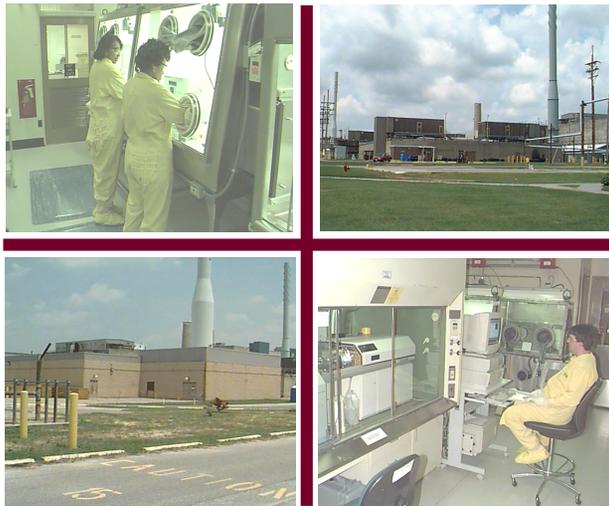




SRS Analytical Laboratories Overview



**DOE Complex Wide LIMS User Group Meeting
October 17, 2006**

**D. G. Murdoch
Manager, Analytical Laboratories**

SRS Analytical Laboratories

- **Laboratories' Mission**
 - Safely operate 2 laboratory facilities
 - F/H Area Laboratory
 - Regulatory Monitoring and Bioassay Laboratory
 - Provide routine analytical chemistry support for site missions – both Closure and Operations
- **Approximately 285 people**
 - \approx 180 people in analytical services
 - \approx 90 people in facility operations
 - \approx 15 people in business support functions
- **Nine separate laboratories located in four different site areas**
 - Facilities range from \approx 120,000 square feet to single lab modules

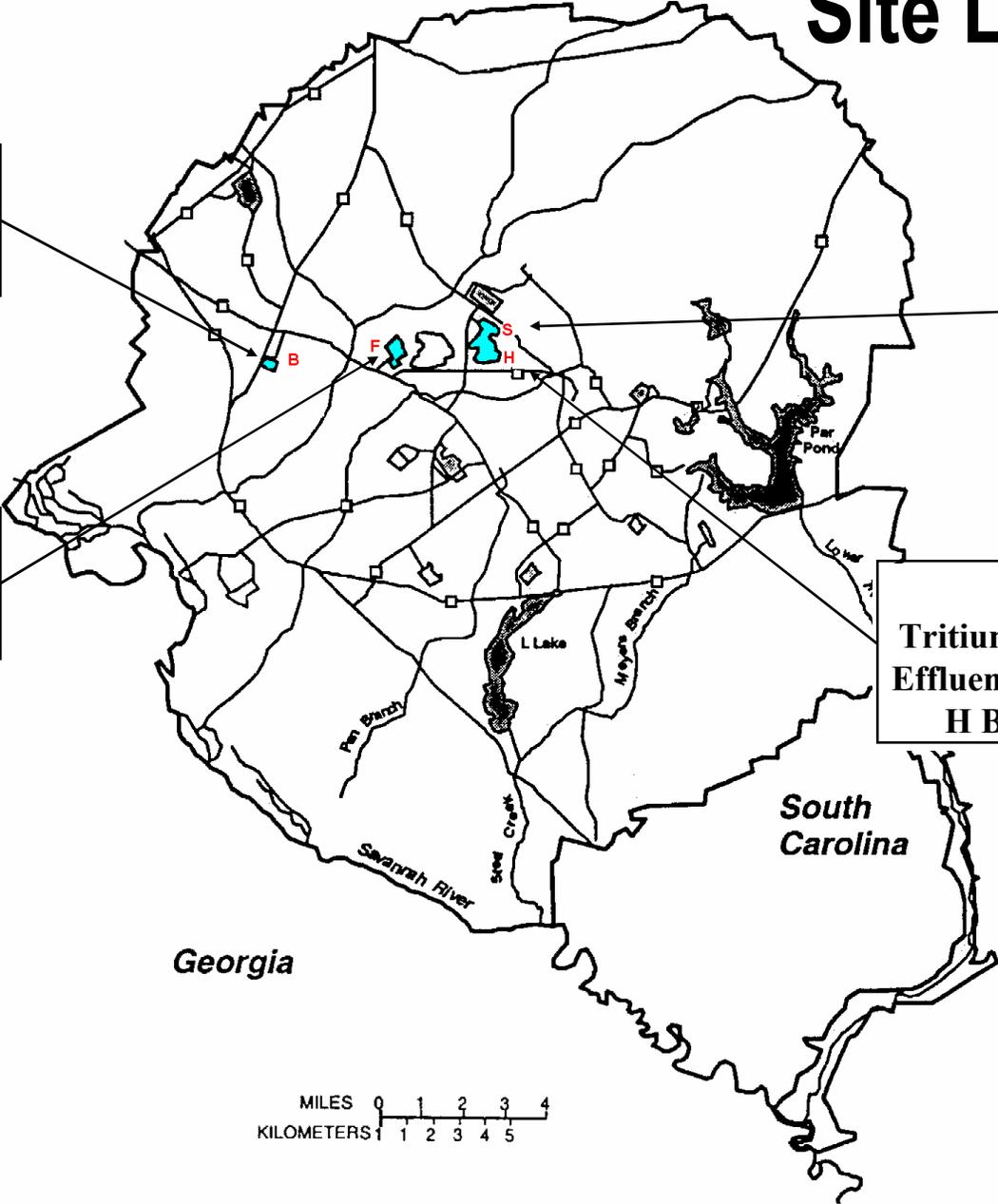
Site Locations

B Area
Environmental
Bioassay Lab

S Area
DWPF LAB

F Area
F/H Area Lab

H Area
Tritium Facilities Lab (4 Labs)
Effluent Treatment Project Lab
H B-Line/H Canyon Lab



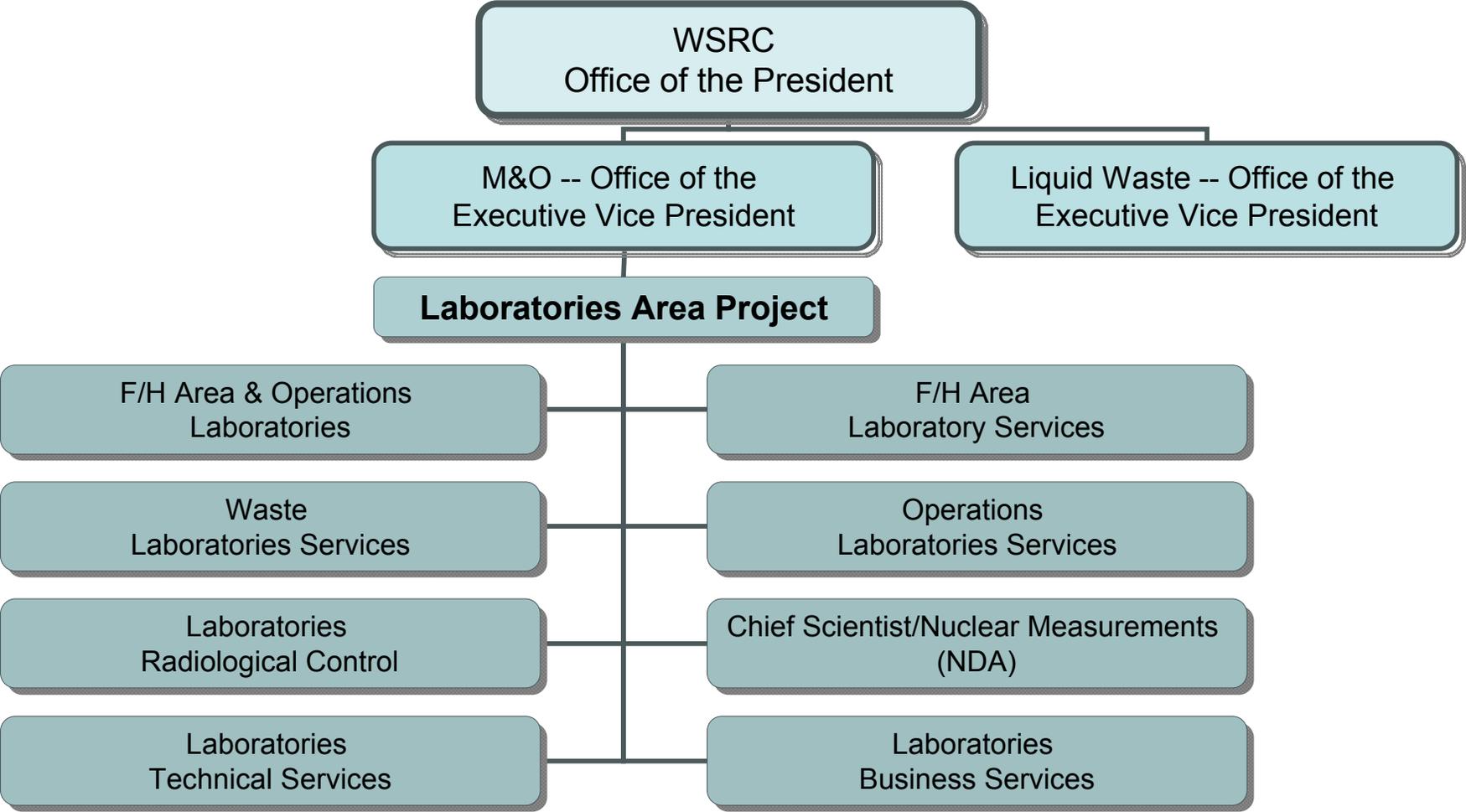
Current Laboratories Mission

- **Annual analytical workload is greater than 400,000 determinations (> 164,000 samples) supporting:**
 - **Processing legacy materials for disposition or long-term storage**
 - **Near-term material storage**
 - **Waste tank surveillance**
 - **Solid waste management**
 - **Tritium recycle and stockpile stewardship**
 - **Site decommissioning and disposition**
 - **Environmental monitoring**
 - **Industrial hygiene (Rad and Non-rad)**
 - **Internal dosimetry**

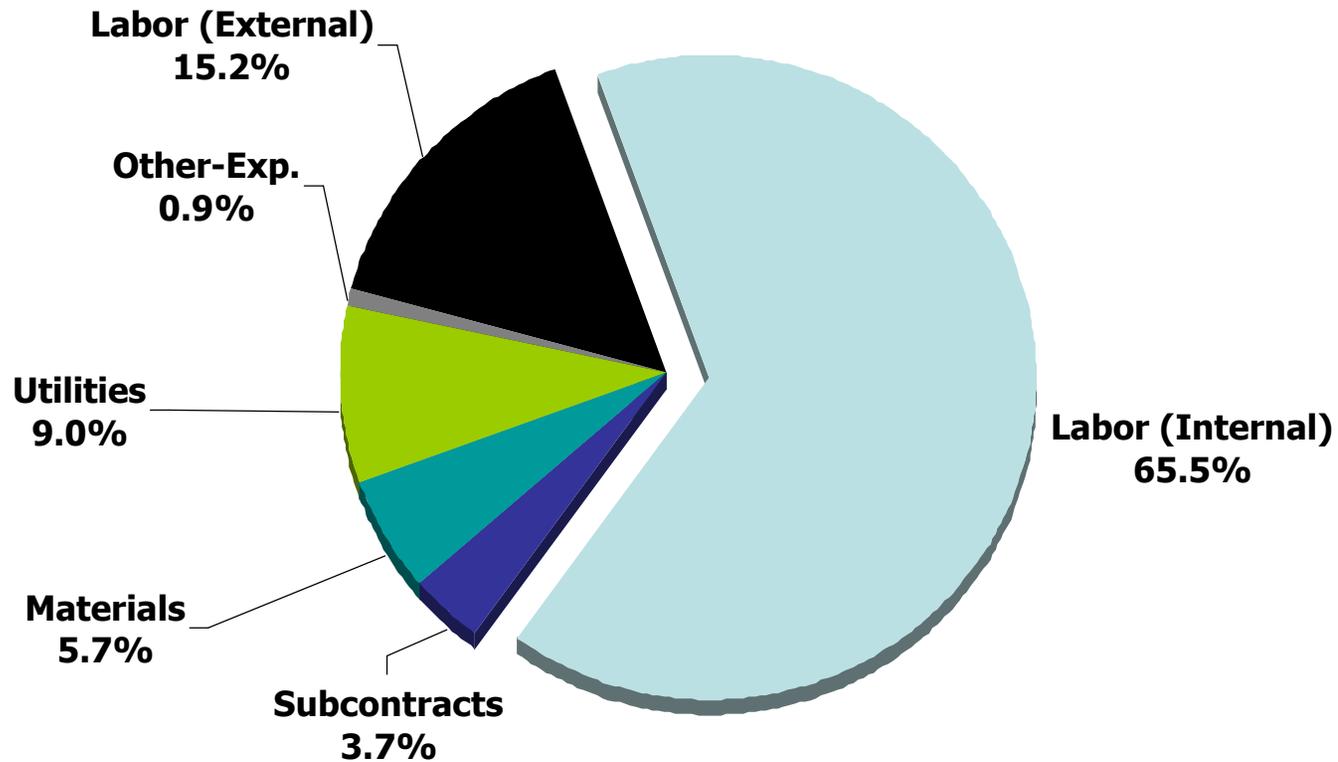
Analytical Results

- **Analytical results are used for:**
 - **Process control**
 - **Nuclear safety**
 - **Material control and accountability**
 - **Product quality**
 - **Waste characterization**
 - **Regulatory compliance**
 - **Personnel safety**

Organizational Structure



Lab Budget by Cost Element



Total Labs FY06 Budget – 44,411 K

F/H Area Laboratory



Does not contain Unclassified Controlled Information

Waste Laboratories Services

- **Location – Defense Waste Processing Facility
– Effluent Treatment Facility**
- **Supports – DWPF and ETF**
- **≈ 45,000 determinations per year**

Operations Laboratories Services

- **Location** – Tritium Facilities
 - Regulatory Monitoring and Bioassay Lab
- **Supports** – Tritium, Internal Dosimetry, Environmental Monitoring, Industrial Hygiene/Site D&D, non-SRS bioassay customers
- **≈285,000 determinations per year**

Nuclear Measurements (NDA)

- **Location – F Area**
- **Supports – Nondestructive Assay needs for the entire site for MC&A and Nuclear Safety**
 - **Primary customers are H Completion, Nuclear Materials Management, and Solid Waste**

SRS Laboratories' Issues / Challenges

- **Complete projects and achieve analytical readiness consistent with customer schedules**
- **Manage resources (personnel and equipment) among diverse customers**
- **Manage analytical support for short term campaigns with varied requirements**
- **Cost control**
- **Recovery from work force restructuring**
- **Infrastructure needs – facility and analytical**

Unique Capabilities

- **Beryllium analysis (including radiological samples)**
- **Asbestos analysis (including radiological samples)**
- **Plutonium & neptunium concentration by controlled-potential coulometry**
- **Participation in NIST and Technology Radiochemistry Intercomparison Program (eight-hour response)**
- **Participation in Pu/U programs with Los Alamos National Laboratory, New Brunswick Laboratory, and the Regulation European Interlaboratory Measurement Evaluation Program**

Methods of interest

- **Microwave/hot block digestion of solids**
- **Alpha spectroscopy**
- **Gamma spectroscopy (fixed and portable)**
- **Neutron and gamma ray measurements**
- **Gas proportional counting**
- **Gas chromatography**
- **Liquid scintillation counting**
- **U and Pu concentration and isotopics by thermal ionization mass spectrometry**
- **Low mass, high resolution gas analysis by thermal ionization mass spectrometry**

Methods of interest

- **Metallic impurities by inductively coupled plasma – emission spectrometry and mass spectrometry**
- **Anion analysis by ion selective electrode and ion chromatography**
- **Wet chemistry analysis: pH, conductivity, density, turbidity, acid/base titration**
- **Mercury analysis**
- **Carbon analysis**
- **Low level uranium analysis by kinetic phosphorescence**
- **Volatile organic compounds by gas chromatography – mass spectrometry**
- **Air and bulk asbestos analysis**