State of Hawaii
DEPARTMENT OF LAND AND NATURAL RESOURCES
Division of Forestry and Wildlife
Honolulu, Hawaii

July 27, 2018

Chairperson and Members
Board of Land and Natural Resources
State of Hawaii
Honolulu, Hawaii

Land Board Members:

SUBJECT: APPROVAL OF UPDATED DRAFT *STANDARD OPERATING PROCEDURES FOR HELICOPTER OPERATIONS* FOR ALL LINE DIVISIONS OF THE DEPARTMENT OF LAND AND NATURAL RESOURCES (EXCEPT THE DIVISION OF CONSERVATION AND RESOURCES ENFORCEMENT).

The Department of Land and Natural Resources (DLNR) has been operating under the DLNR Helicopter Operating Policy approved by the Board in 2006 (Attachment 1). In 2016, the Division of Forestry and Wildlife established a task force to review and update the Helicopter Operating Policy to incorporate the latest interagency helicopter training requirements and safety procedures, to assure that departmental helicopter operations were conducted as safely as possible.

The taskforce produced a draft Standard Operating Procedures (SOP) document and circulated the draft to all the divisions within the department. The Division of Conservation and Resources Enforcement (DOCARE) requested that their division be excluded, as they were from the 2006 Helicopter SOP, and continue to operate under their own specialized guidelines that allow for operational needs related to law enforcement. All other divisions offered their comments, which were incorporated into the attached DLNR Helicopter Operating Procedures document, or concurred with the draft as written.

Therefore, we request that the Board approve the revised Draft DLNR Helicopter Operating Procedures document (Attachment 2) as the DLNR standard across the divisions, with the exception of DOCARE, who will continue to operate under their own operating procedures, and authorize the Chairperson to sign the final draft SOP, pending approval from the Attorney General's office.

CHAPTER 343 - ENVIRONMENTAL ASSESSMENT:

This Helicopter SOP document has no environmental impact in and of itself. Projects and activities carried out by the divisions that require helicopter operations will perform environmental assessments as those projects and activities are implemented.

RECOMMENDATION:

That the Board:

1. Approve the attached draft DLNR Helicopter SOP for use by all divisions within DLNR, with the exception of DOCARE.
2. Authorize the Chairperson to sign the final draft, with edits, after approval from the Attorney General's office.

Respectfully submitted,

David G. Smith, Administrator
Division of Forestry and Wildlife

APPROVED FOR SUBMITTAL:

Suzanne D. Case, Chairperson
Board of Land and Natural Resources

Attachments:

1) The DLNR Helicopter Operating Policy (2006)
2) The DLNR Helicopter Standard Operating Procedures (2018)

Attachment 1

State of Hawaii
Department of Land and Natural Resources

Helicopter Operating Policy

August 2006

DEPARTMENT OF LAND AND NATURAL RESOURCES
HELICOPTER OPERATING POLICY

The Department of Land and Natural Resources (DLNR) relies on the use of helicopters to access many of its remote sites and to efficiently and effectively carry out its management responsibilities. Working with and around helicopters comes with inherent risks. Our number one objective is to establish and maintain the highest level of safety possible in the conduct of helicopter operations. We must prevent accidents and provide for the safety of passengers and ground crew. The Department has a responsibility to ensure that its staff and volunteers are adequately trained and are properly equipped. In the event of an accident, prior training and the right equipment may play a key role in minimizing potential consequences.

The following helicopter operating policies should guide Department staff as they train anyone flying on a DLNR sponsored mission, use helicopters in their work, or react to an emergency, except that this policy does not apply to the Division of Conservation and Resource Enforcement (DOCARE). In the event of life-threatening situations or emergencies, Department personnel may deviate from these policies, but those deviating should be expected to justify their actions.

These policies replace all previous versions of DLNR helicopter policies.

These policies are intended to guide the Department and branches as they set up helicopter operating, training and emergency procedures for their staff. These policies are not intended to serve as step-by-step procedures. Each branch will be responsible for ensuring that these policies are followed and that appropriate procedures are formulated at the branch level. These policies are focused on three areas:

- Standard Operating Procedures
- Training
- Emergency Response

Some additional considerations which are discretionary are attached following the policies.

I. STANDARD OPERATING PROCEDURES

A. Officer-in-Charge

1) All flights shall have a designated Officer-in-Charge (OIC) who:
   - is familiar with the Department of Land and Natural Resources helicopter polices,
   - is familiar with the intent and purpose of the mission,
   - is familiar with the geographical location of the mission,
   - is familiar with the capabilities and limitations of the helicopter to be used.
2) Only passengers and cargo authorized by the OIC shall be permitted to be carried by the aircraft.

B. Pilot authority and responsibility

The pilot in command (PIC) is directly responsible for, and is the final authority as to the operation of the aircraft. The PIC shall be OAS or Aviation Management (USDA Forest Service) certified and qualified. The PIC may deviate or refuse requests from the OIC when, in his/her judgment, such compliance would be a violation of applicable Federal or State regulations, contracting provisions, or if the operation would be considered hazardous or unsafe. Likewise, the OIC can direct the PIC to cease any dangerous activity or maneuvers.

C. Maximum pilot hours

The PIC shall be limited to the following tours of duty and flight hours. All flight time, whether for DLNR or someone else, counts toward the limitations.

1) Flight time shall not exceed a total of 8 hours per day.
2) Flight time shall not exceed a total of 42 hours in any 6 consecutive days.
3) Pilots accumulating 42 hours of flying in any 6 consecutive days must take a day off before resuming flying.
4) Within any 24-hour period, the pilot shall have a minimum of 10 consecutive hours off duty immediately prior to the beginning of any duty day.
5) Duty time includes flight time (includes travel or ferry time), ground duty of any kind, and standby or alert status at any location.
6) During any 14 consecutive days, the pilot shall be off duty for 2 full calendar days. Days off duty need not be consecutive.

D. Cargo loading and unloading operations

Trained personnel shall supervise loading and unloading operations, including sling operations. This requirement includes both takeoffs and landings at hookup and delivery sites. Radio communications shall be maintained at all times between aircraft and at least one member of the ground crew. The OIC shall negotiate appropriate communications arrangements with the PIC.

1) Heli-jumping, repelling, or use of rope ladders shall not be permitted.
2) Passengers, other than minimum required flight crew, are not permitted on flights with external loads.

E. Helicopter fueling

1) Only trained personnel shall participate in fueling processes.
2) All unauthorized personnel shall be at least 100 feet away.
3) A fire extinguisher shall be available for use by ground personnel during fueling.
4) There shall be no smoking within 100 feet of the fueling operation.

F. Passenger embarking and disembarking

Passengers shall embark or disembark aircraft only when authorized by the PIC. One person in each load shall be responsible to ensure that all other passengers are physically escorted to and from the aircraft, and that doors, seat belts, and other equipment are properly secured during flights and post-flight.

G. Minimum Helispot specifications.

Choice of landing sites and conditions shall be at the discretion of the PIC.

H. Weight Limits

The PIC shall inform the OIC of weight limits for internal and external loads. OIC shall make sure all loads meet specifications.

I. Communication capabilities and procedures

1) All aircraft, per contract, shall have working VHF-FM radio communications capable of accessing DLNR frequencies.
2) Any operation involving both ground personnel and aircraft (e.g. cargo transfers, passenger pickup and drop off, etc.) must have trained personnel that are in continuous radio communication with the aircraft for the duration of the operation (except as noted in I.3.). The PIC and OIC shall together determine specifics as to working channels, frequency of contacts, etc., and shall develop a communication strategy appropriate to the mission and geographical site.
3) For long flights where it is not possible to have ground personnel remain in continuous contact with the aircraft, the PIC shall establish and maintain contact with the local forestry control (FC) to establish a flight following procedure as outlined below:

- Initial contact with FC at lift off giving flight plan and estimated time of arrival,
- FC notified by aircraft after arrival at destination,
- FC shall maintain a contact log.
- A sample Flight Plan to be used in flight following is provided as Appendix I.

4) When carrying personnel, the aircraft shall have a handheld VHF-FM radio capable of accessing government frequencies. Its location and method of operation must be known to aircraft occupants. This requirement can be satisfied by personnel carrying their DLNR issued portable radios.

J. Personal Protective Equipment

Definition. Personal protective equipment (PPE) is protective equipment which the individual takes to the flight and does not include equipment or devices installed on the aircraft or furnished as part of the aircraft operating equipment. Personal protective equipment includes, but is not necessarily limited to boots, gloves, protective headgear, and any fire retardant clothing. All personnel (pilots, crew members, and passengers) are required to wear PPE appropriate to the mission type. DLNR shall issue skull cap, helmet, gloves, and fire shirt or flight suit for use during the mission. All other PPE will be the responsibility of the individual.

Individuals not wearing appropriate required PPE will not fly.

Situation Requirements for wearing PPE: Requirements for the type of required PPE varies depending on the mission. Required equipment is based on whether the mission type is:

- All missions,
- Point to point,
- Special Use, or
- Overwater.

All Missions: The following PPE is required on all DLNR missions:

- Aviator's protective helmet
- Skull cap
- Standard issue boots (DLNR approved)
- Standard issue gloves

Point-to-Point Mission: Point-to-Point activities are operations that do not include low-level flights — below 500 feet above ground — on a regular basis or any flight(s) that are exclusive of missions listed under special use below. Point-to-Point missions include missions that involve picking up passengers from one point and transporting them to another. In addition to the equipment listed previously for all missions, the following PPE is required:

- Fire retardant (Nomex or equivalent) shirt (standard-issue fire shirt) and natural fiber pants, or fire retardant flight suit.

Special Use Mission: Special use activities are operations which require special considerations to protect personnel due to the nature of the operations. Specialized pilot qualifications and equipment may also be required for these missions. Special use missions include:

a) External load operations (sling loads, etc.)
b) Special night operations (infra-red animal census, etc.)
c) Reconnaissance and surveys
e) Animal herding/tagging/censusing/control
f) Flights conducted below 500 feet above ground level on a regular or frequent basis
g) Operations over and around a fire perimeter
h) Noxious plant/insect and disease operations
i) Transporting or dispensing of flammable liquids, flares, or ignition devices
j) Flights where any take off or landing requires special pilot techniques due to terrain, obstacles, or surface conditions.

In addition to the equipment listed previously for all missions, the following PPE is required for special use missions:

- Fire retardant (Nomex) flight suit or equivalent.

Overwater Mission: These are missions where the aircraft is over water and beyond safe gliding distance to land. In addition to the equipment listed above for all missions, and for either point to point or special use, as appropriate, the following PPE is required:
A personal FAA-approved floatation device shall be worn by each person. This may be either supplied by the pilot or by DLNR (at Branch's discretion).

Additional Optional PPE: Additional or optional PPE may be worn or carried by individuals at their own choice subject to final say by the OIC or PIC. This may include Emergency Position Indicating Radio Beacons (EPIRB), survival gear, etc.

II. TRAINING PROCEDURES AND REQUIREMENTS

Helicopter training serves several purposes:

- It provides classroom and hands-on familiarization of operating and safety procedures
- It provides classroom and hands-on opportunities for aircraft familiarization
- It provides classroom and hands-on familiarization of emergency procedures
- It should make DLNR personnel and passengers the "best passengers we can be"

The following levels of training should be maintained:

1) All new hires who will be involved with helicopter operations will successfully complete a basic helicopter operating and safety class prior their first flight. Through hands-on training they should know how to:

- move around the aircraft and safely enter and exit the ship,

- work the seatbelts and buckles,
- open and close doors,
- use the intercom,
- locate the fire extinguisher, first-aid kit, portable radio, survival gear,
- use the GPS (if appropriate),
- stow gear in the ship (make sure it will not fall or blow out),
- to drop gear from the ship (e.g., weighted markers, etc.),
- to wear appropriate clothing/personal protective gear and what not to wear (e.g., baseball hats, synthetic fiber clothing, unattached glasses, etc.),
- conduct themselves safely during flights (e.g., no sticking hands out while flying).

2) All personnel involved with the handling of external cargo loads shall have received training in the various aspects of external loads.

3) All personnel involved with helicopter operations must, at a minimum, annually refresh the following skills:

a) Hands-on familiarization of aircraft including:
   - throttles and engine/fuel shutoff locations,
   - master switch location,
   - emergency gear (flares, emergency locating transmitter (ELT), fire extinguisher, first aid, etc.) locations

b) Use of radio systems (fixed and portable) for emergency use.

4) Personnel who regularly travel over water shall take some form of "water ditching" training when available.

5) Certification for CPR and first aid training shall be kept current for all DLNR personnel involved with helicopter operations. First Responder training is recommended.

III. EMERGENCY RESPONSE

In the event of an accident, people may become disoriented and/or injured to the point where even the simplest tasks may become difficult or impossible to do. Adequate and repetitive training coupled with hands-on familiarization of both the aircraft and safety equipment and procedures are essential to providing the greatest opportunity for appropriate response measures. DLNR personnel should be trained to:

1. **Attend to passengers and crew.**
Do not move people with unknown injuries unless there is an immediate need, e.g., fire, drowning.

2. **Secure help.**
This usually would involve the use of radio, ELT, EPIRB, flares, etc.

3. **Secure or reduce hazards where appropriate.**
This may include shutting aircraft fuel supply, master switch, etc.

Additional on-site emergency procedures:

1. Once rescue personnel have been notified, keep a clear radio channel open. Do not serve as a central control - that is the responsibility for forestry control or other rescue personnel.

2. Be discrete with radio communications - do not use names but instead refer to age, gender, condition of injured personnel.

3. Minimize disturbance at the accident site. Do not move gear, equipment, helicopter parts, etc. unless dictated by need to ensure safety of personnel. The accident scene should be left as intact as possible to assist later investigations.

4. Maintain a log as feasible.

5. Inquiries from the public or press should be directed to the appropriate Division Administrator or up the chain of command as appropriate.

Additional off-site emergency procedures:

1. Forestry Control (FC) in the county where the incident occurred, should assume the role of dispatcher once the initial call has been received and act as the communication hub to other rescue personnel. FC should maintain an open line with the accident site.

2. FC should clear all non essential radio traffic from the channel until the incident is declared over by on-site personnel.

3. Be discrete with radio communications - do not use names but instead refer to age, gender, condition of injured personnel.

4. FC should keep a log of all communications, particularly noting facts, decisions, or events.

5. FC should remain on duty until the incident is declared over by on-site personnel.

6. FC should request additional staff (or outside personnel) support as necessary to facilitate expeditious management of the incident, to include notification, status reports for the administration, etc.

7. FC should protect those on-scene from non-essential questions and personnel and other distractions.

8. Inquiries from the press should be directed to the appropriate Division Administrator or up the chain of command as appropriate.

IV. ADDITIONAL CONSIDERATIONS

- Each Branch should work with the local Fire Department, and area Civil Defense agency, if appropriate, to develop an understanding of each agency's communication needs and capabilities in case of an emergency.

- All DLNR staff who operate radios while on flying missions should know how to access local government emergency channels

- Branches should ensure that radio operators at Forestry Control have adequate training and are qualified to respond in the event of an emergency.

- Cellular phones should be issued to personnel in areas that have coverage.

- If possible, personnel should accompany the PIC in their initial pre-flight inspection of the aircraft. This is an excellent way to become familiar with the aircraft.

- Branches should establish emergency notification procedures and maintain an updated "notification" list for all staff. The list should include:

  - who to notify (up to three names, if desired) with telephone numbers,
  - home address,
  - map or description of how to reach home.

V. POLICY APPROVALS AND EFFECTIVE DATE

This policy becomes effective on approval by the Chairperson of the Department of Land and Natural Resources.

Recommend Approval:

Paul J Conry 12/11/06

Paul J. Conry, DOFAW Administrator — Date
Division of Forestry and Wildlife

Approved by the Board of Land and Natural Resources at its meeting held on

12/08/06

Approved:

Peter T. Young, Chairperson — Date
Department of Land and Natural Resources

Appendix I
Sample Flight Plan

DLNR-DOFAW Flight Plan

Date of Mission:
Vendor:
Vendor phone:

Mission Leader (OIC):
Pilot:
Aircraft:

Detailed description of mission
Purpose of mission:

Type of mission (e.g., passenger, sling load, reconnaissance, etc.):

Estimated time of departure:
Departure location:

Estimated time of arrival/return:
Destination:

Estimated time of pick-up:
Pick-up location:

Estimated time of arrival/return:
Destination:

Route:

Alternate route:

Personnel: (name, organization, function)
e.g. Joe Smith, DOFAW, passenger

Estimated load (in addition to passengers):

Special needs (e.g., for aerial shoot missions, include type of weapon; etc.):

Flight Following
Flight follower:
Radio check times:

Flight follower phone #:
Communication method/radio frequency:

Submitted by:

Date:

Approved by:

Date:

Emergency Information
Fire Department/Rescue: 911 OR
FAA:
DOFAW Admin: 808-587-0166
Vendor phone:

DOFAW Branch:

Attachment 2

DEPARTMENT OF LAND AND NATURAL RESOURCES
STANDARD OPERATING PROCEDURES
FOR HELICOPTER OPERATIONS
(June 2018)

The Department of Land and Natural Resources (DLNR) relies on the use of helicopters to access many of its remote sites and to efficiently and effectively carry out its management responsibilities. Working with and around helicopters comes with inherent risks. Our top priority is to maintain the highest level of safety possible while conducting helicopter operations. We must do our best to prevent accidents and provide for the safety of all those involved in the operation, from pilot to passengers and ground crew. DLNR's goal is to ensure that its staff and volunteers are adequately trained and properly equipped. In the event of an incident or accident, proper training, certification, and the right equipment can play a key role in minimizing consequences.

With the exception of the Division of Conservation and Resources Enforcement (DOCARE), DLNR staff shall use the following helicopter Standard Operating Procedures (SOP) to engage in a DLNR sponsored mission, use helicopters in their work, or respond to an emergency.

This SOP replaces all previous versions of Department of Land and Natural Resources (DLNR) helicopter policies.

Failure to comply with this SOP may result in disciplinary action.

DEFINITIONS OF FREQUENTLY USED TERMS AND ACRONYMS:

Hover-In-Ground-Effect (HIGE): Airflow is interrupted by the ground under the helicopter; this reduces downward velocity of the air and produces an outward airflow pattern helping to lift the helicopter. This effect occurs when a helicopter is hovering approximately less than one-half the rotor diameter distance from the ground.

Hover-Out-Of-Ground-Effect (HOGE): Occurs when the helicopter exceeds about one-half of the rotor diameter distance from the ground, and the cushion of air disintegrates.

Interagency Aviation Training (IAT): Office of Aviation Safety training program.

Load calculation (LC): A calculation performed by the pilot that determines allowable internal and external payloads. It involves the operating weight (helicopter equipped weight + flight crew weight + fuel weight) of the helicopter and its performance capabilities at different density altitudes (air density given as a height above mean sea level).

Office of Aviation Services (OAS): Sets the rules and provides training for the Department of the Interior aviation programs.

Passengers (PAX): Passengers in the aircraft other than crew.

Pilot in Command (PIC): Pilot of the aircraft

Personal Protective Equipment (PPE): Required personal protective equipment

HELICOPTER MANAGEMENT PERSONNEL ROLES, RESPONSIBILITIES, AND TRAINING

A. Aircrew Member
   1. A person working in and around a helicopter, and essential to ensure the safety and successful outcome of the mission.
   2. Minimum training requirements required for all agency personnel directly involved in DLNR helicopter operations (excluding volunteers, VIPs, & partner agencies):

A-100 (or equivalent)*	Basic Aviation Safety
A-110 (or equivalent)	Aviation Transportation of Hazardous Materials (if involved in transport of hazardous materials)
A-116 (or equivalent)	General Awareness Security Training
A-200 (or equivalent)	Mishap Review

*The A-100 may initially be taken online but must be taken again in the classroom when the training becomes available

B. Advanced Aircrew Member
   1. A person with more advanced training than an Aircrew Member, including training and experience in aviation safety, planning and readiness, heli-base and heli-spot organization, landing areas, personnel and cargo transport, and specialized missions.
   2. Crewmember training requirements:

A-100 (or equivalent)	Basic Aviation Safety
A-110 (or equivalent)	Aviation Transportation of Hazardous Materials (if involved in transport of hazardous materials)
A-116 (or equivalent)	General Awareness Security Training
A-200 (or equivalent)	Mishap Review
S-271 (or equivalent)	Helicopter Crewmember (as available)
A-219 (or equivalent)	Helicopter Transport of External Cargo (as available)

C. Helicopter Manager
   1. A person who is responsible for coordinating, scheduling, managing, and supervising helicopter operations. The Helicopter Manager's duties and responsibilities include:
      a. Coordinate flight planning with all parties involved in the helicopter operations.
      b. Establish work schedule.
      c. Complete required administrative and operational forms.
      d. Verify that the aircraft and pilot are OAS approved for the planned mission.
      e. Ensure that personnel involved in DLNR helicopter operation are properly trained per this SOP.
      f. Ensure required PPE is available and used correctly.
      g. Conduct a preflight briefing.
      h. Ensure that flight-following is performed during the mission.
      i. Ensure that vendor-provided communications equipment, i.e., radios, intercom, is programmed correctly and operational.
      j. Be responsible for the accurate completion of helicopter passenger/cargo manifests.
      k. Direct personnel in the conduct of helicopter operations (heli-base or landing zone management, including construction, manifesting, loading and unloading of cargo and personnel, marshaling helicopters, rigging of external loads, etc.).
      l. Ensure flight payment documents are accurate and submitted according to direction found in procurement document.
      m. Report any condition, observation, act, maintenance problem, or circumstance with personnel or the aircraft that has the potential to cause an aviation-related mishap, using the SAFECOM system.
      n. Ensure contract compliance by all parties involved in the helicopter operations.

2. The Helicopter Manager shall have adequate experience in helicopter operations (determined by the program manager) and at least the level of Advanced Aircrew Member. The following Interagency Aviation Training (IAT) courses to meet the "Helicopter Manager – Resource" level are highly recommended for Helicopter Manager

A-100 (or equivalent)	Basic Aviation Safety
A-107 (or equivalent)	Aviation Policy and Regulations I
A-109 (or equivalent)	Aviation Radio Use
A-110 (or equivalent)	Aviation Transportation of Hazardous Materials
A-112 (or equivalent)	Mission Planning and Flight Request Process
A-115 (or equivalent)	Automated Flight Following
A-116 (or equivalent)	General Awareness Security Training
A-200 (or equivalent)	Mishap Review
A-204 (or equivalent)	Aircraft Capabilities and Limitations
A-205 (or equivalent)	Risk Management I
A-209 (or equivalent)	Helicopter Operations
A-218 (or equivalent)	Aircraft Pre-Use Inspection
A-219 (or equivalent)	Helicopter Transport of External Cargo
A-302 (or equivalent)	Personal Responsibility and Liability
A-303 (or equivalent)	Human Factors in Aviation
A-304 (or equivalent)	Aircraft Maintenance
A-305 (or equivalent)	Risk Management II
A-307 (or equivalent)	Aviation Policy and Regulations II
A-309 (or equivalent)	Helicopter Flight Manuals
A-310 (or equivalent)	Overview of Crew Resource Management
A-311 (or equivalent)	Aviation Planning

HELICOPTER SAFETY POLICIES

A. The DLNR helicopter safety policies are:
   1. The safety of staff and others involved in helicopter operations is top priority.
   2. Safety will not be compromised to pursue mission goals and objectives.

B. To enhance staff and heli-ops safety DLNR shall utilize the services of an Office of Aviation Services (OAS) approved vendor; the Helicopter Manager shall ensure that the pilot and helicopter are certified for the type of mission being requested, unless otherwise exempted for special circumstance (e.g. restricted use aircraft for non-passenger operations or aircraft use for emergency purposes) with prior written approval from the Administrator (cooperation with military and county fire department helicopters for fire suppression is exempt). DLNR staff may fly in cooperator aircraft as incidental passengers (PAX). In this case, DLNR staff is subject to SOPs or plans that are at equivalent or more restrictive than internal procedures.

C. If personnel do not adhere to PPE requirements, they will be excluded from the helicopter operations. The following PPE is required by all personnel directly involved with helicopter operations:
   1. Properly fitted Nomex* flight suit or Nomex* long sleeve shirt and trousers
   2. Nomex*/leather flight gloves or all leather gloves
   3. Above the ankle all-leather boots
   4. Flight helmet (SPH5 or better) while in the helicopter
   5. Cotton, natural fiber, or Nomex* underclothing

   * *The preferred material is commonly known as Nomex. The actual material may be Nomex, Nomex fleece, polyamide, aramide, polybenzimidazole, Kevlar, or blends thereof (see the Aviation Life Support Equipment Handbook for more information on allowable fire-resistant clothing equivalents).*

D. It is the responsibility of all DLNR staff involved with a helicopter operation to ensure the safety of the operation. Each person is tasked with ensuring that the operation is being

conducted safely and each participant is performing according to all appropriate safety policies, helicopter, or otherwise. Identifying contributing factors that could lead to an incident or accident is critical to the prevention of the potential incident/accident. If DLNR staff involved with a helicopter operation view any aspect of the operation as unsafe, the operation must be put on hold until all participants involved review the situation and correct the safety issue, continue with appropriate mitigation of risks, or terminate the mission.

E. Helicopter operations shall be terminated under any of the following conditions:
   1. Visual Flight Rules (VFR) conditions are not met, unless otherwise exempted for special circumstances (e.g. night operations) with prior written approval from Branch Managers;
   2. The pilot terminates operations;
   3. Any personnel directly involved in the helicopter operations has a justified safety concern; or
   4. Excessive wind conditions. The capability to fly a helicopter in excessive wind conditions varies considerably with the weight class of the helicopter and the degree of turbulence associated with the wind. If the helicopter flight manual or the helicopter operator's policy does not set lower limits, the limits listed in the following table shall be used. These limits may be further restricted at the discretion of the pilot or Helicopter Manager.

Flight Permitted in Winds Less Than/Maximum Gust Spread in Knots, by Helicopter Type

Distance Above Ground Level (AGL)	Type 1 (Heavy) Helicopter	Type 2 (Medium) Helicopter	Type 3 (Light) Helicopter
More than 500' AGL	50/NA	50/NA	50/NA
Less than 500' AGL	40/15	40/15	30/15

FLIGHT PLANNING AND SCHEDULING PROCESS

Flight planning involving all participants in the intended mission serves to reduce the risk inherent in any aviation mission to acceptable levels. Levels of aviation safety and efficiency can be significantly improved by comprehensive planning of both one-time and recurrent aviation projects.

A. Elements of the Process.
   1. A Flight Plan submitted by the user requesting the mission. Flight Plans shall be signed and approved by Branch Managers or other person(s) designated by Branch Managers.
   2. An Aviation Manager Checklist and Hazard Analysis performed by the requester or assigned Helicopter Manager.
   3. Standard Aircraft Safety Briefing completed by the Helicopter Manager and pilot just prior to the flight.
   4. A post-flight evaluation which identifies any problems encountered so that corrective action can be taken on future flights.

B. Frequency of Completion
   1. One-Time Missions: The elements of the flight planning and scheduling process described above should be addressed or completed for each flight mission.
   2. Recurrent Special Use Projects and Operations: For recurrent flight missions of a similar nature in a special use environment, scheduling and approval requirements can be reduced by the completion of an Aviation Safety Plan.
      a. Purpose. The purpose of an Aviation Safety Plan is to:
         i. Ensure that recurrent flights in special use environments (primarily flight below 500 feet AGL) are adequately planned and that management is aware of and has approved flight in the special use

environment.

ii. Document the information required on the Flight Plan, Aviation Manager Checklist and Hazard Analysis for successive, similar missions. The Aviation Safety Plan can relieve the user from completing repetitive information (hazards, communications, etc.) on the flight request each time a flight is made to the same area(s). For scheduling and manifesting purposes, the Flight Plan is completed for each use. However, only that information not contained in the Aviation Safety Plan is required (e.g., date/time of flight, manifest, etc.).

b. Applicability. The Aviation Safety Plan should be completed for all recurrent special-use flights for the same project to the same areas(s).

c. Responsibilities and Requirements for Completion. Aviation Safety Plan(s) shall be in place for every district. Plans are generally completed in the following sequence:

i. Aviation Manager or Helicopter Manager completes most of plan information.

ii. Helicopter Manager completes flight following and emergency search and rescue information.

iii. An aerial hazard analysis is completed jointly by the Aviation Manager and Helicopter Manager.

d. Annual Review and Update. The Aviation Safety Plans should be reviewed annually by the Aviation Manager for currency of information, with at least annual re-approval by program management. Updates should be performed as necessary. More frequent review and update may be necessary if the type of mission, location, etc., change.

C. Flight Plan. The following is a suggested format for ensuring all elements of the flight request, scheduling, and planning process are met. All flights should be requested and scheduled using the following procedures.

1. Aircraft flight request/plans should be prepared by Helicopter Manager or adequately trained staff that they delegate to.
2. For special use flights, a Risk Analysis (see appendix) should be completed by the Helicopter Manager.
3. The Flight Plan shall be relayed to all personnel and offices involved in the mission, including other dispatch offices, and the pilot. This may be accomplished by automated flight planning and transmission by email, fax, or telephone. The Helicopter Manager or their designee is responsible for relaying flight specifics to other PAX. Flight Plans should be filed or electronically available for reference after flight for billing and other purposes.
4. Content: At a minimum, the Flight Plan shall consist of the following elements:

i. Date and times of flight (starting and ending)
ii. Locations (departure, arrival, planned route)
iii. Purpose of flight
iv. Time table of flight (starting and ending times and a breakdown of estimated loads (PAX or sling)
v. Helicopter Manager in charge including contact info
vi. PAX manifest (names and weights)
vii. Contracted helicopter company name and contact info
viii. Pilot name and contact info
ix. Radio frequency to be utilized
x. Equipment needed by the aircraft company (helmets, long line, aerial spray rig, etc.)
xi. Long-line type needed (length and hook type)
xii. Sling load details/manifest (# of loads, weights of loads, load types, or packaging)
xiii. Hazardous material planned to be transported and how it will be carried (firearms/ammo, pesticides, flammable liquids, internal or external cargo)

xiv. Known flight hazards (powerlines, full performance take-off and/or landings, unimproved landing zones, high air traffic routes, etc.)
xv. Doors on/off
xvi. Billing information (PO#s or billing contact)

D. Aircraft Capability and Selection Factors
1. To complete any helicopter mission safely and efficiently the aircraft shall have PAX or cargo carrying capacity and sufficient power capability for anticipated operational temperature(s) and elevation(s).
2. The Helicopter Manager shall be trained in and knowledgeable of helicopter capabilities and limitations in order to schedule the proper aircraft. Selection of the appropriate aircraft for the mission will be confirmed with the vendor(s).
3. During the scheduling process for project flights, the intended mission shall always be discussed in depth with the vendor and preferably with the pilot assigned to the mission.
4. It is essential that pilots perform Load Calculations (LC) for proper flight manifest planning.
5. When selecting helicopters, several factors shall be taken into consideration to determine an aircraft appropriate for the mission.
   a. Capabilities: Each aviation management office should maintain a current copy of the specification of helicopters commonly used and which summarizes performance capabilities of those aircraft. This data may be used for program planning, but shall not be used to perform the actual helicopter LC prior to takeoff.
   b. Limitations: Limitations to consider in operational planning may include, but are not limited to:
      i. Number of PAX seats
      ii. Aircraft performance given the density altitude at takeoff and landing sites
      iii. Skid or wheel footprint given the size of landing pad or landing zone (LZ)
      iv. Radio equipment capability (does helicopter have VHF-FM equipment?)
      v. Cargo-carrying equipment (does helicopter have cargo hook or remote electric hook/longline equipment, cargo compartment, etc.?)
   c. Anticipated Environmental Conditions. All environmental factors should be considered when selecting an appropriate helicopter. Temperatures, wind speed and direction, visibility, and local weather anomalies can impact aircraft capabilities, mission profile, and fuel burn-rate.

E. Scheduling Aircraft with Vendors & Vendor Review of Flight Plan. During the scheduling contact, the preliminary Flight Plan shall be reviewed with the vendor and preferably the pilot who will fly the mission. The scheduler should relay an accurate itinerary and manifest along with the desired sequence of events. Flight Plans should be amended at this time, subject to aircraft limitations, refueling needs, or other concerns identified by the vendor.

F. Obtaining Necessary Equipment. It is essential that the individual submitting the flight request give sufficient information to ensure any specialized mission equipment requirements are met, especially for equipment which is to be supplied by the vendor. Local operating plans should specify procedures for obtaining agency supplies such as handheld radios, external load equipment, and PPE.

G. Analyzing Known Aerial Hazards
1. The special use of low altitude (less than 500 feet AGL) flight places people and equipment in a higher risk area of potential wire strikes, mid-air collisions with other low flying aircraft, and impact with obstacles protruding beyond normal surface features.
2. To mitigate this risk, pilots, Helicopter Managers, and PAX shall be aware of obstacles which they may encounter during low-level operations.
3. Known aerial hazards shall be identified and analyzed during the flight planning process.

Helicopter Manager shall make a risk management analysis to determine: whether or not to accept those risks provided they are properly mitigated, require the mission to be modified to avoid identified risks, or cancel the flight.

4. Known flight hazards shall be identified and mapped on the "Known Aerial Hazard Map." The Helicopter Manager shall obtain data on flight hazards from sources such as FAA and electrical service providers to create a flight hazard map.
    a. Purpose. The purpose of aerial hazard mapping is to identify aerial hazards within and/or near local administrative boundaries so that flight safety awareness by the pilot, the Helicopter Manager, and PAX is achieved.
    b. Applicability. Each district shall maintain a current aerial hazard map in each location where flight planning, flight tracking, and aircrew dispatching occur. The master map/data should be located in the office where flight planning and scheduling is performed.

H. PPE and Aviation Life Support Equipment. Requirements for PPE are determined by the type of flight. The type of ground operation being performed also will determine PPE required (for example, belly hook-up or working around operating helicopters).

I. Communication Plan. Radio frequencies shall be designated for Air-to-Air, Air-to-Ground, and Ground-to-Ground operations. Identification of the means of flight following and the methods by which it will be accomplished is an essential part of the communication plan.

COMMUNICATIONS & FLIGHT FOLLOWING

A. Communication Capabilities and Procedures
    1. All aircraft, per contract, shall have working air-to-ground radio communications capable of accessing DLNR frequencies and talk groups.
    2. Any operation involving both ground personnel and aircraft (e.g. cargo transfers, passenger pick up and drop off, etc.) shall have adequately trained staff that are in continuous radio communication with the aircraft for the duration of the operation (except as noted in #3). The PIC and Helicopter Manager shall together determine specifics as to working channels, frequency of contacts, etc., and shall develop a communication strategy appropriate to the mission and geographical site.
    3. For long flights where it is not possible to have ground personnel remain in continuous contact with the aircraft, the use of automated flight following is highly recommended.
    4. When carrying personnel, the aircraft shall have a handheld two-way radio capable of accessing government frequencies. Its location and method of operation shall be known to aircraft occupants. This requirement can be satisfied by personnel carrying their DLNR issued portable radios.

B. Mishap Response Plan
    1. In the event of an accident, people may become disoriented and/or injured to the point where even the simplest tasks may become difficult or impossible. Adequate and repetitive training coupled with hands-on familiarization of both the aircraft and safety equipment, as well as procedures are essential to providing the greatest opportunity for appropriate response measures. DLNR personnel should be trained to:
        a. Secure or Reduce Hazards Where Appropriate. This may include identifying and mitigating hazards, including shutting off aircraft fuel supply, master switch, etc.
        b. Attend to Passengers and Crew. Do not move people with unknown injuries unless there is an immediate need, e.g., fire, drowning.
        c. Secure Help. This usually would involve the use of radio, cell phone, Emergency Locator Transmitter (ELT), Emergency Position Indicating Radio Beacon (EPIRB), flares, etc. Each district will create an Aviation Mishap Response Plan, including notification and emergency response protocols, and updated annually.

HELI-BASE OR REMOTE LANDING ZONE (LZ) MANAGEMENT

A. The Helicopter Manager is responsible for the overall safety at the Heli-base or LZ and coordinates the operation utilizing adequately trained staff assigned to the operation.

B. The Helicopter Manager should not get PAX into or out of the aircraft, or load or unload nets unless the mission has limited staff requiring the Helicopter Manager to perform those tasks.

C. Duties of the Helicopter Manager related to heli-base or remote LZ management:
   1. Provide a preflight briefing to all the personnel at the Heli-base or LZ including the required passenger safety briefing for all PAX; a qualified Advanced Aircrew Member may be asked to give the safety briefing.
   2. Ensure all personnel are wearing the appropriate PPE.
   3. Ensure all external loads have been properly prepared, under the maximum weight limit listed on the pilot's daily load calculation, and assign adequately trained staff to do the hookups.
   4. Ensure that the area has been cleared of all loose items and foreign objects that may get caught up and damage the helicopter rotor blades.
   5. Ensure all staff at the LZ are within the designated safety zone and if possible behind something solid. Everyone should be paying attention to the arriving or departing helicopter.
   6. Notify the pilot by radio of known hazards as the helicopter approaches/departs.
   7. Ensure that the pilot and helicopter are carded for the type of mission being requested.
   8. If there is a mechanical issue the Helicopter Manager shall ensure that the owner or Pilot-in-Command (PIC) and a certified mechanic deem the ship flight worthy before DLNR contract operations can commence or resume.
   9. Brief the pilot on the mission, goals, PAX, external loads, and potential hazards.
   10. Record pertinent information and note damage to the aircraft or other noteworthy events/observations.
   11. Ensure PAX and internal loading or unloading is done safely.
   12. List each PAX flight destination with full names, any additional internal loads, and accurate weights in either a flight manifest or flight plan.
   13. List contents of each external load with total weight and destinations in either a flight manifest or flight plan.
   14. All aircraft operations shall have adequately trained staff that are in radio communication with the aircraft for the duration of the operation. In addition to having radio communication capability with the aircraft, the use of automated flight following is highly recommended. See the Flight Following section on the use of automated flight following for long flights where it is not possible to have ground personnel remain in continuous contact with the aircraft.
   15. When appropriate some of these duties may be delegated to an adequately trained staff but Helicopter Manager is to remain in charge of the operation.

D. It is recommended that crash kits and first aid kits be made available at frequently used LZs.
   1. A crash kit should consist of the following items: fire extinguisher, aircraft rescue axe, bolt cutters, hacksaw, fire proof blanket, and assorted screwdrivers.
   2. A first aid kit shall contain at a minimum
      a. (4) pairs latex gloves
      b. (4) CPR breathing barriers
      c. Package of antiseptic wipes or bottle of antiseptic iodine
      d. Scissors
      e. (10) absorbent compress bandages
      f. Roll of adhesive tape
      g. (4) roll bandages

h. (10) gauze bandages
i. (4) triangular bandages
j. (4) SAM splints
k. Tweezers
l. Antibiotic ointment
m. (2) eyewashes
n. First Aid & CPR instruction booklets

E. At Heli-base or LZs hearing protection is required and eye protection based on blowing debris.

F. To guide the pilot into a Heli-base or remote LZ adequately trained staff should stand with his/her back to the wind and arms parallel to the ground.
   1. In tight LZs, use the radio to communicate wind direction at ground level.
   2. Flagging tape on nearby exposed tree branches shall also serve to provide wind direction.
   3. It is recommended that windsocks be used at Heli-bases.
   4. If the LZ is new or the pilot is unfamiliar with the area, the Helicopter Manager or other experienced staff should conduct a prior reconnaissance mission with the pilot and resolve any issues the pilot may have.

G. Other than the person guiding the pilot into a Heli-base or remote LZ, all persons shall be stationary in the designated safety zone away from the landing/departing path of the helicopter, preferably to the pilot-side of the helicopter before the pilot lands, and where possible behind a solid object (e.g., vehicle, building, tree, etc.) to protect against the rotor wash and debris.

H. Hazardous materials shall be transported in compliance with OAS's Interagency Aviation Transport of Hazardous Materials Handbook.
   1. The pilot shall be informed of and approve any hazardous materials being flown.
   2. All personnel loading or unloading hazardous materials are required to complete A-110 Aviation Transportation of Hazardous Materials training.
   3. The hazardous materials list shall be included on the Flight Plan or flight manifest.

I. Smoking is prohibited within 100 feet of the helicopter or fuel/refueling equipment.

J. No moving equipment should pass closer than 20 feet of an operating helicopter.

K. Vehicles shall be safely parked as far from the LZ as possible.

L. In remote LZs the external load shall be set in such a manner that in case of an emergency the helicopter can still be landed at the LZ if needed.

PASSENGER (PAX) OPERATIONS

A. All PAX flights landing at an LZ not staffed with an Helicopter Manager shall have minimally onboard an adequately trained staff member who is responsible for unloading the PAX, securing any internal gear and the seatbelts, securing the doors, and logging pertinent information prior to the helicopter leaving the LZ.

B. Combined weights of PAX shall be within the Load Calculation (LC) Hover Ceiling Out-of-ground Effect (HOGE) limits and cleared with pilot.

C. Doors-off may apply when the pilot or Helicopter Manager recommends it.

D. PAX shall remove caps or hats and store these items in a pocket or pack prior to approaching the helicopter. Caps or hats shall not be worn at any time within the safety zone of an

operating helicopter. If safety helmets are worn by the ground crew, they should be secured with a chin strap. Once passengers are inside the helicopter they are required to wear the flight helmet for the duration of the flight.

E. PAX with long hair shall secure it and/or tuck it down the back and inside the flight suit or flight shirt.

F. When PAX approach or depart to/from the helicopter:
   1. From the front quarter, preferably pilot-side, and in clear view of the pilot.
   2. Never behind the rear doors or cargo door of the helicopter. Never towards the tail rotor.
   3. Only after the pilot has signaled that it is safe to approach the aircraft (the pilot may need to reposition the aircraft after initial landing).
   4. Pilot approval includes nodding, a hand signal to come forward, a beeping signal from the aircraft followed by a pilot's signal, or by radio communication to the Helicopter Manager or adequately trained staff.
   5. The pilot shall notify the PAX that it is safe to disembark through the intercom; it is important for each PAX to keep their flight helmet on until they hear the pilot give permission to exit the aircraft.
   6. Be in a crouched position when approaching and departing a helicopter.
   7. In uneven terrain, PAX shall approach from or depart to the down slope (lower) side.
   8. When carrying long-handled tools or long items to or from the helicopter, PAX shall keep them horizontal to the ground until secured in the helicopter or safely away. Carrying on the shoulders or above the head is prohibited.
   9. Upon exiting at a remote LZ, PAX shall ensure that their seatbelts have been secured behind them. This will prevent a seatbelt from accidentally hanging outside the closed door and damaging the aircraft.

G. After drop off at a remote LZ, the Helicopter Manager (if available) or an adequately trained staff shall signal the pilot when PAX are safely away and the aircraft is clear for departure.

H. PAX should not talk to the pilot during takeoffs and landings, unless to inform the pilot of a hazard that the pilot may not be aware of.

I. While flying, all PAX shall keep alert for hazards, such as power lines, birds, tall snags, overhanging trees, or other aircraft in the area, and notify pilot of these hazards.

J. All internal cargo shall be properly stored and secured, regardless of whether PAX are being transported with the cargo. Packs can be stored separately in the cargo compartment, in external cargo racks, or transported in an external sling. Do not exceed the weight limit of the cargo compartment or racks. This weight should be made visible within or outside the compartment to all passengers. Cargo cannot impede the PAX ability to safely exit the aircraft.

K. If the disembarking PAX must leave items in the helicopter, these items shall be placed in a closeable storage "bag" such as a small duffel, heavy-duty nylon bag or stuff sack with compression straps or end straps, or heavy duty cloth bag with drawstring closure. The bag shall be secured within the helicopter by the seatbelt or other appropriate tie-downs, such as D-rings, nylon webbing, or bungee-type cords.
   1. Flight helmets being left in the helicopter shall be placed in flight bags if available and appropriately secured via seatbelts or tie-downs. The Helicopter Manager or adequately trained staff shall make sure PAX know how to properly secure helmets in aircraft. This shall be included in the safety briefing before the mission starts.
   2. Plastic bags are not to be used in lieu of the other types of bags listed above.
   3. Should the doors be removed for an approved recon flight, the bag or helmet shall be secured with the PAX seatbelts.

L. Full PPE shall be maintained prior to takeoff, during flight, and prior to landing, with the following exception: If wearing flight glove(s) prevents the PAX from effectively manipulating small controls on equipment (camera, GPS, computer, HBT equipment, firearms, etc.), the PAX may remove the glove(s) to use the equipment during flight, but shall put on the gloves immediately in the event of an emergency, or prior to landing. The Helicopter Manager must be aware of this PPE deviation.

INTERNAL LOAD OPERATIONS

A. The Helicopter Manager is responsible for safely loading and unloading the aircraft at the Heli-base or remote LZ through a remote Helicopter Manager or adequately trained staff. Internal weight shall not exceed the HOGE limits determined by the LC.

B. The pilot is ultimately responsible for the weight and balance of the aircraft and if there are concerns about the loads, the pilot and Helicopter Manager shall consult to resolve the issue.

C. All internal gear shall be properly secured within the helicopter. To properly secure internal gear, adequately trained staff shall use a seatbelt or an appropriate tie-down, such as D rings, nylon webbing, or bungee-type cords.

D. Space below the back seat may not be used to store equipment if the back seat is occupied by passengers.

E. As stated previously, all internal cargo shall be properly stored and secured, regardless of whether PAX are being transported with the cargo. All packs shall be secured if carried in the PAX compartment. Packs can be stored separately in the cargo compartment, in external cargo racks, or transported in an external sling. Do not exceed the weight limit of the cargo compartment or racks. This weight should be placarded within or outside the compartment, usually on the door. If in doubt, ask the pilot. Cargo cannot impede the PAX ability to safely exit the aircraft.

F. An empty rear PAX seat may be used if the gear can be secured with the seatbelt or otherwise secured.

G. Adequately trained staff shall ensure all straps, seatbelts, and items in the aircraft are secured and that nothing is hanging out.

EXTERNAL LOAD

A. The Helicopter Manager is responsible for the safe make up of all loads through adequately trained staff and shall not exceed the LC HOGE-J (when carrying jettison-able loads).

B. Weights for all external loads shall be listed on the Flight Plan. Each load shall be within LC limits. All external load equipment (nets, swivels, cables, straps, and hardware) shall be inspected prior to each use.

C. Prior to the start of an external load operation, the Helicopter Manager or staff that have taken the A-219 external load training shall check the condition of the vendor's long-line and remote hook (if used), and the cargo hook.

D. The Helicopter Manager or A-219 trained staff shall test the remote hook's electronic release with the pilot; s/he shall also test the cargo hook's electronic and manual release with the pilot.

E. If there is a defect, s/he shall notify the pilot immediately. The defect shall be corrected prior to the start of the external load-ops. The Helicopter Manager shall note this information on the LC form or flight manifest.

F. PAX, other than minimum required flight crew, are not permitted on flights with external loads.

G. Personnel involved in external load operations shall have radio communication with the pilot. Receiving personnel should be away from the load unless:
    1. The load needs to be positioned in a way that requires adequately trained staff to be with the load.
    2. The load needs to be manually unhooked after delivery.

F. During a long-line/remote hook operation, A-219 trained staff should pick up the remote hook after it contacts the ground or may handle it directly in the air. Factors to consider for direct handling include:
    1. Load is located on a knife ridge, on muddy ground, or surrounded by trees.
    2. To prevent the hook from being tangled in the net's webbing or vegetation.
    3. To reduce helicopter hovering time above the load during swirling winds or as clouds move in/out.

G. Belly hook-ups are permitted under the following requirements:
    1. It is the only safe method to attach the load to the helicopter cargo hook.
    2. As determined by the PIC and the pilot that this is the safest method to attach load(s) to the helicopter cargo hook.
    3. Staff conducting belly hook-up shall be adequately trained.

H. PPE exception for external loads: Staff hooking or unhooking loads from a long-line may wear spiked tabis or spiked boots if environmental conditions require it. These situations would occur when wearing spiked tabis or spiked boots on muddy/slippery ground is better than all-leather hiking boots.

I. Aerial spraying operations procedures are described below.

    1. Inspect the vendor herbicide spray equipment prior to the start of the scheduled aerial operation to ensure that:
        a. The tank and all fittings are in good repair, free from any cracking or splitting that might interfere with a secure attachment to the helicopter.
        b. All attachment points are free from debris and in working order.
        c. The nozzles on the spray ball or boom allow the free flow of herbicide mixture.
        d. The protective sheath surrounding the cable is free from seeds that could be vectored to a new area.
        e. Spraying operations shall adhere to pesticide label.

    2. During aerial spray operations:
        a. The pilot shall ensure that the spray ball/nozzle is dispensing herbicides properly.
        b. If a spotter is onboard, the spotter shall:
            i. Assist in identifying target plant.
            ii. Ensure the helicopter is clear of hazards on the right side.
            iii. Use data logger or GPS to mark target plants being treated.
            iv. Wear appropriate flight PPE with flight helmet communications in working order thru helicopter Push to talk (PTT) or Voice activated (VOX) systems.
        c. Should the sprayer malfunction during the operation, the pilot shall return to base and repair the sprayer; if not capable of field repairs, the aerial spray mission shall be terminated.
        d. A spill kit shall be available at the base LZ for aerial spray operations. The spill kit shall contain the following:

i. Emergency phone numbers
ii. Labels and MSDSs of all pesticides on hand
iii. Copy of the Spill Plan
iv. Personal Protective Equipment: rubber gloves, footwear, apron, goggles, (face shield, respirator as needed)
v. Heavy plastic bags for material storage
vi. 10 lbs. of absorbent materials (cat litter, vermiculite, paper, etc.) or the equivalent in absorbent pillows
vii. Shovel, broom, dustpan
viii. Heavy duty detergent, chlorine bleach, and water
ix. Sturdy plastic container that closes tightly and will hold the largest quantity of pesticide on hand
x. First aid supplies
xi. Fresh water (at least 3 gallons; bring extra for wash-up after application)
xii. Soap (dish soap or hand soap)
xiii. Additional items required by labeling

REFUELING

A. If the scheduled operation requires on-site refueling the Flight Plan shall so state. The location of the on-site refueling shall be listed on the Flight Plan.

B. Vendor(s) shall provide refueling equipment that meets OAS requirements for remote refueling and fuel drum management.

C. A fuel spill kit provided by the vendor shall be available at each refueling site.

D. No PAX are allowed onboard during refueling.

E. All personnel not directly involved with the refueling shall stay within the designated safety zone. Staff involvement shall only be to monitor refueling and to operate the fire extinguisher if needed.

F. Staff are prohibited from refueling the aircraft - this is the pilot's responsibility. Staff may assist with bringing the fuel drum or pump to the aircraft if requested by the pilot.