

SNL/CA Agency Update

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IMOG Joining Subgroup
Sandia National Lab.

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Sandia is a multiprogram laboratory operated by Sandia Corporation, a Lockheed Martin Company, for the United States Department of Energy's National Nuclear Security Administration under Contract DE-AC04-94AL85000.

Welding Operations at SNL/CA

✦ 8200 National Security Engineering

◆ 8239 Gas Transfer Systems

- **Manager - Paul Spence**

- ◆ **G. Ken Hicken**

- ◆ **Gordon Gibbs**

- ◆ **Tony De Sousa**

- ◆ **Rich Campiotti**

- ◆ **Annette Newman**

FY08 Joining Activities

***Gordon Gibbs, Tony De Sousa and
Annette Newman***

- ✦ Weapons Support
- ✦ Hardware Fabrication
- ✦ Equipment Characterization
- ✦ Weld Acceptance using Data Acquisition
- ✦ Aluminum Pressure Vessel Welding
- ✦ Power Scavenging from Tritium Vessels

FY08 Joining Activities

G. Ken Hicken

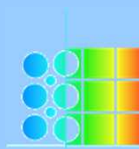
- ✦ Joining Lab Coordination
- ✦ W87 JTA Weld Processes
- ✦ WR Production Liaison
- ✦ Orbital Tube Weld Characterization

FY08 Joining Activities

8758 Engineered Materials Dept.

✦ Beryllium (S-65C) to Copper Alloy (Cu-Cr-Zr) diffusion bonding for ITER fusion reactor in Cadarache France via hot isostatic pressing (Steve Goods and Joe Puskar)

- ◆ The US has reentered after almost a decade
- ◆ Technical Constraints
 - Cu alloy aging temperature restrictions
 - Activation of Metals – No Au or Ag interlayers
 - Service Temperature – No Al interlayers
- ◆ Intermetallics require Ti and Cu layers – currently PVD
- ◆ Significant logistical issues for SNL/CA to handle Be
- ◆ Cu over-aging for “realistic joining scenarios” appears to be a big issue
 - Large efforts into understanding CuCrZr aging characteristics



New Equipment

- ✦ New AMET Advent GTA Welding System
- ✦ New Multi-Process Data Acquisition System (Setting up for EB)
- ✦ AMET XM GTA Welding System set up
- ✦ Looking for New Friction - Stir Welding System to Order