



# **Sandia National Laboratories Support of the Iraq Nuclear Facility Dismantlement and Disposal Project (NDs Project)**

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Sandia is a multiprogram laboratory operated by Sandia Corporation, a Lockheed Martin Company,  
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## **In a Sentence**

**Providing training, consultation & limited equipment to the Government of Iraq (GoI), so the GoI can cleanup its former nuclear complex and safely dispose of the radioactive wastes**



# Program Background

- **Sandia supporting U.S. Dept of State's Iraq NDs Program since 2006**
- **Iraq ND's Program is international program providing training, consultation & limited equipment to the GoI, so GoI can cleanup its former nuclear complex and safely dispose the radioactive wastes**
- **Focused on Al Tuwaitha Nuclear Complex near Baghdad**
- **4<sup>th</sup> year of possible 7 year project, with a clear endpoint**



## **Participants in Iraq NDs Program**

- **International Atomic Energy Agency**
- **U.S. Dept of State**
- **U.S. Nuclear Regulatory Commission**
- **U.S. Environmental Protection Agency**
- **Sandia National Laboratories and Texas Tech University**
- **Other countries involved: France, Italy, Ukraine**



# **Nuclear Complex at Al Tuwaitha**

- **1 km<sup>2</sup> nuclear complex**
- **Two research reactors (Russian & French)**
- **Fuel fabrication facility**
- **Radiochemistry Building**
- **Metallurgy Facility**
- **Isotope Production Facility**
- **Waste Management Facilities**

# Al Tuwaitha Covers $> 1 \text{ km}^2$





# Decommissioning & Radioactive Waste Problems at Al Tuwaitha

**Radioactive wastes**



**Bombed Reactors**



**Old disposal areas**



**Sealed Sources**





# Sandia's Uniqueness

- **Internationally-recognized experts in management & disposal of radioactive waste:**
  - Led science and Safety Assessment for worlds only mined geologic repository - WIPP
  - Conducted the Safety Assessment of the only U.S. intermediate-depth disposal facility - the Greater Confinement Disposal (GCD) boreholes
  - Lead lab for assessment of Yucca Mountain Program as disposal site
  - For 7+ years, Sandia has assisted IAEA in development of borehole disposal system
- **Sandia has breath and experience necessary to successful support the Iraq NDs Program:**
  - Environmental Restoration Program > 20 years
  - Member of the DOE's Radiological Assistance Program
  - Developed & teach broad range of rad safety training classes





# 2010 Workscope

- **Draft Decommissioning Plan all Decommissioning in Iraq**
- **Help Setup Ground Water Monitoring Program with**
- **Supply Groundwater Sampling Equipment & training**
- **Draft Project Plan for Monitoring/Maintaining Underground Tanks containing Liquid Rad. Waste**
- **Waste Management Training Program at SNL**
- **Help Setup Radioanalytical Laboratory in Iraq (Texas Tech)**
- **Training Human Health Assessments (Texas Tech)**

# IAEA Planning Meeting





# Training at Sandia's Mixed & Radioactive Waste Management Facility





# Building Relationships







## 2011 Workscope

- **Help setup program for near-surface disposal facility for Iraq's radioactive wastes**
- **Establish “planning basis” for all decommissioning and rad waste management**
- **Ongoing support in decommissioning planning and groundwater monitoring**
- **Setup Databases and servers to archive decommissioning data (Texas Tech)**
- **Help establish educational programs in Iraqi universities in sciences related to Iraq NDs Program scope (Texas Tech)**



# **Success Story**

## **First Field Work June 2009**



## LAMA Before





## LAMA During





## LAMA After Stages 1 & 2



## Closing

**Modest project that is having a significant effect in Iraq**