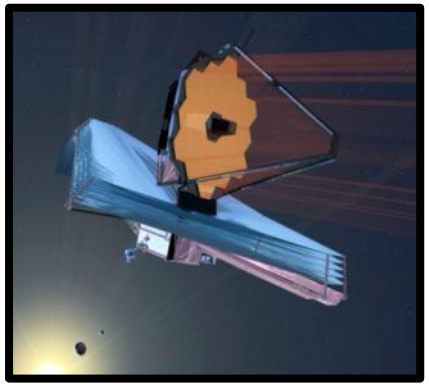
Creating a Strong Safety Culture Lessons Learned



Senior Management ViTS Meeting
June 2014

Ralph Roe, Chief Engineer

Creating a Strong Safety Culture

Engineering Excellence

- ✓ Our 3 safety tenets are necessary for safe and successful programs, but they alone are not sufficient
  1. Strong in-line checks and balance
  2. Healthy tension between responsible organizations
  3. "Value added" independent assessment
- ✓ Overarching principles create the right environment for a strong safety culture
  1. Develop relationships for an open and trusting environment
  2. Create diverse teams
  3. Focus on engineering excellence
  4. Share knowledge and experience
  5. Recognize those who demonstrate a commitment to a strong safety culture

Principle #1 – Develop Relationships

Engineering Excellence

- ✓ Establish and build strong relationships across the team
  - The tendency is to over work the technical and neglect the personal relationship side of the project
  - Strong working relationships will allow the team to work through the difficult issues in an open, non-threatening environment

Principle #2 – Create Diverse Teams

Engineering Excellence

- ✓ Diverse perspectives allow for more robust solutions
- ✓ Work in an integrated, badgeless team environment
  - Define interfaces based on system design, not Centers or locations
  - Build integrated teams based on expertise, not location
- ✓ The NESC model uses matrix teams of experts from all NASA Centers, industry, academia and other government agencies
  - Technical Discipline Teams (TDTs)
  - Assessment teams

Principle #3 – Focus on Engineering Excellence

Engineering Excellence

- ✓ Engineering excellence comes from the appropriate levels of:
  - Technical rigor
    - Formally document results and decision rationale
  - Processes
    - Focus on the intent of the processes not the process itself
    - Even rapid prototype development projects require proper project documentation and configuration control
    - Adjust processes and procedures according to the project's lifecycle stage
- ✓ Let data drive decisions

NASA/TM-2009-215785
NESC-RP-07-47/07-005-E

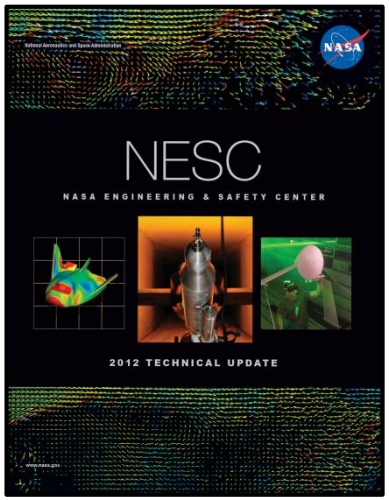
Space Transportation System (STS)-117
External Tank (ET)-124 Hail Damage
Repair Assessment

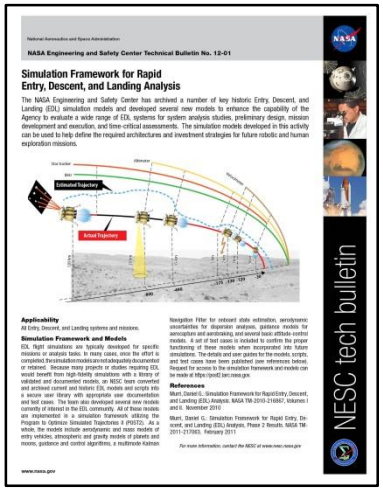
Principle #4 – Share Knowledge and Experience

Engineering Excellence

- ✓ The NESC documents results of assessments, testing and analysis
- ✓ Share new knowledge gained through testing and analysis
  - NESC Technical Bulletins
  - Lessons Learned
- ✓ Share experiences through spoken word and story telling
  - NESC Virtual Academy

    www.nescacademy.org





Principle #4 – Share Knowledge and Experience

Early-Career Engineer Engagement

Engineering Excellence

- ✓ Opportunity for early-career participants to gain hands on experience working with NESC technical experts and leaders
- ✓ Connects senior engineers to a younger generation that offers a fresh perspective to technical activities
- ✓ Provides a technically diverse learning experience outside of the participant's home organization

Principle #5 – Recognize Strong Safety Culture

Engineering Excellence

- ✓ Reinforce the safety culture by recognizing and rewarding the behavior that demonstrates a commitment to safety and engineering excellence

2012 NESC Honor Award Recipients