NASA Supply Chain Conference 2010

Safety and Mission Assurance

Roman Kilgore
GOES-R Chief Safety & Mission Assurance Officer (CSO)
CSOs are at this level
SMA Purpose

We provide an independent voice to enable Mission Success
GOES-R Program

Program Office
- System Program Director (NOAA)
- Deputies (NASA & NOAA)

Program Control (NOAA)

Program Mission Assurance (NASA)

Program Systems Engineering (NASA)

Contracts (NASA & NOAA)

Flight Project (NASA)

Ground Segment Project (NOAA)

Program Scientist (NOAA)
- Project Scientists (NASA & NOAA)

NASA GSFC Center Mgmt Council
Requirements Management

Mission Success

Performance

Schedule

Cost

Safety and Mission Assurance

Program and NASA Project Offices

Contractors and Suppliers
Implementation of SMA

For the CSO and the SMA team the list is long...

- Development Mission Assurance Requirements for the projects and programs
- Works Project full life-cycle from Concept through Launch
- Ensures implementation of the Mission Assurance Requirements
- Complements the systems review office and systems managers for completion of mission success activities
- Coordinate risks and issues with the Systems Review Manager both before and after major reviews
- Ensures that appropriate oversight of contractors is in place
- CSOs signs off on all project problem reports, failure reports, waivers/deviations and design changes
- Manages assurance program for both in-house and out-of-house Projects
- Problem Report/Problem Failure Report (PR/PFR) System
- Parts Control Board - works closely with Code 562 Parts Engineers
- Implements Government-Industry Data Exchange Program (GIDEP) compliance and dispositions
- Works with Code 541 Materials to determine acceptability of printed wiring boards by coupon evaluation
- Ensures parts and materials lists are thoroughly reviewed and acceptable for use
- Coordinates radiation requirements and implementation with Code 561 (Radiation Effects)
- Implements Workmanship Standards such as soldering, cabling, harnessing, conformal coating
- The MA team is co-located with the project office, to provide the most efficient access to the project manager and staff
- MA team must be a good communicator and understand where support is needed and keep the Project in the loop
- MA team members walks a fine line between supporting the Project and Program and remaining an independent entity
- Works with Systems Safety to implement project safety program
- Works with Reliability to implement project reliability program
- Voting member of CCB and risk management board
- Conduct audits/assessments at hardware developers (and provide follow-up).
- Determine mandatory inspection points
- Support in resolution of hardware/software problems
- Member of Source Evaluation Boards
- Member of Senior Staff Project and Program
- Point of contact for all manpower in Code 300
- Ensure LOD and NCAS task order are written and followed to support the project
- Attendance and participation at major reviews
- Provide monthly presentations to Code 300 Management
- Provide presentations to Project/Program Management as required
- Presents at the Safety and Mission Success Review (SMSR) to Headquarters
- Launch campaign support and any post launch activities
Where do the SMA Requirements come from?

• For GOES-R there are four Mission Assurance Requirements (MAR) documents
  • SCMAR, 417-R-SCMAR-0011
    • SC, Lockheed Martin
  • ABIMAR, 417-R-ABIMAR-0012
    • ABI, ITT
  • IMAR, 417-R-IMAR-0039
    • SEISS, ATC
    • EXIS, LASP
    • SUVI and GLM, Lockheed Martin
  • GSMAR, G417-R-GSMAR-0068
    • Ground, Harris

• Requirements are also covered in SOWs and CDRLs for all contracts on GOES-R

We strive to ensure that all of our primes & their suppliers meet these requirements
Requirements Management

• Assessments/audits
  – The SMA team looks for compliance to the MAR requirements

• Work activities performed by the prime contractors and/or suppliers
  – are subject to evaluation and audit by government-designated representatives

• CSO and SMA team supports projects and program by selecting on & off-site supplier representative’s by one of several methods:
  – An Independent Assurance Contractor (IAC)
    • Mission Assurance Support Contract (MASC)
      – ManTech SRS
        »Used on site and in our resident offices
  • Supply Chain Management Program
    – NASA Contract Assurance Services (NCAS)
    – Defense Contract Management Agency (DCMA)
Flow Down

• For the prime contractor:
  – Required to meet ISO 9001 and insure that their sub-tier suppliers meet the same requirements
  
  • For smaller suppliers it is understood that they may not be 3rd party certified but they shall have a QMS that is compliant with the minimum requirements of ISO 9001
  
  – All aspects of the MAR (as applicable to prime contractor and suppliers) are the responsibility of the prime to:
    ✓ Monitor and/or verify compliance through assessments
    ✓ Document review
    ✓ Data review
    ✓ Inspections
    ✓ Witness or monitor
    ✓ TIM’s
    ✓ Design reviews
    ✓ Any other activity regarding product performance and conformance
Lessons Learned & Challenges Going Forward

• Develop Mission Assurance Requirements and verify these requirements as early as possible and if needed sell these to your management
  – Trust but verify and validate

• Develop and maintain a professional and open communication with all levels within the projects and program
  – Program, flight and ground are Pro SMA
  – This has not been a challenge and my goal is to keep it that way

• Develop and maintain a professional relationship and open communication with all Mission Assurance Director’s of Aerospace Companies
  – Has been tough with certain primes and subs as they are not used to this much oversight and involvement
• Ensure that supplier documents history of any engineering models in the event that they may become flight models
  – Things change as we all know and if the pedigree of paperwork is not there it will be a tough sale

• Communication is key
  – Shadow ones doorway, pick up the phone, try to bypass the dreaded email frenzy
Lessons Learned & Challenges Going Forward cont’d...

* LOD and Task Orders in place for inspections and visit at primes and suppliers
  - Challenging on GOES-R since we have 58 contractors
    * Have the team in place with the KSAs to manage and work the task at hand
    * Frequency and face time

  - Requirements Flow down and Supplier Control are key areas which must be addressed and performed successfully in order to reduce future spacecraft/instrument problems
In the end our driving focus is Mission Success

To achieve it requires all of our collective experience
Closing

Thank you for the opportunity to present
If there are any questions, please do not hesitate to contact me:

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