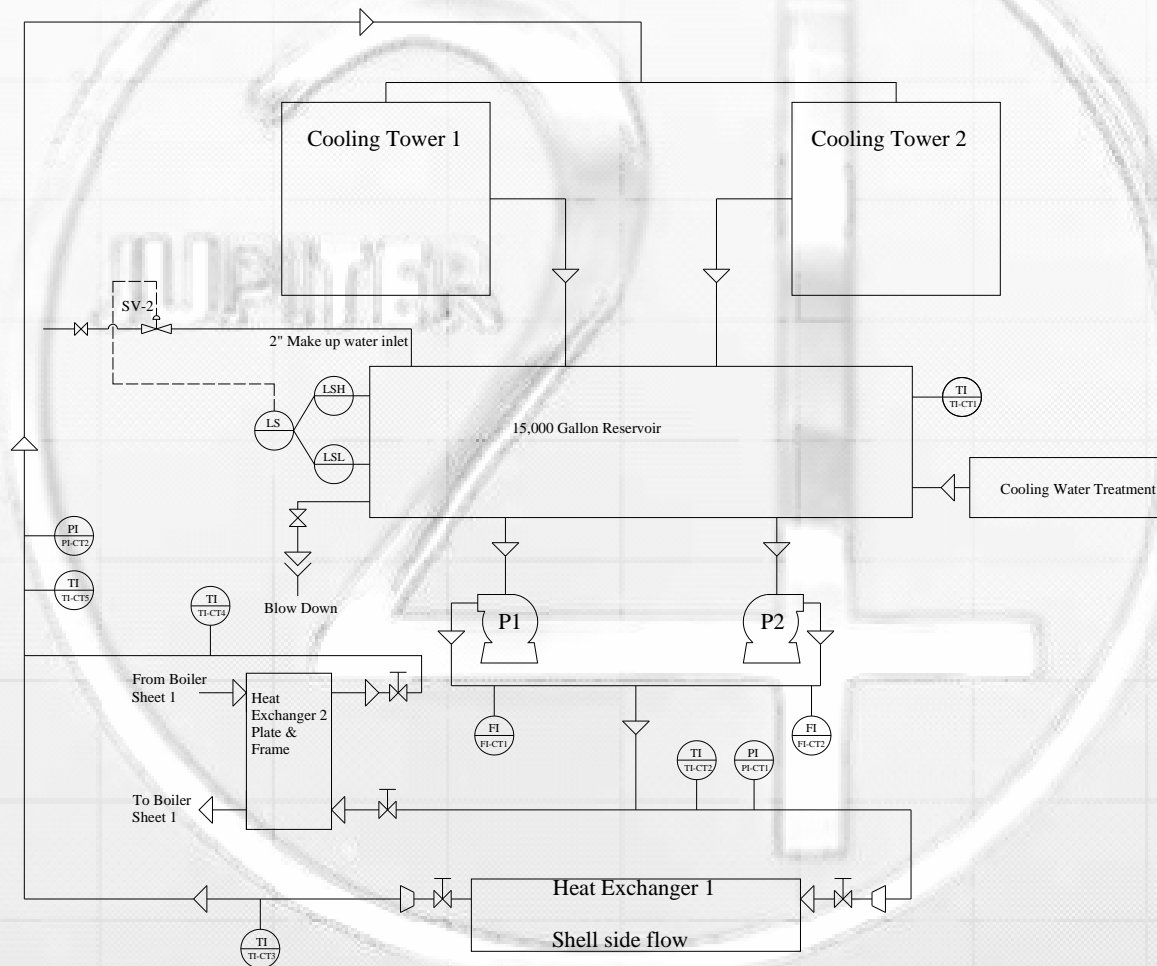
15 MWth Boiler Front View



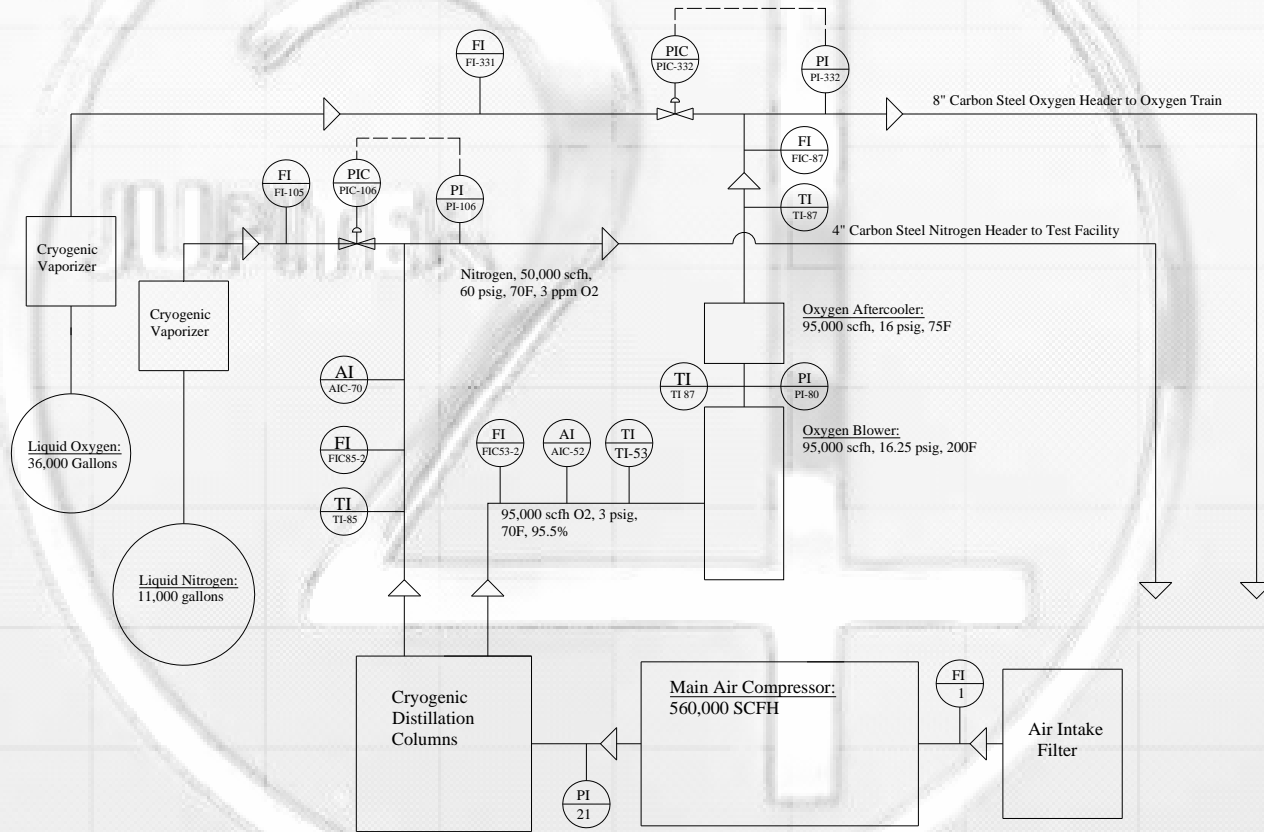
Flue Gas Recirculation



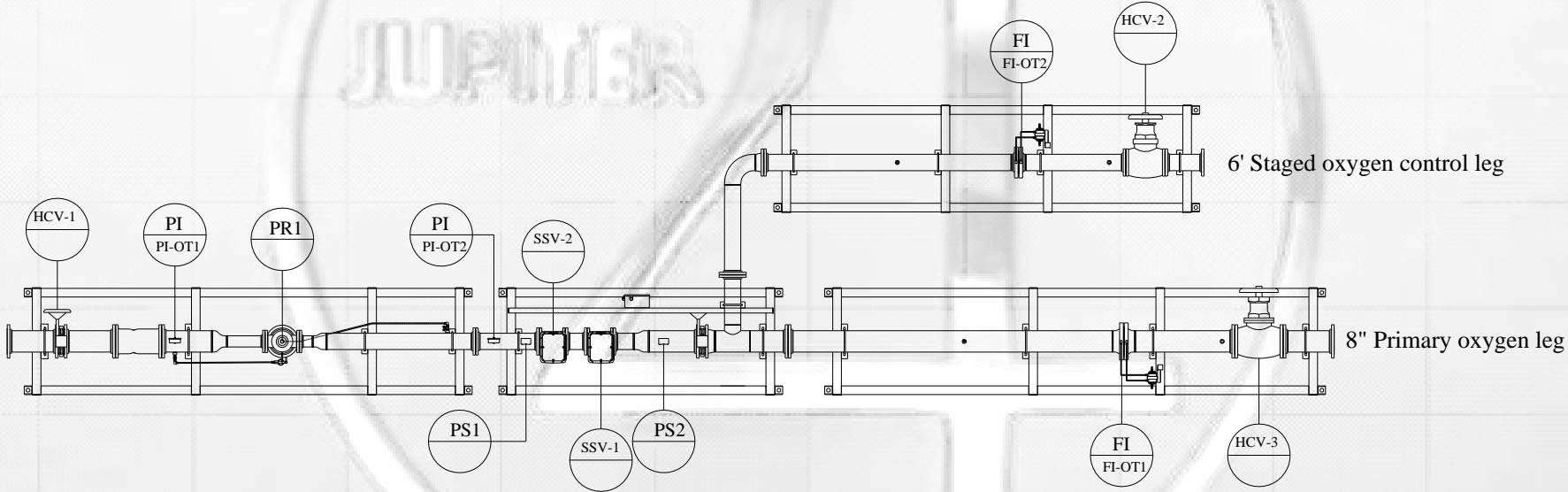
Cooling Tower Loop



105 TPD Cryogenic Plant



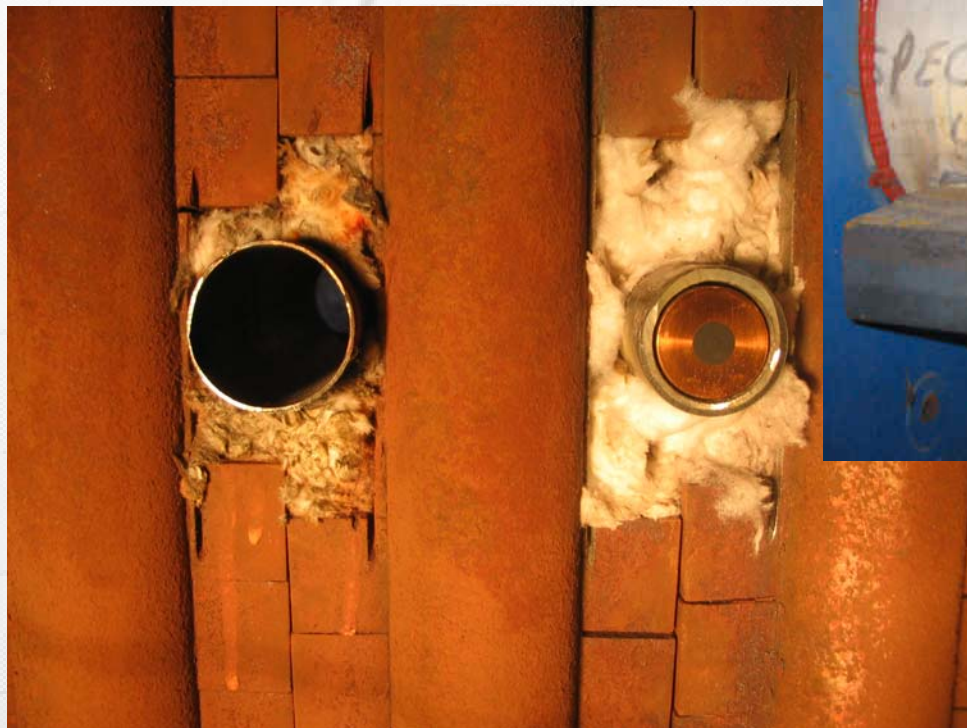
Oxygen Control



15 MWth Test Facility



Heat Transfer



Project Participants



- **Jupiter Oxygen**
 - Construction of the test facility
 - Operation of the test facility
 - Technology provider for the Oxy-fuel
- **Doosan Babcock LLC**
 - Part of the data evaluation team
 - Slagging and fouling studies
- **USDOE – National Energy Technology Laboratory**
 - Integrated Pollutant Removal System
 - Data Collection design
 - Materials analysis
 - Final fate analysis
 - CO2 Quality
- **Maxon Corporation**
 - Supplier of oxy-fuel burner
 - Supplier of oxygen control systems
- **Coalteck LLC**
 - Consultant power generation
- **Michigan State**
 - High Temperature oxygen sensor
 - Material coupon analysis
- **Purdue University**
 - Heat Transfer Radiant versus Convective
 - Thermal Transfer modeling
 - Data reduction and Analysis
- **University of Wyoming**
 - Study on recycle with Wyoming coals



- **WEB:**
- www.jupiteroxygen.com

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