

# **SNL/CA Agency Update**

**Gordon Gibbs**

**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

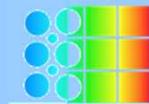
## *G. Ken Hicken*

- ❖ 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