







### Creating a Strong Safety Culture Lessons Learned

Senior Management ViTS Meeting June 2014

Ralph Roe, Chief Engineer







# **Creating a Strong Safety Culture**



- 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**



#### ✓ 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







- ✓ 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

- $\checkmark$  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



# 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 https://nescacademy.nasa.gov





## **Principle #4 – Share Knowledge and Experience**

Early-Career Engineer Engagement

- 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









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



2012 NESC Honor Award Recipients