SMSPP Data Analysis Results

Bill Jarrott

OUTLINE

- **Background**
- **Highlights**
  - **Part 121**
  - **Part 135**
- **Observations**
- **Emerging Issues**
- **Summary**

MITRE

Background
SMSPP – April 07 to September 09

- $\cong$ **67** **SMSPP Inquiries**

- **55** **SMSPP air operator STAT visits and** **20** **MRO STAT visits (**75 **total)**

- **11** **Part 121 Preliminary Gap Analyses**
  - **3** **Detailed Gap Analyses**
  - **2** **Level 1 Exit Assessments**
  - **1** **Level 2 Exit Assessments**

- **10** **Part 135 Preliminary Gap Analyses**
  - **0** **Detailed Gap Analyses**

- **3** **Part 145 Preliminary Gap Analyses**
  - **0** **Detailed Gap Analyses**

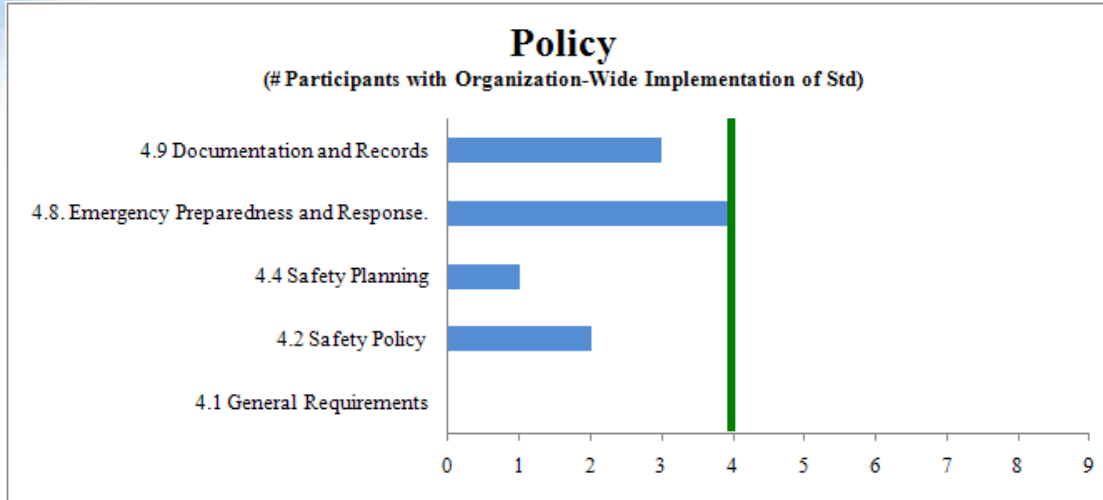**MITRE**

Highlights (Part 121)

Sample Size: 9

# of air carriers who assesed themselves in each area		9	9	9	9	9	8
AC 120-92 Standards	# Airlines w/Org-Wide Conformity	Flight Ops Conformity	Dispatch Conformity	Maintenance Conformity	Cabin Safety Conformity	Ground Ops Conformity	Cargo Ops Conformity
4. Policy							
4.1 General Requirements	0	11%	11%	0%	11%	11%	0%
4.2 Safety Policy	2	56%	44%	22%	44%	44%	44%
4.4 Safety Planning	1	44%	33%	22%	44%	33%	33%
4.8. Emergency Preparedness and Response.	4	78%	78%	67%	78%	78%	67%
4.9 Documentation and Records	3	67%	67%	44%	56%	56%	33%
5. Safety Risk Management							
5. Safety Risk Management	1	56%	33%	22%	56%	33%	11%
5.1 System and Task Analysis	1	56%	44%	33%	44%	44%	22%
5.2 Identify Hazards	2	56%	56%	33%	56%	56%	33%
5.3 Analyze Safety Risk	0	44%	67%	56%	44%	44%	22%
5.4 Assess Safety Risk	1	33%	44%	33%	33%	22%	11%
5.5 Control Safety Risk	1	22%	33%	22%	33%	22%	11%
5.7 Management of Change (New)	0	22%	22%	11%	11%	33%	22%
6.0 Safety Assurance and Internal Evaluation							
6.1 General Requirements	2	33%	33%	44%	44%	44%	33%
6.3.1 Continuous Monitoring	2	56%	44%	56%	44%	44%	33%
6.3.2 Internal Audits by Operational Departments	3	56%	56%	78%	44%	44%	44%
6.3.3 Internal Evaluation	3	44%	44%	56%	33%	44%	44%
6.3.4 External Auditing of the SMS	5	56%	56%	67%	56%	56%	56%
6.3.5 Investigation	5	89%	78%	78%	78%	78%	78%
6.3.6 Employee Reporting and Feedback System	2	78%	67%	44%	78%	22%	33%
6.4. Analysis of Data	1	67%	56%	33%	33%	33%	22%
6.5 System Assessment	2	33%	44%	33%	22%	44%	33%
6.6. Preventive/Corrective Action	2	44%	44%	22%	56%	44%	33%
6.7. Management Reviews	2	44%	56%	33%	33%	33%	33%
6.8 Continual Improvement	2	44%	56%	33%	22%	44%	44%
7.0 Safety Promotion							
7.1 Safety Culture	1	33%	44%	11%	33%	22%	33%
7.2 Communication and Awareness	0	22%	33%	0%	0%	22%	22%
7.3 Personnel Requirements (Competence)	1	44%	44%	33%	22%	33%	33%
7.4 Training	1	44%	56%	44%	44%	44%	33%

Legend: ◆ ≤ 33%; △ 33% > ; ≤ 67%; ● > 67%

MITRE

4

Highlights (Part 121)

Policy
(# Participants with Organization-Wide Implementation of Std)

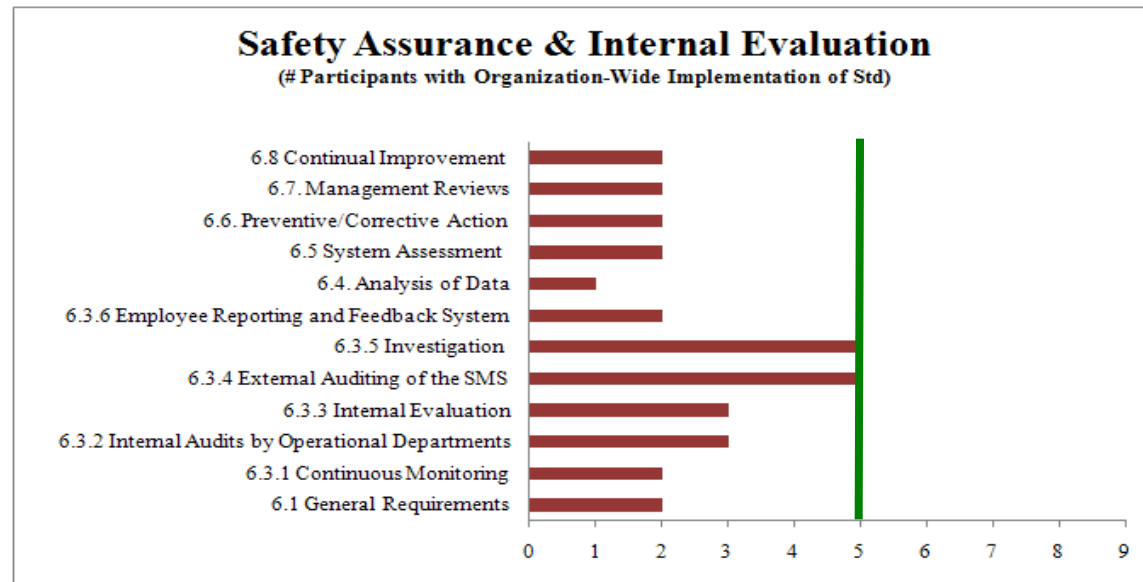| Category	Value
4.9 Documentation and Records	3
4.8. Emergency Preparedness and Response.	4
4.4 Safety Planning	1
4.2 Safety Policy	2
4.1 General Requirements	0

- Operators assessing **company-wide** conformity.
- **Safety Risk Management**?
  - 2 with company-wide conformity
- **Safety Promotion**?
  - 2 with company-wide conformity

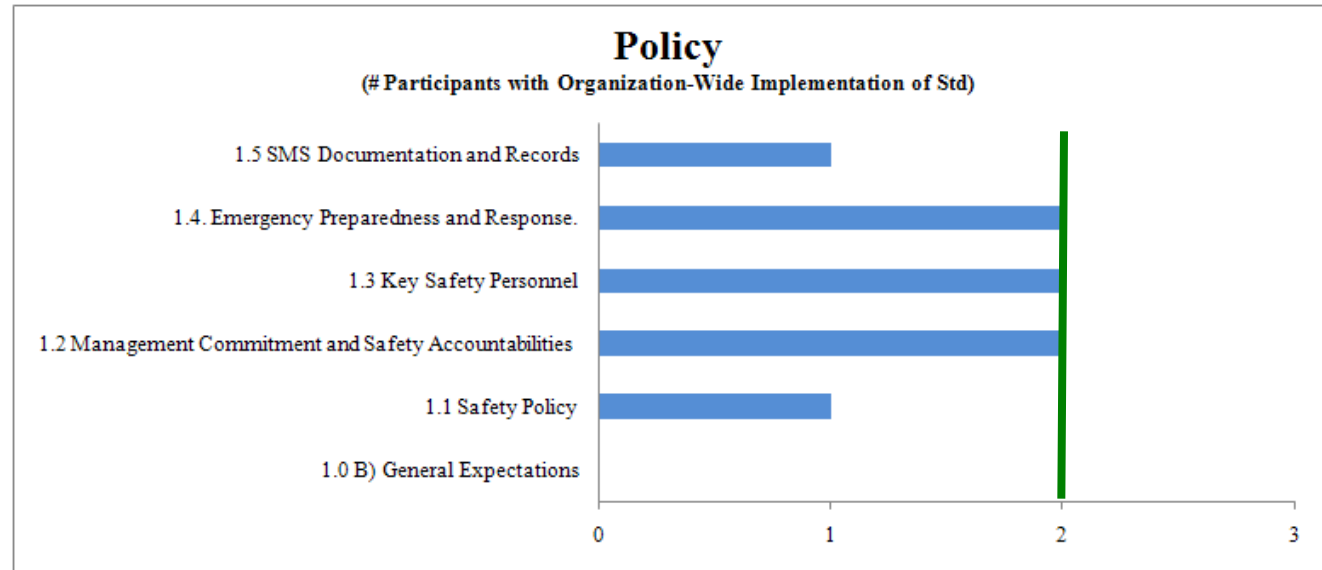## Safety Assurance & Internal Evaluation
(# Participants with Organization-Wide Implementation of Std)

Category	Value
6.8 Continual Improvement	2
6.7. Management Reviews	2
6.6. Preventive/Corrective Action	2
6.5 System Assessment	2
6.4. Analysis of Data	1
6.3.6 Employee Reporting and Feedback System	2
6.3.5 Investigation	5
6.3.4 External Auditing of the SMS	5
6.3.3 Internal Evaluation	3
6.3.2 Internal Audits by Operational Departments	3
6.3.1 Continuous Monitoring	2
6.1 General Requirements	2

5

MITRE

Sample Size: 3

# of air carriers who assessed themselves in each area:		3	3	2	2	1	1
SMS Framework Expectations	# air carriers w/org-wide conformity	Flight Ops Conformity	Dispatch Flt Following Conformity	Maintenance Conformity	Cabin Safety Conformity	Ground Ops Conformity	Cargo Ops Conformity
Component 1.0: Policy							
1.0 B) General Expectations	0	◆ 0%	◆ 33%	◆ 0%	◆ 0%	◆ 0%	◆ 0%
1.1 Safety Policy	1	◆ 33%	▲ 67%	▲ 50%	▲ 50%	◆ 0%	◆ 0%
1.2 Management Commitment and Safety Accountabilities	2	▲ 67%	▲ 67%	▲ 50%	▲ 50%	◆ 0%	◆ 0%
1.3 Key Safety Personnel	2	▲ 67%	▲ 67%	● 100%	● 100%	● 100%	● 100%
1.4. Emergency Preparedness and Response.	2	▲ 67%	▲ 67%	▲ 50%	▲ 50%	◆ 0%	◆ 0%
1.5 SMS Documentation and Records	1	◆ 33%	▲ 67%	▲ 50%	▲ 50%	◆ 0%	◆ 0%
Component 2.0: Safety Risk Management							
2.0. Safety Risk Management	0	◆ 0%	▲ 33%	◆ 0%	◆ 0%	◆ 0%	◆ 0%
2.1.1 System and Task Analysis	0	▲ 33%	▲ 67%	▲ 50%	◆ 0%	◆ 0%	◆ 0%
2.1.2 Identify Hazards	0	▲ 33%	▲ 67%	▲ 50%	◆ 0%	◆ 0%	◆ 0%
2.2.1 Analyze Safety Risk	0	◆ 0%	▲ 33%	◆ 0%	◆ 0%	◆ 0%	◆ 0%
2.2.2 Assess Safety Risk	0	◆ 0%	▲ 33%	◆ 0%	◆ 0%	◆ 0%	◆ 0%
2.2.3 Control/Mitigate Safety Risk	0	◆ 0%	▲ 33%	◆ 0%	◆ 0%	◆ 0%	◆ 0%
Component 3.0: Safety Assurance							
3.0 General Expectations	0	▲ 33%	▲ 67%	▲ 50%	◆ 0%	◆ 0%	◆ 0%
3.1.1 Continuous Monitoring	1	▲ 67%	▲ 67%	▲ 50%	◆ 0%	◆ 0%	◆ 0%
3.1.2 Internal Audits by Operational Departments	0	▲ 33%	▲ 67%	▲ 50%	◆ 0%	◆ 0%	◆ 0%
3.1.3 Internal Evaluation	0	◆ 0%	▲ 33%	◆ 0%	◆ 0%	◆ 0%	◆ 0%
3.1.4 External Auditing of the SMS	0	▲ 33%	▲ 67%	▲ 50%	◆ 0%	◆ 0%	◆ 0%
3.1.5 Investigation	0	▲ 33%	▲ 33%	▲ 50%	◆ 0%	◆ 0%	◆ 0%
3.1.6 Employee Reporting and Feedback System	0	▲ 33%	▲ 67%	▲ 50%	◆ 0%	◆ 0%	◆ 0%
3.1.7 Analysis of Data	0	▲ 33%	▲ 33%	▲ 50%	◆ 0%	◆ 0%	◆ 0%
3.1.8 System Assessment	0	◆ 0%	◆ 0%	◆ 0%	◆ 0%	◆ 0%	◆ 0%
3.1.9 Preventive/Corrective Action	0	▲ 33%	▲ 33%	▲ 50%	◆ 0%	◆ 0%	◆ 0%
3.1.10 Management Reviews	0	▲ 33%	▲ 33%	▲ 50%	◆ 0%	◆ 0%	◆ 0%
3.2 Management of Change	0	◆ 0%	▲ 33%	◆ 0%	◆ 0%	◆ 0%	◆ 0%
3.3 Continual Improvement	0	◆ 0%	▲ 33%	◆ 0%	◆ 0%	◆ 0%	◆ 0%
Component 4.0: Safety Promotion							
4 General Expectations	0	▲ 33%	▲ 33%	▲ 50%	◆ 0%	◆ 0%	◆ 0%
4.1.1 Personnel Expectations (Competence)	0	▲ 67%	▲ 33%	▲ 50%	◆ 0%	◆ 0%	◆ 0%
4.1.2 Training	0	▲ 33%	▲ 33%	▲ 50%	◆ 0%	◆ 0%	◆ 0%
4.2 Communication and Awareness	0	▲ 67%	▲ 33%	● 100%	◆ 0%	◆ 0%	◆ 0%

Legend: ◆ ≤ 33%;   33% > ▲ ≤ 67%;   ● > 67%

Highlights
(Part 135)

Policy
(# Participants with Organization-Wide Implementation of Std)

Category	Count
1.5 SMS Documentation and Records	1
1.4. Emergency Preparedness and Response.	2
1.3 Key Safety Personnel	2
1.2 Management Commitment and Safety Accountabilities	2
1.1 Safety Policy	1
1.0 B) General Expectations	0

- Operators assessing **company-wide** conformity.

- **Safety Assurance & Risk Management?**
  1 with company-wide conformity

- **Safety Risk Management?**

  0 with company-wide conformity

- **Safety Promotion?**

  0 with company-wide conformity

MITRE

Observations

- **Common Challenges:**
  - **Economic situation / limited resource**
    - **Personnel**
    - **Reporting and database systems**
  - **Existing/on-going SMS processes not fully documented**
  - **Existing/on-going processes generally not organization wide (prevalent in Flight Ops)**
  - **Safety culture is generally not organization-wide**

MITRE

Observations

- **Growing, knowledgeable AFS-940 Staff**
- **Lessons learned during STAT visits and Exit Assessments have been valuable**
  - **CMO / CMT / FSDO: inspector familiarization, education, training**
  - **STAT: Gap Analysis expectations and support documents have been refined and improved**
- **Stable SMS documents**
  - **Framework**
  - **Assurance Guide**
  - **Implementation Guide**
  - **SMS Development Guide (in work)**

MITRE

Observations

- **Stronger Part 121 & 135 interest in SMS than from Part 145s**

- **Enthusiasm for SMSPP**
  - **Number of participants increasing:**
    - **50 Active SMSPP Participants (121/135/145)**
    - **6 Pending participants (with growing list)**

MITRE

Emerging Issues
(survey)

- **Representative sample sizes**
    - **Part 121 (sample size: 7)**
        - **Range: 10 to 600 A/C   Range: 450 to 75,000 employees**
        - **Average: 250   Average: 27,000**

            (2 of 7 are small operators; 50 or fewer A/C)

    - **Part 135 (sample size: 5)**
        - **Range: 14 to 350 A/C   Range: 45 to 3,500 employees**
        - **Average: 100   Average : 860**

            (4 of 5 are small operators; smallest has 14 A/C

        But - there are about 1800 Part 135 operators with 10 or fewer A/C)

MITRE

Emerging Issues
(survey)

- **Concerns over FAA's ability to provide oversight teams to support certificate holder SMS efforts.**

- **Interest in more FAA implementation support of the "Hows" of SMS**

- **Interest in FAA-provided SMS tools**

- **AFS-940 and STAT have been busy – with more requests arriving weekly.**

MITRE

Summary

- **Conformity to SMS expectations is low**
  - **Expected – many of the SMS expectations are new**
  - **Low conformity does not equate to inadequate safety programs.**
- **Observations:**
  - **Common challenges:**
    - **Limited**
      - **Resources**
      - **Documentation**
      - **Organization-wide implementation and safety culture**

Summary

- STAT knowledge and performance continue to improve

- SMS documents are improved and stabilized

- Part 121 & 135 enthusiasm for SMS and voluntary implementation

- Current analysis based on unrepresentative sample of service providers
  - Need more participants
  - Need more small participants

MITRE

Summary

- **Emerging Issues:**
  - **FAA oversight teams**
    - **Trained & knowledgeable**
    - **Manpower resources**
  - **FAA SMS implementation support:**
    - **How to**
    - **Tools**

MITRE

QUESTIONS?

Bill Jarrott
   wjarrott@mitre.org   (703) 983-1842

Kent Hollinger
   kenth@mitre.org   (703) 983-5573

http://www.mitrecaasd.org/SMS/documents.html

MITRE