Nunn-McCurdy's Aren’t Fun!

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Agenda

- National Security Space Enterprise (NSSE) acquisition programs health concerns & Nunn McCurdy breach
- Role of systems engineering
- “Back to Basics” block strategy

Our programs are only as good as our people
Nunn-McCurdy Breach Defined

- Breach definition
  - “Infraction or violation of a law, obligation, tie, or standard”… and
  - “Broken, ruptured, or torn condition…”

- Nunn-McCurdy breach when PAUC or APUC exceed baseline value by 25%

- Two 1990’s flagship programs experienced Nunn-McCurdy breaches
Nunn-McCurdy Law Requires

- SecDef must address four questions:
  - Is the program essential to national security?
  - Are there alternatives?
  - Are new cost estimates reasonable?
  - Can management control costs?

- SecDef has three program certification options:
  - Certify “as is” with updated cost & schedule
  - Certify “as restructured”
  - “Not Certify” - TERMINATE
Space Breach Programs - SBIRS

- Part of Total System Program Responsibility (TSPR) experiment
- SBIRS breach in 2001
  - Restructured, BUT...
- 2005 breach again
  - IPT – restructure
  - Management changes
  - Other impacts
SBIRS Breach Root Causes

- Systemic shortfalls in systems engineering:
  - No systems engineering master plan
  - No consistent requirements management
  - No single/linked integrated master schedule

- Systemic industrial base issues with:
  - Business practices
  - Personnel
  - Economics
  - Industrial capacity
Space Breach Programs - NPOESS
Space Breach Programs - NPOESS

- NPOESS strategy: sacrifice cost and schedule to maintain performance with overruns paid from management reserves, program slips and accepting increasing risk

- When NPOESS Nunn-McCurdy breach announced
  - PAUC = 82%  APUC = 202%

- NPOESS Nunn-McCurdy certification strategy:
  - IPP + restructure (fewer spacecraft and fewer sensors)
  - Government and contractor management structure change
  - NPOESS PEO established
  - Chief Systems Engineer position established
Lessons Learned

- Unbridled optimism regarding cost, schedule, performance, and risks is a recipe for failure

- Lexington paper scenario
  - Understated costs leads to lower budget
  - Leads to industry bidding price less than budget
  - Leads to lower award price
  - Leads to government repeatedly changing scope, schedule, budget profile, etc.
  - Leads to five to ten years later recognition “real” cost multiple of bid
  - Leads to Nunn-McCurdy Breach
Lessons Learned

- Reward “Being Honest”
- Budget to probable costs
- Break programs into more manageable blocks
- Recognize that TSPR doesn’t work
- Incorporate “Back to Basics” strategy
“Back to Basics” Acquisition

- Four-stage process
  - Science & Technology
  - Technology Development
  - Systems Development
  - System Production

- Apportion risk among the stages
  - Highest risk in S&T
  - Base production on mature technology for lowest risk
  - Shorten cycle time

- Incremental deliveries
  - Block approach
Closing

- Every program is vulnerable
- Keep it simple
- Close program management
- Realistic budgets

Systems engineering underpins success

Integrity - Service - Excellence