Assurance Technology Symposium

Supplier Outreach & Process Control (SOPC)
Supplier Rating Initiative (SRI)

Harrel “Buck” Crenshaw,
Jet Propulsion Laboratory
Why is SOPC so important?

- Process escapes have cost NASA millions of dollars, and many escapes can be traced back to our suppliers.

- Many suppliers do not have a clear understanding of what Process Control is and are often not aware of the criticality of controlling their processes.

- Many Suppliers have never had a positive visit from anyone representing NASA.

- Many suppliers have little, if any, knowledge of how their products are being utilized by NASA or what NASA programs and projects they are used on.
Who is currently involved?

- The Jet Propulsion Laboratory (JPL) manages the SOPC effort, supplies the products, and coordinates all visits with:
  - Ames Research Center
  - Goddard Space Flight Center
  - Johnson Space Flight Center
  - Kennedy Space Center
  - Marshall Space Flight Center
  - OEM Lockheed Martin
  - OEM Orbital Sciences
  - OEM Pratt & Whitney
  - Space Shuttle Program’s Process Control Focus Group (PCFG)

- Dynacs Incorporated provides the majority of the labor to conduct these visits through the Supplier Assessment Contract (SAC) managed by GSRC

Mission Success Depends On You
Supplier Outreach & Process Control (SOPC) Mission Statement

- Promote Process Control awareness and Continuous Improvement of NASA's supplier base to increase the quality of NASA procured products and services and reduce process escapes and mishaps.
What do we do on these visits?

- Thank suppliers for their contributions to the many unmanned space programs they have supported.
- Share the message of how critical process controls are to our continued mutual success.
- Provide motivational tools to ensure they understand process control stay focused on this effort.
- Capture data about the suppliers during these visits and to make that information available to the NASA community.
Outreach Products and Tools

- Supplier Specific Fact Sheets
- "8 Process Control Standards" magnets, cards and posters
- Program/Project Fact Sheets and Posters
- Process Control CD with tools
- Process Control Countdown videos *(Provided by the Space Shuttle Program's Process Control Focus Group)*
- Process Control Websites
- "Common Approach to Problem Solving" handy pocket card
- "My Role In Process Control" Pocket Guide
How are Suppliers Selected?

Outreach Visits are regionally selected for suppliers of NASA's Space Programs (Earth Science, Space Science, and Biological and Physical Research) during the monthly SOPC telecon from a common NASA database of 1700 suppliers furnished by participating centers in the following categories:

- Audited/Approved Suppliers
- Audited/Deficiency Suppliers
- Active Suppliers
- Critical Suppliers
- Colleges & Universities

For supplier visit schedule, go to: [http://quality.nasa.gov/outreach](http://quality.nasa.gov/outreach)
54 Suppliers have been visited since June 2002 made up of:

- Large Businesses,
- Small Business (less than 500 employees),
- Women Owned,
- Minority Owned,
- Indian Owned

- The NASA SOPC team members have participated in numerous regional supplier visits
- Three OEMs have participated in several visits
- The addition and training of 4 Outreachers from Dynacs has allowed the visit rate to ramp up support 200 visits a year
- The SOPC processes have been web posted
Supplier Outreach Activity

FY 02

FY 03

Visits Conducted
Outreach Feedback

Strongly agreed that outreach visits are value added and informative!

Would like to be visited once a year!

Appreciate the face-to-face recognition!
How will SOPC benefit each Center?

- The same consistent message of the need for “Process Control” is being given to the supplier base and they see that there is only One NASA, and that NASA and the OEMs are “all on the same page”.

- Coordinated regional visits alleviate the cost of each center conducting their own individual outreach programs and maximizes the resources for these visits.

- Information gathered is shared throughout the agency.

- Hopefully, a measurable reduction in Supplier Attributed Process Escapes
FOR MORE INFORMATION

Contact Harrel "Buck" Crenshaw
Jet Propulsion Laboratory
(818) 354-7225
Supplier Risk Initiative
(Integrity, Availability, Assurance)

June 1st, 2003
What is the challenge?

One should expect that the expected can be prevented, but the unexpected should have been expected

Augustine's Laws, XLV
What are Unknown Unknowns?

There are things we know that we know,
There are things we know we don't know,
There are things we don't know we don't know.

Donald Rumsfeld, U. S. SecDef
NATO HQ Press Conference, June '02
The Risk Iceberg

- Mishap recommendations
- Problem solutions
- IFA fixes
- FMEA/Hazard controls
- Close call recommendations
- Process change/Supplier Risk?
- Inadvertent excursions out of cert/family?
- Hardware talking...nobody listening?
NASA’s Vision

To improve life here,
To extend life to there,
To find life beyond.
What is Supplier Risk?

- Integrity Risk
- Availability Risk
- Assurance Risk
Why is Supplier Risk Important?
Systemic supplier risk, if moderate to high, is a leading indicator of future potential near misses, escapes, and/or failures.

Risk Visibility

Is it a Risk ...... ....... .............or a Problem

Preventive        Corrective
May occur         Has occurred
Strategic         Tactical
Long              Short
SUPPLIER RISK INITIATIVE

NASA's 1,000+ critical supplier facilities
What data are we capturing regarding suppliers?

What we use today (limited data reported to Program Management)

What we don’t use (supplier risk experience from $200 billion of government procurement)
SUPPLIER RISK INITIATIVE

Risk of Low Volume Production of Complex Systems/Platforms

Leading Indicator
Knowledge Drawn from Limited Sources

Leading Indicator
Knowledge Drawn from Multiple Sources

Likelihood

Consequence
• Enhance NASA's ability to monitoring Supplier Risk by providing NASA programs with a R/Y/G "watch list" of leading indicators based on comprehensive integrity, availability, and assurance information about the facility.
What have we done?

- Evaluated numerous Supplier Rating Systems in the Aerospace Industry.
- Initiated projects to:
  - Pilot Supplier Audit R/Y/G evaluation (GSFC Lead)
  - Pilot DCMA Delegation R/Y/G evaluation (JSC, MSFC, GSFC leads)
  - Evaluate the use of the Navy Product Data Reporting and Evaluation Program (PDREP) system to store share information (JPL Lead)
  - Improved Joint Audit Coordination Process (JSC lead)
  - Developed consensus approaches to supplier assessment recommended practices (JAPC lead)
What factors will be included in suppliers rating?

- **Assurance Metric**
  - Receiving Inspections, (% pass/fail)
  - Source Inspections, (% pass/fail)
  - Quality Audit Rating, (G-Y-R)
  - Quality System Failures, (points assessed)

- **Availability Metric**
  - On time delivery (%30-60-90)
  - Other indicators

- **Integrity Metric**
  - GIDEP alerts
  - Disbarment
How will we store and share the information?

A lot of data
- DCAA
- Audits
- GIDEP
- DCMA
- PDREP

Useful Information

Supplier Visibility System

PEDREP Program “Watch List”
Query by Gage Code Provides:
- NASA Leading Indicator Overall
- Quality/Delivery Rating
  - Algorithm of all inputs
- DCMA R/Y/G Rating
- Assessment Rating
- Leverage with suppliers

Accessed by:
- NASA Program Management
- Prime Contractors (restricted)
- Missile Defense Agency
- Navy/Air Force/other customers

Managed by:
- Navy – Naval Sea Logistics Center
- Legal issues addressed
### Supplier Rating Initiative

#### The Supplier "Watch List" Report Card

<table>
<thead>
<tr>
<th>Cage Code</th>
<th>Supplier/Address</th>
<th>Pgm Element/Prime</th>
<th>NASA Leading Indicator</th>
<th>PDREP Q/D *</th>
<th>Assessment R/Y/G</th>
<th>DCMA R/Y/G</th>
<th>DCAA</th>
<th>Action Taken</th>
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<td>13993</td>
<td>Supplier X/Y/Z</td>
<td>Orbiter/USA</td>
<td></td>
<td>Y</td>
<td>G Y</td>
<td></td>
<td>G</td>
<td>Increased Surveillance</td>
</tr>
</tbody>
</table>

*Multiple Risk Initiators Combine to a Single Leading Indicator*

*Provides current rating and prediction*
The supplier will be able to view their Rating Status and see how they measure up against others suppliers of the same commodity. The rating will average last 12 months.

Welcome to the NASA Performance Evaluation System

Performance as of June 2003

Commodity-Fastener Supplier
Company Name - XYZ

Assurance
Integrity
Delivery
Overall

Compared to other NASA Fastener Suppliers

You are here

View Previous Months
How will the NASA Supplier Rating Initiative Improve its Supplier Base?

NASA will go from having limited insight into supplier performance to a system that allows feedback to both NASA and the supplier.

- Little Visibility into the NASA Supplier Base and its Performance
- NASA Visibility of Supplier Performance
- Supplier Visibility of their performance

NASA Visibility of Supplier Performance

Little Visibility into the NASA Supplier Base and its Performance
What are the next steps?

- Complete MOA with NAVY on PDREP (June)
- Complete development of supplier risk algorithm (June)
- Complete “supplier assessment recommended practices” (June)
- Complete R/Y/G pilot activities (July)
- Have Supplier Risk review at NASA HQ (July)
- Start pilot supplier risk deployment at program level (August).
- Agency wide policy implementation (September).