Jack DeVine, URS

- **Background**
  - 45 years in nuclear power in engineering, management and executive positions
  - Nuclear plant design, construction, operation, D&D
  - Retired in 2011; continuing in a consulting and advisory capacity on work of high importance to our industry

- **Experience pertinent to this workshop**
  - At Three Mile Island: served on TMI-2 emergency response team, then as TMI-2 Recovery Engineering Manager and Technical Planning Director (1979 -1984)
  - At Savannah River Site: served as Chief Closure Officer, responsible for all site D&D (2003 - 2005)
TMI-2 Waste Management and Disposal

- **Scope**
  - Retrieval, processing and disposal of ~1 million gallons of water from containment building basement
    - Heavily contaminated (~600,000 Ci Cs-137)
  - Retrieval, processing and disposal of other contaminated liquid streams and solids created during the accident or in the course of cleanup
  - Cleaning / release of containment airborne (to permit access)
  - Retrieval, packaging and disposition of damaged / melted reactor fuel
  - Disposition of residual rad material (e.g. – that adsorbed in concrete structures).
Compounding Challenges

- Public anxiety and political pressures
  - e.g., regarding release of radioactivity to the Susquehanna River

- Urgency
  - Given the plant location (on an island, in a river, near a large city), importance of achieving long term safe, stable conditions

- Technology
  - Much of this work unprecedented in technical details and scale

- Cost
  - Not a constraint, but an important consideration
  - Need to achieve maximum value for every dollar (yen) spent
Our job at TMI was much simpler and more limited in scope:
- Infrastructure in place from the beginning (roads, support organizations)
- Severe damage / accessibility challenges / difficult rad management challenges primarily limited to containment

But many points of commonality:
- Nature of fuel damage, fission products, materials, etc
- Same technologies must be employed
- Significant level of local, national and global scrutiny
Emerging Principles for Cleanup

- **Understand the Problem**
  - Approaches, methods and processes must be based on solid information, not hypotheses
  - effective, timely, forward-thinking data acquisition is key

- **Ongoing flexibility**
  - Be able to accommodate the certain surprises

- **Use and adapt proven technology**
  - Minimize need for R&D and risk of redirection

- **Defined objectives and end points**
  - Logical and risk-based development of end state for the site, and for all equipment, facilities, materials therein
  - Based on that, triage and prioritize work