



NASA/Goddard Space Flight Center Supply Chain Management Program

Michael P. Kelly

NASA/GSFC Safety and Mission Assurance Directorate

Michael.P.Kelly@nasa.gov (301) 286-0662

**Presentation to
Conference on Quality in the Space and Defense Industries
(CQSDI)**

Emerging Quality Threats in the Supply Chain

March 16, 2010





What We Do

- Conduct independent assessments of suppliers to mission programs/projects
 - Assess conformance with contractual requirements and quality management standards (ISO 9000 and AS9100)
 - Report and share assessment findings within NASA
 - Monitor corrective actions / improvements to enable and support the provision of quality products and services
- Engage the Supplier / GSFC / NASA communities via the Goddard annual Supply Chain conference, NAMT / JAPC
 - Share best practices and knowledge; address challenges and opportunities
- Build teamwork and collaboration to foster value-added results

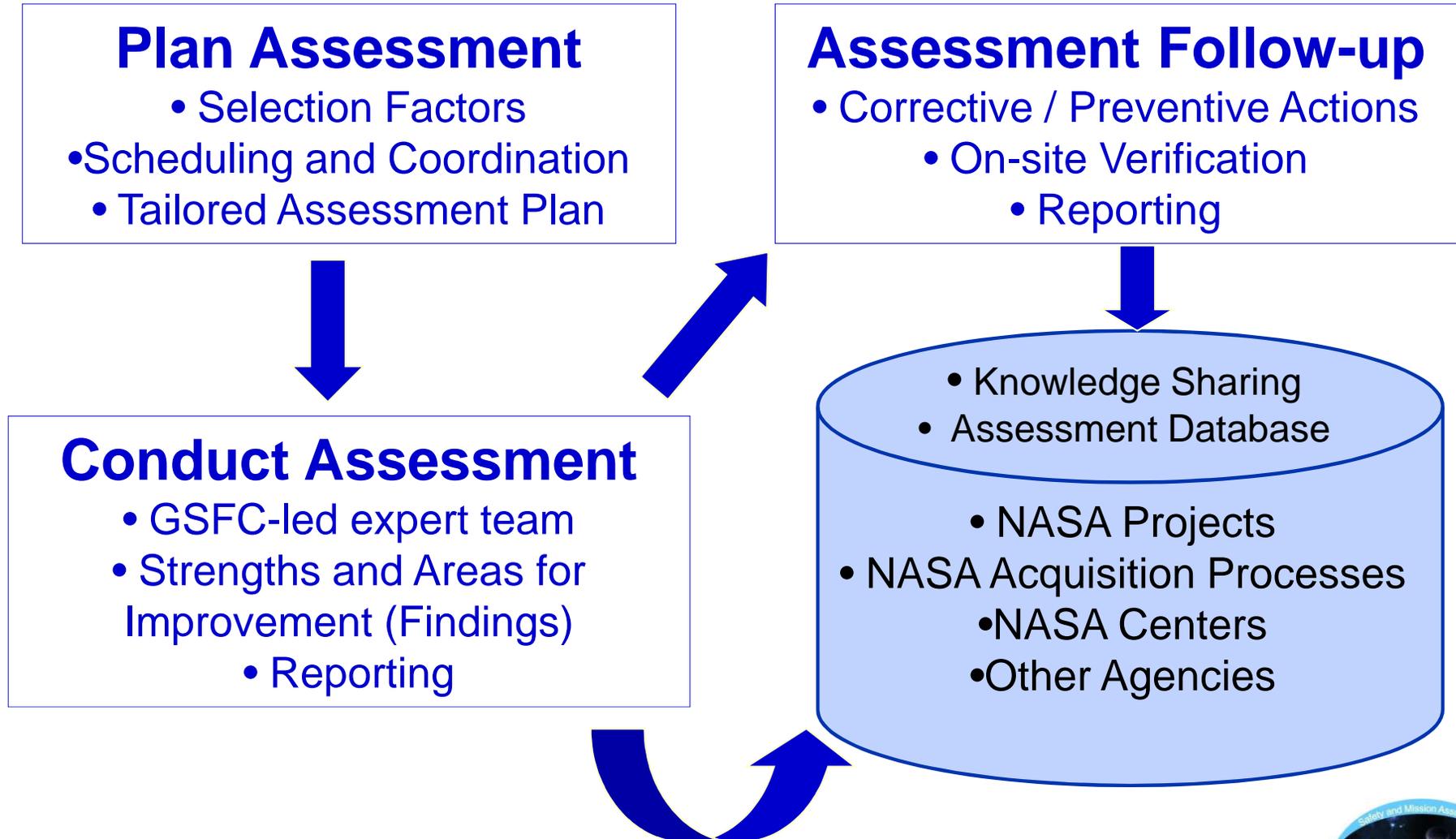
**Assuring Mission Success is
Our Driving Focus!**





Process Overview

GSFC Supplier Assessments





Sample Assessment Plan “items to be reviewed”

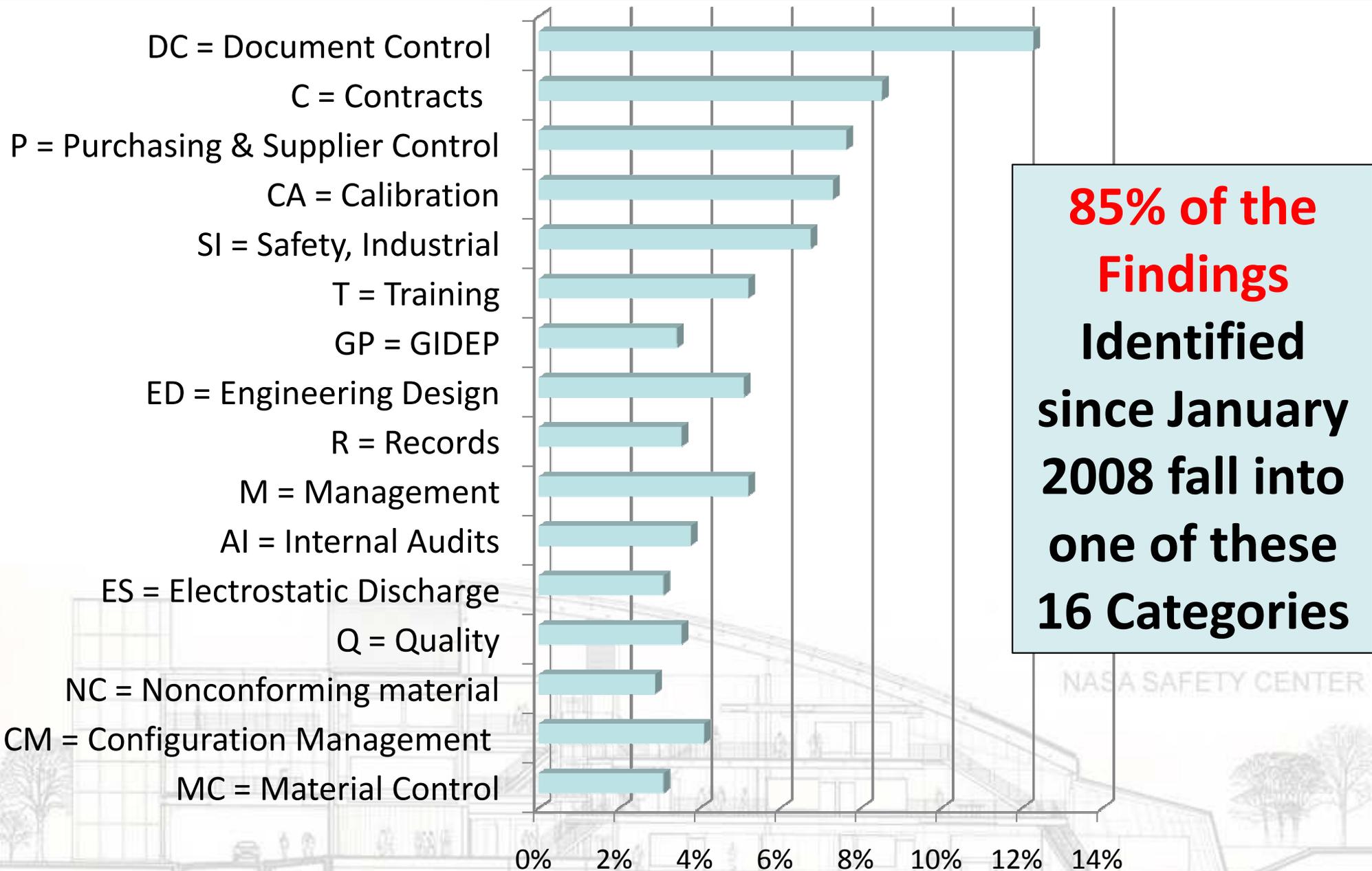
The following list provides an outline of “some” of the topics the assessment team will review:

- **Flowdown of contractual requirements**
- **Receiving inspection**
- **Configuration Management / Change Control**
- **Nonconforming product control**
- **Rework and repair processes**
- **Parts sampling, selection, and traceability**
- **Training and Certification of operators/ inspectors/disposition authorities/testers**
- **Process documentation adequacy (work orders, shop aids, drawings, etc.)**
- **Document control**
- **Workmanship and inspection**
- **Travelers, routers and configuration recording**
- **Packaging**
- **Scrap control**
- **Handling**
- **Acceptance Data Packages**
- **Problem Reporting System**
- **Internal Audit**
- **Calibration**
- **GFE**
- **Industrial Safety**
- **System Safety**
- **GIDEP**



Percentage of Findings

January 2008 - YTD

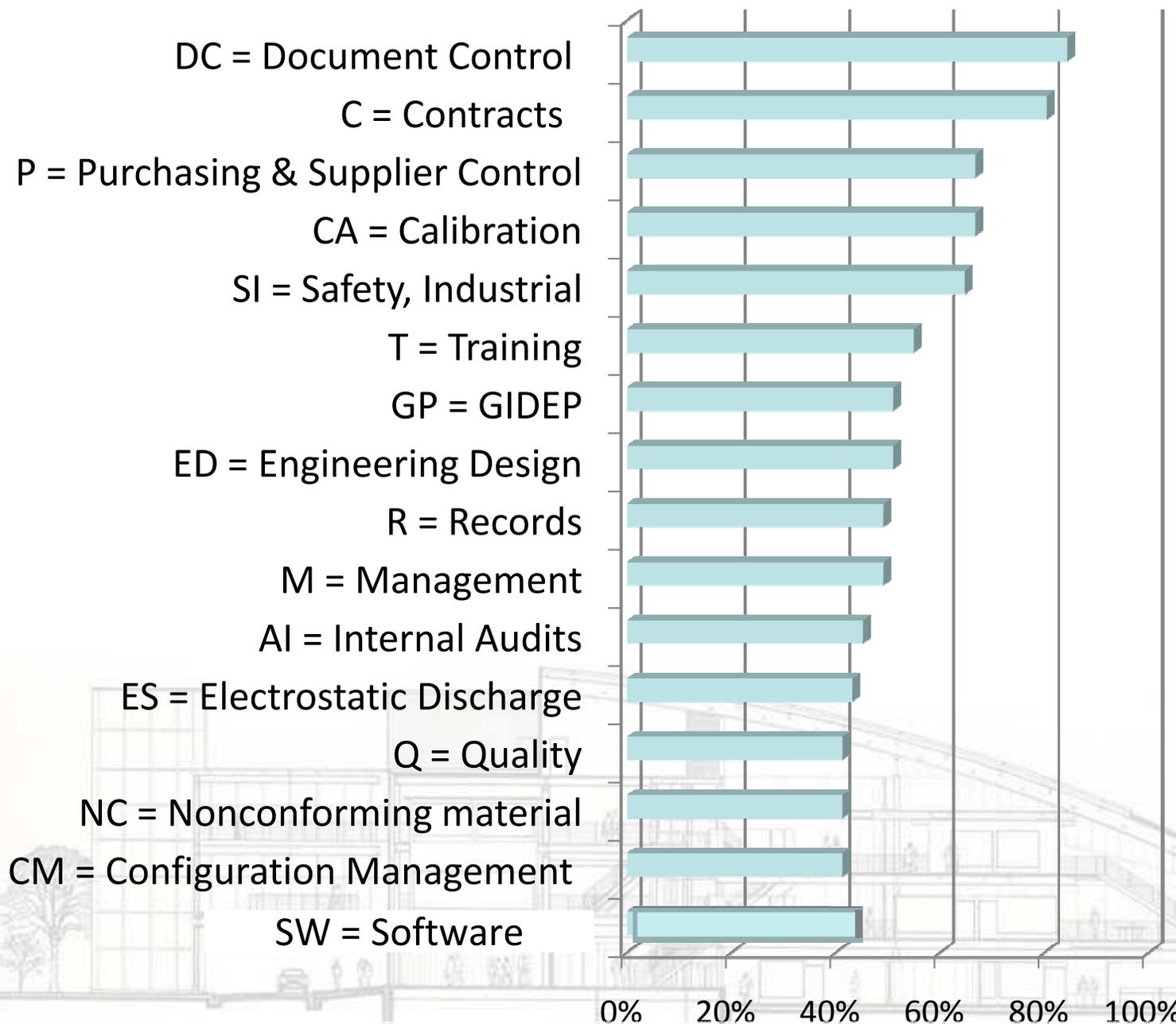


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Top 16 Problem Areas

January 2008 – YTD



Percentage of Assessments With These Categories of Findings

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Specific Issues with Top Problem Areas



- **Document Control** – Not following procedures, obsolete references, procedure does not reflect what is actually being done
- **Contracts** – Flow down of contractual requirements within the organization not adequately managed
- **Procurement** – Management of the Purchasing Process, and issues with Purchasing Information
- **Calibration** – Variety of errors based on lack of understanding and following the appropriate calibration standard
- **Industrial Safety** – Personal Protective Equipment (PPE), facility/equipment maintenance
- **Training** – Not to contractual requirements, Records availability/maintenance
- **GIDEP / NASA Advisories** – Unable to identify GIDEP Alerts and NASA Advisories are not received or communicated internally
- **Engineering Design** – ECO & Waiver Processing Problems, Design Change flow-down lacking, Documentation Errors
- **Records** – Inappropriate corrections, forms not being completed, required maintenance/controls not known or understood

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Root Cause



The greatest majority of these problems stem from:

- The organization not understanding what industry or customer specifications requirements apply to their “Normal System” in order to assure compliance.
- Lack of an easily understood and executed methodology for communicating customer requirements to the various disciplines within the organization and to their supplier’s.
- Failure to work with your customer to adequately resolve any “fuzzy” requirements.

You may want to look at the results of your customer and/or internal audits and determine if you have similar issues. The following are suggestions that NASA/GSFC has found to be successful in recently assessed supplier organizations. Perhaps these suggestions may be of benefit to your organization/infrastructure/culture.



Document Control



Common Issues:

- Not following procedures,
- Obsolete references,
- Procedures do not reflect what is actually being done



Compliant organizations often:

1. Developed a Matrix of procedural and specification references so when either changes you can easily identify if there is an impact that requires attention.
2. Create a “Great Catch Culture” where people are encouraged to and recognized when they identify procedures, work instructions or other documents that don’t accurately reflect what is required to be done.



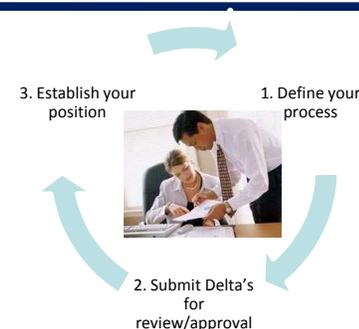
Contract Review



Common Issues: Flowdown of contractual requirements within the organization not adequately managed

Compliant organizations often:

1. Define a process for the identification of industry and customer specifications (including revisions) which their Quality Management System is required to comply with.
2. Utilize a master template to ensure that all contract requirements are reviewed, understood, and communicated within the organization.
 - This same template is updated as contract changes are made throughout the life of the program.
 - Manage compliance implementation like a project, complete with due dates and actions that are required to assure compliance with new requirements.
 - Audit for customer contractual compliance.
3. Review contract and customer specifications and compare them against what the organization has in place. Document the company's compliance profile in a matrix and ensure this is communicated.
 - Identify gaps and establish a company position that can be used for future contract reviews, i.e. either take a formal exception or bring their system into compliance.
 - Audit internal procedures to ensure on-going contractual compliance.





Procurement



Common Issue: Management of the Purchasing Process, and issues with Purchasing Information

Compliant organizations often:

1. Are on direct distribution for contract review so they know the requirements of each contract.
2. Have a documented process in place for review, approval and how changes to purchase orders are amended and changes communicated.
3. Maintain an accurate approved supplier list which includes scope of approval. There is a documented process for how a supplier is approved/disapproved.
4. Have a supplier oversight process (audit) and rating system with thresholds that initiate action.
5. Ensure that there is a process in place for receiving inspection that minimizes risk to the organization and to the customer for accepting non-compliant product.





Conclusion



- **NASA/Goddard is committed to the Supplier Assessment Program by:**
 - (1) Supporting GSFC Projects to ensure suppliers are aware of and are following Contractual Requirements
 - (2) Providing Suppliers an “independent” assessment of their processes so they can continually improve
 - (3) Providing Supplier’s Safety and Mission Assurance Organization with some additional leverage to make change within their organization
 - (4) Improving the overall Supplier Base for the entire Aerospace Industry
- ***To the Supplier Community:*** If your company is interested in Continuous Improvement, does work with NASA/Goddard, and is interested in building a positive relationship with our Center, then let us know and we can discuss our future.
- ***To other NASA Centers and Federal Agencies:*** If you are interested in teaming with NASA/GSFC on any assessments, then let us know and we can forge some new relationships.

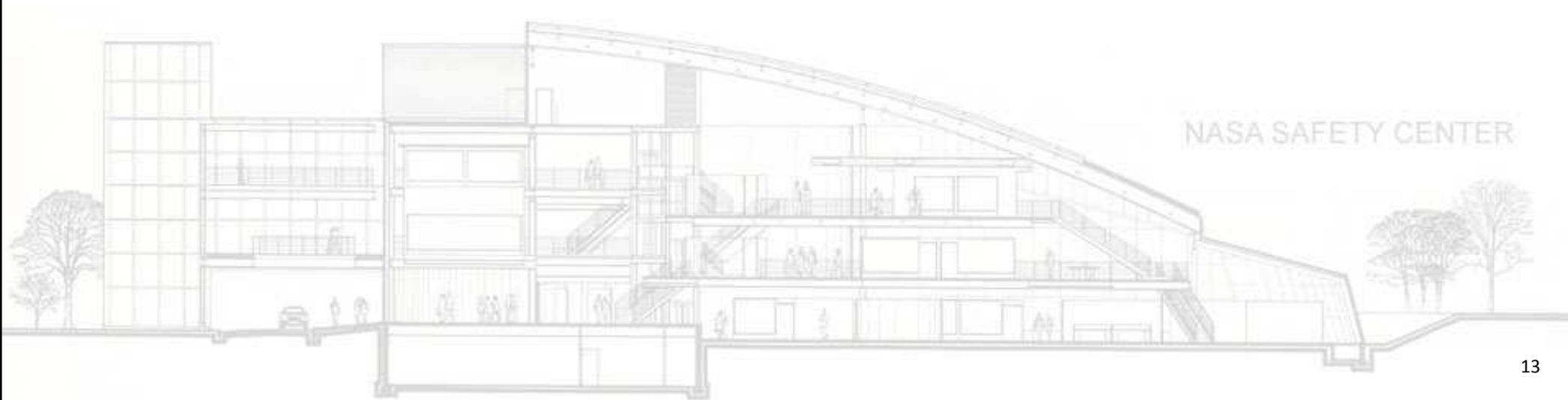


Outreach



Three Outreach Opportunities by NASA/Goddard:

- 1. Summary data of all Non-compliances and Observations from NASA/GSFC Assessments**
- 2. Safety and Mission Assurance Directorate Overview**
- 3. Supply Chain Conference 2010**





Summary Data from NASA/Goddard Assessments



- A Noncompliance or Observation is written during an assessment. We summarize the write-up in a “one-liner” description on the assessment card.

Details of the Finding

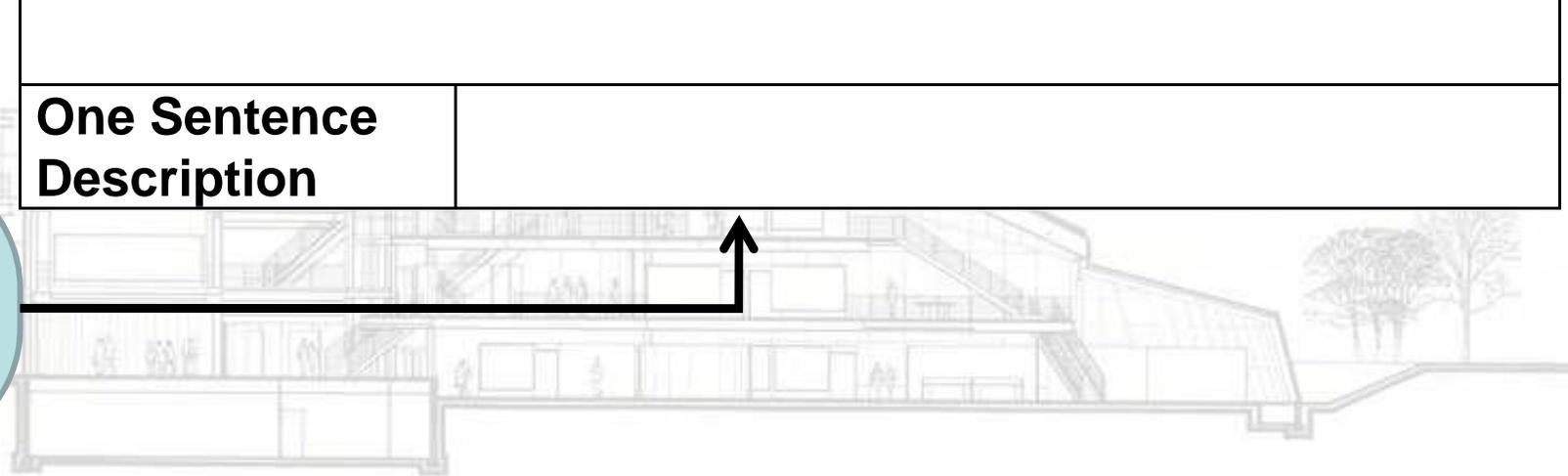
Description

Requirement: standard or internal document, paragraph, description

Description: describe in sufficient detail the non-compliance or observation, include objective evidence

One Sentence Description

Summary of the card written





Noncompliance & Observation Summary

“One Liners” for Document Control



Procedure released without correct reference to associated form and procedure titles are inconsistent.
A contracted employee created his own document control system for his use of TDRS documents on the TDRS server.
Supplier does not have any of the industry specifications listed in the LDCM OLI process specification for dip soldering.
The Software Quality Reporting Work Instruction and Procedure does not clearly identify who is responsible for the control and reporting of the software assurance.
Obsolete specifications are listed in both Supplier's MAP and Supplier's Program Implementation and Product Assurance Plan.
Non-existent procedures listed in the JWST Quality Program Plan
There is no linkage from the Quality Manual or document control procedures to the Configuration Management Procedure.
Supplier is using a new system to manage the training needs of their personnel (MyLearning); however, it conflicts with released procedure that requires the use of "Training Tracker".
The templates being used to aid the GIDEP documentation are not under document control nor are the use of these templates documented to assure a consistent methodology.
Supplier does not have a released Corrective Action and Preventive Action procedure and two (2) others required by ISO 9001. [repeat from FEB 2004]
Supplier stated they updated a procedure, when in fact it was not updated.
Supplier committed to have 6 common procedures for the 3 sites, but have not defined which procedures nor is there a plan for completion.
Uncontrolled version of Command Media on the shop floor.

The Document Control One-Liners and other categories are available on the GSFC Safety and Mission Assurance web site:

<http://sma.gsfc.nasa.gov/iso/index.php>



You Are Invited!!!

GSFC Safety and Mission Assurance Directorate (SMA-D) Overview presentation is scheduled for May 19, beginning at 9 a.m., at GSFC in Bldg. 26, Room 205.

- This 8-hour presentation was originally intended for new Directorate employees to familiarize them with the inner workings of Code 300 and how we interface with other organizations.
- It has been made available to anyone who needs/wants insight as to what SMA-D does for the Center and the Agency.
- Please contact Catherine Bower to register at (301) 286-2405 or

catherine.e.bower@nasa.gov
- The agenda and charts from the last Overview in January 2010 may be viewed
at: <http://sma.gsfc.nasa.gov/>

under the “Quick Links“.
- Updated versions of presentations and the May 2010 agenda will be posted prior to the Overview.





Supply Chain 2009 *Supply Chain Management*

3rd Annual NASA Supply Chain Quality Assurance Conference
October 14 -16, 2009 @ NASA's Goddard Space Flight Center

- Successful conference focused on *Managing Mission Success*
 - 16 topics and 25 speakers/panelists plus tour of Goddard facilities
- Increased turnout of 192 leaders and practitioners (vs. prior year attendance of 165) from aerospace industry, suppliers, NASA (GSFC, WFF, DFRC, JPL, JSC, HQ) and DCMA
- Highly positive feedback, such as:
 - “This conference was excellent. I will go back to my plant motivated.”
 - “Great networking opportunities.”
 - “This was my first supplier conference. I am very much impressed.”
 - “I appreciate the opportunity to see this broad variety of companies, organizations, cultures, and quality systems – very good atmosphere!”
 - “Fantastic collection of speakers from NASA & industry. Thank you for bringing them to us!”
- Conference presentations available at <http://supplychain.gsfc.nasa.gov/agenda.php>
- Hosted by the Institutional Support Office, Safety and Mission Assurance Directorate, GSFC





Mark Your Calendars

Supply Chain 2010

4th Annual

NASA Supply Chain Quality Assurance Conference

September 21-24, 2010

Goddard Space Flight Center (GSFC)

Greenbelt, MD

**Hosted by the Institutional Support Office, Safety and Mission
Assurance Directorate, Goddard Space Flight Center**

<http://supplychain.gsfc.nasa.gov>

Safety and Mission Assurance Directorate, Goddard Flight Center





THANK YOU

TOGETHER WE CAN AND WILL CONTINUE TO SUPPORT SUCCESSFUL NASA MISSIONS

