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Corrective Action Webinar

Topic 5 - Containment Expectations

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Agenda

- **Webinars 1 – 4 Summaries**
- **Webinar 5 Objectives**
- **Definitions/Requirements**
- **Containment Expectations of the Supplier**
- **Containment Activities at LM Aero**
- **Reference Documentation**
- **Summary**
- **Q&A**

Summary of Previous Webinars:
Corrective Action: Command Media Expectations

- **Webinar 1: Command Media Expectations**
  - Documentation defining the Corrective Action System
- **Webinar 2: CA Internal Procedures and Expectations**
  - Identification of Aero Codes, Standards, and Tools
- **Webinar 3: CAR Levels & Criteria**
  - Detail for the selection of the appropriate CAR Level
- **Webinar 4: CAR Writing**
  - Defined the information required when writing a CAR

Webinar 5: Containment Execution

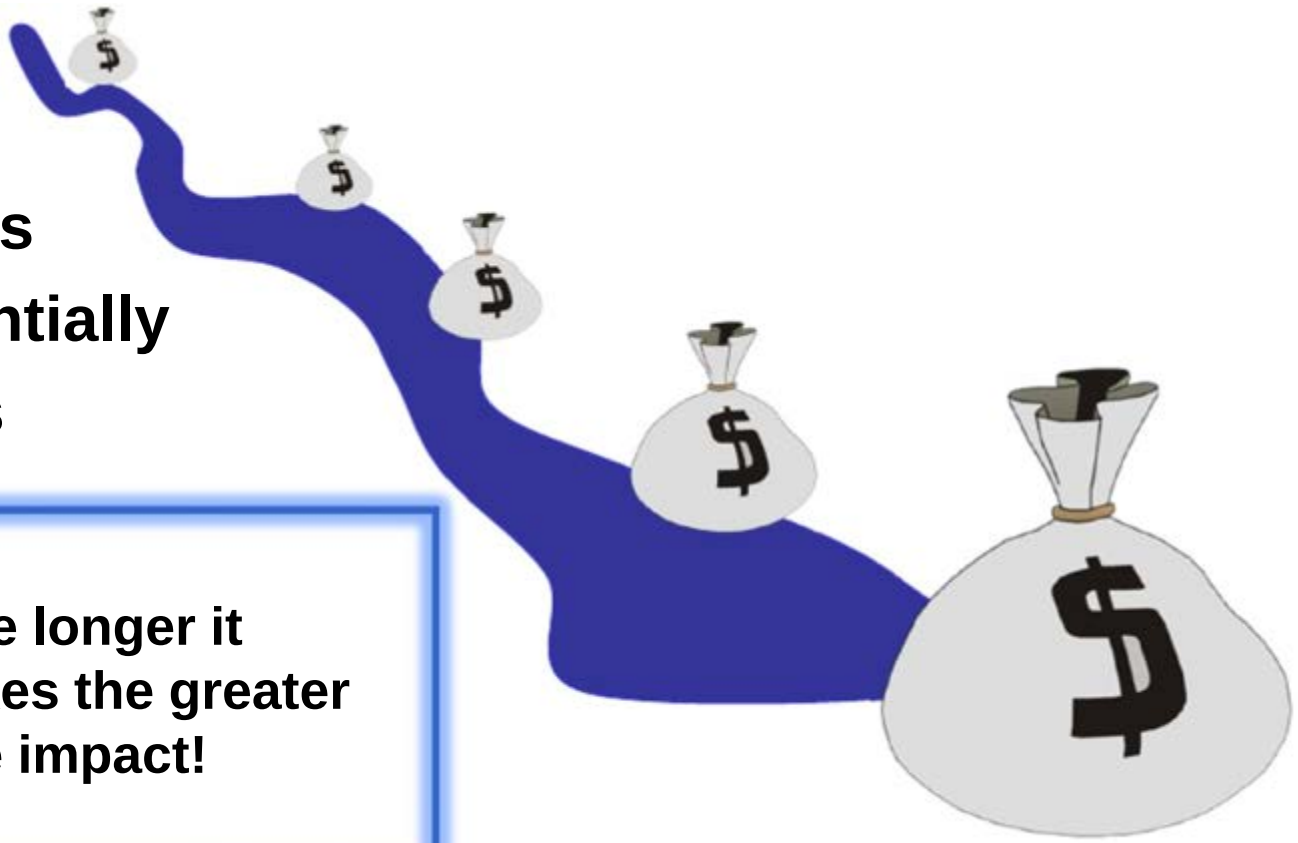
Definition:

- **Identify the actions required to stop the delivery of known OR suspect noncompliant products and prevent further impact to the customer from its use.**

- **This will include, but not limited, to identifying the necessary steps for the proper identification, isolation, and containment of nonconforming product and to prevent its use or delivery throughout LM Aero's supply chain from sub-tier suppliers, direct suppliers, stores, WIP, finished goods, flight test, and at the customer.**

Why is Containment Important?

- **Properly utilized containment practices can save the company:**
  - **Money**
  - **Time**
  - **Resources**
  - **And potentially save lives**



The longer it takes the greater the impact!

Objective of Containment

- **IAQG Defines the Objective of Containment:**
  - **To mitigate the impact of the problem,**
  - **Protect the customer operations and organization (stop the problem from getting worse) and**
  - **Verify that the problem does not degrade until the root causes are known.**

  The expectation of the implementation of Immediate Containment Action is that the customer is protected and to assure the identified nonconformance does not affect the Customer on any new assemblies.

Containment is the "band aid" that protects the customer until RCCA is identified and implemented

AS9100 Requirements

AS9100C 8.3 Control of Nonconforming Product states: Where applicable, the organization shall deal with nonconforming product by one or more of the following ways:

> **e) by taking actions necessary to contain the effects of the nonconformity on other processes or products.**

AS9100 8.5.2 Corrective Action states: The organization shall take action to eliminate the causes of nonconformities in order to prevent recurrence. Corrective actions shall be appropriate to the effects of the nonconformities encountered. A documented procedure shall be established to define requirements for

> **i) determining if additional nonconforming product exists based on the causes of the nonconformity and taking further action when required.**

QX Requirement

- **The customer/LM Aero must be notified as defined in Appendix QX Section 2.2:**
  - **Notify Buyer, in writing, within 24 hours of potential or verified non-conformances impacting flight safety on items in transit or delivered to Buyer**
  - **Notify Buyer in writing within 5 days of all other potential or verified non-conformances by utilizing the on-line system locator at: http://www.lockheedmartin.com/us/aeronautics/materialmanagement.html**
- **Take appropriate actions to ensure causes of non-conformance are corrected.**

Accomplished through Supplier Disclosure Letters (SDLs)

Supplier Containment Expectations

→ *Impact Assessment*

- **Scope the problem/nonconformance**
- **Determine if issue is Safety of Flight**
- **Assess the impact of discrepancy**
  - **Need correction or MRB assessment?**
  - **Use-as-is criteria / variance**

Supplier Containment Expectations

→ *Product Impact*

- **Isolate/segregate the nonconforming product**
- **Quarantine the complete supplier value stream**
  - **WIP, stock, in transit, at LM, on delivered product**
- **Clearly identify the suspect material or parts**
- **Identify containment actions**
- **Identify sub-tier responsibility in nonconformity and containment plan**
- **Identify a way forward**
  - **Inspection necessary?**
  - **Stop work?**

Supplier Containment Expectations

→ *Containment Closure*

- **Record all containment actions**
- **Revalidate the manufacturing process**
- **Verify C/A measures are in place and working**
- **Enhance process control methods once the revalidation is proved stable and capable.**
- **Validate corrective action**

Supplier Communication

- **Develop a Communications Plan**
- **Identify & notify all impacted parties**
- **Define the next steps / action plan**
- **Release Supplier Disclosure Letter (SDL) if suspect or known nonconforming product was sent to LM Aero**
- **Request help from Lockheed Martin as needed to get to the Root Cause & Corrective Action Plan**

Containment Example #1

Problem:

- **Evidence of black topping, remarking and lead frame variation was noted on Non-Franchised Distributor procured Microcircuit used on C130 program.**

Containment:

- **Released Disclosure - XXXXX-NFD-XX-XXX**
- **Stop Shipment**
- **Purge all parts from satellite facilities with the suspect date codes from stock**
- **Purge WIP**
- **Re-test parts to latest Counterfeit part testing plan and identify with –NFD suffix**
- **Replace part with verified date code**
- **Hold until all parts until customer approves screened parts**
- **Supplier recommends the products shipped to date with the Microcircuit for "Use as Is"**

In 2013, Supplier initiated a program to increase screening of in-stock material originally purchased from Non-Franchised Distributors, NFD.

Supplier Identified Nonconformance

Containment Flow at LM

Supplier Disclosure Letter (SDL) released thru Supplier Portal

- **Containment Actions Identified**
- **Supplier Disclosure Letter approved by Integrator**
- **QE defines the action plan**
- **QE adds an Issue in ICA to document SDL**
- **Survey actions as necessary (Notify all affected Organizations)**
- **QE initiates Folder Flag as necessary**
- **QE issue CAR as necessary to Supplier**
- **RTV parts to supplier based on limitations of production needs**

Methods include, but are not limited to, inventory purges, stock sweeps, surveys, and receipt inspections

Note: Internal systems are utilized to record & maintain actions performed.

Product Validation Required

- **Product Validation Required (PVR)**

- **In order to validate product at the supplier facility prior to next shipment(s), SQM will:**
  - **develop a PVR plan based on site rejections or supplier performance issues, as needed**
  - **document results of the PVR, once acted on, in SQM Web Apps prior to acceptance of hardware**
  - **determine if requests for PVRs are acceptable**
  - **select appropriate validation points**
  - **Suppliers assure these actions take place as scheduled**

Initiate Product Validation Required (PVR) in Supplier Quality Management websites to ensure no additional product escapes on subsequent shipments.

SDL – Survey Routing Process

1. SDL Routing
   - "Verified" route to the Quality Survey Group for Action
   - "Potential" route to the SQM Integrator for Action
   - No changes to distribution for SDL Notification emails
2. Processes will be working concurrently by the following LM Groups
   - Quality Survey Group
   - Supplier Quality Engineer
   - SQM Integrator
   - FSQE / QE
3. SDL Closure Criteria Established
   - Requires ICA Issue closed and Survey completed
   - Document in QADS at SDL closure
   - Corrective Action Approval
   - PVR Established

LM Identified Nonconformance

Containment Flow

- Vehicle / Non-Vehicle QAR
- Determine if issue is repetitive
- Issue added to ICA as needed
- Material / Aircraft Survey initiated as needed
- Folder Flag set as needed
- RTV parts to supplier based on limitations of production needs
- Determine if similar issue exists at supplier
  - Have supplier initiated SDL as necessary
  - Containment Activities identified by Supplier
  - Issue Corrective Action Request (CAR) to Supplier

What are your Tools for Containment ?

Example ICA Issue

Integrated Corrective Action
Issue Details

Issue Details
print

LOCKHEED MARTIN
close window

Issue Detail

Issue Number: 161510
Issue Owner: Fer
Issue Description: F
Investigation Start Date: 0
CAP Text: C

VALIDATION: 01/28/2013 - corrective action break-in effectivity is "get well" s/n 1211503975 XXX 04/11/2013 - installed on aircraft 2AF:0045 XXX Awaiting successful completion of aircraft SCOP and follow-on Flight Testing - As of 3/3/2014 follow flight testing not complete extend ECD from 10/30/2013 to ECD: 04/15/2014

Affected Site: Fort Worth
CAP Submittal Date: 05/16/2013
CAP Approval Status: Approved by LM-Aero
Customer CAP Approval Date:
Issue Effectivity Unit: 2AF:0045
CAP Response Due Date:
LM CAP Approval Date:
Issue Estimated Completion Date: 04/15/2014
Issue Validation Date:

Causes

	Cause	Level	Dept	Task Center	SWBS	Supplier	Text
View	K	P	SUPP				Valve Body has weep holes and two sets of dual internal Glyd Ring Seals installed around the internal slide spool. The weep holes

LM Aero has a system for documenting all actions involved in containing a nonconformance.

What is your system? Do the actions defined in your containment plan give the results expected?

Are you monitoring for effectiveness your containment process?

Quality Surveys

Process

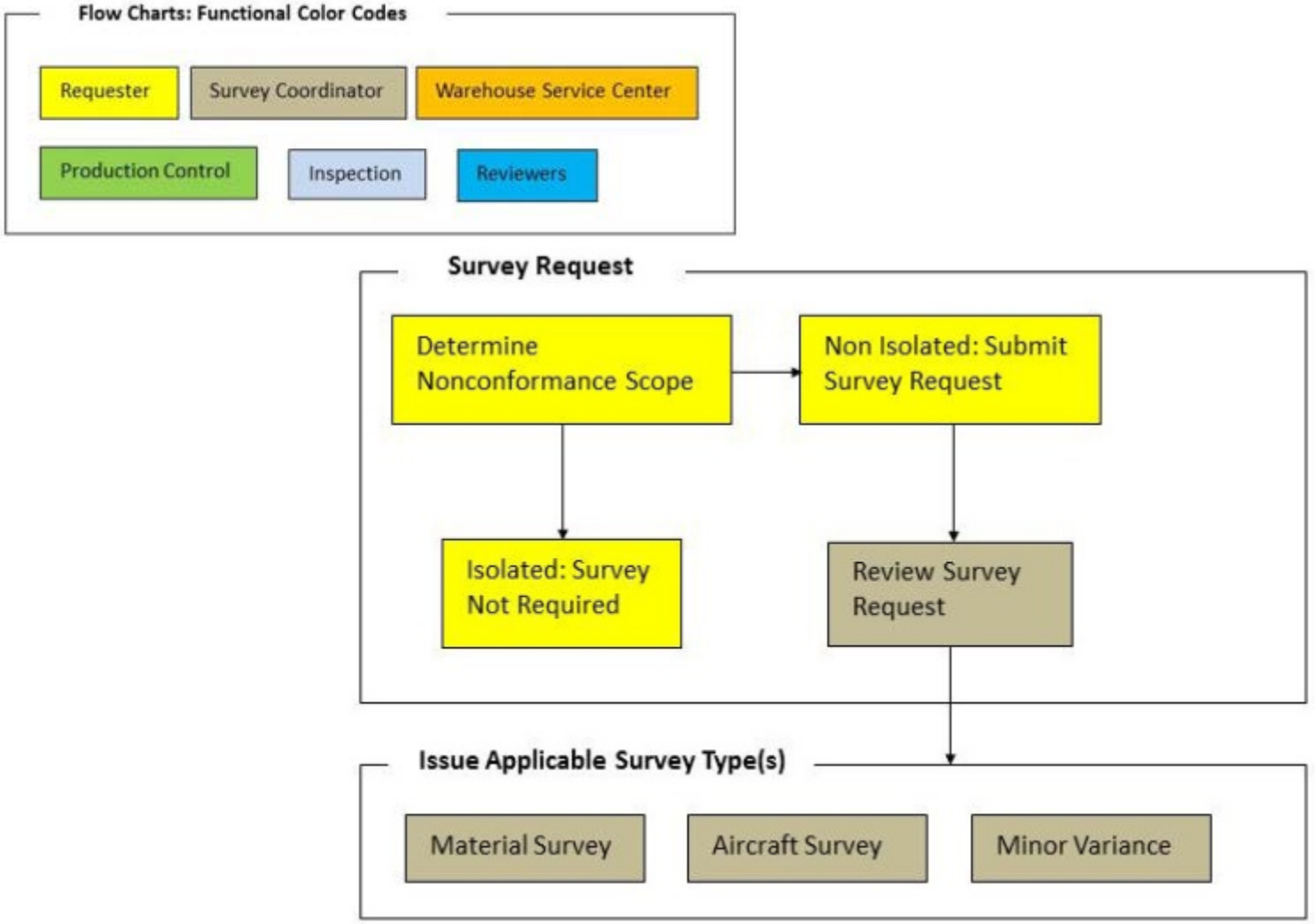
The Survey System directs the overall **action required to locate, inspect and document material, parts and aircraft which are suspected or known to have the same nonconformance.** This includes all points of the production cycle at LM Aero sites:

a. In stock and at receiving or shipping areas.
b. In fabrication and aircraft assembly areas.
c. In transit between sites.
d. Installed on aircraft (WIP or delivered)

Suppliers must identify, locate, inspect, and repair all parts used in LM Aero products thru the SDL process.

Quality Surveys

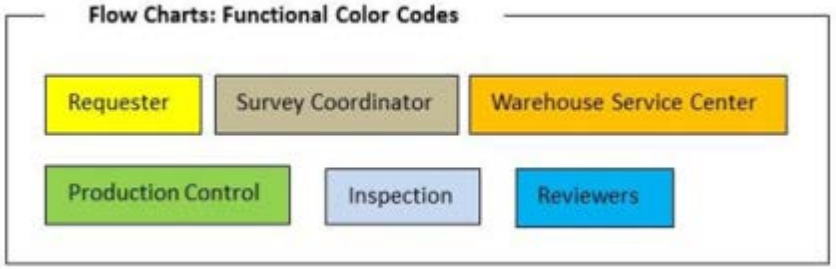
Survey Requests

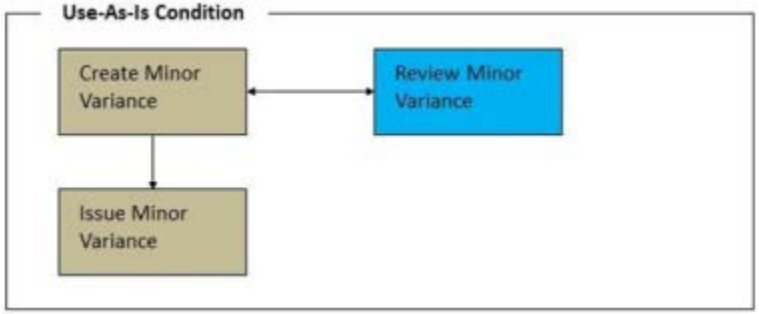


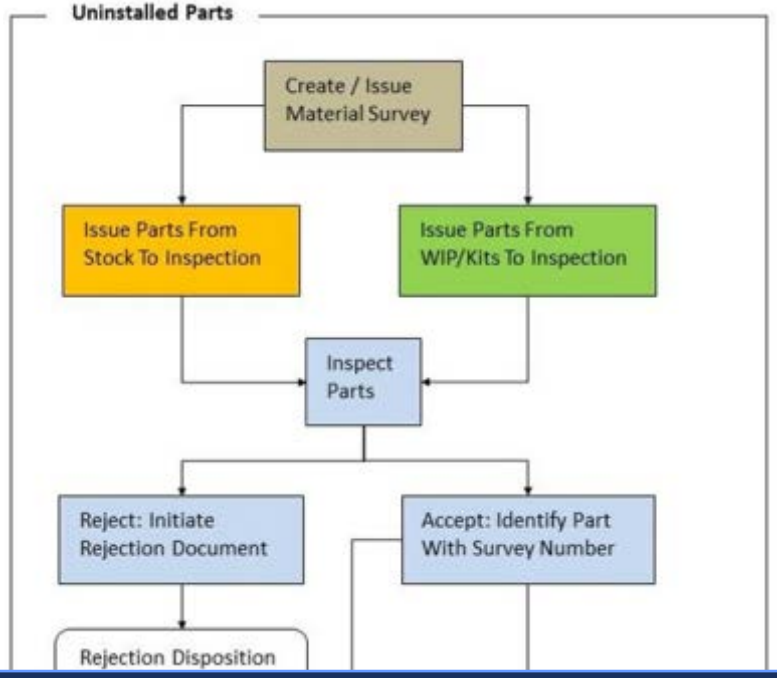
Survey types are: Material Survey, Aircraft Survey, & Minor Variance

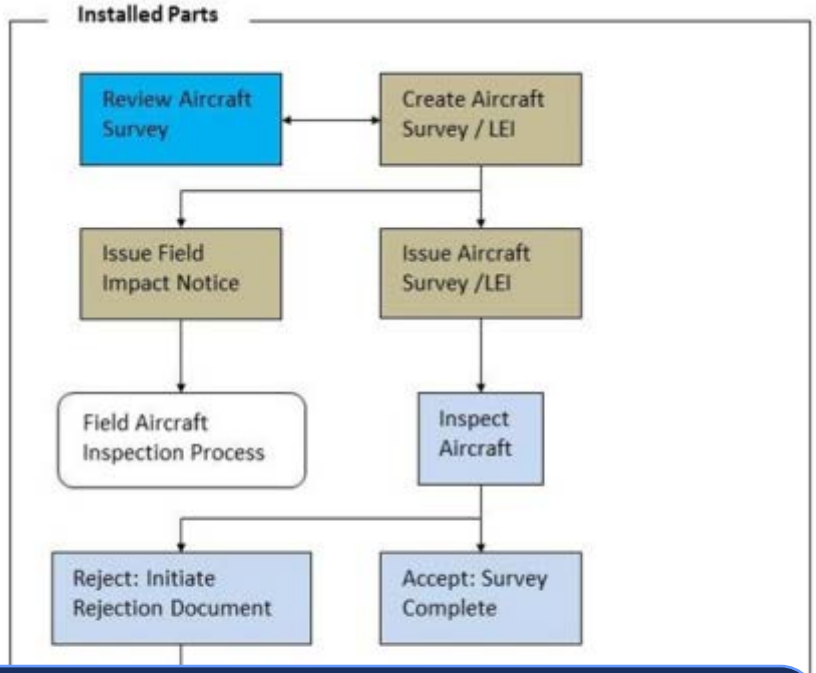
Quality Surveys (AC-3085)

Survey Requests









Uninstalled Parts → Material Survey
Installed Parts → Aircraft Survey
Use-As-Is →Minor Variance

Quality Surveys

Survey Requests (LM internal)

Varies by LM Aero Facility

Ft Worth: By e-mail using Form 12428.

Marietta:

- Use the Marietta Material Survey Website
- Submit F-35 Aircraft Survey or Minor Variance request by e-mail using Form 12428.

Palmdale: Accept No Verbal Order (AVNO) or email.

Suppliers: Expectation to have an Internal Systems that eliminates the impact on LM Aero in terms of time, resources, and cost.

Quality Surveys

Spares

Spares at Third Party Logistics (3PL) Warehouses

- When a Material Survey affects spares at a 3PL Warehouse, the Logistics Item Manager will take action as directed by the survey.

Delivered Spares

- **Ft Worth**: Material Survey will identify known or suspected impact to delivered spares.
  - F-16: Program Logistics will implement needed actions.
  - F-35: The Sustainment Operations Center and Sustainment QA will implement needed actions.

- **Marietta**: Survey Coordinator will notify Program Logistics of known or suspected impact to delivered spares to implement needed actions.

Quality Surveys

Delivered Aircraft

- **If a survey investigation determines that delivered aircraft are nonconforming or may be nonconforming, the Survey Coordinator will take the following action:**
  - **F-16**: Create a TCTO Request to inspect affected delivered aircraft. Submit by e-mail to Change Coordination Team (CCT).
  - **F-35**: Submit a Problem Report (PR) to Liaison Engineering, requesting a Production Asset Inspection Requirement (PAIR), and notify the Sustainment Operations Center. Engineering will (if warranted) prepare a PAIR to provide source data for a TCTD.
  - **C-130, C-5, P-3**: Notify Program Logistics. Program Logistics will determine and implement needed actions for affected delivered aircraft.

Watch Items

A Watch Item is initiated through SQM Web Apps . The watch item notifies SQM/SCM of nonconformance and potential shortages.

Informs all effected organizations of all know issues within the supply base. Do you have a methodology for notifying?

Program/Folder Flag

Process

Problem/Folder Flags - SQM Program Integrator or Technical Support Group designee will:

- **initiate a problem/folder flag to capture product in-transit to an LM Aeronautics site from a supplier, as required**
- ensure the problem/folder flag is entered in the appropriate SAP plant where the material will be received (note: cannot be entered for any item both in the Relevant purchasing system)
- ensure appropriate Receiving Inspection or site processing is performed for selected products upon receipt
  - Corrective action verification
  - Further processing
  - Product validation
  - Additional examination

Quality Engineering
Problem Flags ensure Receiving Inspection is involved for selected products upon receipt (i.e., corrective action verification, further processing, etc.).

Coordinate information with Receiving Inspection supervisor/lead, as required.

A Folder Flag is a means to hold material for various reasons, including:
vendor request after shipment but prior to receiving the materials at Lockheed Martin,
security regulations, or quality issues

The Folder Flag contains explicit instructions that must be adhered.

A Folder Flag will allow material to be received but not immediately used

Program/Folder Flag

5 Options for Folder Flags

- Hold all receipts for *Purchase* Order
- Hold all receipt for Purchase Order & Line Item
- Hold all receipts for Material Number (P/N)
- Hold all receipts for Vendor Number
- Vendor Number & Material Number (P/N)

Text should provide enough detail for the inspector to follow including reasons for the Folder Flag, action items, and personnel to contact.

Lockheed Martin Proprietary Information

Containment Example #2

Problem Statement

- **Indicator switch failed DITMCO testing at LM Aero. All part numbers in family affected. (CKXXXXX, CKVVVVVV, CKZZZZZ, …)**

Containment

- **Stop Shipment**
- **Update Inspection Plan to 100% for gap <0.215" measurement**
- **Quality inspection alert created requiring 100% inspection until ECO released**
- **Re-inspect all part in WIP**
- **Re-inspect parts in stores**
- **Put PVR in place by SQE prior to each shipment**
- **Products affected are the following shipments to LM Aero: XXXXX-01, XXXXX-02, XXXXX-03, XXXXX-04, XXXXX-05**

Part No.	Part Name	Qty	Program	PO#	ship date	ship to facility	Date Code
XXXXX-01	Light Assembly	5	C-130	VVVVV-001	3/6/2014	Marietta	D/C 1339
XXXXX-02	Light Assembly	5	C-130	VVVVV-004	3/27/2014	Marietta	D/C 1339
XXXXX-02	Light Assembly	9	C-130	VVVVV-001	10/28/2013	Marietta	DC 1338
…							
XXXXX-01	Light Assembly	5	C-130	VVVVV-001	2/19/2014	Marietta	D/C 1339
XXXXX-01	Light Assembly	5	C-130	VVVVV-004	3/6/2014	Marietta	D/C 1339

- **Engineering Process Improvement Evaluation**
- **Effective Date: 05/15/2014 Follow-up Due Date: 06/14/2014**

LM Aero Expectations

- **Delivered hardware will meet or exceed its defined performance specifications**
- **Keep noncompliant hardware off of the warfighter**
- **To eliminate the impact**
- **Resolve all nonconforming issues with the supply base**
- **Control Sub-tier Suppliers**

Remember who we are working for!

Summary

- Requirements: AS9100, Appendix QX
- Defined the expectation of a suppliers containment process
- Identified actions to contain nonconformances
  - Supplier Inventory, WIP, stock, in transit, at LM, on delivered product
- Put in place the appropriate actions to stop the expansion of the problem
  - Release of a Supplier Disclosure Letter (SDL)
  - Material/Aircraft Surveys
  - Watch Item
  - Area purge
  - Folder Flags to prevent parts from entering the system
- Issuance of a CAR

Reference Documents

- **AS9100C Section 8.3 Control of Nonconforming Product**
- **AS9100C Section 8.5.2 Corrective Action**
- **Appendix QX**
- *and LM Internal Requirements*