

Aviation

AVIATION MANAGEMENT

I. INTRODUCTION

A. Purpose. Why is a unit in this course dedicated to Aviation?

1. Increasing use of air resources.
2. High Risk.
3. High Cost.
4. High Profile
5. Highly specialized.
6. Highly Regulated

B. Incident Aircraft Missions.

Like all other incident functions, the Air Operations Branch provides a service to assist the IMT in meeting incident objectives. Aviation resources have the distinct advantages of speed and aerial perspective (big picture). These advantages must be justified, on a mission-by-mission basis, when weighed against the high cost and increased risk exposure inherent in aircraft use. Although mission oriented, aviation personnel must hold risk management and aircraft accident prevention as their highest priority. Incident aviation activities are categorized as either **tactical** or **logistical**. The distinction is necessary because the type of mission will effect IMT priorities and protocol concerning the use of incident aircraft.

1. Tactical Missions (direct suppression actions).
 - a. Heavy Air Tanker & Single Engine Air Tanker (SEAT) Operations.
 - b. Aerial Supervision: Lead Plane, ATGS, Aerial Supervision Module.
 - c. Helicopter water/retardant drops.
 - d. Helitack/Rappel.
 - e. Smokejumpers.
 - f. Aerial Ignition.
2. Logistical Missions (incident support activities).
 - a. Personnel Transport (Fixed Wing & Helicopter).
 - b. Cargo Transport (Fixed Wing & Helicopter).

- c. Infra-Red Imagery & Mapping.
- d. Incident Mapping.
- e. Search & Rescue.
- f. Communications Systems Support.

II. AVIATION POLICY

A. Umbrella Federal Aviation Policy.

- 1. Title 14 CFR, Aeronautics & Space (Federal Aviation Regulations).
- 2. Title 49 CFR, Transportation.
- 3. OMB Circulars A-76, A-123, A-126.

B. Agency Aviation Policy. Federal firefighting agencies have very similar aviation policy, however, there are some differences. State government aviation policy is frequently very different from federal policies. ***The policies and regulations of the agency with jurisdictional responsibility for the incident will be utilized to manage the aviation operations. However, participating agencies with more restrictive policy will continue to operate within their agency requirements.***

- 1. **USDA** Forest Service: 5700 Manual, Regional Supplements, Forest Aviation Plans.
- 2. **USDI**: Departmental Manual 350-354 (Office of Aircraft Services).
 - a. Bureau of Land Management: BLM 9400 Manual; BLM State Aviation Plans; BLM Unit Aviation Plans.
 - b. National Park Service: NPS-60; NPS Regional Supplements; Park Aviation Plans.
 - c. Bureau of Indian Affairs: BIAM-59; BIA Regional Supplements; Unit Aviation Plans.
 - d. US Fish and Wildlife Service: USFWS 330-334; USFWS Regional Supplements; Refuge Aviation Plans.

3. **State** Government Agency Aviation Policy.

C. Interagency Guides. Although not universally adopted, Interagency guides exist to standardize policy/procedures during interagency operations.

- 1. Interagency Airspace Coordination Guide.
- 2. Interagency Helicopter Operations Guide.

3. Interagency Air Tanker Base Operations Guide.
4. Interagency Single Engine Air Tanker Operations Guide.
5. Interagency Helicopter Rappel Guide.
6. Interagency Aerial Ignition Guide.

III. AIR OPERATIONS ORGANIZATION

- A. Organization. The Air Operations Branch works within the Operations Section. However, several Air Operations positions interact with the entire spectrum of IMT functions. The Air Operations Branch may employ hundreds of agency and contract personnel, depending on complexity.
- B. Air Operations Branch Director (AOBD). The AOBD supervises the Air Operations Branch and works directly for the Operations Section Chief. The IMT may have several OSCs that transition at mid-day or one OSC may be the "Planning OSC". This requires that the AOBD coordinate with multiple supervisors. The AOBD is a coordinator and facilitator with responsibility for planning and organizing air operations. Frequently the AOBD is considered a member of the General Staff interacting directly with the IC and Section Chiefs and attending strategy and planning meetings.
- C. Air Tactical Group Supervisor (ATGS). The ATGS is the primary aerial contact for both aerial and ground resources and provides aerial supervision and coordination of all airborne aircraft over the incident. Incident and non-incident aircraft must contact the ATGS prior to entering incident airspace. Directs tactical aircraft operations to meet objectives prescribed by the Operations Section. Also ensures aircraft separation, airspace integrity and adequate air-to-air and air-to-ground communications. Provides feedback and intelligence to OSC, DIVS and the Planning Section.
- D. Air Support Group Supervisor (ASGS). The ASGS supervises all Helibases and Fixed Wing bases supporting the incident. Coordinates the staffing, facilities, equipment and supplies necessary at aircraft operating bases to support tactical and logistical mission requirements. Interacts with all sections.
- E. Helibase Manager (HEB1). The Helibase Manager supervises all personnel and helicopter activities at the assigned helibase. On most Type I incidents with complex helicopter operations, the Helibase Manager(s) becomes a key position with enormous responsibility. There may be multiple helibases on a complex incident, each with a Helibase Manager.
- F. Fixed Wing Base Manager (FWBM). Occasionally, a Fixed Wing Base Manager will be assigned to a local airport/airstrip to manage aviation activities in direct support of the incident.

IV. SELECTED TOPICS: INCIDENT AIR OPERATIONS

- A. ICS-220, Air Operations Summary. The ICS-220 is prepared daily by the Air Operations Branch Director. It is the primary planning tool for the Air Operations Branch and becomes part of the daily Incident Action Plan. It provides vital information to line resources, Air Ops personnel, pilots, incident airbases, dispatch offices and non-incident aviation personnel.
- B. Aircraft Use and Cost Summary. Following the end of each operational period, a cost and use summary is prepared to record statistics for all aircraft serving the incident. This summary is compiled from submissions made by each assigned helibase and fixed wing base. The AOBD is responsible for submitting daily summaries to the Finance Section. At the end of the incident, a total incident aviation summary is prepared by the AOBD for presentation at the close-out and inclusion in the final fire package.
- C. Aircraft Resource Orders. Aircraft orders and releases are usually accomplished direct from the AOBD through the Expanded Dispatch Aircraft Desk or local Initial Attack Dispatch. Aircraft orders, especially for airtankers, require that specific information be passed and followed up on immediately. Expertise in this area is normally limited to aviation personnel and aircraft dispatchers. For this reason, aircraft orders are not normally handled through the Supply Unit/Ordering Manager; however, copies of aircraft resource orders are maintained with the Ordering Manager.
- D. Aircraft Requests From the Fireline. Requests from operations personnel on the fireline for tactical or logistical aircraft missions must follow specific protocol to ensure timely and efficient use of expensive air resources. Each IMT establishes levels of authority for making these types of requests. Usually, authority is not given to positions below Division Supervisor.
1. **Tactical Aircraft Requests** must be made in the most expeditious manner: direct to the source. Requests for airtankers or helicopter bucket drops are made to the Air Tactical Group Supervisor who will assign airborne aircraft already over the incident, or order additional aircraft from Airtanker Bases or Helibases.
 2. **Logistical Aircraft Requests** require a more formal and complicated procedure because several IMT functions may need to be involved. Overhead, crews, supplies and equipment may need to be transported to a helibase for delivery to the line by helicopter. This may need to be coordinated with Communications, Supply, Medical, Ground Transportation, Operations, Food, etc.

Logistical aircraft requests from the line must be placed at a central focal point: ICP Communications. The request must be complete and specific; the General Message form should be used to record the request. If the line overhead (DIVS) does not provide accurate and

comprehensive information, the Incident Dispatcher must demand that information prior to processing the order.

a. **Logistical Aircraft Request - Required Information.**

- Type & # of items needed or resources requested.
- Date and time needed.
- Delivery mode: internal/external cargo; long line & length.
- Delivery point: helispot, grid location, long line location.
- Ground contact name.
- Explanatory remarks if necessary.

b. **Packaging and Accounting.** Items to be transported to the line by helicopter must be packaged, labeled and weighed. ***A common practice to facilitate proper packaging and accounting is to assign a helicopter person to Supply, assign a supply person to the Helibase, or both.***

E. Temporary Flight Restrictions/Media Aircraft. The Air Operations Branch Director is responsible for designing, ordering, altering and canceling a Temporary Flight Restriction (TFR) to meet the needs of the incident. Media aircraft are allowed within the TFR but only after making a formal request and complying with operational requirements. ***Media aircraft requests must be directed to and coordinated with the Air Operations Branch Director.***

F. Aviation Safety and Assistance Teams (ASAT). These teams are composed of inspector pilots, aircraft maintenance inspectors and aircraft operations specialists. They may be ordered for a single complex incident or a geographical area where many aircraft are operating and aviation activity is intense and prolonged. ASATs provide fresh oversight of aviation operations with the intent of accident prevention. They may be ordered by the AOB, Area Command or State/Regional/National aviation managers.

G. Use of Military Aircraft. Military helicopters may be utilized when all commercial sources have been exhausted. They may come as part of a battalion mobilization (medevac) or to fill specific aircraft resource orders. Guidance is found in the Military Use Handbook (Revised for 2001; Ch. 70 deals with aviation). The mobilization of military aviation resources is coordinated through the National Interagency Coordination Center (NICC, Boise). Avionics installation, high-visibility paint schemes, pilot training and briefings, etc. should be accomplished by NICC prior to the arrival of military aircraft at the incident. The following items must be considered when military aircraft will be assigned to your incident:

1. The most important task for an IMT that will be receiving military aircraft is to plan, prepare and provide appropriate staffing. Pre-planning is necessary to establish responsibilities between NICC/Area Command/IMT, operating bases for military aircraft, aviation fuel sources and requirements, increased logistical needs, agency staffing needs and operating procedures.
 2. Assemble a briefing package/operating plan that will facilitate the integration of military aircraft and personnel into your IMT organization. It should describe the incident objectives, terrain, fire behavior, airspace, aircraft operating bases, radio frequencies, operating procedures, logistical support processes, etc. The military may send an advance party to the incident to receive this briefing.
 3. The military aircraft may be assigned to Area Command or directly to the IMT; they must be integrated into the agency aviation organization. The military will utilize their own internal chain-of-command but are under the operational control of the incident command structure.
 4. A Military Aviation Operations Coordinator (MAOC) will be assigned by NICC to Area Command or directly to the incident. Other agency aviation positions may be required: Military Helicopter Manager Supervisor, Military Helicopter Manager, Military Helicopter Crewmember. Ordering of these positions must be coordinated with NICC. Realize that even with these positions filled, workload will increase for all regular IMT Air Operations Branch functions: HEBM, ASGS, ATGS & AOBD.
 5. It is highly recommended that a Logistics Section Chief be ordered to coordinate the considerable support requirements associated with military aircraft and personnel. This may be a Deputy LSCI or a LSC2.
- H. Aviation Incidents & Accidents. Aircraft mishaps are reported and managed by the agency with **operational control of the aircraft**. The AOBD is responsible for ensuring that standard procedures and protocol are utilized. Possible impacts following an aircraft accident: complete shut-downs of Air Operations, emergency medical services, preservation and security of the accident site, accommodating the Accident Investigation Team, considerable media attention.
- I. Heli-Mopping: The use of helicopter water/retardant drops for mop-up. This activity, when subjected to risk and cost analysis, is not a good practice. Although fast and easy, the effectiveness of bucket drops vs. ground water delivery is very low. For remote areas, an alternative is to fly water blivets to the line where hose or fedcos can be utilized. Contract and CWN helicopters are paid a Daily Availability rate no matter what; unnecessary flight time just increases risk exposure and cost.

V. FUNCTIONAL RELATIONSHIPS

A. Expectations.

1. Success of the Air Operations depends largely on the quality of relationships and communication between the Air Ops Branch and other members of the IMT. Relationships and procedures are often developed through common experience, which is why IMTs with stable memberships are usually effective. Methods of establishing standard operating procedures, mutual trust and lines of communication are as follows:
 - a. Pre-season IMT meetings.
 - b. IMT Operating Plans.
 - c. IMT meetings during assignments & close-out sessions.
2. What the IMT Expects From the Air Operations Branch:
 - a. Attendance and input at all strategy and planning sessions.
 - b. Accurate time frames and assessments for aerial missions.
 - c. Current and accurate updates on status of aviation resources.
 - d. Timely feedback to the team on the safety and effectiveness of the Incident Action Plan's prescription of Air Operation activities.
 - e. That an Aviation Safety Evaluation can be conducted at any time and the evaluation will be predominantly positive concerning the safety and integrity of the IMT aviation operations, staffing and facilities.
3. What the Air Operations Branch Expects From the IMT:
 - a. The opportunity to participate in strategic and planning processes and to have input into development of the Incident Action Plan.
 - b. Understanding and commitment to meeting Air Operations objectives outlined in the ICS-220, Air Operations Summary.
 - c. Consideration by the Command and General Staffs of the following:
 - The limitations of personnel and aircraft.
 - Recognition of the role of human factors in aviation safety, (ie., pilot flight/duty limitations, adequate rest facilities, etc.)
 - Their role in assisting the Air Operations Branch in risk assessment and management.

- d. Complete and timely communications from Command and General Staffs to the AOBD concerning actions, alternatives and changes being discussed outside of formal IMT planning sessions.

B. Relationships Between Air Ops and Other IMT Functions

EXERCISE: The instructor will divide the class into groups by function (all ICs in one group, all FSC in another group, etc.)

Each group is to compile a list of actions that their function will routinely coordinate with the Air Operations group.

Attached to each action listed should be the primary position within their function (Chief or Unit Leader) and the primary Air Ops position (AOBD, ATGS, ASGS) who would work together to accomplish this action.

20 minutes will be allowed for the groups to compile their lists.

20 minutes will be allowed for group presentations and discussion.

After the exercise, the instructor will disseminate the **Air Operations/IMT Functional Relationship Matrix**.

VI. RISK MANAGEMENT

- A. Risk: Consequence X Exposure X Probability.
- B. Objective of Risk Management: Reduce Risk & Prevent Accidents
- C. Risk Management Responsibility: Each and Every Team Member; Everybody
- D. Degree of Risk
 1. There is a certain amount of risk inherent in any mission or activity
 2. What is 0% risk? (do not fly; do nothing)
 3. What is 100% risk? (an accident)
- E. Can Risk be Managed to Fall Within Acceptable Limits?
 1. Risk assessment is subjective.
 2. Personal risk decision depends on your own **perceived** consequence.
 3. Acceptable limits will be different for each individual.
 4. Agency Aviation Policy is the result of Risk Management conducted the "hard way", through trial and tragic error.

5. Agency Aviation Policy defines the agency's acceptable degree of risk.

F. Aviation Risk Factors: The 4 M's - (and appropriate Mitigation Measures)

1. **HUMAN** Risk Factors.

- Qualifications & Training (minimum requirements).
- Experience (experience requirements).
- Attitude (good working conditions and relationships; achievable goals).
- Physical Condition (medical requirements; fitness tests; flight/duty).
- Psychological Condition.
- Peer/User Pressure (create no-pressure environments).
- Judgment (the ultimate factor; influenced by all of the above).

2. Risk Factors Associated with the **MACHINE**.

- Equipment and Avionics (contract specifications).
- Aircraft Inspections (performed annually & intermittently).
- Maintenance (contract specified intervals, standards, procedures).
- Aircraft Performance (match aircraft to mission; turbine power checks).

3. Risk Factors Associated with the Flight **MEDIUM**.

- Altitude (minimum altitude profiles).
- Aerial & Ground Hazards (towers, trees, power lines, other aircraft).
- Terrain (mountain flying techniques).
- Weather & Visibility (visibility minimums, VFR only).

4. **MISSION** Risk Factors.

- Mission Planning (flight plans; safety plans, Risk Management).
- Organization & Staffing (adequate staffing, protocol, supervision).

- Briefings (pre and post-operational, safety as needed).
- Mission Conduct (flight following, flight routes/profiles, deviations).
- Emergency Procedures (accident response, medivac).

G. Managing Risk for Incident Aviation Operations. All incident aviation operations are high risk. The fire environment requires low-level maneuvers in congested airspace, confined terrain, limited visibility, high density altitude and extremely variable weather conditions. The risk is magnified by unclear or rapidly changing priorities and an implied urgency to task accomplishment. The aviator's focus is on the surface activities and the mission at hand.

Agency Aviation Managers are focusing on Human Factors and Risk Management in an effort to reduce aircraft accidents.

It is incumbent upon the entire IMT to provide strategy commensurate with the selected incident management alternative and tactics commensurate with the incident objectives. Therefore, risk assessment and risk decisions must be made at both the strategy and tactical planning phases of incident management. For aviation operations, the IMT must rely on the expertise of the AOBD for risk assessment. However, the decision to accept risks is usually made by the Operations Chief or the IC.

Below are questions that should be asked throughout all phases of aviation planning, from the IC to the Helibase Manager.

Aviation Watch Out Situations

- Is this flight necessary?
- Is there a better way to do it?
- Can you justify your actions?
- Is there an overwhelming sense of urgency?
- Who is in charge?
- Are all hazards identified and made known?
- Are communications marginal or inadequate?
- Are there any rules being taken?
- Are there other aircraft in the area?
- Are escape routes identified and known for each mission?
- Are deviations from the planned flight or operation occurring?
- Should you stop the operation or flight due to changing conditions in:
 - Communications?
 - Confusion?
 - Weather?
 - Turbulence?
 - Conflicting Priorities?
 - Personnel?