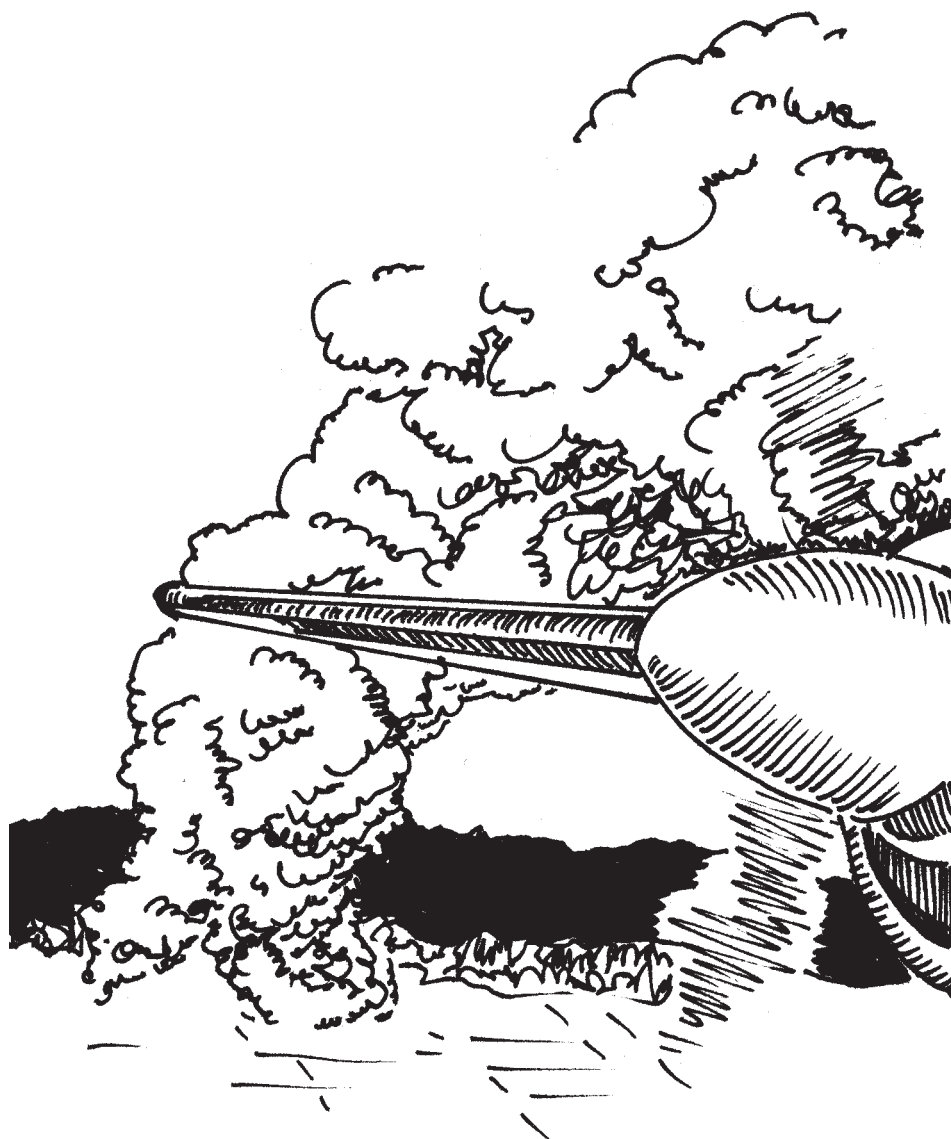


Aerial Supervision

S-378



NFES 1585

Instructor Guide
FEBRUARY 2009



CERTIFICATION STATEMENT


on behalf of the

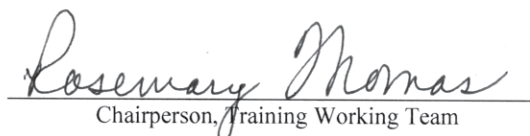
NATIONAL WILDFIRE COORDINATING GROUP

The following training material attains the standards prescribed for courses developed under the interagency curriculum established and coordinated by the National Wildfire Coordinating Group. The instruction is certified for interagency use and is known as:

Aerial Supervision, S-378
Certified at Level I

This product is part of an established NWCG curriculum. It meets the COURSE DEVELOPMENT AND FORMAT STANDARDS – Sixth Edition, 2003 and has received a technical review and a professional edit.


Member NWCG and Training Working Team Liaison


Chairperson, Training Working Team

Date 2-20-09

Date 2-19-09

Aerial Supervision

S-378

Instructor Guide
FEBRUARY 2009
NFES 1585

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National Interagency Fire Center, Fire Training, 3833 S. Development Ave., Boise, Idaho 83705.
E-mail: nwcg_standards@nifc.blm.gov.

Additional copies of this publication may be ordered from National Interagency Fire Center,
ATTN: Great Basin Cache Supply Office, 3833 South Development Avenue, Boise, Idaho 83705.
Order NFES 1585

NWCG TRAINING WORKING TEAM POSITION ON COURSE PRESENTATION AND MATERIALS

The recommended hours listed in the FMCG are developed by Subject Matter Experts based on their estimation of the time required to present all material needed to adequately teach the unit and course objectives. The hours listed may vary slightly due to factors such as number of students, types and complexity of course activities, and the addition of local materials. NWCG does not approve of course delivery varying greatly from the recommended course hours. Instructors and students are cautioned that in order to be recognized as an NWCG certified course, certain guidelines must be followed:

- Lead instructors are encouraged to enhance course materials to reflect the conditions, resources, and policies of the local unit and area as long as the objectives of the course and each unit are not compromised.
- Exercises can be modified to reflect local fuel types, resources, and conditions where the student will be likely to fill incident assignments. The objectives and intent of the exercises must remain intact.
- Test questions may be added that reflect any local information that may have been added to the course. However, test questions in the certified course materials should not be deleted to ensure the accurate testing of course and unit objectives.
- Test grades, to determine successful completion of the course, shall be based only on the questions in the certified course materials.

If lead instructors feel that any course materials are inaccurate, that information should be submitted by e-mail to NWCG Fire Training at nwcg_standards@nifc.blm.gov. Materials submitted will be evaluated and, where and when appropriate, incorporated into the appropriate courses.

COURSE LENGTH FOR NWCG COURSES

If a course is available through PMS, the recommended course hours and the “NWCG Position on Course Presentation and Materials” will be adhered to by the course instructors.

- Unit times represent the allotted time to teach the unit and complete the exercises, simulations, and tests.
- Recommended course hours are given to help the students and the course coordinator with planning travel, room reservations, and facilities usage. This represents the time estimated to present the NWCG provided materials including time for breaks, lunch periods, set-up for field exercises or simulations, etc.
- Actual times for both the unit and the course may vary based on number of students, types and complexity of course activities, and the addition of local instructional materials.

If the course is not available through PMS, e.g., L-380, and has been developed using NWCG course criteria, minimum course hour requirements have been established and must be adhered to by the course developer and course instructors.

Course hours for all NWCG courses can be found in the Field Manager’s Course Guide (<http://www.nwcg.gov/pms/training/fmcg.pdf>). If the hours are a minimum versus recommended they will be stated as such.

PREFACE

Aerial Supervision, S-378 is a required training course in the National Wildfire Coordinating Group (NWCG) wildland and prescribed fire curriculum. It was developed by an interagency group of experts with guidance from NWCG Training under authority of the NWCG. The primary participants in this development effort were:

U.S. DEPARTMENT OF THE INTERIOR

Bureau of Land Management, National Aviation Office

Bureau of Indian Affairs, National Aviation Office

Bureau of Land Management, Boise District

U.S. FOREST SERVICE

Boise National Forest, Lowman Ranger District

NATIONAL INTERAGENCY FIRE CENTER

NWCG Training Development Unit

The NWCG appreciates the efforts of these personnel and all those who have contributed to the development of this training product.

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COURSE INSTRUCTIONS

This section contains instructions and information essential to the course coordinator and instructors in making an effective presentation. Cadre members must read this section and be thoroughly familiar with course procedures and material prior to presentation.

I. INTRODUCTION

Aerial Supervision, S-378 is a 36- to 40-hour course designed to meet the training needs of an Air Tactical Group Supervisor (ATGS), Helicopter Coordinator (HLCO), Leadplane Pilot/Airtanker Coordinator (ATCO), and Aerial Supervision Module (ASM) as outlined in the Interagency Aerial Supervision Guide.

This course also meets the training requirements for the ATGS and HLCO as outlined in the Wildland Fire Qualification System Guide (PMS 310-1) and the position task books developed for the positions.

The Wildland Fire Qualification System Guide provides guidance and a national wildland fire standard for establishing minimum training, skills, knowledge, experience, and physical fitness requirements for the participating agencies of the NWCG.

This course will provide students with the prerequisite knowledge and skills necessary to perform the tasks of the ATGS, HLCO, and ATCO positions within the incident command system.

II. COURSE OBJECTIVES

Upon successful completion of the course, students will be able to:

- Describe procedures for safe and effective air traffic control over an incident.
- Describe efficient procedures for utilization of aircraft to meet incident objectives.
- Describe procedures for effective coordination between aviation and ground forces.

III. INSTRUCTOR PREREQUISITES

Refer to the Field Manager's Course Guide (PMS 901-1) for instructor prerequisites specific to this course. This guide is accessible at <http://www.nwcg.gov/pms/training/training.htm>.

This is a 300 level course. In addition to the course specific instructor prerequisites, all instructors are required to have 32 hours of instructor training such as Facilitative Instructor (M-410), or an equivalent course, as stated in the Field Manager's Course Guide.

Additional assistance in locating instructors and qualified cadre members may be obtained from geographic area representatives of the Interagency Air Tactical Group Supervisors Steering Committee.

IV. INSTRUCTOR PREPARATION

A. General Information

The training is structured around the student and designed to be presented in various ways: lecture/discussion, hands-on training, and sandtable exercises. A sample course agenda is on pages 12 – 13.

Instructors must devote adequate time for their presentations and should draw from their experiences to add realism and credibility to the information provided.

Geographic areas are encouraged to supplement the course with additional instructional materials (videos, slides, handouts, student references, etc.). However, course presentation time must be increased to accommodate any additional materials.

If instructors have additional material to hand out during the course, they should bring sufficient copies for the cadre and each student.

While lead instructors are encouraged to enhance course materials to reflect conditions, resources, and policies of the local unit, they must ensure that objectives of the course and each unit are not compromised.

The Course Coordinator's Guide (PMS 907) contains general information for presentation of NWCG courses. The course coordinator and instructors should be thoroughly familiar with this guide (<http://www.nwcg.gov/pms/training/training.htm>).

B. Sandtable Exercises (STEX)

The STEX in Units 2, 4, 7, 8, and 13 require advance preparation and set up. The cadre must read and become familiar with each STEX before course presentation. Refer to these units for detailed STEX instructions and information.

For instructions on how to facilitate STEX, refer to the Tactical Decision Game Library on the Fireline Leadership Web site: http://www.fireleadership.gov/toolbox/TDG_Library/default.htm

V. COURSE MATERIALS

See appendix A for information on ordering course materials.

A. Instructor Guide

The Instructor Guide is designed as a teaching aid to assist instructors in presenting the information. Each unit begins with a unit overview that outlines the lesson's approximate delivery time, objectives, learning strategy, instructional methods, required materials, and evaluation criteria.

The lesson plan for each unit is organized in a two-column format:

- The "Outline" column contains the lesson content that supports the learning objectives. This column also includes questions to ask students, descriptions of exercises, and additional teaching points to supplement information in the text. Notes to the instructor are in **BOLD CAPS**.
- The "Aids & Cues" column lists references (slide numbers, handouts, publications, etc.) that remind instructors to display or refer to specific materials.

B. Interagency Aerial Supervision Guide (IASG)

The IASG is the primary component of the course for instructors and students (there is no Student Workbook).

Students will use the IASG to complete the pre-course work (see next page), and as their main reference throughout the course. The intent is to familiarize students with the IASG so they can use it as part of their normal operating procedures.

Instructors must review the Instructor Guide in conjunction with the IASG before presenting the course. In each unit of the Instructor Guide, space has been provided in the aids and cues column to write in the IASG page numbers that correspond with specific references.

C. Course Materials CD-ROM

The CD contains complete copies of the Instructor Guide and Appendixes.

VI. STUDENT TARGET GROUP

This course is for personnel desiring to be qualified as ATGS, HLCO, Leadplane Pilot/ATCO, or ASM. The lessons must be directed to all positions represented.

VII. STUDENT PREREQUISITES

Refer to the Field Manager's Course Guide.

VIII. STUDENT PRE-COURSE WORK

- The course coordinator must send each nominee a pre-course packet at least **six weeks prior** to beginning the course. The packet should include the following:
 - Nomination letter (see page 9 for a sample nomination letter).
 - IASG, NFES 2544 (see appendix A for ordering information).
- Upon receipt of the packet, nominees must complete the following (online at <http://training.nwcg.gov/pre-courses.html>):
 - Student profile form: Nominees must return this form to the course coordinator.
 - Two online courses: B3 Combined Helicopter/Airplane Safety (refresher) and A-109 Aviation Radio Use. These courses pertain to basic air and radio operations.
 - Pre-course test: Nominees answer questions using the IASG.
- Students must pass the pre-course test with a score of 70% or higher to attend the course.
- The pre-course test will be reviewed in Unit 0 (an answer key is provided for instructors at the end of Unit 0). **As the IASG is updated, instructor(s) will need to verify the accuracy of test questions and answers.**

IX. COURSE SELECTION LETTER

The course coordinator must send a course acceptance letter to each nominee who successfully passes the pre-course test (see page 10 for a sample course acceptance letter). This letter should explain class time, date, and location. Refer to the Course Coordinator's Guide for more information on selection letters.

X. STUDENT ASSESSMENT

Two methods for evaluating student performance include a final exam and a final simulation. **Students must complete each method.** Each method will take approximately two hours to complete.

Instructors have the option of administering the final exam simultaneous with the final simulation (half of the class takes the final exam while the other half completes the final simulation).

Students must obtain 70% on the final exam, and 70% on the final simulation, to receive a certificate of completion for this course.

The final exam and answer key, and the final simulation and scoring sheet are in Appendix D.

XI. CADRE MEETINGS

Cadre meetings are an opportunity for instructors to meet, review the material, and discuss concerns with the course coordinator or lead instructor. The meetings are essential for instructors who do not have previous experience with the course. A cadre meeting checklist is on page 11.

After each day's presentation, a meeting should be held to discuss concerns and progress. At the end of the course, a final cadre meeting should be conducted to evaluate instructor performance and suggest modifications for future courses.

XII. RECOMMENDED CLASS SIZE

The ideal class size is 12 students. It is highly recommended that the maximum class size be limited to 16 students.

XIII. SPACE AND CLASSROOM REQUIREMENTS

The classroom should be able to accommodate up to 16 students with enough space for people to spread out during exercises. A work area should be provided for instructors and their materials.

It is suggested that additional breakout rooms be available to conduct the sandtable exercises. Each breakout room can be set up with a sandtable enabling students to rotate through the exercises simultaneously. An aircraft hanger and an air attack aircraft are optional for the breakout sessions.

XIV. COURSE EVALUATION FORMS

A. Unit and Course Evaluation Forms

This is an opportunity for students to comment on the course and the quality of the instruction. These comments should be used to improve future training sessions. Distribute this form as appropriate.

B. Training Course Evaluation Forms

This is an opportunity for the course coordinator and instructors to comment on course design. These comments are used by NWCG Training to identify potential problems with courses and as a resource during the course revision process.

XV. APPENDIXES

The following appendix is included in this Instructor Guide:

- Appendix A – Course Ordering and Support Information

This appendix contains a list of course materials that need to be ordered as well as support material and equipment.

The following appendixes are on the Course Materials CD:

- Appendix B – PowerPoints

This appendix contains the PowerPoint slides for each unit.

- Appendix C – Handouts

Duplicate the handouts for each student.

- Appendix D – Final Exam and Final Simulation

This appendix contains the final exam and answer key, and the final simulation and scoring sheet.

- Appendix E – Course Evaluation Forms

Duplicate the evaluation forms for students and instructors.

Aerial Supervision, S-378
Sample Nomination Letter

To: *Nominee*
From: Course Coordinator
Subject: Pre-Course Work

You have been nominated to attend Aerial Supervision, S-378. This course focuses on the duties of an incident aerial supervisor, which includes these positions:

- Air Tactical Group Supervisor (ATGS)
- Helicopter Coordinator (HLCO)
- Airtanker Coordinator (ATCO)
- Aerial Supervision Module (ASM)

This is a required course for the positions of ATGS and HLCO per the Wildland Fire Qualifications System Guide (PMS 310-1).

To attend S-378 as an ATGS, you must be qualified as a Division/Group Supervisor (DIVS) or Incident Commander Type 3 (ICT3). To attend as a HLCO, you must be qualified as a Strike Team/Task Force Leader.

You must complete the following pre-course work (online at <http://training.nwcg.gov/pre-courses.html>):

- Student Profile Form
- Read/review the Interagency Aerial Supervision Guide (IASG)
- B-3 Combination Helicopter/Airplane Safety (refresher)
- A-109 Aviation Radio Use
- Pre-Course Test (use the IASG to answer the questions)

You must pass the pre-course test with a minimum score of 70% to attend the course. Return your completed student profile form and pre-course test to *course coordinator by date*. You will be notified by email of your test results.

Aerial Supervision, S-378
Sample Course Acceptance Letter

Congratulations, you have been accepted to attend Aerial Supervision, S-378 to be held at *(location)*. The course will begin at *(time, date)* and end at *(time, date)*.

Please bring the following items to class:

- A copy of your completed pre-course test (for review)
- Interagency Aerial Supervision Guide
- ATGS/HLCO Position Task Book, PMS 311-18 (initiated by home unit)
<http://www.nwcg.gov/pms/pms.htm>
- Fireline Handbook, PMS 410-1
<http://www.nwcg.gov/pms/pubs/pubs.htm>
- Incident Response Pocket Guide, PMS 461
<http://www.nwcg.gov/pms/pubs/pubs.htm>
- Kneeboard
- Avionics headset

If you desire to receive a certificate of completion for the course, please do not make travel arrangements to arrive after the scheduled start time or to depart prior to the scheduled course completion time.

In the event you cannot attend the course, please contact the course coordinator prior to the beginning of the class. This allows time for notifying personnel that may be on the waiting list to be contacted to fill the vacancy.

If you have any questions please contact the course coordinator, *Name, phone number, e-mail*.

Cadre Meeting Checklist

Pre-course activities	
	Instructor assignments.
	Develop list of instructor expectations for the course.
	Review course and unit objectives.
	Review student profiles.
	Discuss ethical conduct.
	Discuss dress/attire requirements.
	Make changes or adjustments as needed.
Daily activities	
	Review daily summary and determine which topics need to be reinforced the next day.
	Assess overall class and group dynamics.
	Adjust course content and timeframes.
Post-course activities	
	Review final course evaluations.
	Conduct overall course review.

Aerial Supervision, S-378

Sample Agenda

Day 1

- Unit 0: Introduction..... 1 hour
Lesson: 40 minutes
Exercise: 10 minutes
Review pre-course test: 10 minutes
- Unit 1: Aerial Supervision Program Introduction..... 30 minutes
Lesson: 30 minutes
- Unit 2: Aerial Supervision Roles and Responsibilities 1 hour, 30 minutes
Lesson: 30 minutes
Cadre STEX demonstration: 1 hour
- Unit 3: Administration, Training, Certification, and Currency..... 1 hour
Lesson: 1 hour

Day 2

- Unit 4: Policies, Regulations, and Guidelines..... 5 hours
Lesson: 1 hour
Aeronautical Sectional Chart Lab: 1 hour
STEX: Radio Procedures: 1 hour
Radio Programming: Technisonic Lab: 1 hour
Radio Programming: NAT Lab: 1 hour
- Unit 5: Incident Aircraft..... 1 hour
Lesson: 1 hour

Day 3

- Unit 6: Suppressants and Retardants 1 hour
Lesson: 30 minutes
Exercise: Application Volume: 15 minutes
Exercise: Application Length of Stream: 15 minutes
- Unit 7: Aerial Supervision Mission Procedures..... 2 hours, 30 minutes
Lesson: 30 minutes
STEX: Target Description, Hill Fire: 1 hour
STEX: Initial Attack, Snake Fire: 1 hour
- Unit 8: Aerial Firefighting Strategy and Tactics 2 hours, 30 minutes
Lesson: 30 minutes
STEX: Initial Attack, Cow Fire: 1 hour
STEX: Extended Attack, Sheep Fire: 1 hour

Day 4

- Unit 9: Incident Aircraft Operations 1 hour
Lesson: 1 hour
- Unit 10: All Hazard Incidents 30 minutes
Lesson: 30 minutes
- Unit 11: Safety 1 hour
Lesson: 1 hour
- Unit 12: Job Aids and Resources 30 minutes
Lesson: 30 minutes
- Unit 13: Course Review 5 hours, 30 minutes
Panel Discussion: 45 minutes
STEX: Mission Procedures: 4 hours
Course Summary and Review: 45 minutes

Day 5

- Final Exam..... 2 hours
Final Simulation 2 hours
Course Review (cadre) 1 hour

UNIT OVERVIEW

Course Aerial Supervision, S-378

Unit 0 – Introduction

Time 1 Hour

Objectives

1. Introduce course coordinator and instructors.
2. Review course logistics.
3. Introduce the students.
4. Present course overview.
5. Discuss course expectations.
6. Review pre-course test.

Strategy

This unit is an introduction to the course. It involves student and cadre interaction through introductions and a group exercise.

Instructional Methods

- Informal lecture
- Interactive group discussion

Instructional Aids

- ☐ Computer with LCD projector and presentation software
- ☐ Sign-in sheet (ICS-211, Check-in)
- ☐ Flip charts and markers
- ☐ Interagency Aerial Supervision Guide
- ☐ Extra ATGS/HLCO Position Task Books

Exercise

- Expectations (pages 0.4 – 0.5)

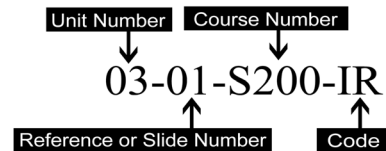
Outline

- I. Instructor Introductions
- II. Course Logistics
- III. Student Introductions
- IV. Course Expectations
- V. Course Process

Aids and Cues

The codes in the Aids and Cues column are defined as follows:

IG – Instructor Guide	SW – Student Workbook
IR – Instructor Reference	SR – Student Reference
HO – Handout	PPT – PowerPoint



UNIT PRESENTATION

COURSE: Aerial Supervision, S-378

UNIT: 0 – Introduction

OUTLINE	AIDS & CUES
TITLE SLIDE.	0-1-S378-PPT
WELCOME STUDENTS TO THE COURSE.	
PRESENT THE COURSE GOAL.	0-2-S378-PPT
I. INSTRUCTOR INTRODUCTIONS	0-3-S378-PPT
II. COURSE LOGISTICS	0-4-S378-PPT
<ul style="list-style-type: none">• Course agenda• Sign-in sheet (ICS 211, Check-in)• Housekeeping<ul style="list-style-type: none">– Breaks– Message and telephone location– Cell phone policy– Facilities• Other concerns	

OUTLINE	AIDS & CUES
<p>III. STUDENT INTRODUCTIONS</p> <p>HAVE EACH STUDENT PRESENT THEIR:</p> <ul style="list-style-type: none"> • Name and organization • Job title and normal duties • Incident Command System (ICS) qualifications and most recent experience on an incident. • Trainee position (such as Air Tactical Group Supervisor (ATGS), Leadplane Pilot/Airtanker Coordinator (ATCO), Helicopter Coordinator (HLCO), smokejumper spotter, etc.) 	<p>0-5-S378-PPT</p>
<p>IV. COURSE EXPECTATIONS</p> <p>A. Student Expectations</p> <p>EXERCISE: Expectations</p> <p><u>Purpose:</u> Students develop a list of their expectations for the course.</p> <p><u>Time:</u> 10 minutes</p> <p><u>Format:</u> Students work in groups of 3 to 5.</p> <p><u>Exercise Instructions:</u></p> <ol style="list-style-type: none"> 1. Instruct groups to write their responses to the following question on a flip chart: <ul style="list-style-type: none"> • What do you expect to gain from this course? 2. When finished, have each group present their expectations to the class. 	<p>0-6-S378-PPT</p>

OUTLINE	AIDS & CUES
<p>3. Answer any questions.</p> <p>4. Post lists around the room and refer to them throughout the course to ensure students' expectations are being met.</p> <p><u>End of Exercise.</u></p> <p>B. Instructor Expectations</p> <p>Students will:</p> <ul style="list-style-type: none"> • Have an interest in becoming an aerial supervisor. • Have completed their pre-course work. • Exhibit mutual cooperation with the group. • Be open-minded to accomplishments during the course presentation. • Participate actively in all of the training exercises presented in the course. • Return to class at stated times. • Use what is presented in the course to effectively perform the duties of an aerial supervisor. 	<p>0-7-S378-PPT</p>

OUTLINE	AIDS & CUES
<p>C. Student Evaluation</p> <p>The two methods for evaluating student performance include a final exam and a final simulation.</p> <p>Students must obtain a minimum of 70% on the final exam, as well as the final simulation, to receive a certificate of completion for this course.</p> <p>D. Course Evaluation Form</p> <p>Students are expected to complete an evaluation form at the end of the course.</p>	<p>0-11-S378-PPT</p>
<p>REVIEW PRE-COURSE TEST: As a class, review the pre-course test. Discuss any issues or concerns (allow 10 minutes). The answer key is on pages 0.9 – 0.15.</p>	<p>0-12-S378-PPT</p> <p>0-1-S378-IR</p>

Aerial Supervision, S-378
Pre-Course Test Answer Key

Students were to read/review the IASG and answer the following questions.

1. What are three types of aerial supervision resources?
 - a. **ATGS, ATCO, HLCO**
 - b. HELB, AOBD, OSC
 - c. STAM, TOLC, ASGS
 - d. DIVS, ASGS, ASM
2. What section of the IASG would you find the qualification requirements for aerial supervision resources?
 - a. Chapter 1
 - b. Chapter 7
 - c. Chapter 2
 - d. **Chapter 3**
 - e. Appendix A
3. An ATGS is an airborne firefighter who coordinates, assigns, and evaluates the use of aerial resource in support of incident objectives.
 - a. **True**
 - b. False
4. An ATCO and leadplane pilot are recognized positions in the ICS and are both approved for low level flight operations (below 500' AGL).
 - a. True
 - b. **False**

5. What are the two positions that make up the crew of an ASM?
 - a. Air Support Group Supervisor (ASGS), Air Operations Branch Director (AOBD)
 - b. Air Tactical Pilot (ATP), Air Tactical Supervisor (ATS)**
 - c. Modular Airborne Firefighting System (MAFFS) pilot, MAFFS qualified Leadplane
 - d. Helicopter Coordinator (HLCO), Helibase Manager (HELB)
6. In addition to meeting the requirements in the PMS 310-1 and the FS 5109-17, the ATGS must biennially document a minimum of 5 missions or 20 hours and forward an annual mission summary to the GACC ATGS representative.
7. When is a Leadplane/ATCO/ASM required over an incident?
 - a. Four or more airtankers are over the incident; adverse weather conditions.
 - b. Airtanker not initial attack rated; Level 2 SEAT operations; if no ATGS, MAFFS.**
 - c. On every all-hazard or hazmat incident; congested areas.
 - d. Two or more helicopters; incidents with two or more branches; smokejumpers.
8. What four factors influence drop effectiveness and coverage level during airtanker operations?
 - a. Airtanker base location; closest jetport; incident of national significance; water source.
 - b. Altimeter setting; hazards; drop clearance; reload instructions.
 - c. Policy and regulations; delayed attack fires; intelligence reports; incident frequencies.
 - d. Pilot skill; aircraft make and model; tanking, gating or door system; wind.**

9. What initial attack responsibilities does the ATGS/aerial supervisor, in consultation with dispatch, have when an incident commander is not present?
- a. **Fire size up; resource recommendation; briefing ground resources; development of tactical plan.**
 - b. Leadplane profile; aircraft minimum airspeed; leadplane pilot currency; ATGS check ride.
 - c. Helibase location; designation of HELB; designation of HLCO; order additional flight helmets.
 - d. Review aviation plan; review national airtanker contract; review local mobilization guide; review military operations guide.
 - e. All the above.
10. The effectiveness of retardant/suppressant drops for SEATs should be closely evaluated when wind velocities reach:
- a. **15-20 knots**
 - b. 25-30 knots
 - c. 20-25 knots
 - d. Gusts over 40 knots
11. A liquid fire suppression substance (water, foam, gel) applied directly to the flame base to extinguish the flame is a:

Suppressant

12. A chemical mixture applied using direct or indirect tactics to cool the fire, reduce the rate of fire spread, or to establish a line from which other firefighting methods such as burnout, backfire, etc., can be deployed is a:

Retardant

13. Define the following:

AGL: Above Ground Level

Gap: A weak or missed area in a retardant line.

Break (left or right): Turn left or right. Applies to aircraft in flight, usually on the drop run and when given as a command to the pilot. Implies immediate compliance.

Civil Twilight: Begins in the morning and to end in the evening when the center of the sun is geometrically 6 degrees below the horizon.

Virtual Fence: Landmark or feature utilized to maintain horizontal aircraft separation.

Extend/Tag on: Drop retardant so that the load overlaps and lengthens a previous drop.

Divert: Change in aircraft assignment from one target to another or to a new incident.

Fixed Wing Coordinator: A non-fire airborne position designed to supervise airplanes on incidents.

Dry Run: A low pass over the target without dropping to elevate drop conditions and/or alert ground personnel of an impending live run.

Initial Point: A reporting location clearly identified by the aerial supervisor. It may be a lat/long or geographic point (landmark).

Congested Area: FAA (non-specific) term for areas that require additional precautions and procedures to conduct low-level flight operations.

14. List the retardant/suppressant gallon capacity for the following ICS types of airtankers.

Type 1: 3000 gallons

Type 2: 1800 to 2999 gallons

Type 3: 800 to 1799 gallons

Type 4: less than 800 gallons

15. ICS categorizes three types of helicopters based on what criteria?
- a. Manufacturer; number of rotor blades; tail number.
 - b. Minimum gallons of water/retardant; lift capability; number of passenger seats.
 - c. Retardant/suppressant delivery system; foaming agent type; bucket system.
 - d. Density altitude; altimeter setting; load calculations.
 - e. **b and c**
16. The airspace surrounding an incident is controlled by the aerial supervisor who must implement fire traffic area procedures. What are the three C's of initial contact?
- a. Control, Confine, Contain
 - b. **Communication, Clearance, Comply**
 - c. Control, Coordinate, Concentrate
 - d. Command, Calibrate, Contour
17. Dispatch centers must provide to the aerial supervisor what item as part of the mission briefing?
- a. ICS 211, Check-in List
 - b. Regional Mobilization Guide
 - c. **Aircraft Dispatch Form**
 - d. Incident Action Plan

18. After takeoff, what is an en route procedure that the aerial supervisor should perform?
- a. Record time dispatch informed you of a possible dispatch.
 - b. Notify dispatch of ETA/ETE to incident.**
 - c. Maintain sterile cockpit procedures from takeoff to return from the incident.
 - d. Begin tactical planning en route before notifying ground forces.
19. What chapter of the IASG would you find the table that lists the possible uses of aircraft by incident type?
- a. Chapter 2
 - b. Chapter 10**
 - c. Chapter 8
 - d. Chapter 3
20. Acceptance of risk is normal, especially during a busy fire season when resources are in high demand. In these situations, the risk mitigation process does not need to be considered due to the objectives of the mission if properly documented.
- a. True
 - b. False**
21. What section of the IASG contains the list of items for the aerial supervisor's kit and aerial supervision resources?
- a. Chapter 1
 - b. Chapter 11
 - c. Chapter 9
 - d. Chapter 12**
22. In the ICS extended attack organization, the HLCO and HELB work for the ATGS.
- a. True
 - b. False**

23. The flight crew standard flight and duty limitations states that the maximum daily flight time for mission flights is **8** hours.
24. The horizontal dimension of a temporary flight restriction is normally a five nautical mile radius with a vertical dimension of:
- a. Unlimited altitude
 - b. 5,000 feet above highest terrain
 - c. **2,000 feet above highest terrain**
 - d. 1,000 feet above highest terrain
 - e. There is not a standard temporary flight restriction
25. A key component of the fire traffic area is the initial contact ring. At what distance from the incident should inbound aerial resources contact the aerial supervisor for permission to proceed to the incident?
- a. 7 nautical miles
 - b. 5 nautical miles
 - c. Immediately after takeoff
 - d. **12 nautical miles**

UNIT OVERVIEW

Course Aerial Supervision, S-378

Unit 1 – Aerial Supervision Program Introduction

Time 30 Minutes

Objectives

1. Describe the goals of the interagency aerial supervision program.
2. Describe the objectives, scope, and authority of the Interagency Aerial Supervision Guide.
3. Describe the national aerial supervision management structure.

Strategy

This unit provides an overview of the national aerial supervisor management structure and IASG.

Instructional Methods

- Informal lecture
- Interactive group discussion

Instructional Aids

- ☐ Computer with LCD projector and presentation software
- ☐ Interagency Aerial Supervision Guide

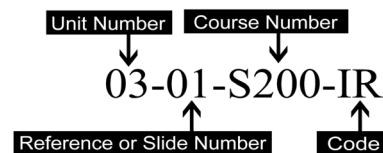
Outline

- I. Introduction
- II. National Aerial Supervision Management Structure

Aids and Cues

The codes in the Aids and Cues column are defined as follows:

IG – Instructor Guide	SW – Student Workbook
IR – Instructor Reference	SR – Student Reference
HO – Handout	PPT – PowerPoint



UNIT PRESENTATION

COURSE: Aerial Supervision, S-378

UNIT: 1 – Aerial Supervision Program Introduction

OUTLINE	AIDS & CUES
TITLE SLIDE.	1-1-S378-PPT
PRESENT UNIT OBJECTIVES.	1-2-S378-PPT
I. INTRODUCTION	1-3-S378-PPT
REFER STUDENTS TO IASG CHAPTER 1. REVIEW THE GOAL, OBJECTIVES, SCOPE, AND AUTHORITY OF THE AERIAL SUPERVISION PROGRAM.	IASG _____
II. NATIONAL AERIAL SUPERVISION MANAGEMENT STRUCTURE	1-4-S378-PPT
A. Description of the National Aerial Supervision Management Structure	
REFER STUDENTS TO THE ORGANIZATION CHART FOR THE NATIONAL AERIAL SUPERVISION MANAGEMENT STRUCTURE (IASG CHAPTER 1).	IASG _____
B. Other Aviation Groups Under the National Interagency Aviation Council (NIAC)	1-5-S378-PPT
• Smokejumper Aircraft Screening and Evaluation Board	
• Interagency Air Tanker Board	
• Interagency Airspace Steering Committee	
• Interagency Helicopter Operations Steering Committee	

OUTLINE	AIDS & CUES
<ul style="list-style-type: none"> • Interagency Single Engine Air Tanker (SEAT) Steering Committee • Automated Flight Following (AFF) Steering Committee • Interagency Aviation Training Steering Committee • Interagency Aerial Supervision Steering Committee 	
REVIEW UNIT OBJECTIVES.	1-6-S378-PPT

UNIT OVERVIEW

Course Aerial Supervision, S-378

Unit 2 – Aerial Supervision Roles and Responsibilities

Time 1.5 Hours

Objectives

1. Describe the five types of aerial supervisors.
2. Describe how aerial supervision fits into initial and extended attack organizations.
3. Demonstrate an aerial supervision mission.

Strategy

This unit explains the types of aerial supervisors and how aerial supervision fits into initial and extended attack organizations. At the end of the unit, the cadre will demonstrate a sandtable exercise that involves the role of aerial supervision from initial attack to extended attack.

Instructional Methods

- Informal lecture
- Interactive group discussion

Instructional Aids

- ☐ Computer with LCD projector and presentation software
- ☐ Interagency Aerial Supervision Guide
- ☐ Sandtable and sandtable accessories

Exercise

STEX: Role of Aerial Supervision from Initial Attack to Extended Attack
(pages 2.5 – 2.8)

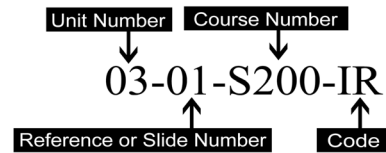
Outline

- I. Position Descriptions
- II. Air Operations Organization

Aids and Cues Codes:

The codes in the Aids and Cues column are defined as follows:

IG – Instructor Guide	SW – Student Workbook
IR – Instructor Reference	SR – Student Reference
HO – Handout	PPT – PowerPoint



UNIT PRESENTATION

COURSE: Aerial Supervision, S-378

UNIT: 2 – Aerial Supervision Roles and Responsibilities

OUTLINE	AIDS & CUES
TITLE SLIDE.	2-1-S378-PPT
PRESENT UNIT OBJECTIVES.	2-2-S378-PPT
I. POSITION DESCRIPTIONS	IASG_____
• Air Tactical Group Supervisor	2-3-S378-PPT
• Airtanker Coordinator and Leadplane Pilot	2-4-S378-PPT
• Helicopter Coordinator	2-5-S378-PPT
• Aerial Supervisor Module	2-6-S378-PPT
– Air Tactical Pilot (ATP)	
– Air Tactical Supervisor (ATS)	
II. AIR OPERATIONS ORGANIZATION	IASG_____
• Initial Attack	2-7-S378-PPT
• Extended Attack	2-8-S378-PPT 2-9-S378-PPT

OUTLINE	AIDS & CUES
STEX: Role of Aerial Supervision from Initial Attack to Extended Attack (see pages 2.5 – 2.8).	2-10-S378-PPT 2-1-S378-IR
REVIEW UNIT OBJECTIVES.	2-11-S378-PPT

STEX: Role of Aerial Supervision During Initial and Extended Attack

Time: 1 hour

Training Objective: The cadre will demonstrate the role of aerial supervision as the incident escalates from initial to extended attack within the ICS organization.

Sandtable Setup: Small initial attack that expands to a Type 1 incident.

STEX Instructions: The incident will start small (initial attack) and grow in complexity to a fully staffed Type 1 incident. As more resources are assigned to the incident, the instructor should explain or demonstrate the interaction with various aerial supervision resources. Students are to observe the interaction between aerial supervision and other resources assigned to an incident. **This is not a tactics exercise.**

Resources/Role Players: Cadre members can fill key positions (ATGS, LEAD/ASM, IC, OPS, AOBD, and Dispatch); students can act as aerial and ground resources; tent cards or sandtable accessories can represent resources.

- Aircraft Dispatcher (cadre)
- OSC (cadre)
- ICT4 (cadre)
- HLCO (cadre)
- DIVS (4) (cadre)
- HEB1 (cadre)
- LEAD/ASM (cadre)
- Type 1 Airtanker (4) (students)
- SEAT (4) (students)
- Type 1 Helicopter (4) (students)
- Type 2 Helicopter (2) (students)
- Type 3 Helicopter (2) (students)
- AOBD (tent card)
- Type 1 Crew (4) (tent card)
- Type 2 Crew (4) (tent card)

- STEN (tent card)
- Airtanker Base Manager (tent card)
- Type 4 Engines (tent card)
- ICT1 (tent card)
- ASGS (tent card)
- HEB2 (tent card)
- TFLD (tent card)

Script for Initial Attack:

Dispatch: Starts scenario by sending AA-55 to Snake Fire.

AA-55: Checks in with dispatch.

Dispatch: Tanker 00 and H-679 are en route; ETA 5 minutes.

AA-55: Copies dispatch and checks in with Snake IC.

Snake IC: Instructs AA-55 to use aerial resources to pinch off head.

AA55: Copies IC and assumes role of Snake Air Attack.

Tanker 00: Checks in with Snake Air Attack at 12 miles.

Snake Air Attack: Briefs Tanker 00.

H-679: Checks in with AA-55 at 12 miles.

Snake Air Attack: Briefs H-679.

Snake Air Attack: Updates dispatch.

Snake Air Attack: Clears line with IC.

Snake Air Attack: Drops Tanker 00 and lines out H-679 to do buckets on the head; load and return Tanker 00.

End of initial attack.

Script for Extended Attack:

The next day, the fire gets away and escalates to a Type 1 incident (urban interface, multiple divisions, large perimeter, etc.).

Dispatch: Starts scenario by sending AA-55 to Snake Fire.

Snake Air Attack: Checks in with dispatch.

Dispatch: Briefs AA-55; new ground contact is Snake OSC. 4 SEATS, 4 heavy airtankers, 4 heavy helicopters, 4 medium helicopters, and 4 light helicopters are available. Airtankers are flying out of Boise, and the helicopters are at Snake Helibase. LEAD and HLCO are also available.

Snake Air Attack: Copies dispatch and checks in with Snake OSC.

Snake OSC: Has AA-55 check in with DIVS A-Z for specific instructions; gives the approval for liberal retardant use.

Snake Air Attack: Contacts DIV A.

DIV A: Needs bucket work.

Snake Air Attack: Copies and contacts DIV B.

DIV B: Needs bucket work.

Snake Air Attack: Copies and contacts DIV C.

DIV C: Needs airtankers for structure protection.

Snake Air Attack: Copies and contacts DIV Z.

DIV Z: Needs DIV recon from helibase.

Snake Air Attack: Contacts dispatch and orders LEAD and HLCO, all SEATS and heavy airtankers.

Dispatch: Copies and gives 5 minute ETA for LEAD and HLCO; gives 20 minute ETA for all airtankers.

ASM B-3: Checks in at 12 miles.

Snake Air Attack: Copies and briefs B3 on objectives, resources, and other aircraft incoming; assigns B3 to work directly with Div C on air-to-ground frequency.

ASM B-3: Copies and contacts DIV C.

DIV C: Needs airtankers for structure protection.

ASM B-3: Copies and orbits DIV C.

HLCO: Checks in with Snake Air Attack at 12 miles.

Snake Air Attack: Copies and briefs HLCO on objectives, resources, and other aircraft incoming; assigns HLCO to work with DIVS A and B on air-to-ground frequency.

HLCO: Copies and contacts DIV A.

DIV A: Needs bucket work.

HLCO: Copies and contacts DIV B.

DIV B: Needs bucket work.

HLCO: Contacts Snake Air Attack and requests bucket ships.

Snake Air Attack: Copies, contacts helibase and orders 4 Type 1 helicopters. Contact is HLCO over DIV A and B. Orders DIVS recon and instructs to contact Snake Air Attack before lifting.

T-00, T-20, T-10, T-27, T-180, T-181, T-410, and T-466: All check in with Snake Air Attack at 12 miles.

Snake Air Attack: Briefs all airtankers and hands off to ASM B3 at 7 miles.

H-714, 715, 719, 720: All check in with HLCO.

HLCO: Briefs all and assigns 714/715 to DIV A, and 719/720 to DIV B.

H-74A: Contacts Snake Air Attack from helibase for DIV Z recon.

Snake Air Attack: Briefs and clears 74A.

H-74A: Copies and launches on recon.

Snake Air Attack: Calls HLCO and ASM and lets them know about the recon.

T-00, T-20, T-10, T-27, T-180, T-181, T-410, and T-466: All check in with ASM B3 at 7 miles.

ASM B-3: Briefs airtankers, gets ground clearance, and starts dropping airtankers; all load and return.

AOBD: Contacts Snake Air Attack for update.

Snake Air Attack: Briefs AOBD.

End of extended attack.

Conduct AAR and answer questions.

UNIT OVERVIEW

Course Aerial Supervision, S-378

Unit 3 – Administration, Training, Certification, and Currency

Time 1 Hour

Objectives

1. Describe the aerial supervision qualification/currency system.
2. Describe the administration of the aerial supervision qualification/currency system.

Strategy

This unit explains the aerial supervision qualification/currency system.

Instructional Methods

- Informal lecture
- Interactive group discussion

Instructional Aids

- ☐ Computer with LCD projector and presentation software
- ☐ Interagency Aerial Supervision Guide

Outline

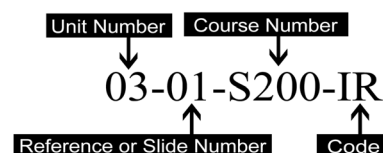
- I. Introduction
- II. Leadplane Pilot and Airtanker Coordinator
- III. Air Tactical Group Supervisor
- IV. Aerial Supervision Module
- V. Helicopter Coordinator

Aids and Cues Codes:

The codes in the Aids and Cues column are defined as follows:

IG – Instructor Guide
IR – Instructor Reference
HO – Handout

SW – Student Workbook
SR – Student Reference
PPT – PowerPoint



UNIT PRESENTATION

COURSE: Aerial Supervision, S-378

UNIT: 3 – Administration, Training, Certification, and Currency

OUTLINE	AIDS & CUES
TITLE SLIDE.	3-1-S378-PPT
PRESENT UNIT OBJECTIVES.	3-2-S378-PPT
I. INTRODUCTION	3-3-S378-PPT
The policies governing each functional area of aerial supervision are unique. As such, these areas have different standards for program management, qualification, training, certification, and currency.	
II. LEADPLANE PILOT AND AIRTANKER COORDINATOR	3-4-S378-PPT IASG _____
<ul style="list-style-type: none"> • Training • Certification • Currency 	
III. AIR TACTICAL GROUP SUPERVISOR	3-5-S378-PPT IASG _____
A. Administration	
<ul style="list-style-type: none"> • National ATGS program manager • Geographic area ATGS representatives • ATGS evaluator • ATGS instructor 	

OUTLINE	AIDS & CUES
B. Initial ATGS Training and Certification	3-6-S378-PPT IASG_____
C. ATGS Currency Requirements <ul style="list-style-type: none"> • Missions/hours • Aerial supervision logbook requirements • ATGS mission evaluation • Refresher/proficiency requirements 	3-7-S378-PPT IASG_____
D. ATGS Workshop Curriculum	3-8-S378-PPT IASG_____
E. ATGS Decertification	3-9-S378-PPT IASG_____
IV. AERIAL SUPERVISION MODULE <ul style="list-style-type: none"> • Training • Certification • Currency 	3-10-S378-PPT IASG_____
V. HELICOPTER COORDINATOR <ul style="list-style-type: none"> • Training • Certification • Currency 	3-11-S378-PPT IASG_____
REVIEW UNIT OBJECTIVES.	3-12-S378-PPT

UNIT OVERVIEW

Course Aerial Supervision, S-378

Unit 4 – Policies, Regulations, and Guidelines

Time 5 Hours

Objectives

1. Discuss aerial supervision policies.
2. Identify radio procedures, terminology, and frequency management.
3. Define aerial supervision avionics requirements and components.
4. Describe the various classes of airspace and applicable Federal Aviation Regulations.
5. Describe the fire traffic area.
6. Operate various aircraft radios.
7. Demonstrate proper radio procedures.

Strategy

This unit explains policies and guidelines, radio procedures, avionics and airspace, and Federal Aviation Regulations.

Instructional Methods

- Informal lecture
- Interactive group discussion

Instructional Aids

- ☐ Computer with LCD projector and presentation software
- ☐ Interagency Aerial Supervision Guide
- ☐ Interagency Airspace Coordination Guide
- ☐ Aeronautical Sectional Chart User's Guide (1 per student)
- ☐ Salt Lake Aeronautical Sectional Chart (1 per student)
- ☐ Plotters (1 per student)
- ☐ Map Tech product catalog (1 per group)

- ☐ Land management agency maps (1 per group)
- ☐ Gazetteer atlas (1 per group)
- ☐ Fire perimeter map examples (1 per group)
- ☐ Air Attack Radio Training Kit:
 - Technisonic Radio (could be in the aircraft)
 - NAT Radio (could be in the aircraft)
 - Dummy loads (6)
- ☐ Rooms for the breakout exercises or an aircraft hanger
- ☐ Sandtable and sandtable accessories

Exercises (see page 4.10)

- Aeronautical Sectional Chart Lab
- STEX - Radio Procedures
- Radio Programming: Technisonic Lab
- Radio Programming: NAT Lab

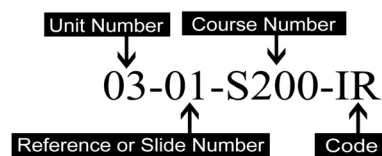
Outline

- I. Policies and Guidelines
- II. Radio Procedures, Terminology, and Frequency Management
- III. Avionics
- IV. Airspace and Federal Aviation Regulations

Aids and Cues Codes:

The codes in the Aids and Cues column are defined as follows:

IG – Instructor Guide	SW – Student Workbook
IR – Instructor Reference	SR – Student Reference
HO – Handout	PPT – PowerPoint



UNIT PRESENTATION

COURSE: Aerial Supervision, S-378

UNIT: 4 – Policies, Regulations, and Guidelines

OUTLINE	AIDS & CUES
TITLE SLIDE.	4-1-S378-PPT
PRESENT UNIT OBJECTIVES.	4-2-S378-PPT
I. POLICIES AND GUIDELINES	
A. Retardant Operations – Low Light Conditions	4-3-S378-PPT IASG_____
• Sunrise/sunset	
• Other low light conditions	
B. Incident Aerial Supervision Requirements	4-4-S378-PPT IASG_____
POINT OUT THE TABLE FOR INCIDENT AERIAL SUPERVISION REQUIREMENTS IN THE IASG.	
C. Key Aerial Supervision Terms	IASG_____
D. Single Engine Air Tanker Policy	IASG_____
E. Foreign Government Aircraft	IASG_____
F. Flight Conditions Guidelines	IASG_____
• Visibility	
• Wind condition	

OUTLINE	AIDS & CUES
<p>G. Air Attack Pilot Policy</p> <ul style="list-style-type: none"> • Pilot approval • Pilot orientation and training 	IASG_____
<p>H. Personal Protective Equipment (PPE)</p> <ul style="list-style-type: none"> • ATGS and pilot • Leadplane/ASM • HLCO • Airtanker pilots 	IASG_____
<p>I. Oxygen Requirements</p>	4-5-S378-PPT IASG_____
<p>J. Startup/Cutoff, Flight Time, and Limitations Policy</p> <ul style="list-style-type: none"> • Aircraft 	IASG_____
<p>K. Flight Crew Duty Day and Flight Hour Policy</p> <ul style="list-style-type: none"> • Phase 1 – Standard flight and duty limitations • Phase 2 – Interim duty limitations • Phase 3 – Interim duty limitations 	IASG_____
<p>L. Avionics Regulations</p> <p>POINT OUT THE INTERAGENCY AVIONICS STANDARDS TABLE IN THE IASG. THIS IS COVERED IN MORE DEPTH IN SECTION II.</p>	IASG_____
<p>M. Communications Guidelines</p> <ul style="list-style-type: none"> • Flight following • Air-to-ground • Air-to-air 	IASG_____

OUTLINE	AIDS & CUES
<ul style="list-style-type: none"> • Air Guard • Air-to-air en route position reporting • Airstrips without communications • Conflicting radio frequencies • Tone guards • Air resource identifiers • Message sequence • Frequency identification 	
<p>N. Airspace Policy</p> <ul style="list-style-type: none"> • Special Use Airspace (SUA) • Incident airspace (Fire Traffic Area [FTA]) 	IASG _____
<p>HAND OUT COPIES OF THE FTA CARD.</p> <ul style="list-style-type: none"> • Temporary Flight Restriction (TFR) • Air operations in congested areas • Aircraft Transponder Code 1255 • Airspace conflicts and intrusions 	4-1-S378-HO

OUTLINE	AIDS & CUES
II. RADIO PROCEDURES, TERMINOLOGY, AND FREQUENCY MANAGEMENT	4-6-S378-PPT
A. Standard Radio Procedures	IASG _____
<p>Message verification used for various incident aviation operations.</p>	
B. Radio Discipline for Incident Aviation Operations	IASG _____
C. Aerial Supervision Terminology	IASG _____
REFER STUDENTS TO THE IASG GLOSSARY AND REVIEW PERTINENT TERMINOLOGY.	
D. Frequency Management – Relating to Incident Aerial Supervision Operations	IASG _____
<ul style="list-style-type: none"> • Standard incident communication frequencies and their use. • Other aviation related frequencies and functions. • Types of radio frequencies. 	
E. Radio Procedures	4-7-S378-PPT
<ul style="list-style-type: none"> • Keep messages short • Use clear text and standard terminology • Frequency identification • Confirm who you are in communication with • Acknowledge messages are received • Promote positive communication • Seek positive response • Seek clarification 	

OUTLINE	AIDS & CUES
<p>F. Radio Discipline</p> <ul style="list-style-type: none"> • Use authorized frequencies only • Pilots monitor no more than two frequencies • Keep air-to-air and air-to-ground frequencies open • Observe radio discipline • Think before you speak! 	4-8-S378-PPT
<p>G. Aircraft Identifiers</p> <ul style="list-style-type: none"> • Airtankers • Helicopters 	4-9-S378-PPT
<p>III. AVIONICS</p> <ul style="list-style-type: none"> • Frequency applications • Avionics component for aerial supervision aircraft • Required avionic components for different types of aerial supervision aircraft 	<p>4-10-S378-PPT</p> <p>IASG_____</p> <p>IASG_____</p> <p>IASG_____</p>
<p>A. VHF-AM Radio Applications</p> <p>1. General aviation:</p> <ul style="list-style-type: none"> • Communication with other aircraft • Communication with air traffic controllers (ATC) 	4-11-S378-PPT
<p>HAND OUT COPIES OF THE ATC BASICS.</p>	4-2-S378-HO

OUTLINE	AIDS & CUES
<p>2. Incidents:</p> <ul style="list-style-type: none"> • Communication between airborne aircraft • Flight following helicopters from helibase • Tanker base communications <p>B. VHF-FM Radio Applications</p> <p>1. Incidents:</p> <ul style="list-style-type: none"> • General aviation – not required • Dispatching • Flight following • Ground communications • Communication air-to-ground (California) <p>2. Other:</p> <ul style="list-style-type: none"> • Hospitals • Emergency helicopter services 	<p>4-12-S378-PPT</p>

OUTLINE	AIDS & CUES
<ul style="list-style-type: none"> • Federal Aviation Regulations (FAR): <ul style="list-style-type: none"> – Temporary flight restrictions – Air operations in congested areas – Pertinent policies, regulations, and guidelines that address startup/cutoff times, flight conditions, and pilot duty times for safe aviation operations. 	
<p>REVIEW UNIT OBJECTIVES.</p>	<p>4-18-S378-PPT</p>
<p>EXERCISE:</p> <ul style="list-style-type: none"> • Aeronautical Sectional Chart Lab (pages 4.11 – 4.14) 	<p>4-1-S378-IR</p>
<p>BREAKOUT EXERCISES: Divide the class into three groups. Assign each group and a cadre member to one of the exercises listed below. Run each exercise for one hour, rotating groups through each.</p>	
<ul style="list-style-type: none"> • STEX: Radio Procedures (pages 4.15 – 4.19) 	<p>4-2-S378-IR</p>
<ul style="list-style-type: none"> • Radio Programming: Technisonic Lab (page 4.21) 	<p>4-3-S378-IR</p>
<ul style="list-style-type: none"> • Radio Programming: NAT Lab (page 4.22) 	<p>4-4-S378-IR</p>

EXERCISE: Aeronautical Sectional Chart Lab

Time: 1 hour

Format: Divide students into small groups

Materials Needed:

- Unit 4, Airspace and Sectionals PowerPoint
- 4-3-S378-HO (1 per student)
- Salt Lake Sectional (1 per student)
- Plotters (1 per student)
- Aeronautical Chart User's Guide (1 per student)
- Map Tech product catalog (1 per group)
- Land management agency maps (1 per group)
- Gazetteer atlas (1 per group)
- Fire perimeter map examples (1 per group)

Instructions:

1. Begin this lab by showing students the Airspace and Sectionals PowerPoint presentation (this is an introduction and refresher for airspace basics and the use of sectional charts).
2. After concluding the PowerPoint presentation, provide students with copies of the exercise materials.
3. Tell students to use the exercise materials to complete 1 – 5 below.
This includes:
 - Plotting latitude and longitude.
 - Plotting bearing and distance from various navigational aid stations.
 - Identifying various categories of airspace, hazards, ground elevations, and nearest airports.
4. When finished, review answers in class.

1. Plot: 43 11.2 x 115 10.3
Determine bearing and distance from BOI and TWF
Identify: Military airspace
Identify: Class of airspace
Identify: Closest airports and airport data

Answers:

- **BOI 100@ 49.5 nm**
- **TWF 308 @ 51.5 nm**
- **VR 1303 and 1300**
- **Class E with a 9000MSL floor**
- **MEF 8300**
- **U76 122.8 fuel 25 nm @ 065° (airport to fire)/245° (fire to airport)**
- **U89 122.8 3728 elevation L 4700 fuel 24 nm**
- **Tracy PVT**

2. Plot: 42 40 x 115 28
Where is the fire?
Who do you contact for entry?
What is the radial and distance?

Answers:

- **R-302 Salt Lake Center (information on inside flap of sectional 128.05, 118.05)**
- **Mountain Home Approach (information on inside flap of sectional – back side of legend 124.8)**
- **Cowboy Control, information shown on map 134.1**
- **From:**
 - **BOI 131° 62 nm**
 - **TWF 268° 44.5 nm**
 - **Liberator 128° 23.5 nm**

3. Plot: 44 35 x 114 44
What is the land management issue? **Sawtooth NRA**
What is the maximum elevation figure? **12,200**
What is the closest airport? **Stanley 2 U7**
What is the airport data? **122.9 6403 elevation**
How far away? **35 nm** 300 other than hard service
4. Find the National Security Area west of Idaho Falls. What is the recommended altitude for transiting the NSA? **6,000 MSL**
5. Give an aircraft dispatch form for the Currie Fire, Elko Dispatch.
Air Attack starts at Ogden (OGD).

Plot the fire.

Identify the military airspace issues.

What is the straight line distance of OGD to the fire, TVY to the fire, PVU to the fire?

What is the distance not flying through the restricted area?

What is the distance to Wells LWL SEAT base? **57 nm**

Distance to TVY SEAT base? **110 nm**

Where would you send the SEAT for reload? **LWL**

Given SEAT cruise of 150 nm and 15 minutes on the ground, what is the turnaround time?

Where would the air attack airplane or helicopter go for fuel?

FNV Wendover 36.5 nm

What contact needs to be made for clearance into restricted area?

Clover Control 134.1

Aircraft Dispatch Form

DATE: 4/15/08	TIME: 1315	SUNSET +30 1950
INCIDENT NAME: Currie		INCIDENT #: 956
DESCRIPTIVE LOCATION: T: R: S: 1/4		ELEVATION: 6500
LAT: 40 15		LONG: 114 32.50
BEARING (DEG):	DISTANCE (NM):	FROM: OGD
FLIGHT FOLLOWING: 168.650 110.9	F/F FREQUENCY: 163.025 RX 166.050 TX	TONE: 114.8
AIR CONTACT:	A/A FREQUENCY: 121.375	TONE:
GROUND CONTACT: E-4154	A/G FREQUENCY: 166.7625	TONE:
OTHER AIRCRAFT: T-454 from TVY H-05CR from PVU H-85A from EKO		
HAZARDS: Military Use Areas		
MTR/SUA: (x) YES () NO TFR: (x) YES () NO Gandy MOA VR 1259		
COMMENTS: Elko Dispatch		RELOAD BASE: TVY Hill LWL BAM

STEX: Radio Procedures

Instructor Information (not to be shared with students)

Time: 1 hour (after 1 hour, rotate groups)

Training Objective: The STEX should focus on ATGS communications with aerial and ground resources. The intent is for students to successfully communicate with other personnel using correct procedures and terminology.

Sandtable Setup: A steep ridge and a small fire on the east slope and on a secondary ridge.

Resources/Role Players:

- Aircraft Dispatcher (Minden, cadre)
- Type 1 Airtanker (Tanker 48, cadre or student)
- Type 2 Helicopter (H-402, cadre or student)
- ICT3 (Topaz IC, cadre or student)

The ATGS student will:

- Receive an aircraft dispatch form and prepare to depart to the incident.
- Check in with dispatch upon departure to incident.
- Check in at 12 NM for any aircraft currently working the incident.
- Check in with the IC and receive instructions.
- Brief the incoming aircraft and current incident aircraft to establish the airspace.
- Give tactical briefing to airtankers working the incident.
- Provide departure briefing to the airtankers and other incident aircraft upon release from the incident.

Briefing to Role Players:

Dispatch: Prompt ATGS as needed after contact to dispatch upon departure: aircraft number/identification, off from/en route to, souls on board, fuel on board, estimated time en route, and method of flight following (AFF or 15 minute check-in).

Incident Aircraft: ATGS should contact upon approaching FTA any aircraft near the incident. At 12 miles out the ATGS will call in the blind on assigned frequency. The ATGS will establish the airspace for altitude of the helicopters, airtankers, ATGS, and other aircraft (news media, etc.)

ICT3: The ATGS will be contacting the IC for information on current and expected incident aircraft. The IC will be in contact with the ATGS for the tactical briefing, feedback on aerial operations, current status of ground forces, etc.

STEX Instructions:

1. The exercise begins with an instructor demonstrating the interactions that take place between the ATGS and dispatch (the ATGS as they enter the FTA, establish the airspace, and prepare the initial, tactical, and departure briefing for incident aircraft).
2. After the demonstration, one student participates at a time (allow 10-15 minutes per student).
3. Instructors can use the “What if” suggestions listed below at any time during the scenario to raise the stress level of the leader.
 - A handcrew is cutting an underslung line on the secondary ridge.
 - There is moderate turbulence in the drop area.
 - Roll out continues to be a problem.
 - Crews are walking up to the fire through the unburned with downdrafts from passing thunderstorms.
4. The student completes the exercise after successfully integrating the airtanker and helicopter into the airspace (debrief that student and begin a new simulation with the next student).

Information to be Shared With Students

Briefing to ATGS student:

You are responding to an initial attack fire as ATGS. Use the information provided in the lectures, the previous sandtable exercise, and the aircraft dispatch form. An instructor/mentor will work with you as you relay information to dispatch, enter the fire traffic area, make contact with the incident, and work assigned aircraft.

It is 1400 hours. You have received an ATGS order and aircraft dispatch form for the Topaz Fire. While en route, you copy the following report on conditions:

Temp: 85 degrees
RH: 36%
Winds: 10 gusting to 25 with downdrafts
Skies: Overcast, active thunderstorms in the area

The fire is approximately 15 acres on a very steep east-facing slope. Crews are trying to hold the fire on a secondary ridgeline and complete underslung line to control roll out problems.

Script:

- Check-in with dispatch upon departure and provide the following information:
 - Aircraft number/identifier
 - Off from/en route to
 - Souls on board
 - Fuel on board
 - Estimate time en route
 - Method of flight following (AFF or 15 minute check-in)
- Approaching the fire traffic area
 - At 12 miles out, call in the blind on assigned frequency
 - If contact is made, establish airspace
 - If no contact is made, proceed to incident and contact IC and confirm if any other aircraft is working the incident
 - Close out with dispatch
 - Receive tactical briefing from the IC

- Establish the incident airspace
 - Hard deck for helicopters
 - Add 1,000 feet above helicopters for airtankers
 - Add 1,000 feet above airtankers for ATGS
 - Add 1,000 feet above ATGS for other aircraft (news media, etc.)
- Initial briefing (in this order every time)
 - Altimeter setting
 - ATGS altitude
 - Altitude the incoming aircraft is cleared in at
 - Altitude of other aircraft
 - If incoming aircraft is an airtanker; coverage level and load configuration
 - Hazards
- Airtanker tactical briefing
 - Target identification
 - Line clear
 - Airspace as it relates to other aircraft
 - Exit route
- Departure briefing
 - Drop evaluation
 - Re-load instructions

Aircraft Dispatch Form

DATE: 7-11-07	TIME: 1400	SUNSET +30 2057
INCIDENT NAME: Topaz		INCIDENT #: NV HTS 2923
DESCRIPTIVE LOCATION: T: R: S: 1/4		ELEVATION: 3500
LAT: 38 39. 09		LONG: 119 33. 13
BEARING (DEG): 146	DISTANCE (NM): 20	FROM: Minden
FLIGHT FOLLOWING: National	F/F FREQUENCY: 168.650	TONE:
AIR CONTACT: ATGS 7DL	A/A FREQUENCY: 120.975	TONE:
GROUND CONTACT: Topaz IC	A/G FREQUENCY: 165.250	TONE:
OTHER AIRCRAFT: H-402, T-48		
HAZARDS: Thunderstorms in the area		
MTR/SUA: () YES (x) NO TFR: () YES (x) NO		
COMMENTS: Minden Dispatch R-169.875, T-170.475. Tone 146.2. Ground Tactics 154.265		RELOAD BASE: Minden

Radio Programming: Technisonic Lab

Time: 1 hour (after 1 hour, rotate groups)

Materials Needed:

- Air Attack Radio Training Kit
- 4-4-S378-HO (1 copy per student)
- 4-5-S378-HO (1 copy per student)

Radio Programming: NAT Lab

Time: 1 hour (after 1 hour, rotate groups)

Materials Needed:

- Air Attack Radio Training Kit
- 4-6-S378-HO (1 copy per student)

UNIT OVERVIEW

Course Aerial Supervision, S-378

Unit 5 – Incident Aircraft

Time 1 Hour

Objectives

1. Identify the different types and kinds of incident aircraft.
2. Describe the basic kinds of retardant/suppressant delivery systems.

Strategy

Ensure the photos of airtankers, helicopters, tanking systems, etc., in the PowerPoint slides are up-to-date. Refer to the notes section below each PowerPoint slide for aircraft descriptions.

Instructional Methods

- Informal lecture
- Interactive group discussion

Instructional Aids

- ☐ Computer with LCD projector and presentation software
- ☐ Interagency Aerial Supervision Guide

Outline

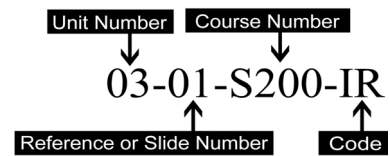
- I. Introduction
- II. Airtanker Classification
- III. Helicopter Classification
- IV. Leadplane and Aerial Supervision Module Aircraft
- V. Air Tactical Platform
- VI. Firewatch Aerial Supervision Platforms
- VII. Helicopter Coordinator Aircraft
- VIII. Specialty Operations
- IX. Smokejumper Aircraft

- X. Rappelling
- XI. Helitorch Operations
- XII. Logistical Support
- XIII. All Hazard Operations
- XIV. Single Engine Air Tanker Specific Issues

Aids and Cues Codes:

The codes in the Aids and Cues column are defined as follows:

IG – Instructor Guide	SW – Student Workbook
IR – Instructor Reference	SR – Student Reference
HO – Handout	PPT – PowerPoint



UNIT PRESENTATION

COURSE: Aerial Supervision, S-378

UNIT: 5 – Incident Aircraft

OUTLINE	AIDS & CUES
TITLE SLIDE.	5-1-S378-PPT
PRESENT UNIT OBJECTIVES.	5-2-S378-PPT
I. INTRODUCTION Incident aircraft functionally can be divided into tactical and logistical types. Some aircraft can be used for both types of functions. The aerial supervisor needs to understand basic aircraft capabilities and limitations in order to effectively use them to accomplish an assignment. All aircraft have the potential to impact any situation greatly. The cost of operating aircraft is very high compared to ground resources, but they serve as a force multiplier for ground forces. The aerial supervisor's job is to coordinate with ground crews and assign proper aircraft for the situation. This unit describes the typical application/limitations of different aircraft. Information described comes from the IASG, instructor experience, NWCG courses, and vendor and manufacturer data. Pros and cons of various delivery systems are also discussed.	

OUTLINE	AIDS & CUES
II. AIRTANKER CLASSIFICATION	5-3-S378-PPT thru 5-19-S378-PPT IASG _____
<ul style="list-style-type: none"> Retardant delivery systems and MAFFS 	5-20-S378-PPT thru 5-29-S378-PPT IASG _____
III. HELICOPTER CLASSIFICATION	5-30-S378-PPT thru 5-40-S378-PPT IASG _____
<ul style="list-style-type: none"> Buckets and tanks 	5-41-S378-PPT thru 5-48-S378-PPT IASG _____
IV. LEADPLANE AND ASM AIRCRAFT	5-49-S378-PPT
V. AIR TACTICAL PLATFORM	5-50-S378-PPT thru 5-52-S378-PPT IASG _____
<ul style="list-style-type: none"> Visibility Speed Safety (density altitude consideration) 	
VI. FIREWATCH AERIAL SUPERVISION PLATFORMS	5-53-S378-PPT IASG _____
VII. HELICOPTER COORDINATOR AIRCRAFT	5-54-S378-PPT IASG _____
VIII. SPECIALTY OPERATIONS	5-55-S378-PPT IASG _____

OUTLINE	AIDS & CUES
IX. SMOKEJUMPER AIRCRAFT	5-56-S378-PPT IASG_____
X. RAPPELLING	5-57-S378-PPT IASG_____
XI. HELITORCH OPERATIONS	5-58-S378-PPT IASG_____
XII. LOGISTICAL SUPPORT	5-59-S378-PPT IASG_____
XIII. ALL HAZARD OPERATIONS	5-60-S378-PPT IASG_____
XIV. SEAT SPECIFIC ISSUES <ul style="list-style-type: none"> • Gate systems • Base considerations • Single vs. multiple SEATs • Coverage levels • Reload times/distances 	
REVIEW UNIT OBJECTIVES.	5-61-S378-PPT
IF TIME ALLOWS, SHOW STUDENTS THE SEAT OPERATIONS POWERPOINT PRESENTATION.	

UNIT OVERVIEW

Course Aerial Supervision, S-378

Unit 6 – Suppressants and Retardants

Time 1 Hour

Objectives

1. Describe the characteristics of fire chemicals and be familiar with the application and use.
2. Define the fundamental aspects of toxicity and environmental effects of the chemicals.
3. Describe information sources applicable to fire chemical usage.

Strategy

The goal for this unit is to provide aerial supervision personnel with the information necessary to use, access, and manage chemicals in the suppression of wildland fires. It is recommended that a subject matter expert in fire chemical application instruct this unit.

Instructional Methods

- Informal lecture
- Interactive group discussion

Instructional Aids

- ☐ Computer with LCD projector and presentation software
- ☐ Interagency Aerial Supervision Guide
- ☐ Interagency Standards for Fire and Aviation (Red Book)
- ☐ Fireline Handbook
- ☐ Incident Response Pocket Guide

Exercises

- Application Volume (page 6.11)
- Application Length of Stream (page 6.12)

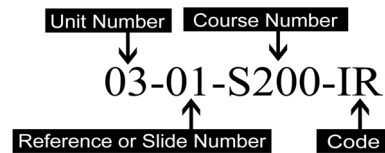
Outline

- I. Usage of Fire Chemicals
- II. Fire Chemical Types, Uses, and Ingredients
- III. Toxicity
- IV. Balancing Risks

Aids and Cues Codes:

The codes in the Aids and Cues column are defined as follows:

IG – Instructor Guide	SW – Student Workbook
IR – Instructor Reference	SR – Student Reference
HO – Handout	PPT – PowerPoint



UNIT PRESENTATION

COURSE: Aerial Supervision, S-378

UNIT: 6 – Suppressants and Retardants

OUTLINE	AIDS & CUES
TITLE SLIDE.	6-1-S378-PPT
PRESENT UNIT OBJECTIVES.	6-2-S378-PPT
UNIT GOAL.	6-3-S378-PPT
I. USAGE OF FIRE CHEMICALS	6-4-S378-PPT
Why fire chemicals are used:	
<ul style="list-style-type: none">• Improve the efficiency of water• Chemically treat fuels to make them less combustible – even dry• Reduce fire intensity• Make it possible for firefighters to work the fireline• Protect life and property	

OUTLINE	AIDS & CUES
II. FIRE CHEMICAL TYPES, USES, AND INGREDIENTS	6-5-S378-PPT
A. Long-Term Retardant	6-6-S357-PPT
<ol style="list-style-type: none"> 1. Contains retardant salts (typically fertilizer) that alter the way the fire burns. Decreases the fire intensity and slows the advance of the fire. 2. Effective even after the water in the retardant has evaporated. The salts continue to retard the fire. 3. Crews are allowed time to put the fire out while the retardant slows/prevents further spread. 	
<ol style="list-style-type: none"> 4. Long-term retardant composition: <ul style="list-style-type: none"> • 85% water • 10% fertilizer • 5% minor ingredients: <ul style="list-style-type: none"> – Colorant (iron oxide, or fugitive) – Thickener (natural gum or clay) – Corrosion inhibitors – Stabilizers – Bactericides 	6-7-S378-PPT

OUTLINE	AIDS & CUES
<p>III. TOXICITY</p>	
<p>SLIDES 14 – 17: DISCUSS THE CHARTS SHOWING THE TOXICITY EFFECTS OF THE VARIOUS FIRE CHEMICALS.</p>	<p>6-14-S378-PPT thru 6-17-S378-PPT</p>
<p>A. Conclusions</p> <ol style="list-style-type: none"> 1. Long-term fire retardants are considerably less toxic than most foaming and water-enhancing agents, but are used in greater amounts. 2. Ultra-violet significantly increases the toxicity of fire retardants containing sodium ferrocyanide and water enhancing gels. 3. High organic soils rapidly decrease chemical persistence. 4. Combustion appears to remove retardant. 5. Fish are capable of avoiding exposure if an avenue of escape is available. 	<p>6-18-S378-PPT</p> <p>6-19-S378-PPT</p>
<p>B. Fire Chemical Toxicity for Foam</p> <ol style="list-style-type: none"> 1. Foam concentrates: 1 gallon will lethally contaminate 62,500 to 142,900 gallons of water depending on product. 2. Foam mixture at 1%: 1 gallon will lethally contaminate 625 to 1429 gallons of water depending upon product. 	<p>6-20-S378-PPT</p>

OUTLINE	AIDS & CUES
<p>C. Fire Chemical Toxicity for Retardant</p> <ol style="list-style-type: none"> 1. Retardant concentrate: 1 gallon will lethally contaminate 1185 to 4500 gallons of water depending on product. 2. Retardant mixed: 1 gallon will lethally contaminate 237 to 913 gallons of water depending on product. 3. Note: Retardant is less toxic than foam by 4 to 94 fold. 	6-21-S378-PPT
<p>D. Summary of Toxicity</p> <ol style="list-style-type: none"> 1. Toxicity is likely to impact aquatic organisms inhabiting small ponds and streams. 2. Toxicity is likely to persist when applied on rocky or impermeable surfaces. 3. Impacts of ash effluent, elevated temperature, and habitat alterations must be considered in assessing impacts to aquatic organisms. 	6-22-S378-PPT
<p>IV. BALANCING RISKS</p> <p>Pre-fire planning to consider where chemicals should be applied:</p> <p>A. Type of Fire</p> <ol style="list-style-type: none"> 1. Wildfire – use tools consistent with location 2. Controlled burns – broad range of options and timeframes 	6-23-S378-PPT

OUTLINE	AIDS & CUES
B. Emphasis on Minimizing Aquatic Exposure	
C. Fire Chemical Toxicity vs. Fire Impacts	
D. National Averages <ol style="list-style-type: none"> 1. 23 million gallons of retardant used. 2. Number of fires range from 81,000 to 240,000 in the last 20 years. 3. Number of acres burned range from 1.7 million to 8.4 million in the last 20 years. 4. Costs range from 340 million to 1.66 billion in the last 8 years. 	6-24-S378-PPT
E. Coverage Level <ol style="list-style-type: none"> 1. Amount of fire chemical applied to the fuel. 2. Expressed in gallons per 100 square feet (GPC). 3. Provides common language between ground and air. 	6-25-S378-PPT
F. National Fire Chemical Use Guidelines <ol style="list-style-type: none"> 1. Chemical use guideline sources: <ul style="list-style-type: none"> • Standards for Fire and Aviation Operations (Red Book) • Land management plans • Biological assessments or evaluations 	6-26-S378-PPT

OUTLINE	AIDS & CUES
<ul style="list-style-type: none"> • Minimum impact management tactics • Overhead team briefing packages • Spill prevention and countermeasure plans <p>2. Avoid aerial or ground application of fire chemicals within 300 feet of waterways.</p> <p>3. Deviations from these guidelines are acceptable when life or property is threatened.</p> <p>4. Additional guidelines for the use of fire chemicals:</p> <ul style="list-style-type: none"> • Reduce risk knowing that all risk cannot be alleviated. • Inform field personnel during regular briefings. • Locate operations to minimize impact. • Do not compromise safety. 	<p>6-27-S378-PPT</p> <p>6-28-S378-PPT</p> <p>6-29-S378-PPT</p>

Exercise: Application Volume

Scenario:

Retardant was applied to a stand of short needle conifer with heavy dead litter. Coverage level 4 was used. Loosum Creek was in the drop zones and the stream was directly impacted from the northern boundary of section 6 to the first junction of the stream in a southerly direction (see map on next page).

Stream slope is gentle. Average stream width is 3 feet with a depth of 6 inches. The drop zone is 1 mile upstream from the South Fork of the Salmon River containing Chinook salmon, a threatened and endangered listed species.

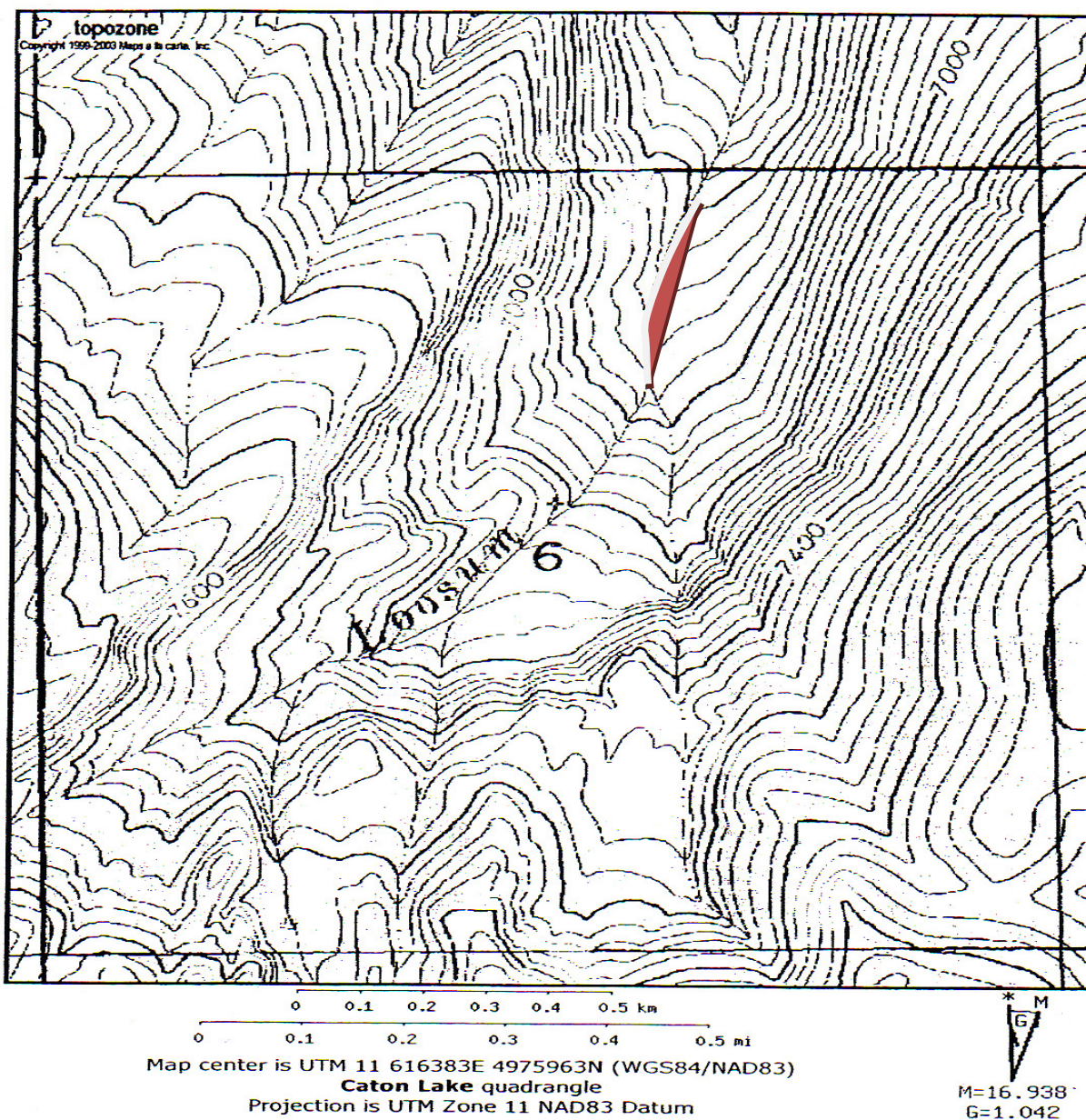
Questions:

1. What is the length of the stream affected?

.275 of a mile x 5,280 = 1,452 feet

2. How many gallons of retardant was applied to the surface of the stream?

- **Length of stream (1,452 feet) x width of stream (3 feet) = 4,356 square feet**
- **Divide 4,356 square feet by 100 (the number of 100 sq. foot increments) equals 43.6**
- **Coverage level for fuel model 10 is 4 gallons per 100 square feet**
- **Number of square foot increments of 43.6 times the coverage level 4 = 174 gallons (the volume of retardant that was applied to the surface of the stream)**



<http://www.topozone.com/print.asp?z=11&n=4975963.00014588&e=616383.000002585&s=...> 3/14/04

Exercise: Application Length of Stream

Scenario:

450 gallons of retardant was applied to a stream 10 feet wide and 1 foot deep. The retardant used will lethally contaminate 913 gallons of water per gallon.

Conversion factors:

1 gallon equals 231 cubic inches
1 cubic foot contains 1,728 cubic inches
1 cubic foot contains 7.48 gallons of water
1 mile equals 5,280 feet

Question:

How many mile(s) of stream have been lethally contaminated?

- **Divide 1,728 cubic inches by 231 cubic inches per gallon = 7.48 gallons per cubic foot.**
- **Multiply stream width of 10 foot by stream depth of 1 foot by 1 foot = 10 cubic feet per foot of stream.**
- **Multiply 10 cubic foot by 7.48 gallons per cubic foot = 74.8 gallons per foot.**
- **Multiply 74.8 gallons per foot times 5,280 feet per mile = 394,944 gallons per mile.**
- **Each gallon of retardant will lethally contaminate 913 gallons of water times 450 = 410,850 gallons of water.**
- **Divide 410,850 by 394,944 = 1.04 miles of steam.**

UNIT OVERVIEW

Course	Aerial Supervision, S-378
Unit	7 – Aerial Supervision Mission Procedures
Time	2.5 Hours

Objectives

1. Identify pre-mission procedures.
2. Identify en route procedures.
3. Identify incident airspace management procedures.
4. Identify air traffic control procedures.
5. Define target description.
6. Identify incident departure procedures.
7. Identify post mission responsibilities.
8. Identify emergency procedures.

Strategy

Two STEX sessions are conducted simultaneously at the end of this unit. It is important that the cadre prepare for these STEX in advance.

Instructional Methods

- Informal lecture
- Interactive group discussion

Instructional Aids

- ☐ Computer with LCD projector and presentation software
- ☐ Interagency Aerial Supervision Guide
- ☐ Aerial Supervision Logbook (1 for each student and instructor)
- ☐ Interagency Airspace Coordination Guide
- ☐ Fireline Handbook
- ☐ Incident Response Pocket Guide

- ☐ National/Regional Mobilization Guide(s)
- ☐ 2 sandtables and sandtable accessories
- ☐ Breakout rooms

Exercises (see page 7.15)

- STEX: Target Description, Hill Fire
- STEX: Initial Attack, Snake Fire

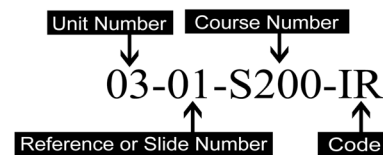
Outline

- I. Pre-Mission Procedures
- II. En Route Procedures
- III. Incident Airspace Management Procedures
- IV. Air Traffic Control
- V. Post-Mission Procedures
- VI. Emergency Procedures

Aids and Cues Codes:

The codes in the Aids and Cues column are defined as follows:

IG – Instructor Guide	SW – Student Workbook
IR – Instructor Reference	SR – Student Reference
HO – Handout	PPT – PowerPoint



UNIT PRESENTATION

COURSE: Aerial Supervision, S-378

UNIT: 7 – Aerial Supervision Mission Procedures

OUTLINE	AIDS & CUES
TITLE SLIDE.	7-1-S378-PPT
PRESENT UNIT OBJECTIVES.	7-2-S378-PPT
I. PRE-MISSION PROCEDURES Pre-mission procedures are the responsibility of all aerial supervision. <ul style="list-style-type: none">• Pilot qualification card and aircraft data card• Flight and duty limitations• Aircraft maintenance• Procurement agreements• Mission briefing	7-3-S378-PPT IASG _____
REFER STUDENTS TO THE IASG “OBTAIN A MISSION BRIEFING.” <ul style="list-style-type: none">– Aircraft dispatch form– Initial attack– Extended attack	IASG _____
HAND OUT THE EXAMPLE ICS 220 FOR EXTENDED ATTACK FIRES. REVIEW AS NECESSARY.	7-1-S378-HO

OUTLINE	AIDS & CUES
<ul style="list-style-type: none"> • Aircraft issues <ul style="list-style-type: none"> – Temporary Flight Restriction – Military Operations Area (MOA) – Restricted areas • Mission duration • Remain Over Night (RON) location <p>B. Pre-takeoff Responsibilities</p> <ul style="list-style-type: none"> • Check radios and avionics • Record altimeter setting • Check GPS coordinates for accuracy • Assist pilot as requested • Complete checklists • Observe sterile cockpit as negotiated 	<p>7-6-S378-PPT IASG _____</p>
<p>II. EN ROUTE PROCEDURES</p> <p>A. After takeoff:</p> <ol style="list-style-type: none"> 1. Record takeoff time 2. Initial flight following <ul style="list-style-type: none"> • Departure location • Destination • Souls on board (SOB) • Fuel • Estimated time en route 3. Brief/assist pilot 4. Monitor fire frequencies to gather intelligence 	<p>7-7-S378-PPT IASG _____</p>

OUTLINE	AIDS & CUES
<p>5. Pilot communicates with air traffic control and military controllers</p> <p>SLIDE 8 SHOWS AN EXAMPLE OF A FLIGHT FOLLOWING CONVERSATION.</p>	<p>7-8-S378-PPT</p>
<p>B. Entering Incident Airspace/Fire Traffic Area</p> <ol style="list-style-type: none"> 1. Unique to land management agencies 2. Not part of the National Airspace System 3. Extends 5 NM from the center point of the incident <ul style="list-style-type: none"> • 12 NM initial contact ring • 7 NM no com (communication) ring; if no contact can be made, hold at the 7 NM point until positive contact is made. 4. Initial attack 	<p>7-9-S378-PPT IASG _____</p> <p>7-10-S378-PPT</p> <p>7-11-S378-PPT</p> <p>7-12-S378-PPT IASG _____</p>
<p>REFER STUDENTS TO THE CHECKLIST IN THE AERIAL SUPERVISION LOGBOOK.</p> <ul style="list-style-type: none"> • Blind call on Victor at 12 NM • Contact incident commander (aircraft on scene, en route) • Closeout with dispatch • Assume control of airspace • Validate center point 	

OUTLINE	AIDS & CUES
<p>5. Extended attack</p> <ul style="list-style-type: none"> • Check in at 12 NM or check in with helibase (status of incident aircraft, flight following) • Closeout with dispatch • Change to incident frequencies <p>III. INCIDENT AIRSPACE MANAGEMENT PROCEDURES</p> <p>A. Initial Responsibilities</p> <p>1. Initial attack</p> <ul style="list-style-type: none"> • Determine flight hazards • Determine elevations • Size up the fire <p>REFER STUDENTS TO THE SIZE-UP CARD IN THE AERIAL SUPERVISION LOGBOOK.</p> <ul style="list-style-type: none"> • Update dispatch • Develop strategy/tactics with incident commander • Brief incoming aircraft <ul style="list-style-type: none"> – Initial – Tactical – Departure (airtankers) 	<p>7-13-S378-PPT</p>

OUTLINE	AIDS & CUES
<p>2. Extended attack</p> <ul style="list-style-type: none"> • Obtain briefing from on-scene aerial supervision. • Check in with helibase. • Check in with Operations/Division (all divisions). • Brief incoming aircraft <ul style="list-style-type: none"> – Initial – Tactical – Departure (airtankers) <p>B. Target Description</p> <ul style="list-style-type: none"> • Location • Objectives/intent • Type of drop • Coverage level • Hazards • Ground clearance <p>C. Target Description Tips</p> <ul style="list-style-type: none"> • Start big and go to small • Communicate intent of drop • Use fire anatomy (right flank, head) • Use cardinal directions on amoeba fires • Clock method • Fire activity • Visual references 	<p>7-14-S378-PPT IASG_____</p> <p>7-15-S378-PPT thru 7-18-S378-PPT</p>

OUTLINE	AIDS & CUES
<p>D. Coordinate with Incident Personnel and Dispatch</p> <ul style="list-style-type: none"> • Provide fire information for tactical planning. • Recommend tactics and strategies. • Know procedures for ordering additional resources. • Coordinate tactics with ground personnel. <ul style="list-style-type: none"> – Provide air drop information to ground crews. • Assure line clearances before retardant drops. • Provide safety oversight <ul style="list-style-type: none"> – Ground crews – Fire activity – Weather – Changes in the plan – Changes in available resources 	<p>7-19-S378-PPT IASG_____</p>
<p>E. Coordination with Other Aerial Supervision</p> <p>REFER STUDENTS TO THE BRIEFING CHECKLIST IN THE AERIAL SUPERVISION LOGBOOK.</p> <ul style="list-style-type: none"> • Leadplane/ASM • Airtanker drop sequence • Relief ATGS • Helicopter coordinator • Leadplane and airtanker flight patterns 	<p>7-20-S378-PPT</p> <p>7-21-S378-PPT</p>

OUTLINE	AIDS & CUES
<ul style="list-style-type: none"> • Maintaining operational continuity <ul style="list-style-type: none"> – Stagger fuel cycles – Stagger launch times – Flight hour restrictions – Establish remote bases – Order relief early 	7-22-S378-PPT
IV. AIR TRAFFIC CONTROL	7-23-S378-PPT IASG _____
A. General Air Traffic Control Principles <ul style="list-style-type: none"> • See and avoid • Use appropriate air-to-air frequency • FTA procedures 	
B. Vertical Separation <ul style="list-style-type: none"> • Helicopters • Airtanker and lead operations • Airtanker orbit/holding areas • Smokejumpers (square vs. round chutes) • Paracargo • Media • Other aircraft (recon, dignitaries, general aviation) 	7-24-S378-PPT IASG _____
C. Horizontal Separation <ul style="list-style-type: none"> • Daisy chain • Race track • Virtual fence • Geographic references 	7-25-S378-PPT IASG _____
D. Entry and Exit Corridors <ul style="list-style-type: none"> • Enter from the west and exit to the east 	7-26-S378-PPT IASG _____

OUTLINE		AIDS & CUES
E.	Initial Point <ul style="list-style-type: none"> • Coordinates • Landmark 	7-27-S378-PPT IASG_____
F.	Holding Area	7-28-S378-PPT
G.	Sequencing Airtankers and Helicopters	7-29-S378-PPT IASG_____
H.	Interval Dispatching <ul style="list-style-type: none"> • Sequence departures to incident 	7-30-S378-PPT IASG_____
I.	Check Points	7-31-S378-PPT IASG_____
J.	Virtual Fence	7-32-S378-PPT IASG_____
K.	Helicopter Routes	7-33-S378-PPT IASG_____
L.	Helicopter Daisy Chains	7-34-S378-PPT IASG_____
M.	Intersecting Routes	7-35-S378-PPT IASG_____
N.	Before Leaving the Incident <ol style="list-style-type: none"> 1. Coordinate with air resources <ul style="list-style-type: none"> • Aerial supervision continuity • Fuel cycles • Flight time/duty day issues 	7-36-S378-PPT IASG_____

OUTLINE	AIDS & CUES
<ol style="list-style-type: none"> 2. Coordinate with ground resources <ul style="list-style-type: none"> • Close out with IC, Operations, Division, Helibase 3. Coordinate with dispatch <p>O. Briefing Incoming Aerial Supervision</p> <ol style="list-style-type: none"> 1. Altimeter and altitudes 2. Assigned aircraft 3. Aviation hazards 4. Established aircraft traffic patterns 5. Confirm radio frequencies 6. Advise on tactical priorities 7. Retardant coverage levels being used 8. Identification and location of ground resources 9. Reload base or bases being used 10. Established helibase and helispots 11. Timeframe for when to be back for relief 	<p>7-37-S378-PPT IASG _____</p>

OUTLINE	AIDS & CUES
<p>V. POST-MISSION PROCEDURES</p> <ul style="list-style-type: none"> • Confirm aerial supervision needs for next day • Debrief (air resources, AOBD or dispatch) • Payment documents • Daily cost for finance • Contract daily diary • SAFECOM/lessons learned • Update aerial supervision logbook • Request IAP for next day 	<p>7-38-S378-PPT IASG_____</p>
<p>VI. EMERGENCY PROCEDURES</p> <p>A. Flight Emergencies</p> <ol style="list-style-type: none"> 1. Emergency is highest priority. 2. Have the pilot jettison load if feasible. 3. Determine pilot's intentions for managing situation. 4. Clear the airspace as needed. 5. Dedicate and clear a frequency as needed. 6. Direct aircraft to depart area and get a safe altitude. 	<p>7-39-S378-PPT IASG_____</p> <p>7-40-S378-PPT</p>

OUTLINE	AIDS & CUES
<ol style="list-style-type: none"> 7. Instruct pilot to return to base or alternate landing zone. 8. Alert helibase, dispatch, or airport if needed. 9. Direct remaining aircraft to hold or return to base. 10. Follow and track aircraft. 11. Prepare for fire suppression if needed. 	
<p>B. Missing Aircraft or Aircraft Mishap</p> <ol style="list-style-type: none"> 1. Assign aircraft as needed for search. 2. Determine location. 3. Monitor ELT frequency (121.5), if site is not known. 4. Activate incident medevac plan as needed. 5. Assign aircraft and personnel for saving life and fire suppression. 6. Advise appropriate personnel. 7. Consider suspending non-essential aerial operations. 8. Direct ground resources to site. 9. Direct air support operations. 	<p>7-41-S378-PPT IASG _____</p>

OUTLINE	AIDS & CUES
<p>C. Medevac of Incident Personnel</p> <ol style="list-style-type: none"> 1. Serve as relay for accident site, helibase, and medical unit. 2. Determine location, latitude/longitude. 3. Obtain medevac frequency, may be listed in medical plan. 4. Assist as needed with helispot location. 5. Facilitate dust abatement as needed at emergency helispot. 6. Guide incoming aircraft to crash site and helispot. 	<p>7-42-S378-PPT IASG_____</p>
<p>REVIEW UNIT OBJECTIVES.</p>	<p>7-43-S378-PPT</p>
<p>EXERCISES: Divide the class into two groups. Run the STEX listed below simultaneously between the two groups. Cadre members can serve as role players, but it may be a good idea to have additional role players. Role players should have a solid fire experience background.</p>	<p>7-44-S378-PPT</p>
<p>STEX: Target Description, Hill Fire (pages 7.17 – 7.19)</p>	<p>7-1-S378-IR</p>
<p>STEX: Initial Attack, Snake Fire (pages 7.21 – 7.25)</p>	<p>7-2-S378-IR</p>

STEX: Target Description, Hill Fire

Instructor Information (not to be shared with students)

Time: 1 hour (after 1 hour, rotate groups)

Training Objective: For this STEX, students demonstrate target description from an ATGS/Air Attack to an airtanker.

Sandtable Setup:

- Set up two identical sandtables with a divider between them.
- The tables should have a small IA with the fire approaching a paved road with houses on the northeast side.
- An engine is anchored at the heel of the fire and has a long section of line to build up to the houses along the left flank.
- Power lines can be used to aid in target description and also represent a hazard.
- A lake can also be used to aid in target description.

Resources/Role Players:

- Air Attack 1SA (student)
- Type 1 Airtanker (T-00, cadre or student)
- IC/Engine Module Leader (Hill IC, cadre)

The ATGS student will:

- Check in with the IC and receive instructions
- Brief the incoming airtanker and give a target description
- Clear the target area
- Drop the airtanker (split or full load)
- Get feedback from the IC
- Give feedback to airtanker

Briefing to Role Players:

IC: Brief ATGS as per script. Prompt if he doesn't clear the line. Give feedback on drop.

Airtanker 00: Check in at 12 miles and follow ATGS instructions.

STEX Instructions:

1. Each role player will not be able to see the others sandtable.
2. Following the drop, the divider will be removed and the drops will be critiqued by the cadre and students.
3. Rotate all students through the ATGS and airtanker positions, and then critique as a group.
4. Simulation ends after 10-15 minutes per student. Debrief and start new simulation with the next student.

Information to be Shared With Students

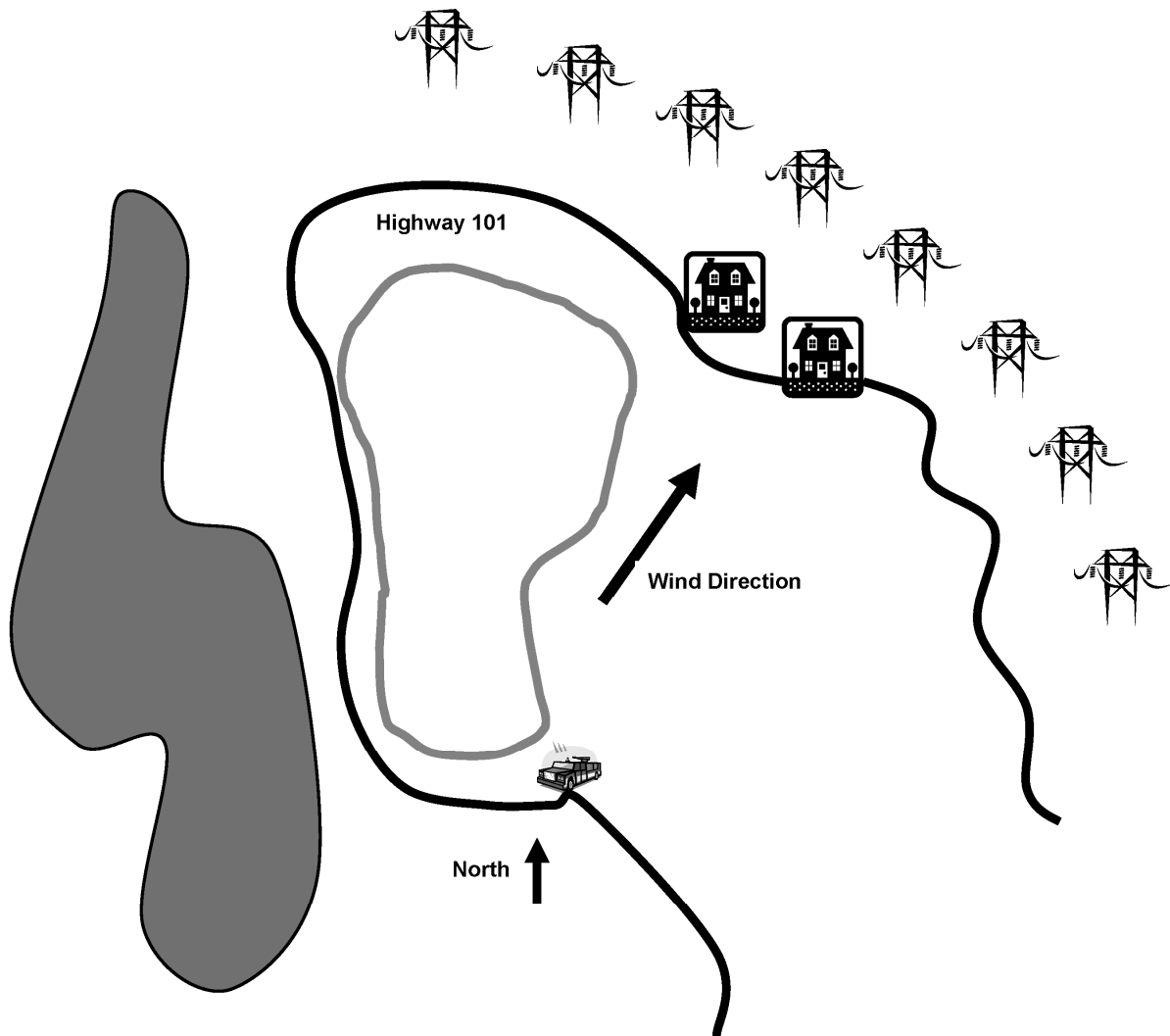
Briefing to ATGS student:

- You are assigned to the Hill Fire
- Weather is hot and dry with winds out of the SW at 10 mph
- Check-in with the IC at 12 miles and get briefed
- Expect T-00 to arrive shortly
- Provide him/her with a target description, drop, and give feedback

Script:

- Check-in with IC at 12 NM
- IC briefing (IC is in the engine at the heel)
 - No aircraft on scene
 - Keep fire from crossing Highway 101
 - Protect structures on NE side
 - I'm your ground contact
- T-00 checks in at 12 miles
- Brief airtanker and give target description
- Clear the line
- Airtanker drops full or split load
- Receive feedback from IC
- Provide feedback to airtanker

Hill Incident



STEX: Initial Attack, Snake Fire

Instructor Information (not to be shared with students)

Time: 1 hour (after 1 hour, rotate groups)

Training Objective: For this STEX, students demonstrate proper radio and airspace management procedures on an initial attack fire.

Sandtable Setup: A small IA which requires retardant and bucket drops.

Resources/Role Players:

- ATGS/Air Attack (AA-55)
- Aircraft Dispatcher (Boise)
- ICT4 (Snake)
- T1 Airtanker (T-00)
- T2 Helicopter (H-678)

STEX Instructions:

1. Students are to function as the ATGS on the incident.
 - The Snake Fire is an IA in a grass/brush fuel type which requires retardant and bucket work.
 - 2 engines and an ICT4 are on-scene trying to flank the fire.
 - Structures are threatened.
 - A dip site is close by at the heel.
 - Aerial resources are en route 5 minutes behind the ATGS.
2. Complexity should start low and increase as needed to keep the student challenged.
3. Keep the scenario running for 5-10 minutes. Add more aerial resources as the student handles the situation.

Information to be Shared With Students

Briefing to ATGS student:

You are assigned to the Snake Fire as the ATGS. Respond to the fire and interact with the IC and other resources using the following procedures:

- En route
- Incident airspace management
- Air traffic control
- Target description

The scenario starts with you checking-in with Boise dispatch. Initiate flight following, take control of the incident airspace, and work with the IC to meet incident objectives. Manage incoming aircraft as needed.

Script:

Dispatch: Starts scenario by sending AA-55 to Snake Fire.

AA-55: Checks in with dispatch.

Dispatch: Tanker-00 and H-679 are en route; ETA 15 minutes.

AA-55: Copies dispatch and enters the Snake Fire airspace; checks in with Snake IC.

Snake IC: Briefs AA-55

- No aircraft on scene.
- Structures threatened on right flank.
- 2 engines on scene.
- Objectives are to protect structures and assist the engine crews in suppressing the fire.
- Ask for a size up.
- Ask for bucket work.
- Ask for retardant.
- Keep the ATGS busy.

AA55: Copies IC and assumes role of Snake Air Attack.

H-678: Checks in with AA55 at 12 miles.

AA55: Briefs H-678.

H-678: Follows ATGS instructions.

Tanker-00: Checks in with Snake Air Attack at 12 miles.

Snake Air Attack: Briefs T-00.

Snake Air Attack: Briefs H-678.

Snake Air Attack: Updates dispatch.

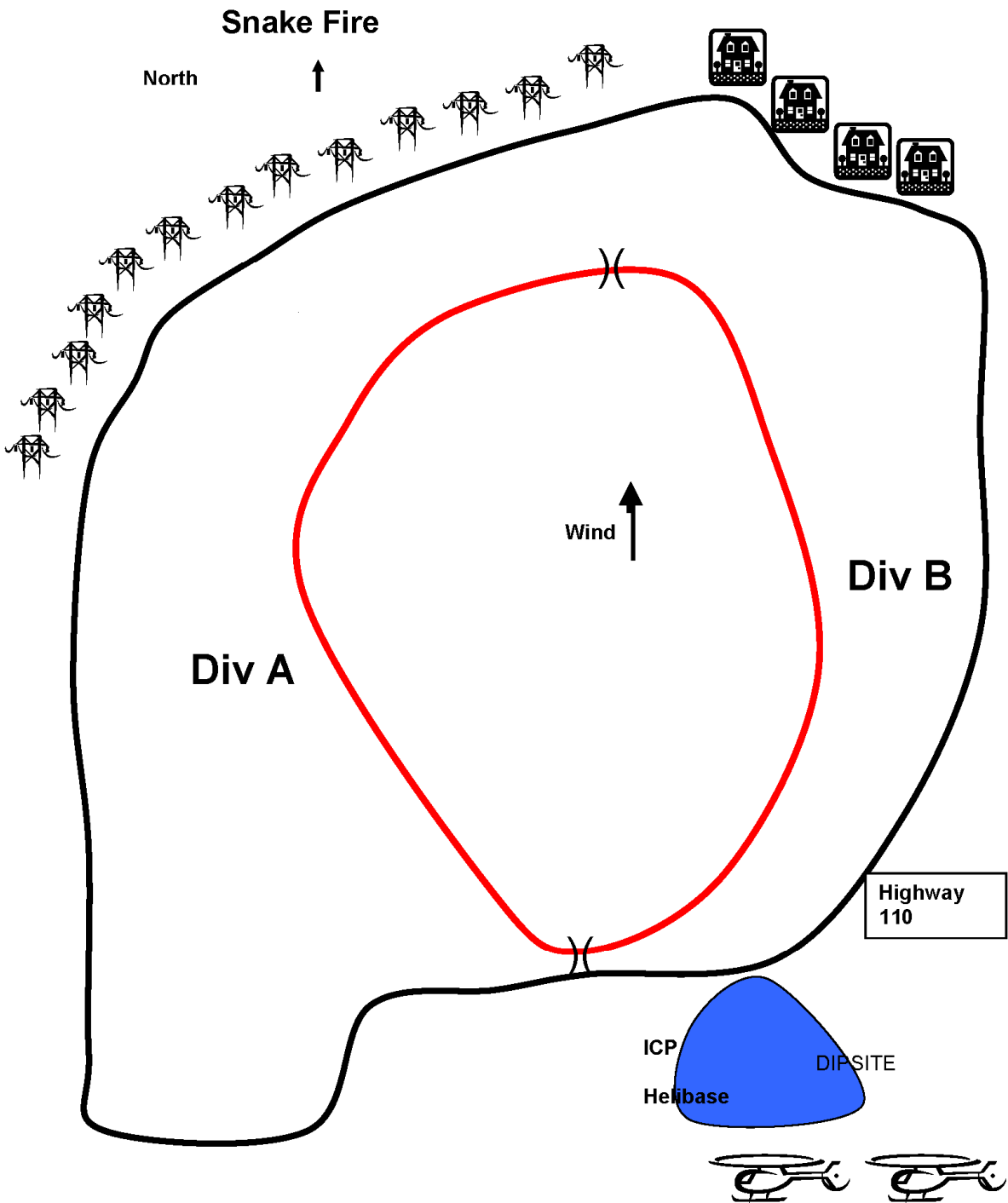
Snake Air Attack: Clears line with IC.

Snake Air Attack: Drops T-00 and lines out H-679 to do buckets on the head.
Load and return T-00.

Conduct AAR and answer questions.

Aircraft Dispatch Form

DATE: 7/10/200x	TIME: 1200 hrs	SUNSET +30 2030
INCIDENT NAME: Snake		INCIDENT #: R2D2
DESCRIPTIVE LOCATION: 20 miles north of Boise T: R: S: 1/4		ELEVATION: 5,000'
LAT: 44 34 44		LONG: 113 22 43
BEARING (DEG): 330	DISTANCE (NM): 20	FROM: BOI
FLIGHT FOLLOWING: Boise Dispatch	F/F FREQUENCY: Local FF	TONE:
AIR CONTACT: T-00 H-678	A/A FREQUENCY: Victor	TONE:
GROUND CONTACT: Snake IC	A/G FREQUENCY: Air-to-Ground	TONE:
OTHER AIRCRAFT: T-00 and H-678 10 minutes behind you		
HAZARDS:		
MTR/SUA: () YES (X) NO TFR: () YES (X) NO		
COMMENTS: Altimeter: 30.20		RELOAD BASE: BOI



UNIT OVERVIEW

Course Aerial Supervision, S-378

Unit 8 – Aerial Firefighting Strategy and Tactics

Time 2.5 Hours

Objectives

1. Describe aerial fire suppression strategies and tactics.
2. List considerations in planning and implementation of tactical aviation operations.
3. Describe the use of tactical aircraft in wildland/urban interface.

Strategy

Two STEX sessions are conducted simultaneously at the end of this unit. It is important that the cadre prepare for these STEX in advance.

Instructional Methods

- Informal lecture
- Interactive group discussion

Instructional Aids

- ☐ Computer with LCD projector and presentation software
- ☐ Interagency Aerial Supervision Guide
- ☐ Interagency Standards for Fire and Fire Aviation (Red Book)
- ☐ Fireline Handbook
- ☐ Incident Response Pocket Guide
- ☐ 2 sandtables

Exercises (see page 8.7)

STEX: Initial Attack Mission Procedures, Cow Fire

STEX: Extended Attack Mission Procedures, Sheep Fire

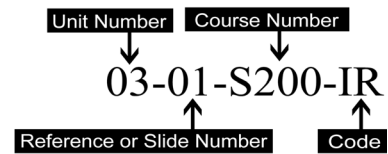
Outline

- I. Aerial Fire Suppression Strategies
- II. Aerial Fire Suppression Tactics
- III. General Tactical Considerations
- IV. Initial Attack and Multiple Fire Operations
- V. Wildland/Urban Interface Incidents

Aids and Cues Codes:

The codes in the Aids and Cues column are defined as follows:

IG – Instructor Guide	SW – Student Workbook
IR – Instructor Reference	SR – Student Reference
HO – Handout	PPT – PowerPoint



UNIT PRESENTATION

COURSE: Aerial Supervision, S-378

UNIT: 8 – Aerial Firefighting Strategy and Tactics

OUTLINE	AIDS & CUES
TITLE SLIDE.	8-1-S378-PPT
PRESENT UNIT OBJECTIVES.	8-2-S378-PPT
I. AERIAL FIRE SUPPRESSION STRATEGIES	8-3-S378-PPT
<ul style="list-style-type: none"> Direct Attack – Drops are next to fire edge in support of ground forces. 	8-4-S378-PPT IASG_____
SLIDES 5 – 7 SHOW DIRECT ATTACKS.	8-5-S378-PPT thru 8-7-S379-PPT
<ul style="list-style-type: none"> Parallel Attack – Generally parallel to and within a hundred feet of the perimeter. 	8-8-S378-PPT IASG_____
SLIDES 9 – 12 SHOW PARALLEL ATTACKS.	8-9-S378-PPT thru 8-12-S378-PPT
<ul style="list-style-type: none"> Indirect Attack – Pre-treatment of fuels which are far removed from the main fire. 	8-13-S378-PPT IASG_____
SLIDES 14 – 18 SHOW INDIRECT ATTACKS.	8-14-S378-PPT thru 8-18-S378-PPT

OUTLINE	AIDS & CUES
<p>II. AERIAL FIRE SUPPRESSION TACTICS</p> <ul style="list-style-type: none"> Box Pattern <p>SLIDES 20 – 24 SHOW BOX PATTERNS.</p> <ul style="list-style-type: none"> “V” Pattern – Used to “V” off the head of the fire. Parallel or Stacking Pattern Full Coverage Drop – This is more effective in light fuels than timber fuels. <p>SLIDES 25 – 27 SHOW FULL COVERAGE DROPS.</p> <ul style="list-style-type: none"> Hot Spotting – Hitting flare ups or hotspots directly on the flame. <p>SLIDES 29 – 32 SHOW HOT SPOTTING.</p>	<p>8-19-S378-PPT</p> <p>IASG _____</p> <p>8-20-S378-PPT thru 8-24-S378-PPT</p> <p>IASG _____</p> <p>IASG _____</p> <p>8-25-S378-PPT thru 8-27-S378-PPT</p> <p>8-28-S378-PPT</p> <p>8-29-S378-PPT thru 8-32-S378-PPT</p>
<p>III. GENERAL TACTICAL CONSIDERATIONS</p> <p>Tactical plans are based on the chosen strategy and a working knowledge of the principles listed in the IASG.</p>	<p>8-33-S378-PPT</p> <p>IASG _____</p>

OUTLINE	AIDS & CUES
<p data-bbox="191 281 954 359">IV. INITIAL ATTACK AND MULTIPLE FIRE OPERATIONS</p> <ul style="list-style-type: none"> <li data-bbox="289 411 1049 449">• Assuming control of air operations in progress <ul style="list-style-type: none"> <li data-bbox="358 499 1118 577">– Monitor air traffic and operation's frequencies while inbound to the incident. <li data-bbox="358 627 1008 705">– Contact air and ground resources, keep communications open. <li data-bbox="289 753 813 791">• Initial attack mission priorities <li data-bbox="289 840 992 877">• Initial attack responsibilities without an IC <ul style="list-style-type: none"> <li data-bbox="358 928 784 966">– Make initial fire size up <li data-bbox="358 968 773 1005">– Develop a tactical plan <li data-bbox="289 1054 699 1092">• Multiple fire situations <li data-bbox="289 1140 656 1178">• Delayed attack fires <ul style="list-style-type: none"> <li data-bbox="358 1228 1062 1306">– Determine delayed attack fires that require retardant. <li data-bbox="358 1354 821 1392">– Monitor status of the fires. 	<p data-bbox="1187 281 1419 359">8-34-S378-PPT IASG_____</p> <p data-bbox="1187 627 1419 665">8-35-S378-PPT</p> <p data-bbox="1187 840 1419 877">8-36-S378-PPT</p>

OUTLINE	AIDS & CUES
<ul style="list-style-type: none"> • Wildland/Urban Interface Tactical Planning Principles <ul style="list-style-type: none"> – Identify air operational hazards. – Locate non-incident personnel. – Protect evacuation routes. – Triage structures. – Identify possible dip sites and portable retardant plant sites. – Determine best tactics to achieve suppression objectives. 	8-41-S378-PPT
REVIEW UNIT OBJECTIVES.	8-42-S378-PPT
<p>EXERCISES: Divide the class into two groups. Run the STEX listed below simultaneously between the two groups. Cadre members can serve as role players, but it may be a good idea to have additional role players. Role players should have a solid fire experience background.</p>	8-43-S378-PPT
<p>STEX: Initial Attack Mission Procedures, Cow Fire (pages 8.9 – 8.13)</p>	8-1-S378-IR
<p>STEX: Extended Attack Mission Procedures, Sheep Fire (pages 8.15 – 8.20)</p>	8-2-S378-IR

STEX: Initial Attack Mission Procedures, Cow Fire

Instructor Information (not to be shared with students)

Time: 1 hour (after 1 hour, rotate groups)

Training Objective: Students demonstrate knowledge of aerial supervision mission procedures including:

- En route
- Airspace management
- Air traffic control
- Before leaving the incident
- Emergencies

Sandtable Setup:

- Type 4 fire with 2 flanks
- Dip site
- Power lines
- Interface
- Helibase
- Landmarks for target description

Resources/Role Players:

- Aircraft Dispatcher (Boise Dispatch)
- ATGS (AA-55)
- Type 3 Single Engine Airtankers (T-180, T-181, T-182, cadre or students)
- Helicopters (Type 1: H-74A, Type 2: H-679, cadre or students)
- IC (Cow IC, cadre or students)

The ATGS student will:

- Receive an aircraft dispatch form and launch to incident
- Arrive at 12 mile mark and contact the incident and incident aircraft
- Arrive on scene and assume control of incident airspace
- Work the incident with airtankers and helicopters
 - Airtanker and bucket drops
 - Crew/cargo missions

Briefing to Role Players:

Dispatch: Prompt ATGS as needed for flight following, resource availability, etc. Launch relief ATGS every 15-20 minutes.

IC: Use script to brief ATGS. Don't overload him/her, but keep him/her busy. It is your job to keep the simulation flowing.

DIVS: Keep ATGS busy with bucket, cargo, shuttle, recon, or retardant requests. Give him/her ground contacts for the missions. Division A, if ATGS doesn't call in your spot, prompt him/her on it.

Airtankers: Check in at 12 miles and follow ATGS instructions. Prompt for reloads. If other air traffic appears to be an issue; prompt ATGS. Prompt ATGS for a lead due to visibility.

Helicopters: Check in with ATGS when you lift from helibase. Prompt for fuel cycle returns. If other air traffic appears to be an issue; prompt ATGS. Create some radio traffic on air to ground and Victor.

LEAD/HLCO: Respond as requested and assist ATGS.

STEX Instructions:

1. Start the incident at a low complexity.
2. The IC needs to ask the ATGS to order aerial resources based on the decided upon objective. The exercise is dynamic and driven by the IC and ATGS.
3. Instructor can bump up the complexity with more airtankers and helicopters if the ATGS is doing well.
4. Instructor can use the following "What if" suggestions at any time during the scenario: medevac, aircraft mechanical issues, spot fires, etc.
5. Instructor can call a time out if the student gets overwhelmed.
6. Exercise ends after 10-15 minutes per student.

Information to be Shared With Students

Briefing to ATGS student:

- You are the ATGS assigned to the Cow Fire at 1400 hrs.
- The fire is 5 acres in a sage/grass fuel type.
- Weather is hot and dry with a southwest wind at 5-15.
- No change expected.
- The IC is on scene and requesting aerial resources.
- Tankers 180, 181, and 182 are available via Boise Dispatch.
- Helicopters 74A and 679 are on scene.
- Respond to the incident and work with the IC to contain the fire.
- Start the exercise by checking in with dispatch when you launch from BOI. Follow standard en route and airspace management procedures after you launch.

ATGS student task checklist:

- Flight following
- Contact incident aircraft at 12 miles
- Contact ground personnel
- Frequency management
- Exhibit knowledge of FTA
- Brief aerial resources
- Maintain span of control
- Provide adequate aircraft separation
- Provide adequate target description
- Clear ground for retardant drops
- Manage emergency situations
- Transition briefing

Script:

Boise Dispatch: Notifies AA-55 of dispatch and requests a call when off the ground.

AA-55: Calls dispatch OTG and gives vitals.

Boise Dispatch: Copies AA-55 and briefs on available resources.

AA-55: Contacts incident at 12 miles out.

H-74A: I am getting ready to land, drop off my crew, and configure for bucket work.

AA-55: copies, requests altimeter and altitude. Enters airspace at appropriate altitude and contacts the IC.

Cow IC: Cow IC briefs ATGS

- H-74A is landing at helibase
- Keep the fire from crossing Highway 110
- Protect structures on northeast corner
- Protect power lines
- I will be your ground contact
- Helibase is monitoring air to ground frequency

AA-55: Copies Cow IC and confirms he is now Cow Air Attack.

Cow Air Attack: Contacts dispatch; briefs on transition to Cow Air Attack and local flight following.

Cow Air Attack: Should get airtankers and helicopters going. IC needs to prompt as needed.

Aircraft Dispatch Form

DATE: 4/16/08	TIME: 1400 hrs	SUNSET +30 2130
INCIDENT NAME: Cow		INCIDENT #: QM70
DESCRIPTIVE LOCATION: 20 Miles north of Boise T: 1S R: 2W S: 22		ELEVATION: 6500'
LAT: 43 33 00		LONG: 116 44 00
BEARING (DEG): 340	DISTANCE (NM): 20	FROM: BOI VOR
FLIGHT FOLLOWING: Boise Dispatch 1	F/F FREQUENCY: 168.700	TONE: NA
AIR CONTACT: None FW Victor:	A/A FREQUENCY: 168.100	TONE: NA
GROUND CONTACT: Cow IC Group	A/G FREQUENCY: 168.200	TONE: NA
OTHER AIRCRAFT: Airtankers (T-180, 181, T-182) Available through Boise Dispatch. Helicopters (H-74A, H-679) Currently on scene at Cow. And available through Cow IC.		
HAZARDS: Power Lines		
MTR/SUA: () YES (x) NO TFR: () YES (x) NO		
COMMENTS: Altimeter 30.00		RELOAD BASE: BOI

STEX: Extended Attack Mission Procedures, Sheep Fire

Instructor Information (not to be shared with students)

Time: 1 hour (after 1 hour, rotate groups)

Training Objective: Students demonstrate knowledge of extended attack aerial supervision mission procedures including:

- En route
- Transition
- Airspace management
- Air traffic control
- Before leaving the incident
- Post-mission
- Emergencies

Sandtable Setup:

- Type 2 fire with 3 divisions in timber fuel type
- Dip site
- Power lines
- Urban interface
- Helibase
- Landmarks for target description and virtual fence reference

Resources/Role Players:

- Aircraft Dispatcher (Boise Dispatch, cadre)
- On scene ATGS (cadre)
- Relief ATGS (AA-55, student)
- Lead/ASM (Lead 49, cadre)
- HLCO (cadre)
- Heavy Airtankers (T-00, T-22, cadre or students)
- Helicopters (Type 1 H-714, H-715; Type 3 H-5BR, cadre or students)
- IC (Sheep IC, cadre or students)
- DIVS (Division A, Division B, Division C, cadre)
- Sheep Helibase (cadre)

The ATGS student will:

- Launch from BOI.
- Arrive at 12 mile mark and contacts Sheep Air Attack.
- Clear in and receive transition briefing.
- Complete transition and work the fire for 15 minutes.
- Work the incident with airtankers and helicopters
 - Airtanker drops
 - Bucket drops
 - Crew/cargo missions
 - Interaction with Lead and HLCO
 - Emergency situation (aircraft issue, medevac, etc.)

Briefing to Role Players:

Dispatch: Prompt air attack as needed for flight following, resource availability, etc.

DIVS: Keep air attack busy with bucket, cargo, shuttle, recon, or retardant requests. Give him/her ground contacts for the missions.

Airtankers: Check in at 12 miles and follow air attack instructions. Prompt for reloads. If other air traffic appears to be an issue, prompt air attack. Prompt air attack for a lead due to visibility.

Helicopters: Check in with air attack when you lift from helibase. Prompt for fuel cycle returns. If other air traffic appears to be an issue, prompt air attack.

Lead/HLCO: Respond as requested and assist air attack.

STEX Instructions:

1. Operations and Divisions control the tempo of the exercise. They should keep students busy with both tactical and logistical missions.
2. Instructor can use the following “What if” suggestions at any time during the scenario: medevac, aircraft mechanical issues, spot fires, etc.
3. Exercise ends after 10-15 minutes per student.

Information to be Shared With Students

Briefing to ATGS student:

- Give students a copy of the Sheep Fire ICS-220 **(8-1-S378-HO)**.
- You are the air attack assigned to the Sheep Fire at 1400 hrs.
- The fire has gone Type 2 and has 3 divisions.
- The fire is 5,000 acres in a timber fuel type.
- Respond to the incident and relieve Sheep Air Attack.
- Start the exercise by checking in with dispatch when you launch from BOI.
- Follow standard en route and airspace management procedures after you launch.
- Weather is hot and dry with a south wind at 5-10; no change expected.
- Type 1 helicopters 714 and 715 are available at the Sheep helibase.
- Type 3 helicopter 5BR is available at Sheep helibase.
- Tankers 00 and 22 are available via Boise dispatch.
- Lead 49 is available through Boise dispatch.
- HLCO is available at the Sheep helibase.

ATGS student task checklist:

- Flight following
- Contact Sheep ATGS aircraft at 12 miles
- Contact DIVS
- Frequency management
- Exhibit knowledge of FTA
- Brief aerial resources
- Maintain span of control
- Provide adequate aircraft separation
- Provide adequate target description
- Clear ground for retardant drops
- Manage emergency situations
- Transition briefing

Script:

Boise Dispatch: Notifies AA-55 of dispatch and requests a call when off the ground.

AA-55: Calls dispatch when off the ground and gives vitals (hours of fuel, souls on board, ETE).

Boise Dispatch: Copies AA-55 and briefs on available resources

AA-55: Contacts Sheep Air Attack at 12 miles out.

Sheep Air Attack: Briefs AA-55

- Helicopter 5BR is on recon mission
- Helicopters 714 and 715 are off the ground at helibase due to inversion
- No other aircraft are up
- DIV A needs bucket work
- DIV B needs a sling load of cubies
- DIV C needs retardant
- OPS needs an update at some point
- Also need to touch base with divisions and confirm the plan.
- I will tell dispatch we have transitioned and you get the helibase.

AA-55: Copies and confirms he/she is now Sheep Air Attack.

NOTE: At this point, student should contact H-5BR, helibase, and DIVS.

Sheep Air Attack: Contacts helibase.

Helibase: Copy, you are now Sheep Air Attack. Inversion has lifted and the heavies are ready to go.

Sheep Air Attack: Copies

Sheep Air Attack: Contacts H-5BR and gets check in.

H-5BR: In DIV B headed for DIV C.

Sheep Air Attack: Copies

Sheep Air Attack: Contacts Div A.

DIV A: Requests buckets ASAP.

Sheep Air Attack: Copies and then contacts DIV B.

Div B: Still looking for a sling load.

Sheep Air Attack: Copies

Sheep Air Attack: Contacts Div C.

DIV C: Needs retardant for structure protection.

Sheep Air Attack: Copies

Sheep Air Attack: Contacts dispatch for leadplane and airtankers.

Boise Dispatch: Copies and gives 2 minute ETA.

Sheep Air Attack: Copies

Sheep Air Attack: Contacts helibase for bucket ships.

Sheep Helibase: Copies and follows ATGS instructions.

Tanker 00/181 or Lead 49: Contact Sheep Air Attack at 12 miles.

Sheep Air Attack: Briefs Lead/airtankers.

Tanker 00/181 or Lead 49: Follow Sheep Air Attack instructions.

Helicopters 74A/679: Contact Sheep Air Attack from helibase; ready to lift.

Sheep Air Attack: Briefs helicopters.

Helicopters 74A/679: Copy and follow Sheep Air Attack instructions.

Conduct AAR and answer questions.

AIR OPERATIONS SUMMARY		1. Incident Name Sheep		2. Operational Period (Date & Time) April 16, 2008		3. Distribution Helibase 20 BOI ATB 10				
4. Personnel and Communications Name Air Ops Branch Dir ATGS ATGS ASGS		Air/Air Frequency N/A FW 118.950 RW 122.125		Air/Ground Frequency N/A 169.150 169.150		5. Remarks (Spec. Instructions, Safety Notes, Hazards, Priorities) Tankers and Lead are available through Boise Dispatch. HLCO available at helibase. Make sure line is clear for buckets and retardant drops. Altimeter 30.22				
6. Location/Function	7. Assignment	8. Fixed Wing		9. Helicopters		10. Time		11. Aircraft Assigned	12. Operating Base	
		No.	Type	No.	Type	Available	Commence			
Incident	ATGS to support DIVS as needed	2	AC690 AC500			0900	0900	AA-55 AA-12	BOI	
Incident	Lead is to respond with tankers	1	BE90					Lead-49	BOI	
Incident	Helicopter Bucket Support			2	1	0900	1000	HT-714 HT-715	Sheep Helibase	
Incident	Helicopter Bucket Support, Longline, Recon as requested			1	3	0900	1000	H-5BR	Sheep Helibase	
Incident:	Retardant support	2	1			0900	1000	T-22, T-00	BOI	
Missions	Bucket work in A, Sling of 40 cubis to B, retardant in C, Ops Recon as Req.									
		13. Totals		4		8				
220 ICS		14. Air Operations Support Equipment NW Crash Rescue Unit on Standby, 2 Water Tenders @ Helibase							15. Prepared by G. Billy	

UNIT OVERVIEW

Course Aerial Supervision, S-378

Unit 9 – Incident Aircraft Operations

Time 1 Hour

Objective

- Describe the six types of incident aircraft operations.

Strategy

This unit examines the six types of incident aircraft operations.

Instructional Methods

- Informal lecture
- Interactive group discussion

Instructional Aids

- ☐ Computer with LCD projector and presentation software
- ☐ Interagency Aerial Supervision Guide
- ☐ 10 Principles of Retardant Application card (1 for each student)
- ☐ Incident Response Pocket Guide
- ☐ Fireline Handbook

Outline

- I. Low Level Leadplane/Aerial Supervision Module
- II. Airtanker Operations
- III. Water Scooper Operations
- IV. Helicopter and Helitanker Operations
- V. Smokejumper Operations
- VI. Helicopter Rappel Operations

Aids and Cues Codes:

The codes in the Aids and Cues column are defined as follows:

IG – Instructor Guide

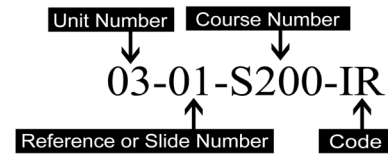
IR – Instructor Reference

HO – Handout

SW – Student Workbook

SR – Student Reference

PPT – PowerPoint



UNIT PRESENTATION

COURSE: Aerial Supervision, S-378

UNIT: 9 – Incident Aircraft Operations

OUTLINE	AIDS & CUES
TITLE SLIDE.	9-1-S378-PPT
PRESENT UNIT OBJECTIVE.	9-2-S378-PPT
I. LOW LEVEL LEADPLANE/ASM	9-3-S378-PPT IASG _____
A. Leadplane/ASM	
• High level reconnaissance	
• Low level reconnaissance	
• Tactical Flight Checklist	
B. Tactical Flight Profiles	9-4-S378-PPT IASG _____
• Show Me	9-5-S378-PPT
• Chase position	9-6-S378-PPT
• Lead	9-7-S378-PPT

OUTLINE	AIDS & CUES
<p>C. Airtanker Briefings</p> <p>HAND OUT THE AIRTANKER BRIEFING CHECKLIST.</p>	<p>9-8-S378-PPT IASG_____</p> <p>9-1-S378-HO</p>
<p>D. Maneuvering</p> <p>THIS TOPIC IS SPECIFIC TO LEADPLANE OPERATIONS. DEPENDING ON DEMOGRAPHICS OF STUDENTS, THIS SECTION MAY BE SKIPPED.</p>	<p>9-9-S378-PPT IASG_____</p>
<p>II. AIRTANKER OPERATIONS</p> <ul style="list-style-type: none"> • Factors influencing drop effectiveness and coverage level • Retardant coverage levels • Recommended coverage level • Airtanker drop patterns • Heavy airtanker line length production table • Ten principles of retardant application 	<p>9-10-S378-PPT IASG_____</p> <p>9-11-S378-PPT</p> <p>9-12-S378-PPT</p>
<p>HAND OUT THE TEN PRINCIPLES OF RETARDANT APPLICATION CARDS.</p> <ul style="list-style-type: none"> • SEAT operational principles • Airtanker flight routes 	<p>9-13-S378-PPT</p>

OUTLINE	AIDS & CUES
<ul style="list-style-type: none"> • Retardant use problems: <ul style="list-style-type: none"> – Gaps, tie in, into the black, no anchor 	<p>9-14-S378-PPT</p> <p>9-15-S378-PPT thru</p>
<p>DISCUSS THE EXAMPLES ON SLIDES 15 – 29.</p>	<p>9-29-S378-PPT</p>
<ul style="list-style-type: none"> – Misjudgment of fire behavior – Improper adjustment for wind drift – Misplacement of drop – Failure to use retardant capabilities 	<p>9-30-S378-PPT</p>
<p>III. WATER SCOOPER OPERATIONS</p> <ul style="list-style-type: none"> • Airport requirements • Scooping site requirements • Foam use • Tactical considerations 	<p>9-31-S378-PPT IASG _____</p>
<p>IV. HELICOPTER AND HELITANKER OPERATIONS</p> <ul style="list-style-type: none"> • Helicopter delivery systems • Helicopter drop patterns • Helicopter tactical considerations <ul style="list-style-type: none"> – Helicopter advantages – Short turnaround times – Low speed and drop accuracy – Dip sites – Longline bucket operations – Helicopter utilization by type – Helicopter drop height 	<p>9-32-S378-PPT IASG _____</p>

OUTLINE	AIDS & CUES
<p>V. SMOKEJUMPER OPERATIONS</p> <ul style="list-style-type: none"> • Approach to the fire • Drop mission • Jump spot selection • Streamer runs • Jump runs • Cargo runs • Considerations 	<p>9-33-S378-PPT IASG_____</p>
<p>VI. HELICOPTER RAPPEL OPERATIONS</p> <ul style="list-style-type: none"> • Arrival • Suitable landing site • Communications • Considerations 	<p>9-34-S378-PPT IASG_____</p>
<p>REVIEW UNIT OBJECTIVE.</p>	<p>9-35-S378-PPT</p>

UNIT OVERVIEW

Course Aerial Supervision, S-378

Unit 10 – All Hazard Incidents

Time 30 Minutes

Objective

- Describe how aerial supervision is used on all hazard incidents.

Strategy

This unit examines how aerial supervision is used on all hazard incidents.

Instructional Methods

- Informal lecture
- Interactive group discussion

Instructional Aids

- ☐ Computer with LCD projector and presentation software
- ☐ Interagency Aerial Supervision Guide

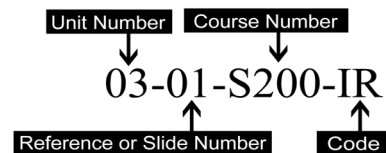
Outline

- I. Air Operations Supervision

Aids and Cues Codes:

The codes in the Aids and Cues column are defined as follows:

IG – Instructor Guide	SW – Student Workbook
IR – Instructor Reference	SR – Student Reference
HO – Handout	PPT – PowerPoint



UNIT PRESENTATION

COURSE: Aerial Supervision, S-378

UNIT: 10 – All Hazard Incidents

OUTLINE	AIDS & CUES
TITLE SLIDE.	10-1-S378-PPT
PRESENT UNIT OBJECTIVE.	10-2-S378-PPT
I. AIR OPERATIONS SUPERVISION Fire incidents have long used aerial supervision for coordinating aerial resources. The same principles of supervising and directing aircraft can also be applied to other types of incidents commonly referred to as “all hazard incidents.” All hazard incidents include volcanic eruptions, earthquakes, search and rescue operations, floods, oil spills, hurricanes, and spray projects. A. Fixed Wing and Helicopter Coordination <ul style="list-style-type: none"> Fixed Wing Coordinator Large or complex incidents 	10-3-S378-PPT IASG _____
B. Criteria for assigning Aerial Supervision <ul style="list-style-type: none"> Multiple aircraft operating in incident air space 	10-4-S378-PPT IASG _____

OUTLINE	AIDS & CUES
C. Aerial Supervision Interaction and Communication	10-5-S378-PPT IASG_____
D. Use of Military Aircraft	10-6-S378-PPT IASG_____
REVIEW UNIT OBJECTIVE.	10-7-S378-PPT

UNIT OVERVIEW

Course Aerial Supervision, S-378

Unit 11 – Safety

Time 1 Hour

Objectives

1. Describe the factors to consider during the risk assessment process.
2. Discuss risk mitigation measures.
3. Describe the role and responsibility of the aerial supervisor in modifying unsafe or ineffective missions.
4. Identify human factors and causes that contribute to safe/unsafe air operations.

Strategy

It is recommended that an aviation safety manager instruct this unit.

Instructional Methods

- Informal lecture
- Interactive group discussion

Instructional Aids

- ☐ Computer with LCD projector and presentation software
- ☐ Interagency Aerial Supervision Guide
- ☐ Interagency Standards for Fire and Fire Aviation Operations (Red Book)
- ☐ Interagency Helicopter Operations Guide
- ☐ Single Engine Airtanker Operations Guide
- ☐ System Safety Aviation Guide (1 for each student)

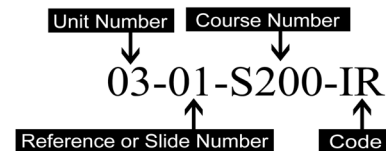
Outline

- I. Risk Assessment Process
- II. Risk Mitigation Measures
- III. System Safety
- IV. Modifying Air Operations
- V. Aerial Supervisor Fire Orders
- VI. Aerial Supervisor Watchout Situations

Aids and Cues Codes:

The codes in the Aids and Cues column are defined as follows:

IG – Instructor Guide	SW – Student Workbook
IR – Instructor Reference	SR – Student Reference
HO – Handout	PPT – PowerPoint



UNIT PRESENTATION

COURSE: Aerial Supervision, S-378

UNIT: 11 – Safety

OUTLINE	AIDS & CUES
TITLE SLIDE.	11-1-S378-PPT
PRESENT UNIT OBJECTIVES.	11-2-S378-PPT
I. RISK ASSESSMENT PROCESS	11-3-S378-PPT
Factors to consider during the risk assessment process.	IASG_____
USE THE IRPG OR RED BOOK FOR A RISK ASSESSMENT PROCESS EXAMPLE.	
II. RISK MITIGATION MEASURES	11-4-S378-PPT
Considerations:	
• Monitor the overall aviation operation for human factors related issues	IASG_____
• Monitor effectiveness of the overall air operation	
• Use the appropriate aircraft for the mission	
• Communications planning	
• Order additional frequencies	
• Establish positive air traffic control	
• Limit number of airborne aircraft	
• Obtain input	

OUTLINE	AIDS & CUES
<p>III. SYSTEM SAFETY</p> <p>System safety assessment for aerial supervision operations.</p> <p>HAND OUT THE SYSTEM SAFETY AVIATION GUIDE.</p>	<p>11-5-S378-PPT IASG_____</p>
<p>IV. MODIFYING AIR OPERATIONS</p> <p>Factors to evaluate when considering the modification of air operations.</p>	<p>11-6-S378-PPT IASG_____</p>
<p>V. AERIAL SUPERVISION FIRE ORDERS</p> <p>In addition to the 10 Standard Firefighting Orders, the aerial supervision community has developed similar memory aids for air crews.</p>	<p>11-7-S378-PPT IASG_____</p>
<p>VI. AERIAL SUPERVISION WATCHOUT SITUATIONS</p> <p>When one or more of the aerial supervision watch out situations exist, air operations safety and effectiveness are in jeopardy.</p> <p>Address the situation(s) before continuing operations.</p>	<p>11-8-S378-PPT IASG_____</p>
<p>REVIEW UNIT OBJECTIVES.</p>	<p>11-9-S378-PPT</p>

UNIT OVERVIEW

Course Aerial Supervision, S-378
Unit 12 – Job Aids and Resources
Time 30 Minutes

Objectives

1. Identify the necessary components of an aerial supervisor kit.
2. Identify relevant aerial supervision publications and resources.

Strategy

Recommend having an aerial supervisor kit to show students.

Instructional Methods

- Informal lecture
- Interactive group discussion

Instructional Aids

- ☐ Computer with LCD projector and presentation software
- ☐ Aerial Supervisor Kit
- ☐ Interagency Aerial Supervision Guide
- ☐ Interagency Standards for Fire and Fire Aviation Operations
- ☐ Fireline Handbook
- ☐ Incident Response Pocket Guide
- ☐ Forest Service Manual (FSM) 5109-17
- ☐ National/Regional Mobilization Guide
- ☐ Flight reference guide (frequency)
- ☐ Interagency Single Engine Airtanker Operations Guide
- ☐ Interagency Helicopter Operations Guide
- ☐ System Safety Aviation Guide
- ☐ Interagency Airspace Coordination Guide
- ☐ Smokejumper Operations Guide

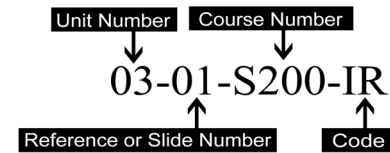
Outline

- I. Aerial Supervisor Kit
- II. Aerial Supervision References

Aids and Cues Codes:

The codes in the Aids and Cues column are defined as follows:

IG – Instructor Guide	SW – Student Workbook
IR – Instructor Reference	SR – Student Reference
HO – Handout	PPT – PowerPoint



UNIT PRESENTATION

COURSE: Aerial Supervision, S-378

UNIT: 12 – Job Aids and Resources

OUTLINE	AIDS & CUES
TITLE SLIDE.	12-1-S378-PPT
PRESENT UNIT OBJECTIVES.	12-2-S378-PPT
I. AERIAL SUPERVISOR KIT	12-3-S378-PPT
SHOW STUDENTS THE CONTENTS OF AN AERIAL SUPERVISOR KIT. REFER TO THE IASG FOR A LIST OF RECOMMENDED KIT ITEMS.	IASG _____
II. AERIAL SUPERVISION REFERENCES	12-4-S378-PPT
REFER TO THE IASG FOR A COMPLETE LIST OF REFERENCE PUBLICATIONS.	IASG _____
<ul style="list-style-type: none"> • Interagency Aerial Supervision Guide • Interagency Standards for Fire and Fire Aviation Operations (Red Book) • Fireline Handbook • Incident Response Pocket Guide • Forest Service Manual 5109-17 • National/Regional Mobilization Guide • Flight reference guide (frequency) • Interagency Single Engine Airtanker Operations Guide 	

OUTLINE	AIDS & CUES
<ul style="list-style-type: none"> • Interagency Helicopter Operations Guide • System Safety Aviation Guide • Interagency Airspace Coordination Guide • Smokejumper Operations Guide • Aviation Web sites <p>SHARE CURRENT AVIATION WEB SITES WITH STUDENTS.</p> <p>REVIEW UNIT OBJECTIVES.</p>	<p>12-5-S378-PPT</p> <p>12-6-S378-PPT</p>

UNIT OVERVIEW

Course Aerial Supervision, S-378

Unit 13 – Course Review

Time 5.5 hours

Objectives

- Review duties and responsibilities of the aerial supervisor in preparation for the final exam and final simulation.
- Participate in a STEX that encompasses complete mission procedures.

Strategy

During this unit the cadre will serve as an expert panel for any questions the students may have concerning the duties of the aerial supervisor. The cadre will also prepare students for the final exam and final simulation by summarizing and reviewing any areas of the course students had difficulty with.

Students will participate in a large STEX that encompasses complete mission procedures. The STEX is designed to be: 1) a complete “hands on” application of the concepts taught in this course, and 2) flexible so the cadre can change the complexity as the exercise proceeds.

Instructional Methods

- Interactive group discussion (**NOTE:** there are no PowerPoints for this unit)

Instructional Aids

- ☐ Interagency Aerial Supervision Guide
- ☐ Interagency Standards for Fire and Fire Aviation Operations
- ☐ Fireline Handbook
- ☐ Incident Response Pocket Guide
- ☐ Forest Service Manual (FSM) 5109-17
- ☐ National/Regional Mobilization Guide
- ☐ Flight reference guide (frequency)
- ☐ Sandtable and sandtable accessories

Exercise (see page 13.3)

- STEX: Aerial Supervision Mission Procedures, Snake Fire

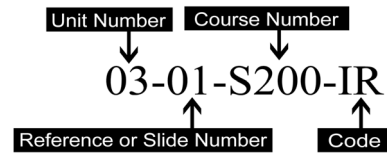
Outline

- I. Panel Discussion
- II. STEX: Aerial Supervision Mission Procedures
- III. Course Summary and Review

Aids and Cues Codes:

The codes in the Aids and Cues column are defined as follows:

IG – Instructor Guide	SW – Student Workbook
IR – Instructor Reference	SR – Student Reference
HO – Handout	PPT – PowerPoint



UNIT PRESENTATION

COURSE: Aerial Supervision, S-378

UNIT: 13 – Course Review

OUTLINE	AIDS & CUES
<p>I. PANEL DISCUSSION</p> <p>The cadre will serve as an expert panel for any questions the students may have concerning the duties of the aerial supervisor. This is a good opportunity for the cadre to share their experiences as an aerial supervisor.</p>	
<p>II. STEX: Aerial Supervision Mission Procedures (pages 13.5 – 13.10)</p>	13-1-S378-IR
<p>III. COURSE SUMMARY AND REVIEW</p> <p>In preparation for the final exam and final simulation, summarize and review any areas of the course students had difficulty with. Address issues or concerns, and answer any questions students have.</p> <p>Explain the procedure for the final exam and final simulation. The cadre has the option of dividing the class into two groups: one group takes the final exam while the other group performs the final simulation (groups rotate after 2 hours).</p>	

STEX: Aerial Supervision Mission Procedures, Snake Fire

Instructor Information (not to be shared with students)

Time: 4 hours

Training Objective: Students demonstrate knowledge of aerial supervision mission procedures including:

- Pre-mission
- En route
- Airspace management
- Air traffic control
- Before leaving the incident
- Post-mission
- Emergencies

Sandtable Setup:

- Type 3 fire with 2 divisions
- Dip site
- Power lines
- Urban interface
- Helibase
- Landmarks for target description and virtual fence reference
- Do not duplicate the table set-ups (each group should have different situations and experiences)

Materials Needed:

- 13-1-S378-HO (1 copy per student)

Resources/Role Players:

- Resources:
 - 10 FM handheld radios
 - 12 headset adapters
 - 4 frequencies: Dispatch, air-to-ground, helicopter, fixed wing
- Aircraft Dispatcher (Boise Dispatch, cadre)
- ATGS (1SA, student)
- Lead/ASM (Lead 47, cadre)
- HLCO (cadre)
- Airtankers (T-00, T-181, cadre or students)
- Helicopters (Type 2, H-73H; Type 3 H-1QK, cadre or students)
- IC (Snake IC, cadre or students)
- DIVS (Division A, Division B, cadre)
- Snake Helibase (cadre)

The ATGS student will:

- Launch from BOI.
- Arrive at 12 NM mark and contacts the incident and incident aircraft.
- Arrive on scene and assume control of the incident airspace.
- Complete transition and work the fire for 15 minutes.
- Work the incident with airtankers and helicopters
 - Airtanker drops
 - Bucket drops
 - Crew/cargo missions
 - Interaction with Lead and HLCO
 - Emergency situation (aircraft issue, medivac, etc.)
- Give briefing to relief ATGS.
- Return to base and close out with dispatch.

Briefing to Role Players:

Dispatch: Prompt ATGS as needed: Flight following, resource availability, etc.

IC: Use script to brief ATGS. Don't overload the student, but keep them busy. It is your job to keep the simulation flowing.

DIVS: Keep ATGS busy with bucket, cargo, shuttle, recon, or retardant requests.

Airtankers: Check in at 12 NM and follow ATGS instructions. Prompt for reloads. If other air traffic appears to be an issue, prompt ATGS.

Helicopters: Check in with ATGS when departing lift from helibase. Prompt for fuel cycle returns. If other air traffic appears to be an issue, prompt ATGS.

Lead/ASM/HLCO: Respond as requested and assist ATGS.

STEX Instructions:

1. The IC controls the tempo of the exercise and should keep students busy with both tactical and logistical missions.
2. Instructor can use the following "What if" suggestions at any time during the scenario: medevac, aircraft mechanical issues, spot fires, etc.
3. Exercise ends after 10-15 minutes per student. The next student will transition into the exercise acting as the relief ATGS and should receive a transition briefing from the current student ATGS.
4. Instructor can call a time out if the student gets overwhelmed.
5. Conduct an AAR when the student groups have completed the STEX.

Information to be Shared With Students

Briefing to ATGS student:

- Dispatch role player gives students a copy of the Snake Fire Aircraft Dispatch form **(13-1-S378-HO)**.
- You are the ATGS assigned to the Snake Fire at 1400 hrs.
- The fire is 50 acres in a sage/grass fuel type.
- Weather is hot and dry with a south wind at 5-10 mph. No change is expected.
- The IC is on scene and request aerial resources.
- Tankers 00 and 181 are available through Boise Dispatch.
- Helicopters 73H and 1QK are available at the Snake Helibase.
- Respond to the incident and work with the IC to contain the fire.
- You will be relieved at some point during your fuel cycle.

ATGS student task checklist:

- Brief pilot
- Flight follow
- Contact incident aircraft at 12 NM
- Contact ground personnel
- Frequency management
- Exhibit knowledge of FTA
- Brief aerial resources
- Maintain span of control
- Provide adequate aircraft separation
- Provide adequate target description
- Clear ground for retardant drops
- Manage emergency situations
- Transition briefing

Script:

Note: The ATGS student should be following the task list and the standard procedure they have been practicing in the previous STEXs.

ATGS: Initiates flight following

Boise Dispatch: Reminds the ATGS of the available aerial resources and locations.

ATGS: Checks in with the incident and closes out with dispatch.

Snake IC:

- Briefs ATGS
 - No aircraft are up yet
 - Keep the fire from crossing Highway 101
 - Protect structures
 - Protect powerlines
 - The fire has two divisions, A and B. Both are staffed with crews and engines.
 - Start bucket and retardant support to the DIVS as requested
 - Helibase is monitoring air-to-ground frequency

ATGS: Requests aerial resources

DIV A: Requests buckets from ATGS

ATGS: Checks on availability of buckets from Helibase and places a request for buckets.

DIV B: Requests retardant for structure protection (pre-treatment) from ATGS.

ATGS: Orders airtankers and Lead.

Responding Aircraft: Follow ATGS instructions.

Snake IC: Interacts with ATGS as needed.

Relief ATGS: Arrives, receives transition briefing and assumes control.

Conduct AAR and answer questions.

Aircraft Dispatch Form

DATE: 7/10/200x	TIME: 1400 hrs	SUNSET +30 2030
INCIDENT NAME: Snake		INCIDENT #: R2D2
DESCRIPTIVE LOCATION: 20 miles north of Boise T: R: S: 1/4		ELEVATION: 5,000'
LAT: 44 34 44		LONG: 113 22 43
BEARING (DEG): 330	DISTANCE (NM): 20	FROM: BOI
FLIGHT FOLLOWING: Boise Dispatch	F/F FREQUENCY: Local FF	TONE:
AIR CONTACT: T-00, T-181 H-73H, H-1QK	A/A FREQUENCY: Victor	TONE:
GROUND CONTACT: Snake IC	A/G FREQUENCY: Air-to-Ground	TONE:
OTHER AIRCRAFT: T-00 and T-181 available at BOI. H-73H, H-1QK currently on scene.		
HAZARDS: Other aircraft, structures, powerlines		
MTR/SUA: () YES (X) NO TFR: (X) YES () NO		
COMMENTS: Altimeter: 30.20		RELOAD BASE: BOI