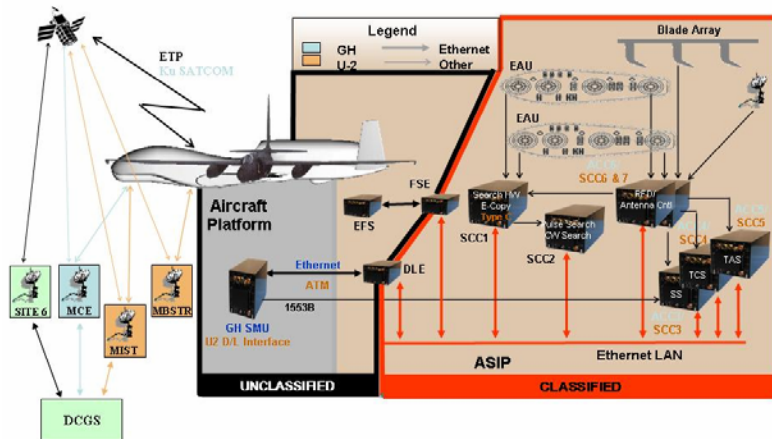


Airborne Signals Intelligence Payload (ASIP) Integrated Risk Management

Presented to:
10th Annual Systems Engineering Conference
24 October 2007



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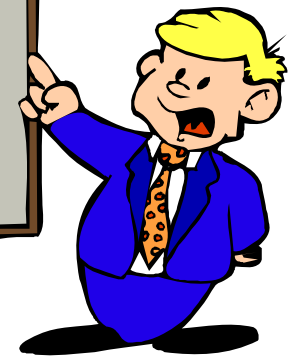
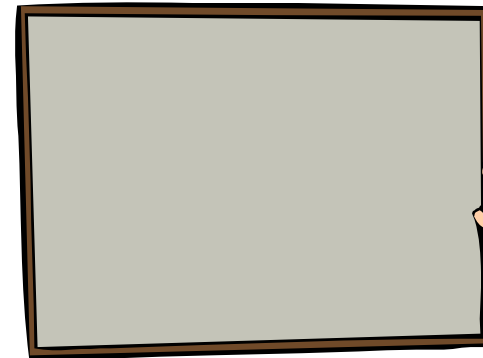
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Outline



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- **ASIP Program**
- **ASIP System of Systems**
- **Risk Terminology**
- **ASC/EN SE Tool Set**
- **Integrated Risk Management**
- **Integrated Risk Assessment (IRA)**
- **ASIP IRA Risk Summary**
- **ASIP SoS Risk Management**
- **ASIP Risk Management Model**
- **Best Practices**
- **ASIP Risk Management Results**
- **Risk Metrics**
- **Take Aways**



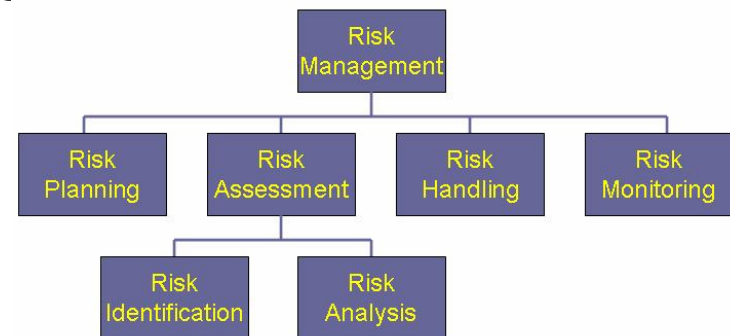


Airborne Signals Intelligence Payload (ASIP) Program



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- **USAF ACAT II SDD program under OSD T&E oversight**
 - Currently in developmental flight test on U-2
- **Payload collects & processes COMINT, ELINT & special signals targets**
- **Managed as a system-of-systems (SoS)**
 - Integrated master schedule
 - Interface control
 - **RISK MANAGEMENT**





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ASIP System of Systems*

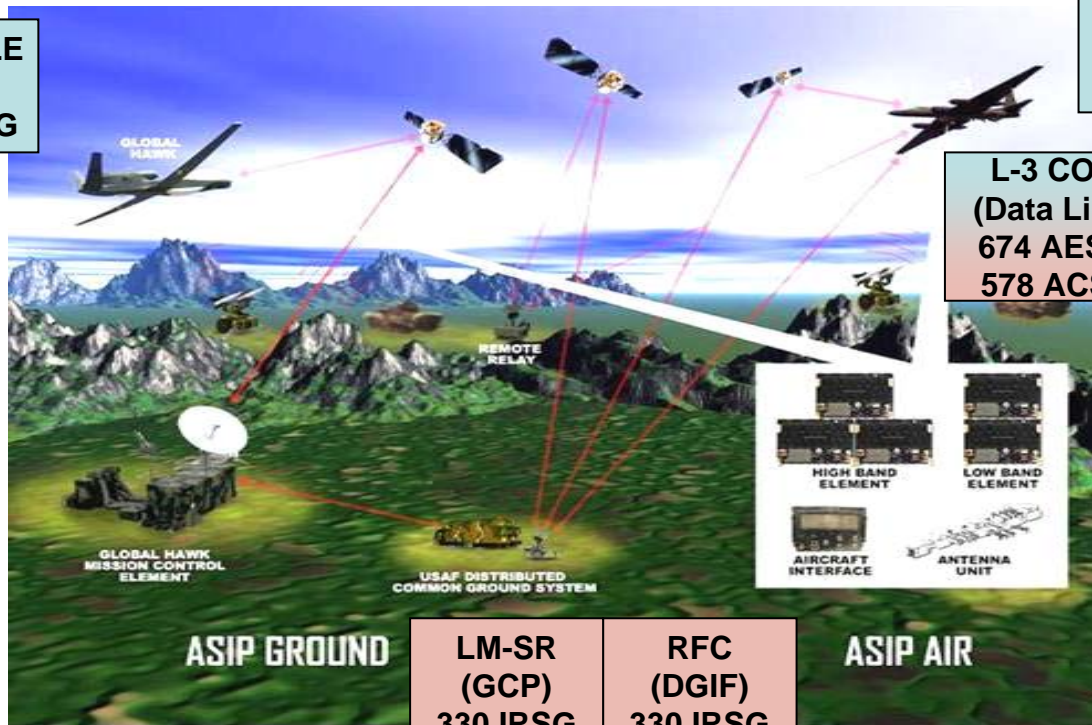
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NG - HALE
(GH)
303 AESG

LM-A
(U-2)
674 AESF

L-3 COM
(Data Link)
674 AESF/
578 ACSS

NG - ESL
(Sensor)
659 AESS



LM-SR
(GCP)
330 IRSG

RFC
(DGIF)
330 IRSG



* Managed at WPAFB
Managed at WRALC

“... A system of systems is a set or arrangement of interdependent systems that are related or connected to provide a given capability. The loss of any part of the system will significantly degrade the performance or capabilities of the whole....” (DAG 1.2.1)



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Terminology



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- **Risk:** A negative, future event that may occur, causing an execution failure in the program and you are able to estimate the probability and consequence (between 0-100% probability of occurrence)
- **Issue:** A negative, future event that is certain to occur and will have a negative impact on the program (100% probability of occurrence)
- **Problem:** A negative event that has already occurred (a risk that has come to fruition)
- **Concern:** A negative, future event that may occur, but you have insufficient information to quantify the probability and consequence

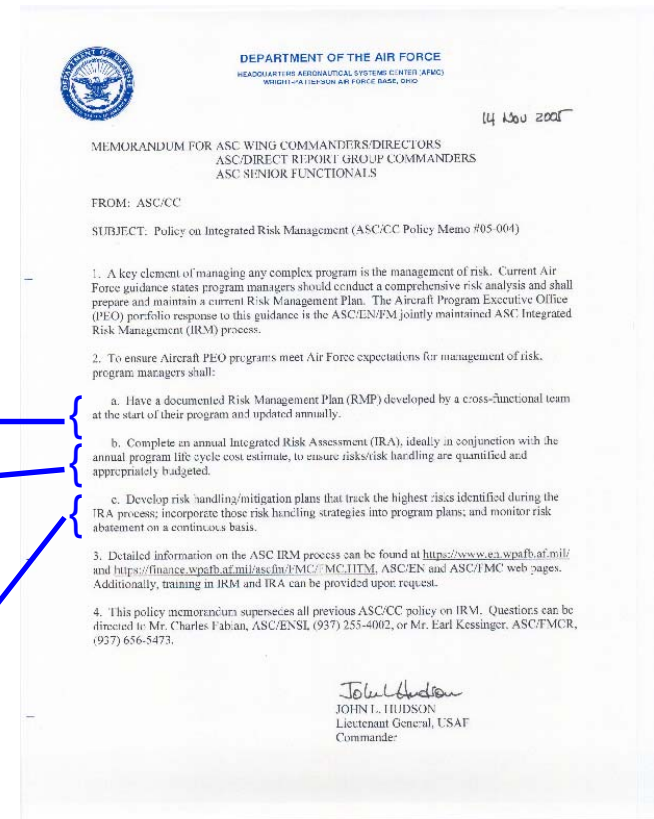


Integrated Risk Management (IRM)



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- **IRM is preferred method at ASC**
 - Part of acquisition strategy
 - Joint government/industry
 - Cross-functional
 - Single program risk deck
 - Documented Risk management plan
 - Integrated Risk Assessment (IRA) accomplished in conjunction with annual life cycle cost estimate
 - Incorporate mitigation into program plans



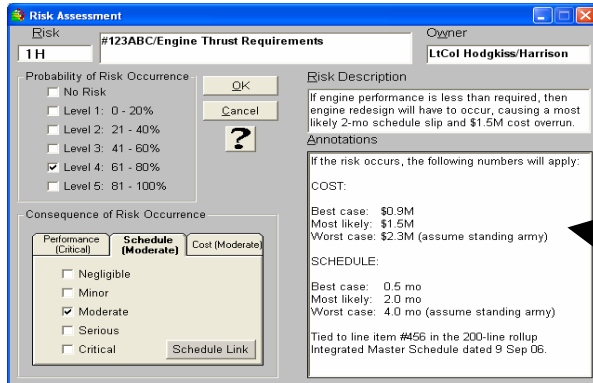
“IRM ... integrates the technical, schedule, and cost impacts of risk areas into a complete picture”



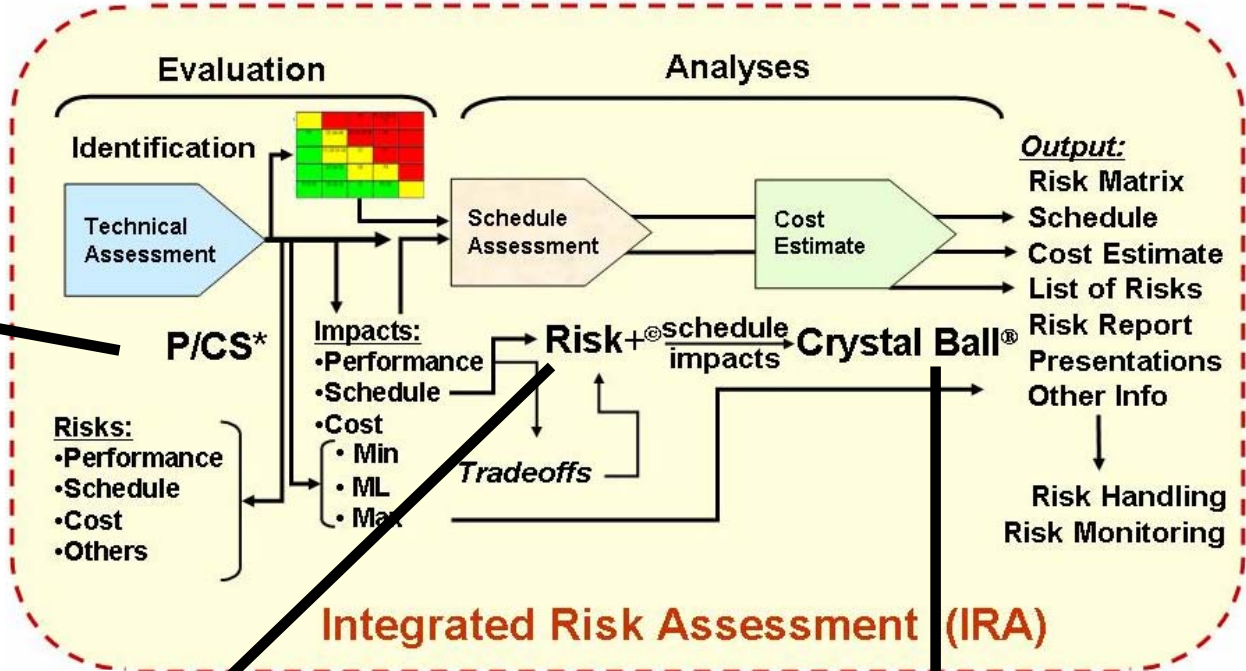
Integrated Risk Assessment



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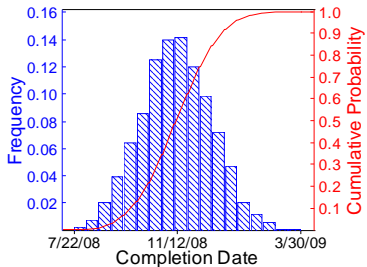


Updated compilation of (C/S/P) risks



Date: 8/31/2006 1:36:52 PM
 Samples: 5000
 Unique ID: 1
 Name: ASIP Program

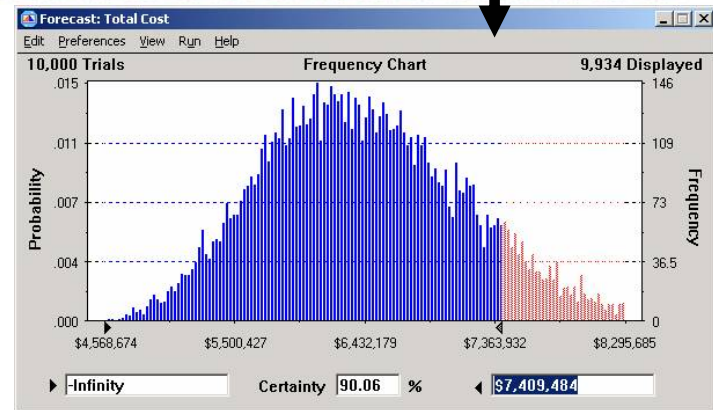
Completion Std Deviation: 27.55 days
 95% Confidence Interval: 0.76 days
 Each bar represents 10 days



Completion Probability Table

Prob	Date	Prob	Date
0.05	9/9/08	0.55	11/17/08
0.10	9/23/08	0.60	11/21/08
0.15	10/2/08	0.65	11/26/08
0.20	10/9/08	0.70	12/3/08
0.25	10/16/08	0.75	12/9/08
0.30	10/23/08	0.80	12/16/08
0.35	10/28/08	0.85	12/23/08
0.40	11/3/08	0.90	1/1/09
0.45	11/6/08	0.95	1/14/09
0.50	11/11/08	1.00	3/30/09

probability distribution - total program cost



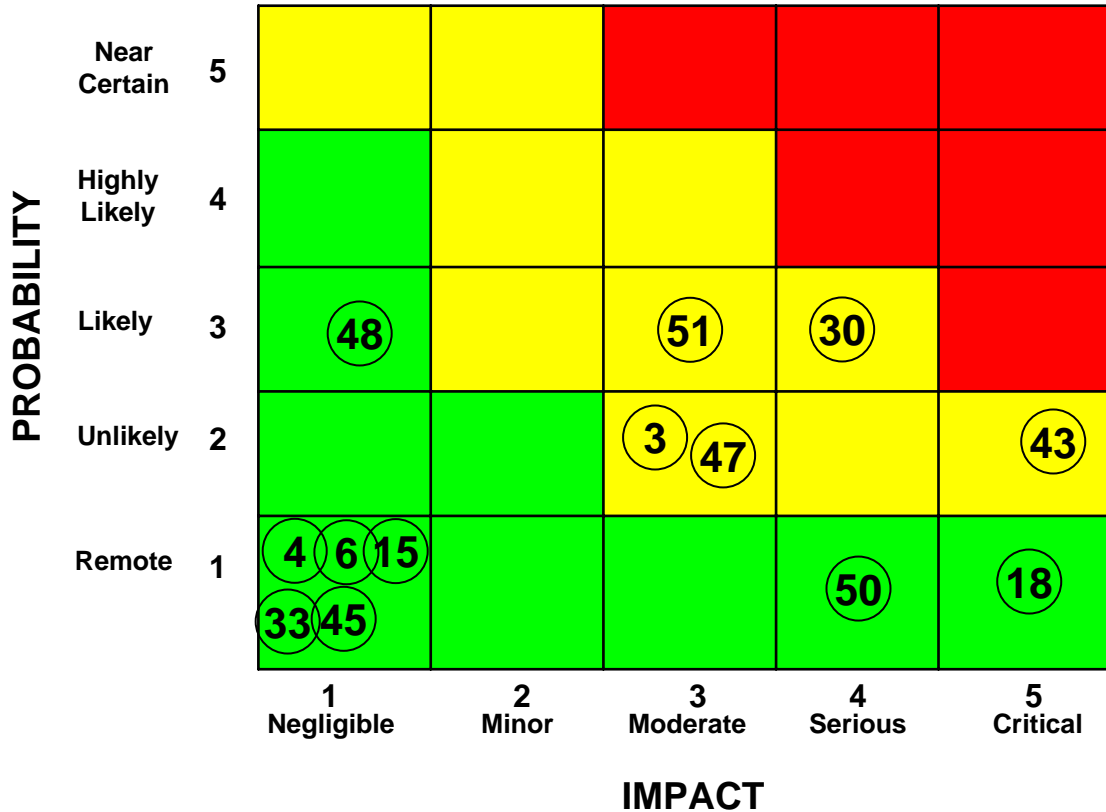
probability distribution - program completion date



Risk Summary (IRA)



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- 3. Sensor Qualification Testing
- 4. U-2 Accreditation
- 6. Site 2 Accreditation
- 15. U-2 Timing Source Stability
- 18. Edwards Connectivity to Site 2
- 30. GH SAR Antenna Positions
- 33. ASIP EMSEC Test on Flight Test/Production A/C
- 43. Certified DL Encryptor not Available for Fielding
- 45. FARSITE Support
- 47. Sensor/DCGS Interface Testing
- 48. GH Ku/Band 5 Corrective Action Effectiveness
- 50. GH Payload Weight
- 51. Flight Test Sortie Rate

2 risks have greatest potential to impact schedule:
#30 GH SAR Antenna Positions
#51 Flight Test Sortie Rate

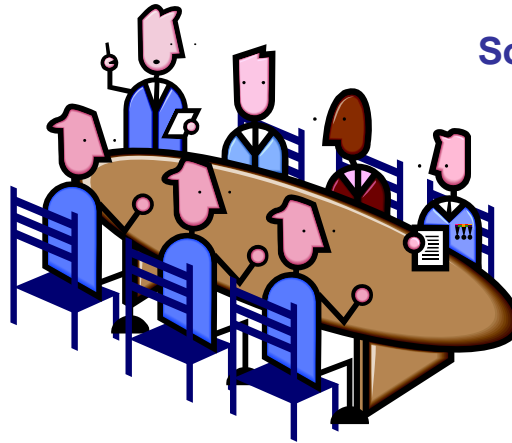


ASIP SoS Risk Management

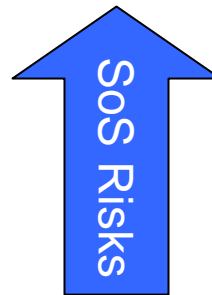


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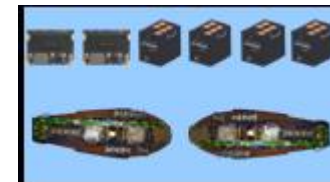
SoS Risk Review Board



Jeopardize SoS level performance or event



Require Government or associate contractor effort



Raytheon



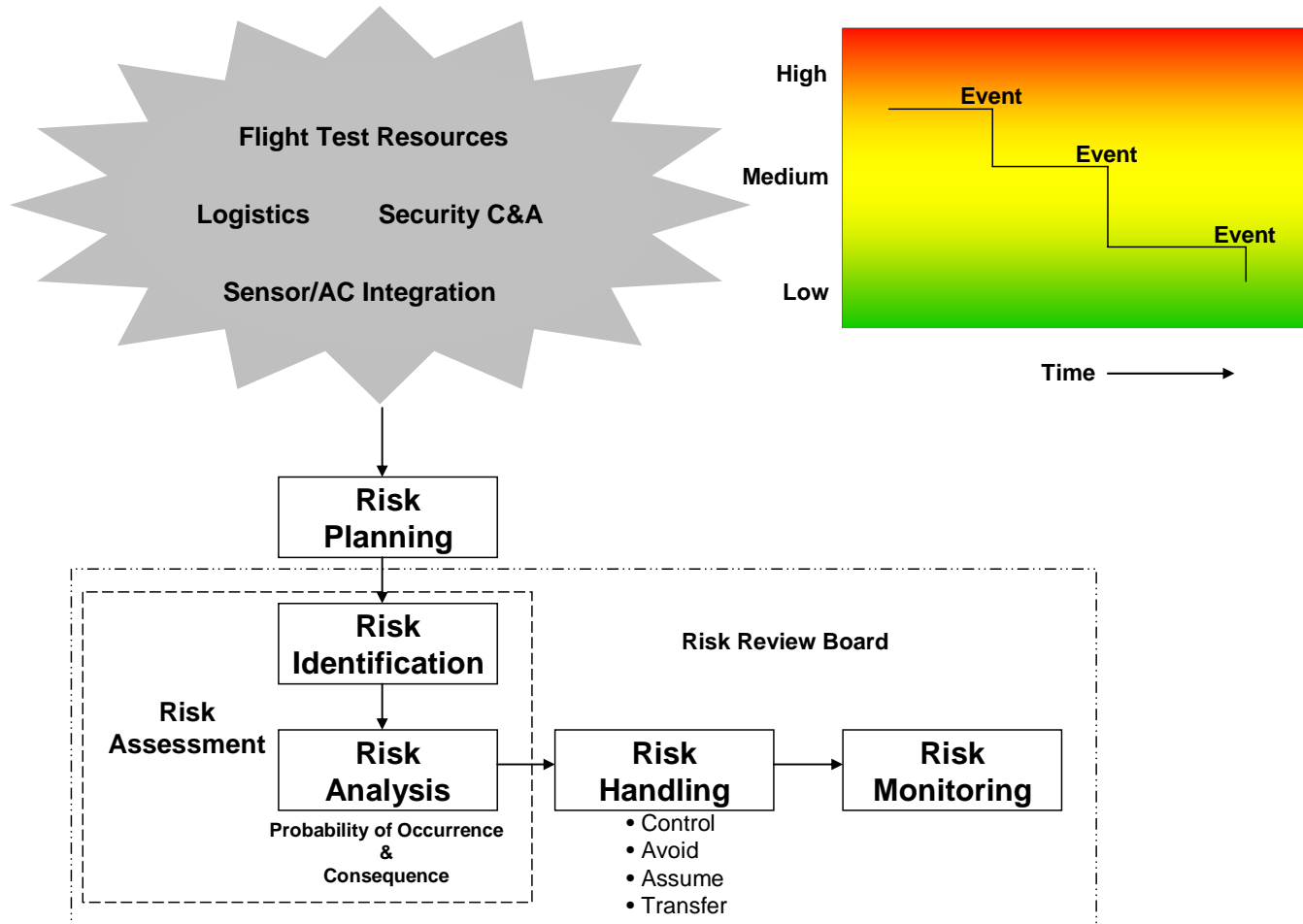
NORTHROP GRUMMAN



ASIP Risk Management Process Model



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Best Practices



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- **Conduct monthly risk review boards**
 - PMs & CEs actively involved
- **Include mitigation activities in IMS**
- **Brief status regularly to senior leaders**
- **Carefully describe risks**
 - If (root cause), then (bad outcome)
- **Address contractor & government risks**
- **Include step-downs in mitigation plans**

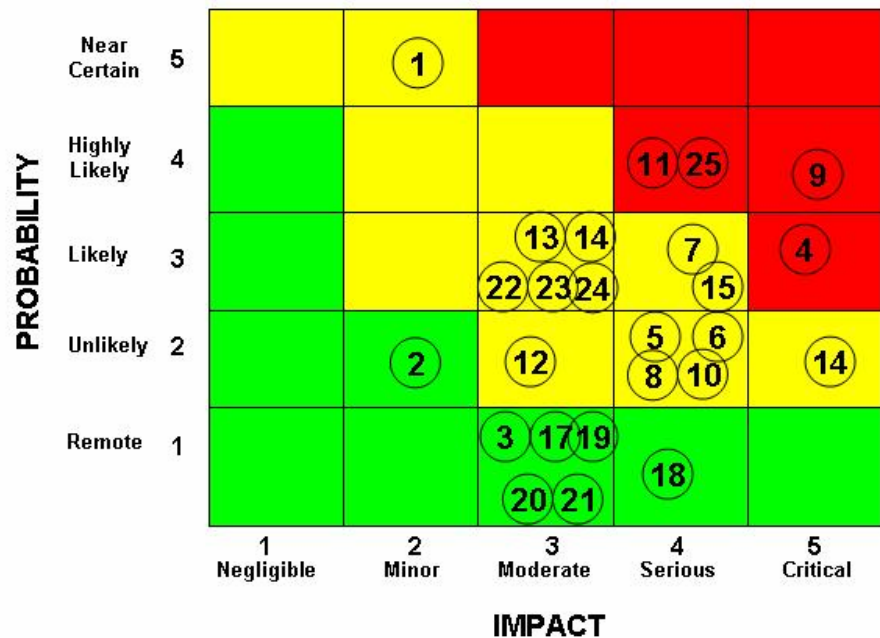




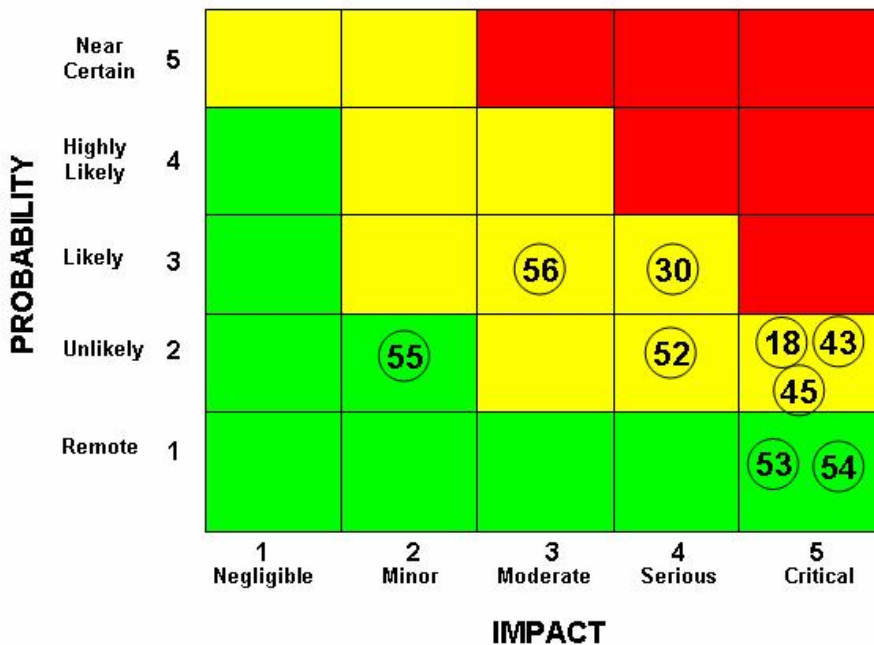
ASIP Results



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May 2005



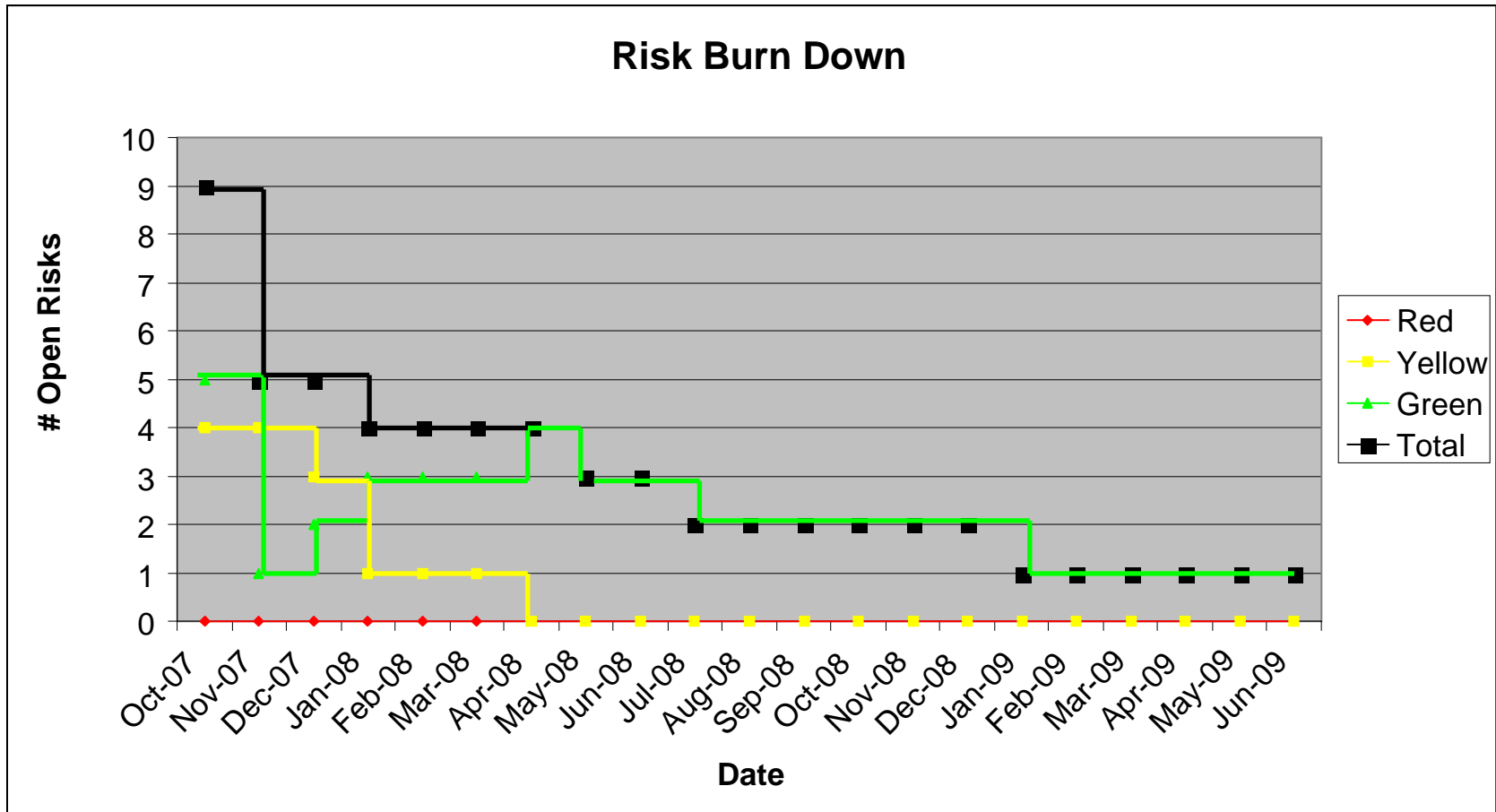
Sep 2007

Accepted: #29 - GH ICD Temp Inconsistency with EAU Spec
 Issues: #50 - GH Payload Weight
 #51 - light Test Sortie Rate



Risk Metrics

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Take Aways

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- **Risks are present in every program**
 - Can't afford no/low risk programs
 - May be acceptable if provides opportunity
- **Risk management is proactive**
 - Determines where/when to use resources
 - Necessary to make acquisition programs executable

“If you don't actively attack the risks, they will actively attack you.”

~ Barry Boehm in Software Risk Management



I cannot imagine any conditions which would cause a ship to founder.

Captain E. J. Smith, 1906



Questions/Comments



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