Capability-Based Standards and Standardized Tools

Tyrone Jackson, CRE
Chair, AIAA S-102 Mission Assurance Standards Working Group
P.O. Box 2294, Hawthorne, CA 90251
Phone: (310) 926-0297
jacksont@simanima.com

What Is The S-102 MASWG Doing?

- The S-102 MASWG is defining, developing, implementing, tracking, and updating a ***40 volume-set*** of capability-based mission assurance standards
- The S-102 MASWG is participating in USA and foreign industry standards working groups to promote integrated project risk management approaches that are applied consistently across project domain risk areas, including safety, reliability, and quality assurance (SR&QA)
- The S-102 MASWG is assisting and mentoring small companies to develop internal capability-based mission assurance guides
  - **For example go to: http://www.spacewx.com/**

S-102 Standards Document Tree

Capability-Based Management Requirements	Capability-Based Engineering and Analysis Requirements		Capability-Based MAP Testing Requirements
Mission Assurance Program(s) Planning	Functional Diagram Modeling	Maintainability Predictions	Environmental Stress Screening
Subcontractor and Supplier Mission Assurance Management	System Reliability Modeling	Operational Dependability and Availability Modeling	Reliability Development / Growth Testing
Mission Assurance Working Group(s)	Component Reliability Predictions	Hazard Analysis	Reliability, Maintainability, and Availability Demonstration Testing
Failure Reporting, Analysis, and Corrective Action System	Product Failure Mode, Effects, and Criticality Analysis	Software Component Reliability Predictions	Reliability Life Testing
Failure Review Board	Sneak Circuit Analysis	Process Failure Mode, Effects, and Criticality Analysis	Design of Experiments
Critical Item Risk Management	Design Concern Analysis	Event Tree Analysis	Ongoing Reliability Testing (ORT)
Project Mission Assurance Database System	Finite Element Analysis	Fault Tree Analysis	Product Safety Testing
Quality Assurance	Worst Case Analysis	Fishbone Analysis	
Configuration Management	Human Error Predictions	Similarity and Allocations Analysis	
Environmental Safety Assurance	Environmental Event / Survivability Analysis	Component Engineering	
	Anomaly, Detection, and Response Analysis	Stress and Damage Simulation Analysis	

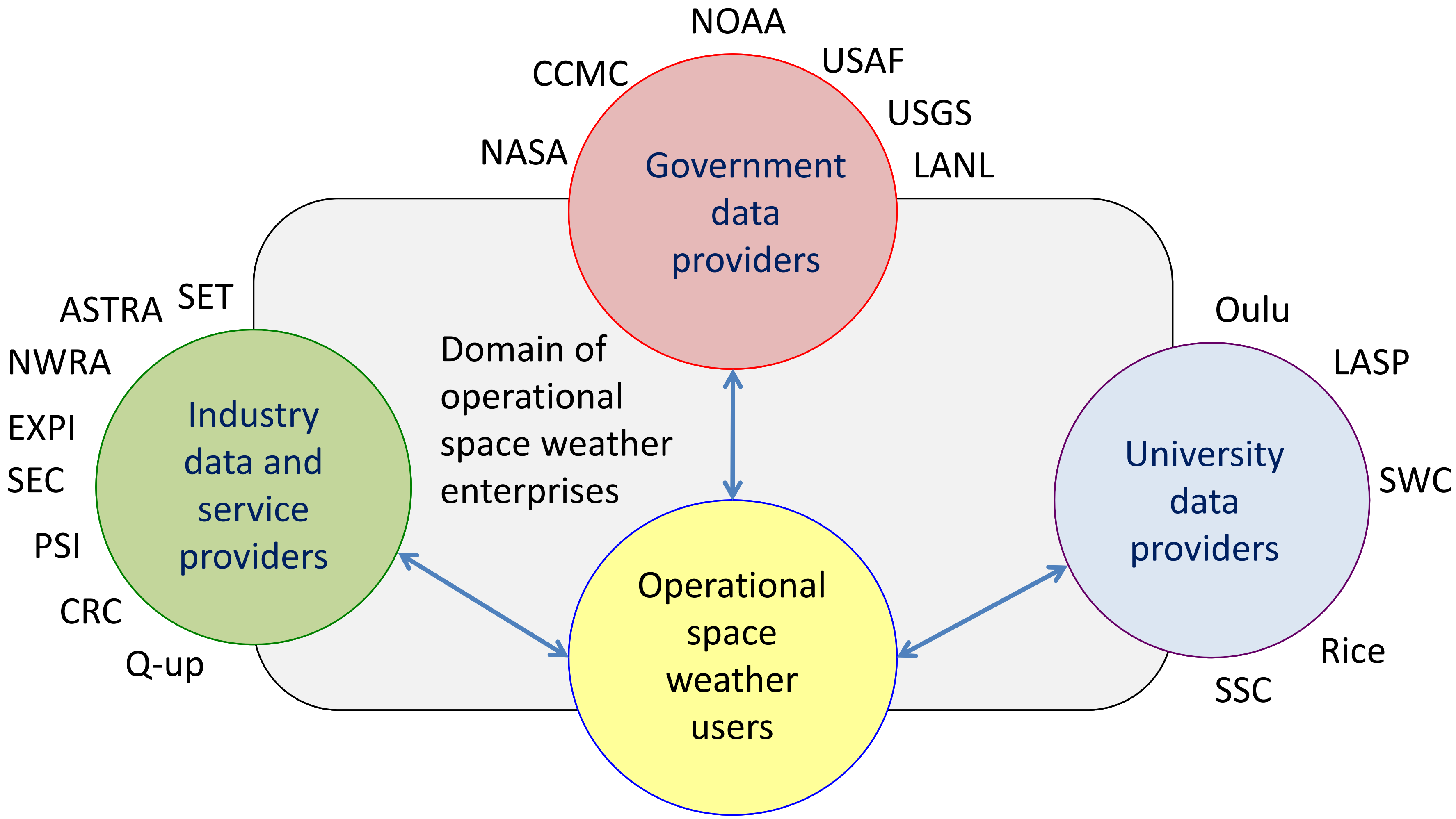
Key Terms Defined In S-102 Standards

- **mission assurance core functions -** the set of ***seven*** functions that characterize the essential elements of all successful safety, reliability, and quality assurance (SR&QA) programs
- **capability-based SR&QA process -** the set of ***five*** predefined groups of activities used to plan or evaluate a deficiency risk management effort that is commensurate with the product's unit-value/criticality and systems engineering phase
- **SR&QA assessment input data maturity –** the set of ***three*** predefined data attributes used to characterize the degree of accuracy expected of input data selected for an assessment

Problem: Major Issues And Challenges Affect DoD Acquisition Systems Engineering

- NDIA Task Force identified several issues and challenges affecting DoD Acquisition Systems Engineering (SE)
  - Key SE practices known to be effective are not consistently applied across all phases of program life cycle
  - Insufficient SE is applied early in program life cycle
  - Requirements are not always well-managed, including the effective translation from capabilities statements into executable requirements
  - Quantity and quality of SE expertise is insufficient to meet demands of the government and the defense industry
  - Collaborative environments, including SE tools, are inadequate to effectively execute SE at joint capability, system-of-systems, and system levels

Problem: Lack Of Affordable Mission Assurance Standardization Affects Space Weather Industry


NOAA
CCMC
USAF
USGS
NASA
LANL
Government data providers
ASTRA
SET
NWRA
EXPI
SEC
PSI
CRC
Q-up
Industry data and service providers
Domain of operational space weather enterprises
Oulu
LASP
SWC
University data providers
Rice
SSC
Operational space weather users

Many stakeholders compound need for accurate and timely data, and best practices

Problem: Major Issues And Challenges Affect Risk Management In Space Industry

- S-102 SWG identified several issues and challenges affecting risk management processes throughout defense and commercial industries
  - Management of project-wide programmatic risks is fragmented into two or more mutually exclusive processes
  - Lack of uniformity among risk assessment practices used by different engineering disciplines inhibits integrating identified risks and flowing them up to management for review
  - Lack of consistent and measurable evaluation criteria for key programmatic documents generated across project.
  - Lack of guidance for using qualitative likelihood scales for initial risk assessments when quantitative data are not available

Objectives: Find Practical Solutions To Identified Mission Assurance Problems

1. Define approach to authorize and consistently apply key mission assurance practices known to be effective consistently across all phases of program life cycle
2. Define approach to apply sufficient mission assurance early in program life cycle
3. Define approach to effectively manage mission assurance requirements
4. Define approach to continuously improve quantity and quality of mission assurance expertise to meet demands of military and commercial industries
5. Define standardized mission assurance practices that can be effectively and affordably executed

Objectives: Find Practical Solutions To Identified Mission Assurance Problems (Continued)

6. Collaborative with enterprises and private individuals to develop and distribute guides and standardized tools to use for performing capability-based mission assurance assessments at part, component, assembly, subsystem, system, and system-of-systems levels, and all phases of systems engineering
7. Define consistent and measurable verification criteria for key programmatic documents generated across project.
8. Define approach to unify qualitative and quantitative risk assessment practices of different program domains into a single project-wide risk management process

Approach: S-102 Standards Base SR&QA Programs On Seven Core Functions

- S-102 Standards define ***seven*** core mission assurance functions that allow contractors to consistently tailor their efforts to achieve SR&QA requirements and manage deficiency risks in a manner that is commensurate with the product's unit-value/criticality and systems engineering phase:
  - **Program Authorization:** Authorize and define the management responsibilities of each mission assurance program in accordance with an approved charter, which includes identification of the acceptance authority for each risk level. ***[Addresses Objective 1]***

Approach: S-102 Standards Base SR&QA Programs On Seven Core Functions (Cont.)

- **Requirements Definition:** Identify the applicable SR&QA design, assessment, procedural, and operational requirements. ***[Addresses Objective 3]***
- **Planning:** To meet the identified SR&QA requirements, select activities that are commensurate with (1) the product's unit-value/criticality; (2) the product's systems engineering phase; and (3) the maturity of input data available for SR&QA assessments. ***[Addresses Objective 2]***

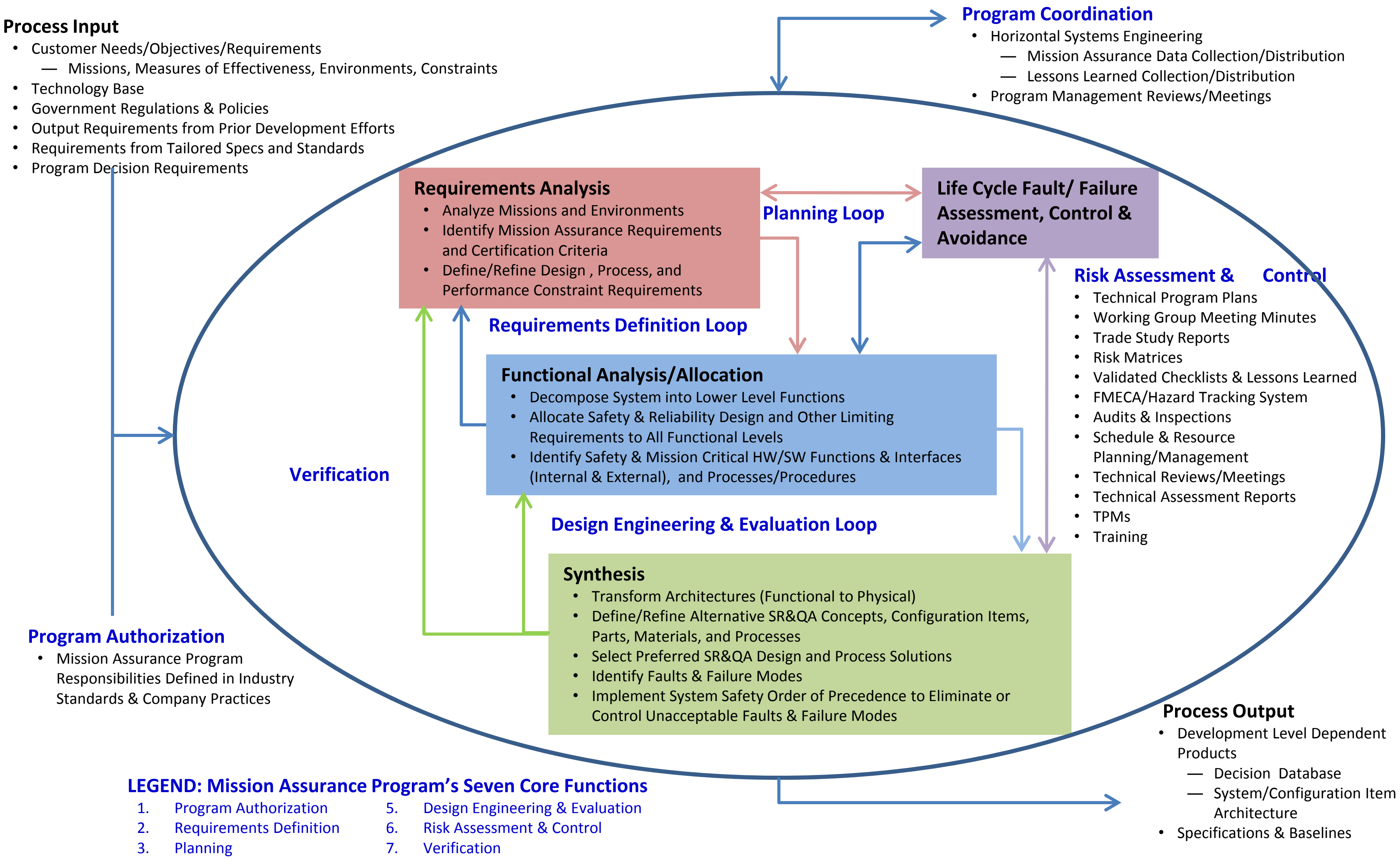
Approach: S-102 Standards Base SR&QA Programs On Seven Core Functions (Cont.)

- **Program Coordination:** Coordinate integrating SR&QA activities with the project's systems engineering process. Track SR&QA process capability level growth to ensure the increase in process capability and maturation of assessment input data coincides with the progression of the product's life cycle. ***[Addresses Objective 4]***
- **Engineering and Evaluation:** Identify existing and potential deficiencies that pose a threat to system safety or mission success throughout the product's useful life and post-mission disposal. Use validated computerized tools and checklists to the greatest extent practical to perform SR&QA assessments. ***[Addresses Objective 5]***

Approach: S-102 Standards Base SR&QA Programs On Seven Core Functions (Cont.)

- **Risk Assessment and Tracking:** Assess initial, intermediate, and final risks of each identified deficiency that affects the product's ability to achieve specific SR&QA requirements. Identify practical mitigations or controls for all unacceptable risks and track their implementation and verification. Document and categorized all approved residual risks for future reference. ***[Addresses Objective 8]***
- **Verification:** Identify and apply measurable verification criteria for SR&QA requirements. Verify that all SR&QA activities are properly planned, executed, and resourced. ***[Addresses Objective 7]***

Mission Assurance Program (MAP)
Core Functions Engine



Process Input
- Customer Needs/Objectives/Requirements
  - Missions, Measures of Effectiveness, Environments, Constraints
- Technology Base
- Government Regulations & Policies
- Output Requirements from Prior Development Efforts
- Requirements from Tailored Specs and Standards
- Program Decision Requirements

Program Coordination
- Horizontal Systems Engineering
  - Mission Assurance Data Collection/Distribution
  - Lessons Learned Collection/Distribution
- Program Management Reviews/Meetings

Requirements Analysis
- Analyze Missions and Environments
- Identify Mission Assurance Requirements and Certification Criteria
- Define/Refine Design , Process, and Performance Constraint Requirements

Planning Loop

Life Cycle Fault/ Failure Assessment, Control & Avoidance

Risk Assessment & Control
- Technical Program Plans
- Working Group Meeting Minutes
- Trade Study Reports
- Risk Matrices
- Validated Checklists & Lessons Learned
- FMECA/Hazard Tracking System
- Audits & Inspections
- Schedule & Resource Planning/Management
- Technical Reviews/Meetings
- Technical Assessment Reports
- TPMs
- Training

Requirements Definition Loop

Functional Analysis/Allocation
- Decompose System into Lower Level Functions
- Allocate Safety & Reliability Design and Other Limiting Requirements to All Functional Levels
- Identify Safety & Mission Critical HW/SW Functions & Interfaces (Internal & External), and Processes/Procedures

Verification

Design Engineering & Evaluation Loop

Synthesis
- Transform Architectures (Functional to Physical)
- Define/Refine Alternative SR&QA Concepts, Configuration Items, Parts, Materials, and Processes
- Select Preferred SR&QA Design and Process Solutions
- Identify Faults & Failure Modes
- Implement System Safety Order of Precedence to Eliminate or Control Unacceptable Faults & Failure Modes

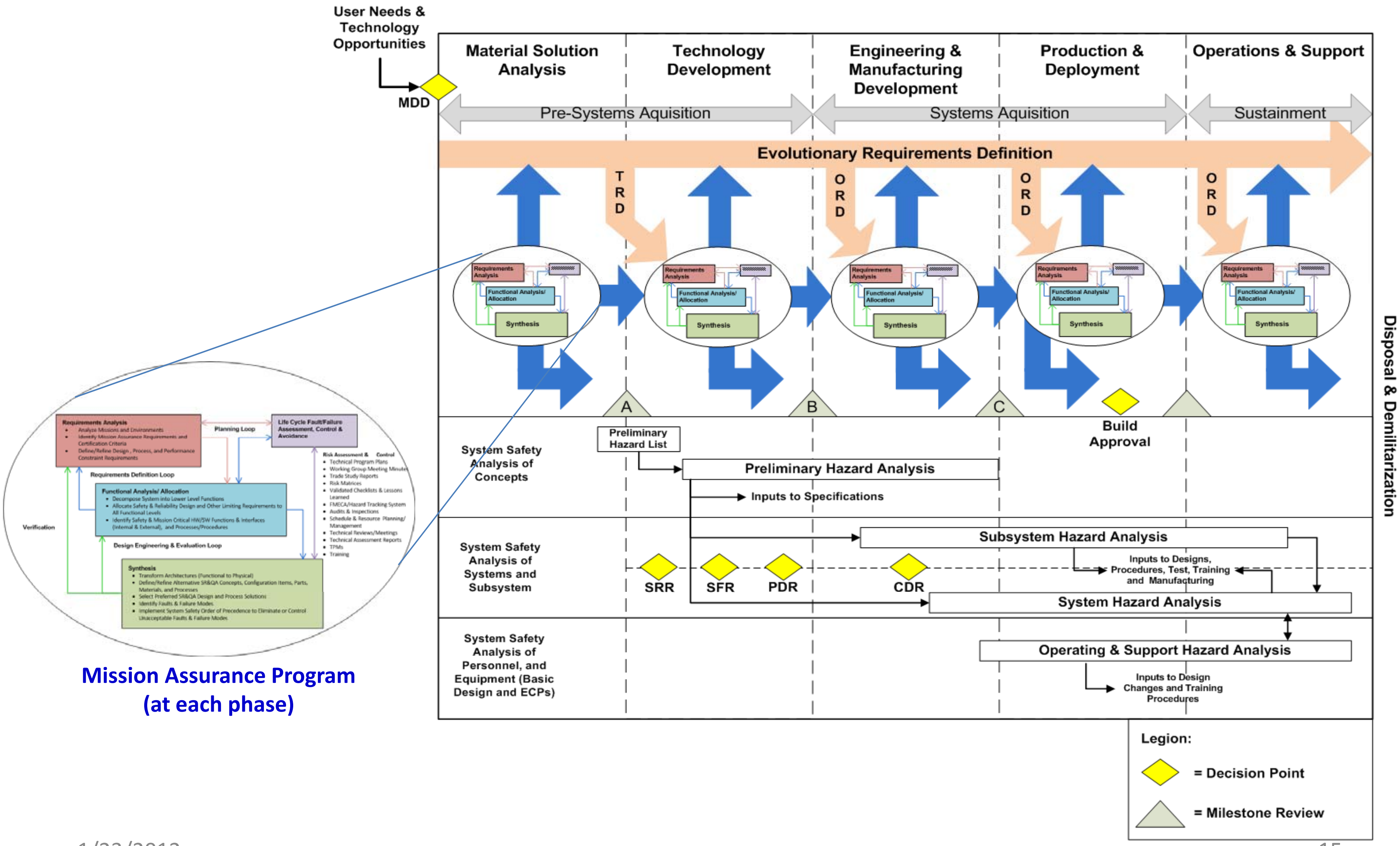
Program Authorization
- Mission Assurance Program Responsibilities Defined in Industry Standards & Company Practices

Process Output
- Development Level Dependent Products
  - Decision Database
  - System/Configuration Item Architecture
- Specifications & Baselines

LEGEND: Mission Assurance Program's Seven Core Functions

1. Program Authorization
2. Requirements Definition
3. Planning
4. Program Coordination
5. Design Engineering & Evaluation
6. Risk Assessment & Control
7. Verification

Integration Of MAP Core Functions Engines Into DOD Acquisition Systems Engineering Life Cycle


User Needs & Technology Opportunities
MDD
Material Solution Analysis
Technology Development
Engineering & Manufacturing Development
Production & Deployment
Operations & Support
Pre-Systems Aquisition
Systems Aquisition
Sustainment
Evolutionary Requirements Definition
TRD
ORD
ORD
ORD
Requirements Analysis
Functional Analysis/ Allocation
Synthesis
A
B
C
Build Approval
Disposal & Demilitarization
System Safety Analysis of Concepts
Preliminary Hazard List
Preliminary Hazard Analysis
Inputs to Specifications
System Safety Analysis of Systems and Subsystem
Subsystem Hazard Analysis
Inputs to Designs, Procedures, Test, Training and Manufacturing
SRR
SFR
PDR
CDR
System Hazard Analysis
System Safety Analysis of Personnel, and Equipment (Basic Design and ECPs)
Operating & Support Hazard Analysis
Inputs to Design Changes and Training Procedures
Legion:
= Decision Point
= Milestone Review
Requirements Analysis
Analyze Missions and Environments
Identify Mission Assurance Requirements and Certification Criteria
Define/Refine Design , Process, and Performance Constraint Requirements
Planning Loop
Life Cycle Fault/Failure Assessment, Control & Avoidance
Risk Assessment & Control
Technical Program Plans
Working Group Meeting Minutes
Trade Study Reports
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Schedule & Resource Planning/ Management
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Technical Assessment Reports
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Functional Analysis/ Allocation
Decompose System into Lower Level Functions
Allocate Safety & Reliability Design and Other Limiting Requirements to All Functional Levels
Identify Safety & Mission Critical HW/SW Functions & Interfaces (internal & External), and Processes/Procedures
Verification
Design Engineering & Evaluation Loop
Synthesis
Transform Architectures (Functional to Physical)
Define/Refine Alternative SR&QA Concepts, Configuration Items, Parts, Materials, and Processes
Select Preferred SR&QA Design and Process Solutions
Identify Faults & Failure Modes
Implement System Safety Order of Precedence to Eliminate or Control Unacceptable Faults & Failure Modes

Mission Assurance Program (at each phase)

S-102 Standards Categorize Products According To Rated Unit-Value/Criticality

Ultra-High	**Very-High**	**High**	**Medium**	**Low**
• Defense satellites • Launch vehicles • Long-range missiles • Nuclear weapons • Nuclear power plants	• Commercial/ communications satellites • Fossil fuel/hydro-electric power plants • Water filtration plants • Short-range missiles/rockets • Passenger aircraft/ helicopters • Military aircraft/ helicopters • Military drones/ unmanned vehicles • Naval vessels • Passenger trains •*Safety-critical equip/software*	• Experimental satellites • Oil tankers • Freighters • Mobile/ mechanized weapons • Freight trains • *Mission-critical equip/software*	• Automobiles/ trucks/ motorcycles • Industrial electronics • Computer servers • Farm equip • Medical/ laboratory equip • Factory machinery • *Test equip/software* • Mobil construction/ demolition equip • Small private aircraft/helicopters • Communications/ utility equip • Amusement park rides • Elevators/ escalators	• Motorized/ manual hand tools • Fire arms • Explosive devices • Consumer electronics • Personal computers • Household appliances • Battery operated toys • Infant/ children toys

- **NOTE: Mission Assurance Program (MAP) capability level should correspond to category of rated product unit-value/criticality**

S-102 Standards Categorize SR&QA Processes According To Five Capability Levels

- The activities of a SR&QA process are grouped according to ***five*** increasing levels of capability
  - **Capability Level 1 process is comprised of “basic” set of activities that represent *the minimum effort required to identify and control specific risks for a low unit-value/criticality product***
  - **Capability Level 2 process includes all the Level 1 activities plus additional activities that represent *the minimum effort required to identify and control specific risks for a medium unit-value/criticality product***
  - **Capability Level 3 process includes all the Level 1 and 2 activities plus additional activities that represent *the minimum effort required to identify and control specific risks for a high unit-value/criticality product***
  - **Capability Level 4 process includes all the Level 1, 2 and 3 activities plus additional activities that represent *the minimum effort required to control specific risks for a very-high unit-value/criticality product***
  - **Capability Level 5 process includes all the Level 1, 2, 3 and 4 activities plus additional activities that represent *the minimum effort required to control specific risks for a ultra-high unit-value/criticality product***

Example Process Capability Level Categories

- Task capability levels are based on groups of activities which address a level of risk that is commensurate with the unit-value of the product

Capability Level 1 Software Component Reliability Prediction Process

Level 1

- **Identify SW Design Requirements**
- **Develop SW Functional Models**
- **Evaluate SW FRACAS Data**
- **Apply SW Design Rules**
- **Identify SW Generic Failure Modes**
- **Qualify SW Reliability at Delivery**
- **Prepare SW Reliability Predictions Report**

Example Process Capability Level Categories

- Task capability levels are based on groups of activities which address a level of risk that is commensurate with the unit-value of the product

Capability Level 2 Software Component Reliability Prediction Process

Level 2

- **Identify SW Tech Performance Metrics**
- **Develop SW Reliability Predictions Plan**
- **Identify SW Application Specific Failure Modes**
- **Perform Handbook Based SW Reliability Predictions**
- **Plus Include All Level 1 Activities**
- **Identify SW Design Requirements**
- **Develop SW Functional Models**
- **Evaluate SW FRACAS Data**
- **Apply SW Design Rules**
- **Identify SW Generic Failure Modes**
- **Qualify SW Reliability at Delivery**
- **Prepare SW Reliability Predictions Report**

Example Process Capability Level Categories

- Task capability levels are based on groups of activities which address a level of risk that is commensurate with the unit-value of the product

Capability Level 3 Software Component Reliability Prediction Process

<u>Level 3</u>

- ***Identify SW Mission-Critical Failure Modes***
- **Perform Point-Estimate Based SW Reliability Predictions**
- **Develop SW Reliability Database**
- **Review Existing SW Reliability Lessons Learned**
- **Identify New SW Reliability Lessons Learned**
- **Plus Include All Levels 1 & 2 Activities**
- **Identify SW Tech Performance Metrics**
- **Develop SW Reliability Predictions Plan**
- **Identify SW Application Specific Failure Modes**
- **Perform Handbook Based SW Reliability Predictions**
- **Identify SW Design Requirements**
- **Develop SW Functional Models**
- **Evaluate SW FRACAS Data**
- **Apply SW Design Rules**
- **Identify SW Generic Failure Modes**
- **Qualify SW Reliability at Delivery**
- **Prepare SW Reliability Predictions Report**

Example Process Capability Level Categories

- Task capability levels are based on groups of activities which address a level of risk that is commensurate with the unit-value of the product

Capability Level 4 Software Component Reliability Prediction Process

Level 4

- ***Identify SW Fault Root Cause Sources In Development Process***
- ***Identify SW Safety-Critical Failure Modes***
- **Perform Confidence-Bound Based SW Reliability Predictions**
- **Use Standardized Data Formats For SW Reliability Database**
- **Evaluate Prediction Data Maturity**
- **Survey Users of SW Reliability Predictions**
- **Exchange SW Reliability Lessons Learned Across Enterprise**
- **Plus Include All Levels 1, 2 & 3 Activities**

- **Identify SW Mission-Critical Failure Modes**
- **Perform Point-Estimate Based SW Reliability Predictions**
- **Develop SW Reliability Database**
- **Review Existing SW Reliability Lessons Learned**
- **Identify New SW Reliability Lessons Learned**

- **Identify SW Tech Performance Metrics**
- **Develop SW Reliability Predictions Plan**
- **Identify SW Application Specific Failure Modes**
- **Perform Handbook Based SW Reliability Predictions**

- **Identify SW Design Requirements**
- **Develop SW Functional Models**
- **Evaluate SW FRACAS Data**
- **Apply SW Design Rules**
- **Identify SW Generic Failure Modes**
- **Qualify SW Reliability at Delivery**
- **Prepare SW Reliability Predictions Report**

Example Process Capability Level Categories

- Task capability levels are based on groups of activities which address a level of risk that is commensurate with the unit-value of the product

Capability Level 5 Software Component Reliability Prediction Process

Level 5

- **Periodically Conduct Peer Reviews and Use Checklists to Evaluate and Continuously Improve SW Reliability Prediction Process**
- ***Perform at Least 90% Lower Bound Confidence SW Reliability Predictions***
- **Share SW Reliability Prediction Lessons Learned with Other Enterprises**
- **Plus Include All Levels 1, 2, 3 & 4 activities**
- **Identify SW Fault Root Cause Sources In Development Process**
- **Identify SW Safety-Critical Failure Modes**
- **Perform Confidence-Bound Based SW Reliability Predictions**
- **Use Standardized Data Formats For SW Reliability Database**
- **Evaluate Prediction Data Maturity**
- **Survey Users of SW Reliability Predictions**
- **Exchange SW Reliability Lessons Learned Across Enterprise**
- **Identify SW Mission-Critical Failure Modes**
- **Perform Point-Estimate Based SW Reliability Predictions**
- **Develop SW Reliability Database**
- **Review Existing SW Reliability Lessons Learned**
- **Identify New SW Reliability Lessons Learned**
- **Identify SW Tech Performance Metrics**
- **Develop SW Reliability Predictions Plan**
- **Identify SW Application Specific Failure Modes**
- **Perform Handbook Based SW Reliability Predictions**
- **Identify SW Design Requirements**
- **Develop SW Functional Models**
- **Evaluate SW FRACAS Data**
- **Apply SW Design Rules**
- **Identify SW Generic Failure Modes**
- **Qualify SW Reliability at Delivery**
- **Prepare SW Reliability Predictions Report**

Example Capability-Based SW Component Reliability Predictions In Different Systems Engineering Phases

S-102.2.15	**Product Life Cycle Phase**				
Product Unit Value	Conceptual Design Phase	Preliminary Design Phase	Detailed Design Phase	Fabrication, Assembly, Integration and Test	Delivered Product Operation & Service
Low Unit-Value					
Medium Unit-Value	Capability Level 1 Activities	Capability Level 2 Activities	Capability Level 2 Activities	Capability Level 2 Activities	Capability Level 2 Activities (*)
High Unit-Value	Capability Level 1 Activities	Capability Level 2 Activities	Capability Level 3 Activities	Capability Level 3 Activities	Capability Level 3 Activities (*)
Very-High Unit-Value	Capability Level 1 Activities	Capability Level 2 Activities	Capability Level 4 Activities	Capability Level 4 Activities	Capability Level 4 Activities (*)
Ultra-High Unit-Value	Capability Level 1 Activities	Capability Level 2 Activities	Capability Level 4 Activities	Capability Level 5 Activities	Capability Level 5 Activities (*)

(*) indicates process capability level activities only apply to changes during this product life cycle phase.

S-102 Standards Categorize SR&QA Assessment Input Data According To Three Maturity Levels

- S-102 Standards define ***three*** categories of predefined data attributes to characterize the expected degree of accuracy, i.e. maturity level, of SR&QA assessment input data
- ***Maturity Level 1 input data*** has low accuracy, e.g. 10 % to 40% lower bound confidence, and may be appropriate for ***low unit-value/criticality assessments***
- ***Maturity Level 2 input data*** has medium accuracy, e.g. 40% to 70% lower bound confidence, and may be appropriate for ***medium and high unit-value/criticality assessments***
- ***Maturity Level 3 input data*** has high accuracy, e.g. 70% to 99% lower bound confidence, and may be appropriate for ***very-high and ultra-high unit-value/criticality assessments***

Example Input Data Maturity Level Categories

- Maturity level of hazard rate prediction input data is categorized 1, 2, or 3, depending on whether the expected degree of accuracy is low, medium, or high

Hazard Rate Prediction Input Data Maturity Level Categories

Maturity Level 3	Maturity Level 2	Maturity Level 1
Discrete Field or Test Data • Field or test failure data and operating times are used to derive statistical models, which in turn, are used to estimate hazard rates • High accuracy	***Stress & Damage Simulation Time-To-Failure Modeling Data*** • Field or test failure mode data, operating or test times, geometry data, materials properties data, and physics-of-failure data are used to derive stress models, which in turn, are used to estimate times-to-failure • Medium accuracy	***Handbook Failure Rate Data*** • Field or test failure mode data, and operating or test times are used to calculate an average failure rate, or derive stress-based models, which in turn, are used to estimate constant failure rates • Low accuracy

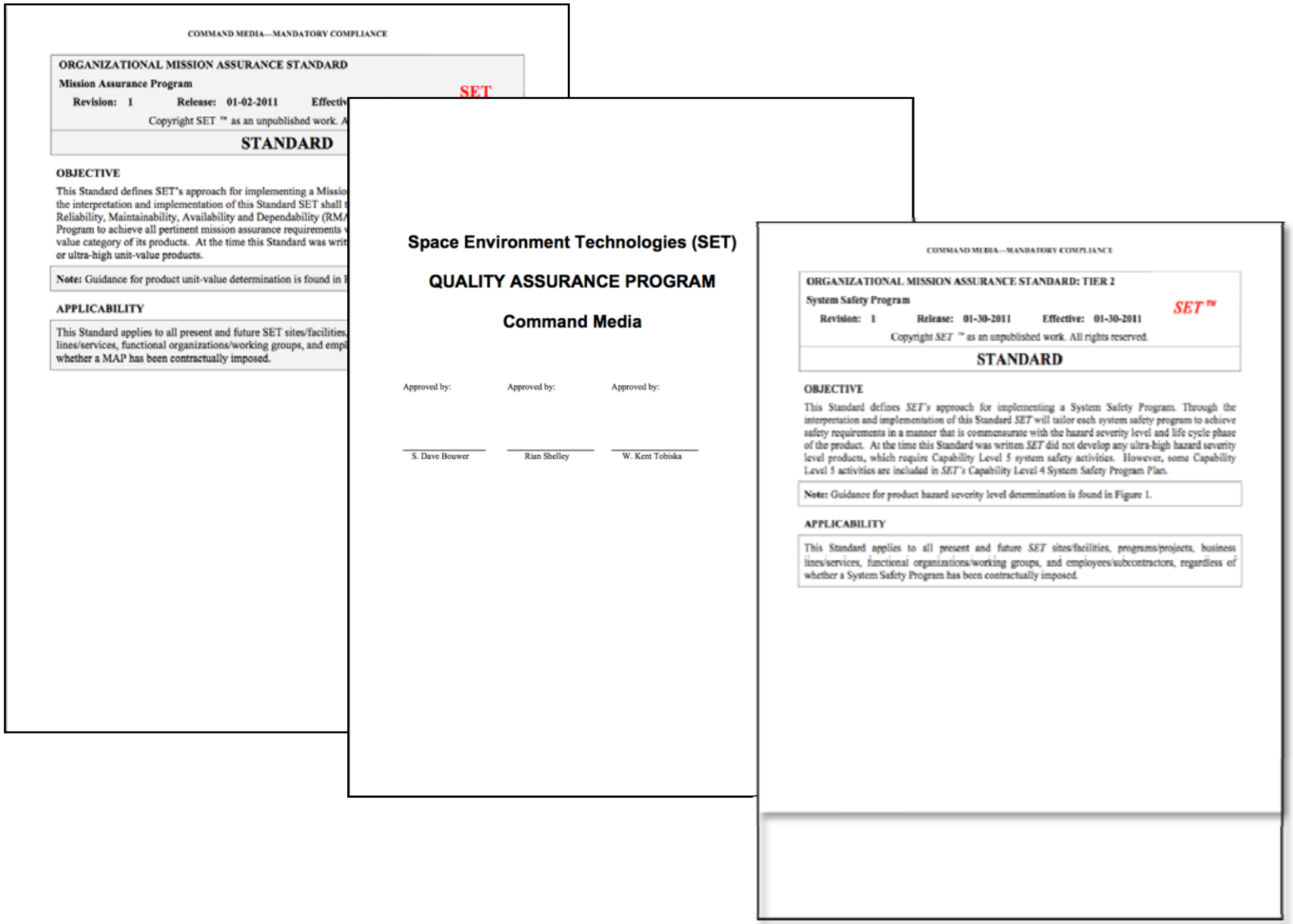
Which Objective Has Not Been Addressed At This Point?

- Objective 6 goes beyond S-102 Mission Assurance Standards:

  Collaborative with enterprises and private individuals to develop and distribute guides and standardized tools to use for performing capability-based mission assurance assessments at part, component, assembly, subsystem, system, and system-of-systems levels, and all phases of systems engineering

S-102 MASWG Has Partnered With A Small Company To Help Develop Its Internal Mission Assurance Guides

Space Environment Technologies Corporate Standards for Space Weather Operations Mission Assurance



COMMAND MEDIA—MANDATORY COMPLIANCE

ORGANIZATIONAL MISSION ASSURANCE STANDARD

Mission Assurance Program

Revision: 1 **Release: 01-02-2011** **Effectiv**

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SET

STANDARD

OBJECTIVE

This Standard defines SET's approach for implementing a Missio
the interpretation and implementation of this Standard SET shall t
Reliability, Maintainability, Availability and Dependability (RMA
Program to achieve all pertinent mission assurance requirements v
value category of its products. At the time this Standard was writ
or ultra-high unit-value products.

Note: Guidance for product unit-value determination is found in F

APPLICABILITY

This Standard applies to all present and future SET sites/facilities,
lines/services, functional organizations/working groups, and empl
whether a MAP has been contractually imposed.

Space Environment Technologies (SET)

QUALITY ASSURANCE PROGRAM

Command Media

Approved by: Approved by: Approved by:

S. Dave Bouwer Rian Shelley W. Kent Tobiska

COMMAND MEDIA—MANDATORY COMPLIANCE

ORGANIZATIONAL MISSION ASSURANCE STANDARD: TIER 2

System Safety Program

Revision: 1 **Release: 01-30-2011** **Effective: 01-30-2011**

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SET ™

STANDARD

OBJECTIVE

This Standard defines *SET's* approach for implementing a System Safety Program. Through the interpretation and implementation of this Standard *SET* will tailor each system safety program to achieve safety requirements in a manner that is commensurate with the hazard severity level and life cycle phase of the product. At the time this Standard was written *SET* did not develop any ultra-high hazard severity level products, which require Capability Level 5 system safety activities. However, some Capability Level 5 activities are included in *SET's* Capability Level 4 System Safety Program Plan.

Note: Guidance for product hazard severity level determination is found in Figure 1.

APPLICABILITY

This Standard applies to all present and future *SET* sites/facilities, programs/projects, business lines/services, functional organizations/working groups, and employees/subcontractors, regardless of whether a System Safety Program has been contractually imposed.

http://spacewx.com Standards Link

S-102 MASWG Is Coordinating Development Of Standardized Tools For Mission Assurance

- Standardized tools are computerized tools that can exchange data with other types of computerized tools that comply with a specified electronic data format
- Validated standardized tools enhance cost-effectiveness, timeliness, and accuracy of SR&QA assessments
- S-102 MASWG is coordinating development of Open Source standardized tools whose inputs and outputs comply with Data Element Definition (DED) formats specified in S-102 Standards
- The first S-102 DED compliant standardized tool is called *The Reliability Modeling Buddy®* , which is expected to be released soon for free beta testing

For expected release date send email to:
jacksont@simanima.com

Tips On Understanding S-102 Standards

7 mission assurance core functions characterize the essential elements of all successful safety, reliability, and quality assurance (SR&QA) programs

5 capability-based SR&QA process levels are use to plan or evaluate a deficiency risk management effort that is commensurate with the product's unit-value/criticality and systems engineering phase.

3 input data maturity levels are used to characterize the degree of expected accuracy of input data selected for an SR&QA assessment

Conclusions

- This briefing introduced new mission assurance concepts that address major issues and challenges that affect DoD Acquisition Systems Engineering and Risk Management in the Space Industry
- S-102 Capability-based Mission Assurance Standards allow contractors to consistently tailor their efforts to achieve SR&QA requirements and manage deficiency risks in a manner that is commensurate with the product's unit-value/criticality and systems engineering phase
- S-102 MASWG is assisting and mentoring a small company to develop internal capability-based mission assurance guides