

TOP KNIFE FIGHTER SURGEON COURSE

173 Fighter Wing
Kingsley Field Oregon

RSV-1A

**MISHAP RESPONSE AND
INVESTIGATION**

Criterion Referenced Objectives

- Recognize the flight surgeon's responsibilities on the Interim Investigation Board (ISB)
- Recognize how the flight surgeon fits into the overall scheme of the ISB
- Recognize the flight surgeon's responsibilities on the Permanent Investigation Board

Interim Board Flight Surgeon Responsibilities

Overview

- The Interim Board
- Guidance and Preparation
- Initial Response
- Survivors
- Fatalities
- Role of the Chief of Safety
- Closing out/handoff

Convening an ISB

- Convened by the Wing/Group Commanders
- Normally for a Class A or B mishap within their AOR
- No time for “spin up,” must be trained and ready

Purpose of an ISB - 1

- Interim Boards do not solve mishaps
- Functions IAW AFI 91-204
 - Preserve evidence
 - Identify witnesses and conduct interviews
 - Gather factual data

The word “investigate” does not appear anywhere in the ISB’s charter!!

Purpose of an ISB - 2

- Perform initial walk through with Incident Commander (IC)
- Assume “control” of aircraft
- Evidence preservation efforts
- Develop witness identification list
- Preliminary diagram of major components at site
- Make initial estimate of mishap cost/category
- Accomplish preliminary mishap reporting
- Photo mishap site, wreckage, human remains
- Prepare for SIB arrival

ISB Relationship to the IC

- The IC owns the **mishap site**
 - Rescue – save lives (always the #1 priority)
 - Fire, Safety, Security
 - EOD/Composites/Bio/Pathogens
 - Logistics
 - Clean up/Recovery
- The ISB owns the **wreckage**
 - To gather and preserve evidence

ISB Composition

- Minimum Suggested Composition:
 - President – OG or equivalent
 - Investigating Officer – trained FSO
 - Pilot member – Pilot in mishap A/C type
 - Maintenance member – Mx officer or senior NCO
 - Medical member – Flight surgeon
 - Recorder – Junior officer or senior NCO familiar with admin duties

ISB President

- Usually Ops Group Commander (OG/CC) or Deputy
- Ensures initial board responsibilities carried out
- Evidence is preserved
- Installation is prepared to provide all necessary support to the SIB upon their arrival

ISB Investigating Officer

- Usually a Wing Flight Safety Officer (FSO)
- Ensure preservation of physical evidence at the scene of the mishap
- Under ideal circumstances is supported by a second trained flight safety officer, who assists the ISB president in the systematic gathering of documentary and testimonial evidence
- Preliminary AFSAS message

ISB Pilot Member

- Usually Sq/FSO or Wing DOV
- Assemble as much factual information as possible regarding the history of the mishap flight qualifications of the mishap crew.

ISB Maintenance Member

- Usually Wing/Sq Mx Officer
- Assemble as much information as possible regarding the history of the mishap aircraft, its most recent servicing, and the qualifications of the individuals who most recently worked on it.

ISB Medical Member - 1

- Main function is to preserve perishable medical evidence
- Ensure evidence not associated with human remains is left undisturbed
- Assumes responsibility for the post-mishap medical history, examination, care and toxicological testing of mishap crewmembers
- Collects medical and dental records
- Ensure human remains are photographed, preserved and documented
- Coordinate medical care at the mishap site
- Advise the ISB on environmental hazards at site

ISB Medical Member - 2

- Liaison between local medical authorities or coroners and military investigators
- Contact AFMES for path assistance
- Interim board medical officer guidance
 - Chapter 1 of AFI 91-204
 - AFI 48-123
 - AFPAM 91-211
 - The Society of USAF Flight Surgeon's checklist
 - HQ AFSC SEFL

ISB Recorder

- Ensure the administrative and logistical needs of the ISB are met
- If interim recorder is appointed, he or she may be retained as the ISB recorder with MAJCOM and local agreement
- A good recorder is the key to a smooth ISB

ISB Guidance

- **AFI 91- 202, The US Air Force Mishap Prevention Program**
- **AFI 91-204, Safety Investigations and Reports**
- **AFPAM 91-211, US Air Force Guide to Safety Investigations**
 - **Best source of info**
- **AFM 91-223, Aviation Safety Investigations and Reports**

BY ORDER OF THE SECRETARY OF THE AIR FORCE	AIR FORCE INSTRUCTION 91-101 LAWGET 2199 4 APR THE US AIR FORCE MISHAP PREVENTION PROGRAM
	
COMPLIANCE WITH THIS PUBLICATION IS MANDATORY!	
NOTICE: This publication is available digitally on the AFM 91-202 WMR website at http://www.afpublink.af.mil .	
OFT: HQ AFM/SWP (2/C Spt Adm); Subject: AFI 91-202; 1 October 2010	Certified by: HQ USAF/SEP (2/C Gen Govt) Page: 74 Distribution: T
This instruction supersedes AFIP 91-2, Safety Programs. It establishes policies, programs, requirements, resource responsibilities, for program planning, and conduct, program assessment information. It applies to all Air Force personnel, including Air Force Reserve and Air National Guard members. It clarifies issues, review and confirmation in being in, or otherwise transiting, with third countries from and to US Air Force operations. This instruction implements NATO Standardization Agreement (STANAG) 3197, Exchange of Safety Information, revision 1, dated 13 August 2001, Annex 3, Safety Information Reporting and Reporting of Accidents. AFM 91-223, Aviation Safety Instructions and Reports, and AFM 91-204, Safety Investigations and Reports of Accidents, becomes AFM 91-211, Safety Investigations and Reports of Accidents. This change removes AFM 91-223, Aviation Safety Instructions and Reports, and AFM 91-204, Safety Investigations and Reports of Accidents, and AFM 91-211, Safety Investigations and Reports of Accidents, in their entirety. Under stand guidance, AFM 91-211, is the metric authority for programs and teams, and is this instruction. Under stand guidance, AFM 91-211, is the metric authority for programs and teams.	
BY ORDER OF THE SECRETARY OF THE AIR FORCE	AIR FORCE INSTRUCTION 91-204 22 APRIL 2004 Safety
	
SAFETY INVESTIGATIONS AND REPORTS	
COMPLIANCE WITH THIS PUBLICATION IS MANDATORY!	
NOTICE: This publication is available digitally on the AFM 91-202 WMR website at http://www.afpublink.af.mil .	
OFT: HQ USAF/SEP (2/C Phil Schroeder); Subject: AFI 91-204; 1 November 2003	Certified by: HQ USAF/SEP (2/C Reservist Board); Page: 97 Distribution: E
This instruction provides policy guidance that is common to investigating and reporting of US Air Force mishaps. This safety manual supplements the AFM 91-202, Safety Investigations and Reports, provides additional guidance for investigating and reporting of launch mishaps, guided missile, explosive ordnance disposal, and space mishaps. AFM 91-211, Space Safety Investigations and Reports, provides additional guidance for investigating and reporting space mishaps. AFM 91-224, Ordnance Safety Investigations and Reports, provides additional guidance for investigating and reporting aircraft, motor vehicle, off-highway vehicle, and general industrial mishaps. AFM 91-228, Explosives Safety Investigations and Reports, applies to commanders, commanders, operators, and other craft at all levels, or persons who investigate and report Air Force mishaps, and those persons who handle such reports. This instruction provides guidance regarding the conduct and nature of practical safety inspections and command safety inspections. Tables to observe the prohibitions and mandatory provisions in Chapter 3 by service duty Air Force members, USAF members in non-duty status, members of the armed forces, and AFSC members in federal civil status, in violation of Article 32, Title 36, United States Code of Federal Regulations, are included in this instruction. This instruction is disciplinary in nature without regard to offense or applicable statute or civil violation. It contains sections of related laws. This regulation supersedes North Atlantic Treaty Organization (NATO) Standardization Agreement (STANAG) 3197, Exchange of Safety Information, Concerning Aircraft and Missiles, 11/02; Flight Safety Co-operation in Common Ground-Air Spaces, 22/01, Safety Investigations and Reporting of Accidents; Security Pre-flight Meeting, Accept-and-Moderate; and 37/00, Zipping and Unzipping of Flight Journals. The specific prohibitions and mandatory provisions contained in this publication are summarized in AFM 91-211. Appendices of forms and copies of AFM 91-202 and AFM 91-204, Safety Instructions and Reports, available online at http://www.afpublink.af.mil . See Attachment 1 for a glossary of definitions and reporting information.	

Preparation – Planning

- If you are a potential ISB member, read your base CEMP and visit your Wing Safety Office
 - Search and rescue (SAR) agencies – with whom will you work?
 - Checklist for mishap response
 - Communication – Radio? Cell phone?
 - Jurisdiction for fatalities – Check locally
 - Mass casualty plan
 - Armed Forces Medical Examiner System
[\(http://www.afmes.mil\)](http://www.afmes.mil) has replaced AFIP!

Preparation – Planning

- Mishap kit
 - Inventory regularly, ready at all times
 - Usually maintained by Wing Safety Office
- Personal gear
 - Available, no-notice
 - Maintained by YOU
- GPS – Safety office should supply
- After hours response plan

ISB Member Training

- Dictated by AFI 91-202 ANG sup 1
 - Formal training not required
 - COS/FSO will train the identified members
 - Initial
 - Annual re-currency training
 - This must be documented
 - Handouts, PPT presentations, or both may be used



Individual Checklists

- **AFPAM 91-211 Attachment 3**
 - Section A3C has extensive, specifically designed checklists for each ISB member
 - Broken down into 3 phases
 - Preparation
 - Notification/ISB
 - SIB Arrival
 - A3.8 is specific for MDG/CC – Familiarize yourself with it ***beforehand***; outlines entire process
- Unit specific ISB checklists should be built into your Aircraft Mishap Response Plan

Initial Response

- Recovery and treatment of survivors – First priority
- SAR mission
 - Land vs. water
 - How will you communicate with SAR personnel?
- Ambulance response
- Family Notification
- MAJCOM Notification
- Medical support at crash site
 - Local authorities? Military? Both? Know your local plan.

Mishap Response

“Big Picture”

Initial
Responders

- Fire Chief

Disaster
Control Group
(DCG)

- Incident Commander
- Safety Representative

Crisis Action
Team (CAT)

- Wing Commander
- Safety Representative



Survivors

- Medical and Dental Records
 - Crew mental health records, substance abuse records, family advocacy records, list of medications prescribed from the pharmacy
- Collect Life Support Gear
- Treat injuries, perform complete physical
- Ejection: Full spine x-rays
- Toxicology
 - Ship express to AFMES (not AFIP!)
 - Save extra blood

Survivors

- 72-hour history
 - Detailed
 - Crew rest, diet, stressors
- 14-day history
 - Less detailed
 - Look at changes in routine
- DNIF survivors
 - Do not rush RTFS

Survivors

- Telephone report to MAJCOM
- Recovery of egress equipment
- Preservation of life support and egress equipment

Survivors

- Wrap items in plastic and limit handling
- Wet items should be dry
 - Don't attempt to fit fractured metal surfaces together
- Do not alter attachments
- If items are soaked in blood or body fluids, spray with Lysol and let dry

Survivors – Interviews

- Who
 - Transient witnesses
 - Local eyewitnesses
 - On duty witnesses
 - Survivors/relatives
- Basics
 - Promise of confidentiality?
 - “Tell me what happened”
 - “Tell me what you saw”
 - Few follow-on questions

Fatalities

- Remains tagged, photographed and removed
 - Diagram location
 - Involve FS and SPTG/services
 - With large complex mishap -- may take days
- Local coroner vs. Flight Surgeon
 - Coroner/ME usually has jurisdiction on/off base
 - Dictated by MOUs & state laws
 - FS participates “over-the-shoulder”
 - Call in AFMES for complex mishaps
 - Autopsies and remains identification

Fatalities

- Psychological Support
- CISM: Critical Incident Stress Management
 - Covered by AFI 44-153
 - Composed of medical, mental health, chaplain, etc
 - Serves families, aircrew, SAR, recovery personnel, etc
 - Have available at mishap location



Pre-Autopsy

- Photographs done at mishap site
- Secure personal effects and valuables after tagged, photographed in original location
- Total body X-rays
- Notify SIB flight surgeon of fatalities, disposition of remains
- Transportation of remains

Autopsy

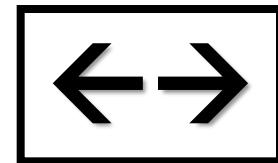
- Secure life support equipment
 - With body until autopsy
 - Give to mishap board
- Obtain toxicology study results
- Death certificate
- Board president's approval necessary to release remains

Chief of Safety - 1

- Preparation
 - Identify and train multiple potential ISB members for all board positions
 - Ensure pre-mishap planning is up-to-date, all required equipment is readily available, and a suitable work-center has been identified
 - Periodically exercise the ISB process, preferably in conjunction with a MARE.

Chief of Safety - 2

**Safety
Office**



**Interim
Safety
Board**

*Sending
out prelim
reports, POC
For ISB....*

*Gathering
evidence,
initial
interviews, etc*

Chief of Safety - 3

- COS role during the ISB:
 - Ensure an appropriately tailored ISB is selected
 - Ensure a work-center is established, preferably in the same location as will be used by the permanent board, as quickly as possible
 - Work with the Incident Commander to restrict access and minimize disturbance to the scene once it has been declared safe
 - Make the gathering and preservation of physical and documentary evidence an absolute priority
 - Ensure reports are initiated and sent on time
 - Provide for a 24-hour point of contact for the ISB

Chief of Safety - 4

- SIB Arrival
 - Ensure maximum possible support is provided to the incoming SIB, including transportation, billeting, personal and professional equipment, and workspace.
 - Arrange an orderly transition of custody of evidence and information gathered through both mass briefings to the entire SIB and one-on-one briefings conducted by their ISB counterparts, as appropriate.
 - Orient the SIB members to the installation and the crash site as quickly as possible.
 - Ensure ISB members withdraw promptly and finally when relieved by their SIB counterparts.

Closing Out

- Chronicle SAR Mission
- Hand off to SIB Flight Surgeon
 - Notes
 - Pictures
 - Life support gear
 - Medical records
 - Dental records
 - 72-hr AND 14-day histories

ISB/SIB Handoff

- Handoff briefing IAW AFPAM 91-211
- ISB members not to offer any theories, conjecture, or conclusions developed unless specifically asked
- Your unit should have a ISB/SIB hand-off briefing format ready now for any future ISB President

ISBs and the Press



Common ISB Errors

- Unit has not identified and trained potential ISB members
- Unit does not have the required equipment and work space readily available
- The unit does not practice convening an ISB
- Having an ISB that tries to “investigate” instead of protect and preserve evidence

Summary

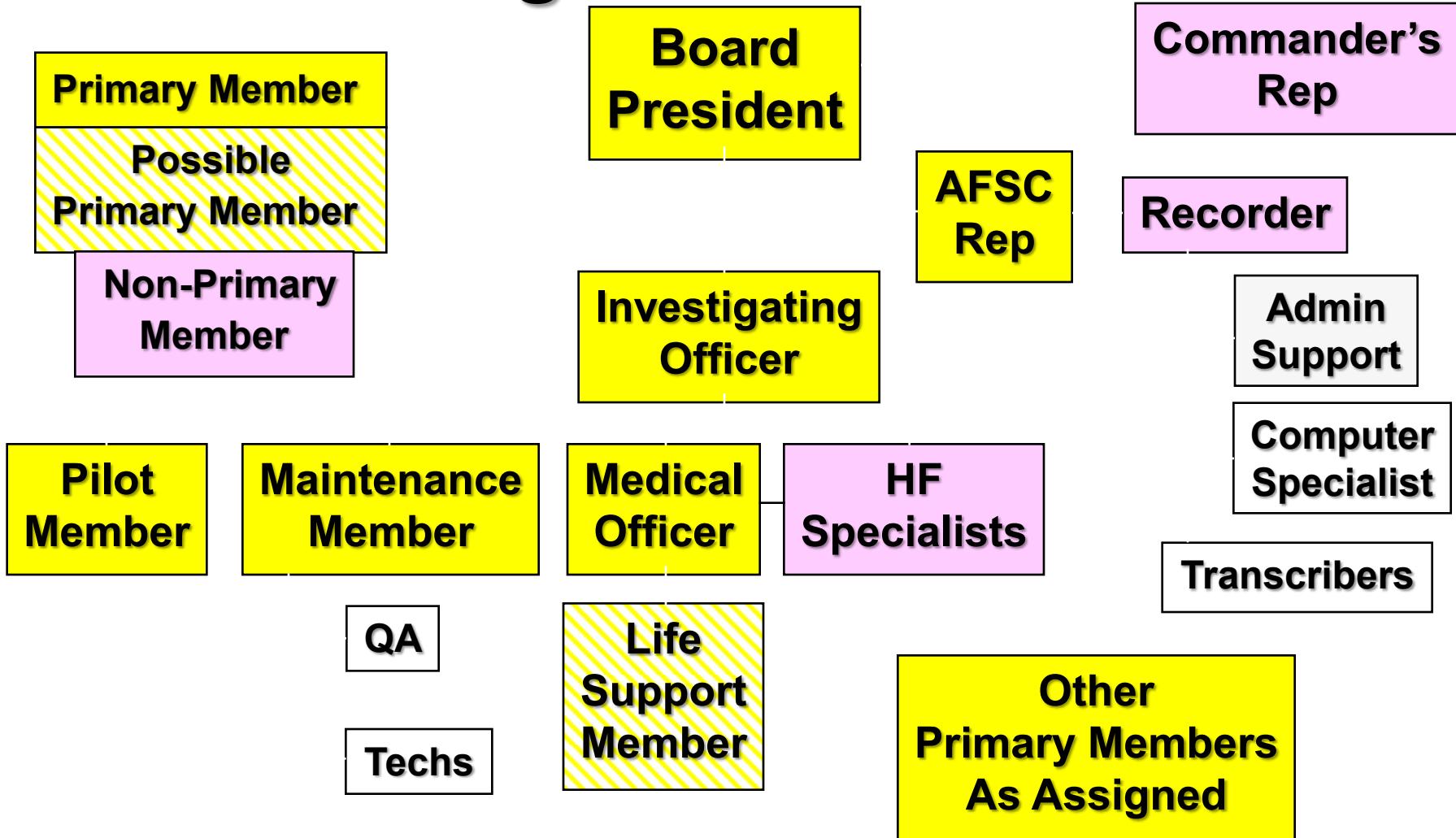
- The Interim Board
- Guidance and Preparation
- Initial Response
- Survivors
- Fatalities
- Role of the Chief of Safety
- Closing out/handoff

Permanent Board Flight Surgeon Duties

Overview

- Board purpose and composition
- Preparation
- Getting started
- First visit to the mishap site
- Integration into the investigation
- Consultants
- Writing the report

SIB Organization Basics



The Permanent Mishap Investigation Board

- PURPOSE: Prevention of future mishaps
- COMPOSITION
 - President appointed by numbered AF
 - Wing tasked to provide other members
 - MAJCOM tasks MDG SGP to provide flight surgeon
 - Required voting members:
 - President
 - Investigating Officer
 - Pilot Member
 - Maintenance Member
 - Flight Surgeon

The Permanent Mishap Investigation Board (Cont.)

- Optional Voting Members:
 - Life Support Officer
 - Air Traffic Controller
 - Unit Representative
 - Munitions Specialist
 - Weather Representative
 - AFOTEC Representative
- Required Nonvoting Members:
 - Recorder
 - FAA or NTSB if they desire participation
 - Test Organization if involved

Permanent Board Products

- **Messages**
 - Final message at 30 days
- **Briefings**
 - Numbered AF
 - MAJCOM
- **Report**
 - Copies controlled
 - Limited use

Preparation - Supplies

- Useful References:
 - AFI 48-123
 - AFPAM 91-211
 - Flight Surgeon Checklist
 - Aerospace Medicine Textbook
 - Aerospace Medicine Telephone Directory

Preparation - Supplies

- Useful Items:
 - Camera with flash
 - Hand-held digital recorder
 - Ziplock bags and adhesive labels
 - Exam gloves
 - Work gloves
 - Moist towelettes
 - Graph paper
 - Tape Measure
 - GPS

Preparation - Supplies

- Personal Items
 - Flight suits, ABUs
 - Foul weather gear
 - Field boots
 - Field hat
 - Sunscreen
 - Insect repellant
 - Personal First Aid Kit

Preparation - Travel

- Assigned unit pays for the TDY
- Orders
 - Usually depart within 24 hours of notification
 - Assigned unit cuts orders
 - Variations authorized
 - Rental car

Getting Started

- Contact Board President
- Contact Life Support Member
- Debrief IFB Flight Surgeon

Surviving AircREW

- Check on AFMES toxicology
- Spine x-rays if aircrew ejected
- Review medical records
- Physical examination
 - Review what has been done
 - Do your own exam
 - Include anthropometric measurements
 - Complete 72- hr and 14-day histories

Fatally Injured Aircrew

- Check total body x-rays
- Autopsy arrangements
 - Pathologist
 - Photographs
- Review medical records
- Attend autopsy
 - Secure life support gear
 - Discuss mechanisms of injury
 - Preliminary list of diagnoses
 - Arrange for receipt of reports & photos

Others Involved

- **Others Involved in the mishap**
 - Physical exam
 - Toxicology
 - 72-hr and 14-day history
- **Search and Rescue (SAR) Information**
 - How notified
 - Accurate times
 - Unit involved
 - Interviews

First Visit to the Mishap Site

- Big picture
- Visit site of aircrew recovery
- Look at egress equipment
 - With life support member
- If aircraft impacted water:
 - Check wreckage as it comes in
 - Look for egress equipment
 - Look for controls:
 - Rudder pedals
 - Throttle
 - Stick handle

The Investigation

- Stay current on findings of other board members
 - *Attend daily debriefs*
 - Participate in or review interviews
- Be alert for new players
 - May need toxicology
 - May need 72-hr or 14-day histories

The Investigation (Cont.)

- Become familiar with critical human performance actions
 - Review pilot actions in simulator
 - Review maintenance:
 - Workload
 - Procedures
 - Ergonomics
 - Written guidance

Human Factors Analysis

- Board discussion of human factors
- Flight surgeon should offer to lead discussion
 - Start with your own list of potential human factors
 - Use a consultant as needed
 - Repeat the discussion as more is learned

Consultants

- When to consider getting a consultant
 - Theory you cannot confirm
 - To check your analysis
 - Out of ideas
- Only with the board president's approval
- Finding one
 - MAJCOM
 - AFISA life sciences
 - Direct

Consultants

- Most common consultant is from Life Sciences Equipment Lab, now at Wright Patterson AFB, OH
 - POC's for Mishap Investigations (as of January 2013):
 - Geoffrey Shidler (Aerospace Engineer)
 - DSN: 986-8985 Comm:(937) 656-8985
 - John Goines (Chief, LSEL)
 - DSN: 986-8981 Comm: (937) 656-8981
- 2060 Monahan Way, Building 17 Area B
Wright Patterson AFB, OH 45433-7808

Consultants

- Consultant report
 - Usually submitted in writing
 - Include in Tab Y
 - Or may be included in Life Sciences Narrative

The Report

- Two Parts
 - Part I - Tabs A-S
 - Part II - Tabs T-Z (limited use)
- Flight surgeon's responsibilities
 - Tab Y with assistance of life support member
 - Assist with human factors portion of Tab T
- Computers are wonderful things
 - Request a laptop
 - Let someone else sweat the formatting

Life Sciences Report – Tab Y Structure

- I. Part I
 - A. Brief Mishap Summary
 - B. Human Factors Related Issues
 - C. Life Support Issues
 - D. Injury Issues
 - E. Other Issues

Tab Y Structure

- II. Part II - Non-factors Worthy of Discussion
- III. Life Sciences Reports
- IV. Consultant Reports
- V. Appendices
 - Figure A4.1, AFPAM 91-211

Summary

- Board purpose and composition
- Preparation
- Getting started
- First visit to the mishap site
- Integration into the investigation
- Consultants
- Writing the report
- Next slide for quiz instructions

- [Go to quiz](#)
- Enter your answers on the [answer sheet](#)
- Print only one answer sheet for entire course
- Press ESC to go back to main menu