UT-BATTELLE

Hg Jet Update

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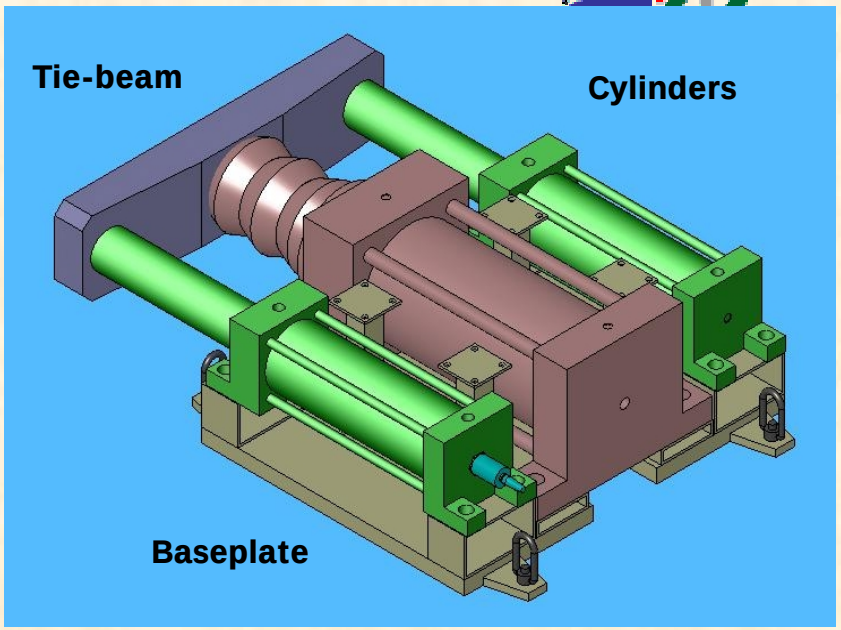
U. S. DEPARTMENT OF ENERGY

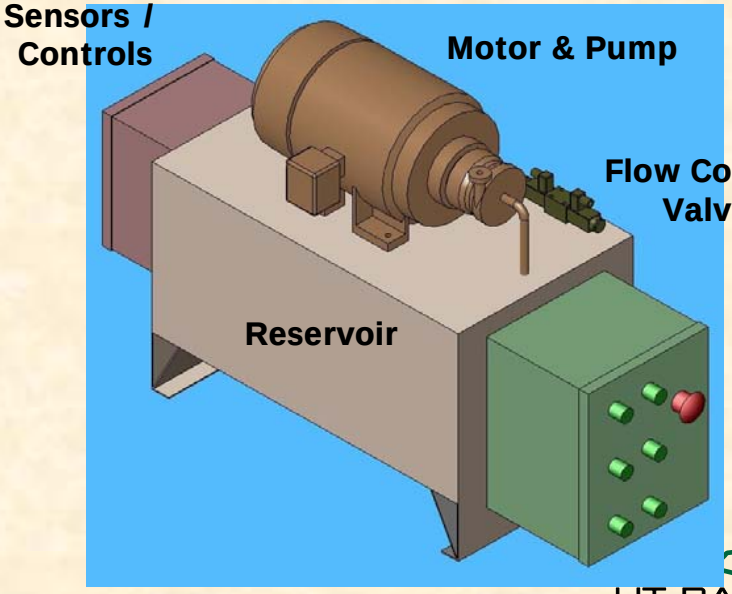
Syringe Design Review Held Jul26

- **Internal ORNL review of syringe & pump subsystems**
- **Reviewers were ORNL engineers with significant hydraulics experience**
- **Review held to allow procurement of syringe to be initiated ASAP**
  - **BNL procurement with ORNL technical oversight**
- **Expect lead time of 20+ weeks**
- **Estimated cost: $50K - $60K**

Syringe Procurement Consists of These Items

- **Complete system design based on specified requirements**
- **Piston pump (inside secondary containment)**
  - **One 10-inch Hg Pump Cylinder**
  - **Two 6-inch Drive Cylinders (one with integrated position sensor)**
  - **Tie beam**
  - **Baseplate**
  - **Hydraulic hoses inside secondary for operating Drive Cylinders**
- **Hydraulic pump (outside secondary containment)**
  - **Pump, motor, reservoir**
  - **Proportional, directional control valve**
  - **Hydraulic hoses between pump & secondary containment**
  - **Motor controller**
  - **Variable voltage transformer for U.S. and European operation**
- **Hydraulic fluid (Quintalubric 888)**
- **Integration of system components**
- **System testing without Hg**





System Testing

- **Syringe vendor must demonstrate system operation in prototypic configuration**
  - **Eject/intake fluid from same port**
  - **Gravity-fed inlet with check valve**
  - **Simulate piping/nozzle pressure drops**
- **Must demonstrate**
  - **Variable flow control**
  - **Sensor operation**
  - **External computer control**

Status

- **Comments from reviewers incorporated into procurement specification**
- **Discussions in progress with three potential vendors**
- **Procurement specification to BNL next week**