Innovation, Incentivization and Implementation

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Presentation Overview

- NuVision Engineering
- Some Success Stories
- Lessons Learned
- Current Challenges
- Some Ideas for Consideration
- Conclusions

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- Have been involved with the EM program since 1995
- Have had a number of successful deployments of innovative technologies across the DOE complex
  - Oak Ridge, Fernald, Savannah River, Idaho, Los Alamos, Hanford, Mound

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Successful Implementation of Innovative Technology

- Two case studies
  - Homogenization of waste in W and C tanks at Oak Ridge
  - Retrieval of waste from the Decant Sump Tank at Fernald

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W Tanks

- W Tanks (W21, W22, W23)
  - 60’ long, 12’ diameter cylindrical tanks
  - Homogenize and transfer 30,000 gallons of radioactive sludge from BVEST to MVST
  - Design, build, deliver, install and operate
  - Approach used existing in-tank pipework
  - Utilized as much existing supernate as possible
  - Program completed at $4.2 M over 19 months

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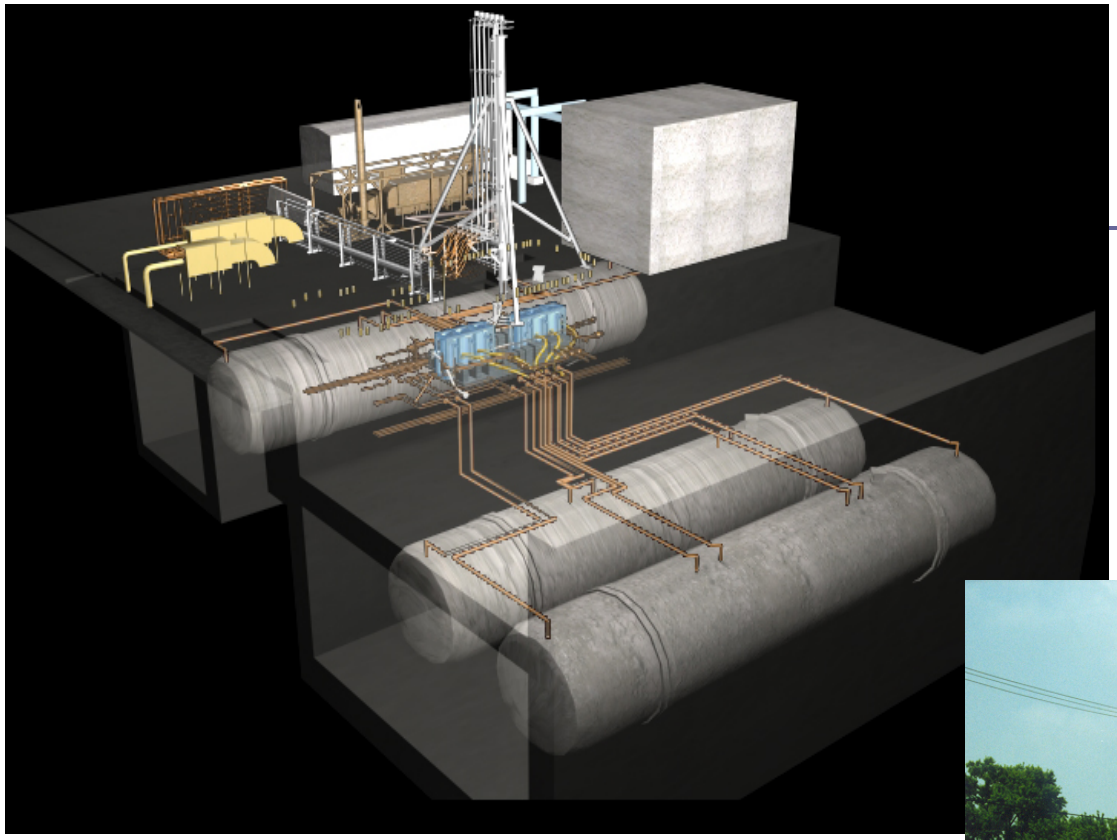

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C Tanks

- C Tanks (C1, C2)
  - Similar size to W tanks
  - Homogenize and transfer 10000-15000 gallons of radioactive sludge from BVEST to MVST
  - Design, build, deliver, install and operate
  - Approach necessitated installation of systems directly into the tanks which incorporated some 'lessons learned' from W Tanks e.g. rotating nozzles
  - Program completed at $2.7M over 13 months
- Combined effort on W & C tanks was completed at a fraction of the baseline cost and schedule

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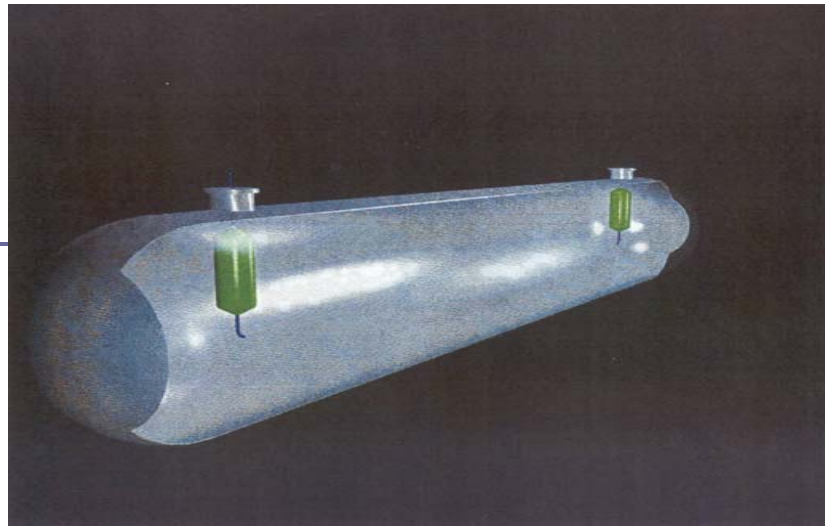

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Fernald Decant Sump Tank

- 9-feet diameter, 18 feet long horizontal tank which accepted the decanted liquid from the Silos.
  - Located >30’ under the earth berm supporting Silos 1 & 2
  - Connected to the surface via a 30-inch diameter bowed corrugated galvanized steel riser

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Fernald Decant Sump Tank

- Liquid waste was retrieved at regular intervals using a mechanical pump
- Layer of sludge had built up in the tank which could not be retrieved using the mechanical pump
- Required an alternative approach on a fast track
  - ~8 months for design, build, deploy and operate

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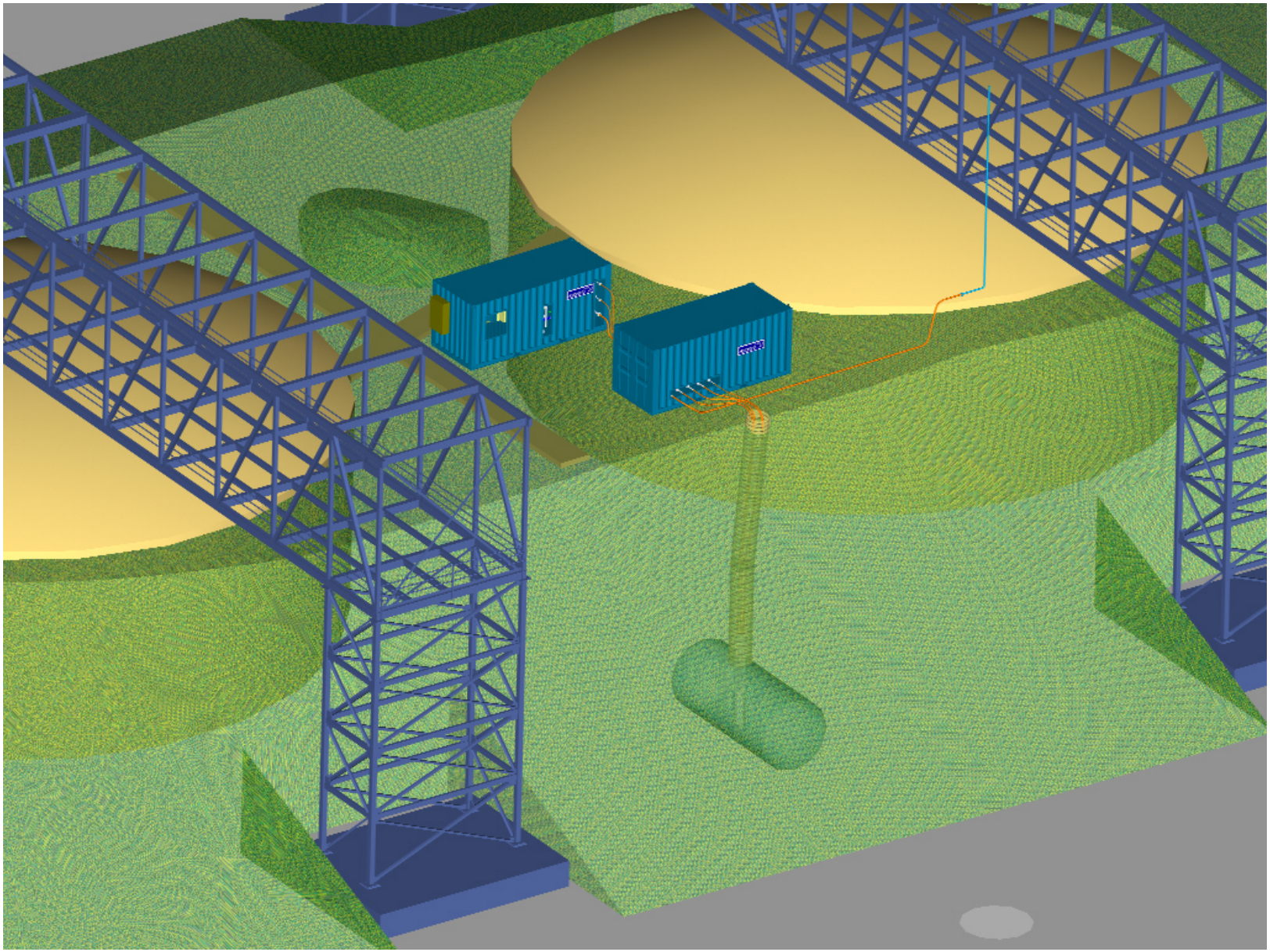

Innovation Highlights

- First-of-a-kind implementation of an innovative technology (Power Fluidics)
  - Two different engineered approaches
    - W tanks: ex-situ
    - Fernald DST & C tanks: in-situ
- Both approaches
  - were proven through large scale demonstrations
  - had strong site and HQ support and advocacy
  - were extremely successful in reducing cost and schedule and/or solving a seemingly intractable problem

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Important Lessons for Successful Innovation

- Target marketing and sales efforts
  - Identify those projects where innovation is either necessary and/or truly beneficial
- Need access to technology demonstration funds and a contract vehicle to use them
  - Demonstrate the state-of-the-possible
  - Accelerates schedule and enables parallel paths
  - Helps to ensure that the technology is fit-for-purpose
  - Reduces risk for site contractor, DOE and technology vendor
- Need strong site and HQ advocate(s)

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So far so good …
So what's the issue?

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The Challenge

- Innovation was more readily accepted under ‘traditional’ M&O and M&I contracts
- With changes in contract terms, it has become increasingly difficult to deploy innovative technologies
- Innovative approaches
  - are not usually linked to a Contractor’s PBIs
  - add cost to a Contractor’s baseline through additional paperwork
  - generally require ‘in addition to’ support from the site contractor and so are very low priority
  - are often identified too late to meet site schedules
- Lack of continuity in site contractor

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Some Ideas for Consideration

- Establish an 'Innovation' Budget
- Identify stand-alone 'Innovation Projects'
  - Currently out of scope either because they are considered too costly, too difficult or low risk
    - Avoids 'muddying the waters' with critical path projects
  - Use these as proving grounds for innovative approaches
  - Ensure that there is strong outreach and dissemination of results to maximize the possibility of repeat implementation
  - Assign a team to the project
    - technology vendor plus site contractor

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Some Ideas for Consideration

- Support innovation through incentivization
  - Pay the site contractor's 'in addition to' costs
  - Modify existing contracts to agree a PBI for use of an innovative approach on a case-by-case basis
- Consider royalties for repeat uses
  - Encourages contractor to use at other sites for similar applications
- Write 'innovation targets' into new contracts
  - Additional fee for using alternative approach on specific projects

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Some Ideas for Consideration

- Ensure approaches are ‘grandfathered in’ if site contractor changes
- Consider reintroducing concepts (or adaptations thereof) that have worked before;
  - ASTD – essentially an ‘innovation’ budget, formed a team, paid all costs, incentivized contractors
  - LSDDP – large scale demonstrations,

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Conclusions

- Innovative approaches can make (and have made) a difference
- Innovation must be focused where it is really needed rather than being used for 'innovation's sake'
- Essential to have strong site and HQ support
- Need to incentivize site contractor by paying their 'in addition' costs, considering royalty payments for repeat uses and by making them a partner rather than a customer

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Conclusions

- Performance-based prime contracts have stifled innovation to a degree
  - PBI's are largely Contractor-defined and are associated with low hanging fruit which generally require less innovative approaches
  - There is therefore a need to consider how innovation PBIs can be introduced under current and new site contracts
- Consider revisiting previously successful approaches such as ASTD and LSDDP

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