

Table of Contents

OPERATIONS MANUAL

STANDARD INSTRUCTION 02: SPECIALIZED RESPONSE GUIDELINES

SECTION 46: UNMANNED AIRCRAFT SYSTEM

PART 04: SAFETY

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|      |                                                                          |   |
|------|--------------------------------------------------------------------------|---|
| I.   | PURPOSE.....                                                             | 2 |
| II.  | SCOPE.....                                                               | 2 |
| III. | AUTHORITY.....                                                           | 2 |
| IV.  | POLICY.....                                                              | 2 |
| A.   | Discussion.....                                                          | 2 |
| B.   | Commitment to Safety.....                                                | 2 |
| C.   | Responsibilities.....                                                    | 3 |
| D.   | Operational Hazard and Occurrence Reports (OHOR) and Investigations..... | 3 |
| E.   | Safety Officer.....                                                      | 4 |
| F.   | Safety Training.....                                                     | 4 |
| G.   | Safety Stand Down.....                                                   | 4 |
| H.   | Medical Factors.....                                                     | 5 |
| I.   | Flight Risk Assessment Tool (FRAT).....                                  | 5 |

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|---------------------------------------------------------------------|------------------------------------------|-----------------------|-------------------------------------------|
| <b>TITLE</b><br>UNMANNED AIRCRAFT SYSTEM (UAS)                      | <b>STANDARD</b><br><b>INSTRUCTION 02</b> |                       | <b>DEPARTMENT</b><br>F I R E-RESCUE       |
| <b>SUBJECT</b><br>UNMANNED AIRCRAFT SYSTEM (UAS)<br>PART 04: SAFETY | <b>SECTION</b><br>46                     | <b>PAGE</b><br>2 of 5 | <b>EFFECTIVE DATE</b><br>10 November 2019 |

**I. PURPOSE**

The purpose of this policy is to affirm the UAS Program’s commitment to safety, outline safety processes, reporting and procedures.

**II. SCOPE**

This policy shall apply to all San Diego Fire-Rescue Department (SDFD) personnel.

**III. AUTHORITY**

The fire chief authorizes the information within this policy.

**IV. POLICY**

A. Discussion

1. Safety has been defined as freedom from hazard and/or the absence of risk. Safety results in the preservation of resources - people, money and time. Since it is impossible to be completely free from hazard and/or risk, safety is a condition where risks are managed to acceptable levels.
2. This manual has been designed to comply with the principles of Safety Management Systems (SMS) developed for manned aviation. In its most basic form, SMS is an organization-wide comprehensive and preventive approach to managing safety. It includes a safety policy, formal methods for identifying hazards and mitigating risk and promotion of a positive safety culture. To instill a culture of safety, this manual is designed to direct and control resources to optimally manage safety and requires:
  - a. Proactive hazard identification, risk management, information control, auditing and training, incident and accident investigation and analysis.
  - b. The development of a safety culture, modification of the attitudes and behavior of personnel to make a safer work environment.
  - c. Addressing safety issues before they lead to an incident or accident.

B. Commitment to Safety

1. The department is committed to having a safe and healthy workplace, including:
  - a. The ongoing pursuit of an accident free workplace, including no harm to people, and no damage to equipment, the environment or property.
  - b. A culture of open reporting of all safety hazards in which management will not initiate disciplinary action against any personnel who, in good faith, disclose a hazard or safety occurrence due to unintentional conduct.
  - c. Support for safety training and awareness programs.

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|---------------------------------------------------------------------|--------------------------------|-----------------------|-------------------------------------------|
| <b>TITLE</b><br>UNMANNED AIRCRAFT SYSTEM (UAS)                      | <b>STANDARD INSTRUCTION</b> 02 |                       | <b>DEPARTMENT</b><br>F I R E-RESCUE       |
| <b>SUBJECT</b><br>UNMANNED AIRCRAFT SYSTEM (UAS)<br>PART 04: SAFETY | <b>SECTION</b><br>46           | <b>PAGE</b><br>3 of 5 | <b>EFFECTIVE DATE</b><br>10 November 2019 |

- d. Conducting regular audits of safety policies, procedures and practices.
- e. Monitoring the unmanned aviation community to ensure best safety practices are incorporated into the organization.

C. Responsibilities

- 1. It is the duty of every department member with UAS responsibilities to contribute to the goal of continued safe operations. This contribution may come in many forms and includes always operating in the safest manner possible and *never taking unnecessary risks*. Any safety hazard, whether procedural, operational, or maintenance related should be identified as soon as possible after, if not before, an incident occurs. Any suggestions in the interest of safety should be brought forward without reservation.
- 2. If any member observes or has knowledge of an unsafe or dangerous act committed by another member, the supervisor or commander is to be notified immediately so that corrective action may be taken.

D. Operational Hazard and Occurrence Reports (OHOR) and Investigations

- 1. Occurrences are unplanned safety related events, including accidents and incidents that could impact safety.
- 3. A hazard is something that has the potential to cause harm.
- 4. The systematic identification and control of all major hazards is foundational to safety.
- 5. The OHOR concept provides a mechanism to report hazards and occurrences, real and perceived, to those responsible for aviation operations.
- 6. There is no specific format for the OHOR as the information provided is what is important, not the format and should be used without hesitation to report any anticipated, current, or experienced safety hazard, or occurrence. Further, the OHOR can be submitted anonymously and to whatever level in the chain of command is necessary to get the matter proper attention, without fear of reprisal.
- 7. Written memorandums fully explaining the problem will be given to the supervisor and/or commander for investigation.
- 8. Every hazard and/or occurrence will be investigated, with the results and corrective action taken communicated to all members. The supervisor, commander, or another member of the department who has the technical skill necessary will conduct the investigation. The services of an independent subject matter expert may be necessary in some cases to assure a thorough and complete investigation.
- 9. Hazards requiring immediate attention will be brought to the attention of the supervisor or UAS program manager verbally without delay.

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|---------------------------------------------------------------------|--------------------------------|-----------------------|-------------------------------------------|
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| <b>SUBJECT</b><br>UNMANNED AIRCRAFT SYSTEM (UAS)<br>PART 04: SAFETY | <b>SECTION</b><br>46           | <b>PAGE</b><br>4 of 5 | <b>EFFECTIVE DATE</b><br>10 November 2019 |

10. **ALL MEMBERS ARE AUTHORIZED TO TAKE ACTION TO CORRECT A HAZARD** if in that member's opinion, delay will result in accident or injury. The supervisor will be notified immediately in such situations.

E. UAS Safety Officer

1. One member may be designated as the safety officer. This assignment will be in addition to other duties.
2. If designated, the safety officer will receive the training necessary to properly perform the duties of this role.
3. Duties of the safety officer may include:
  - a. Assist or conduct the investigation of hazards identified in OHOR's.
  - b. Copy and circulate pertinent safety information.
  - c. Prepare a quarterly bulletin that contains, at a minimum, all reported safety related problems and corrective action taken. If there were any in-flight problems, the proper procedures for handling that problem will be discussed.
  - d. Prepare and circulate emergency safety bulletins.
  - e. Establish a file, or bulletin board containing miscellaneous reading materials pertinent to safe operations. Materials can come from magazines, Federal Aviation Administration (FAA) publications, etc. Every member will review the file monthly and will acknowledge reviewing the file by signing a form attached to it.
  - f. It is emphasized again that safety is the responsibility of ALL members, not just the safety officer.

F. Safety Training

1. All new members shall receive training in the following prior to serving in an operational capacity:
  - a. Agency commitment to safety
  - b. Agency safety policy
  - c. The member's role in safety
  - d. Process for reporting hazards and occurrences
  - e. Applicable emergency procedures.
2. All safety training shall be documented and retained in program files in accordance with Department policy.

G. Safety Stand Down

1. A safety "stand down" will be conducted annually. During a stand down, all members with aviation responsibilities assemble to review the agency safety program. It is also an opportunity to solicit changes to this manual, identify potential hazards, update emergency notification forms, conduct safety training, etc. The length of the meeting is dependent on the needs of the department.

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| <b>SUBJECT</b><br>UNMANNED AIRCRAFT SYSTEM (UAS)<br>PART 04: SAFETY | <b>SECTION</b><br>46              | <b>PAGE</b><br>5 of 5 | <b>EFFECTIVE DATE</b><br>10 November 2019 |

2. During the stand down meeting, normal operations are suspended to assure that all members are focused on the safety program.
3. Other annual training mandated in this manual can be conducted during the stand down.

H. Medical Factors

No personnel may manipulate the flight controls of a small unmanned aircraft system or act as a remote pilot in command, visual observer, or direct participant in the operation of the small unmanned aircraft if he or she knows or has reason to know that he or she has a physical or mental condition that would interfere with the safe operation of the small unmanned aircraft system.

I. Flight Risk Assessment Tool (FRAT)

1. Every flight with an UAS, regardless of the size of the air vehicle, has hazards and some level of risk. It is essential that those in a position to decide whether to conduct a flight (pilot/operator, visual observer, supervisor) be able to evaluate the hazards in advance and develop risk mitigation strategies to address them.
2. The FRAT incorporated into this manual (Appendix A: SDFD UAS Go-No Go Flight Risk Assessment Tool) allows the flight crew to evaluate the risk associated with a flight in its planning stages. Each item on the assessment tool provides a separate “go-no go” decision point. A “no go” finding on any item results in the flight being delayed or declined until that factor has been addressed to a level where it receives a “go” determination.
3. This assessment should be conducted by the crew responsible for the flight, both pilot and observer. If either decides a factor is “no go” the item must be addressed prior to flight.
4. The FRAT will be completed before each mission (as opposed to individual flights, since one mission may involve multiple flights). However, flight risk assessment is an on-going process and conditions that could impact flight risk should be continually evaluated during the mission.
5. The FRAT document will be maintained with other required reports for each mission.