

Brief Overview of the Integrated Management Program for Radioactive Sealed Sources in Egypt

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What is IMPRSS?

- A program that greatly improved the cradle-to-grave management of sealed radioactive sources in Egypt
- IMPRSS = Integrated Management Program for Radioactive Sealed Sources in Egypt
- 2003 - 2009



Background on IMPRSS – Accident at Met Halfa

- **Summer 2000: Farmer in Met Halfa, near Cairo, finds a lost Irridium-192 source from inspection of water pipeline**
- **Not recognizing hazard, takes sealed source home, he & family become ill**
- **Believed to be virus, village quarantined**
- **Later, radiation sickness recognized, but farmer and 9 year old son die**





Background on IMPRSS – Accident at Met Halfa

- **GoE response to accident could have been better**
- **EAEA asks Sandia National Laboratories for help**
- **EAEA & SNL present joint proposal to U.S. Agency for International Development Nov. 2000 ((pre - 9/11 - for human health and safety))**
- **With justification - USAID agreed to fund IMPRSS in 2001 ((post - 9/11 & a single mismanaged source could disrupt society, and tourism))**
- **\$4.9 M over 6 years**

Atomic Energy Authority
Chairman of the Board



هيئة الطاقة الذرية
رئيس الهيئة

Mr. John Cochran
Sandia National Laboratories
Albuquerque U.S.A.
Fax No.: 505 844 5404

Dear Mr. Cochran,

We would like to enhance our collaboration with DOE National Laboratories in the area of collection, transportation, conditioning, storage, and disposal options for the radioactive sealed sources. Egypt has different types of sealed sources that have different applications in medicine and industry.

We propose to jointly write a proposal to the Technical Cooperation (TC) at AEA and the United States Agency of International Development (USAID). The four major tasks in the study are the development of (a) Sealed Sources Tracking System, (b) Interim Storage, (c) Dedicated Storage, and (d) Disposal Capabilities. The proposal will include the following objectives:

- 1- Reviewing and updating the available database information about all different types of radioactive sealed sources in Egypt. The objective will be a concise and updated database. The database will include at least information about the Manufacturer of the source, date of manufacture, activity, corrected activity, design of the source, current owner, location of the source, and status (in use, excess).
- 2- Assessment of risk that associated with transporting radioactive sealed sources from their current locations to the storage site.
- 3- Review and compile the different methodologies for recycling and reuse options for these sources.
- 4- Study the different techniques for conditioning unwanted sealed sources and choose the most viable and economically sound technique.
- 5- Training EAEA personnel on alternative conditioning techniques for radioactive sealed sources.
- 6- Design of an Interim Storage Facility.
- 7- Design a Storage Facility for the unwanted sealed sources.
- 8- Review the disposal options for radioactive sealed sources.
- 9- Implementing a Quality Assurance system for the handling of radioactive sealed sources.

We hope that the sister laboratory agreement and the MOU between SNL, LANL, and EAEA would support our initial activities in developing this proposal.

With our best regards,

Sincerely Yours,

Prof. Dr. A.H. Zehran

9.9.2000

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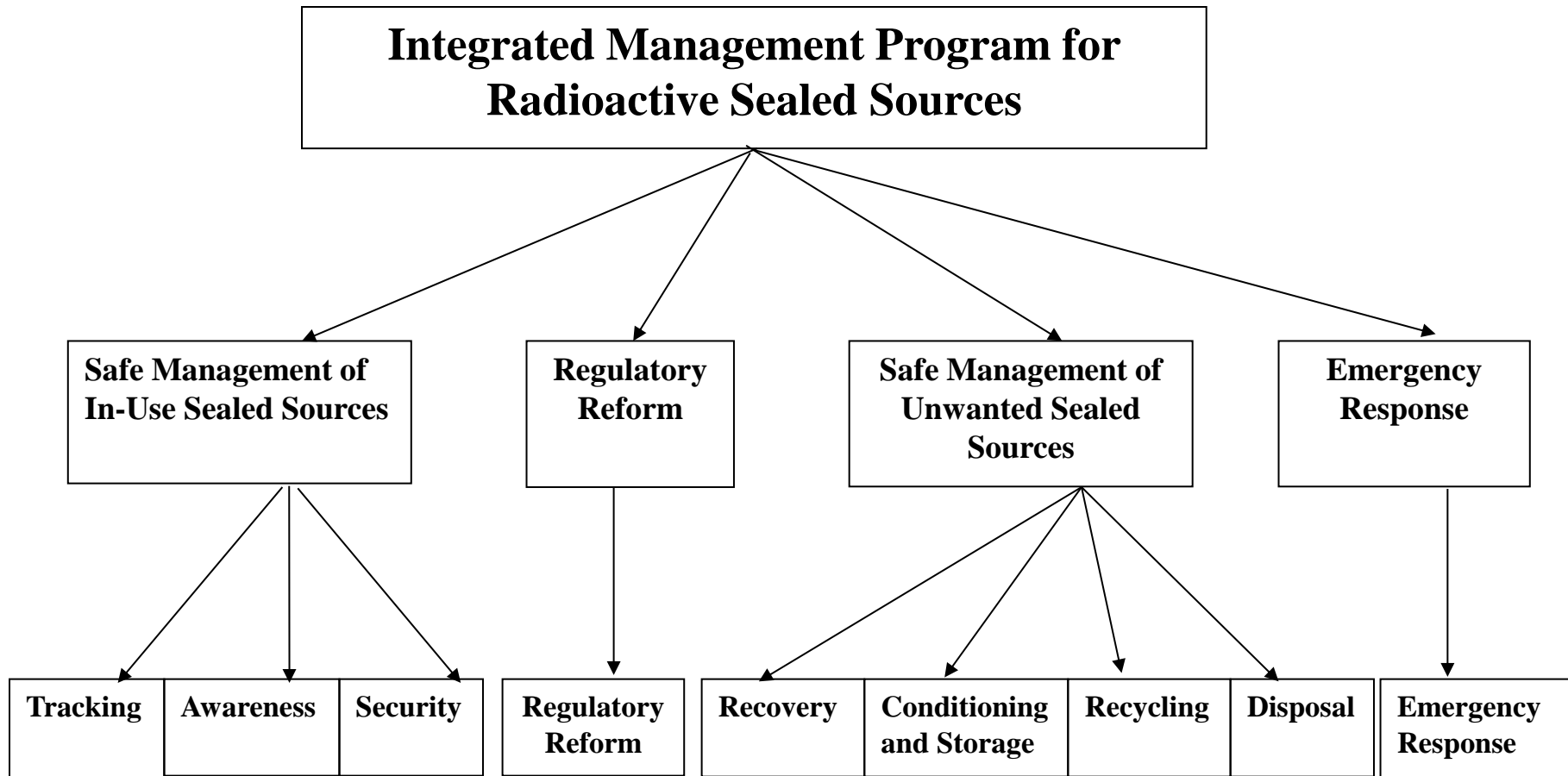


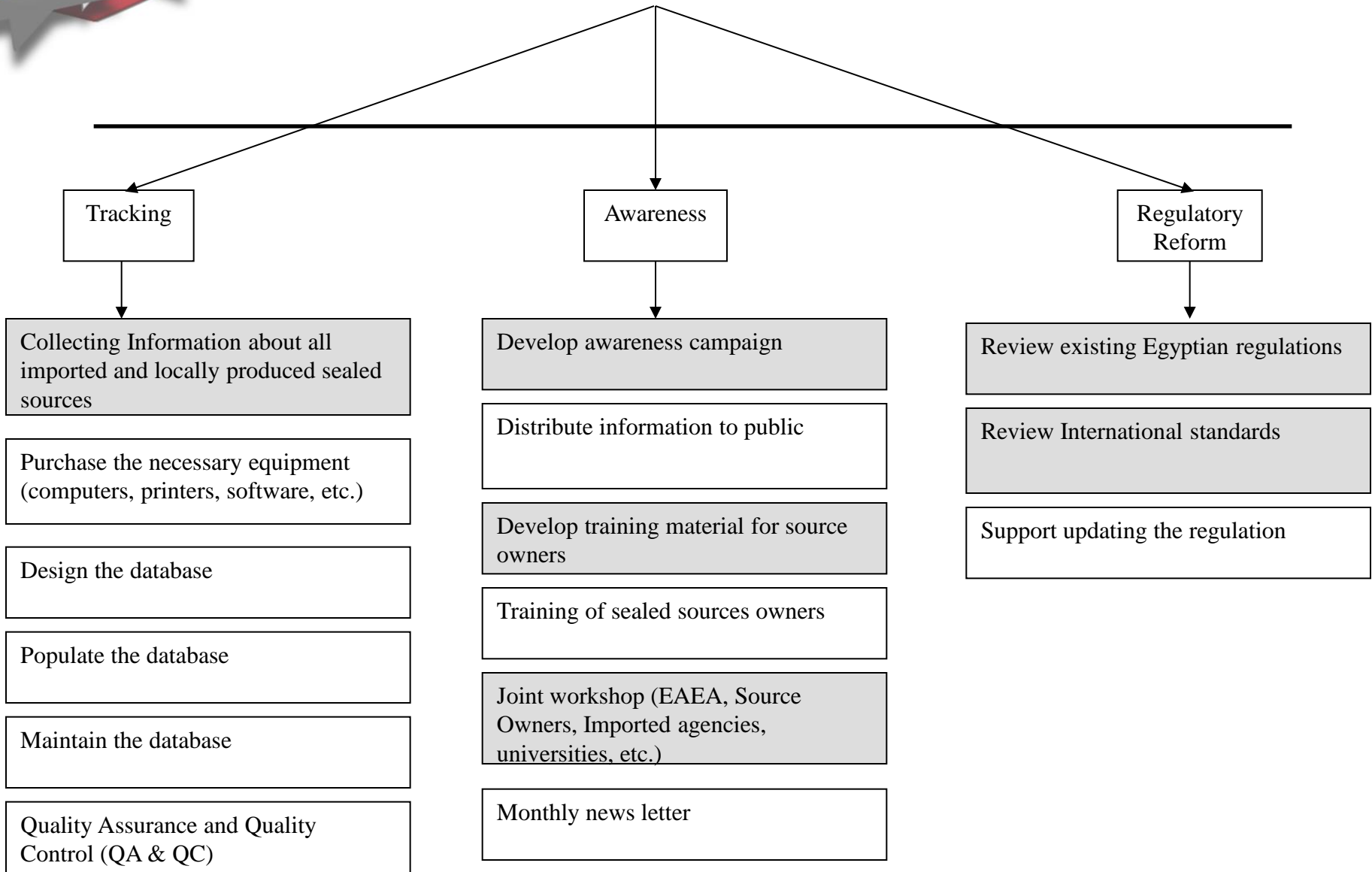
IMPRSS – Philosophy and Structure

- **Partners, team effort, sustained, not campaigns**
- **Western-style – goal driven, budget, milestones**
- **Integrated structure, cradle-to-grave scope:**
 - **Sources in-use**
 - **Unwanted sources**
 - **Applies to both: like emergency response and regulatory modernization**



Cradle to Grave Scope









Key Accomplishments

- **Tracking** – database all known sources in Egypt, new facility
- **Awareness** – training seminars, brochure
- **Security** - upgrades by GTRI
- **Regulatory** – baseline report
- **Recovery** – 14 Egyptians, 8 weeks hands-on training at SNL
- **Conditioning Hot Cell** – purchased leaded glass, manipulator arms, provided preliminary design
- **Recycling** - research
- **Emergency Response** – equipped government vehicle
- **Disposal** - w/IAEA, training, site search



Shortcomings

- **Huge task - changing infrastructure of a country – great successes**
- **Technology Training Center not completed**
- **Emergency Response equipment to ENRRA**
- **Disposal of 1,000 + unwanted sealed sources held by EAEA**



EXAMPLES OF SUCCESSES



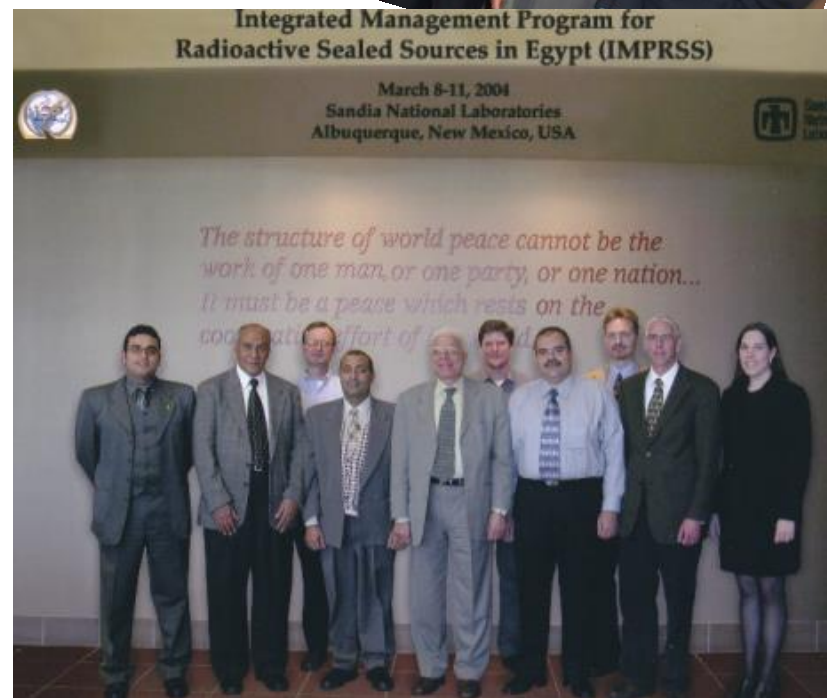
Accomplishments of Tracking

- Egypt now has electronic database of all known medical and industrial radioactive sealed sources



Accomplishments of Awareness

- Awareness Workshop for decision makers in Egypt, Dec 16-17, 2003
- Users' Workshop in Cairo, Feb 11-14, 2004
- Workshops at SNL March 6-12 and July 12-15, 2004
- Awareness brochures and IMPRSS website





Integrated Management Program For Radioactive Sealed Sources in Egypt (IMPRSS)



July 12-14, 2004
Sandia National Laboratories
Albuquerque, New Mexico, USA





Accomplishments of Recovery

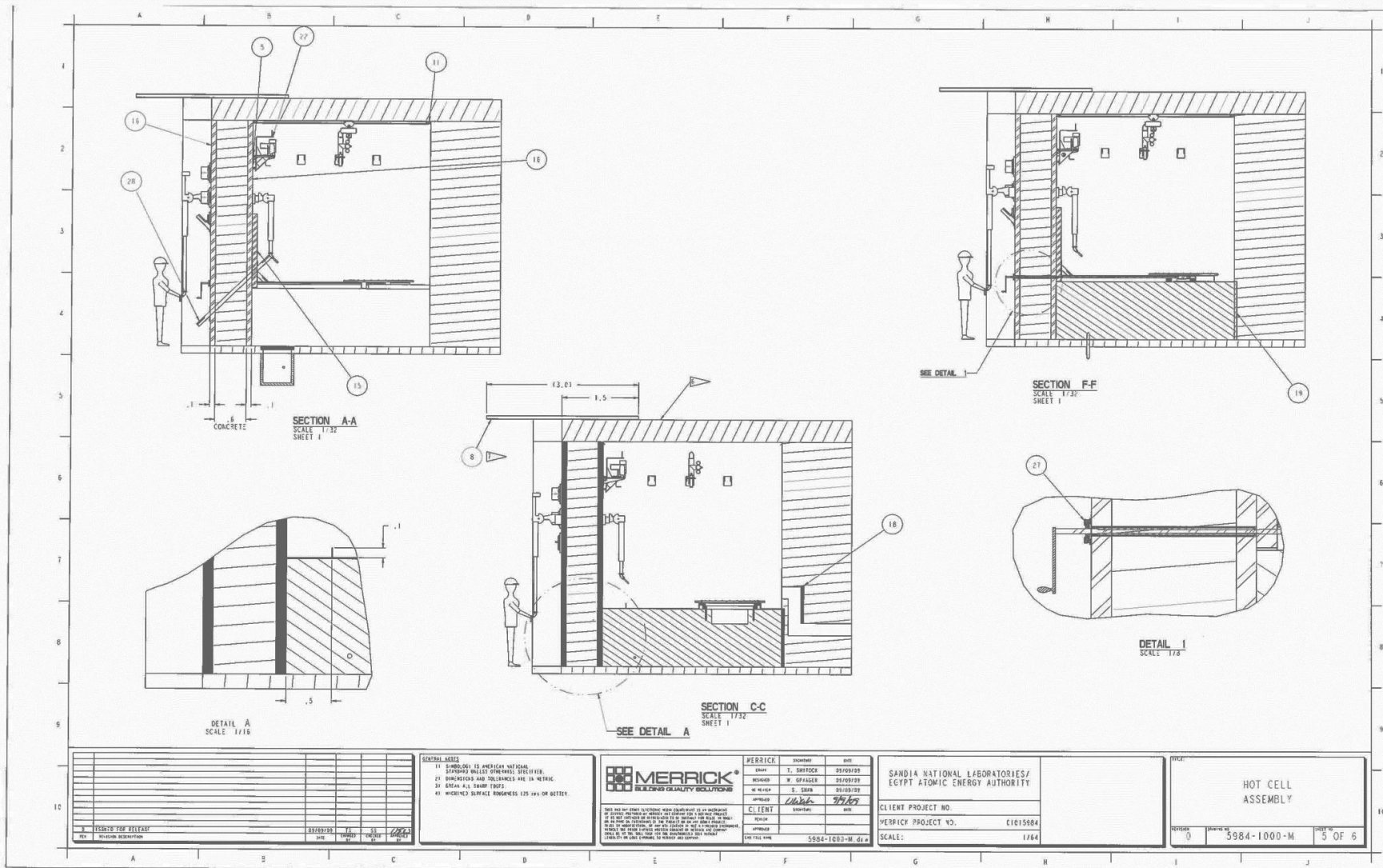
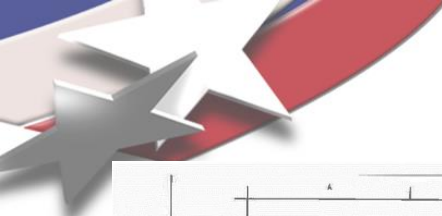
- 8-week hands-on training session in US for 15 members from MOHP and EAEA to be qualified to recover and transport RSS
- The team hold many drills in Egypt for training and train others





Accomplishments for Hot Cell

- **Purchased and shipped manipulator arms to EAEA**
(Central Research Laboratories ~ \$165 K)
- **Purchased and shipped leaded glass to EAEA** (Hot
Cell Services ~ \$140 K)
- **Provided EAEA with preliminary hot cell design**
(Merrick and Company ~ \$110 K)





Summary

- A program that greatly improved the *cradle-to-grave* management of sealed radioactive sources in Egypt
- Reasons for success:
 - Sufficient funding
 - Western-style, goal-driven
 - Integrated structure
 - Worked as partners
 - Sustained program, not campaigns



Thank You