



# JPL Supplier Quality Overview

2012

Jet Propulsion Laboratory, California Institute of Technology

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# Procurement Quality Assurance



**Provide  
Qualified  
Supplier  
Base**

- Audits
- ASL
- Supplier Search



**Plan  
Quality**

- Quality Clauses
- Rec. Insp. Plans
- Source Insp. Plans



**Verify  
Quality**

- Source Inspection
- Rec. Inspection



**Evaluate &  
Improve  
Supplier  
Base**

- Supplier Rating System
- Corrective Action & Training
- Performance Information
- Supplier Quality Board
- PQA Supplier Awards

## Scope

- PQA controls are applied to the purchase of JPL Critical Items (JCI)
- Procurement JCI is defined as:
  - Flight Hardware
  - Research and Development or Prototype with Flight potential

# Provide Qualified Supplier Base



Provide  
Qualified  
Supplier  
Base

- What are the minimum requirements to get on the ASL?
  - A Supplier must have one of the following Quality Management Systems (QMS)
    - ISO9001:2008 (Standard Business)
    - AS9100 (Aerospace)
    - AS9120 (Aerospace Distributors)
    - AS9003 (Aerospace Inspection & Test Quality System)
    - ISO17025:2005 (Calibration), ISO13485:2003 (Medical), ISO/TS 16949:2002 (Automotive)
  - Some commodities/processes require a process audit or a Nadcap certification in addition to a QMS
- Why do we require a minimum QMS?
  - Emphasizes:
    - Management communication & involvement, Contract review, Process control (design, manufacturing, inspection), Proper documentation & record keeping, Corrective/Preventive Action, and Customer focus & satisfaction

# Provide Qualified Supplier Base

Provide  
Qualified  
Supplier  
Base

- How do I get on the ASL?
  1. 3<sup>rd</sup> Party Reciprocity – accept certification by registered auditing firm
    - Forward copy of certificate(s) to [PQA@jpl.nasa.gov](mailto:PQA@jpl.nasa.gov)
  2. JPL Audit to verify compliance – 2 year approval



ANSI-ASQ National Accreditation Board



# Provide *Qualified Supplier Base*



Provide  
Qualified  
Supplier  
Base

- Audit Process Overview
  - JPL Audits
    1. Supplier is audited for compliance to one of the appropriate approved standards
    2. 2 day audit is standard
    3. Audit to:
      - Applicable Standard
      - Any known contract requirements
      - Suppliers procedures
    4. Joint audits are now being performed with:
      - JAPC: NASA's Joint Audit Planning Committee (Includes major primes)
      - Goddard Space Flight Center
      - Benefit of one audit with potential multiple approvals

# Plan Supplier Quality Requirements



- All procurements marked as JCI/Flight are routed to PQA for Quality Planning
  - Quality Planning includes attaching Quality Clauses(QCs), Source Inspection Plans (SIPs) and Receiving Inspection Plans(RIPs)
- What are Quality Clauses?
  - Quality Clauses(QCs) are project and institutional requirements that we need to flow down to our suppliers
  - Examples of QCs: Certificate of Conformance, Source Inspection, EEE Date of Manufacture, etc.
  - Quality Clauses are specified on the Purchase Order
  - Visit the following web site to read the detailed Quality Clauses:  
<http://acquisition.jpl.nasa.gov/e2000.htm>
  - If there is an issue with a Quality Clause please contact your subcontract manager

	Item Description	Due Date	Quantity	UCM	Unit Price	Extended Amount
1	M49470X01475KBJ CAPACITOR M49470X01 CHIP  4.7uF, 100V, 10% CERAMIC Supplier Part #: M49470X01475KBJ QC01-N - MATERIAL IDENTIFICATION, DAMAGE & COUNT QC78 - Quality Management System per ISO9001:2000 QC63-N - RIGHT OF ACCESS QC35-N - ELECTROSTATIC DISCHARGE (ESD) PROTECTION PROGRAM AND PACKAGING QC34-N - PACKAGING REQUIREMENTS QC106 Electrical, Electronic, and Electromechanical (EEE) Part Traceability  QC105 PROHIBITED MATERIALS - MSL QC02-N - CERTIFICATE OF COMPLIANCE (C of C) QC01-N - MATERIAL IDENTIFICATION, DAMAGE & COUNT NOTE: The following Quality Clauses (QCs) apply. Suppliers are responsible for reading and complying with all statements herein. For QC details and other applicable documents, visit: <a href="http://acquisition.jpl.nasa.gov/e2000.htm">http://acquisition.jpl.nasa.gov/e2000.htm</a> QC01 - Quality Preamble	02-SEP-2008	18.00	EA	\$57.27	\$1,030.86

# Verify Supplier Quality Requirements



## Source Inspection

- Source Inspector/QAE conducts source inspection when called out on contract (Q- Clause QC-46A)
- Contact JPL to arrange Source Inspections
- JPL will perform the source inspection and document it on an Inspection Report

<b>Mandatory Inspection Points (JPL MIPs)</b>		<b>Notes</b>
In-process		The Contractor shall coordinate the JPL MIPs with JPL prior to commencing any work.
Pre-cap		
Final		
<b>Location</b>	<b>Business Days Advance Notice</b>	<b>Notes</b>
Local: California	3 days	Minimum required
National: Continental U.S.	5 days	Minimum required
International	10 days	Long lead time/forecasting desired

# Verify Supplier Quality Requirements



Verify  
Quality

## Receiving Inspection

- All JCI/Flight goes through Receiving Inspection
- Receiving Inspector performs receiving inspection
  - Inspection performed using Receiving Inspection Plan, Contract Requirements, Drawings, Specifications, etc.
- Receiving Inspection can include dimensional inspections, functional tests, and workmanship inspections
- Document inspection results on an Inspection Report and attach certifications and RIP
  - All Nonconformances will be documented
  - Inspection Report also contains ratings on quality and complexity
- IR Information feeds the JPL Approved Supplier List

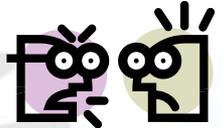
# Evaluate & Improve Supplier Performance



IRs/NCs



Supplier Rating System



Complaints SIRs

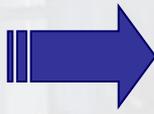


Industry Alerts



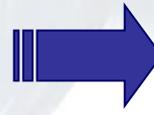
PQA Assessment

- Red/Yellow Assessment
- Supplier Corrective Action
- Supplier Issue Reports
- Recommendations
- Site Visits



Supplier Quality Board

- 5X, 3X, 2X Participants
- Reviews assessment
- Determines course of action



**Actions**

- ASL Status Change
- ASL Scope Change
- Audits
- CA & SINs
- Watch List
- Awards
- PaWS

# Evaluate & Improve Supplier Performance



Evaluate & Improve Supplier Base

## Supplier Information Notices (SINs)

- Provides Nonconformance Information to Suppliers
- No Response Required

## Supplier Corrective Action Request (SCAR)

- In addition to providing NC information, it asks the supplier to perform correction, a root cause analysis, and corrective/preventive action
- SCARs are graded by PQA and feedback given to supplier


**SUPPLIER CORRECTIVE ACTION REQUEST**

SCAR NO: JPL-SCAR-2010-001		IR NO.:																																											
SUPPLIER:		REFERENCE CONTRACT NO.:																																											
DATE CORRECTIVE ACTION SENT:		DATE CORRECTIVE ACTION DUE:																																											
Supplier Qty Rej: 1																																													
<b>NONCONFORMANCE</b>																																													
ZONE: G12	SERIAL NO.:	PART NO.: 10295412																																											
Description: Requirement: M4x.7-4H6H threaded hole has a true position of 0.10 RFS. Actual condition: The hole is out of tolerance by 073.																																													
<b>JPL COMMENTS</b>																																													
CORRECTIVE ACTION IS REQUESTED BY JPL IN ORDER TO PREVENT FUTURE OCCURRENCES. PLEASE RESPOND WITH THE ROOT CAUSE, CORRECTIVE ACTION AND OBJECTIVE EVIDENCE BY THE DUE DATE INDICATED AT THE TOP OF THE FORM.																																													
CORRECTIVE ACTIONS THAT HAVE NOT BEEN RESPONDED TO BY THE DUE DATE SHALL BE CLOSED OUT AND A FAILURE TO RESPOND WILL BE NOTED ON THE SUPPLIER'S SCORECARD IN THE JPL APPROVED SUPPLIER LIST (ASL) DATABASE. THE SUPPLIER RESPONSES SHALL BE RANKED FROM A THRU F PER THE TABLE BELOW.																																													
THE RESPONSE RATINGS WILL BE VISIBLE IN THE JPL ASL AND USED IN EVALUATING OVERALL SUPPLIER PERFORMANCE. THE EVALUATIONS MAY BE REVIEWED DURING THE MONTHLY SUPPLIER QUALITY BOARD (SQB) MEETINGS.																																													
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #4F81BD; color: white;">CRITERIA</th> <th colspan="5" style="background-color: #4F81BD; color: white;">CORRECTIVE ACTION GRADE</th> </tr> <tr> <th></th> <th>A</th> <th>B</th> <th>C</th> <th>D</th> <th>F</th> </tr> </thead> <tbody> <tr> <td>1. CORRECTIVE ACTION SUBMITTED</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> </tr> <tr> <td>2. ADDRESSES ROOT CAUSE AND ANY IMMEDIATE CAUSES</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td></td> </tr> <tr> <td>3. OBJECTIVE EVIDENCE SUBMITTED (TRAINING LOGS, UPDATED PLANNING, ETC)</td> <td>X</td> <td>X</td> <td>X</td> <td></td> <td></td> </tr> <tr> <td>4. PROCESSES EVALUATED AND ANY SYSTEMIC ISSUES ADDRESSED</td> <td>X</td> <td>X</td> <td></td> <td></td> <td></td> </tr> <tr> <td>5. ASSESSMENT MADE TO DETERMINE IF SIMILAR ISSUES EXIST ON DELIVERED OR IN PROCESS JOBS AND JPL NOTIFIED</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		CRITERIA	CORRECTIVE ACTION GRADE						A	B	C	D	F	1. CORRECTIVE ACTION SUBMITTED	X	X	X	X	X	2. ADDRESSES ROOT CAUSE AND ANY IMMEDIATE CAUSES	X	X	X	X		3. OBJECTIVE EVIDENCE SUBMITTED (TRAINING LOGS, UPDATED PLANNING, ETC)	X	X	X			4. PROCESSES EVALUATED AND ANY SYSTEMIC ISSUES ADDRESSED	X	X				5. ASSESSMENT MADE TO DETERMINE IF SIMILAR ISSUES EXIST ON DELIVERED OR IN PROCESS JOBS AND JPL NOTIFIED	X					PQA Representative: Carlo Abesamis Contact: (818) 354-0211	
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JPL 2941 REV 1/10																																													

# PQA

## Contacts and More Information



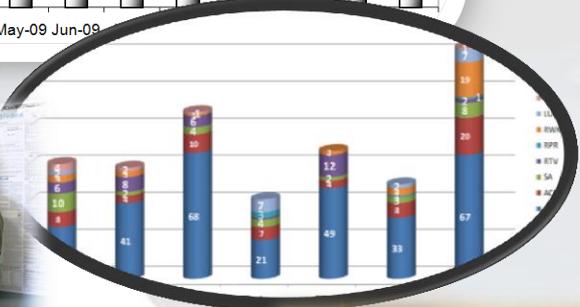
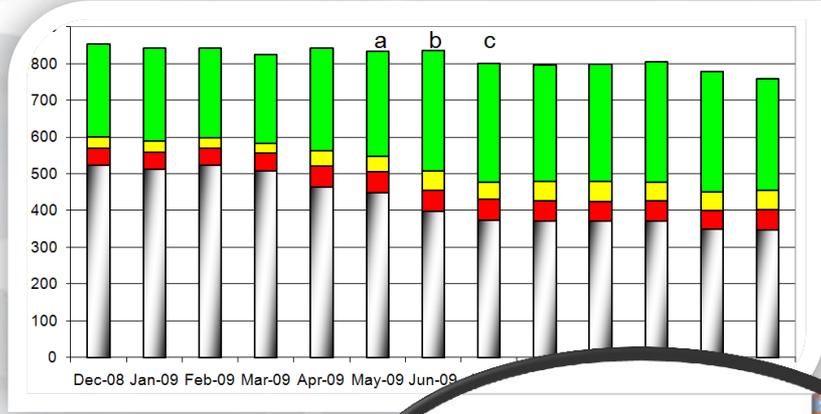
Evaluate & Improve Supplier Base

### PQA Hotline

- Call 818-393-7592 for any ASL, Clausing or Inspection questions

### Quality Clause Website

- <http://acquisition.jpl.nasa.gov/e2000.htm>



10 kV Lens Mode: mag WD 40 μm  
Field-Free 1 500 x 10.2 mm

500 X EHT = 2.00 kV Signal A = SE2 Date 11/11/09  
WD = 8.5 mm