

# Aviation Operating Plan and Standards (AOPS)

Change #0 – March 30, 2017

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2017

Washington Department of Natural Resources  
Wildfire Division – Aviation Section  
1111 Washington St SE  
Olympia, Washington 98504-7037



# WILDFIRE

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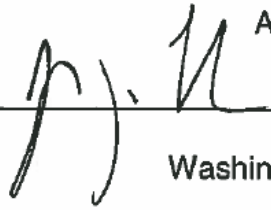
# WILDFIRE

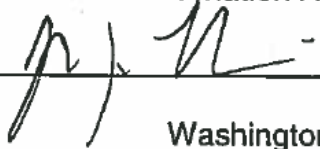
This Aviation Operating Plan & Standards has been approved and constitutes regulatory guidelines, procedures, and rules for Washington State Department of Natural Resources – Wildfire Division – Aviation Aircraft Public Use Program and Contractor Operations.

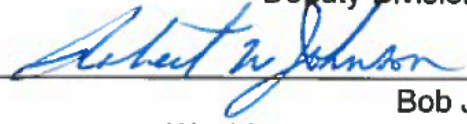
**Effective Date: April 30, 2017**

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# Aviation Operating Plan and Standards (AOPS)

## Chapter 1 – Introduction & Administrative

2017

Washington Department of Natural Resources  
Wildfire Division – Aviation Section  
1111 Washington St SE  
Olympia, Washington 98504-7037



# WILDFIRE

<b>REVISION PAGES &amp; TABLE OF CONTENTS</b>				
<b>Chapter Name</b>	<b>Page #</b>	<b>Initials</b>	<b>Date</b>	<b>Change</b>
Chapter Cover	1-1	DR	3/30/2017	0
Change Page	1-2	DR	3/30/2017	0
Overview, Publications	1-3	DR	3/30/2017	0
Publications	1-4	DR	3/30/2017	0
Publications	1-5	DR	3/30/2017	0
Operations Overview	1-6	DR	3/30/2017	0
Operations Overview	1-7	DR	3/30/2017	0
Organization & Management	1-8	DR	3/30/2017	0
Operational Authority	1-9	DR	3/30/2017	0
Organization Chart	1-10	DR	3/30/2017	0
Operational Authority Cont.	1-11	DR	3/30/2017	0
Aviation Maintenance	1-12	DR	3/30/2017	0
Responsibilities and Duties	1-13	DR	3/30/2017	0
Responsibilities and Duties	1-14	DR	3/30/2017	0
Responsibilities and Duties	1-15	DR	3/30/2017	0
Responsibilities and Duties	1-16	DR	3/30/2017	0
Responsibilities and Duties	1-17	DR	3/30/2017	0
Responsibilities and Duties	1-18	DR	3/30/2017	0
Responsibilities and Duties	1-19	DR	3/30/2017	0
Aircraft Operations, FEPP Guideline	1-20	DR	3/30/2017	0
Approved Aircraft Uses	1-21	DR	3/30/2017	0
Entitlements, Agreements	1-22	DR	3/30/2017	0
Insurance	1-23	DR	3/30/2017	0
Insurance	1-24	DR	3/30/2017	0

## **CHAPTER 1 – ADMINISTRATION**

### **1. Program Regulatory Overview.**

Washington DNR helicopters work under FEPP guidelines and are considered public use aircraft. WA DNR Wildfire Aviation has established Policies, Procedures, and regulations to govern all Public Use Operations of DNR aircraft. These publications are listed under 2. Aviation Publications of this Chapter. These manual are considered regulatory for all aviation personnel assigned and/or operating under WA DNR Wildfire authority.

### **2. Aviation Publications.**

#### **a. Aviation Operating Plan and Standards (AOPS)**

- i. Overview.
  1. Encompasses Procedures, Policies, and Standards for all DNR Aviation Operations. This Manual is considered regulatory for all aviation personnel and must be adhered to unless an emergency dictates otherwise. Any deviation from this manual will require an aviation deviation report to be filled out and sent to the CP/T or APM.
- ii. Update Cycle: Annual Review at a minimum
- iii. Responsible for Development, Content and Updates.
  1. Aviation Program Manager (APM)
- iv. Signature Page Approvals:
  1. Division Manager (DM)
  2. Deputy Division Manager (DDM)
  3. Aviation Assistant Division Manager (AADM)
  4. Aviation Program Manager (APM)
  5. Chief Pilot/Trainer (CP/T)

#### **b. Pilot Training Manual (PTM)**

- i. Overview.
  1. Encompasses Procedures, Policies, and Standards for DNR Aerial Wildland Firefighter Pilot Training, Flight Maneuver Performance, and Pilot Records Maintenance. This Manual is considered regulatory for all aviation personnel and must be adhered to unless an emergency dictates otherwise. The CP/T may adjust training requirements depending on pilot experience, performance, or conditions. Any deviation from this manual will be noted in the Pilot's Training folder.
- ii. Update Cycle: Annual Review at a minimum.
- iii. Responsible for Development, Content and Updates.
  1. Chief Pilot/Trainer (CP/T)
- iv. Signature Page Approvals:
  1. Aviation Assistant Division Manager (AADM)
  2. Aviation Program Manager (APM)
  3. Chief Pilot/Trainer (CP/T)

**c. WA DNR TM 55-1520-210-10 UH-1H(M) Operator's Manual**

- i. Overview.
  - 1. Encompasses technique data, systems information, Limitations, Normal Procedures, Abnormal Procedures, Emergency Procedures, and Aircraft Performance Data required to operate WA DNR aircraft safely. This Manual is considered regulatory for all aviation personnel and must be adhered to unless an emergency dictates otherwise. Any deviation from this manual will require an aviation deviation report to be filled out and sent to the CP/T or APM.
- ii. Update Cycle: Annual Review at a minimum, as needed
- iii. Responsible for Development, Content and Updates.
  - 1. Chief Pilot/Trainer (CP/T)
- iv. Signature Page Approvals:
  - 1. Aviation Assistant Division Manager (AADM)
  - 2. Aviation Program Manager (APM)
  - 3. Chief Pilot/Trainer (CP/T)
  - 4. Aviation Maintenance Supervisor/Inspector (AMS/I)

**d. Maintenance Operations Manual (MOM)**

- i. Overview.
  - 1. Encompasses technique data, Administrative, Requirements, Record Keeping, Inspections, Flight Checks/Tests, ALSE, Inoperative Equipment Listing, Aircraft Weight & Balance, and Winterization & Storage Procedures required to operate and maintain the helicopter safely. This Manual is considered regulatory for all aviation personnel and must be adhered to unless an emergency dictates otherwise. Any deviation from this manual will require an aviation deviation report to be filled out and sent to the CP/T or AMS/I.
- ii. Update Cycle: Annual Review at a minimum and as needed/required.
- iii. Responsible for Development, Content and Updates.
  - 1. Aviation Maintenance Supervisor/Inspector (AMS/I)
- iv. Signature Page Approvals:
  - 1. Aviation Assistant Division Manager (AADM)
  - 2. Aviation Program Manager (APM)
  - 3. Chief Pilot/Trainer (CP/T)
  - 4. Aviation Maintenance Supervisor/Inspector (AMS/I)

**e. Safety Management System (SMS)**

- i. Overview.
  - 1. Encompasses Administrative, Safety Policy, Promotion, Assurance, Risk Management required to operate and maintain safety in all WA DNR operations. This Manual is considered regulatory for all aviation personnel and must be adhered to unless an emergency dictates otherwise. Any deviation from this manual will require an aviation deviation report to be filled out and sent to the ASO or APM.
- ii. Update Cycle: Annual Review at a minimum and as needed/required.
- iii. Responsible for Development, Content and Updates.
  - 1. Aviation Safety Officer (ASO)

- iv. Signature Page Approvals:
  - 1. Division Manager (DM)
  - 2. Deputy Division Manager (DDM)
  - 3. Aviation Assistant Division Manager (AADM)
  - 4. Aviation Program Manager (APM)
  - 5. Chief Pilot/Trainer (CP/T)
  - 6. Aviation Maintenance Supervisor/Inspector (AMS/I)
  - 7. Aviation Safety Officer (ASO)
  - 8. Division Safety Officer

**f. DNR Aviation Mishap Response Guide & Checklist**

- i. Overview.
  - 1. Encompasses Administrative, Emergency Actions, Media Relations, Overdue & Missing Aircraft, Emergency Contact List, and the Response Notification Call-Down List required for any DNR aviation mishap. This publication is considered regulatory for all aviation personnel and must be adhered to unless an emergency dictates otherwise. Any deviation from this publication will require an aviation deviation report to be filled out and sent to the ASO or APM.
- ii. Update Cycle: Annual Review at a minimum and as needed/required.
- iii. Responsible for Development, Content and Updates.
  - 1. Aviation Safety Officer (ASO)
  - 2. Aviation Program Manager (APM)
- iv. Signature Page Approvals:
  - 1. Aviation Assistant Division Manager (AADM)
  - 2. Aviation Program Manager (APM)
  - 3. Chief Pilot/Trainer (CP/T)
  - 4. Aviation Safety Officer (ASO)
  - 5. Division Safety Officer

**g. Helicopter/Helitack Operations Guide (HOG)**

- i. Overview.
  - 1. Encompasses Administrative, Organization, Contact List, Training, Equipment, Vehicles, Responsibilities, Rates, Operations, Crew Guidelines, and Briefings. This publication is considered regulatory for all aviation personnel and must be adhered to unless an emergency dictates otherwise. Any deviation from this publication will require an aviation deviation report to be filled out and sent to the ASO or APM.
- ii. Update Cycle: Annual Review at a minimum and as needed/required.
- iii. Responsible for Development, Content and Updates.
  - 1. Helitack Operations Manager (HOM)
- iv. Signature Page Approvals:
  - 1. Division Manager (DM)
  - 2. Deputy Division Manager (DDM)
  - 3. Aviation Assistant Division Manager (AADM)
  - 4. Aviation Program Manager (APM)
  - 5. Assistant Region Manager (ARM) – Wildfire & Forest Practices
  - 6. Helitack Operations Manager (HOM)

## **h. Other Interagency Publications.**

DNR may also adopt sections of other agency/interagency materials (such as the IHOG) when deemed appropriate. When adopted as agency policy, these sections are specifically referenced in this document and do not constitute agency policy until so referenced. No aviation operations conducted by DNR may be in conflict with this Plan.

## **3. Aviation Operations Overview**

The Washington State Department of Natural Resources (DNR) operates a combination of fixed wing and rotor wing aircraft to support agency/cooperator operations. DNR procures (via the Federal Excess Property Program (FEPP)) its aircraft and also relies on contracted and cooperator aircraft, principally for large fire support.

### **a. DNR's aviation program includes the following missions, functions and activities.**

#### **i. Initial Attack with agency helicopter**

Currently DNR operates a fleet of 8 FEPP UH-1H(M) (Huey) helicopters for wildland fire support. All helicopters are based in Olympia and staffed by DNR pilots. As fire season begins, the helicopters are staged at strategic locations throughout Washington State (coinciding with fire danger levels). The primary base of Helitack operations is at Bowers Field in Ellensburg, adjacent to DNR's Southeast (SE) Region Headquarters, where the Helitack crew resides. A fleet of DNR fuel trucks support on-site helicopter operations with DNR employees conducting fueling operations.

#### **ii. Air Attack with cooperator fixed wing aircraft**

The Washington State Department of Fish and Wildlife (WDFW) operates a fixed wing Partenavia P-68 for aerial surveys, passenger transportation and fish planting. DNR has equipped this aircraft with specialized FM radios and other avionics to meet the interagency qualifications as an aerial platform for Air Tactical Group Supervisor (ATGS) operations. The aircraft and its WDFW pilots are included in the annual federal authorization letter sent to DNR permitting use of the P-68 for interagency ATGS missions. The aircraft and the ATGS onboard are commonly referred to as "air attack." Their purpose is to coordinate aerial resources on a wildfire and provide tactical support to ground based fire supervisors.

#### **iii. Personnel Transportation with cooperator fixed wing aircraft**

DNR performs limited personnel transportation. The WDFW P-68 is the primary aircraft used under a contracted agreement for this purpose. The Washington State Patrol also offers transportation services using their King Air 200, Cessna 182 and 206 fixed wing aircraft. Flights conducted in any WSP

aircraft will be approved by WD. Any flight in the King Air200 will only occur with approval of DNR's executive management.

#### **iv. Oversight of Agreement, Contracted, and National Guard Aircraft**

Each year, DNR typically has exclusive use contracts and call when needed agreements for helicopters, small fixed aircraft, water scooping Single Engine Air Tankers (SEAT) and various Air Attack platforms. These aircraft can be used for fire suppression, aerial detection, transport, firefighting, and other natural resource related field projects. During wildfire incidents where aid is needed or multiple jurisdictions are involved, DNR often relies on aircraft assistance from cooperators using their helicopters, air tankers and lead planes. The regulations governing these cooperator aircraft are set forth in interagency agreements, contracts, and within cooperators' own policies and procedures. When other aerial resources are exhausted, National Guard helicopters may be utilized to assist with fire suppression and support missions when activated by the Governor.

#### **v. Aviation Maintenance and Inspection**

DNR's Aviation Maintenance Technicians (AMT) with Federal Aviation Administration (FAA) issued Airframe and Powerplant licenses (A&P) inspect and approve agency owned aircraft and WDFW aircraft for return to service following maintenance or inspections. Phased, primary and/or annual inspections are conducted by AMTs as well as their regular maintenance duties. Most DNR AMT in addition have FAA Inspection Authority (IA) authorizations. DNR's Pilot in Commands (PICs) and their cooperator PICs, perform dailies and pre-flight inspections of the aircraft and limited maintenance as set forth in the DNR Maintenance Operations Manual (MOM) or contractor/FAA approved maintenance procedures.

#### **vi. Training**

The specialized nature of DNR's aviation functions requires extensive training. DNR's Chief Pilot/Trainer (CP/T) establishes and implements a training program and certification program for Aerial Wildland Firefighting helicopter pilots. DNR Wildfire Division staff provides Incident Command System (ICS) qualifications courses which are described in the interagency document governing wildfire qualifications known as PMS 310-1. DNR aviation staff provides other training in support of its aviation programs including: Fuel Truck Driving, Helitack Field Operations, Helicopter Safety, Long line Operations, and Helicopter Pilot Fire Suppression/Support. See Chapter 6 Training for further details. Training for Pilot New Employee Training, UH-1H(M) Initial/Recurrent Pilot Course, Aerial Wildland Firefighter, and Helicopter/Helitack Training is detailed in the WA DNR Pilot Training Manual (PTM).

## **vii. Aviation Safety**

Statewide responsibility and oversight for aviation safety is provided by the Aviation Safety Officer (ASO). Safety focused decision making and actions are the primary responsibility of all aviation personnel and will be done in accordance with the Washington State DNR Aviation Safety Management System (SMS) Plan.

In addition:

- Safety is the number one responsibility of every person working with or around aircraft;
- No aircraft is flown with a known “Safety of Flight” or maintenance discrepancy unless the flight is approved Aviation Program Manager (APM) and by an authorized DNR mechanic with FAA issued AMT credentials;
- The PIC has the final authority on safe operation of the assigned aircraft,
- An aircraft will not be flown which does not have operable communication equipment; (Minimum required for mission)
- During helicopter operations under the Incident Command System (ICS), a helicopter manager (HMGB) is assigned and the final “go/no go” mission authority rests with that HMGB; (exception: maintenance flights, ferry flights, non-fire)
- Inoperative aircraft equipment will be referred to the OPSMAN Inoperative Equipment List (IEL)
  - Deviations to fly an aircraft from the OPSMAN IEL will be approved by the Aviation Maintenance Supervisor (AMS/I) and the Aviation Program Manager or Chief Pilot

## **2. Organization and Management**

### **a. Organization Duty Stations and Responsibilities**

DNR’s Emergency Operations Manager (EOM) has oversight on all operations occurring under ICS. The WD aviation section has oversight and control of all agency helicopters and coordinates with the Emergency Operations Manager for use of exclusive use (EU) and call when needed (CWN) helicopters and fixed wing aircraft. The HOC, ASO, CP/T and AMT are under the direction of the Aviation Program Manager (APM). In contrast, the seasonal Helitack crew members work under the direction of the SE Region Helitack Operations Manager (HOM), who is supervised by the SE Region, Assistant Region Manager, Resource Protection & Services.

#### **i. Duty Stations:**

- a. Aviation Program Manager (APM)**
  - 1. NRB/KOLM Airport - Olympia, Washington**
- b. Chief Pilot – Trainer (CP/T)**
  - 1. NRB/KOLM Airport – Olympia, Washington**
- c. Helicopter Operations Coordinator (HOC)**
  - 1. SE Region HQ/KLEN – Ellensburg, Washington**



- d. Pilots (AWFFP)
  - 1. Varies, see individual pilot's PDF.
- e. Aircraft Maintenance Personnel (AMS/AMT/IA)
  - 1. KOLM Airport DNR Hanger – Tumwater, Washington
- f. Helitack Operations Manager (HOM)
  - 1. SE Region HQ/KLEN – Ellensburg, Washington
- g. Helitack Personnel
  - 1. SE Region HQ/KLEN – Ellensburg, Washington

WD is responsible for ensuring all pilots and mechanics are properly trained in accordance with DNR policies, interagency agreements, and operating procedures. SE Region is responsible for training all Helitack program members.

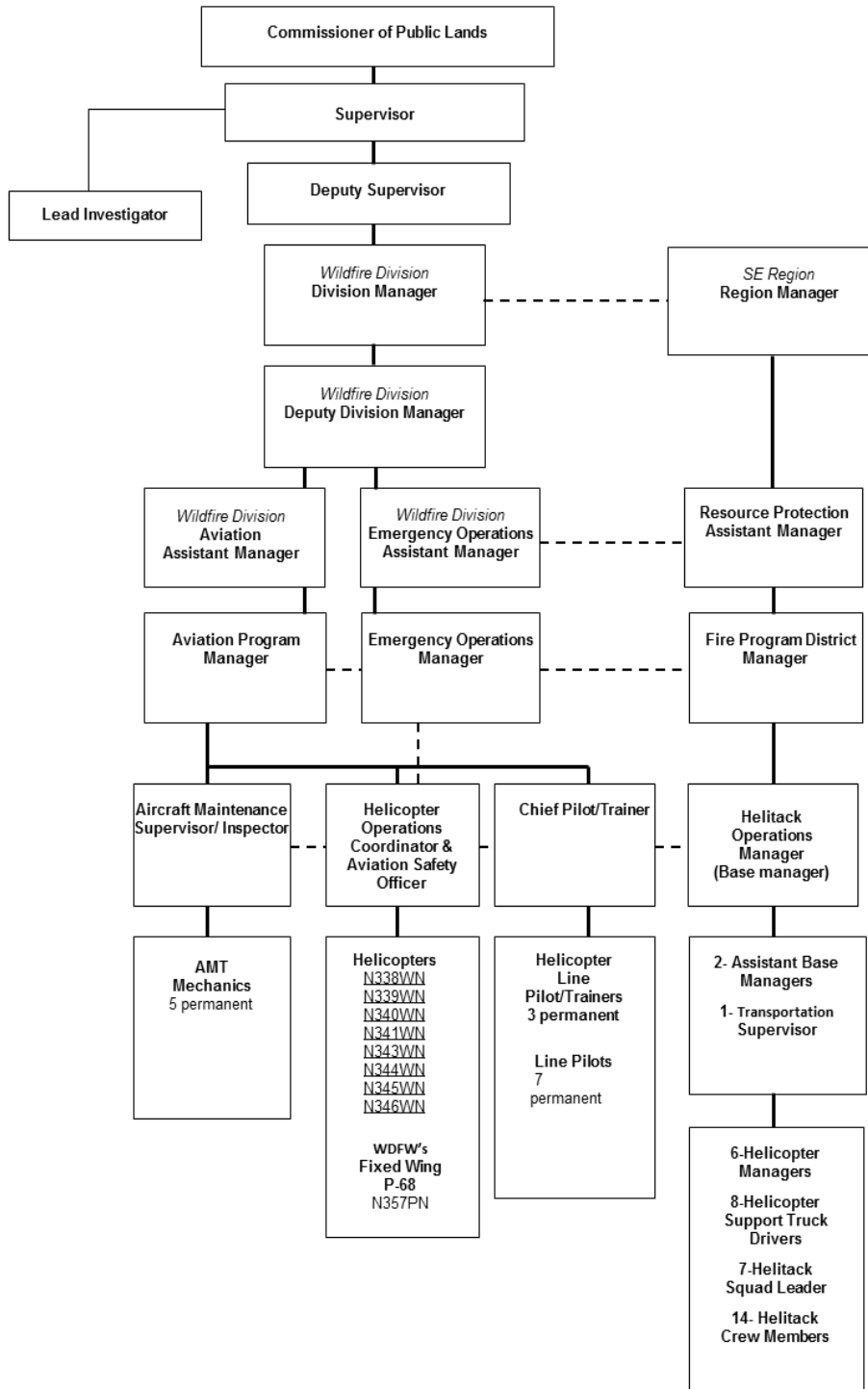
WD is responsible for hiring pilots and mechanics. WD is also responsible for conducting performance evaluations, travel payments, payroll processing, and addressing personnel issues. SE Region has comparable responsibilities for Helitack program employees.

## b. Operational Authority

- i. The EOM or APM maintains operational control for assignment and movement of helicopters to an incident. The EOM and APM coordinate to ensure all aircraft are operationally prioritized and within the HOC chain of command. The EOM or APM specifies when and how many aircraft to assign to an incident and the HOC chooses which aircraft to assign and when to make replacements. Once assignment and check-in are completed at the incident, operational control is transferred to Incident Commander (IC) until the aircraft is re-assigned by WD.
- ii. Comparable authority for aircraft selection and assignment resides with the EOM for the P-68 and for contracted aircraft, until delegation to the IC is completed. Reassignment or replacement authority for cooperator and contracted aircraft resides with the EOM.
- iii. Aviation safety issue management resides with the ASO.
- iv. AMTs are supervised by the Aircraft Maintenance Supervisor/Inspector (AMS/I) who coordinates with the HOC/ASO regarding the number, timing and location of mechanics needed.
- v. Pilot management and supervision falls under the authority of the CP/T. The CP/T may conduct oral, written, and/or flight skill evaluations at any time. *The CP/T has the authority to immediately, but temporarily, rescind any pilot's operational rights with DNR helicopters when pilot related safety of flight issues are noted.* Appropriate documentation must occur with immediate notification to the WD management (ADM, DDM, DM)
- vi. Personnel actions are only conducted under the direct guidance and

authority of the WDM in accordance with applicable laws, rules, regulations, policies, procedures and agency guidelines.

**Washington State Department of Natural Resources  
Aviation Program Organization Chart**



### **viii. Initial Attack with agency helicopter**

Currently DNR operates a fleet of 8 FEPP UH-1H(M) (Huey) helicopters for wildland fire support. All helicopters are based in Olympia and staffed by DNR pilots. As fire season begins, the helicopters are staged at strategic locations throughout Washington State (coinciding with fire danger levels). The primary base of Helitack operations is at Bowers Field in Ellensburg, adjacent to DNR's Southeast (SE) Region Headquarters, where the Helitack crew resides. A fleet of DNR fuel trucks support on-site helicopter operations with DNR employees conducting fueling operations.

### **ix. Air Attack with cooperator fixed wing aircraft**

The Washington State Department of Fish and Wildlife (WDFW) operates a fixed wing Partenavia P-68 for aerial surveys, passenger transportation and fish planting. DNR has equipped this aircraft with specialized FM radios and other avionics to meet the interagency qualifications as an aerial platform for Air Tactical Group Supervisor (ATGS) operations. The aircraft and its WDFW pilots are included in the annual federal authorization letter sent to DNR permitting use of the P-68 for interagency ATGS missions. The aircraft and the ATGS onboard are commonly referred to as "air attack." Their purpose is to coordinate aerial resources on a wildfire and provide tactical support to ground based fire supervisors.

### **x. Personnel Transportation with cooperator fixed wing aircraft**

DNR performs limited personnel transportation. The WDFW P-68 is the primary aircraft used under a contracted agreement for this purpose. The Washington State Patrol also offers transportation services using their King Air 200, Cessna 182 and 206 fixed wing aircraft. Flights conducted in any WSP aircraft will be approved by WD. Any flight in the King Air 200 will only occur with approval of DNR's executive management.

### **xi. Oversight of Agreement, Contracted, and National Guard Aircraft**

Each year, DNR typically has exclusive use contracts and call when needed agreements for helicopters, small fixed aircraft, water scooping Single Engine Air Tankers (SEAT) and various Air Attack platforms. These aircraft can be used for fire suppression, aerial detection, transport, firefighting, and other natural resource related field projects. During wildfire incidents where aid is needed or multiple jurisdictions are involved, DNR often relies on aircraft assistance from cooperators using their helicopters, air tankers and lead planes. The regulations governing these cooperator aircraft are set forth in interagency agreements, and within cooperators' own policies and procedures. When other aerial resources are exhausted, National Guard helicopters may be utilized to assist with fire suppression and support missions when activated by the Governor.

## **xii. Aviation Maintenance and Inspection**

DNR's Aviation Maintenance Technicians (AMT) with FAA issued Airframe and Powerplant licenses (A&P) and most have Inspection Authorization (IA) inspect and approve agency owned aircraft and WDFW aircraft for return to service following maintenance or inspections. Phased, primary and/or annual inspections are conducted by AMTs as well as their regular maintenance duties. DNR's Pilots in Command (PICs) and their cooperator PICs, perform daily pre-flight inspections of the aircraft and limited maintenance as set forth in the DNR Maintenance Operations Manual (MOM).

## **xiii. Training**

The specialized nature of DNR's aviation functions requires extensive training. DNR's Chief Pilot/Trainer (CP/T) establishes and implements a training check ride and certification program for Aerial Wildland Firefighting helicopter pilots. DNR Wildfire Division staff provides Incident Command System (ICS) qualifications courses which are described in the interagency document governing wildfire qualifications known as PMS 310-1. DNR aviation staff provides other training in support of its aviation programs including: Fuel Truck Driving, Helitack Field Operations, Helicopter Safety, Long line Operations, and Helicopter Pilot Fire Suppression/Support. See Chapter 6 Training for further details. Training for Pilot New Employee Training, UH-1H(M) Initial/Recurrent Pilot Course, Aerial Wildland Firefighter, and Helicopter/Helitack Training is detailed in the WA DNR Pilot Training Manual (PTM).

## **xiv. Aviation Safety**

Statewide responsibility and oversight for aviation safety is provided by the Aviation Safety Officer (ASO). Safety focused decision making and actions are the primary responsibility of all aviation personnel and will be done in accordance with the Washington State DNR Aviation Safety Management System (SMS) Plan.

In addition:

- Safety is the number one responsibility of every person working with or around aircraft;
- No aircraft is flown with a known "Safety of Flight" or maintenance discrepancy unless the flight is approved Aviation Program Manager (APM) and by an authorized DNR mechanic with FAA issued AMT credentials;
- The PIC has the final authority on safe operation of the assigned aircraft,
- An aircraft will not be flown which does not have operable communication equipment; (Minimum required for mission)
- During helicopter operations under the Incident Command System (ICS), a helicopter manager (HMGB) is assigned and the final "go/no go" mission authority rests with that HMGB; (exception: maintenance flights, ferry flights, non-fire)
- Inoperative aircraft equipment will be referred to the OPSMAN Inoperative Equipment List (IEL)
  - Deviations to fly an aircraft from the OPSMAN IEL will be approved by

the Aviation Maintenance Supervisor (AMS/I) and the Aviation Program Manager or Chief Pilot

### **3. Duty Stations and Responsibilities**

#### **a. Organization Duty Stations and Responsibilities**

DNR's Emergency Operations Manager (EOM) has oversight on all operations occurring under ICS. The WD aviation section has oversight and control of all agency helicopters and coordinates with the Emergency Operations Manager for use of exclusive use (EU) and call when needed (CWN) helicopters and fixed wing aircraft. The HOC, ASO, CP/T and AMT are under the direction of the Aviation Program Manager (APM). In contrast, the seasonal Helitack crew members work under the direction of the SE Region Helitack Operations Manager (HOM), who is supervised by the SE Region, Assistant Region Manager, Wildfire and Forest Practices.

##### **i. Duty Stations:**

- a. Aviation Program Manager (APM)
  1. NRB/KOLM Airport - Olympia, Washington
- b. Chief Pilot – Trainer (CP/T)
  1. NRB/KOLM Airport – Olympia, Washington
- c. Helicopter Operations Coordinator (HOC)
  1. SE Region HQ/KLEN – Ellensburg, Washington
- d. Pilots (HLP)
  1. Varies, see individual pilot's PDF.
- e. Aircraft Maintenance Personnel (AMS/AMT/IA)
  1. KOLM Airport DNR Hanger – Tumwater, Washington
- f. Helitack Operations Manager (HOM)
  1. SE Region HQ/KLEN – Ellensburg, Washington
- g. Helitack Personnel
  1. SE Region HQ/KLEN – Ellensburg, Washington

WD is responsible for ensuring all pilots and mechanics are properly trained in accordance with DNR policies, interagency agreements, and operating procedures. SE Region is responsible for training all Helitack program members.

WD is responsible for hiring pilots and mechanics. WD is also responsible for conducting performance evaluations, travel payments, payroll processing, and addressing personnel issues. SE Region has comparable responsibilities for Helitack program employees.

#### **b. Operational Authority**

The EOM or APM maintains operational control for assignment and movement of helicopters to an incident. The EOM and APM coordinate to ensure all aircraft are operationally prioritized and within the HOC/ASO chain of command. The EOM or APM specifies when and how many aircraft to assign to an incident and the HOC

chooses which aircraft to assign and when to make replacements. Once assignment and check-in are completed at the incident, operational control is transferred to Incident Commander (IC) until the aircraft is re-assigned by WD.

Comparable authority for aircraft selection and assignment resides with the EOM for the P-68 and for contracted aircraft, until delegation to the IC is completed. Reassignment or replacement authority for cooperator and contracted aircraft resides with the EOM.

Aviation safety issue management resides with the ASO.

AMTs are supervised by the Aircraft Maintenance Supervisor/Inspector (AMS/I) who coordinates with the HOC/ASO regarding the number, timing and location of mechanics needed.

Pilot management falls under the authority of the CP/T who may conduct flight skill evaluations at any time. *The CP/T has the authority to immediately, but temporarily, rescind any pilot's operational rights with DNR helicopters when pilot related safety of flight issues are noted.* Appropriate documentation must occur with immediate notification to the WD management (ADM, DDM, DM)

Personnel actions are only conducted under the direct guidance and authority of the WDManager in accordance with applicable laws, rules, regulations, policies, procedures and agency guidelines.

### c. Responsibilities in WD Division

#### i. Emergency Operations Manager (EOM)

- Responsible for all operations
- Ensures that data for GPS units is accurate and up to date
- Coordinates with Aviation Program Manager to ensure all aircraft is operationally prioritized
- Coordinates with Helicopter Operations Coordinator on helicopter assignment

#### ii. Aviation Program Manager (APM)

- Reports to the WD Assistant Division Manager – Aviation
- Responsible for day-to-day implementation of DNR's aviation program including: flight and maintenance operations, training, safety program oversight, development of procedures, budget development/tracking and, fire preparedness
- Develops, Maintains, and annually updates the Aviation Operating Plan & Standards Manual (AOPS)
- Serves as Wildfire's primary point of contact for interagency partners in all matters relating to the aviation program
- Supervises the Chief Pilot/Trainer (CP/T), Helicopter Operations Coordinator (HOC), Aviation Safety Officer (ASO), and the Aviation Maintenance Supervisor/Inspector (AMS/I)
- May serve as a Pilot in Command in departmental aircraft when qualified

**iii. Aircraft Maintenance Supervisor/Inspector (AMS/I)**

- Reports to the APM
- Responsible for helicopter maintenance and refurbishment operations in coordination with the HOC and CP/T
- Maintains all documents pertinent to helicopter maintenance
- Receives and processes helicopter maintenance invoices
- Supervises up to six Aviation Mechanic/Inspectors (AMS/I)
- Serves as the primary aircraft inspector exercising FAA Inspectors Authorization privileges
- Ensures all evaluations for AMT/IAs are completed
- Has primary responsibility for return to service decisions for helicopters
- Provides training and training opportunities for AMS/I
- Develops, Maintains, and Updates as necessary the maintenance procedures as outlined in the WA DNR Maintenance Operations Manual (MOM)

**iv. Helicopter Operations Coordinator (HOC)**

- Reports to the APM
- Coordinates day-to-day helicopter assignment with EOM, APM, or designee
- Determines the helicopter and pilot to be sent to each assignment location
- Evaluates and updates all documents pertinent to helicopter operations
- Coordinates staging operations with all regions
- Coordinates flight operations with region dispatch offices and DNR regional fire managers
- Ensures all flight logs are completed and verifies helicopter billing
- Determines with the CP/T pilot assignment locations to ensure proper staffing
- Coordinates scheduled and unscheduled maintenance with the AMS/I
- Ensures DNR's Helicopter Status Report is updated and available on WD's Google Reporting Doc
- Receives and processes helicopter and vehicle fuel slips and MERs
- Responsible for FEPP inventory maintenance and annual FEPP reports
- Coordinates USFS inspections for DNR Operated aircraft

**v. Aviation Safety Officer (ASO)**

- Reports to the APM
- Develops, maintains, and implements the WA DNR Safety Management System (SMS) Manual and Procedures
- Liaison with WA DNR Safety Officer on all departmental safety requirements for personnel assigned
- Disseminates any aircraft/aviation safety related information in a timely manner
- Coordinates with the CP/T on all safety related items
- Prepares safety reports as directed by the APM or when needed as per policy
- Attends yearly HAI Firefighting Safety Conference
- Serve as an department representative on aircraft incidents/accidents
- Maintains and provide no less than annual updates to the WA DNR Aviation Mishap Response Guide and Checklist
- Maintains and forwards SAFECOMs related to all DNR aircraft (Internal or contracted)

**vi. Chief Pilot/Trainer (CP/T)**

- Reports to the WD Assistant Division Manager – Aviation
- Establish and manage pilot work schedule, duty days, and work locations
- Maintains Pilot Training Records (PTF) to ensure all pilots remain current and qualified for all operations performed in WA DNR Aircraft
- Responsible for supervision of line pilots in day-to-day helicopter operations
- Ensures all evaluations, counseling's, oversight, and performance plans for line pilots are completed in a timely manner
- Recruits, evaluates and recommends helicopter line pilots for employment
- Has primary responsibility for helicopter operational safety
- Ensure standardization among all pilots, crews, and maintenance procedures and practices
- Develops and provides training for helicopter line pilots and trainers
- Develops and maintains academic and presentation material for annual pilot training
- Conducts flight reviews, flight evaluations, and written examinations are complete IAW the PTM and takes corrective action on line pilots when needed
- Serves as the primary technical expert in helicopters operations for DNR
- Conduct coordination with Interagency partners as needed for fire operations, training, and evaluations
- Receives and processes employee time, credit card, and travel expense reports
- Serves as a maintenance test pilot and helicopter line pilot when necessary
- Develops, Maintains, and updates the Pilot Training Manual (PTM) no less than every 36 months
- Develops, Maintains, and provides updates as needed of the UH-1H(M) Aircraft Operator's Manual (OPSMAN)
- Acts as line pilot PIC when needed (HLP/A)
- Assists the APM in the development and updates to the WA DNR Aviation Operating Plan & Standards Manual (AOPS).
- Maintains currency of FAA Certified Flight Instructor Certificate
- Serves as the department's Subject Matter Expert (SME) on aircraft operations, pilot management, and incidents/accidents
- Ensures pilots meet or exceed all requirements listed in the WA DNR Pilot Training Manual (PTM), & Interagency Practical Test Standards (IHPTS) prior to DOI/USFS Flight Evaluation (Carding)
- Ensures experience and qualifications are in accordance with the current Position Description Form for pilots
- During fire basing operations conduct coordination with the HOC to ensure bases have pilot coverage at all times needed during the daily fire periods

**vii. Aerial Wildland Firefighter Pilot – Basic (AWFFP-B)**

- Performs as Pilot in Command (PIC) for operational firefighting and aviation support
- Coordinates daily planning with assigned HMGB
- Coordinates AM and FM radio programming with the HMGB
- Complies with Federal Aviation Regulations (FARs) and DNR policies, standards, and operation manuals
- Insures flight following is conducted as required by DNR



- Ensures all helicopter equipment and communications equipment is safe for flight
- Performs pre-flight inspections and tracks flight times on DNR flight forms
- Completes helicopter load calculations in accordance with the IHOG and with DNR “variances” to the IHOG
- Ensures aircraft Center of Gravity and Weight/Balance remains within limitations on all flights
- Provides a current second-class (or greater) medical exam to the CP/T, which must be current through December (at the pilot’s expense)(NLT every 12 months)(Dec-Apr)
- Maintains currency of required IAT, NWCG, DNR, and LMS online training
- Performs pre-flight safety briefings of passengers or delegates the briefing responsibility to qualified personnel
- Notifies CP/T anytime medical certificate may be invalid due to illness, medication, or change of medical fitness
- Responsible for all air to air radio communications
- Responsible for programming and coordination of the primary GPS unit onboard
- Coordinates daily planning with the HMGB assigned to the helicopter
- Accomplishes duties as assigned for PIC in WA DNR UH-1H(M) Operations Manual Chapter 8
- Ensures all flight operations are conducted with safety as a first priority
- Operates DNR aircraft IAW applicable regulations, aircraft operations manual (OPSMAN), and aircraft flight manual supplements at all times
- Complies with position PDF and PDP
- Other duties as assigned by Chief Pilot

**viii. Aerial Wildland Firefighter Pilot – Advanced (AWFFP – A)**

- Qualified as an AWFFP-B
- Qualified as per WA DNR Pilot Training Manual
- Mentor Junior pilots
- Assists CP/T for training and maintenance operations as designated

**ix. Aerial Wildland Firefighter Pilot - Trainer (AWFFP – T)**

- In addition to the duties as a AWFFP-B & A assists the CP/T with refresher training of AWFFPs
- Conducts Flight Reviews as designated by the CP/T
- Makes appropriate comments in the pilots records at the direction of the CP/T
- Provides CP/T with updated CFI certificate once expired if applicable

**d. Responsibilities in SE Region**

**i. Assistant Region Manager (ARM) – Wildfire & Forest Practices**

- Supervises Helitack Operations Manager
- Coordinates with APM and HOC on aviation issues

**ii. Helitack Operations Manager (HOM) Base Manager**

- Reports to the SE Region ARM
- Ensures provision of a safe working environment for Helitack crews
- Ensures provision of a harassment free work environment for Helitack crews

- Ensures crew and aircraft readiness Acts as the liaison between pilots and crew-members, SE region staff and WD,
- Supervises the Assistant Base managers (ABM) and Fuel Support Truck Supervisor(FSTS).
- Ensures Helitack staff members meet PMS 310-1 standards for the positions they fill
- Maintains the inventory of all equipment assigned to SE Region Helitack
- Ensures evaluations for Assistant Base Managers and fuel Support Supervisor are completed

### **iii. Assistant Base Managers (ABM)**

- Reports to the HOM
- Responsible for daily management and supervision of the Helitack crew
- Ensures Base Operations is a safe working environment for all assigned crews
- Completes employee evaluations for Helicopter managers
- Ensures all Travel Vouchers, TARs, MERs, leave requests, receipts and new employee paper work is completed in a timely manner. Prepares daily staffing list of aircraft and daily safety briefing
- Ensures all helicopter equipment assigned to SE Region is maintained in good working order
- Ensures helicopter equipment maintenance and inspections are done in accordance with DNR's Aviation Maintenance Operations Manual
- Prepares and facilitates training curriculums and scenarios for annual and seasonal Operational preparedness, proficiency and Safety.

### **iv. Fuel Support Supervisor (FSS)**

- Reports to the HOM
- Ensures evaluations for all fuel support truck drivers are completed
- Prepares training curriculum and scenarios for annual and seasonal Operational preparedness, proficiency and Safety.
- Maintains oversight for the CDL training
- Ensures driver duty hour standards and work rest ratio periods are met
- Ensures CDL drivers comply with Federal DOT and Agency laws, policies procedures and guidelines

### **v. Helicopter Manager (HMGB)**

- Reports to the appropriate fire line supervisor
- Ensures safe and efficient use of the helicopter, crew and support equipment
- Ensure PIC knows all passengers are ready and on-board
- Acts as the liaison between the Helitack module, the incident commander or project manager and the dispatching center
- Responsible for the final "go/no go" mission authority (exception: maintenance flights, ferry flights, non-fire missions, DNR only fire missions as approved by APM)
- Directs work projects at DNR staging facilities, Helibases and during fire assignments
- Ensures daily and mission specific safety briefings are conducted
- Completes evaluations for assigned crew members

- Ensures security of the assigned aircraft while on incidents and at staging locations,
- Participates in bi-weekly conference calls / meetings with supervisors
- Oversees equipment and crew readiness at the beginning of each shift including but not limited to, ensuring that:
  - helicopter bucket and lines are ready and secure
  - remote hooks are available on the fuel truck
  - all crew gear is secured on the aircraft
  - an adequate number of handheld radios are onboard
  - a Gazetteer Map is onboard
  - a dip-site GPS is onboard with spare batteries
  - foam tanks are filled
  - the aircraft is cleaned daily when mission(s) are completed
  - an adequate supply of duct tape is onboard
  - a load calculation form is completed by the PIC
  - a load manifest is completed
- Is capable of operating/using:
  - The aircraft GPS
  - a handheld GPS
  - all aircraft radios, both FM and Victor
  - a Gazetteer Map
  - an FAA Sectional chart
  - Lat/Long coordinates for navigation
  - Legal descriptions (Township, Range and Section) for navigation
- Performs a daily operational briefing with pilot and crew using the *“Helitack Manager Briefing Check list”* at the start of each shift (Appendix P) or at earliest time possible upon arrival of both parties
- Accomplishes duties as assigned in WA DNR UH-1H(M) Operation Manual

#### **vi. Helitack Squad Boss (HSB)**

- Reports to the appropriate fire line supervisor
- Assists the HMGB to ensure equipment and crew readiness
- Is responsible for the care and maintenance of tools on the assigned aircraft
- Assists the manager by supervising a squad during fire operations
- Assists the manager and crew supervisors in assigning duties and directing assigned crews during staging operations
- Acts as liaison between assigned crews and managers
- Flies in the right rear outside seat during all flight missions when the crew is in flight

#### **vii. Fuel Support Truck Driver (FTD)**

- Reports to the appropriate fire line supervisor
- Adheres to the Federal DOT and DNR driving regulations and standards
- Ensures assigned vehicle is operated in a safe and efficient manner
- Ensures assigned vehicle is fire ready at all times
- Ensures Jet A fuel quality meets DNR’s Aviation Program standards
- Is capable of operating a GPS, and mobile/handheld radios
- Ensures fuel truck deficiency reports are accurate and up-to-date at the start

of and end of each work shift

- Is responsible for inventory of fuel truck equipment and assuring that the assigned equipment is onboard the truck

#### **viii. Helitack Crew Member (HECM)**

- Reports to the appropriate fire line supervisor
- Performs assigned duties in a safe manner at all times
- Adheres to the policy and standard operating procedures set forth by the agency
- Respects other crew members contributing to a harassment free environment
- Capable of performing standard Interagency defined Helicopter Hand Signals
- Accomplishes duties as assigned in WA DNR UH-1H(M) Operation Manual

### **4. Aircraft Operations**

#### **a. General Conditions**

Aircraft operated by DNR fall under multiple governing regulations including Federal Aviation Regulations (FARs). FAR Part 91 serves as a minimum standard and is followed in conjunction with DNR internal policies and procedures. Additional regulations apply to Federal Excess Property Program (FEPP) aircraft, as well as cooperator and contracted aircraft that may be called upon to respond to interagency incidents.

#### **b. Federal Aviation Administration Regulations.**

As previously noted all DNR flight operations comply with the FAR Part 91, General Operating and Flight Rules. Pilots will maintain currencies as noted in Part 61 and the Pilot Training Manual.

Civil Aircraft such as the WDFW's P-68 follow FAR part 43, Maintenance Rules while Public Aircraft (the FEPP helicopters) follow DNR's Maintenance and Operations Manual (MOM) which is an enhanced version of Military Standards for Maintenance.

#### **c. FEPP Regulations**

The FEPP program provides government agencies with the means to acquire, through the United States Forest Service (USFS), excess aircraft from military services and federal civilian agencies. In accordance with FEPP Guidelines, States that receive FEPP aircraft from the USFS acquire them based on wildfire protection needs and may use the aircraft only for fire protection activities and specified natural resource related missions. This is denoted in the FAA's Advisory Circular AC 00-1.1A and in Public Law 103-411.

#### **The following is a summary of specific FEPP requirements:**

- DNR must provide adequate security and control of the aircraft which remain

federal property. All aircraft and aircraft parts must also be protected from theft, weather, vandalism, and other damage.

- Management requirements include provision of:
  - a. An aircraft operating plan (This Manual)
  - b. An Aviation Safety Officer (ASO)
  - c. Documentation of the aviation safety program (SMS)
  - d. An organizational chart showing lines of authority
  - e. The designation of a lead (Chief) pilot (CP/T)
- Renting of FEPP aircraft is not permitted. If incidental use of FEPP aircraft is authorized or assistance is rendered, it is permissible to recover the direct cost of operating the equipment.
- Due to the inherent advantages that government agencies have, including the use of FEPP aircraft, DNR cannot bid against nor compete in any other way with the private sector by using FEPP equipment. Therefore, in non-emergency situations when commercial services are available, DNR does not use FEPP aircraft except for specific approved natural resource missions.
- FEPP aircraft are maintained using an enhanced version of the original military standards and/or manufacturer's maintenance specifications, but may also be maintained to meet certain additional FAA or USFS standards. If multiple standards result in conflict the more stringent standards apply. DNR maintains appropriate records on all time/life parts. When federal aircraft or aircraft parts are no longer needed to support DNR's fire aviation program the FEPP guidelines for disposal are followed. Further guidelines for DNR maintenance procedures are outlined in the WA DNR Maintenance Operations Manual (MOM).
- The FEPP Aircraft Annual Use Report for each aircraft is submitted annually by December 31<sup>st</sup> to the regional/area FEPP manager, and by January 15<sup>th</sup> to the national FEPP manager. The HOC submits these reports.
- Further information about FEPP Guidelines and Regulations is available on the United States Department of Agriculture (USDA) Forest Service FEPP aviation website at: [Forest Service FEPP and FEP Programs](#)
- The National FEPP manager can be contacted at:  
FEPP Manager, USDA Forest Service  
Fire and Aviation Management  
P.O. Box 96090  
Washington, D.C. 20090-6090

Questions about DNR FEPP acquisition, use, or guidelines can be directed to DNR's FEPP specialist as noted in the Aviation Contacts List. (Appendix D).

**d. Approved Uses of Aircraft (FEPP aircraft)**

- DNR aircraft are used only for official agency business. Priorities for aircraft use are established based upon the needs of the agency. Normal aviation functions can be over-ridden by State emergencies (example: wildfire, floods, and life-threatening events).

**e. Pilot and Crewmember Entitlements:**

- For current pilot and crewmember per diem entitlements and salaries, and rate of personal vehicle or personal aircraft mileage reimbursements, refer to DNR's Human Resources Division website or call (360) 902-1150.

**f. Passengers**

- Passengers approved for DNR flights must be on official state business and/or be essential to the official mission.
- All passengers are provided a safety briefing before the flight (done by pilot or authorized manager/crewmember) and follow the agency personal protective equipment (PPE) and flight-discipline requirements, as outlined in this document.

**g. Cost of Operation**

- Total cost of operation for each type of FEPP aircraft can be no more than that for similar commercial aircraft rentals. For rates on DNR operated aircraft see [Wage and Equipment Rate](#).
- In accordance with federal policy, federal employees are normally funded through the emergency fire suppression fund (221, 222 or 223 program indices).

**h. Pilot and Crewmember Entitlements**

For current pilot and crewmember per diem entitlements and salaries, and rate of personal vehicle or personal aircraft mileage reimbursements, refer to DNR's Human Resources Division website or call (360) 902-1150.

**i. Interagency Agreements**

DNR annually enters into incident response agreements with its cooperators. This allows for rapid and coordinated mutual aid between agencies on new fire starts. For the terms of these agreements, contact DNR's Financial Management Division at (360) 902-1665. For the USDA and United States Department of Interior (USDI) Fire and Fire Aviation Management standards see the "Redbook" at: [www.fire.blm.gov/standards.redbook.htm](http://www.fire.blm.gov/standards.redbook.htm)

## **5. Use of the Interagency Helicopter Operations Guide (IHOG)**

DNR uses the Interagency Helicopter Operations Guide (IHOG) as a guide; it is not a DNR policy document. DNR recognizes and employs interagency aviation standards on fires where it is the policy of the governing agency for the fire, with the exception of certain DNR variances. Refer to Appendix E “DNR Variances to the IHOG.”

## **6. Finance: Billing and Aircraft Rates**

Aircraft hourly rates are established annually to fund anticipated operating expenses—such as fuel, oil, inspections and maintenance.

Flight hours are recorded and tracked through the Aircraft Flight Logs, where pilots record hours according to incident and mission type using the onboard hour (Hobbs) meter. Helicopter missions on fires are also assigned a program/incident code, and recorded on the HMGB’s form entitled Helitack Fire Time and Extra Hours Report. Billing and cost recovery are done by the WD Aviation Section, in close coordination with WD Business Management Section and Regional billing representatives.

## **7. Helicopter and Fuel Truck Rates**

Routine, non-emergency, aircraft, pilot and maintenance expenses are funded through the Natural Resources Equipment Fund (NREF) 86K program. Fire related flight times and expenses are normally funded through the emergency fire suppression fund (221, 222 or 223 program indices).

All DNR revolving fund vehicles are billed at the current mileage rate set by the management of the equipment fund.

## **8. Insurance**

### **a. DNR Owned Aircraft and Personnel.**

#### **i. WD currently carries 3 insurance policies for Aviation Operations. They cover:**

##### **1. Accidental Death and Dismemberment**

**a. Insurance is limited to Assigned Pilots, Helitack Crew Members, and assigned mechanics.**

##### **2. Airport Liability Coverage**

##### **3. Property Liability Coverage**

- ii. Current Liability and Aviation Accidental Death & Disability Insurance .
    - 1. Coverage can be found in Appendix K. Updates on rates, coverage, exclusions, etc., and other questions, are to be directed to:
  - iii. DNR Aviation Employees are covered by L&I for on the job accidents. For more information refer to:
    - 1. <http://www.lni.wa.gov/ClaimsIns/Insurance/Learn/default.asp>
  - iv. DNR Aviation employees may qualify for Public Safety Officers' Benefits if the accident happens during an actual Wildfire event. For more information refer to:
    - 1. <https://www.psob.gov/index.html>
  - v. Individual Purchased Life Insurance and AD&D coverages. Individuals are encouraged to review their individual policies to know what exclusions their policies include (i.e. aviation clause, firefighting clauses). For more information for individual state policies refer to DNR HR.
  - vi. DNR Risk Manager, Financial Management Division, (Appendix D)
- b. Contractor Aircraft.**
- i. Will carry insurance as required by the approved contract through-out the duration of contract.



# Aviation Operating Plan and Standards (AOPS)

## Chapter 2 – Aviation Safety, Security, & Emergency Operations

2017

Washington Department of Natural Resources  
Wildfire Division – Aviation Section  
1111 Washington St SE  
Olympia, Washington 98504-7037



# WILDFIRE

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**WA DNR Aviation Operating Plan & Standards**

<b>REVISION PAGES &amp; MASTER TABLE OF CONTENTS</b>				
<b>Chapter Name</b>	<b>Page #</b>	<b>Initials</b>	<b>Date</b>	<b>Change</b>
Cover	2-1	MC	3/30/2017	0
Blank	2-2	MC	3/30/2017	0
Revision Page & Master TOC	2-3	MC	3/30/2017	0
Aviation Safety Plan	2-4	MC	3/30/2017	0
Aviation Safety Plan Cont.	2-5	MC	3/30/2017	0
Aviation Safety Plan Cont.	2-6	MC	3/30/2017	0
Aviation Safety Plan Cont.	2-7	MC	3/30/2017	0
Aviation Safety Plan Cont.	2-8	MC	3/30/2017	0
Critical Proactive Accident Prevention Activities	2-9	MC	3/30/2017	0
Critical Proactive Accident Prevention Activities Cont.	2-10	MC	3/30/2017	0
Emergency Response	2-11	MC	3/30/2017	0
Emergency Response Cont'	2-12	MC	3/30/2017	0
Emergency Response Cont'	2-13	MC	3/30/2017	0
Emergency Response Cont'	2-14	MC	3/30/2017	0
Accident and Incident Reporting	2-15	MC	3/30/2017	0
Accident and Incident Reporting Cont.	2-16	MC	3/30/2017	0
Accident and Incident Reporting Cont.	2-17	MC	3/30/2017	0
Accident and Incident Reporting Cont.	2-18	MC	3/30/2017	0
Accident and Incident Reporting Cont.	2-19	MC	3/30/2017	0
Accident and Incident Reporting Cont.	2-20	MC	3/30/2017	0
Accident/Incident Investigation	2-21	MC	3/30/2017	0
Aviation Security 8. ALSE	2-22	MC	3/30/2017	0
ALSE Cont.	2-23	MC	3/30/2017	0
ALSE Cont.	2-24	MC	3/30/2017	0
ALSE Cont.	2-25	MC	3/30/2017	0
Physiological Factors	2-26	MC	3/30/2017	0
Hazardous Material/Fuel Spills	2-27	MC	3/30/2017	0
Fuel Truck Breakdown and Accident Procedures	2-28	MC	3/30/2017	0
State Disaster & Emergency Operations (All Risk)	2-29	MC	3/30/2017	0
State Disaster & Emergency Operations (All Risk)	2-30	MC	3/30/2017	0

## **CHAPTER 2 – Safety, Security, & Emergency Operations**

### **1. Aviation Safety Plan**

- a. General: This safety plan is a guide to accomplishing Wildfire's Aviation mission in a safe, effective, and efficient manner. The guide is designed to aid leaders and their employees towards accepted standards when risk is present. If followed, this chapter of the Aviation Operations Plan will:
  - i. Prevent fatalities
  - ii. Prevent injuries
  - iii. Prevent destruction of equipment
  - iv. Prevent damage to equipment
  - v. Increase awareness of hazards
  - vi. Instruct employees on the tenants of Composite Risk Management
  
- b. Safety Plan and Review: Annual review of DNR's Aviation Safety Program ensures safety standards are being met. The Wildfire Aviation Program encourages all aviation managers and users to maintain close contact with other aviation organizations (federal, state, civil, military) for the purpose of sharing safety updates and information. Aviation managers disseminate this information by way of program changes, training supplements, safety bulletins, safety training, and crew briefings.
  
- c. Risk Management: DNR's approach to accomplish this objective is Risk Management. Risk Management technique applies orderly and systematic approaches to decision making processes. The decision regarding whether to perform a task or how to perform it, when faced with hazards, is critical to successful accomplishment. Hazards are conditions, situations or events, which are potential causes of accidents. Risk is the probability of a specific hazard causing or contributing to an accident with undesirable consequences in a particular operation. Successful risk management is based on three rules:
  - i. Accept No Unnecessary Risk
  - ii. Make Risk Decisions at an Appropriate Level.
  - iii. Accept Risks only when Benefits Outweigh Potential Consequences.

Risk Management is a continuing process that never stops. Knowledge and application of the process will safeguard the mission given to Wildfire Aviation. Risk Management is a 5 step process that includes:

- i. Identify Hazards: Each phase of the mission must be analyzed in order to bring to light those hazards that may be present through each phase of the mission.
  
- ii. Assess Hazards: Once hazards are identified, hazards must be assessed to determine the risk and the level of risk. Risk is classified based on likelihood and severity of the identified risk. Risk is classified in the following manner:

1. Low Risk: Likelihood and severity of the impact are low.
  2. Moderate Risk: Likelihood and or severity of impact are elevated. One component may be low while the other is high creating moderate risk.
  3. High Risk: Likelihood and severity of the impact have real and devastating results if not mitigated.
  4. Extremely High Risk: When likelihood and severity reach levels that are unacceptable.
- iii. Develop Controls and Make Decisions: When a risk is assessed, the decision must be made (at the approving authority level) as to whether or not the risk outweighs the benefit of accomplishing the mission with this risk present. Once the decision is made, controls must be put in place that will reduce the risk or abort or delay the mission.
- iv. Implement Controls: Implementing a control is simply developing the method of mitigating the risk (or aborting the mission) and communicating the control to those executing the mission. This Safety Plan can be considered a control by establishing agency policy, standards and procedures, providing employee training, developing specifications/qualifications for pilots, aircraft, support equipment and operations. These controls are considered mitigation. Some examples of controls but not limited to are:
- Stacking Crews with Highly Experienced Personnel
  - Reducing Operating Weight of an Aircraft
  - Assigning Best Operating Aircraft and Equipment to the Mission
  - Increasing Weather Minimums for the Mission
  - Adjusting Procedures to a more Detailed Level
  - Requiring Higher Levels of PPE
  - Creating Discrete Frequencies for High Risk Operations
  - Adding Time to the Event for Deliberate Execution
  - Requiring Higher Detailed Planning
  - Requiring Higher Detail of Briefing
- v. Supervise and Evaluate: Leaders must remain involved and engaged during the process and mission to ensure the mitigation is effective and that other unidentified risks are addressed. Reviewing mission performance and adherence to controls is part of the process. Take prompt corrective actions as appropriate in the evaluation of the control or mitigation. Supervising and evaluating is a constant process that requires vigilance and communication. The process continues step by step until the mission is accomplished.
- d. Safety Culture: Wildfire Aviation fosters a healthy safety culture that supports the accountability of its employees. All individuals involved in aviation operations are

encouraged to consistently maintain vigilance on safety awareness and to speak up whenever there is cause for concern. Retribution for bringing to light risky behavior will not be tolerated. When lives and millions of dollars are at stake, voices must be heard and issues addressed at the lowest levels. Escalation of concerns will always receive the appropriate attention of leadership and those bringing concerns forward will receive attention without judgement. Aviation managers must consistently practice, encourage and support safety awareness among those employees involved with aviation operations. A sound healthy safety culture is key safe, effective, and efficient mission accomplishment.

- e. Accident Prevention: DNR Wildfire Aviation is committed to upholding accident prevention standards for all employees involved in aviation operations. Accident prevention is an integral part of DNR's Aviation Safety Program. Accident prevention is based on:
  - i. Standardized Operating Procedures
  - ii. Identification of Training Needs and Requirements
  - iii. Provision made for Proficiency Based Training
  - iv. Risk Management
  - v. Dissemination of Timely and Relevant Aviation Safety Information
  
- f. Mission Assigned: Risk Management and Accident Prevention is everyone's business. DNR encourages all employees involved to ask the following questions before beginning any aircraft operation:
  - i. Is this flight necessary to accomplish the mission?  
(Risk Acceptance)
  - ii. Who is in charge or designated as leadership?  
(Accountability)
  - iii. Are all hazards identified and communicated to participating personnel?  
(Awareness)
  - iv. Should you stop the operation/flight due to a change in conditions?  
(Control)
  - v. Is there a better way to do it?  
(Mitigation)
  - vi. Are you driven by an overwhelming sense of urgency?  
(Elevated Risk)
  - vii. Can you justify your actions?  
(Accountability)
  - viii. Are there other aircraft in the area?  
(Awareness)
  - ix. Do you have an escape route?  
(Control)
  - x. Are there any rules being broken?  
(Accountability)

- xi. Are communications getting tense?  
(Elevated Risk)
- xii. Are you deviating from the assigned operations of flight?  
(Accountability)

g. Hazards:

- i. Hazards exist in both ground and flight operations but are not always easily detectable or identifiable. Pilots, mechanics, managers, dispatchers, crew members, and passengers all see aviation operations from different perspectives. Consequently, hazard identification is most effectively approached as a team effort. All aviation managers must encourage hazard detection and accurately identify hazards to decrease aviation risks. This is the first step in risk management.
- ii. Pilots and HMGBs evaluate and perform a risk assessment for every mission and evaluate every mission for hazards that could affect the safety of the flight. Hazards include, but are not limited to:
  - 1. Adverse Weather Conditions
  - 2. Duration of Flight
  - 3. Terrain Traversed and around an Incident
  - 4. Conditions and Availability Equipment
  - 5. Quality, Condition, and Availability of PPE
  - 6. Training, Proficiency, and Currency of Mission Personnel
  - 7. Wires, Birds, Obstacles, Smoke, Traffic Presence
  - 8. Extreme Fire Behavior
- iii. Each crew member is expected to identify any hazard encountered to on scene leadership whether it be the Incident Commander, PIC, HMGB, or any other decision maker. Pilots perform a high-level reconnaissance before descending below 500 feet above ground level (AGL). Helitack crew members or managers must not exert pressure upon the pilot to perform missions or maneuvers which the pilot deems unsafe or unnecessary. Pilots and/or HMGBs may use IHOG chapter 3 as a guide to assist with risk management and risk assessment.
- iv. Identification of hazards by participating employees, observation of "close calls", analysis of data, safety evaluations and reviews of project plans provide a means of proactive, risk management. All individuals involved in aviation activities have an obligation to share hazard, mishap and causal information. Mitigating known safety hazards is instrumental in creating a safe aviation work environment. It is the responsibility of each employee to report safety hazards when encountered.

- v. Hazard documentation and reporting permits risk management decisions on appropriate corrective action, where needed, to be made at the correct organizational level (approval authority), since most identified hazards will affect all units whose operations are exposed to the hazard. Hazard reports, when accumulated in a database; also provide the basis for monitoring hazard trends.
  - vi. Having standardized procedures in place and providing adequate training cannot prevent all accidents. Strict adherence and policing of standards does effectively reduce risk. Hazards can elevate risk and lead to accidents or incidents if left unmitigated. Do not wait to report or act on a hazard. Take immediate action! If the hazard cannot be mitigated on the spot, warn/notify others, and report the hazard to the Aviation Program Manager. (Refer to Section IV of this chapter to learn how to report a safety hazard).
- h. Briefings: Well thought out, organized, and detailed briefings are considered a risk mitigation. The transfer of knowledge and information ensures all mission personnel involved are aware of the plan and the hazards present. All briefings regardless of audience should be alerted to hazards and risks that may be encountered during a mission.
- i. Daily Brief: The daily brief communicates the conditions and potential for aerial firefighting operations and provides crews with critical information that assists them in preparing for the likelihood of missions. At a minimum, the HMGB shall attend the daily brief when operating from a base that has other aerial firefighting platforms operating from the same base and/or the likelihood of combined operations between fixed and rotor wing aircraft occurring.
  - ii. Mission Brief / Crew Brief: The mission / crew brief contains the relevant information provided in the daily brief when crew members are unable to attend due to aircraft and mission preparation. The crew / mission brief focuses the crew on the mission tasks that are key in the success and safe outcome of the mission. The following crew brief is an example of subject matter discussed during the brief.
    - 1. VERIFY CREW CURRENCY
    - 2. EQUIPMENT
      - a. Aviation Life Support Equipment (ALSE)
      - b. Buckets, Lines, Hooks, Saws, Shovels, Axes, etc.
      - c. Flight Publications
    - 3. MISSION OVERVIEW – Describe where you are going and what you are doing.
    - 4. ROUTE OF FLIGHT – Paper Maps are useful for this item.



5. WEATHER:
  - a. Current and Forecast
  - b. Advisories, Watches, and Warnings
  - c. Smoke Presence
  - d. Void Time
6. ANALYSIS OF AIRCRAFT:
  - a. Logbook/preflight deficiencies noted
  - b. Performance Planning - Load Calculation:
    - i. Verify Atmospheric Conditions
    - ii. Recomputation of Load Calculation if necessary
    - iii. Limitations and Indicators
    - iv. Fuel for mission.
7. CREW DUTIES:
  - a. PIC
    - i. Fly aircraft, primary focus outside
    - ii. Obstacle/hazard avoidance
    - iii. Monitor systems and instruments
    - iv. Monitor and transmit on Air to Air VHF-AM.
  - b. HMGB
    - i. Assist in traffic and obstacle avoidance
    - ii. Tune radios and set transponder.
    - iii. Navigate – Map, GPS
    - iv. Copy clearances, ATIS, and other pertinent information
    - v. Cross check instruments and systems
    - vi. Monitor and transmit on assigned radios as directed by PIC
    - vii. Read and complete checklist items as required
    - viii. Set/adjust switches and systems as required
    - ix. Announce when focused inside more than 2-3 seconds
  - c. Other assigned crewmembers.
    - i. Clear aircraft and tail on turns, approaches, etc
    - ii. Secure passengers and cargo
    - iii. Assist in traffic and obstacle avoidance
    - iv. Perform other duties assigned by the PIC/HMGB.
8. IN THE EVENT OF AN EMERGENCY:
9. PIC
  - a. Initiate Immediate Action Emergency Steps
  - b. Look for landing area
10. HMGB
  - a. Analyze emergency
  - b. Perform emergency procedure IAW checklist
  - c. Assist PIC
  - d. Make mayday radio call

11. EMERGENCY EGRESS LINK UP POINT:
  - a. Identify primary and alternate link up point.
  - b. Account for all personnel
  - c. If fire is present proceed upwind (if safe)
  - d. If injured/unconscious:
    - i. No fire/fumes – leave injured there, wait for medical
    - ii. If aircraft is on fire– Evacuate
  - e. Begin First Aid
12. ASSIGN OBSERVATION SECTORS
13. INADVERTANT IMC PROCEDURES
  - a. Level the wings – Stop Turn
  - b. Increase Power – Verify Climb
  - c. Climb Airspeed – Best Climb
  - d. Safe heading – From Known Obstacles
  - e. Once Safe Climb Established – Tune Radios and Transponder
14. SPECIAL MISSION CONSIDERATIONS:
  - a. Lost communications procedures.
  - b. Aircraft requirements – Cargo hook, Mirrors, Foam Injection
15. FINAL AIRCRAFT WALKAROUND.
16. QUESTIONS AND ACKNOWLEDGEMENT OF BRIEFING.

- iii. Passenger Brief: All passengers authorized on DNR Wildfire Aviation sanctioned flights are given a briefing prior to boarding. Briefings can be simple or detailed according to aircraft type, flight profile, and passenger type. At a minimum, before takeoff the PIC of the aircraft carrying passengers ensures that all passengers have been briefed on:
  1. Location and activation of emergency exits and fire extinguishers
  2. Location of first aid kits and survival equipment
  3. Aircraft entry and departure procedures
  4. Emergency Procedures
  5. Use of seat belts, and seat back position on take-off and landing (if equipped)
  6. Mandatory Personal Protective Equipment (PPE)
  7. Personal Flotation Device (PFD) (if required)
  8. Actions during and after an incident
  9. Rescue and lifesaving measures appropriate for incidents
  10. Safety considerations or in-flight factors specific to the missionPassenger briefings will be given to passengers each time they fly. In addition, all flights on federal fires, or involving the transport of federal government employees, require full passenger briefings. See Appendix F for helicopter specific passenger briefing.

## 2. Critical Proactive Accident Prevention Activities:

- a. Operations Plans: When planning aviation operations, risk management techniques are utilized to minimize accident/incident potential. This is especially important for first-time projects on a given unit. The plans specifically identify the directives and guides containing applicable standards and controls. It also includes specific details including the “who, what, when, where, why and how” information to ensure that safety considerations are adequately covered. All participating personnel have the opportunity to review the plans before initiating the project. It is the responsibility of the APM, HOC/ASO, CP/T, and AMS/I to monitor adherence to the plan and initiate prudent changes.
- b. Standardization: Clearly written and obtainable standards are key elements to aviation safety. Standardized equipment, training, and operational procedures are essential to safe operations. One purpose of this plan is to standardize agency aviation operations by highlighting the regulations and policies that govern those including defining procedures to meet these regulations. Standardized procedures provide the groundwork for safe and legal operations.
- c. Training: Qualification (Standards met) of individuals to accomplish their assigned aviation tasks and roles is a proactive accident prevention tool. Qualification for participating in DNR Wildfire aviation missions (given their often-specialized nature) requires extensive training. In addition to Incident Command System Qualifications courses (National Wildfire Coordinating Group “S” or “I” courses) DNR provides several other types of training for its aviation programs that includes Helicopter Fuel Truck Driver Training, Helitack Operations Field Training, Helicopter Safety and Long line Training for field personnel, and Helicopter Pilot Fire Suppression/Support Missions Training. In addition DNR’s Aviation Program develops and implements plans which identify initial and recurrent aviation training requirements. Areas of aviation training include:
  - i. Orientation and basic aviation safety for all users
  - ii. Dispatching and flight following procedures
  - iii. Management of aviation operations and equipment
  - iv. Planning and execution of projects using aviation resources
  - v. Currency, Proficiency and special mission training for pilots
  - vi. Technical maintenance training for aviation equipment
  - vii. Advanced safety practices for aviation professionals and specialists
  - viii. Human factors in aviation for aviation professionals and managers
- d. Information Dissemination and Direction: Clear and direct communication is paramount to accident prevention. Lines of communication must stay open regarding changing aviation regulations, maintenance issues, airworthiness directives, and circumstances surrounding aviation accidents, and close calls. DNR recognizes the

need to disseminate this information to as wide a user base as possible. Some of the ways to accomplish this follow:

- i. Published Standardized Procedures
  - ii. Directives
  - iii. Memoranda
  - iv. Aviation Safety Alerts (USFS)
  - v. Safety Bulletins
  - vi. Updates during Training
- e. Inspection and Assistance Visits: The APM, ASO, CP/T, AMS, and HOC will conduct site inspections of all aviation bases and aircraft. This will occur both on a scheduled or non-scheduled basis. Inspections may include (but are not limited to):
- i. Personnel: Items such as pilot qualifications, currency, ground crew training and readiness, emergency procedures.
  - ii. Equipment: Adequacy of personal protective equipment, adequacy of maintenance and ground equipment, and adequacy of aircraft.
  - iii. Base Operations: Such as condition and layout of helipads, taxiways, lighting, refueling, aviation maintenance facilities and work areas, hazard maps, local airport or heliport restrictions, communications, and areas of special concern to the unit.

*Note: The USFS Region 6 Helicopter Operations Manager along with USDI Bureau of Land Management (BLM) Aircraft Safety Manager evaluate and inspect DNR's helicopters, pilots, and fuel trucks on an annual basis. This is done at DNR's request so that DNR helicopters can be operated on federal jurisdiction incidents. Issuance of an "acceptance letter" is done each spring. For more information on the federal "lettering" of DNR aircraft, contact the USFS Region 6 Helicopter Program Manager.*

### **3. Emergency Response:**

- a. General: If an aircraft becomes overdue or is known to have been involved in an accident, crewmembers, pilots, dispatchers, or nearby DNR employees, rely on the Aircraft Mishap Response Guide which includes up-to-date contacts and procedures. This plan or a condensed version of the aviation mishap response information contained within it, (see DNR Aircraft Mishap Emergency Response Plan) is available to dispatchers, managers and users of DNR aircraft. Updates to the Accident/Incident Response section are made and disseminated as they are reported. It is the responsibility of each DNR employee involved in aviation operations to annually review accident/incident response plans and updates.
- b. Pre-accident Plan / Emergency Response Guide: This document is used to ensure that proper notification and rescue procedures are known in advance and will be successfully implemented if an aircraft accident/incident occurs. This enables rescue and dispatch personnel to respond quickly and safely. Each DNR aviation user group

or program will develop pre-accident plans for their own operations in consultation with the HOC/ASO. Pre-accident planning includes the following three general areas:

- i. Crash-Alert Plan: A plan for a coordinated response when an accident or emergency has happened and those informed are unable to provide direct aid. Example: response to a telephone call informing that an aircraft has crashed.
  - ii. Crash-Rescue Plan: A plan for coordinated response if an aircraft has crashed nearby and first responders have the capability to provide direct assistance (such as airborne medical support, or a crash rescue truck)
  - iii. Medical Aid Procedures: A plan for the prompt and efficient use of helicopters, fixed-wing air ambulances, trained medical personnel and the nearest hospital – trauma center. This type of plan often involves the area dispatch center that is able to acquire these services expeditiously.
  - iv. Medical Evacuation Plan: The medical evacuation plan identifies geographic locations and level of care (trauma level) throughout the area of operations. It is geared towards evacuation via helicopter and provides the pilot critical information concerning hospital helipads with regard to location coordinates, routing to and from, frequencies of controlling agencies, and trauma center care levels. See Appendix for WA State DNR Wildfire Aviation's Medical Evacuation Plan.
- c. Immediate Notification Procedures: Any accident or incident meeting Federal Aviation Regulations (FAR) 830.5 criteria must be immediately reported to the National Transportation Safety Board (NTSB.) *See Accidents, Incidents and Hazard Reporting—FAA (later in this chapter.)*
- d. Precautionary and Forced Landings:
- i. Precautionary landings are voluntary normally initiated because of a real or suspected problem. In the event of a precautionary landing, the pilot (or a manager/crewmember- if the pilot must devote full attention to aircraft operations) notifies the communications/flight following center that a precautionary landing is being made, and provides the location (preferably with Lat/Long Coordinates). Contact can also be made with the nearest Flight Service Station (FSS) or Air Route Traffic Control Center (ARTCC) if a dispatcher is not immediately available. The communication must include a description and extent of the difficulty, assistance required, pilot's intentions, and other pertinent information. Communications personnel will begin documentation and be prepared to start notification and crash-rescue procedures if the situation escalates crash landing.
  - ii. Forced landings are normally involuntary and may be the result of a major mechanical malfunction or pilot/crewmember incapacitation affecting continued safe flight. The pilot or manager/crewmember immediately notifies

the communications center regarding status and location. The communications center clears the frequency of all but emergency traffic and will begin documentation. Unless otherwise advised by the pilot or manager, the communications center initiates crash-rescue: dispatching crash-rescue equipment, ambulance (ground or air), and emergency incident management personnel.

e. Overdue and Missing Aircraft Procedures:

- i. An aircraft is considered “overdue” when it fails to arrive within 30 minutes of the Estimated Time of Arrival (ETA) and it cannot be located or contacted via wireless communications. An aircraft is considered “missing” when it has been reported by flight following personnel to the FAA as being “overdue” and the FAA has completed without success an administrative search for the aircraft. An aircraft is considered officially “missing” when the fuel duration has been exceeded and the aircraft location is unknown.
- ii. **AT ETA:** Complete following steps and gather the information.
  1. Immediately contact aircraft by radio or phone. If unable to communicate with the aircraft, contact the appropriate dispatch office. The aircraft may have changed flight following frequencies due to poor radio reception.
  2. Begin gathering information required for Aircraft Accident Report:
  3. Name of pilot(s)
  4. Number and Name(s) of crew members
  5. Number and Name(s) of passengers
  6. Aircraft Registration Number
  7. Type and color of aircraft
  8. Type of mission of aircraft
  9. Location of accident or of last reported location and heading
  10. Injuries or fatalities (do NOT give names over radio)
  11. Name, address and telephone number of reporting party (person reporting the accident, incident, or “missing” status)
- iii. **AT 15 MINUTES PAST DUE:**
  1. Contact originating or enroute agency dispatch center.
  2. Contact originating or enroute agency airbase.
  3. Contact originating or enroute airports when possible.
  4. Keep a written log of actions and communications.
- iv. **AT 30 MINUTES PAST DUE:**
  1. Contact DNR’s EOM (360-902-1300).
  2. Contact FAA Flight Service Station (800-992-7433.)
  3. Keep a written log of actions and communications.

v. **AT AIRCRAFT FUEL EXHAUSTION, OR ACCIDENT IS SUSPECTED:**

1. Contact DNR's HOC/ASO and APM
2. Prepare FAA AIRCRAFT ACCIDENT/INCIDENT PRELIMINARY NOTICE  
(FAA Form 8020-9)
3. When confirmed, submit to FAA Flight Service (800-992-7433.)
4. Notify the Helitack Operations Manager (HOM)

*Note: If the flight involved federally contracted aircraft or federal personnel, contact 1 888-4MISHAP (1 888-464-7427) to reach the USFS/BLM Aviation Safety Manager. Complete (OAS Form 34) or (FS 5700-14)*

f. Aircraft Mishap Emergency Response for On Scene Ground Personnel:

- i. Ground personnel's actions are to protect and save lives at the site of the crash. Ground Personnel must not put more lives at risk and must only do what can be done safely.
- ii. Time is an extremely critical factor in responding to an emergency situation. Immediate positive action is necessary. Delay may affect crash victim's survival.
- iii. Establish clear control over the incident and utilize the Incident Command system. One person is to be designated as Incident Commander (IC) and that person's name is to be communicated to all others at the scene and to the dispatch office. The IC remains in command until another more qualified individual arrives and assumes command.

g. Aircraft Crash Search and Rescue Operations: Local area dispatchers can trigger rapid response from emergency response personnel and begin coordinating search and rescue operations. Emergency responders may include responders adjacent to or near suspected crash site but are not limited to:

- i. Local County Sheriff's office:
- ii. Incident Commander
- iii. Airport Crash Rescue Services
- iv. Airborne Emergency Medical Response
- v. Designated National Guard MEDEVAC
- vi. Designated Shorthaul Platforms
- vii. Other Agency or Cooperator Aircraft with Trained Medical Personnel on Board
- viii. Washington State Department of Emergency Management

Search and Rescue Operations (SAR) are usually coordinated through the FAA to the Air Force Rescue Coordination Center (AFRCC.) Once an aircraft is declared missing and SAR is initiated, the AFRCC becomes the controlling agency. DNR aircraft may participate in the SAR under the direction of the AFRCC.

h. Rescue Operations:

- i. First actions on-scene shall focus on preserving life and protecting people. The urgency to assist accident victims can place rescuers in jeopardy and they can become victims. Protecting people means keeping everyone safe as well as assisting survivors. Do whatever is necessary and safe to extricate injured occupants and to extinguish fires, keeping in mind personal safety and the necessity of protecting and preserving evidence.  
Administer first aid, help survivors move away from the crash site if there is a chance of fire or hazardous spill contamination. Do not move someone with suspected back or neck trauma unless not moving them will risk their life. Try to keep survivors stable until help arrives.
- ii. Establish Communications - Establish communications with a DNR dispatch center to:
  1. Initiate Trained Emergency Response
  2. Order Resources to Manage the Incident
  3. Order an Aircraft Accident Investigator
  4. Request a Temporary Flight Restriction (FAR 91.137) if non participating aircraft in the area create an additional threat to life and safety.
- iii. Secure the area - Treat the area like a crime scene:
  1. Keep public and media safely clear of the crash site. If uncertain about granting access to the scene, work with the dispatch center for assistance.
  2. Write down all actions taken, events observed and points of contact. (who, what, where, when and why)
- iv. Protect property and preserve evidence:
  1. Document and photograph the crash site
  2. Document and photograph any debris fields that must be disturbed to conduct rescues and/or fire suppression activities.

i. Crash Site Safety Precautions:

- i. Aircraft wreckage sites can be hazardous for many reasons. Personnel involved in the recovery, examination, and documentation of wreckage may be exposed to physical hazards posed by hazardous cargo, flammable and toxic fluids, sharp or heavy objects, components under extreme tension or pressure, burning composites, blood borne disease (Hepatitis B virus (HBV) and Human Immunodeficiency Virus (HIV)). When working around wreckage, exercise good judgment, utilize available PPE, and use extreme caution. Do not exceed personal physical limitations!
- ii. When administering assistance, use appropriate personal protective equipment such as Tyvek protective suits, breathing apparatus', boots, face and eye protection, long pants, long-sleeved shirts, protective helmet or



hardhat, and leather gloves. Use latex/surgical gloves when dealing with blood or bodily fluids—these can be inserted inside leather gloves to protect against cutting and burning surfaces. CPR masks should also be used to safeguard against disease.

j. Wreckage Security and Preserving Evidence:

- i. Treating the crash site like a crime scene includes arranging for 24-hour security at the accident site until the investigation team arrives and you are relieved as IC. Local law enforcement with jurisdiction may be an attractive option as they are lawfully able to prevent citizens from walking onto the site. Determine if hazardous materials are on the aircraft and request special assistance if necessary. Wreckage and cargo should not be disturbed or moved (FAR 830.10) except to the extent necessary:
  1. To remove persons injured or trapped
  2. To protect the wreckage from further damage
  3. To protect the public from injury
- ii. If it is necessary to move aircraft wreckage or cargo, then sketches, descriptive notes, and photographs must be documented of the original positions and condition of the wreckage and any significant impact marks. Photograph everything including switch positions, ground scars, and location of perishable evidence.
- iii. Perishable evidence including human factors data, fuel samples, and witness information must be accurately documented prior to disturbance. Acquire statements and contact information from witnesses, crewmembers, and survivors who are capable of giving a statement. Try to separate witnesses for this process to reduce errors caused by the comparison of notes and consequent amending of stories of statements.

k. News Releases and Next-of-Kin Notification:

- i. The NTSB and a DNR incident commander should make contact with news media and present unified public statements regarding the accident. If you are the IC, remind reporters of the hazards and to avoid disturbing the wreckage and ask them to be respectful of the victims. Always:
  1. Be courteous to the media. If there is no information confirmed to present, then cordially inform that they will be briefed when details of the incident are available. Stick to circumstantial facts and refrain from offering opinion.
  2. Protect the media. Keep them (and the public) at a safe distance, preferably upwind of the wreckage.
  3. Protect the identities of those involved. Do not release to the media nor divulge over the radio the identities of anyone involved in the accident regardless of disposition.

#### 4. Accident and Incident Reporting:

- a. **General:** There are numerous requirements for the reporting of accidents, incidents, and hazards. The following subsections define the requirements for each of the agencies/departments listed.
- b. **Federal Aviation Administration and National Transportation Safety Board:** In accordance with FAR 830.5, immediate notification must be made to the nearest NTSB field office when an aircraft accident or any of the following listed incidents occur:
  - i. Flight control system malfunction or failure
  - ii. Inability of any required flight crewmember to perform normal flight duties as a result of injury or illness
  - iii. Failure of structural components of a turbine engine excluding compressor and turbine blades and guide vanes
  - iv. In-flight fire
  - v. Aircraft collision in flight
  - vi. Damage to property, other than the aircraft, estimated to exceed \$25,000 for repair (including materials and labor) or fair market value in the event of total loss, whichever is less
  - vii. For large multi-engine aircraft over 12,500 lbs. maximum certificated takeoff weight, refer to FAR 830.5 for additional qualifiers
  - viii. Damage to a rotor blade
  - ix. Notification shall contain the following information, if available (FAR 830.6):
    1. Type, country of origin, and registration marks of the aircraft
    2. Name of the owner, and operator of the aircraft
    3. Name of the pilot-in-command
    4. Date and time of the accident
    5. Last point of departure and point of intended landing of the aircraft
    6. Position of the aircraft with reference to some easily defined geographical points
    7. Number of persons aboard, number killed, and number seriously injured
    8. Nature of the accident and the extent of damage, so far as is known
    9. Known and Forecast Weather at the time of accident.
    10. A description of hazardous materials that may have been present on the aircraft that may include, explosives, radioactive materials, or other dangerous substances carried on board during the accident sequence.
  - x. Notification will be made by the HOC/ASO immediately to the nearest NTSB Field Office
  - xi. Fully completed reports shall then be filed on Board Form 6120.1 (OMB No. 3147-0001) within 10 days after an accident, or after 7 days if an overdue aircraft is still missing. Forms are available from Board field offices, national headquarters, and FAA Flight Standards District Offices.

**FAA and NTSB Addresses and Phone Numbers**

**NTSB Northwest Regional Office**

505 South 336th Street, Suite 540  
Federal Way, WA 98003  
253-874-2880 phone  
240-752-6343 fax

**FAA National Headquarters**

800 Independence Ave SW  
Washington, DC 20591  
866-835-5322

**Aircraft Accident Information**

National Transportation Safety Board  
Public Inquiry Section, RE-51  
490 L' Enfant Plaza East SW  
20594  
202-314-6000

**Spokane Flight Standards D.O.**

6133 East Rutter Avenue  
Spokane, WA 99212  
509-532-2340 Washington, DC

**Portland Flight Standards District Office**

1800 NE 25<sup>th</sup> Avenue, Suite 15  
Hillsboro, OR 97124  
503-615-3200

**Seattle Flight Standards DO**

1601 Lind Avenue SW  
Renton, WA 98057  
25-227-2813

- c. **Reporting:** Definition for reporting situations of unsafe aircraft operations, use one of the following:
- i. **Near Midair Collision Report (NMAC):** A near midair collision is an incident associated with the operation of an aircraft in which the possibility of collision occurs as a result of proximity of less than 500 feet to another aircraft, or a report is received from a pilot or flight crew member stating that a collision hazard existed between two or more aircraft. Notification should be made as soon as possible after any unsafe occurrence, and a written report filed with the nearest Flight Standards District Office (FSDO) within 15 calendar days. In a near midair collision identification numbers may be hard to read. If so, provide as much information as possible, such as direction of flight, altitude, color, and aircraft type. (*Refer to the AIM 7-6-3, or the Interagency Airspace Coordination Guide Ch. 8.*)
  - ii. **Pilot Deviation Reports:** Pilot deviation reports are used to report other incidents which violate FARs and create an unsafe situation, such as:
    - 1. (*FAR 91.13*) - Operation of aircraft in a careless or reckless manner
    - 2. (*FAR 91.119*) - Airplanes flying below 500' AGL unless in sparsely populated areas or over water
    - 3. (*FAR 91.137*) - Temporary Flight Restriction (TFR) intrusions which are occurrences of non-participating aircraft entering a TFR without permission (except Law Enforcement, airport traffic, and media)
    - 4. (*FAR 91.127*) - Flight operations in restricted/prohibited areas

5. (FAR 91.127) - Non-compliance with standard or acceptable airport operations
- iii. NASA Voluntary Aviation Safety Reporting: NASA's Voluntary Aviation Safety Reporting is a cooperative safety reporting program that invites pilots, controllers, flight attendants, maintenance personnel, and other users or observers of the airspace system, to file written reports of actual or potential discrepancies and deficiencies involving the safety of aviation operations. These must be postmarked within 10 days of the incident. (*Refer to NASA ARC 277B or the Interagency Airspace Coordination Guide Ch. 8.*)
- iv. DNR Agency Reporting Requirements: All aviation accidents or incidents including fueling or support vehicles are reported immediately to the immediate supervisor and to DNR's HOC/ASO. The Aviation Emergency Notification chart is used to make subsequent notifications. (*Appendix B*).
  1. The DNR's Initial Incident Report (IIR) and an interagency SAFECOM are submitted to DNR's HOC/ASO within 24 hours of the accident or incident. The HOC/ASO forwards copies to DNR's APM for review, within 72 hours.
  2. All SAFECOMS submitted for a DNR helicopter are filed using the process of the controlling agency. Copies are submitted as if on a DNR incident. IIR forms can be obtained by request. SAFECOMS can be obtained at:  
<https://www.safecom.gov/>
  3. All SAFECOMS and IIRs are completed in accordance with DNR's Policy PR22-004, Reporting Incidents.
  4. If the accident or incident involves an agency vehicle, then a Vehicle Accident Report shall be submitted in addition to IIR and SAFECOMS. Vehicle Accident Report, WA State Form # 137 can be found on the Washington State Government Internet site or through a local DNR Region office.
  5. The Washington State Patrol's (WSP) Vehicle Collision Report 3000-345-161 is completed when a collision occurs that results in an injury or in which any person's property sustains damage in the amount of \$500.00 or more. This report is mailed to WSP once completed.
  6. For accidents occurring on an incident fire, refer to DNR Procedure 20-001-220, Managing a Non- fatal Critical Incident.

7. For liability coverage, the General Liability Claim Form #SF 210, and the Standard Vehicle Accident Tort Claim Form #SF 138, should also be completed after a vehicle accident.
  8. For further information pertaining to aviation safety or investigating hazards, accidents and mishaps, crash rescue, emergency response and risk management refer to Chapter 2, Aviation Safety, Security and Emergency Response, and IHOG Chapter 12, Protection and Crash-Rescue and IHOG Chapter 3, Operations Planning.
- v. Federal Agency Reporting - USDA Forest Service, National Parks Service, Bureau of Land Management, Department of Fish and Wildlife, Bureau of Indian Affairs:
1. In addition to being reported to the NTSB, any FEPP aircraft involved in an accident or incident resulting in serious injury or substantial damage must be reported to the USFS region or area Fire Management Officer (FMO). Verbal reports shall be made as soon as possible following the accident/incident and follow with a written report within 10 working days.
  2. If the accident or incident involves federal aircraft, personnel, or facilities, or occurred on a federal incident a SAFECOM report must also be submitted. SAFECOMs can be obtained and filed on-line at [www.safecom.gov](http://www.safecom.gov).
- vi. Hazards Reporting: Reporting hazards is essential for preventing accidents or incidents. Safety Hazard Reports and SAFECOMS are used in accident prevention and with personnel on operational evaluations.
1. DNR employees shall complete either the SAFECOM form or the Safety Hazard Report Form, depending upon the event. For example, the Safety Hazard Report form might be used to mitigate inadequate security features at a designated aircraft base, whereas the SAFECOM might be used to report a dropped helicopter bucket or an airspace conflict.

*Note: Neither form should be forwarded without prior notification to the person(s) involved, and without immediate efforts towards mitigation.*

The Safety Hazard Report Form (#7540 SAF 001) is used to report unsafe practices or conditions that do not pose an immediate threat to flight or personnel safety, but which should be investigated and resolved. Completed hazard reports should be discussed first with the

parties involved and resolved on a local level, if possible. Whether resolved or not, the hazard report is then forwarded to the HOC/ASO for review and action. The form is in quadruplicate, with a copy for the person filing the report, the direct supervisor, the Aviation Program Manager and DNR's Safety and Worker's Compensation Manager.

2. DNR has developed an anonymous internet reporting site for use by all DNR employees including aviation staff. The intention of this site is to bring small, but potentially hazardous situations, to the attention of the HOC/ASO. A particular focus is to observe and correct small errors before they lead to an incident. The HOC/ASO will quickly determine methods to disseminate safety notifications and if further reporting is needed the HOC/ASO will trigger that action.
3. The SAFECOM system was developed to assist in accident prevention through trend analysis, accountability and corrective action. Anyone who witnesses an aviation operation accident, incident or hazard can fill out a SAFECOM form. All aviation - related events that impact aviation safety are to be reported using the SAFECOM. A SAFECOM is to be completed for any aircraft incident potential, incident, maintenance deficiency, accident, or hazard. A hazard is defined as any circumstance that could compromise the safety of personnel engaged in aviation operations, and can include (but is not limited to):
  - a. A deviation from policies, procedures, regulations, instructions, flight plan, planned operations or types of use
  - b. Inadequate training, or failure to meet training requirements
  - c. Improper use of load calculations or manifests
  - d. Failure to use PPE in accordance with agency policy
  - e. Communications breakdown
  - f. Unsafe actions by aircrew, passengers, pilots, or support personnel
  - g. Fuel contamination
  - h. Extreme environmental conditions
  - i. Airspace Conflicts
  - j. Improper transport or handling of Hazardous Materials

SAFECOMs are submitted through the agency that had operational control of the aircraft at the time of the occurrence. If on a DNR incident, even if involving federal aircraft, the SAFECOM will first be routed to DNR's HOC/ASO. He will then forward copies to DNR's APM. The APM will then forward a copy to the authorized representative from the agency involved. If on a Federal incident, even if involving a DNR aircraft, the SAFECOM will first be routed to the Aviation Safety Officer

for the Forest/Region by which the fire was operationally controlled. A copy is sent to DNR's HOC/ASO.

To view or submit SAFECOMS online see: <https://www.safecom.gov/>

- vii. Definitions in Reporting - For the purposes of taking correct action and filing the corresponding reports, the following definitions are provided:
1. Operational Hazard: Any condition, act or set of circumstances that exposes or could expose aircraft operations, associated personnel or equipment to unnecessary risk or harm.
  2. Aircraft Incident: An occurrence other than an accident associated with the operation of an aircraft that affects or could affect the safety of operations, which interrupts or prevents the mission of the aircraft, or which results in the aircraft being placed out-of- service. Some examples include:
    - a. **Airspace Conflict**: A near mid-air collision, intrusion, or violation of airspace rules.
    - b. **Forced Landing**: A landing necessitated by failure of engines, systems, or components, which makes continued flight impossible, and which may or may not result in damage.
    - c. **Incident with Potential**: An incident that narrowly misses being an accident and in which the circumstances indicate significant potential for substantial damage or serious injury.
    - d. **Maintenance Deficiency**: An equipment defect or failure which affects or could affect the safety of operations, or that causes an interruption to the services being performed.
    - e. **Precautionary Landing**: A landing necessitated by apparent impending failure of engines, systems, or components, which makes continued flight inadvisable. It is a voluntary landing initiated because of a real or suspected problem.
  3. Substantial Damage: Damage or failure that adversely affects the structural strength, performance, or flight characteristics of the aircraft, and that normally would require major repair or replacement of the affected component. Examples of failures **NOT** considered substantial damage are: engine failure; damage limited to an engine; bent fairings or cowlings; dented skin; small puncture holes in the skin or fabric; ground damage to rotor or propeller blades; damage to landing gear, wheels, tires, flaps, engine accessories, or brakes.
  4. Ground Aviation Accident: An occurrence associated with an aircraft that takes place prior to or after flight that is not the result of flight. An

*WA DNR Aviation Operating Plan & Standards*

example would be contact with a rotor blade and a hangar door during movement. Any accident involving an aircraft prior to engine start in which the aircraft receives any damage is a ground aviation accident.

5. Aircraft Accident: An occurrence associated with the operation of an aircraft that takes place between the time any person boards the aircraft with the intention of flight and when that person has disembarked, and in which any person suffers death or serious injury, or in which the aircraft receives substantial damage.
6. Serious Injury: Serious injury is defined as any injury that:
  - a. Requires hospitalization for more than 48 hours, commencing within 7 days from the date the injury was received
  - b. Results in fracture of bones (except simple fractures of fingers, toes, or nose)
  - c. Causes severe hemorrhages, nerve, muscle, or tendon damage
  - d. Involves any internal organ
  - e. Involves second- or third-degree burns, or any burns affecting more than 5 percent of the body surface
7. Fatal Injury: Any injury that results in death within 30 days of the accident.

**5. Accident/Incident Investigation:**

- a. The NTSB reserves the right to investigate DNR aircraft accidents (fatality, serious injury, or substantial damage). DNR and/or BLM/USFS personnel may be appointed to the investigation as well. Incidents may not necessarily be investigated by the NTSB. However, that determination is made by the NTSB. DNR shall report all accidents to the NTSB.
- b. The NTSB has the responsibility to investigate Public Aircraft Operated accidents and certain incidents. Other types of aircraft incidents do not require a NTSB report unless one is specifically requested. Any agency can decide to internally investigate its own incident.

DNR investigates any aircraft incident not requiring an NTSB report. DNR's Lead Investigator, in conjunction with HOC/ASO may be contacted and will assign an investigator from his staff.

- c. In addition to a technical investigation, DNR also conducts a management investigation to evaluate whether a managerial act or process contributed to the incident. Under the lead investigator or his designee, the HOC/ASO, the APM and a DNR Region or Division Manager will be responsible for identifying and reporting management factors which



contributed to the accident or incident. The results of the investigation shall be written and provided to the Wildfire Division Manager.

6. **Emergency Contacts and Medical Information Form:** DNR encourages its employees to annually update their personal emergency medical information forms. This confidential information is sealed in an envelope or file within the home Region/Division for emergency use. At a minimum, emergency contact information for the pilots and crewmembers of agency aircraft is compiled and/or updated annually in an “Emergency Contact List”. A copy of this list is submitted to the home Region/Division, as well as to the Emergency Operations Coordinator (see pages 7-8). A copy is also submitted to the local dispatch office, since they are usually the first organization contacted by units in the field and are likely to be the first to know of a potential aircraft accident. A standardized Emergency Medical Information form can be downloaded from the DNR Human Resources SharePoint website. Direct questions regarding the Emergency Medical Information form, employee health and employee safety to the Safety and Industrial Insurance Manager (see pages 7-8).
  
7. **Aviation Security:** National security measures for aviation increased immediately following the events of September 11, 2001, and all government agencies using aircraft were put on heightened alert.
  - a. Aviation security for DNR includes locking aircraft and aircraft fuel caps; installing minimum of two disabling devices, when left unattended after normal operational hours; providing overnight security (either through parking at an airport, by hiring security personnel, or by assigning a minimum two crewmembers to stay with the aircraft); and following state hiring and training guidelines.  
For measures to be taken in the event of a declared emergency, refer to the DNR’s Emergency Management Plan.
  
  - b. Interception Procedures: In the event of military interception of agency aircraft, pilots will adhere to interception procedures, as governed by 14 CFR Part 99.
  
8. **Aviation Life Support Equipment:** Aviation Life Support Equipment (ALSE) includes Personal Protective Equipment (PPE) and other items like Personal Flotation Devices (PFD), oxygen units and survival kits. At a minimum, ALSE equipment shall be inspected annually. Helmet inspections will be completed every 180 days, and will be conducted on a schedule that does not require inspection during fire season (June-September) (See *Chapter 13 ALSE Program Guide and Policy for more information*). ALSE requirements vary according to aircraft type and mission (C through E below will be kept on the aircraft at all times), and are outlined below:
  - a. Personal Protective Equipment (PPE): PPE consists of clothing and equipment that provide protection to an individual in a hazardous environment. Different aircraft and mission types require different levels of PPE.

*WA DNR Aviation Operating Plan & Standards*

- b. Personal Flotation Devices (PFDs): All DNR pilots when conducting over water flights that are beyond gliding/autorotation distance from shore will wear personal Flotation Devices. If passengers are on board aircraft when beyond gliding/autorotation distance, PFDs and instructions on use will be provided for them.
  - c. Emergency Locator Transmitter (ELT): ELTs are battery operated transmitters designed to automatically activate and continuously emit an emergency audio tone on 406 MHz, when subjected to crash generated forces. ELTs will operate continuously for at least 48 hours over a wide temperature range. If properly installed and maintained, an ELT can expedite search and rescue operations and save lives. All DNR aircraft are equipped with ELTs.
  - d. First Aid Kits: Each DNR aircraft, or aircraft hired by DNR, has first aid kits installed, sufficient for the number of personnel on board. First Aid kits are readily accessible to the flight crew and passengers. All passengers are briefed on the location of first aid kits, and any other survival equipment. First Aid kits are checked annually for expired items such as allergy medicine and aspirin.
  - e. Survival Kits: Survival kits are recommended for all agency aircraft, and all aircraft hired by the agency. They are required for DNR helicopters. All passengers riding onboard an aircraft carrying survival kits are given a briefing as to their location and use. Survival kits are checked annually for expired items such as potable water tablets, food, and batteries.
9. **Physiological Factors**: Managing physiological factors is key in accident prevention. Physiological factors have been classified as causal in accidents and have been known to be present and contributing whenever human error is identified as causal. A physiological function is a characteristic of or appropriate to an organism's healthy or normal functioning. Introduction of unhealthy (physical or psychological) can be very detrimental to human performance and must be managed to safeguard flight operations.
- a. All DNR pilots shall immediately notify their supervisor upon any change in their legal flying status. DNR pilots shall decline flights when their physical or mental condition could be detrimental to the safe operation of an aircraft. Aviation managers will not assign flights to any DNR personnel known to be suffering from physical or mental anguish, anxieties, or other problems that could prevent his/her full concentration and attention to flight.
  - b. Identification of adverse physiological or psychological conditions is key in preventing mishaps and should always be addressed by management. If you see something, say something.
  - c. Some key physiological factors to be aware of are listed below:

- i. Fatigue: Fatigue is a state or condition that follows a period of excessive mental or physical activity or inactivity, which results in decreased work capacity and performance, and a feeling of tiredness and desire for rest. Depending on the type and duration of fatigue simple rest may be adequate to recover, however if more chronic; long-term recovery or hospitalization may be necessary.
- ii. Stress: Stress is a perceived imbalance between a demand and the ability to meet the demand and may cause fatigue. Aviation related stress could be a factor of altitude, speed, hot/cold environment, aircraft design, aircraft characteristics, work/rest schedule, job responsibilities and performance, illness, family commitments, mental and emotional health, circadian cycle, and many other factors. It can lead to simple fatigue, burnout or physical illness if allowed to go unchecked.
- iii. Medical Factors/Medication: Like fatigue, medical factors and certain types of medication can reduce a pilot's ability to perform to a point where he/she should be grounded. The Federal Aviation Regulations (FARs) provide general guidance for the use of medications, and the grounding of pilots due to certain medical factors, but do not give all of the specific information needed for all cases.
- iv. Illness: Illnesses such as the common cold and sinus or ear infections can be very dangerous for pilots and flight crewmembers. DNR pilots shall evaluate their physical condition and exercise common sense and good judgment when dealing with illness or medications. When possible, an FAA qualified aviation medical doctor should be consulted on medications, including over-the-counter types. Many medications can cause drowsiness or decreased alertness, and cannot be taken if performing flight duties. Other medications may have adverse effects when coupled with increased altitude. Pilots should consult their medical practitioners about all medications.
- v. Use of Alcohol and Drugs: No person may act or attempt to act as a flight crewmember of a civil aircraft within eight hours after the consumption of any alcoholic beverage, while under the influence of alcohol, while using any drug that affects the person's faculties in any way contrary to safety, or while having .04 percent by weight (or more) alcohol in the blood. Per Code of Federal Regulations (CFR) 91.17.

**10. Hazardous Material/Fuel Spills:** This section covers fuel truck breakdown procedures and accident procedures; mitigation procedures in the event of a fuel spill; and mitigation procedures for fuel spillage on personnel. Report all spills to the helicopter manager and then dispatch immediately. There are severe civil and criminal penalties if a spill is not reported promptly. If on an incident, contact the Incident Commander, Supply Unit Leader,

Logistics Chief, or Helibase Manager. If away from an incident, contact the nearest DNR dispatch center.

- a. Hazardous Materials: Hazardous materials are substances that are identified, classified, and regulated by 49 CFR part 175. A hazardous material is a substance or material that has been determined by the Secretary of Transportation to be capable of posing an unreasonable risk to health, safety, and property when transported in commerce and which has been so designated. This includes, but is not limited to:
  - i. Saw and pump fuels
  - ii. Saw and pump lubricants
  - iii. Solvents
  - iv. Drip torch fuel
  - v. Propane
  - vi. Fuses
  - vii. Flares and similar firing devices
  - viii. Weapons
  - ix. Pepper spray
  - x. Batteries
  
- b. Hazardous Material Handling Regulation: DNR personnel shall follow the guidelines set forth in USDA/USDI Interagency Aviation Transport of Hazardous Materials Exemption and the Interagency Aviation Transport of Hazardous Materials Guide. DNR is not bound by 49 CFR Parts 171- 175 except when traveling by, or when contracting, commercial aircraft. Although DNR's status is not a commercial operation subject to FAA rules, DNR has become a co-signatory to the USDA-FS/USDI 49 CFR Parts 171-175 Exemption Letter granted by the United States Department of Transportation. Copies of DNR's Aviation Transport of Hazardous Materials Guide can be acquired through WD. In addition, copies of the special permit authorization granting party status to the DOT-SP 9198, in accordance with 49 CFR, Part 107.107 (Hazardous Materials Regulations) can be acquired through WD.
  
- c. Hazardous Material Spill Procedures:  Consider all fuel spills a fire hazard, regardless of size, and take the following steps:
  - i. Have all non-essential personnel leave the area immediately for their safety
  - ii. Alert airport or helibase fire crews, or if none are available or spill is off-site, assign someone to stand by with a fire extinguisher with all burn prevention PPE available worn.
  - iii. Approach spill cautiously and from upwind
  - iv. Attempt to stop the flow of fuel and fueling operation immediately, keeping your own safety and the safety of those in the vicinity as your first priority

- v. Contain the liquid spilled with spill-kit materials. If the spill is larger than five gallons, call 911 and DNR's Emergency Coordination Center at 360-902-1300.
- vi. If the spill is less than 5 gallons, begin cleanup only if it is safe to do so. WD dispatch will alert and coordinate a HAZMAT unit to complete the cleanup.
- vii. If on an incident, notify incident command staff.
- viii. If a spill occurs during hot refueling operations, the pilot decides whether to move or keep the helicopter in place. If the decision is made to remain in place, engine and electrical power must be shut down and the helicopter evacuated. Before the helicopter is put back into service, it must be thoroughly inspected for damage and for flammable vapors that may linger within the cabin, cockpit, and fuselage areas of the aircraft.
- ix. If any personnel are doused with fuel, the individual should:
  1. Avoid ignition sources
  2. Leave the fueling area immediately
  3. Remove contaminated clothing. However, wet the clothes with water before removing since the act of removing clothes creates static electricity. If water is unavailable, the affected individual should be grounded to prevent sparks when he/she removes clothing. Caution: entering a warm room wearing fuel-soaked clothing can be dangerous as the chances of fire starting due to static electricity are increased.
  4. Wash fuel off skin with soap and water as soon as possible
  5. Seek medical attention
- x. Complete proper reporting of the incident.

**11. Fuel Truck Breakdown and Accident Procedures:** In the event of a DNR fuel truck being involved in an accident or a break down, the driver shall:

- a. Pull the vehicle off the road as far as possible
- b. Avoid stopping near congested areas if possible
- c. Turn on the hazard four way flashers
- d. Set out reflective warning triangles in accordance with 49 CFR 392.22(b)
- e. Remain with the vehicle at all times if safe to do so
- f. Determine the cause of the breakdown if possible and arrange for necessary recovery and repair
- g. Contact the dispatch center with status
- h. Contact his/her supervisor and the HOC/ASO
- i. Note the time and location of the breakdown in the driver log book
- j. If involved in an accident, call local law enforcement (not 911)
- k. Take pictures if able
- l. Get contact information from all parties involved to include:
  - i. Name
  - ii. Driver's License Number
  - iii. Phone Number
  - iv. Mailing Address

- v. Email Address
- vi. Insurance Provider
- vii. Insurance Policy Number
- viii. Year, Make, and Model of Vehicle Involved
- ix. License Plate Number

**Cautions when Seeking Repairs of Fuel Trucks:**

1. Prevent the vehicle from being repaired inside any building when heat, flame or spark producing devices are used to repair or maintain the cargo or fuel containment system (49 CFR 177.854(g (1))).
2. No person shall perform repairs or maintenance on the vehicle unless the vehicle's cargo and fuel containment systems are closed (except as necessary to maintain or repair the vehicle's motor) and the vehicle does not show any signs of leakage.
3. If repairs are completed inside a building, immediately remove the vehicle from the enclosed area upon the completion of work.
4. If it becomes necessary to transfer the fuel load enroute, drivers must receive explicit permission from their supervisor to do so.

12. **State Disaster & Emergency Operations (All Risk):** State aircraft or personnel may be called upon to respond to disasters or emergency operations other than wild land fires. In the event the disaster encompasses any DNR buildings, facilities or personnel, the guidelines set forth in DNR's Emergency Management Plan, (specifically, Annex J: Department Aviation Section Emergency Management Plan) will be followed.

# Aviation Operating Plan and Standards (AOPS)

## Chapter 3 – Pilot & Aircraft Requirements

2017

Washington Department of Natural Resources  
Wildfire Division – Aviation Section  
1111 Washington St SE  
Olympia, Washington 98504-7037



# WILDFIRE

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<b>REVISION PAGES &amp; MASTER TABLE OF CONTENTS</b>				
<b>Chapter Name</b>	<b>Page #</b>	<b>Initials</b>	<b>Date</b>	<b>Change</b>
Cover	3-1	DR	3/30/2017	0
Blank	3-2	DR	3/30/2017	0
Revision Page & Master TOC	3-3	DR	3/30/2017	0
Pilot & Aircraft Requirements	3-4	DR	3/30/2017	0
DNR Pilot Carding	3-5	DR	3/30/2017	0
Interagency Approval Process	3-6	DR	3/30/2017	0
DNR Wildfire Aviation	3-7	DR	3/30/2017	0
Grounding & Investigations into flight operations	3-8	DR	3/30/2017	0
Contractor Operations & Requirements	3-9	DR	3/30/2017	0
Contractor Operations & Requirements	3-10	DR	3/30/2017	0
Contractor Operations & Requirements	3-11	DR	3/30/2017	0
Contractor Operations & Requirements	3-12	DR	3/30/2017	0
Contractor Operations & Requirements	3-13	DR	3/30/2017	0
National Guard	3-14	DR	3/30/2017	0
National Guard	3-15	DR	3/30/2017	0
National Guard	3-16	DR	3/30/2017	0

**CHAPTER 3 – Pilot & Aircraft Requirements**

**1. Helicopters**

**a. DNR**

i. DNR FEPP helicopters are operated under a combination of FAA rules & public use aircraft restrictions. Refer to the pilot’s Position Description Form (PDF), Performance Development Plan (Plan), this manual as well as DNR’s Helicopter Pilot Training Manual and the Maintenance Operations Manual for more information.

**ii. Pilot Requirements**

i. Flight Times Required

<b>Required Flight Time Experience</b>	<b>Logged flight hours</b>
Pilot in Command (PIC), helicopters	1500
Helicopter, preceding 12 months	100 (50 based on CP/T assessment)
UH-1	50
Type II Experience	75
Turbine helicopter operation	500
Helicopter Mountain PIC Flight Time	200
External Load/Longline/Vertical Reference PIC	10
Annual Training UH-1H(M) Refresher	3
Annual Longline Refresher	2
Monthly Refresher	1

**1. Explanation of the Required Flight Time Experience**

- **Pilot in Command (PIC), helicopters.** At least 1,500 hours as Pilot-in-Command (PIC) time, helicopters, including initial and extended attack wildfire suppression. Experience must include solo flight and Vertical Reference Flight (VTR) operations (as noted below). “Make and Model” flight hour requirements may be reduced by 50% if the pilot submits evidence of satisfactory completion of the manufacturer’s approved pilot ground and flight procedures training in the applicable make and model.

- **Helicopter, preceding 12 months.** At least 100 hours flight experience (Maybe reduced to 50 hours by CP/T based on pilot proficiency), within the preceding 12 months as PIC in helicopters (preferably UH-1 or equivalent) or the ability to pass a proficiency check flight with DNR's CP/T certifying approval to conduct rotary wing operations for the OAS/USFS Cooperators Letter. Evaluations include 75'/150' external load VTR (water bucket and cargo hook) operations, internal load operations, passenger transport, reconnaissance and vertical reference operations – all must be satisfactorily completed to retain qualifications.
- **Turbine helicopter operation.** Minimum of 500 hours in turbine powered helicopters, operating in wildland firefighting in mountainous terrain such as the Pacific Northwest or equivalent rough terrain.
- **Mountain Flying.** Minimum of 200 hours helicopter mountain flying, as identified in 14 CFR Subpart B- Designated Mountainous Terrain, including maneuvering and numerous takeoffs and landings to ridgelines, pinnacles and confined areas.
- **Longline / Vertical Reference Experience.** The Interagency Helicopter Operations Guide (IHOG) defines longline as “a line or set of lines, usually in 50 foot increments, used in external load operations...”. The term “Vertical Reference” (VTR) describes flight operations with long-lines. Written evidence of a minimum of 10 hours VTR is required. DNR accepts 50 foot longline experience as the minimum qualification for candidate pilots, but all qualification check flights are conducted with 75' and 150' foot long-lines, which is a condition of hire. The OAS/USFS Region 6 VTR proficiency check flight requires a 150' foot longline with empty cargo hook which DNR pilots are required to demonstrate flight proficiency at.
- **Annual Long Line / Vertical Reference Re-currency Training.** DNR allows each pilot (including new candidates) up to two hours re-currency training prior to the annual proficiency check flight. A comparable time allowance is offered when the CP/T determines that a mid-season proficiency check flight is warranted to retain VTR qualifications.

## 2. Special Requirements and/or Conditions of Employment

- High school education or GED
- Strong leadership and personnel management skills
- Ability to function collaboratively with peers in a fast paced, stressful environment
- Ability to consistently make sound aeronautical decisions with little direct supervision and in the absence of complete information
- Familiarity with ICS operations
- Annual FAA Class I or II medical which covers entire fire season until December. Note: Cost of the medical exam is not covered by the agency.
- Must have a valid Driver's License

- Ability to work long hours (up to 12 days straight, of 14 hours straight, and 8 hours of flight particularly during summer months, with frequent overtime related to fire suppression emergencies.
- Required to travel heavily. 75-100% of the time.
- Must be at least 18 years of age
- Must possess a valid FAA Airline Transport Pilot – Helicopter or Commercial Pilot – Helicopter Certificate
- Must successfully complete IAT online courses MH-1, MH-2, MH-3, and A-110 within 30 days of employment then every 36 months thereafter.
- Annually pass DNR Chief Pilot’s training and evaluation flight for carding.
- Triennially pass USDA/DOI/USFS for cooperator’s letter.

### **3. Preferred Qualifications:**

- 100 hours of UH-1H PIC Flight time.
- Part 135 Pilot in Command Qualification for a Part 133 operation.
- Experience operating type II helicopters in the Pacific Northwest.
- Qualified as an FAA Certified Flight Instructor (CFI).
- Longline/Vertical reference qualification/endorsement with 10 hours solo PIC time
- Qualified as a Military Instructor Pilot (IP), Standardization Instructor Pilot (SIP), and/or Instrument Examiner (IE).
- Qualified as a Military Maintenance Test Pilot (MTP) or Maintenance Examiner (ME).
- Possess an FAA helicopter instrument rating or military equivalency.
- Familiarly with Aviation Safety Management Systems (SMS).
- Familiarly with the Incident Command System (ICS).
- Currently or previously carded for helicopter fire operations by USDA/DOI/USFS.
- Qualified or previously qualified under the ICS system as a firefighter (FFT2), advanced firefighter/squad boss (FFT1), or other operational ICS positions.

### **4. Flight Currency and Training**

- Annually, prior to the start of the fire season, wildfire helicopter pilots participate in annual refresher training conducted by the CP/T. The training is in accordance with DNR’s Helicopter Pilot Training Manual. New pilots are evaluated on all tasks listed in the training manual. Normally, flight training does not exceed ten hours. All pilots complete a flight review no less than biannually which covers all items listed in 14 CFR 61.56 (a) at a minimum.
- One hour of pilot training per month is allowed for DNR pilot proficiency and Helitack crew training. Pilots will coordinate training flights with the Chief Pilot prior to executing.
- Pilots will maintain currency of both 75’ and 150’ longlines (Cargo hook and bucket) of no less than every 30 days during the season (June-October).
- DNR Pilots conducting regular fire operations are not required to conduct monthly training as long as they meet the currency requirement.

## 5. DNR Wildfire Aviation Pilot Carding

- DNR carding is the responsibility of the Chief Pilot.
- Requirements for pilot carding is listed in the WA DNR Pilot Training Manual.
- Carding will occur annually prior to the USFS Region Interagency evaluations.
- New cards will be issued each April-May or when a new pilot is assigned
- DNR Pilots are required to demonstrate proficiency on all tasks listed in the WA DNR PTM Practical Test Standards.
- Pilots are required to carry their DNR Pilot card on all flight operations.
- The Chief Pilot will ensure that all assigned Fire Pilots are carded for:
  - Low Level Operations
  - Helitack/Passenger Transport
  - External Loads
  - Longline VTR (Longline)
  - Water/Retardant Delivery
  - Mountainous Operations
  - UH-1H (M) Pilot Initial/Recurrent Course
  - Aerial Wildland Firefighter Pilot Initial/Recurrent Course
  - Helicopter/Helitack Annual Training Course
  - DNR Pilot Trainer (Designated Trainer's Only)
  - DNR Maintenance Pilot (Designated Maintenance Pilots Only)
  - USDA/OAS/USFS Check (Annotate Interagency last evaluation)
  - Limited Maintenance Training (AMS approved pilot maintenance trained)
  - UH-1H (M) Right Seat (Night Operations & Trainers)
  - Belly Hook/R Seat (If flying for other out of state agencies)

## 6. Interagency Pilot Approval Process

- DNR pilots and aircraft are inspected and certified each spring through an approval letter issued by the USFS-R6 Region Aviation Officer (RAO) or designated representative. The letter states the pilots, aircraft, missions, mechanics, and support trucks that are approved for use on federal fires.
- The letter list the pilots, aircraft, fuel trucks, and mechanics. All personnel and equipment are required to be listed on letter prior to conducting interagency operations.
- The Cooperator's letter will be located in the following locations.
  - Aircraft Logbook
  - With the aircraft registration
  - Fuel Truck
  - Aviation Program Manager
  - Fuel Trucks

## 7. Evaluations, Mission Debriefings/Critiques

- The evaluation or debriefing/critique of all aviation operations is essential for improving operational effectiveness, promoting safety, maintaining open communication, and for recognizing successes. Debriefings are done at the end of each operational period on an incident and should include: items that went well and items needing correction, (for both ground and air resources), communication difficulties, and corrective actions/methods for improvement.

- In addition to daily briefings and debriefings, an after action review (AAR) should be requested at the end of the incident/assignment. Evaluations can come from the Incident Commander, the Helibase Manager, the Air Operations Branch Director, or any direct line supervisor of the helicopter and crew. AARs should discuss both pilot and crew capabilities and performance.
- Airbase or HMGBs may conduct AARs with the pilot and crew performance. In all AARs, **operating safely** is the primary consideration. Successful performance of tactical assignments is also preferred, but should not override the use of safe operating practices.

## 8. Grounding, Reinstatement, Investigation and Appeal Procedures

- Safety is always paramount and it is each pilot's responsibility to assure he/she is at peak mental and physical condition before assuming a flight role. If for any reason a pilot feels unprepared to fly, they should temporarily suspend themselves from those duties and take appropriate action to rectify the condition. Pilots will inform the chief pilot as soon as possible if they feel they are unsafe to fly.
- Temporary suspension or grounding of a pilot will occur:
  - a. When there is an "Imminent Danger"
  - b. There is a history of poor performance suggesting the potential for "Imminent Danger"
  - c. An incident or accident has occurred and the Chief Pilot determines a stand down is appropriate until an investigation is completed
- Imminent danger is defined as any condition or practice where a danger exists which could reasonably be expected to cause death or serious physical harm immediately or before the danger can be eliminated through normal procedures.
- Crew supervisors, aircraft base managers, and HMGBs may suspend (temporarily ground) operations, or in the case of contracted aircraft refuse the contractor's services. Long-term grounding, suspension or revocation of Department pilot privileges occurs only at the direction of the WD Manager.
- Once grounded, the APM and his/her designee(s) will investigate the grounding and provide a written report to the WD Manager. The WD Manager will determine whether corrective action or discipline is warranted. This will occur within five business days of the grounding.
- Pilots may refuse to fly any DNR helicopter they believe to have a "safety of flight" discrepancy or an aircraft they believe to be unsafe.

- Grounding is required when any of the following conditions exist:
  - a. Structural damage is noted, or as the result of an accident or incident. On-site inspection by DNR maintenance personnel is required, and a written release must be signed before the aircraft may be released for flight.
  - b. Failure of any equipment that adversely affects characteristics of flight.
  
- **When the safe operation of a helicopter is in doubt, ground the aircraft, and contact DNR maintenance staff.**

## 9. Pilot Duty Limitations

- Pilot duty day and flight time limitations are in accordance with the *IHOG*.

## 10. National Guard

- The National Guard follows aircraft operations and flight rules as set forth in their operational policies and procedures. When a conflict in regulations occurs while employed under ICS, the National Guard will follow the more restrictive of the policies. For guidance on military use, DNR personnel can consult the Military Use Handbook (2006) (NFES2175 or speak with a military liaison).

## 11. Life-threatening Situations

- In rare instances a life-threatening situation may cause a pilot to determine the need to exceed duty hour limitations. In the event that this occurs, the pilot must use his/her best judgment, and must not let the urgency of the situation affect the safety of the crew or of him/herself. Any duty hour violations require the immediate notification of the APM, and will be documented through the SAFECOM process by the pilot and manager.

## 12. Duty Stations and Assignments

- The duty station for DNR helicopter pilots varies throughout the state. Pilots travel as needed to other staging or detail locations during the fire season to meet staffing needs. Pilots are not assigned to a specific aircraft; they rotate through the fleet according to aircraft status and availability

### 13. Aircraft Requirements

- All pilots, aircraft, fuel trucks, and mechanics assigned to DNR (DNR personnel/equipment and contractor) are required to have an approved and current Interagency card to conduct operations
- In addition as contracted aircraft will meet the requirements of the approved contract
- Contractor aircraft will maintain standards set forth in their respective current and approved FAA Operations Specifications

### 14. Interagency Approval Process

- As with the interagency qualified helicopter pilot approval process, DNR;s helicopters are annually certified by the USFS Region 6 RAO or designee. Prior to utilization, pilot data and helicopters are inspected for conformity by the USFS and a letter of authorization is issued to the APM and maintained in each helicopter.

### 15. Fixed Wing Transport & Reconnaissance Aircraft

- DNR contracts the services of a P-68 from the WDFW. Both are civil aircraft and operate under the Federal Aviation Regulations (FARs) specific to the type of flight operations they are conducting.
- The following list minimum requirements which are in addition to the FARs.

#### ▪ Pilot Requirements

##### ▪ Qualifications and Experience

- Contract DNR Airplane pilots must:
  - Possess a valid FAA ATP or Commercial Pilot Certificate with an instrument rating in one of the following categories appropriate for the aircraft being operated such as:
    - Single engine land
    - Single engine sea
    - Multi-engine land
    - Multi-engine sea
  - Meet basic requirements set forth as needed for entry onto the Aircraft Pilot II register
  - Have accumulated flight time as listed below
  - Maintain a current Class I or II flight physical
  - Possess a current interagency qualification card or be included on



- **Flight Time Requirements**

Pilots shall have accumulated the minimum airplane flight times listed below. Flight time shall be determined from a certified pilot log.

Have accumulated the minimum flight hours listed below:

- Total time (all airplanes) 1,500 hours
- Airplane Pilot in Command 1,200 hours
- Category and Class to be flown 200 hours
- Cross Country 500 hours
- Typical Terrain 200 hours
- Category—Preceding 12 months 100 hours
- Preceding 60 days 10 hours
- Night (all aircraft) 100 hours
- Instrument—actual and simulated total 375 hours
- Make and Model to be flown 25 hours
- Make and Model preceding 12 months 10 hours

- **Duty Stations & Assignments**

The duty station for all pilots varies, with seasonal statewide deployment.

- **FAA Standards**

The fixed wing aircraft are flown and maintained in accordance with current FAA standards and Operational Manuals.

- **Interagency Approval Process**

The USFS and DOI may utilize the cooperator fixed wing aircraft for Air Attack, transportation of passengers and cargo. Prior to utilization pilot data and aircraft maintenance records are reviewed annually by the USFS and a letter of authorization is issued to DNR and maintained in the aircraft.

## **16. Air Tankers**

Air tankers can be contracted from various contractors for initial and extended attack firefighting and for other fire suppression missions. All air tankers are contracted through interagency agreements. The PIC must possess an interagency Pilot Qualifications Card for the make and model of aircraft being operated and meet all federal requirements for the assigned mission profile.

A current USFS or USDI certification issued by a USFS/BLM Regional Aviation Officer/Area Director is required for Air Tanker use on an USDA or USDI incident.

## Aircraft Requirements

Aircraft must carry a current USDA/USDI Qualifications Card.

### 17. Other Contracted

- **Forest Health Survey Flights:**

The Washington forest health survey is conducted using a contract aircraft and pilot and covers approximately 20 million forested acres over all land ownerships. The survey flights use a digital aerial sketch mapping (D-ASM) system. The D-ASM guide covers these operation procedures in more detail and can be viewed on-line at <http://www.fs.fed.us/foresthealth/technology/dasm.shtml>.

Scope of the Program: The Forest Health Survey Flight program, also known as the Aerial Insect and Disease Detection Survey, is a joint cooperative program between the USFS and DNR. Two observers on opposite sides of the contract aircraft look for and map “tree damage” to a distance of two miles out.

Observers are looking for signs or symptoms (colors, patterns, timing, etc.) of current year mortality, defoliation, disease, and/or weather damage. Observations are recorded on 1:100,000 USGS maps and most flights are conducted on a grid pattern at approximately 100-120 mph and 500-2,000’ AGL. The USFS arranges the multiyear contract with a plane and pilot, and DNR reimburses them for up to half of the costs associated with the survey.

The program is operated within USFS guidelines as set out in the Northwest Aviation Management Plan.

Pilot and aircraft requirements for the current contract are summarized below (refer to the contract for full scope.)

- **Pilot/Vendor Requirements**

- Vendors must be currently certificated under FAR Part 135 (Air Taxi Operators and Commercial Operators). Vendors shall provide copies of their FAR Part 135 certificate and operations specifications, state and local certificates and licenses, and any current FAA exemptions, compliance deadline extensions, or other amendments to certificates or operating specifications at the time of inspection or service visit.

- Both pilots and aircraft undergo a pre-use inspection and approval process and each receives an interagency qualifications card.
- The PIC is responsible for the safe operation of the aircraft, the safety of its occupants, and cargo. The PIC has authority to postpone, change, or cancel any flight when existing or impending conditions are believed to be hazardous. The PIC is the sole manipulator of flight controls.

- **PIC Requirements:**

- Possess an agency Pilot Qualification Card issued by a designated USDA/DOI/USFS Inspector Pilot
- Hold a valid FAA Commercial or Airline Transport Pilot Certificate with a current Instrument Rating
- Have a current statement of competency (FAA Form 8410-3) for the aircraft to be flown
- Hold a current FAA Class I or Class II Medical Certificate as appropriate to the ratings held and utilized
- Read and sign a safety briefing sheet
- Have accumulated the minimum flight hours listed below:

▪ Total time (all airplanes)	1,500 hours
▪ Airplane Pilot in Command	1,200 hours
▪ Category and Class to be flown	200 hours
▪ Cross Country	500 hours
▪ Typical Terrain	200 hours
▪ Category—Preceding	12 months 100 hours
▪ Preceding 60 days	10 hours
▪ Night (all aircraft)	100 hours
▪ Instrument—actual/simulated total	3/75 ours
▪ Make and Model to be flown	25 hours
▪ Make and Model preceding	12 months 10 hours

- **Aircraft Requirements**

Aircraft must:

- Have a seating capacity for a minimum of three passengers
- Be capable of maintaining 90 knots indicated airspeed while equipped as prescribed in the contract
- Be twin engine, all metal, unpressurized, with at least 200 horsepower per engine
- Be maintained and operated in accordance with FARs and the regulations of the States in which aircraft may be operated (14 CFR 135.1 subparagraph (b) notwithstanding.) Note: Status as “public aircraft” does not alter the requirement for compliance with the above

regulations.

- Be clean inside and out
- Have certified power plant and airframe log books and other necessary papers substantiating the maintenance, overhaul and airworthiness history

- **General Requirements**

In addition to pilot and aircraft requirements, the contract also states that:

- Only personnel or cargo (including the Contractor's) authorized by DNR shall be aboard the aircraft during use by DNR
- Night flying is permitted only to and from airports with operational runway lighting systems. Minimum acceptable airport lighting system consists of runway boundary and threshold lights
- Instrument flight operations shall be in accordance with FAR 135
- Smoking in or around aircraft is prohibited
- Alcohol will not be served to Government employees on flights
- Flights shall be conducted within the allowable weight and balance limits of the aircraft, and in accordance with FAR 135.63 (c)
- At the time of an actual flight, the PIC may be requested to complete a load calculation considering the conditions present at the time of the flight. DNR will furnish a form if requested

- **Designated Base Requirements**

The designated base for the Forest Health Survey Flight contracted aircraft shall be any all-weather surface runway greater than or equal to 3,000' in length located in one of the following counties:

Oregon

Washington

Clackamas

Thurston

Multnomah

Washington

Clark

Cowlitz

King

Lewis

Pierce

## **18. National Guard**

- **Training Requirements**

- The unit Standardization Instructor Pilot (SIP) will receive an annual check flight from a USDA/DOI/USFS Inspector Pilot. The unit SIP will ensure that each pilot is trained to standard and will forward names to the Region 6 office to get their Cooperator's Letter prior to conducting fire operations. If the Region Inspector Pilot is not available the WA DNR Chief Pilot may qualify the unit SIP for training their personnel for DNR fires only (Not on federal land).

- WA DNR Chief Pilot and APM will setup, coordinate, and conduct annual training for the WA ARNG Aviation unit. That training will consist of the following at a minimum:
  - DOI/USFS Annual Briefing – Region USFS Inspector Pilot
  - Agency Aviation Policy & Safety – Aviation Program Manager
  - ICS Organization & Terminology – Chief Pilot, APM or Fire ADM
  - Mission & Roles – Chief Pilot, APM, or Fire ADM
  - Fire Shelter – Training Department
  - Fire Traffic Areas – ATGS, Chief Pilot, or APM
  - Aerial Fire Fighter Pilot Techniques – Chief Pilot
  - Passenger Hauls – Chief Pilot or APM
  - Cargo – Chief Pilot or APM
  - MEDEVAC/Emergency Evacuation – Chief Pilot or APM
  - Mobilization and Demobilization (Including Return of equipment) – APM or AADM
  - Logistics/Finance – APM OR AADM
  - Equipment Inspection (Bambi, Longlines, Etc.) – Helitack Personnel
  - Fire Behavior & Weather – DNR Wildfire Meteorologist or Training Department
  
- **Pilot Requirements.**
  - Annually complete IAT courses MH-1, MH-2, MH-3, A-110, and Mountain Flying.
  - Receive annual USFS/DNR agency training.
  - Receive flight training in:
    - Mountain Flying
    - External Loads (Longline)
    - Bucket Operations (Spot Drops and Line Drops)
    - Communications within the Fire Traffic Area
  - Annual military class 2 flight physical.
  - Current DD FORM 2992 (Up-slip).
  - Successfully pass unit fire operations flight evaluation.
  - Designated in writing to conduct fire operations (Cooperator's Letter).
  - Designated for fire operations tasks on the Pilot's Commander's Task List and endorsed by the ATP commander or representative.
  
- **Aircraft Requirements.**
  - Aircraft will be maintain IAW service manuals, directives, AWRs, and applicable regulations.
  - A current copy of the Cooperator's Agreement will onboard the aircraft during fire operations.
  - The aircraft logbook will be in the aircraft during flight.

*WA DNR Aviation Operating Plan & Standards*

- All occupants onboard the aircraft and in the vicinity of fire operations will have a Fire Shelter readily available to them.
  
- All occupants conducting water bucket operations or overwater flight will have on a Portable Flotation Device (PFD) which has to be manually operated. (No water activated PDFs are authorized)
- Personnel Protective Equipment will be in accordance with Army Regulation 95-1: Flight Regulations.

**19. DNR Pilot/Signature Designation Authorization.**

- Each pilot assigned to DNR Wildfire Aviation will receive authorization from the Chief Pilot and Aviation Program Manager to conduct flight operations in Washington DNR aircraft and signature authority to enter required items in the aircraft logbook and pilot records for trainers. Pilots will do only items that are authorized on the individual DNR Pilot/Signature Designation Authorization. Authorization and Signature Items include:

- Pilot Flight Duties and Signature Authorities
  1. Pilot in Command (Non-Fire Duties)
  2. Aerial Wildland Firefighter Pilot in Command
  3. Pilot Trainer/Instructor
  4. Chief Pilot/Trainer
  5. Standardization Trainer/Instructor Pilot
  6. Maintenance Test Pilot
  7. Maintenance Test Pilot Instructor
  8. Aircraft ALSE Inspection Technician
  9. Individual ALSE Equipment Inspection Technician
  10. Cargo/Remote Hook Inspection Authority
  11. Aviation Technical Manual and Publication Writer
  12. Bambi Bucket Inspection Technician
  13. Longline Inspection Technician
  14. Pilot Records Keeper
  15. Aviation Safety Officer
  16. Drone Remote Operator
  17. FAA Coordination Representative
  18. USFS/DOI/USDA Representative

**Washington DNR – Wildfire Division – Aviation**

**Aerial Wildland Firefighter Pilot/Signature Designation Authorization**

**Pilot Name: Joe Pilot Pilot Position #: 7779**

- You are hereby designated **Aerial Wildland Firefighter Pilot – Trainer (AWFFP-T)** with an effective date of July 01, 2016.
- Your duties and responsibilities are as per your Position Description File (PDF), the Pilot Training Manual (PTM), the Aviation Operations Manual and Standards (AOPS), APM task list, and the below listed additional duties/authorizations.
- Pilot currency standards are as per the Pilot Training Manual. Pilots are required to maintain all currencies, flight standards, medical standards and required annual/re-current training before executing any official pilot flight duties.
- A copy of this authorization will be maintained in the Pilot’s permanent flight record and MOM.
- **Assigned and Authorized Aviation Duties:**
  - Chief Pilot
  - Pilot in Command
  - Aerial Wildland Firefighter Pilot in Command
  - Pilot Trainer/Instructor
  - Standardization Trainer/Instructor Pilot (Chief Pilot/Trainer)
  - Maintenance Test Pilot (MTP)
  - Maintenance Test Pilot Instructor Pilot
  - Aircraft Aviation Life Support Equipment (ALSE) Inspection Technician
  - Cargo/Remote Hook Inspection Technician
  - Aviation Technical Manual and Publication Writer
  - Drone Remote Operator
  - Pilot Records Keeper
  - DNR FAA Coordination Representative
  - DNR USFS/DOI/USDA Representative
- This designation and authorization remains in effect until upgraded, re-designation, transfer, or termination of this position.

\_\_\_\_\_  
Pilot Signature

\_\_\_\_\_  
Pilot Initials

\_\_\_\_\_  
David Ritchie  
Chief Pilot  
Wildfire Division – Aviation

\_\_\_\_\_  
John Kaikkonen  
Deputy Division Manager (DDM)  
Wildfire Division – Aviation

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# Aviation Operating Plan and Standards (AOPS)

## CHAPTER 4 – Aircraft Operations & Flight Rules

2017

Washington Department of Natural Resources  
Wildfire Division – Aviation Section  
1111 Washington St SE  
Olympia, Washington 98504-7037



# WILDFIRE

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<b>REVISION PAGES &amp; TABLE OF CONTENTS</b>				
<b>Chapter Name</b>	<b>Page #</b>	<b>Initials</b>	<b>Date</b>	<b>Change</b>
Chapter Cover	4-1	DR	3/30/2017	0
Blank Page	4-2	DR	3/30/2017	0
Chapter Table of Contents & Revisions	4-3	DR	3/30/2017	0
DNR/Contracted Aircraft Requirements	4-4	DR	3/30/2017	0
Safety of Flight	4-5	DR	3/30/2017	0
Aircraft Requirements, Mission Planning & Briefing	4-6	DR	3/30/2017	0
Pre-Flight, Passengers	4-7	DR	3/30/2017	0
Passengers	4-8	DR	3/30/2017	0
Passengers, Cargo	4-9	DR	3/30/2017	0
Cargo, Inoperative Equipment	4-10	DR	3/30/2017	0
Fuel Requirements	4-11	DR	3/30/2017	0
Xponder Reqs, AFF, Maintenance Reqs, Pilot Duty Day	4-12	DR	3/30/2017	0
Pilot Duty Days	4-13	DR	3/30/2017	0
Helicopter Flight Limitations	4-14	DR	3/30/2017	0
Helicopter Flight Limitations	4-15	DR	3/30/2017	0
Helicopter Flight Limitations, Portable Electronic Devices	4-16	DR	3/30/2017	0
Portable Electronic Devices, Sterile Cockpit Procedures	4-17	DR	3/30/2017	0
Sterile Cockpit Procedures, High DA Operations	4-18	DR	3/30/2017	0
Loss of Visual Reference (LVR), Snow Operations	4-19	DR	3/30/2017	0
Snow Operations, Weight & Balance	4-20	DR	3/30/2017	0
Load Calculations, PPE	4-21	DR	3/30/2017	0
PPE, Checklist Usage	4-22	DR	3/30/2017	0
Checklist Usage, Aircraft Refueling	4-23	DR	3/30/2017	0
Contractor and Cooperator Aircraft Requirements	4-24	DR	3/30/2017	0
Contractor and Cooperator Aircraft Requirements	4-25	DR	3/30/2017	0
Contractor and Cooperator Aircraft Requirements	4-26	DR	3/30/2017	0
National Guard Aircraft Requirements	4-27	DR	3/30/2017	0
WA DNR Helicopter Rules of Thumb Planning	4-28	DR	3/30/2017	0
Landing Zone Checklist	4-29	DR	3/30/2017	0
Blank Page	4-30	DR	3/30/2017	0

## **CHAPTER 4 – AIRCRAFT OPERATIONS AND FLIGHT RULES**

### **1. DNR & Contracted aircraft requirements**

#### **a. Responsibility and authority of the pilot in command**

- i. The pilot is responsible for operating the aircraft **within its operating limitations**, as well as the safety of the aircraft, its occupants and cargo. No helicopter will be operated outside of the manufacturer's recommended flight profile, such as aerobatic maneuvers. Flight profiles such as nap of the earth flying or any flight regime (such as "e-ticket rides") **will not be tolerated**.
- ii. The pilot shall comply with the direction of the State except when, in the pilot's judgment, such compliance will be a violation of applicable Federal or State regulations or contracting provisions. The pilot will refuse any flight or situation which he/she considers hazardous or unsafe.
- iii. The pilot will evaluate and approve all missions. On occasions, they may be asked to perform a mission that, in their judgment, is not safe. It is their responsibility to recognize and refuse all such missions. The pilot's word is final as to whether the flight is feasible and can be conducted in a safe and efficient manner. If at any time the passengers and/or helicopter manager feel that the flight or operation should be terminated for safety reasons, it is the pilot's responsibility to honor such requests in a professional manner.
- iv. Before departure the pilot must understand the mission request and have on board the applicable maps and charts. Additionally the pilot is required to be aware of weather forecasts, winds, hazards, temporary flight restrictions and all pertinent information necessary to perform the mission.
- v. The pilot in command of an aircraft is directly responsible for, and is the final authority as to, the operation of that aircraft.
- vi. In an in-flight emergency requiring immediate action, the pilot in command may deviate from any rule of this plan to the extent required to meet that emergency.
- vii. Each pilot in command who deviates from a rule under this plan shall, send a written report of that deviation to the APM and CP/T.
- viii. Designation of Pilot in Command: On flights using multiple pilots' one pilot shall be designated as the Pilot in Command (PIC).

## **b. Safety of Flight**

- i. No person may operate a DNR aircraft or DNR contracted aircraft unless it is deemed not to have a “Safety of Flight” condition that exists as defined by the WA DNR MOM, service directive, or other appropriate documentation as designed by the MOM.
- ii. The pilot in command of a DNR aircraft or DNR contracted aircraft are responsible for determining whether that aircraft is in condition for safe flight. The pilot in command shall discontinue the flight when un-airworthy mechanical, electrical, or structural conditions occur.
- iii. If a Drone or non-participating aircraft is operating in and around a Fire Traffic Area all DNR aircraft will remain clear until a time when Safety of Flight, communications, coordination and approval has been achieved with the Drone or non-participating aircraft.

## **c. Operations**

- i. All aircrew members (pilots, helicopter manager, helitack crew, etc.) will maintain situational awareness, remain alert and identify all potential hazards during all phases of aircraft operations. All aircraft operations shall be planned with the utmost consideration given to safety. If a DNR helicopter is operated with two DNR pilots (including training flights), one shall be designated as PIC of the aircraft. The PIC for DNR will be determined by pilot seniority within the agency, unless otherwise determined by the APM or the CP/T. The CP/T maintains a pilot seniority list and reviews the list with the helicopter pilots during spring training. The PIC has ultimate authority over operations and flight safety.
- ii. No person may operate a DNR aircraft or DNR contracted aircraft without complying with the operating limitations specified in the approved Airplane or Rotorcraft Flight/Operations Manual, markings, and placards, or as otherwise prescribed by the certificating authority.
- iii. No person may assault, threaten, intimidate, or interfere with a crewmember in the performance of the crewmember's duties aboard an aircraft being operated.
- iv. No person may operate an aircraft in a careless or reckless manner so as to endanger the life or property of another.
- v. No pilot in command of a DNR aircraft or DNR contracted aircraft may allow any object to be dropped from that aircraft in flight that creates a hazard to persons or property. However, this section does not prohibit the dropping of any object if reasonable precautions are taken to avoid injury or damage to

persons or property (i.e. Water drops, etc.).

- vi. DNR pilots are required to know from memory all aircraft limitations and emergency procedures listed in Chapters 5 & 9 of the UH-1H(M) Operator's Manual (OPSMAN) -10-1.

**d. Alcohol or drugs.**

- i. The use and carriage of alcohol or drugs will be IAW 14 CFR §91.17, §91.19, and DNR Policy.
- ii. Alcohol and illegal drugs are prohibited on DNR aircraft and DNR contracted aircraft.

**e. Mission Preparation and briefing**

- i. Helicopters
  1. DNR Helicopter Coordinator.
    - i. Coordinates, directs, and evaluates tactical/logistical helicopter operations.
  2. Helicopter Manager (HMGB)
    - i. The HMGB briefs the pilot and driver and may brief the crew, if practical, prior to each launch upon receiving a mission request. The HMGB and pilot ensure all gear is secure within and around the aircraft. The HMGB discusses with the pilot destination, requesting agency, other aircraft assigned to the incident, air to ground frequency and other aircraft assigned to the incident, air to ground frequency and an air to air frequency before departure.
    - ii. The HMGB and pilot plan the flight appropriate to the mission to include, but not limited to:
      - Flight route
      - Air space consideration
      - Fuel duration and location
      - Method of Flight Following
      - Set up of frequencies on FM and Victor radios
    - iii. The HMGB and PIC communicate and come to agreement regarding making changes to preloaded FM radio channels and frequencies. The HMGB provides the Fuel Truck Driver and Chase Van with the incident location and destination, if the destination is different than incident location.

- ii. Single Engine Air Tankers (SEATs)
  - 1. The SEAT Manager (SEMG) will conduct all mission preparation and briefings in accordance with the Interagency Single Engine Air Tanker Operations Guide (NFES 001844), contract requirements, and other company approved regulations & rules.
- iii. Air Attack/ATGS
  - i. The Air Tactical Group Supervisor (ATGS) will conduct all mission preparation and briefings in accordance with the Interagency Single Aerial Supervision Guide (NFES 2544), contract requirements, and other company approved regulations & rules.

**f. Pre-flight action**

- i. Each pilot in command shall, before beginning a flight, become familiar with all available information concerning that flight. This information must include—
  - 1. Mission Information
  - 2. Weather Information
  - 3. Weight & Balance
  - 4. Load Calculation
  - 5. Aircraft Performance. (See DNR ROT Planning Sheet This Chapter 4.)
  - 6. Pre-Flight Inspection
  - 7. Fuel Sampling
  - 8. Pre-Flight Logbook entry (DNR Helicopters)
  - 9. Maintenance review of logbook
  - 10. Verify aircraft hours
  - 11. Fuel Requirements
  - 12. Manifesting (Passenger & Cargo)
  - 13. TFRs
  - 14. NOTAMs
  - 15. Communication Requirements
  - 16. Verify required publications, certificates, letters, etc. IAW the Operator's Manual

**g. Passenger Transportation Flights**

- i. Flights with passengers fall into four categories:
  - Fire assignments
  - Maintenance flights
  - Passenger flights

- Training/Evaluation
- ii. DNR employees and others who use the aircraft for travel do so in a manner that minimizes travel time and cost. Employees should plan ahead, organize trips for multiple purposes, consolidate flights with other employees wherever possible, and fill as many seats on each flight as possible.
- iii. Non-essential passengers during any mission require approval of the Commissioner of Public Lands, Department Supervisor or Deputy Supervisor for Wildfire Division.
- iv. Anyone not traveling in the performance of official state business, including family members, relatives, friends, pets, etc. is **prohibited** from flying on state operated aircraft or vehicles.
- v. When usage requests conflict, WD authorizes and schedules flights in the following priority order:
  - Fire control and emergency fire suppression. This includes Air Attack, fire reconnaissance flights and the transportation of fire crews, tools, equipment, helicopter pilots, and mechanics.
  - Management of DNR programs. The purpose of this usage is to save per diem costs and promote the effective use of DNR staff and members of the public in support of DNR programs by enabling individuals to conclude business in one day instead of several days.
  - Requests from other state agencies.
- vi. Personnel approved by DNR as authorized passengers must be on **official** state business and/or be essential to the mission. Passengers are not limited to state employees; they may include, if approved by their employer:
  - Washington State employees on official business
  - Persons on official state business accompanying DNR
  - Specific persons approved by the WD manager, such as students of State schools for the deaf and the blind or media representatives
  - Elected State of Washington officials, approved by the Commissioner of Public Lands or Deputy Supervisor
  - Legislators and their staff, approved by the Commissioner of Public Lands or Deputy Supervisor
  - Evacuees or citizens needing urgent medical care
  - Emergency personnel



*vii. Other Restrictions on passengers*

- Restricted use helicopters are prohibited from carrying passengers
- All personnel who are transported in a DNR or DNR contracted aircraft will receive a passenger briefing before each flight, prior to boarding. This does not apply to qualified crew members
- The HMGB is responsible for ensuring that only mission essential passengers are onboard the aircraft. The HOC/ASO or APM will be contacted if there is a question regarding the status of a passenger
- A minimum of one qualified helicopter crewmember will assist in the loading and unloading of passengers.
- Seat belts and shoulder harnesses will remain fastened until instructed by the PIC.
  - Seat Belts/Shoulder Harnesses will be fastened for all takeoffs, landings, and at all times while in flight.
  - Passengers will not unbuckle seat belts until told to do so by the PIC.
- Passengers are forbidden from the following flight profiles. (Flights are limited to minimum essential personnel)
  - Maintenance Flights
  - Emergency Procedures Training
  - Night Flights
  - Experimental Test Flights
  - Aerial Demonstration Flights
  - One time Maintenance Recovery Flights

*viii. Passenger Conduct*

- No passenger or crewmember will be permitted to board a DNR helicopter if acting irrationally or abnormally or as if under the influence of alcohol or drugs, unless the individual is under the care of an attendant.
- Smoking is not allowed aboard DNR helicopters, or within 50' of the aircraft.
- Weapons in Aircraft: Dangerous or deadly weapons, to include firearms and long bladed knives, are not permitted on DNR aircraft. The exceptions are employees of government agencies who are authorized to carry these weapons as part of their duties. In these instances, the pilot must be made aware of their existence in advance. CWN aircraft must abide with Federal Aviation Administration (FAA) rules pertaining to the transportation of hazardous materials.
- DNR's Liability and Aviation Accidental Death & Disability Insurance cover all passengers. See Chapter 1 for more information.
- Illegal Drugs and alcohol is prohibited aboard DNR aircraft.

For further information pertaining to passenger briefings, See WA DNR TM 1-1520-210-1-10 Chapter 8 crew/passenger briefing.

## h. Cargo.

- i. Pilots carrying cargo in DNR aircraft or DNR contracted aircraft ensure that a cargo manifest has been completed prior to each flight. One copy of this manifest is retained in the aircraft and the other at the departure point. Load and/or personnel changes occurring at intermediate stops are noted on the manifest.

### ii. *Internal Cargo*

- The pilot shall ensure that all cargo is properly loaded and secured; no loose items are to be carried in the cargo or cabin areas.
- Contractor will supply adequate cargo nets, straps, etc. necessary for cargo security.
- Hazardous materials must be in approved containers.
- Pilots shall assure that all Hazardous Materials are transported in compliance with the Interagency Hazardous Materials Handbook and its exemption. A current copy of this Handbook and exemption, and the Emergency Response Guide, must remain onboard the helicopter at all times.

### iii. *External Cargo*

1. Pilots will **avoid** overflying residences, congested areas, heavy traveled roads, areas with personnel or property to the best of their ability with safety in mind while carrying an external load of any kind (i.e. Cargo, Water bucket, etc.).
2. The pilot will not allow a passenger or non-essential crewmember to be carried on board during external load operations unless specifically approved by the local "Unit Aviation Manager." (IHOG, Chapter 10, Section I, Paragraph C and Chapter 10, Section IV) *(This requirement does not apply for DNR Firefighter checkoff flights, ride along for new pilots, or proficiency checks by the CP/T or other designated trainer)*
3. External Cargo Equipment will be inspected and maintained in accordance with the appropriate operator's manual or approved inspection procedure. A maintenance log will be kept of all inspections conducted. External Cargo Equipment includes but is not limited to the following:
  - Cargo Hooks (Aircraft & Remote)
  - Slings
  - Swivels
  - Longlines
  - Taglines
  - Bambi Buckets
  - Cargo Nets

**i. Inoperative instruments and equipment**

- i. WA DNR UH-1H (M) pilots will refer to the WA DNR TM 55-1520-210-10-1 (OPSMAN) Inoperative Equipment List (IEL) for inoperative equipment restrictions.
- ii. Equipment not listed will referred to the AMS and APM/CPT for approval or disapproval of flight.
- iii. The AMS and APM/CPT may approve flights on a case by case basis not IAW the IEL.
- iv. The Pilot in Command is the final authority whether to accept inoperative condition or not.
- v. Contracted aircraft will refer to their approved company's MMEL, approved FAA operator specifications or follow 14 CFR §91.213 for guidance.

**j. Fuel Requirements**

- i. All
  - i. An aircraft fuel sample will be taken prior to flight. Fuel settling times are listed in the WA DNR UH-1H (M) Operator's Manual. (Not required for refuels during fire operations)
  - ii. Only approved fuel types shall be used for operations in accordance with the approved aircraft operator's manual.
  - iii. All DNR Fuel Trucks will be sampled daily and after refuels prior to refueling any DNR aircraft
  - iv. DNR helicopters required LubriBor® mixing with fuel. See Chapter 5 for more details.
- ii. Helicopters
  - i. Day – 20 minutes at cruise (minimum)
  - ii. Night – 30 minutes at cruise (minimum)
  - iii. Contractors – If company policy is greater use the greater value
- iii. Airplanes
  - i. Day – 30 minutes at cruise (minimum)

- ii. Night – 45 minutes at cruise (minimum)
- iii. Contractors – If company policy is greater use the greater value
- iv. WA DNR Helicopters
  - i. When refueling from a non DNR fuel truck or site avoid adding PRIST or types other fuel additives to the fuel unless approved by the Maintenance Operations Manual (MOM) or the Aircraft Operations Manual (OPSMAN -10-1).
  - ii. Pilot will ensure LubiBor is added to fuel tank prior to refuel IAW the MOM.

**k. ATC Transponder and altitude reporting equipment use**

- i. Will be IAW §91.215 or as dictated by ATC at all times other than fire missions.
- ii. For fire missions aircraft will squawk 1255.
- iii. Aircraft will squawk Mode 3 with altitude ON.

**l. Aircraft Flight Following (AFF)**

- i. AFF shall be on and operational for all flights. Inoperative AFF equipment shall be logged in the aircraft logbook.
- ii. Flight without an operational AFF device is authorized as long as the pilot flight follows in accordance with the appropriate policy.

**m. Maintenance Requirements**

- i. All maintenance requirements on WA DNR aircraft will be IAW the WA DNR Maintenance Operations Manual (MOM).
- ii. Contractors must provide the APM with their respective maintenance system, records, and approvals upon request.

## n. Pilot Flight Time and Rest Requirements

- i. The following crew rest and pilot duty times are maximum allowable limits. Environmental and physical conditions must be considered for each flight and individual. Circumstances may dictate that the limits are reduced from maximums. Pilots have the responsibility to evaluate themselves to determine if they are **safe to fly**, within the limits prescribed. The following is a brief

description of duty limitations. All flight time, regardless of how or where performed, except personal pleasure flying, will be reported to the CP/T by each flight crewmember and used to administer flight hour and duty time limitations.

Flight time to and from the Host Base as a flight crewmember (commuting) will be reported and counted toward limitations if it is flown on a duty day. Flight time includes, but is not limited to: military flight time; charter; flight instruction; 14 CFR 61.56 flight review; flight examinations by FAA designees; any flight time for which a flight crewmember is compensated; or any other flight time of a commercial nature whether compensated or not.

- Pilot flight hour computations shall begin at liftoff and end at touchdown and will be computed from the flight hour meter installed in the aircraft. All flight hours shall fall within duty hour limitations.
- **Flight time shall not exceed a total of 8-hours per day.**
- Pilots accumulating 36 or more flight hours in any 6-consecutive duty-days shall be off duty the next day. Flight time shall not exceed a total of 42-hours in any 6-consecutive days. After any 1-full off-duty day, pilots begin a new 6-consecutive day duty-period.
- During any 14 consecutive day period, each pilot shall have a minimum of two (2) full days off duty. Days off need not be consecutive but are on a sliding scale. For example, if after two (2) consecutive days off the pilot is off two non-consecutive days in the next 14 day period, then the next 14 day period must be calculated from the first non-consecutive day off.
- Assigned duty of any kind **shall not exceed 14-hours in any 24-hour period.** Within any 24-hour period, pilots shall have a minimum of 10-consecutive hours off duty immediately prior to the beginning of any duty-day. Local travel up to a maximum of 30-minutes each way between the work site and place of lodging will not be considered duty time. When one-way travel exceeds 30 minutes, the total travel time shall be considered as part of the duty day.
- Duty includes flight time, ground duty of any kind, and standby or alert status at any location.

- During times of prolonged heavy fire activity, the Government may issue a notice reducing the pilot duty-day/flight time and/or increasing off-duty days on a geographical or agency-wide basis.
- Flights point-to-point (airport to airport, heliport to heliport, etc.) with a pilot and co-pilot shall be limited to 10-flight hours per day. (A helicopter that departs “Airport A,” flies reconnaissance on a fire, and then flies to “Airport B,” is not point-to-point).
- Pilots may be relieved from duty for fatigue or other causes created by unusually strenuous or severe duty before reaching duty limitations.

#### **o. Helicopter Flight Limitations**

- i. **Operational Flight Routes.** Helicopters are not flown into conditions below the minimums prescribed in 14 CFR §91.
- ii. **Temporary Flight Restrictions (TFRs).** DNR aircraft pilots and contractors will stay updated daily on the status of any TFRs in areas of expected or potential flight. Pilots are to avoid TFRs which are not associated with assigned mission. For more information, Chapter 9, Section VII Airspace Coordination and TFRs.
- iii. **Flight Following.** See Chapter 8, Section VII Flight Following and Fire Contact Standards set forth in Chapter 8 applies to helicopters whether on an incident, or not (such as for training flights).
- iv. **Weather/Wind Limitations.** DNR helicopters follow the manufacturer’s specifications for wind and take-off and landing limitations. Refer to the UH-1H (M) operator’s manual.
  - *Flight weather planning:* Pilots will obtain departure, en-route, destination, and alternate (if used) weather information before takeoff.
  - No attempts should be made to start the aircraft or fly in any conditions set forth by the manufacturer as out of limitations.
  - No helicopter is intentionally flown in to known icing conditions.
  - Aircraft will not be intentionally flown into known or forecasted extreme or severe turbulence.
  - Aircraft will not be intentionally flown into thunderstorms. The pilot should circumnavigate all thunderstorm activity by at least 20 nm.
  - Aircraft will not be intentionally flown in the vicinity of an active

volcano. (Active is defined as known Ash in the air)

- Planned flight into known Instrument Meteorological Conditions (IMC) is prohibited in DNR Helicopters. Contractor aircraft is as per the Operator's Manual and governing regulations.

v. **Night & Instrument Flight.** Only day Visual Flight rule (VFR) operations, as described in FAR Part 91, are allowed for DNR helicopters – with the exception as noted below. The intent of the exception is to allow helicopters to return from a fire operation to a known operational base under prescribed conditions of night flight or a ferry flight. DNR helicopters are limited to day flight between the periods of time 30 minutes before official sunrise to the period of time 30 minutes after official sunset – except when returning to an airport shown on an FAA approved Aeronautical Sectional Chart and the following criteria are met:

- The portion of the flight which is later than 30 minutes after official sunset is not in mountainous terrain, and
- Visual conditions provide at least 5 miles visibility and ceiling of 3000 ft. or greater are present for the entire flight route, takeoff, & landing destinations, and
- The pilot has met night flight qualification and training in accordance with 14 CFR §61 and this policy, and
- The Aviation Program Manager or Chief Pilot/Trainer pre-approves each night operation, and
- No other aircraft limitations exist to restrict the flight, and
- The aircraft is equipped for Night flight IAW 14 CFR §91, and
- Minimum enroute altitude will be 1,000 ft. AGL minus takeoffs and landings, and
- A map reconnaissance will be complete for hazards, minimum safe altitudes, and routes, and
- Fuel reserves will be no less than 30 minutes at cruise, and
- The pilot maintains positive radio communication and flight following through-out the flight, and
- Dispatch will be advised on initial contact of time enroute, personal onboard, route, fuel onboard (In hours, minutes), destination, and AFF, and

- At least one DNR Helitack crewmember is on the ground at the destination airport,
  - Radio communication is confirmed with the crewmember at the airport before the transition to night flight commences, **or**
  - The pilot is arriving at an airfield with operational lighting and has operational weather reporting capability
  - Mountainous terrain, which compounds the effects of low sun angle, visibility can be severely compromised before sunset. Therefore, operating hours may be further limited at the discretion of the pilot or HMGB due to diminished visibility caused by smoke, shadows, etc.
  - For current daily sunrise/sunset charts see <http://aa.usno.navy.mil/>.
- vi. **Flight hazards.** Local flight hazard maps for areas of base operations are posted at the helicopter base and updated/reviewed annually. Any known flight hazards are communicated participating and visiting aircraft. On large incidents with helibases, flight hazard maps are provided and posted by the helibase manager.
- vii. **Visibility.** Minimum visibility requirements, as set forth in 14 CFR §91, are adhered to. On incidents, the minimum visibility required for day flight operations is 0.5 mile. Refer to 14 e for night flight requirements.
- viii. **Flight altitudes.** All helicopters maintain an altitude of at least 500' AGL (above ground level) when operating on incidents, unless specific operations require descent below 500'. Examples of exceptions include: helicopter take-offs and landings, special helicopter traffic patterns, helicopter water and foam drops, dipsites, confined area landings, helicopter low-level reconnaissance or mapping. When not on incidents, or when in transit to/from an incident, helicopters adhere to the altitude requirements of 14 CFR §91.
- ix. **Over water flights.** When flying over water and beyond power-off auto rotation distance to shore, all passengers, crewmembers, and pilots are required to wear approved and fitted personal flotation devices (PFD). Pilots and Helitack personnel ensure all passengers are briefed on PFD use prior to departure, and ensure the flotation devices are properly adjusted. Flotation devices, like other survival equipment, are inspected annually in accordance with the provisions contained in the owner's manual. Flights over salt water will be written up in the aircraft logbook and note the time over water and possible water ingestion/contamination for maintenances information and actions.



- x. **Use of airports, airspace, landing areas and flight routes.** When working for the State, DNR pilots and contracted pilots observe all normal traffic patterns, procedures, and regulations associated with the use of airports. All applicable CFRs, including those pertaining to TFRs are adhered to. Special care is exercised when maneuvering near light aircraft due to the potential for damage caused by rotor wash.
  
- xi. **Remaining at the aircraft controls.** The helicopter PIC remains at the controls of the aircraft while the rotors are turning, regardless of the rotor speed, unless there is another qualified helicopter pilot at the controls, or unless the controls are locked and the PIC remains within the area of the rotor arc (example: to check that the cargo, pilot swap or passenger doors are secure when other personnel are not available). Locked controls include: throttle at idle position, Force Trim ON and operational, and Collective lock on.
  
- xii. **Lighting.** Aircraft will have lighting on IAW 14 CFR §91 for all non-fire operations. In addition, during fire operations pilots will have their Pulse lite system (If installed) on for all phase minus refuel operations.
  
- xiii. **Portable Electronic Devices.**
  - Only issued DNR electronic devices may be used onboard DNR aircraft
  - The APM may approve the use of other devices on a case by case basis
  - Flash photography is prohibited
  - All devices that cause interference with any aircraft systems is prohibited
  - Only approved devices shall be used on contracted aircraft
  - Portable Garmin and/or Stratus ADS-B Transponders are authorized for flight in DNR aircraft
  - Only approved DNR devices will be allowed to connect to DNR helicopter WIFI hotspots, they include:
    - Issued DNR IPADs (EFBs)
    - Division approved Personnel Pilot Tablets using Foreflight/Garmin Pilot
    - Issued DNR Phones

- **DNR Helicopter Hotspots will be used for official DNR flight missions business only while in flight.**
- **Pilots may use the hotspot on the ground when conducting official DNR business duties.**
- **Electronic devices will only be used when it enhances safety of flight. Use during Sterile cockpit procedures is prohibited during flight.**

xiv. **Sterile Cockpit.** No flight crew member may engage in, nor may any pilot in command permit, any activity during a critical phase of flight which could distract any flight crew member from the performance of his or her duties or which could interfere in any way with the proper conduct of those duties. Activities such as in cockpit distractions, engaging in non-essential conversations within the cockpit and non-essential communications between the cabin and cockpit crews, and reading publications not related

to the proper conduct of the flight are not required for the safe operation of the aircraft. Sterile cockpit procedures will be applied by the pilot during:

- Landings
- Takeoffs
- Taxing
- Longline/External load operations
- Approaches
- Takeoffs
- Water/Foam Drops
- In areas with heavy air traffic
- High/Low reconnaissance
- Flights below 500 ft. AGL
- Within 5 nm radius of an airport
- Communications by managers, aircrews, or passengers should be isolated from the pilot to avoid distractions during the times listed above unless needed for safety of flight.

xv. **High Density Altitude.** At high density altitudes, helicopter performance is decreased. The combination of temperature, humidity and pressure altitude formulate the makings of density altitude. The two factors that create concerns for high density altitude performance are high elevations and high temperatures. High density altitude operations include, but are not exclusive of, locations of high elevation. Performance of the aircraft due to high density altitude will be less than aircraft performance at lower elevations and temperatures. Aircraft capabilities/limitations must be considered when ordering resources for anticipated high density altitude missions. Changes in performance include:

- The allowable payload will be reduced.
- Increased turn-around time for delivery of water/retardant drops.
- With bucket/tank operations, the reduction in water volume may not allow penetration of any significant canopy and reduce drop effectiveness due to wind drift.
- The aircraft's responsiveness will be affected and the Pilot must anticipate (stay ahead of) the aircraft flight control inputs.
- The high density altitude and variable wind are going to greatly reduce the helicopter's ability to safely slow down to below Effective Translational Lift (ETL) airspeed.
- Hovering spot drops should be avoided in areas with high density altitude.

xvi. **Helicopter Operating in Loss of visual reference conditions.** Conditions which may lead to loss of visual reference include by not limited to brown-outs during landing, flying in heavy smoke conditions, and instrument meteorological conditions (IMC). If a pilot experiences loss of visual references the pilot will proceed as follows:

- *Brown condition during landing*
  - i. Abort landing attempt
  - ii. Level the wings on the attitude indicator (Turn only to avoid known obstacles)
  - iii. Establish a climb
  - iv. Climb straight up using instruments
  - v. Clear all obstacles
  - vi. Locate alternate landing site
- *Heavy Smoke loss of visual reference*
  - i. Abort drop or intended action

- ii. Level the wings on the attitude indicator (Turn only to avoid known obstacles)
- iii. Establish a climb
- iv. Climb straight up using instruments
- v. Clear all smoke and obstacles
- vi. Assess another course of action to accomplish mission
- *Inadvertent Instrument Meteorological Conditions (IIMC) en-route*
  - i. Announce IMC to crew
  - ii. Level the wings on the attitude indicator (Turn only to avoid known obstacles)
  - iii. Establish a climb to minimum safe altitude
  - iv. Airspeed establish best rate of climb
  - v. Squawk 7700 and alert ATC
  - vi. If VMC is encountered continue VMC and as soon as practical
  - vii. If required accomplish instrument approach at the nearest airport
- xvii. **Helicopter Operating in Snow-Covered Areas.** “Bear paws” or “full length skis” are needed in deep snow. The aircraft flight manual must be reviewed to determine specific requirements and/or limitations. Regardless of snow depth, extra caution is required when operating in areas of freshly fallen snow due to possible whiteout conditions, created by the rotor wash, which could result in the loss of positional awareness. Special pilot techniques are required for safe operations when landing in 18 inches or more of undisturbed or crusted snow (not hard packed) in most light and medium helicopters that are equipped with high skid gear.

Snow depths that are substantially less than 18 inches may require equipped with high skid gear. Snow depths that are substantially less than 18 inches may require height skid gear. Failure to use special operating techniques can be catastrophic if the tail rotor contacts the snow surface. Dynamic rollover is also possible. In addition, special passenger entry and exit procedures are required when operating in these conditions. All WA DNR pilots landing in snow will be trained to do so prior to attempting single pilot. In addition to pilot training the following is required prior to snow operations:

  - Approved by the Agency
  - High/Low/Ground Reconnaissance prior to landing
  - Pilot on the controls will not leave the controls for any reason

- Approved or authorized landing site is selected
- Undisturbed snow depth is less than 18 inches
- Pilots will conduct an Instrument Takeoff if White-Out conditions exists and the pilot loses ground reference at any time during an approach or landing
- The pilot is reasonable assured that the landing site is stable and rotor clearances can be maintained

**p. Weight and Balance.** It is the pilot's responsibility to ensure that the aircraft is operated within the aircraft Gross Weight and Center of Gravity limitations as published in the aircraft's WA DNR approved Flight Manual or the approved manufacturers aircraft operator's manual.

- (DNR Helicopters) Official aircraft weighting will occur no less than every 24 months. (UH-1H(M))
- All other aircraft will be weighed IAW its respective Operating Procedures, Policies, and regulations
- (DNR Helicopters) Weight and Balance Forms will be reviewed and updated by the CP/T and AMS annually with the most current placed in the aircraft's logbook for DNR helicopter aircraft
- Pilots will review and check weight & balance forms for accuracy prior to every flight
- (DNR Helicopters) Maintenance and the CP/T will use the AWBS program in completing the weight and balance forms
- (DNR Helicopters) Pilots may use the IBal app or Garmin Pilot Weight & Balance located on the official DNR pilot electronic kneeboard for field computations
- (Contracted Aircraft) Aircraft Weight & Balance Forms will be IAW with manufactures requirements, Federal Regulations, or appropriate approved policies.

**q. Load Calculations and Manifesting**

- Helicopters
  - i. The Standard Load Calculation Form (AMD-67/FS 5700-17) will be used for all flights.
  - ii. The pilot is responsible for filling out all sections as directed in the Load Calculation instructions, as well as ensuring that accurate aircraft

weight and appropriate performance charts are utilized in the calculations. For the purpose of computing the Interagency Load Calculation, only current, applicable FAA approved Performance Charts shall be used. No performance enhancing data (Power Assurance Checks, etc.) will be authorized. Only FAA approved charts based on minimum specification engine performance shall be used.

- iii. A load calculation will be completed prior to the first flight of the day. Additionally, when conditions change (i.e., altitude, temperature or weight), a new load calculation will be filled out. (IHOG, Chapter 7, Section III, Paragraph B)

- All Aircraft

- i. The pilot-in-command shall ensure that a manifest of all crewmembers and passengers onboard has been completed. A copy of this manifest shall remain at the point of initial departure. Manifest changes will be left at subsequent points of departure when practical. In those instances involving frequent changes of passengers, where multiple short flights will be made within a specific geographical area, a single manifest of all passengers involved may be left with an appropriate person to preclude unreasonable administrative burden.

**r. Personal Protective Equipment (PPE)**

- Helicopters

- i. Pilots shall wear an aviator's protective helmet, with a chinstrap fastened whenever the helicopter is in flight during fire missions and longline operations. (A list of approved helmets can be found in the ALSE handbook)
- ii. Pilots may use an approved aviation headset when conducting non-fire missions. (Ferry flights, demo flights, etc.) Training for fire mission constitutes a fire mission.
- iii. Pilots shall wear long sleeved flight clothing made of fire resistant polyamide or aramide material, leather boots, and leather, polyamide, or aramide gloves. The shirt, trousers and boots shall overlap by two (2) inches when the pilot is at the controls. Pilots will wear DNR issued PPE clothing (flight suit).
- iv. Pilots shall wear fire resistant undergarments made of cotton or non-flammable material.
- v. All occupants will have a fire shelter onboard the aircraft when operating on a fire mission.

- vi. A personal floatation device (PFD) will be worn by each individual on board the helicopter when conducting operations beyond power-off gliding distance to shore and on all hovering flight operations conducted over water sources such as ponds, streams, lakes and coastal waters. This equipment will be maintained in serviceable condition as appropriate to manufacturers' directions.

- **NOTE:** *Water activated PFD's are not permitted!*
- The pilot and HMGB will ensure all passengers and crew are wearing the appropriate PPE prior to flight.

- Airplanes

- i. Will be in accordance with its appropriate Interagency guide (SEAT, Aerial Supervision, etc.)

**s. CHECKLIST USE:**

- The pilot(s) shall use an approved cockpit checklist in accordance with the WA DNR TM 55-1520-210-10-1 that is current, appropriate and accessible to the pilot(s) at the pilot station, other aircraft shall use the company approved or manufacturer's approved checklist and procedures:
  - i. Before starting engines;
  - ii. Engine Starting;
  - iii. Before takeoff;
  - iv. Cruise;
  - v. Rapid Refuel;
  - vi. Before landing;
  - vii. After landing;
  - viii. Engine shutdown;
- Checklist use is **mandatory** at all times that do not pose a safety issue (i.e. Emergency Procedures)
- Contracted aircraft will use checklist as approved by the manufacturer, FAA, or other approving agencies.

## t. **FUELING**

- Only closed port rapid refuel is authorized during helicopter running operations
- Fuel shall pass through a filtering system as outlined in the contract
- During fueling operations, the aircraft and fueling equipment will be bonded to prevent static discharge
- Smoking is prohibited within 50-feet of fuel servicing vehicles, fueling equipment, or an aircraft
- The pilot shall remain at the flight controls while rotors are turning
- There will be no passengers onboard the aircraft while fueling
- (DNR Helicopters) The pilot will follow the WA DNR TM 55-1520-210-10-1 Rapid Refuel Checklist during Hot refuel operations.

## 2. **Contracted Aircraft**

All contracted aircraft are under the control of the Washington Department of Natural Resources (DNR) Aviation Program Manager (APM).

### a. **Duties, Responsibilities, and Standards**

- **Helicopters.**
  - Will follow this guide unless noted for WA DNR aircraft only
  - Will abide by all appropriate Federal Aviation Regulations that are applicable for your aircraft operations
  - Will conduct all operations for WA DNR in accordance with the appropriate governing regulation for flight (i.e. IHOG, CFRs, WA DNR AOPS, Part 135 Operations Specifications)
  - Conduct all Operations in accordance with the approved contract for service
  - Submit flight reports upon completion to the WA DNR Helicopter Operations Coordinator within 24 hours of landing
  - Always operate in a safe and effective manner



- **Air Attack/Air Tactical Ground Supervisor**

- Follow the applicable portions of this manual
- Conduct Operations in accordance with the Interagency Aerial Supervision Guide (NFES 2544), Standards for Fire and Fire Aviation Operations (NFES 2724), and approved company operations manuals
- Conduct all Operations in accordance with the approved contract for service
- Always operate in a safe and effective manner
- Submit flight reports upon completion (IAW the contract) to the designated WA DNR Regional representative within 24 hours

- **SEATs**

- Follow the applicable portions of this manual
- Conduct Operations in accordance with the Interagency Aerial Supervision Guide (NFES 2544), Standards for Fire and Fire Aviation Operations (NFES 2724), Interagency Single Engine Air Tanker Operations Guide (NFES 1844), and approved contractor operations manuals
- Conduct all Operations in accordance with the approved contract for service
- Always operate in a safe and effective manner
- Submit flight reports upon completion (IAW the contract) to the designated WA DNR Regional representative within 24 hours

**b. Flight and Duty Limitations.** Flight time is calculated in hours and minutes and begins when the aircraft starts its takeoff run on an ordered flight and ends when the aircraft has taxied to parking, loading, and refueling or warm-up operations. All flights are recorded on Daily Flight Reports and must be approved by the purchaser.

- i. All flight crew members are limited to the following tours of duty and flight hours:
  - Flight time may not exceed a total of 8 hours in any duty day
  - Assigned duty of any kind shall not exceed 14 hours in any 24 hour period
  - Within any 24-hour period flight crewmembers shall have a minimum

of 10 consecutive uninterrupted hours off duty immediately prior to the beginning of the next duty day

- Flight crewmembers accumulating 36 hours of flight time in any 6 consecutive days, or less, are required to have the following day off. Maximum cumulative flight hours shall not exceed 42 hours in any 6 consecutive days

### c. Forest Health Survey Flights

i. Aircraft operations and flight rules for the Forest Health Survey Flights are set forth in an interagency agreement between the USFS and DNR. Overviews of flight and duty limitations are listed in this section, but refer to the contract itself for full scope of requirements.

ii. **Flight and Duty Limitations.** Pilots flying forest health missions shall be limited to the following tours of duty (all work-related flying time shall count

towards the limitations):

- Flight time shall not exceed a total of 8 hours per day
- Flight time shall not exceed a total of 42 hours in any 6 consecutive days
- Pilots accumulating 36-42 hours of flying in any 6 consecutive days shall be off duty the following full calendar day
- Within any 24-hour period, pilots shall have a minimum of 10 consecutive hours off duty, immediately prior to the beginning of any duty day
- During any 14 consecutive days, pilots shall be off duty for two full calendar days. Days off need not be consecutive
- Pilots may be removed from duty for fatigue or other causes created by unusually strenuous or severe duty prior to reaching duty limitations

iii. The Project Coordinator for each of the parties to the contract is responsible for and is the contact person for all communications and billing regarding the performance of the agreement. Contract numbers are liable to change, as scope of the contract is revised, or new vendors are selected. For more information on the contract, or on the program itself, see Forest Health Section of the Aviation Contacts List (Appendix D).

### 3. Military (National Guard).

The National Guard follows aircraft operations and flight rules as set forth in its operational policies and procedures. While flying on fires or employed under the ICS,

and wherein a conflict in regulations occurs, the National Guard follows the more restrictive of the policies.

The use of military aircraft must comply with the requirements established in the *Military Use Handbook*. Military helicopters and flight crews, including National Guard and Coast Guard, must be agency-approved by letter or card. A copy of this letter must be available.

- Military performance planning cards (PPC) may be used, at the discretion of military pilots, in lieu of the load calculation form.
- Helicopter management personnel should be aware that military radios may not be compatible with operation radios and should be checked prior to use.
- Military helicopters might not be configured to carry cargo. If they are, use military external load equipment, provided it meets military safety standards.

For further information, refer to the *Military Use Handbook* or local agreements with military 19 authorities such as the National Guard.

#### 4. Performance Planning Guidance.

- a. Performance Planning is the duty of the Pilot in Command.
- b. All DNR aircraft and contractors are required to perform performance planning prior to every flight.
- c. Pilots will plan daily using maximum altitude, maximum temperature, and maximum DA for the surrounding area during planning.
- d. Pilots will have an expedient method of performance planning in flight if environmental conditions have change from planning during flight.
- e. The Load Calculation **is not** considered Performance Planning for DNR purposes.
- f. WA DNR pilots will use the Rules of Thumb for performance planning in flight.
- g. WA DNR pilots will use the mountain landing checklist prior to descending below obstacles in all confined areas.
- h. National Guard Pilots will provide the HMGB will a completed electronic PPC form daily IAW the respective Helicopter's ATM.

i. WA DNR Wildfire Aviation Rules of Thumb.

**j. WADNR Wildfire Aviation – UH-1H(M) Performance Planning Rules of Thumb**

**Fuel Planning & Quick Reference Numbers**

206 Gallons =	1404 Lbs.
90 Gallons Per Hour =	600 Lbs. Per Hour
22.5 Gallons Per 15 Minutes =	150 Lbs. Per 15 Minutes
1.5 Gallons Per Minute =	10.2 Lbs. Per Minute
Full Tank =	2 hours of flight to next refuel location

**IGE/OGE Performance Planning**

IGE vs. OGE Torque Change	IGE + 6-7 % TQ = OGE Predicted Torque
IGE Hover Power Check	15% Power Margin Maximum 75% TQ
OGE hover Power Check	10% Power Margin Minimum (TQ 80% or less)
1% of Torque =	150 Lbs. of Cargo, Passengers, Fuel, Etc.

**Maximum Gross Weight Planning**

Maximum GW	9,500 Lbs.
Maximum GW with Load Calc. Reduction	9,240 Lbs.

**Center of Gravity/W&B**

Minimum Pilot Weight with Ballast	200 Lbs. when Solo
Maximum Aft CG for External Load Operations	Station 142
Maximum Aft for all other operations	Station 144
Average Weight of DNR Helos w/ Pilot, Full Fuel, Pilot Bag, Bambi w/ 75 ft. Longline	7300 Lbs.
Average Useable Payload	1,940 Lbs. (Non-Jettisonable)
Average Useable Payload	2,200 Lbs. (Jettisonable)

**NOTE: All numbers are based on averages. Aircraft vary depending on many factors. PICs are responsible to determine aircraft performance based on the actual aircraft forms, power checks, current conditions and performance values set for the individual aircraft and situation.**



k. WA DNR Mountain Landing Checklist.

- a. All helicopter pilots will ensure all items listed in the checklist is accomplished prior to commencing Landing Zone operations.

<b>Helicopter Landing Zone Checklist</b>	
Identify Landing Zone	<ul style="list-style-type: none"> <li>• Suitability                             <ul style="list-style-type: none"> <li>• Size</li> <li>• Surface</li> <li>• Slope</li> <li>• Long-Axis</li> <li>• Obstacles</li> </ul> </li> </ul>
Power Requirements	<ul style="list-style-type: none"> <li>• Maximum Torque Available</li> <li>• OGE Hover Power Check (10% Power Margin – Minimum)</li> <li>• Wind Effects</li> <li>• LTE considerations</li> <li>• Settling with Power considerations</li> </ul>
Wind	<ul style="list-style-type: none"> <li>• Assessment</li> <li>• Analysis</li> <li>• Visual Indicators</li> <li>• Mechanical Turbulence</li> </ul>
Route	<ul style="list-style-type: none"> <li>• Approach</li> <li>• Departure</li> <li>• Escape Routes</li> <li>• Abort Points</li> </ul>
High/Low Reconnaissance	<ul style="list-style-type: none"> <li>• Verify Wind Effects</li> <li>• Establish Escape Route</li> <li>• Identify Obstacles</li> <li>• Terrain Effects</li> <li>• Approach Path</li> <li>• Departure Path</li> <li>• Touchdown Point</li> <li>• Go Around Plan</li> <li>• Power Margin (10% minimum)</li> </ul>

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# Aviation Operating Plan and Standards (AOPS)

## Chapter 5 – Aircraft Maintenance Requirements

2017

Washington Department of Natural Resources  
Wildfire Division – Aviation Section  
1111 Washington St SE  
Olympia, Washington 98504-7037



# WILDFIRE

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<b>REVISION PAGES &amp; MASTER TABLE OF CONTENTS</b>				
<b>Chapter Name</b>	<b>Page #</b>	<b>Initials</b>	<b>Date</b>	<b>Change</b>
Cover	5-1	DR/LS	3/30/2017	0
Blank	5-2	DR/LS	3/30/2017	0
Revision Page & Master TOC	5-3	DR/LS	3/30/2017	0
Overview, Aircraft Grounding	5-4	DR/LS	3/30/2017	0
Helicopter Maintenance	5-5	DR/LS	3/30/2017	0
Maintenance Test Flights	5-6	DR/LS	3/30/2017	0
Airframe & Engine Manufactures Specifications, W&B	5-7	DR/LS	3/30/2017	0
Authorized Oils, Greases, Fuel, & Additives	5-8	DR/LS	3/30/2017	0
Maintenance Personnel, Water Buckets, Field Maintenance	5-9	DR/LS	3/30/2017	0
In-Field Maintenance	5-10	DR/LS	3/30/2017	0
In-Field Maintenance	5-11	DR/LS	3/30/2017	0
In-Field Maintenance	5-12	DR/LS	3/30/2017	0
DNR & DNR Contracted Helicopters	5-13	DR/LS	3/30/2017	0
EU/CWN Helicopter Maintenance, DNR DAU Guidance	5-14	DR/LS	3/30/2017	0
DNR Avionics, Cooperator Aircraft	5-15	DR/LS	3/30/2017	0
Cooperator Aircraft	5-16	DR/LS	3/30/2017	0

## **CHAPTER 5 – Aircraft Maintenance & Servicing**

### **1. DNR Maintenance Program Overview.**

- a. DNR maintains the department's fleet of UH1 helicopters under public law 106-181 and 103.411 rules, by definition FAA AC00-1.1A. The FAA has oversight, but no jurisdiction. The NTSB has jurisdiction over public aircraft. The NTSB may work in concert with other national agencies as directed to gain jurisdiction.
- b. DNR uses a combination of FAA, FEPP, IHOG, U.S. Army Technical Manuals, Manufacturer's guidance and agency programs to guide maintenance operations. DNR's AMS/I is responsible for the agency's aircraft maintenance program. The AMS determines which maintenance regulations (FAA, FEPP, IHOG and DNR) are applicable, and develops a maintenance plan for each aircraft accordingly. These detailed plans are covered in DNR's Maintenance Operations Manual (MOM) which is updated no less than bi-annually unless required sooner as dictated by the AMS/I.
- c. Federal Aviation Regulations: FAR 91 stipulate what actions are required, including flight rules. For more information on aircraft maintenance or to view the WA DNR MOM contact the AMS/I or APM.

### **2. Aircraft Grounding**

- a. No aircraft will be flown that has a known "safety of flight" discrepancy unless the APM and AMS, for test purposes or to facilitate maintenance, has authorized a ferry flight. See subsections under aircraft type for specific grounding requirements.
- b. Aircraft Grounding Conditions. Grounding is required for any aircraft when any of the following conditions exist:
  - i. Structural failure or pending failure.
  - ii. Aircraft damage incurred as the result of an accident or incident. On-site inspection by DNR maintenance personnel is required, and a written release must be signed ("in a condition acceptable for return to service in the discrepancy report) before the aircraft will be released to further flight. For all incidents or Accidents the ASO and APM will be advised. Pilots will inform the Chief Pilot. The Chief Pilot will determine if the pilot is temporary grounded and if a post incident/accident flight evaluation is warranted.
  - iii. The Pilot in Command deems the aircraft un-airworthy.
  - iv. Failure of any equipment that adversely affects characteristics of flight.
  - v. Equipment that is inoperative in accordance with the Inoperative Equipment List (IEL).

- vi. The center of gravity is outside published limitations or weight beyond the control or structural limits of the aircraft. Weighing is to occur no less than every 24 months.
  - vii. In accordance with CFR 61.
  - viii. Anytime an aircraft is grounded the AMS, APM/ CP/T, and HOC will be notified via phone, text, or email within 1 hour of grounding.
- c. In addition to the above, grounding of a helicopter is required when:
- i. Hydraulic system leakage is of an amount capable of dangerously depleting the hydraulic reservoir during normal flight operations. Static= 1 pint per day, Dynamic=one pint per ten flight hours, or one drop from irreversible weep valve in 25 cycles
  - ii. Transmission oil level drops from full mark on upper sight gage to the add mark on the lower sight gage between flights
  - iii. Engine oil consumption is in excess of one quart per hour
  - iv. The level on the 42 and 90-degree gearboxes drops from the full mark to a level that uncovers the sight gage hole
  - v. Fuel Leakage
  - vi. Unusual fumes in the cabin or cockpit
- d. In addition to above, grounding of the Cooperator Fixed Wing aircraft is also required when:
- i. Any equipment becomes inoperative in accordance with the approved minimum equipment list (MEL)
  - ii. There is non-compliance with:
    - Transponder operational per CFR 43 Appendix E & F
    - CFR 91.171 VOR receiver checks must be current and within limits (Every thirty (30) days, PIC responsibility)
    - Pitot-Static CFR Check current
    - Emergency Locator Transmitter (ELT) per CFR 91.207

### 3. Helicopter

- a. **DNR Helicopter Maintenance Program.** DNR's Helicopter Maintenance Program is accomplished in accordance with This Plan and the DNR Maintenance Operations Manual (MOM).
- b. **DNR Helicopter Maintenance Aircraft Logbook.**
  - i. The AMS/I will establish records keeping procedures for the aircraft logbook in the MOM.
  - ii. Each aircraft is required to have its respective logbook on board for every flight.
  - iii. The Pilot will review the logbook prior to flight and ensure the aircraft meets requirements needed for airworthiness and fire operations.

- iv. The Pilot will initial Pre-flight log after pre-flight is complete and the pilot deems the aircraft airworthy prior to flight.
- v. The pilot will initial the Post-flight log after the flight is complete and post-flight procedures are complete.
- vi. **At the completion of the flight the Pilot and/or the HMGB will photograph the flight log and any discrepancies and text them to the AMS/I, CP/T, APM, and the HOC prior to the end of the duty day.**
- vii. Minimum items in the Helicopter logbooks are as follows:
  - Daily Flight Log
  - Past Flight Logs
  - Pre-Flight/Daily Checklist
    - Pre-Flight/Post-Flight Pilot log
    - Required AD, SB, & ASBs
  - Discrepancies Log (Pilots)
  - DAU Download Sheet
  - Fluids Chart (Adding)
  - HIT Check Log
  - PAT Check Log
  - Weight & Balance Documents
    - Equipment List
    - Chart A
    - Chart B
    - Chart C
    - Form Fs (Most Missions)
  - Overhaul & Replacement Schedule (ORGSCHD)
  - Blank SAFECOM Form
  - Blank WA DNR Aviation Deviation Reports
  - Performance Charts
  - TDFM-136 Quick Reference Guide
  - TDFM-136 Channel Listing
  - First Aid Kit, Survival Kit, PFD, & Fire Shelter inspection sheet
  - DOT-SP 9198 (Current)
  - Interagency Aviation Hazardous Material Transport Guide
  - USDA/USFS Cooperator's Letter (Current)
  - SD Card with IPAD Reader
  - IPRG
  - Aviation Pocket User's Guide

**c. Maintenance Test Flights.**

- i. DNR helicopters are test flown whenever work has been accomplished on the aircraft that may affect flight characteristics, and after engine change, rotor blade change, or rigging adjustment.
- ii. Maintenance test flights may be made any time the pilot and/or mechanic believes it is necessary to determine aircraft return to service status.

- iii. Maintenance test flights are limited to checking only those areas of concern, unless the aircraft has undergone extensive major work.
- iv. Maintenance test flights can be done by any DNR qualified pilot who is approved by the CP/T, APM, and AMS/I for that type of testing to be accomplished. The CP/T and AMS/I will train, approve, and record qualification in the Pilot's Flight Training Folder and Pilot Card if they are qualified to conduct maintenance test flights. The APM and AMS/I will receive notification from the CP/T once training and qualification has been accomplished. Training will consist of those items listed under the WA DNR PTM Chapter 6 Lesson for DNR Maintenance Test Flight Pilot Training.
- v. Any pilot may do operational checks as designated by the AMS/I. (i.e. Airspeed indicator replacement check, compass swings, etc.) The AMS/I decides what checks are Test Flights Checks or Operational Checks.
- vi. Maintenance test flights are done in accordance with DNR's MOM, DNR Test Flight Kneeboard Card, and the U.S. Army UH-1H Maintenance Test Flight (MTF) Manual/Checklist (adjusted for DNR modifications).
- vii. A test flight sheet will be signed by the designated Test Pilot and the Aviation Maintenance Technician responsible for the work. The completed sheet will be placed in the permanent aircraft record at the KOLM DNR Maintenance Hanger facility.
- viii. Passengers and unnecessary personnel are not allowed on the aircraft during maintenance test flights (MTF), maintenance ferry flights, or any other time the aircraft is deemed in test flight required status. Minimum personnel may include:
  - Maintenance Test Pilot (Designated)
  - Aviation Maintenance Technician (AMT)
  - Test Pilot in Training (With current Test Pilot or AMS/I)
  - Other personnel deemed as mission essential only (APM approval required)

**4. Airframe and Engine Manufacturers Specifications.** DNR's aviation maintenance program combines the airframe and engine manufacturer's maintenance specifications with military maintenance schedules and other applicable regulations. See the MOM for more information.

**5. Weight and Balance.** Weight and Balances are determined to be within limits before any agency aircraft is flown. DNR aircraft weight and balance will be in accordance with the MOM. Weight and balance results are recorded on forms provided by the Automated Weight and Balance System Program. A copy of all forms will be onboard the aircraft for all flights in the aircraft logbook. **Minimum Single pilot weight 200 lbs.** (Pilots may use

properly secured ballast for under 200 lb. pilots). Minimum Required Forms in DNR Helicopters:

- Chart A – Basic Weight Checklist Record
  - Chart B – Aircraft Weighing Record
  - Chart C – Basic Weight & Balance Record
  - Form Fs – All Form Fs include: First Aid Kits, Survival Kit, Fire Shelter, PFD, Cleaning equipment with ladder, and a 200 lb. Pilot
  - Form F Form 2 – Single Pilot, Full Fuel, No Pax, No Cargo, No pilot bag
  - Form F Form 3 – Single Pilot, Helitack Crew 6, 240 Bambi, 75 ft. LL, Pilot bag/20 lbs., Crew Fire tools/100 lbs., Full Foam Tanks
  - Form F Form 4 – Single Pilot, Full Fuel, No Pax, 240 Bambi w/ 75ft Longline, Full Bambi Bucket, Full Foam Tanks, Pilot bag/20 lbs.
  - Form F Form 5 – Single Pilot, Helitack Crew 6, Full Fuel, Full Foam Tanks, Pilot bag/20 lbs., Fire Gear/270 lbs., No Bambi Bucket
  - Form F Form 6 – Single Pilot, Full Fuel, Full Foam Tanks, 320 Bambi Bucket (70%) with 75 ft. Longline, Pilot bag/20 lbs.
- a. For record keeping purposes, one copy of the basic weight and balance remains with the aircraft records aboard the helicopter and the other is be kept in the aircraft master record file in the maintenance office at the Olympia hanger. The AMS/I will complete all forms and sign. The Chief Pilot will review the forms, ensure accuracy and sign. Originals will be kept in the Olympia DNR hanger facility under the control of the AMS/I. A copy of the above forms will be located in the aircraft logbook.
- b. Form Fs listed cover most DNR Fire mission profiles. It is the responsibility of the Pilot in Command (PIC) to ensure they have reviewed and verified accuracy of the Form used prior to their flight. For flights that exceed the included Form Fs, the PIC will ensure the weight and balance, center of gravity and Gross Weight remain within limits for their flight. PIC may use AWBS program, Garmin Pilot, Foreflight, or IBal for field calculations as long as they have the approved DNR Wildfire Electronic Flight Bag (IPad).
- c. Aircraft weighing is to occur no less than every 24 months or anytime the aircraft weight is in questioned due to equipment installation, error in official weighing, total painting, major overhaul, or any other time deemed necessary by the AMS/I.
- d. Re-weighting is not required for equipment installation as long as the AMT can provide the required forms showing that the original weighing has been adjusted correctly.

## **6. Authorized Fuels and Grades of Oil.**

- a. Only oil in accordance with the operator’s manual are used in DNR helicopters.

Engine and transmission oils will not be used past their expiration dates.

- b. Refer to can markings to determine expiration. Example: 1) Can 1 has an expiration date of 06-98, means it expired in June 1998 2) Can 2 has a manufacture date of 24 Apr 03 – this can expires 3 years from manufacture date.
- c. All DNR UH-1H (M) helicopters will start using the LubriBor® Super Concentrated Lubricity Agent each time a Rotor is refueled starting March 20, 2017. DNR Aviation Maintenance will provide the LubriBor® fuel additive.
  - i. Each aircraft will carry 1 16 ounce LubriBor® container and funnel on board at all times. The onboard LubriBor® will be used during non-DNR fueling operations only. (i.e. Airports, etc.)
  - ii. DNR Helicopter Fuel trucks will carry a minimum of 1 gallon of LubriBor® on the truck at all times.
  - iii. Mixing LubriBor® with fuel. Add LubriBor® to tank (Helicopter or Fuel Truck Jet Tank) prior to refueling. Use the mixing chart below for mix ration:

Fuel to be treated (gal.)	37.5	75	112.5	150	300	450	600	1200
LubriBor® (fluid oz.)	½	1	1 ½	2	4	6	8	16

## 7. DNR Helicopter Maintenance Personnel Requirements

- a. DNR aircraft maintenance personnel must be currently certified as an Aircraft Maintenance Technician (AMT), and meet the qualifications of position as set forth in the MOM.

## 8. Water Buckets and Foam Delivery System

- a. Buckets will be suspended beneath the helicopters in accordance with the Bambi Bucket User’s Guide, Longline User’s Manual, IHOG and current USFS rules.
- b. Water buckets will be maintained in accordance with the guidance set forth in the OEM maintenance guidelines.
- c. Foam Delivery System will be inspected and tested no less than every 150 hours or 18 months by DNR Aviation Maintenance section.

## 9. In-Field Maintenance and Inspections

- a. DNR Helicopters

- The HMGB or PIC contacts the HOC with a maintenance and operations status report when a significant change occurs. The PIC and/or HMGB coordinate any unscheduled, safety of flight, maintenance with:
  - The AMS/I or an aircraft mechanic in the absence of the maintenance supervisor
  - The HOC
- The HMGB and/or PIC coordinates scheduled or non-safety of flight maintenance with the HOC or with the ASM/I in the absence of the HOC.
- The HOC provides a daily helicopter status (During Fire Season) to the maintenance supervisor including the:
  - Location of helicopters. (DNR & Contractor)
  - Current Hobbs meter reading for the helicopters
  - Non-safety of flight maintenance needs or issues
  - Pilot in Command's Name
  - HMGB Name
- Pilots report all discrepancies on the agency approved Discrepancy Form located in the aircraft logbook.
  - Pilot and/or the HMGB will take a picture of all new discrepancy logs and text/email them to the AMS/I, APM, HOC, and Chief Pilot every time a new entry is entered. Prior to the end of duty day.
  - The AMS/I, HOC, and Chief Pilot will ensure the online logbook discrepancy sheets are updated within 24 hours of receiving new entries.
- Scheduled intermittent inspections of DNR helicopters can be performed up to 3.5 hours prior to and 3.5 hours beyond the scheduled time. **Exception:** If the 25 hour or intermittent inspection is accomplished prior to the 3.5 hour limitation the AMS/I will approve it and the ORSCHD target time for the subsequent inspection will be adjusted to reflect a new target. The Primary Inspection is accomplished at 150 hour intervals or 18 months from last primary inspection whichever occurs first at DNR's hangar facility located at the Olympia Airport. The helicopter may not be flown in service beyond the 150 hour or 18 month interval time. Permission from the AMS/I may be granted to ferry the helicopter to Olympia for maintenance beyond the 150 hour target or 18 month.
- Pilots and/or Helitack crew supervisors are responsible for maintaining clean helicopters including but not limited to:
  - Removing grease from rotors, rotor heads, engine decks and fuselages
  - Washing and waxing fuselages
  - Washing rotor blades at least every 25 operating hours by washing with mild soap and cold/lukewarm water, rinsing thoroughly and wiping dry.



- Do not use wax on blades
- Cleaning the interior, including wall and ceiling panels, and removing foreign and unnecessary objects
- Cleaning all windows, including chin bubbles, with approved window cleaner and wipes. The ASM/I provides appropriate wipes, cleaner and training
  
- Foam tank and foam system
- Cleaning inside of windows from writing or suction mount marks left by use.
- Replacing all items required for flight in their proper place.
- Restocking used items. (Cleaner, rags, etc.)
- Informing the AMS/I, HOC, and CP/T if any required items are missing from the aircraft inventory list.
  
- An assigned pilot may perform preventative maintenance per FAR part 43 Appendix A(1-31), outside the scope of preventative maintenance all other work shall require advance authorization from the AMS/I. The assigned pilot will document all work accomplished on the helicopter in the helicopter log.
  
- The AMS/I will develop a limited maintenance program for pilot field maintenance. This training will be located in the MOM. Once complete the AMS/I will provide the CP/T with a list of trained items and manifest for the pilots trained. This training will occur every 12 months during spring training.
  - Limited Maintenance includes:
    - Daily Inspection/Pre-Flight
    - Service Bulletins, Aircraft Safety Bulletins, Airworthiness Directives inspections as approved by AMS-I (refer to MOM)
    - Fluid Adding (Hydraulic, Transmissions, Engine Oil)
    - Foam Tank Cleaning
    - Chip Detector Inspection (Removal and Installation)
    - Fuel Sample (Tanks & Fuel Filter)
    - EPA Fuel Canister Draining
    - Limited Inspections due to exceedances (refer to MOM)
    - Cockpit Door Removal and Installation (Safeties)
    - Other maintenance as approved by AMS/I.
    - Maintenance that has not been covered or trained must be approved by AMS/I. An entry will be made in the logbook and any work complete requires the AMS/I approval, instructions, and the logbook entry to be cleared with the AMS/I providing his FAA credentials for the log.

- Pilots or Helitack personnel may perform foam system maintenance at the discretion of DNR's ASM/I. An annual field training session is held to train Helitack crew and pilots in bucket maintenance.
  
- Alterations to helicopter external equipment are not made without approval from the ABM/Equip. or AMS/I. Helicopter external equipment includes but is not limited to:
  - Water Buckets
  - Long lines
  - Remote Hooks
  - Swivels
  - Lead Lines/Tag Lines
  - Shackles and G-rings
  - Blivots
  - Cargo nets
  
- All maintenance on items that attached to the helicopter, assigned, or property of Wildfire Aviation require inspection. The Helitack Manager will provide the inspection data to the AMS/I NLT than April 1 each year. Also the Helitack Manager will update those items as needed during the year. All items used in the helicopters operation will have a log in the aircraft logbook showing condition, status, last inspection date, next inspection date, and who inspected the item. Inspections will be as per the manufacturer's user manual unless DNR has a publish procedure for the item. Only trained personnel will inspect aircraft items. Items included but not limited to:
  - Water Buckets
  - Longlines
  - Remote hooks
  - Swivels
  - Lead Lines/Tag Lines
  - Shackles and G-Rings
  - Blivots
  - Cargo nets
  
- While on extended attack assignments, if the PIC and the HMGB determines a mechanic is needed on site, the HMGB contacts the HOC. The HOC and ASM/I evaluate the availability of a mechanic and determine priority.
  
- PIC-reported mechanical discrepancies are corrected at the discretion of the ASM/I or a mechanic and IAW the published procedure in the MOM or other authorized publication.

b. DNR and DNR Contracted Helicopters

- During pilot dailies, pre-flight and post-flight inspections, any aircraft deficiencies are noted in the aircraft logbook and mitigated. If deficiencies are significant (affecting safety) the HMGB is immediately notified and the ASM/I or AMT on-site, takes corrective action before further flights occur. Contracted aircraft must report all down time to HOC which in turns alerts the APM.
- On federal fires, maintenance deficiencies require “sign-off” by the Regional Aviation Maintenance Inspector, which can be done with a phone call placed by a department mechanic and/or a contractor mechanic when working with a contracted helicopter
- The PIC performs a Health Indicator Test (HIT) not less than every 10 flight hours in accordance with the MOM and UH-1H (M) OPSMAN. After the HIT check is completed, pilot will complete a Power Assurance Check. If the aircraft is within 2 hours of the 10 hour window the pilot may elect to do a 15 minute flight to accomplish the HIT/PAC. Checks are completed in accordance with the appropriate form for HIT or PAC located in the aircraft logbook. Pilots will complete the HIT/PAC checks at the end of the flight day or during refuel stops if the check has been overflowed due to an usually long flight day.
- Pilots perform a preflight inspection at the start of a flight day. The PIC will start the preflight within 15 minutes upon arriving for shift. The inspection includes ALL the items listed on the UH-1H (M) Pre-Flight checklist or for contractor’s the company/manufacture’s approved pre-flight checklist. Pre-Flight is to be complete prior to the daily operations briefing. DNR Pilots: The pilot will sign off the pre-flight log located in the aircraft logbook once pre-flight is complete and the pilot has deemed the aircraft airworthy for fire missions or flight. If the aircraft has been flown the pilot when initial the log with post-flight complete. Pre-Flight will be complete prior to the daily operations briefing.
- Fuels, oils and other fluids used for aircraft are in accordance with DNR’s MOM and the UH-1H (M) OPSMAN.
- AMTs perform scheduled and unscheduled maintenance while helicopters are on fires or staged in DNR regions.
- All aircraft fluid levels are checked each time the aircraft is fueled, exception: during hot refueling operations. Pilots will train HMGB the proper technique to check fluid levels.

- Required safety of flight discrepancies are corrected before flight or authority for flight is obtained from the CP/T or ASM/I.
- c. Base managers, crew supervisors, PICs and all aircrew members are responsible for performing daily inspections of the base and the aircraft to detect safety or operating problems. Inspections will include:
- Aircraft preflight checks - Pilots
  - Crew readiness inspections – HMGB or Crew Boss
  - Vehicle walk-around inspections – CDL Driver
  - Inspection of the general condition of facilities, work areas, public viewing areas, aircraft parking pads and taxiways
  - Checking operating condition of equipment and systems
  - Ensuring security of facilities, aircraft, vehicles, equipment, fuel, communications systems, and tools
  - Checking for oil or fuel spills in work areas and on taxiways or aircraft pads
  - Checking for foreign objects and debris around parking pads and taxiways

In addition to daily inspections, WD or DNR staff may on an annual or random basis inspect any or all fire aviation staging and detail locations.

d. Maintenance of Call-When-Needed (CWN) Helicopters:

- During operations on DNR fires, helicopter managers need to contact the USFS Region 6 Aircraft Maintenance Inspector for assistance with federally carded CWN helicopter maintenance issues. In addition, the HMGB is responsible for notifying DNR's HOC with any CWN helicopter maintenance issue.
- If the Region 6 maintenance inspector is unavailable, the HMGB contacts DNR's HOC who will then coordinate CWN maintenance issues with DNR's ASM/I or his representative. All maintenance issues are reported in accordance with DNR's SAFECOM and IIR process. For more information refer to section I, General Operations, Accident and Incident Reporting.

e. DNR Helicopter Data Acquisition Units (DAU).

- All DNR helicopters are equipped with Aero-Dyne DAUs. The DAU's function is to count engine cycles at four different rates as dictated by the engine manufacturer. The DAU also provides maintenance with aircraft systems data to assist them with required maintenance. This is not a punitive tool. DAU downloads will only be viewed by the AMS/I, Lead A&P, APM, and Chief Pilot. Pilots are required to inform maintenance anytime they exceed the limitations as established by the WA DNR TM 55-1520-210-10-1 UH-1H (M) Operator's Manual (OPSMAN). If warranted the AMS/I will

direct the DAU to be downloaded and reviewed prior to the aircraft's next flight.

- DAU downloads will occur once a week on Mondays. DAU downloads may also occur as required as directed by the AMS/I, APM, or CP/T. For weekly downloads the Helicopter Manager or Helicopter Operations Coordinator will be responsible to download the data and forward to the AMS/I and CP/T.

Each aircraft logbook contains a SD card and SD IPad Card reader which is required to download the data. The AMS/I or CP/T will ensure all personnel who download data is trained. The aircraft logbook contains a down sheet which lists date downloaded, location, time, and who downloaded the data.

- If a pilot suspects an aircraft exceedance he will alert the AMS/I for instructions. The AMS/I may direct a DAU download prior to flying the aircraft again. If the DAU shows an overage the pilot will make an entry in the aircraft logbook and the required inspection (IAW the MOM) will be conducted and cleared prior to the next flight. The logbook entry will contain the following information as a minimum: What was exceeded, amount exceeded (If known), time over maximum limit, and any other information that will assist maintenance in their duties.
- When requested by the CP/T or APM the pilot will provide a written report (DNR Aviation Deviation Report) of the exceedance, reason why, conditions, causes, and any other information which may be helpful in avoiding future exceedances. See Aviation Deviation Report form in the aircraft logbook.

## **10. DNR Avionics.**

- Garmin GNS 430W. Requires annual navigational update prior to fire season. The HOC is responsible for this update.
  - Map Setup:
    - Data Fields: ON
    - Data Fields Required:
      - WPT
      - ETA
      - DIS
      - GS
    - Map orientation: Track Up
  - New waypoints may be added
- Garmin Aera 510.
  - Programming Responsibility is the HMGBs.
    - Updated dip sites.
  - New waypoints may be added.

- TDFM-136. Programming is the responsibility of the Chief Pilot. Prior to fire season the Chief Pilot will update all agency aircraft radios.
  - Placards will be placed in each cockpit on the lower instrument panel listing the frequencies.
  - An updated frequency list will be located in the aircraft logbook.
  - Pilots & HMGB's will not override programmed frequencies. Other frequencies required for missions will be placed in the blank channels only.
  - Pilots/HMGB's will not adjust internal settings of the radios.
  - If errors are found in the load inform the Chief Pilot.
  
- SL-40 VHF Radios. These radios are preset by the Aviation Maintenance department. Pilots will not adjust internal settings of this radio. (Tones, Squelches, Side-tones, etc.)

## **11. Cooperator Fix Wing Aircraft**

Cooperator aircraft maintained under interagency cooperator agreements and state contracts are maintained in accordance with their part 133,135 & 137 operating certificates as approved by the FAA and supplemental standards established by the DNR.

# Aviation Operating Plan and Standards (AOPS)

## CHAPTER 6 – Training

2017

Washington Department of Natural Resources  
Wildfire Division – Aviation Section  
1111 Washington St SE  
Olympia, Washington 98504-7037



# WILDFIRE

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## **CHAPTER 6 – Training**

### **1. DNR Pilots**

- a. Training for DNR pilots is listed in the WA DNR Pilot Training Manual (PTM). This manual outlines the minimum qualifications for DNR pilots and will be adhered to for all training. Pilots must meet or exceed the standards outlined in the PTM for WA DNR and USFS.
  
- b. At a minimum, new Aerial Wildland Firefighter Pilots will receive training, instruction, and evaluation on:
  - New Employee Orientation
  - Safety Orientation (Online) (LMS)
  - Defensive Driving (Online) (LMS)
  - Harassment Training (Online & In-Class)
  - Agency and Division operations, policies, and procedures
  - Organizational structure of the Wildfire Division (WD)
  - Review of FAA rules, Public Use and regulations governing the specific program
  - Duties and responsibilities
  - Heat Related Illness (HRI) (LMS online)
  - Interagency Online Training for: A-110, MH1, MH2, & MH3
  - WA DNR Maintenance Program
  - Wildfire Aviation Policy, Procedures, and Standards
  - Risk Management and Accident Prevention
  - Aircraft and program overviews
  - UH-1H(M) Initial Pilot Qualification Training
  - Aerial Wildland Firefighter Pilot Initial Training (Annual Vertical Reference Qualification)
  - Annual Helicopter/Helitack Training Course
  - Pilot training and task certification flight (“check ride”)
  - DOI/USFS Checkride (Every 36 months)
  
- c. At a minimum, returning Aerial Wildland Firefighter Pilots will receive training, instruction, and evaluation on:
  - Harassment Training (Every 36 months)
  - Agency and Division operations, policies, and procedures
  - Organizational structure of the Wildfire Division (WD)
  - Review of FAA rules, Public Use and regulations governing the specific program
  - Duties and responsibilities

- Heat Related Illness (HRI) (LMS online) (Annual)
  - Interagency Online Training for: A-110, MH1, MH2, & MH3 (Every 36 Months)
  - WA DNR Maintenance Program
  - Wildfire Aviation Policy, Procedures, and Standards
  - Risk Management and Accident Prevention
  - UH-1H(M) Recurrent Pilot Qualification Training
  - Aerial Wildland Firefighter Pilot Recurrent Training (Annual Vertical Reference Qualification)
  - Annual Helicopter/Helitack Training Course
  - Pilot training and task certification flight (“check ride”)
  - DOI/USFS Checkride (Every 36 months)
- d. Pilots not designated as Aerial Wildland Firefighter Pilots will receive training, instruction, and evaluation on:
- Duties and responsibilities
  - Review of FAA rules, Public Use and regulations governing the specific program
  - Wildfire Aviation Policy, Procedures, and Standards
  - Risk Management and Accident Prevention
  - Aircraft and program overviews
  - UH-1H(M) Initial Pilot Qualification Training
  - Pilot training and task certification flight (“check ride”)

## 2. Helicopters

### a. **Pilots**

- Chapter 3, Section I covers requirements for Pilot qualifications and experience, flight time, flight currency and training.
- Detailed procedures and requirements are provided in the Operations Section of this plan.
- In addition to the biannual flight review (covers all items listed in 14 CFR part 61.56(a)), pilots are evaluated on all tasks listed in DNR’s Helicopter Pilot Training Manual. New pilots must demonstrate proficiency with all tasks as a condition of hiring, whereas returning seasonal career pilots must have knowledge of all tasks but may not be required to perform all tasks in the aircraft. Recurrent evaluations or post-accident evaluations are tailored by the CP/T to meet department needs. Emergency operations tasks are performed with an evaluator aboard the aircraft who has access to the pilot’s controls.

- DNR pilots participate in field training at the beginning of each season. Field training includes, but is not limited to: dip tank operations, hover hook-ups, long line operations, directed bucket drops, receiving marshaling instructions and hooking up external loads.
- Helicopter pilots receive basic fire operations and incident command system training. Although not a requirement, many complete Firefighter 2 training.

### **3. Helitack Crew**

- All helicopter crew members, HMGBs, and helibase managers assigned to DNR Helitack's crews must meet the minimum interagency standards for the incident position(s) held. To view the Interagency training requirements for helicopter Crew positions, refer to PMS 310-1.
- In addition to these minimum qualifications, DNR Helitack crew members complete annual classroom and field training. Training elements include, but are not limited to, annual LCES Refresher training; S-271 Helicopter Crewmember; Department Fuel Truck Driver and HMGB training; helicopter water bucket and foam system maintenance; and Hazardous Material training. Refer to the Helitack Crew Guidelines for more information, or contact the Crew Supervisor at (509) 925-0958.
- Helitack crew members participate in field training at the beginning of each season. Field training includes, but is not limited to: dip tank operations, hover hook-ups, long line operations, directing bucket drops, marshaling helicopters and directing/hooking up external loads.

### **4. Fuelers**

As a minimum, agency fuelers attend as a condition of employment an eight hour Fuel Truck

- Driver Training covering:
  - Federal requirements for the transportation of aviation jet fuel
  - Emergency procedures for fire, accident and breakdown
  - Hazardous materials regulations and handling procedures
  - Use of drivers logbooks and required paperwork
  - Commercial Driver's License (CDL) holders responsibilities and duty limitations
  - Vehicle inspections and brake adjustments

- Vehicle loading, placarding, driving and parking
- Inventory of cargo, manifests
  
- Agency fuelers will attend two hours of training pertaining to Federal Drug and Alcohol Testing Regulations. Supervisors of employees who must have CDLs attend four hours of Federal Drug and Alcohol Testing Regulations.
  
- In addition, Helitack Fuel Truck Drivers also receive helicopter operations and fire operations training commensurate with a HECM Trainee position. Refer to the Helitack Crew Guidelines for more information on crew training.

## 5. Contracted Pilots

- **Pilots**
  - Pilot training requirements are in accordance with the appropriate FARs pertinent to the type of services contracted, and in accordance with the contract for the specific aircraft.

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# Aviation Operating Plan and Standards (AOPS)

## Chapter 7 – Base Operations for Fire-Ready Aircraft

2017

Washington Department of Natural Resources  
Wildfire Division – Aviation Section  
1111 Washington St SE  
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# WILDFIRE

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**WA DNR Aviation Operating Plan & Standards**

**REVISION PAGES & MASTER TABLE OF CONTENTS**

<b>Chapter Name</b>	<b>Page #</b>	<b>Initials</b>	<b>Date</b>	<b>Change</b>
Cover	7-1	MC	3/30/2017	0
Blank Page	7-2	MC	3/30/2017	0
Revision Page & Master TOC	7-3	MC	3/30/2017	0
General Responsibilities, Base Equipment, Communications, and Publications Requirements	7-4	MC	3/30/2017	0
Aircraft Availability and Status	7-5	MC	3/30/2017	0
Crew and Ground Personnel, Dispatching	7-6	MC	3/30/2017	0
Helicopter Specific Base Operations	7-7	MC	3/30/2017	0
Detailing and staging	7-8	MC	3/30/2017	0
Pre-Dispatch Phase, Enroute Phase	7-9	MC	3/30/2017	0
Arrival Phase, Landing Phase, Post Landing Phase	7-10	MC	3/30/2017	0
Lift Off Phase	7-11	MC	3/30/2017	0
Crew Pick-up Phase, Bucket Storage and Set Up Phase	7-12	MC	3/30/2017	0
Flight Reporting	7-13	MC	3/30/2017	0
Travel, Time and Activity Report Procedures and Guidelines	7-14	MC	3/30/2017	0
Cont.	7-15	MC	3/30/2017	0
Cont.	7-16	MC	3/30/2017	0
Cont.	7-17	MC	3/30/2017	0
Cont.	7-18	MC	3/30/2017	0

## **CHAPTER 7 – Base Operations for Fire-Ready Aircraft**

1. **General Responsibilities, Base Equipment, Communications, and Publications Requirements:** All aircrew and ground personnel are responsible for maintaining a safe work environment and following safe operational practices by monitoring base working conditions and co-worker physical / mental conditions. Any instance of an unsafe work environment shall immediately be mitigated IAW Chapter 2, Subsection - Safety Hazard Reduction. All DNR bases regardless of aircraft type, seasonal or permanent shall have on hand, at a minimum, the following Equipment, Communications, and publications:

**Publications:**

- a. Mishap Response Guide (Pre Accident Plan) posted and visible
- b. Crash Rescue Map of the surrounding 5NM of the base of operations posted and visible
- c. Local Emergency Services phone numbers or 911 Dispatcher
- d. VFR Sectional Hazards Map of local area
- e. Interagency Helicopter Operations Guide (IHOG)
- f. Interagency SEAT Operations Guide (ISOG)
- g. Base Operating Plan
- h. Base Operations Checklist
- i. PNWCG Frequency Guide(s)
- j. Technical Assistance Directories
- k. Interagency Mobilization Guide
- l. Aircraft Management Forms likely to be used:
  - i. Aircraft Contracts
  - ii. Briefing Formats (Morning, Pilot, Manager)
  - iii. Cost Summary Sheets
  - iv. Daily Operations Work Sheet
  - v. Aircraft Use Reports
  - vi. Dispatch Forms
  - vii. Aircraft Inspection Forms
  - viii. Pilot Duty Tracking Forms
  - ix. Driver Duty Tracking Forms
  - x. SAFECOMs
- m. Medical Evacuation Plan that includes the following:
  - i. Hospital Trauma Centers with Level of care capability identified
  - ii. Hospital Helipad Location (Latitude-Longitude in tenths of minutes format)
  - iii. Arrival and Departure Procedure Routing
  - iv. Frequencies:
    1. Controlling Air Traffic Control (ATC) Agency
    2. Emergency Room Frequency
    3. Hospital Helipad Common Traffic Advisory Frequency(CTAF)
  - v. Hazards to Flight in and around Hospital Helipad
  - vi. Contact Information for the following assets:
    1. Life Flight or equivalent
    2. WAARNG MEDEVAC
    3. Contract Short Haul

**Communications:**

- n. Land Line Telephone
- o. Cellular Telephone
- p. VHF-AM Base Radio with Antenna Array.
- q. VHF-AM Handheld Radio.
- r. Broadband Internet Access
- s. Wireless Router

**Equipment:**

- t. Laptop Computer and Monitor (24" Preferred)
- u. Multifunction Document Producing Machine (or standalone machines) that includes the following capabilities:
  - i. Print
  - ii. Copy
  - iii. Scan
  - iv. Fax
- v. Hearing Protection (Box of E-A-R ear plugs or integrated into helmet)
- w. Eye Protection (Safety Sunglasses or integrated into helmet)
- x. High Visibility Ramp Vest.
- y. First Aid Kit
- z. Fire Extinguisher

**2. Aircraft Availability and Status:**

- a. **Operating Hours:** Aircraft availability and status vary between aircraft bases and time of year. For fire-ready aircraft, such as the helicopters or fixed wing air attack platforms, the pilots, crews, and aircraft are ready and available for immediate incident response during regular hours of operation (which is generally 0930-1800 during peak fire season). Extension can be requested and approved through Wildfire Division's Assistant Division Manager of Fire Operations. DNR's Helicopter Operations Coordinator (HOC), Emergency Operations Manager (EOM) or Helicopter Operations Manager (HOM) may alter schedules with the objective of providing adequate coverage seven days a week.
- b. **Aircraft Basing and Movement:** The Wildfire Division ADM-Fire Operations in coordination with the Region Managers, EOMs, HOCs, and ASOs determine locations for the aircraft and any shifting of asset locations to cover emerging incidents. Any movement of aircraft are in response to fire threat and backfill of moved aircraft must be addressed.
- c. **Base Status:** Fire-Ready Aircraft bases shall call into local dispatch and DNR's HOC at the beginning and end of each duty day to report status of aircraft, pilot, and Helitak availability. Any changes in status during the shift are transmitted to the same managers. The HOC is responsible for notifying DNR's Emergency Coordination Center (ECC) regarding helicopter status and changes on a daily basis.

In addition to updating DNR's ECC the HOC posts the status report on DNR's aviation web site (google doc) and may send daily helicopter status reports by e-mail to other interested parties including:

- i. Region Leadership (or designee) where base resides
- ii. Dispatch Centers (CWICC / NEWCC)
- iii. DNR Wildfire Aviation Staff

3. **Crew and Ground Personnel:** Air Crew and ground personnel shall adhere with the Operations section of this plan. Generally all aircrew and ground personnel assigned to fire-ready aircraft are dispatch-ready during normal work hours. Personnel monitor radios or telephones and advise their supervisor regarding location when away from the immediate work area. Personnel are expected to secure their work area and be flight ready within five minutes of the notification. Consequently, overnight and extended stay gear is prepared ahead of time, and pre-flight inspections done at the start of each shift.
  
4. **Aircraft Dispatching:** During routine conference calls fire managers determine the preferred staging locations for all DNR and all assigned EU and CWN aircraft based on predicted weather and fire behavior. Contracted aircraft are not considered "assigned to a region" until an order is placed by the ECC and the aircraft and pilot interagency qualification cards have been validated by the ECC for currency and ability to complete the assignment.
  - a. When aircraft are assigned within a region:
    - i. The host region has full authority to dispatch aircraft assigned to the region to incidents within the region. The region positively notifies DNR's EOM, HOC and APM regarding the assignment of the aircraft to an incident.
  
  - b. When aircraft are needed and are not assigned to the region:
    - i. The region requesting aircraft places an order with the ECC.
    - ii. The ECC calls the HOC to determine which DNR aircraft is/are able to fill the order.
    - iii. The ECC then calls the dispatch center where the aircraft is assigned to initiate the dispatch.
    - iv. When the region dispatch center is not in service the ECC dispatches the aircraft directly.
    - v. When DNR aircraft are not available, the ECC calls the closest CWN helicopter vendor (or fixed wing aircraft vendor when appropriate) and completes the dispatch.
    - vi. In the event the ECC cannot be promptly contacted, the requesting region dispatch center then contacts the HOC who determines the next available helicopter. The HOC calls the dispatch center where the aircraft is assigned to initiate the dispatch. The HOC calls the ECC as soon as is practical with notice of the action taken.

- c. The dispatching authority (Region/ECC/HOC) shall provide the receiving base manager and in turn the dispatched aircraft with:
  - i. Name of Fire
  - ii. Alpha Code of Fire
  - iii. Name of Attending Ground Contact (If Any)
  - iv. Frequency of Dispatching Authority
  - v. Frequency of Ground Firefighting Team
  - vi. Name of Airport Nearest Fire Incident
  - vii. Agency Jurisdiction of Fire Incident (If Available)

The responding aircraft personnel (PIC or HMGB) shall calculate the estimated time enroute to the destination, and advise Dispatch on initial contact of Estimated Time of Arrival (ETA).

## **5. Helicopter Specific Base Operations**

- a. **Helicopter Staging and Operational Control:** DNR helicopters are staged in regions during the fire season. WD delegates operational authority for initial attack on DNR-protected lands or lands in which a Region has formal agreements, to the region where a helicopter is staged. When a helicopter is assigned to an incident, the incident commander (IC) exercises operational control of the helicopters, crew and PIC. When an ATGS is present, tactical control of the aircraft and incident airspace shifts to the ATGS. Ultimate control and assignment of all DNR and DNR contracted helicopters resides with WD.
- b. **Personal Protective Equipment (PPE):** Personal Protective clothing and equipment for pilots, Helitack crews, and passengers shall comply with IHOG standards including flight in contracted helicopters while conducting missions and maintenance test flights.
- c. **Performance Planning / Weight and Balance – Daily Load Calculation**
  - i. Pilots in Command shall compute aircraft performance calculations on OAS-67/FS 5700-17 form and verify weight & balance each day prior to any missions regardless of fire threat or likelihood of flight. Current and maximum atmospheric conditions will be used in the computation IAW the Interagency Helicopter Operations Guide (IHOG), Chapter 7, Load Calculations and Manifests.
  - ii. Load calculations shall be computed at the start of each shift in order to inform supported personnel of aircraft capability for the day and area of responsibility (AOR).
  - iii. New load calculations shall be completed when significant changes in atmospheric conditions or weight occur. When the following condition changes occur, a new load calculation shall be recomputed:

1. +/- 1000 feet in Pressure Altitude (PA) (*See IHOG to determine PA when reporting is absent*)
  2. +/- 5 degrees Celsius in ambient temperature
  3. +/- 250 pounds in helicopter weight (**DNR Specific Requirement**)
- iv. When a cargo scale is unavailable, PICs or Helitack crew members may estimate the weight of individual cargo items using pre-prepared reference sheets. Documentation shall be noted on the load manifest sheet and load calculation that weights are estimated and not actual. Estimations should be avoided when scales are available.
  - v. The PIC is responsible for accuracy and completeness of the load calculation
  - vi. A Weight and Balance for multiple aircraft configurations shall remain with the logbook on board the helicopter and in the aircraft master record file at the Olympia maintenance facility.

**d. Detailing and staging:**

- i. During fire season, the primary DNR helicopter staging site is Bowers Field adjacent to the DNR SE Region headquarters in Ellensburg. This positions the aircraft for rapid initial attack response to all locations within the state and unites the helicopters with the Helitack crews supervised by the SE Region RP&S Assistant. Based on predicted initial attack needs, helicopters may be staged at other locations around the state. If a helicopter is moved to DNR's Olympia hanger; Pacific Cascade Region is the dispatch center. When helicopters are staged in other Regions, the staging region is considered the host Region. Helitak is organized under Southeast Region and is responsible for:
  1. Hiring Helitack and support personnel.
  2. Supervision of Helitack and support personnel.
  3. Providing facilities for helicopter support personnel and equipment at the Region headquarters.
  4. Maintaining assigned helicopter support equipment and fuel trucks during fire season.
- ii. Host Regions are responsible for:
  1. Tactical decision making concerning use of assigned helicopters during initial attack.
  2. Flight following to and from incidents at regional dispatch centers (if there is one)
  3. Airspace coordination
  4. Transportation and other logistical support as needed for the crew while assigned to incidents within the controlling region (if not provided by the Helitack module)
  5. Dispatching helicopters assigned to the region

6. Notifying (when able) the HOC when a DNR helicopter is dispatched to an incident
- iii. Pre-positioning helicopters to forward locations is based on predicted initial attack needs. Data gathering and consideration is made on a daily basis to help make informed decisions. Information includes:
    1. Existing weather
    2. Forecast weather
    3. Fuel conditions
    4. Existing fire activity
    5. Quantity, posture, and condition of existing firefighting resources
  - iv. When a DNR helicopter is assigned to a Region, all requests for non-initial attack from adjacent DNR regions are routed to DNR's EOM. This includes extended attack or large incident support on DNR protected lands, other jurisdictional requests for extended attack and initial attack where no formal reciprocal agreement is in place. Any DNR Region can request a DNR helicopter through another DNR Region for initial attack; however such requests are initiated through the EOM.
  - v. Tactical management of the helicopter program is accomplished through the HOC, who serves as the representative for the Aviation Program Manager at the Ellensburg staging facility. Decision making regarding assignment location includes frequent conversation with representatives of DNR's regional fire operations staff. The HOC plays a critical role in gathering and assessing information and as a participant in decisions made by the EOM regarding pre-locating helicopters. The EOM may consult with the WD Assistant Division Manager for Fire Control and Aviation. Final authority for such decisions lies within WD.
- e. Pre-Dispatch Phase:**
- i. All crew members operating as crew in a helicopter shall wear a flight helmet, Nomex blouse, Nomex pants, Nomex or leather gloves, leather boots and seat belts during start up and flight.
  - ii. Helicopter crew members shall secure the helibase work area prior to plane side briefing. The crew shall remove all tie downs, mast blocks, and all mooring equipment from the aircraft prior to the mission brief. The main rotor blades shall be turned to the 10 o'clock position (for PIC visibility) prior to engine start. All aircraft mooring and mission equipment shall be securely stored in the approved storage compartments of the aircraft. The fuel truck driver and PIC shall receive a mission brief from the HMGB or approved

designee prior to departure. The briefing shall include, but is not limited to the incident location and destination (if different than incident location).

- iii. The fuel truck driver shall perform a final walk around of the fuel truck to ensure there is no loose gear, unlocked cabinets, and that the rear gate is secured in the closed position with the ladder is secured in the upright position. Drivers shall wear approved fire boots and required personal protective equipment (PPE) while operating DNR support trucks.

Prior to departure, the driver initiates the Driver Log Book, completes a manifest and plans a route using a GPS and/or Gazetteer. The driver shall provide the dispatching center with the following information prior to departure:

1. Aircraft ID the fuel truck is supporting
2. Departure Location
3. Estimated Time of Arrival (ETA)
4. Destination of Incident

**f. Aircraft Run-Up and Take-Off Phase:**

- i. The HMGB and PIC shall ensure all gear is secured and the main rotor blade is untied and turned to the 10 o'clock position prior to engine start. In addition, the manager ensures:
  1. All flight crew and passengers are wearing required PPE
  2. Positive communication confirmed between PIC and crew members
  3. Doors, compartments, and fly away gear are secured, locked and latched.
  4. External cargo rigging secured and connected IAW prescribed methods
  5. HMGB shall ensure transmitted coordinates and frequencies are loaded by the PIC into the primary GPS unit. Pilots shall conduct all air-to-air (VHF-AM) radio communications.
- ii. The PIC shall use the approved published checklist in all operations of the aircraft to include preflight, before start, engine start, before take-off, before landing, after landing, and post flight. The PIC shall also ensure all external cargo doors are secure, no loose gear is in cockpit, rotor blades are untied and rotor tie downs are properly stored. The PIC may direct the crew when to close doors upon take off after clearing all obstacles.
- iii. The flight crew shall maintain sector surveillance assigned by the PIC in the crew briefing to keep the pilot informed of all obstacles, hazards, and traffic. Positive communication shall be maintained between the crew throughout the flight ensuring communications are heard and understood. Cabin passengers shall open and close doors as directed by the PIC. All non-essential



communications remains at a minimum during take-off and landing and during high traffic operations.

- iv. The HMGB establishes flight following with the appropriate dispatch center as outlined in Chapter 8, Communications and Radio Use Policy.

**g. Enroute Phase:**

- i. The PIC is responsible for the entirety of aircraft and crew operations while conducting missions. The PIC may designate and assign tasks as necessary, but maintains responsibility for the safe operation of the aircraft and crew in all phases of the mission.  
Air to air (VHF-AM) communications with ATC and other aircraft while maintaining situational awareness is a primary responsibility of the PIC.
- ii. The HMGB shall assist the PIC with navigation, obstacle clearance, hazard identification, air to ground communications and obtains pertinent and relevant fire information to brief the PIC and crew while enroute to the incident. The HMGB shall maintain communication with appropriate dispatch centers during the flight in accordance with I, General Operations, Communications.
- iii. The Helitak squad boss and crew shall ensure all equipment remains properly and effectively secured for the duration of the flight and assist in hazard identification, obstacle clearance, and traffic advisories.
- iv. All crew members are responsible for informing the PIC and HMGB with timely and relevant information that may affect the safe operation of the aircraft and crew during flight.
- v. The Fuel Truck Driver shall:
  - 1. Contact the assigned dispatch center every hour to give a position report and update ETA.
  - 2. Comply with all Federal DOT, State DOT and DNR driving regulation and policy.
  - 3. Attempt to contact the HMGB or PIC to coordinate fueling location one hour prior to ETA at the scheduled destination. If the driver cannot reach the destination prior to reaching duty limitations, he/she advises the HMGB as soon as possible by cell phone or through the appropriate dispatch center.
  - 4. Upon assignment to an incident, coordinate with the HMGB an alternate destination for the driver when it is known that the driver will not reach the incident without impacting duty limitations. The driver then continues the drive during the next duty day.

5. Comply with policy and regulation outlined in Section I, General Operations, Fuel Truck Driver Duty Limitations.

**h. Arrival Phase:**

- i. The HMGB assists the PIC in complying with Fire Traffic Area (FTA) procedures by contacting other air resources in the vicinity of the incident. Beginning at the 12 NM circle, and prior to 7 NM, the PIC or the HMGB begin attempts at initial contact with ATGS or controlling asset. If no contact is made with other known air assets, the aircraft does not proceed past the 7 NM circle until positive contact is established with personnel on the fire and permission is granted to enter FTA. If no other air resources are on scene and a FTA is not established. The first aircraft on scene may proceed directly to the incident. That aircraft establishes the FTA.
  1. The HMGB channels the assigned command frequency and provides the dispatch center and incoming resources with a fire size up report (if first on scene).
  2. The HMGB contacts the assigned ground contact on the air to ground frequency (VHF-FM) for situation report.
  3. The pilot (or HMGB as directed by the pilot), shall contact ATGS (if on scene) on the air to air frequency (VHF-AM) to gain sequence, altitude entry, and instructions before landing.
  4. The HMGB and PIC select and discuss the intended landing site in accordance with Section I, General Operations, Landing Site Selection.
  5. The PIC shall perform a high and low recon of the intended landing site to identify hazards and may perform a high recon of the incident dip sites to assist in mission planning prior to landing.
  6. The before landing checklist shall be conducted prior to landing with the entire crew ensuring mandated preparations are made prior to landing in the FTA.
  7. The assigned squad boss and crew members shall assist the PIC and HMGB in water source selection. The HMGB is responsible for ensuring proper “non-hazardous” dip site selection. Updated Hazardous or prohibited dip sites are published annually in an EXCEL Spreadsheet and geo-rectified map data file.
  8. The fuel truck driver notifies the assigned dispatch center of his/her arrival. In addition, the driver records the date, time, location (latitude and longitude), known hazards, and any damage he/she might have done while operating at any fueling site.
  9. The driver may have to select the fueling site. The driver attempts to obtain landowner permission prior to using any landing site if it is known to be on private property. If the landowner cannot be contacted, the driver or HMGB will continue attempting to make contact during operations. *(For information regarding fuel site selection, refer to IHOG,*

Chapter 8, Helicopter Landing Areas, Chapter 13, Fueling Operations, Section X-Fueling Site Layout).

i. **Landing Phase:** The HMGB and crew assist the PIC by identifying hazards, aiding in obstacle clearance, and alerting the PIC of other air traffic that may or may not impede operations. The PIC may direct the crew to open the doors to assist with maintaining skid, tail, and main rotor clearance during the landing phase. During the landing (critical phase), the flight crew maintains a sterile cockpit other than communications essential to the mission.

j. **Post Landing Phase:**

i. After the aircraft has safely landed, the PIC informs the crew when it is safe to unbuckle and exit the aircraft. Prior to exiting the aircraft, the PIC and/or HMGB advises the crew of any known hazards such as, slope or other hazards near and around the landing area. Crews should be alert and cognizant of upsloping terrain immediately adjacent to the landing zone due to high risk of blade strikes with personnel exiting the aircraft.

**Warning: Failure to alert crews of upslope adjacent to landing zone may cause death or severe injury from personnel walking up slope into operating rotor blades. Crew should exit the aircraft at 90 degrees of the aircraft heading until clear of the rotor system when authorized by the PIC or HMGB.**

- ii. The PIC may assist the HMGB with bucket set up if crew is un-available, but locks the flight controls and remains within the rotor disc area while rotor blades are turning. Before exiting the aircraft, the HMGB informs the crew of the planned aircraft mission and briefs the PIC on the incident radio frequencies. The HMGB may choose to terminate flight following at this time with the dispatch center if contact is made with ATGS or ground fire-fighting crews.
- iii. After exiting the aircraft, the crew uses the following steps in order, to unload the aircraft support and fire equipment:
1. Re-buckle all seat belts prior to departing the helicopter
  2. Secure all communication drop cords to sound proof material or a hard point
  3. Unload fire line bags on right side 5'-10' from right landing gear skids
  4. Unload fire tool bags on left side 5'-10' from left landing gear skids
  5. Unload long line on left side 5'-10' from left cockpit door

6. Bucket Placement:
    - a. Longline Operations: Unload bucket at the 10 o'clock position 5` to 10` off aircraft nose in front of Long Line
    - b. Belly Hook Operations: Unload bucket just no further than 5' from aircraft nose
  7. Secure cargo nets, remaining equipment, and gear prior to departing the aircraft
  8. Perform a "1" check (Cargo Hook) and "3" check (Remote cargo hook, or bucket check) prior to external load operations commencing
  9. The helicopter crew members inspect all external loads prior to and during takeoff to ensure the load is secured. Special attention to connectors, links, hooks and rigging shall be checked for security and condition.
  10. Once aircraft is prepared to commence operations, the HMGB shall coordinate and brief the fuel truck driver on refuel source and location.
- k. **Lift Off Phase:** The helicopter crew members inspect all external loads prior to and during takeoff to ensure the load is secured. Special attention to connectors, links, hooks and rigging shall be checked for security and condition. All crew members shall maintain situational awareness of the helicopter during take-off and landing to assist the PIC in maintaining clearance of all obstacles and hazards. All ground personnel shall remain well clear (100' minimum) of aircraft lifting off. In addition, the HMGB shall:
- i. Establish positive communication with the PIC prior to aircraft liftoff.
  - ii. Ensure all gear and equipment is secured prior to aircraft lift off.
  - iii. Station the crew at the 10 o'clock position, 75' to 100' out from helicopter prior to lift off.
  - iv. Assign one crew member as a ground guide with handheld VHF-FM radio, utilizing hand signals to direct the PIC in accordance with S-271, Helicopter Crew Member Training.
  - v. Ensure all gear and equipment is consolidated to left of landing pad 5'-10' from skids after lift off
  - vi. Ensure the ground guide assists the PIC during take-off using the standard interagency helicopter hand signals and radio communications. (*For further information on Interagency hand signals refer to the current Interagency Response Pocket Guide*)
- l. **Crew Pick-up Phase:** During the pick-up phase the crew shall position themselves at the 10 o'clock position, 75-100' from the intended landing zone. All crew members shall wear appropriate PPE including eye protection and a flight helmet. The PIC and HMGB shall predetermine whether the pick-up phase will be done while the helicopter engine is running and rotors are still turning.

- i. The HMGB or designee shall be identified as the ground guide and shall:
  1. Be equipped with a handheld VHF-FM radio
  2. Establish positive communication with the PIC prior to landing
  3. Provide guidance to the PIC during landing, utilizing the handheld radio and standard interagency helicopter hand signals.
- ii. Upon landing the helicopter crew members shall:
  1. Approach the helicopter in full view of the PIC when rotors are turning.
  2. Prepare the bucket and line for loading
  3. Remain within rotor disc area during loading operation when rotors are turning (when able)
  4. Load the helicopter bucket, line and fire equipment.

Notes:

- When the PIC assists with loading operations, all flight controls shall be locked and the PIC shall remain within the rotor disc area while rotors are turning.
- If the crew arrives at the aircraft after landing, the crew shall approach the aircraft in full view of the PIC when the rotors are turning.
- While working within the operating rotor disc area, crew members shall wear flight helmets and required PPE.

- m. **Bucket Storage and Set Up Phase:** Bucket tie downs, socks, and exterior bucket straps shall be stowed in the bucket bag. The bucket bag shall be stored on the left side of the helicopter and secured by the aircraft's cargo net when the PIC is performing bucket missions. The bag shall be secured to the transmission wall using a carabineer type hook. If a PIC and HMGB choose to belly hook the bucket, the set up process is the same except that the bucket shall be placed on the PIC's side at the nose of the aircraft during hook up. The following steps are used when hooking up a bucket after the bucket is positioned:
  - i. Run bucket cables from the front of the helicopter aft between the skids, with the power head facing up ensuring bucket cables are not placed over or under the skids.
  - ii. Connect the power head to the cargo hook with the power head facing forward.
  - iii. Connect bucket electrical plug to aircraft electrical plug, running the electrical line behind cargo hook.
  - iv. Tape the bucket and helicopter electrical plugs together with one wrap of duct tape.
  - v. Connect the bucket foam connector to the helicopter's tank valve fitting.
  - vi. Tape the long line electrical plug to the bucket electrical plug with one wrap of duct tape.
  - vii. Tape the connector pin at the bucket and long line connection to prevent the pin from backing out.

- viii. Turn the foam valve to the “on” position.
  - ix. Inspect all steps above after complete.
  - x. Perform a “1” (cargo hook release) and “3” (bucket release) check - prior to lift off.
- n. **Helicopter Loading Phase:** All helicopter and fire support gear loaded into a DNR helicopter shall be secured to the helicopter. All sharp items such as hand tools or chain saws shall have a tool guard or chain guard. The HMGB and PIC ensure there is no loose gear in the helicopter prior to departure and during flight. The following is the minimum requirement when storing or loading gear in a DNR helicopter during routine flight operations:
- i. All fire support tool bags are loaded on left side and secured within the helicopter’s cargo net
  - ii. All crew support bags are loaded on the right side and secured within the helicopter’s cargo net
  - iii. The bucket shall be secured to the floor behind the pilot and manager seats utilizing two 2 10,000 LB. ratchet style tie down straps
  - iv. The longlines shall be secured to the floor in a bag behind the pilot seat (left front)
  - v. Rotor tie downs and mooring equipment shall be placed in the rear cargo compartment
- o. **Flight Reporting:** The PIC shall record all flight time on the agency approved Flight Report form. The PIC is responsible for recording all requested information contained in the Flight Report. The Chief Pilot shall ensure all pilots are trained to properly maintain individual flight reports. The ASM/I is responsible for filing the original copy in the permanent helicopter files. The HOC is responsible for:
- i. Maintaining sufficient quantity and availability of the Flight Report forms.
  - ii. Ensuring the forms are complete and accurate on submission.
  - iii. Entering helicopter hours into the billing report.
  - iv. Forwarding the original form to the ASM/I.
  - v. Ensuring the Flight Report form remains updated for changes.
- p. **Travel, Time and Activity Report Procedures and Guidelines:**
- i. DNR pilots shall report to the Southeast Region compound unless instructed otherwise by the Chief Pilot or Helicopter Coordinator when helicopters are not located in Olympia. In some cases, pilots may be assigned directly to a forward operating base.
  - ii. Pilots shall complete a travel voucher Form (A-20) for travel reimbursement. Travel vouchers shall be routed through the HOC and validated by the Chief Pilot. Once the review is complete, the vouchers are sent for approval to the Aviation Program Manager. The travel vouchers shall include the entire travel

*WA DNR Aviation Operating Plan & Standards*

- iii. period regardless of pay period or month. In addition to required form information, travel vouchers shall include:
  - 1. Program number
  - 2. Fire number
  - 3. Vehicle number (if using state vehicle)
  - 4. Original Motel receipts with name and aero balance due (showing payment received)
  
- iv. Pilots are encouraged to complete their Time and Activity Report (TAR) on the electronic form. TARs shall be turned in on the 14th and the last day of each month. TARs are routed through the same process as travel vouchers. In addition to the requested information, TARs include comments describing schedule changes, start and end dates.

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# Aviation Operating Plan and Standards (AOPS)

## Chapter 8 – Communications & Radio-Use Policy

2017

Washington Department of Natural Resources  
Wildfire Division – Aviation Section  
1111 Washington St SE  
Olympia, Washington 98504-7037



# WILDFIRE

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*WA DNR Aviation Operating Plan & Standards*

<b>REVISION PAGES &amp; MASTER TABLE OF CONTENTS</b>				
<b>Chapter Name</b>	<b>Page #</b>	<b>Initials</b>	<b>Date</b>	<b>Change</b>
Cover	8-1	MC	2/28/2017	0
Blank	8-2	MC	2/28/2017	0
Revision Page & Master TOC	8-3	MC	2/28/2017	0
1. Standards and Protocol of Communication Equipment	8-4	MC	2/28/2017	0
2. Aircraft Identification	8-4	MC	2/28/2017	0
3. Equipment Requirements	8-4	MC	2/28/2017	0
4. Satellite and Cell Phones	8-4	MC	2/28/2017	0
5. Frequencies	8-4	MC	2/28/2017	0
5a. Pacific Northwest Control Group (PNWCG) Frequency Guide	8-5	MC	2/28/2017	0
5b. Channels	8-5	MC	2/28/2017	0
6. Flight Following and Fire Traffic Area Communications	8-5	MC	2/28/2017	0
6a. Flight Following Interval	8-5	MC	2/28/2017	0
6b. Flight Following Initial Contact	8-5	MC	2/28/2017	0
6c. Automatic Flight Following	8-6	MC	2/28/2017	0
6d. Temporary Flight Restriction (TFR)	8-6	MC	2/28/2017	0
6e. Fire Traffic Area (FTA)	8-7	MC	2/28/2017	0
Figure 8-1 (FTA)	8-8	MC	2/28/2017	0
Figure 812 (No Coms FTA)	8-9	MC	2/28/2017	0

## **CHAPTER 8 – Communications & Radio-Use Policy**

1. **Standards and Protocol of Communication Equipment:** All DNR aircraft and support vehicles shall be equipped with adequate and reliable communications equipment. All aviation personnel shall use clear text and standard Incident Command System (ICS) terminology.
2. **Aircraft Identification:**
  - a. Aircraft registration / identification numbers shall be displayed on the side of the aircraft exterior and highly visible to the naked eye.
  - b. When communicating with a FAA facility or within an airport traffic area, the full phonetic call sign shall be used as the call sign. (*Example - N338WN is called: November-Three-Three-Eight-Whiskey-November*). DNR aircraft shall use only the last three numbers of the aircraft registration number when working on an incident. (*Example - N338WN is called: Rotor Three-Three-Eight*).
  - c. The national transponder code of 1255 was designated by the FAA in 1997 for aircraft involved in firefighting operations. It was developed to enable enroute and terminal radar service facilities to identify aircraft engaged in tactical fire suppression missions, and if necessary, separate them from non-participating aircraft. All DNR fire aircraft shall use transponder code 1255 when operating in support of fire mission incidents.
3. **Equipment Requirements:**
  - a. **Aircraft VHF-AM Radio:** All department operated, contract, and leased aircraft shall have a VHF-AM radio for communication with FAA facilities. VHF-AM bandwidth communications include helicopter takeoff and landing coordination and air-to-air tactics.
  - b. **Aircraft VHF-FM Radio:**
    - i. **Analog:** VHF-FM analog frequencies are narrowband (12.5MHz) with only a few exceptions. 1.27 Tones (CTCSS or DPL) may be used on receivers and / or transmitters based on local conditions.
    - ii. **Digital:** P-25 digital uses Network Access Codes (NAC) and Talk Group Identification (TGID) in the same 2.30 manner that analog uses CTCSS tones.

Discrete analog and P-25 digital communications are incompatible. Aircraft VHF-FM radios 3.32 shall be P-25 compatible to allow both analog and P-25 communications.
4. **Satellite and Cell Phones:** This equipment may supplement radio communications in some instances.

Their use during flight by the Pilot should be limited to that necessary for the safety of the flight and its occupants. Distractions and workload in the cockpit increase with the use of specialized equipment such as differential GPS navigation systems, data loggers, programmable graphic displays and some radio equipment.

5. **Frequencies:** Frequencies are authorized and assigned by the designated Washington 3 Office frequency manager and managed by the state and local Communications 4 Officers. Frequencies shall not be used without express permission from the 5 local, state, regional, or national level designated frequency management 6 personnel. DNR pilots shall adhere to FAR Part 91 governing communications and clearance requirements for controlled and uncontrolled airspace class.

- a. **Pacific Northwest Control Group (PNWCG) Frequency Guide:**

- i. The PNWCG Frequency Guide is published annually 01APR and issued to all participating interagency partners for aerial firefighter use.
- ii. The USDOJ and USDA designate specific frequencies nationwide for assignment and use by NIFC to support all risk missions. These frequency assignments are Freedom of Information Act release exempt and are to be protected as sensitive but Unclassified (SBU) data.
- iii. VHF-AM frequency 122.925 is a frequency designated for use by all natural resource agencies. It may be used on both incidents and projects for air-to-air and air-to-ground communications. The hazard in utilizing this frequency for any extended period of time is that anyone can use it. An incident or project cannot restrict its use by others.
- iv. The frequency guide is organized into area of responsibility of dispatch centers and provides the following:
  1. Dispatch Center Name
  2. Call Sign
  3. Physical Address
  4. Phone Number(s)
  5. Email Address
  6. RX Frequency / Tone
  7. TX Frequency / Tone
  8. Band Geographic Location for Frequency

- b. **Channels:** At a minimum, all DNR aircraft shall have the capability of transmitting and receiving on:

- i. National Air Guard frequency (168.625): All DNR aircraft shall monitor the National Air Guard frequency 168.625.

Though meant for emergency use, this frequency can also be used for initial call-up or redirection if any aircraft cannot establish positive contact on prescribed frequencies. Once contact is made, pilots shall off-tune.

- ii. Primary and secondary air-to-air (VHF-AM) frequencies
- iii. Primary and secondary air-to-ground (VHF-FM) frequencies. VCTAC 11 can be used as a backup frequency when the primary frequency is congested. VCTAC 11 shall be available for rapid 'switch over' during incidents.

## **6. Flight Following and Fire Traffic Area Communications:**

- a. The flight following frequency is assigned for the purpose of tracking aircraft from the base of operations to an incident and to aid in the event of search and rescue being activated for late or missing aircraft. Positive communication shall be established at 15-minute intervals and should be initiated by the originating dispatch center. Flight following check in shall continue until responsibility for communications with the aircraft shifts to:
  - i. Incident Commander
  - ii. Air Tactical Group Supervisor Over the Incident
  - iii. Entering the Area of Responsibility of other Dispatch Centers
  - iv. Automated Flight Following Confirmed by the Dispatch Center
  
- b. DNR operated or leased aircraft involved in fire missions shall follow 15-minute interval flight following standards. Unless directed otherwise by the local dispatch center, the flight following is conducted on the National Flight Following frequency 168.650. A CTCSS tone of 110.9 must be placed on the transmitter and receiver of the National Flight Following frequency. Flight following communications with Dispatch Centers shall include the following:
  - i. Initial Contact
    - 1. Aircraft Identification
    - 2. Geographic Position
    - 3. Souls Onboard
    - 4. Fuel Onboard (Hours + Minutes)
    - 5. Time Enroute
    - 6. Final Destination of Leg
    - 7. Confirmation of Automatic Flight Following Established
  - ii. Check-In Interval
    - 1. Aircraft Identification
    - 2. Geographic Position
    - 3. Heading
    - 4. Final Destination of Leg

c. **Automatic Flight Following:** Pilots shall turn on the AFF system onboard the aircraft during all flights.

- i. When a DNR operated or contracted aircraft is equipped and using AFF, the aircraft and the dispatch center responsible for tracking the aircraft do so in accordance with the National Interagency Mobilization Guide, Chapter 50, Flight Management Procedures. The guide is located at the following web site:

<https://www.nifc.gov/nicc/mobguide/Chapter%2050.pdf>

The web based tracking system approved for Flight Following of DNR aircraft or DNR aircraft is found at:

<https://www.aff.gov>

- ii. Methods of flight following (Regardless of mission):
  - 1. Filing an Instrument Flight Rules (IFR) flight plan with the FAA.
  - 2. Filing a Visual Flight Rule (VFR) flight plan with radio check-in to an FAA facility at intervals specified. (60 minutes minimum or at every fuel stop). This method is used for helicopters on long flights from point-to-point.
  - 3. Utilizing an agency based VFR flight plan, maintaining 15 minute interval radio contact with a dispatch center, helibase, or field staff. (When using field staff, the field staff must have positive contact with a dispatch centers in order to provide timely.) reporting regarding potential incidents.
  - 4. Utilizing a tracking system satellite that is compatible with the USFS Automated Flight Following (AFF) system. Standard reporting is every 2 minutes.
- iii. While performing a flight outside the normal work hours of a dispatch center, or transitioning through a Region outside normal hours, (typically 0800-1630), the PIC is required to flight follow with an FAA facility. DNR's PIC and HMGB must plan the flight accordingly.

d. **Temporary Flight Restriction (TFR):**

- i. All assigned / ordered aircraft must obtain clearance into the incident or TFR by the on scene Aerial Supervision or the official in charge of the on-scene emergency response activities.

- ii. Aircraft not assigned to the incident must stay clear the TFR unless communication is established with the controlling entity (ATGS, ASM, lead plane, etc.) and clearance is given to enter or transit the TFR.
- iii. The first responding aircraft, typically on extended attack incidents, must have reasonable assurance that there are no other aircraft in the TFR by making blind calls on the TFR frequency and double checking with ground personnel (IC, OPS, or Helibase).
- iv. There may be multiple aircraft operations areas within a single TFR.
- v. Remember - Non-Incident aircraft may enter the TFR under the following conditions:
  - 1. The aircraft is carrying law enforcement officials.
  - 2. The aircraft is carrying properly accredited news representatives.
  - 3. The aircraft is operating under the ATC approved IFR flight plan.
  - 4. The operation is conducted directly to or from an airport within the area, or is necessitated by the impracticability of VFR flight above or around the area due to weather, or terrain; notification is given to the Flight Service Station (FSS) or ATC facility specified in the NOTAM to receive advisories concerning disaster relief aircraft operations; and the operation does not hamper or endanger relief activities and is not conducted for observing the disaster.

*Note: A ROSS order or Aircraft Dispatch Form is not a clearance into a TFR.*

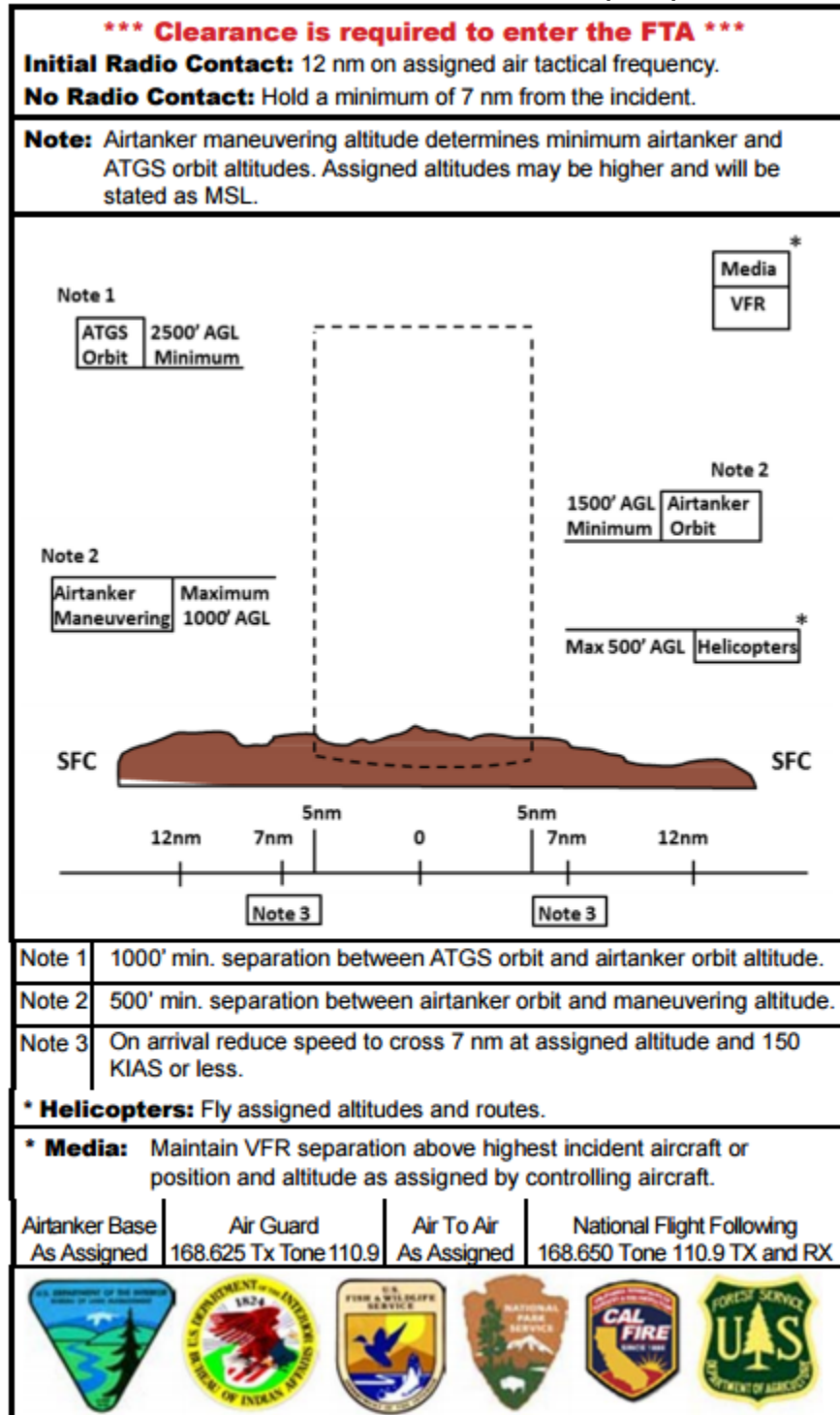
**e. Fire Traffic Area (FTA):** *(See Figure 8-1)*

- i. The FTA is a block of airspace boundaries for communication protocol for firefighting agencies. It does not pertain to other aircraft that have legal access granted by the FAA within a specific TFR.
- ii. The FTA should not be confused with a TFR, which is a legal restriction established by the Federal Aviation Administration to restrict aviation traffic while the other is a communication tool establishing protocol within firefighting agencies.
  - 1. Participating aircraft must adhere to TFR policies as established by the FAA.
  - 2. If the TFR boundary of the polygon exceeds the 12-mile initial contact ring, clearance will still be required in order to enter the TFR.



- If the TFR boundary is within the 12-mile ring, proceed with standard FTA communication procedures.

### FIRE TRAFFIC AREA (FTA)



(Figure 8-1)

- f. FTA Communications: DNR or DNR contracted aircraft shall not enter the incident or FTA until positive communications have been established with the controlling aircraft, the Air Tactical Group Supervisor (ATGS), or the Incident Commander.
  - i. At 12 nautical miles (NM) from the incident, communication efforts begin.
  - ii. If positive communications have not been established at 7 NM from the incident, the aircraft must not enter the incident airspace until communications are established.
  - iii. Normal procedure is to remain clear of the 7 NM circle in a left turn orbit at altitude appropriate for VFR operations until contact established. (See Figure 8-2)
  - iv. The only exception is the first on-scene aircraft makes “blind calls” during initial attack operations until communication is established with ground resources or when other aircraft arrive.

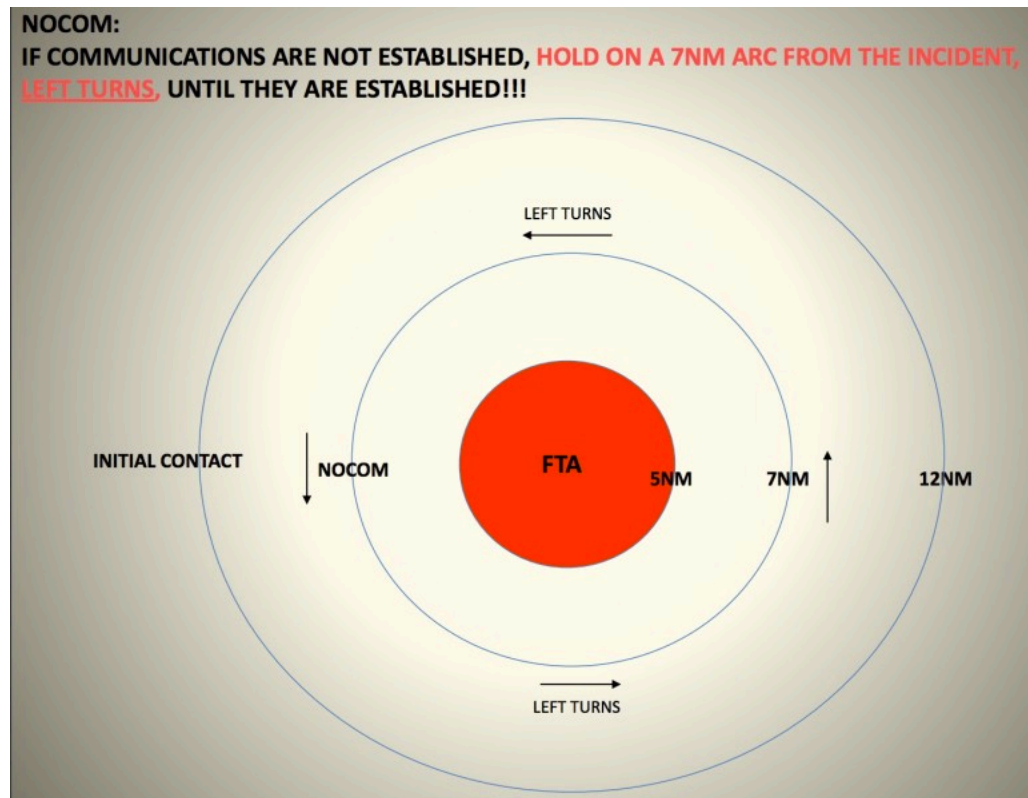


Figure 8-2

# Aviation Operating Plan and Standards (AOPS)

## Chapter 9 – Incident Operations

2017

Washington Department of Natural Resources  
Wildfire Division – Aviation Section  
1111 Washington St SE  
Olympia, Washington 98504-7037



# WILDFIRE

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**WA DNR Aviation Operating Plan & Standards**

<b>REVISION PAGES &amp; TABLE OF CONTENTS</b>				
<b>Chapter Name</b>	<b>Page #</b>	<b>Initials</b>	<b>Date</b>	<b>Change</b>
Cover	9-1	DR	3/30/2017	0
Blank Page	9-2	DR	3/30/2017	0
Revision Page & Master TOC	9-3	DR	3/30/2017	0
Coordination & Control, Ordering Aircraft	9-4	DR	3/30/2017	0
Dispatching, Initial Attack	9-5	DR	3/30/2017	0
Extended Attack, Helibase Operations	9-6	DR	3/30/2017	0
Fire Support & Fire Suppression Missions	9-7	DR	3/30/2017	0
Responsibilities & Assignments, Landing Site Selections	9-8	DR	3/30/2017	0
Fire Operations	9-9	DR	3/30/2017	0
Landing Site Selection	9-10	DR	3/30/2017	0
Water/Foam Drops	9-11	DR	3/30/2017	0
Water Scooping & Notification Procedures, Internal Cargo	9-12	DR	3/30/2017	0
External Loads & Cargo	9-13	DR	3/30/2017	0
External Loads & Cargo	9-14	DR	3/30/2017	0
Reconnaissance & Mapping, Personnel Transport, Medevac	9-15	DR	3/30/2017	0
Medical Evacuation	9-16	DR	3/30/2017	0
Airspace, TFRs, & FTAs coordination	9-17	DR	3/30/2017	0
Airspace, TFRs, & FTAs coordination	9-18	DR	3/30/2017	0
State Disaster & Emergency Operations	9-19	DR	3/30/2017	0
Blank Page	9-20	DR	3/30/2017	0

## **CHAPTER 9 – Incident Operations**

### **1. Coordination and Control; Governing Regulations**

#### **a. Requesting Agency and Jurisdiction**

When conflicts in aircraft operating procedures occur on interagency incidents, the regulations of the agency with operational control/jurisdiction shall be adhered to. The exception occurs when the regulations of the agency with operational control/jurisdiction are less restrictive than those of DNR. In that event, the more restrictive of the regulations applies.

#### **b. Examples:**

At times contract aircraft may be ordered through a federal agency contract but used on a DNR fire (or vice versa). In these instances, the aircraft are bound by the contract that they were hired under, except when the contract's regulations are less restrictive than the jurisdictional agencies. Contract aircraft are then limited by the more restrictive of the regulations. If the Contractor is unable or unwilling to abide by these more restrictive regulations, then the options exist to reroute the aircraft to another incident controlled by the ordering agency, reorder the aircraft under the contract of the jurisdictional agency, or replace the aircraft.

#### **c. Use of the Interagency Helicopter Operations Guide (IHOG)**

DNR will make every effort to comply with guidelines outlined in the IHOG. DNR will comply with IHOG regulations on incidents under the jurisdiction of a governing agency for which the IHOG is policy. Exceptions followed by DNR are noted in Appendix E.

### **2. Ordering Aircraft**

- a. DNR aircraft can be ordered through local DNR dispatch organizations or through DNR's ECC.
- b. Fixed Wing Scoopers & ATGS Platform(s) are ordered through DNR's ECC, NEWICC or CWICC dispatch using a standard Resource Order card.
- c. Canadian air tankers are contracted through DNR's ECC or NEWICC who orders the air tanker through a direct call to the tanker base. The originating dispatch office will complete Customs/Immigrations documentation.

- d. The Washington National Guard is ordered through DNR's ECC and requires an emergency declaration by the Washington State Governor.
  
- e. Dispatching and Diverting Aircraft
  - i. Dispatch of DNR aircraft is the function of the dispatchers at each DNR region dispatch center. Dispatching is done in accordance with the mission priorities and governing regulations set forth in this Plan. Aircraft en-route to an extended attack incident, a project fire, or a reported smoke may be diverted to perform initial attack, or to an incident where the threat to life or property is greater than the threat at the assignment to which the aircraft is en-route.
  
  - ii. Where conflicting priorities exist, local dispatch is to contact DNR's ECC for direction.
  
  - iii. Helicopters will be dispatched using the following criteria (in order of priority); (DNR, Cooperator partners, neighboring states)
    - 1 – Wildfire threat to human life, any jurisdiction.
    - 2 – Wildfire threat to Natural Resources
      - Initial Attack
      - Extended Attack
      - Large Incident Support
    - 3 – Wildfire threat to developed property
    - 4 – Natural Disaster (Non-Fire Governor approved only)
  
  - iv. DNR helicopters top priority is Initial Attack Operations. DNR helicopters may be utilized for extended attack or large incident support provided that they can immediately be reassigned to Initial Attack Operations when directed by DNR.
  
- f. When two or more DNR Aircraft prepositioned to the same location;
  - i. One point of contact will be assigned when multiple DNR aircraft reside at one incident or staged location. This point of contact will be the most senior Helicopter Manager or otherwise be determined by the Helicopter Managers on site. The Manager assigned as point of contact will ensure positive communications with the local dispatch center.

**g. General Operations.**

- i. All aircrew members are to maintain situational awareness, remaining alert and identifying potential hazards during all phases of aircraft operations. All helicopter operations are planned with the utmost consideration given to safety. When a DNR helicopter is operated with two DNR Pilots onboard (including training flights), one is designated as Pilot-in-Command (PIC) of the aircraft. The PIC determination is based on Pilot seniority in DNR or CP/T designated, unless otherwise determined by the Fire Aviation Program Manager. The Chief Pilot maintains a Pilot seniority list and reviews the list with the helicopter Pilots during spring training. The PIC has ultimate authority over flight operations and safety.
- ii. Helicopter Dispatch. The Helicopter Manager will brief the pilot on the following at a minimum prior to FTA:
  - Destination,
  - Requesting agency,
  - Other aircraft assigned to the incident,
  - Air to ground frequency, and
  - Air to air frequency before departure.
- iii. The Helicopter Manager & Pilot plan the flight to include:
  - Flight route,
  - Air space consideration,
  - Fuel duration and refuel location,
  - Method of Flight Following,
  - Performance Planning at landing site (OGE Power Check)
- iv. Flight Following and Fire Traffic Area Communications.
  - Will be IAW Chapter 8 Communications.
- v. Pre-mission & Enroute Planning
  - Pilots and Helicopter Managers evaluate and perform risk assessments for every mission. They collaboratively evaluate every mission for hazards that could affect the safety of the flight. Hazards include, but not limited to:
    - Weather;
    - Time of flight;



*WA DNR Aviation Operating Plan & Standards*

- Terrain;
  - Equipment;
  - Training and proficiency level of personnel;
  - Wires, snags and other obstacles;
  - Extreme fire behavior.
- 
- Each crewmember is expected to identify unknown hazard which they observe. Pilots perform a high-level reconnaissance before descending below 500 feet Above Ground Level (AGL). Helitack crewmembers and Helicopter Managers must not exert pressure upon the Pilot to perform missions or maneuvers with which the Pilot deems unsafe. Pilots and/or Helicopter Managers can use IHOG chapter 3 as a guide to assist with risk management and risk assessment.
  
  - Life-threatening Situations. In rare instances a life-threatening situation may cause a Pilot to determine the need to exceed duty hour limitations. In the event that this occurs, the Pilot must use his/her best judgment, and must not let the urgency of the situation affect the safety of the crew or of him/herself. Any duty hour violations made will be documented, through the SAFECOM process, by the Pilot and Helicopter Manager. Copies of the SAFECOM will be routed to the HOC, ASO, APM, & CP/T. The CP/T and HOC will adjust the pilot's next duty day to ensure they have 12 hours off prior to the next duty cycle.

**h. Initial Attack Operations**

- i. HMGBs conduct fire related radio communications advising dispatchers and fire managers regarding fire behavior using the "fire behavior" report card. If the helicopter is the only fire suppression resource on scene, the HMGB functions as the IC until relieved of that duty. PICs conduct air-to-air Victor radio communications. DNR's helicopters are staffed with a minimum of one designated HMGB and up to five additional crew members. HMGBs supervise Helitack crew members in all fire and helicopter operations including:
  - Bucket hook-up
  - Fire line construction and hose lays
  - Mop-up
  - Directing bucket drops and cargo
  - Helicopter hand signals

- ii. DNR initial attack helicopters are outfitted with the necessary equipment to conduct fire suppression during the first operational shift. The host region or incident management team may need to provide necessary equipment beyond the first operational shift.
- iii. If there is not sufficient HMGBs to support the helicopters assigned, 1 HMGB may manage 2 helicopters as long as the HMGB has briefed both pilots and that the HMGB has communications with both platforms while fire operations are being conducted.
- iv. DNR Property Only: 2 DNR Helicopter Pilots may conduct bucket operations without the assistance of a HMGB provided that:
  - A HMGB is requested and not available.
  - The mission or coverage period has been approved by the Division Manager.
  - Both Pilots have completed Annual UH-1H(M) and Annual Aerial Wildland Firefighting Training IAW WA DNR PTM within the last 13 months.
  - The Primary Left Seat PIC is currently listed on the USDA/USFS Region 6 Cooperator's Letter for bucket operations.
  - The Aircraft is currently listed on the USDA/USFS Region 6 Cooperator's Letter.
  - Fire Fighting is conducted on DNR Owned Property Only unless otherwise approved by the Division Manager.
  - The Pilot in Command can reasonably assure that all water drops will not damage property or injury personnel.

**i. Extended Attack Operations and Project Fires**

- a. DNR helicopters may be used by DNR, or its cooperators, on extended attack and project fires as long as the helicopters retain initial attack status and are available to respond to new fire starts.
- b. While on extended attack incidents the HMGB keeps the IC or representative informed regarding crew status, pilot duty hours, driver duty hours and helicopter availability. Initial attack is the primary responsibility for DNR helicopters. Therefore the HMGB, in conjunction with the HOC, keeps the IC or representative apprised of the IA responsibility. The HMGB is expected to supervise Helitack crew members in all extended attack helicopter operations including:
  - i. Helibase radio operations
  - ii. Marshaling the helicopter using standard helicopter hand signals
  - iii. Cargo preparations
  - iv. Helispot management
  - v. Helibase incident management familiarization

**j. Helibase Operations**

- a. All helibase operations will be conducted in accordance with IHOG standards, except as noted in Appendix E.

**k. Fire Support and Fire Suppression Missions**

- a. DNR fire support and suppression missions are conducted in accordance with pilot qualification specifications and accepted interagency standards (such as those set forth in the IHOG).

**b. Fire Operations**

- i. During fire operations the HMGB:
  - Ensures the helicopter remains “Initial Attack” ready
  - Keeps the helicopter and associated equipment (i.e. bucket, lines, and nets) fire ready as first priority
  - Ensures that crew management and deployment issues are the secondary priority
  - May elect to leave a minimum of one crew member at the landing site to ensure the mission readiness
  - Will not staff more than one incident unless attack readiness can be maintained and the appropriate staff is available to safely staff multiple nearby incidents (example: the same drainage or ridge top).
  - Is responsible to continue to staff the incident until redirected by the dispatch center, HOC, or EOM
  - When on a fire the HMGB ensures that all personnel, equipment, and helicopter can be re-dispatched within 30 minutes if need for other initial attacks
- ii. The HMGB and PIC ensure the helicopter is refueled prior to departing any incident, unless flight time beyond the destination is prohibited by available flight time or duty limitations. Refueling is done for the purpose of maintaining initial attack readiness.
- iii. The HMGB and crew members are not provided motel accommodations unless approved by the Helicopter Operations Manager or higher authority level.

**c. Responsibilities and Assignments**

- i. The primary duty of the PIC and crew is to ensure the helicopter and associated equipment is airworthy and ready to perform assignments. PICs coordinate non-Helitack assignments with the

*WA DNR Aviation Operating Plan & Standards*

crew supervisor or HMGB to assure that all necessary maintenance and repair work on the helicopter and assigned equipment is accomplished before accepting assignments.

Helitack crews will endeavor to launch in the minimum time possible consistent with safety and operational requirements. **The performance standard is five minutes from receipt of dispatch orders to aircraft start-up.**

- ii. All aircrew and ground personnel assigned to fire-ready aircraft shall be dispatch-ready during all hours of their shift. Personnel will monitor radios and/or telephones, and advise their supervisor of their location when away from the immediate work area.
- iii. All aircrew and ground personnel are responsible for maintaining a safe work environment by monitoring the helibase working conditions and the physical/mental conditions of co-workers, and by following safe operational practices. Any notice of an unsafe work environment must be immediately mitigated. To maintain safe working conditions employees should:
  - Stay alert for safety problems taking action to reduce risk and eliminate hazards
  - Correct problems quickly keeping others informed
  - Ensure all persons affected are advised of safety hazards that cannot be immediately corrected
  - Inform managers and supervisors of safety problems quickly
  - Watch for signs of fatigue and physical limitations in themselves and others (fatigue often manifests itself in the form of mistakes in performing routine jobs, and often be indicated by altered attitudes and a reduced concern for safety and mission objectives.)
  - Ensure co-workers are trained to the extent necessary to perform the job safely
  - Communicate clearly by use of standard briefings and debriefings
- iv. While on assignments, the HMGB keeps the IC or agency administrator and the HOC informed regarding status of the helicopter module including:
  - Helicopter availability and maintenance needs
  - PIC's flight status and duty day limitations
  - Fuel truck driver status and fuel availability

- Crew availability
- Equipment availability

**d. Landing Site Selection**

- i. The PIC and HMGB will agree on the following criteria before proceeding into unimproved landing areas:
  - Safe site for the aircraft and crew
  - Efficient and effective landing site
  - OGE Power Check Completed before landing
- ii. When selecting a site for fueling operations the HMGB (or a representative), should seek permission from the landowner before landing or as soon as possible after landing. If a landowner does not grant permission the PIC and HMGB then select a new landing site. Unless it conflicts with the criteria stated above, helicopter landing sites must be in accordance with the IHOG, Chapter 8.

**e. Water/Foam Drops**

- i. For all bucket operations, an emergency release check must be performed with manual and electrical releases prior to commencing water drops. As with other external loads PICs shall avoid, to the extent possible, flying over any person, vehicle or structure in such a way as that an inadvertent release of the bucket or water could be a safety threat. For more information on water/foam drop techniques, refer to DNR's Helicopter Pilot Training Manual. For information on ground personnel standards for calling bucket drops refer to S-271, the IHOG, or the Helitack Crew Guidelines.
- ii. Water Source Selection.
  - PICs and HMGBs request permission from either the agency administrator or EOM before dipping out of a water source that has a fence, a security system around the water source, or water source that appears suspect as a hazardous dip site. HMGBs are responsible for ensuring the dip site is "non-hazardous" by checking dip sites on a GPS unit which has the hazardous dip site database installed. DNR's ECC is responsible for updating the hazardous dip site database. PICs use the closest safe water source. The PIC, HMGB or IC (or representative) may assign a dip site manager at any dip site to provide security and safety.

iii. Foam

- DNR helicopters are equipped with the ability to use foam as a suppressant. The foam delivery system uses standard wildland fire suppression foam. When working with foam DNR employees must take the following precautions:
  - Helicopter skids, steps, or any hard flooring surface need to be rinsed of foam spills regularly
  - Small spills are disposed of by diluting with a thorough flushing of water
  - Wear waterproof gloves and eye protection when pumping or pouring foam
  - Flush area with clean water if foam splashes onto skin or eyes
  - Avoid inhalation of foam fumes- they can irritate the lining of the nose and mouth
  - Be careful not to spill or drop foam solution near any water source
  - Foam will not be used when within 300 ft. of an open water source (i.e. lake, stream, creek, etc.)

f. **Water Scooping and Notification Procedures.**

- i. Dipping with helicopters and scooping with amphibious air tankers from lakes is done at the PIC's discretion. In addition, the local dispatch center notifies the county sheriff's office to provide boat traffic control, if needed, for fixed wing scooping operations. Long Lake and Newman Lake are frequently used for scooping and helicopter dip sites. Notification procedures for these lakes are coordinated before the fire season begins. "Warning to all Watercraft" signs are placed in the campgrounds that have boat launches.
- ii. Whenever fixed wing and rotor wing aircraft are being utilized on the same incident, personnel trained in air operations management shall be assigned by the Incident Commander or the Operations Section Chief.
- iii. Prior to the initiation of air operations, all personnel operating in close proximity to an air drop shall be notified of such activity (WAC 296-305-07015.) Notification also takes place through the signs
- iv. posted for boat traffic control before the PIC makes final decision to scoop from the lake.

**g. Internal/External Cargo**

i. All internal and external cargo is weighed and manifested. PICs are apprised of any hazardous materials or weapons being transported, and of cargo weight and destination. Cargo is transported, weighed and manifested in accordance with the *IHOG* standards (*IHOG* Chapter 11: Cargo Transportation.)

ii. Internal Cargo

- All internal cargo is inspected prior to loading
  - The PIC approves all cargo prior to loading
  - All cargo is secured to the floor or walls using tie down straps, or properly secured using a cargo restraint system
  - All cargo is loaded in accordance with the Helicopter Operations Manual “Weight and Balance” limitations
  - All containers containing hazardous materials are clearly marked as “hazmat
  - No fluids considered hazardous material are transported in a non-approved container
  - Containers are properly secured to the floor or contained in a metal box, or similar container, properly secured to the aircraft

iii. External Load Operations

- During external load operations, a trained helicopter crew member may be aboard the helicopter to assist with the operations (such as ensuring rotor blade clearance, or calling the load) as long as the safety of the operations is substantially enhanced and the capability of the helicopter is not significantly reduced (FAR 133).
- All DNR helicopters are configured to operate the left or right seat (UH-1) for external load operations. Left seat will be used for all longline missions. Helicopters operate under the following procedures:
  - Water buckets and lines are placed in front of the helicopter at a 45 degree angle on the PIC’s side of the helicopter when being hooked up unless both the PIC and HMGB approve of placement to the side of the helicopter
  - Buckets are hooked to a 75 foot minimum long line while performing vertical reference operations
  - PICs do not perform water or cargo drops without a ground contact unless specifically requested by the IC or dispatcher. PICs do not perform water or cargo

**WA DNR Aviation Operating Plan & Standards**

- drops in congested areas without a ground contact
- PICs avoid making spot drops on structures
- PICs are individually qualified at the following levels by the CP/T: belly hook, 75 foot long line and 150 foot long line
- Operations are conducted based on individual pilot qualifications
- A helicopter crew member may be aboard an aircraft during external load operations only when:
  - The safety of the mission can be substantially enhanced
  - The capability of the helicopter is not significantly reduced
  - Pilot Training
  - Pilot Spot Checks by the CP/T or APM
  - The helicopter is not in the restricted category
- **The Pilot has final authority regarding carrying a helicopter crew member during external load operations. (Exceptions include at the direction of the CP/T or APM)**
- Prior to conducting External Loads.
  - The PIC, HMGB or a representative inspect all long line equipment and cargo
  - The PIC and crew perform an electrical check on the bucket, cargo and remote hooks prior to bucket or long line operations
  - Hover hook-ups only are done using two qualified crew members
  - DNR helicopters and pilots are not approved for any cargo let down, rappel, long-haul or para-cargo operations
  - All containers containing hazardous materials are clearly marked “hazmat”
  - All hazardous materials are transported in the original or an approved container. Containers that are leaking fluid will not be transported. See section *I, General Operations, Hazardous Materials*, for further information pertaining to hazardous materials
  - All recorded cargo weights are the actual weight. If scales are not available the helicopter personnel will use an agency approved “helicopter equipment weight” chart. If a scale or chart is not available, helicopter crewmembers may estimate weights, but when weights are estimated, the PIC uses the load calculation weight reduction for the load unless the
  - All DNR employees who participate in external load operations with a DNR helicopter or helicopter contracted by DNR must be helicopter crew member



*WA DNR Aviation Operating Plan & Standards*

(HECM) qualified or have received A219, Long Line Remote Hook training, and are Helicopter Long Line/Remote Hook Specialist (HELRL) qualified

- Pilots only perform missions for which they are qualified and DNR carded for

h. Hazardous Materials.

- i. DNR personnel will follow the guidelines set forth in the DNR Aviation Transport of Hazardous Materials Exemption and the Interagency Transport of Hazardous Materials Guide, <http://amd.nbc.gov/safety/library/hazmathb0105.pdf>. The DNR sets these guidelines in place for safety reasons.
- ii. The DNR is not bound by 49 CFR Parts 171-175 except when traveling by, or when contracting, commercial aircraft. Although the DNR's status is not commercial, the DNR has become a co-signatory to the USDA-FS/USDI 49 CFR Parts 171-175 Exemption Letter granted by the United States Department of Transportation. Copies of the DNR Aviation Transport of Hazardous Materials Guide can be acquired through Wildfire Division or for DNR personnel can be found on the DNR intranet, Share point, Aviation, Transport Hazmat. In addition, copies of the special permit authorization granting party status to the DOT-SP 9198, IA W 49 CFR, Part 107 .107 (Hazardous Materials Regulations) can be acquired through Wildfire Division.
- iii. Definition: Hazardous materials are substances that are identified, classified, and regulated in the Code of Federal Regulations, Title 49 and Hazardous Materials Regulations part 175. A hazardous material is a substance or material that has been determined by the Secretary of Transportation to be capable of posing an unreasonable risk to health, safety, and property when transported in commerce and which has been so designated. This includes, but is not limited to:
  - Saw and pump gas.
  - Saw and pump oils.
  - Solvents.
  - Drip torch fuel.
  - Propane.
  - Fuses.
  - Flares and similar firing devices.
  
  - Weapons.
  - Pepper spray.
  - Batteries.

i. **Reconnaissance & Mapping**

(Section Reserved, to be Developed Later)

j. **Personnel Transport**

- i. Passenger Transport is accomplished in accordance with the Passenger Transportation specifications shown in Chapter 4 of this document.

k. **Medical Evacuation**

- i. The IC is responsible to ensure that IHOG form HJA-4A, *Emergency Rescue information* is completed and posted at the helibase. In addition, IHOG form HJA-4B, *Emergency Medivac/Medical Transport Request* or other agency approved helicopter ambulance request form, is completed as is practicable on any incident if a medical evacuation is requested at an unknown landing spot. See Appendix H and I for copies of these forms.

- ii. **DNR helicopters are not equipped and crews are not trained or equipped to perform medivac missions and are not assigned medivac missions during fire operations or in an incident action plan.** Exception: DNR helicopters will only be used for medivac missions when a person(s) sustains life threatening injuries or illness and when waiting to transport the person by other means would be more life threatening. The Pilot or HMGB will notify dispatch if evacuating causality as soon as possible during transport. A Medical Location Briefing is located in the aircraft logbook.

- If a DNR helicopter is used as a last resort to perform a medical evacuation, the PIC, HMGB and helicopter crew members performing the evacuation will perform a safety briefing and a risk assessment. Part of the risk assessment process includes, but is not be limited to:
  - Reviewing [IHOG form HJA-4B](#) (Emergency Rescue Information)
  - Completing [IHOG form HJA-4B](#) (Emergency Medivac/Medical Transport Request)
  - Assessing and ensuring that clear communications are established
- During the medical evacuation the PIC and HMGB perform an additional risk assessment prior to approaching the evacuation site.

- Prior to any medical evacuation operation, the IC or representative establishes and coordinates dispatch procedures with the local dispatch center.
- All medical evacuations on DNR fires or performed by a DNR helicopter, are in accordance with IHOG Chapter 8 *Number III. A. Landing at an Unimproved Landing Site*. The PIC or HMGB ensures radio communications are established at the evacuation site prior to landing.
- DNR helicopters are never used to perform an evacuation with an external basket, litter or any other type of short haul equipment. Medical evacuation missions are only performed with both skids sitting firmly on the ground prior to loading the patient(s). All medical evacuation personnel, including aircrew, are loaded internally and secured in the seated position or to the floor if a patient cannot sit in the upright position.

**l. Urban Interface Fires**

(Section Reserved, to be Developed Later)

**m. Rappel, Aerial Ignition (Helitorch, PSD)**

- i. DNR helicopters are not equipped and crews are not trained nor authorized to perform aerial ignition or rappel operations from DNR's FEPP aircraft.

**n. Airspace Coordination, FTAs and TFRs**

- i. Temporary Flight Restriction (TFR): A TFR is an area of airspace (defined both laterally and vertically) that has been temporarily or partially closed to non-participatory aircraft for a specified period of time. TFRs are requested through DNR and interagency dispatch centers. Notification of new TFRs is made through a NOTAM (Notice to Airmen). NOTAMs are an FAA method of distributing information to pilots. They may contain information (not known in advance to publicize by other means) concerning the establishment, condition or change in any component (facility, service or procedure of, or hazard in the National Airspace System).
- ii. NOTAMs may be regulatory (restrictive) or advisory in nature.

- iii. TFRs are considered legal regulations. Intrusions into a TFR may carry a penalty or the suspension of licenses. The standard dimensions of a TFR are: laterally—five nautical mile radius from the center point of the disaster area; vertically—extending up to 2,000' above the highest terrain of the disaster area, or above the operating altitude of participating aircraft.
- iv. In wildland firefighting operations, the TFRs most commonly dealt with come under 14 CFR Section 91.137 (a) (2) which state “to provide a safe environment for the operation of disaster relief aircraft”. These TFRs include (but are not limited to):
  - Wildland fires being fought by aviation resources
  - Aircraft relief activities following a disaster such as earthquake, tidal wave, flood, hurricane, etc.
  - Aircraft accident sites
- v. Those allowed inside this type of TFR are: participating aircraft, law enforcement, IFR traffic, airport traffic, and the media.
- vi. Rarely a TFR under 14 CFR 91.141 is set up for wildland fire operations, but could occur for the protection of the President of the United States, or for other public figures, during their appearances at large wildland fires.
- vii. All DNR pilots will monitor TFR changes and avoid violating TFRs or other airspace restrictions.
- viii. For more information about TFRs, and to learn about the Midair Collision Avoidance Program (MACA) see chapters 6 and 7 of the Interagency Airspace Coordination Guide at <http://www.airspacecoordination.org/guide/>
- ix. Fire Traffic Areas (FTAs). A FTA will be establish around all fires under DNR jurisdiction. Only DOI/USFS/DNR carded approved aircraft and pilots are allowed in the vicinity of DNR fire operations. If an un-carded non-assigned aircraft is in the FTA all DNR air operations will cease until non-participating aircraft are clear of the FTA and fire operations area for safety concerns.

o. Helicopter Refueling.

i. Fuel trucks may be equipped with Closed Circuit Refueling (CCR) systems to prevent spills, minimize fuel contamination, and prevent the escape of flammable fuel vapors. Rapid refueling "hot fueling" (fueling with the helicopter engine still running) is approved when a CCR nozzle is in use, and:

- The fuel truck is outside of the rotor diameter;
- The aircraft throttle is at the IDLE position;
- There are no passengers onboard the aircraft;
- The Pilot remains at the aircraft controls;
- When, at minimum, one 20 lb. B/C fire extinguisher(s) is available for the fuel handler;
- The aircraft is shut down every other fuel cycle to prevent Pilot fatigue; (4 hours maximum)
- When on a Federal fire the Government has requested or pre-approved use of CCR methods.

ii. Aircraft Fueling will be done with the following safety precautions:

- The fuel truck will be bonded (grounded) to the aircraft, and the fueling nozzle will be bonded to the aircraft.
- Fueling will not be done with any open ignition source within 50', or 100' when the aircraft is directly downhill or downwind. Note, smoking is considered an open ignition source.
- The fuel nozzle will be attended at all times while fueling is in progress.
- Two 20 lb. B/C fire extinguishers will be on scene, and easily accessible.
- Fuel handlers will wear eye and ear protection (hot fuel only), long-sleeve pants and shirts (Nomex is acceptable), leather boots, gloves, and hard hat (CCR, hot fueling only).
- Only necessary personnel should be within the "safety circle" during fueling operations.
- A spill kit is on site

p. **State Disaster and Emergency Operations (All Risk)**

(Section Reserved, to be Developed Later)

q. **Performance Evaluation**

(Section Reserved, to be Developed Later)

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# Aviation Operating Plan and Standards (AOPS)

## Chapter 10 – Non-Incident Operations

2017

Washington Department of Natural Resources  
Wildfire – Aviation  
1111 Washington St SE  
Olympia, Washington 98504-7037



# WILDFIRE

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## **CHAPTER 10 – Non-Incident Operations**

### **1. Field Project Work:**

- a. **Forest Health Survey Flights:** Forest Health Survey Flights are done in accordance with the operating procedures and aircraft/pilot requirements detailed in Chapters 3 and 4.
  - i. **Department of Natural Resources:** If DNR Wildfire Division is tasked to conduct forest health survey flights, close coordination with the APM and HOC is required in order to determine if the 10% allotted flight time for missions other than aerial firefighting exists.
  - ii. **Department of Fish and Wildlife:** DFW owns and operates a Partnavia P-68 for the sole purpose of conducting forest health survey flights.
- b. **Aerial Spraying:** If DNR Wildfire Division is tasked to conduct Aerial Spraying, close coordination with the APM and HOC is required in order to determine if the 10% allotted flight time for missions other than aerial firefighting exists.
- c. **Lightening Detection Flights:** If DNR Wildfire Division is tasked to conduct lightening detection flights, close coordination with the APM and HOC is required in order to determine if the 10% allotted flight time for missions other than aerial firefighting exists.

### **2. Acquisition and Disposal of Aircraft:**

- a. **Federal Excess Property Program:** DNR only operates FEPP acquired aircraft at the time of publishing of this document. Accepted FEPP mandated processes and procedures shall be adhered to in the acquisition and disposal of FEPP aircraft.
- b. **Department of Defense Acquired Aircraft:** The DoD periodically sells through GSA auction or State Agency Surplus Programs that sell refurbished aircraft to states without the requirement of bidding and award. The SASP program only requires a \$100,000 deposit to dedicate selected aircraft for sale to state agencies. This process requires a capital request with CPL authorization.
- c. **Commercially Acquired Aircraft:** Acquisition of commercially procured aircraft are considered capital requests due to the high cost of both rotor and fixed and requires CPL authorization.
- d. **Disposal:** Sale of any aircraft procured through capital request requires CPL and Washington State Office of Financial Management (OFM) analysis and approval prior to final sale.

### 3. Lease, Rental & Contract Aircraft:

- a. **Methods:** Any contract for aircraft lease or rental must be procured through competitive bid quotes conducted over the Washington Electronic Business Solutions (WEBS).

<https://fortress.wa.gov/ga/webs/>

An alternate acceptable method of contracting can be procured by contracting with Washington State's Department of Enterprise Services' (DES) vendor listing that have been approved with agreements at:

<https://fortress.wa.gov/ga/apps/ContractSearch/VendorListing.aspx>

- b. Solicitations shall be published in accordance with the Revised Code of Washington (RCW) and must adhere to fair and equal business practices outlined in the RCWs. Award of contracts must be made via panel decision and awards must be supported with documentation of the solicitation and award process.
- c. Currently, the Wildfire Division Aviation Program Manager executes solicitation for bid based on the needs and requirements outlined by the Wildfire Division Manager. Once the solicitation expires and bids are gathered, the awards process begins.
  - i. Contract awards panels should consist of:

1. Wildfire Deputy Superintendent	Authority
2. Division Manager	Requirements
3. Assistant Division Manager	Budget
4. Aviation Program Manager	Subject Matter Expert
5. Contracts Manager	Contracting Consultant
6. Assistant Attorney General	Legal Consulting
- d. The Aviation Program manager shall gather all bid and certification documentation for those vendors assessed as responsive. The APM shall present the panel with bid quotes received and evaluate each vendor with a numerical hierarchy. The hierarchy is based on:
  - i. Established Washington State Licensed Business
  - ii. Fully insured IAW DNR minimum insurance coverage
  - iii. Condition of Facilities
    - 1. Location
  - iv. Condition of Equipment
    - 1. Inspected and Certified by USFS
  - v. Condition of Employees
    - 1. Inspected and Certified by USFS

- vi. Competitiveness of submitted bid quote
  - 1. Daily Availability Rate
  - 2. Hourly Flight Rate
  - 3. Hourly Extension Rate
    - a. Pilot
    - b. Loader
    - c. Driver
  - 4. Support Vehicle Mileage Rates

# Aviation Operating Plan and Standards (AOPS)

## Chapter 11 – Helitack

2017

Washington Department of Natural Resources  
Wildfire – Aviation  
1111 Washington St SE  
Olympia, Washington 98504-7037



# WILDFIRE

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<b>REVISION PAGES &amp; MASTER TABLE OF CONTENTS</b>				
<b>Chapter Name</b>	<b>Page #</b>	<b>Initials</b>	<b>Date</b>	<b>Change</b>
Cover	11-1	MC	3/30/2017	0
Blank	11-2	MC	3/30/2017	0
Revision Page & Master TOC	11-3	MC	3/30/2017	0
1. General	11-4	MC	3/30/2017	0
2. Crew Guidelines	11-4	MC	3/30/2017	0
3. Facilities	11-5	MC	3/30/2017	0
4. Individual Responsibilities	11-5	MC	3/30/2017	0
5. Opening and Securing Aircraft	11-5	MC	3/30/2017	0
6. Dispatch	11-6	MC	3/30/2017	0
7. Fire Assignments	11-6	MC	3/30/2017	0
8. Staging	11-6	MC	3/30/2017	0
9. Travel and Per Diem	11-6	MC	3/30/2017	0
10. Alcohol and Drugs	11-7	MC	3/30/2017	0
11. Vehicle Travel	11-7	MC	3/30/2017	0
	11-8	MC	3/30/2017	0

## **CHAPTER 11 - Helitack**

1. **General** The following guidelines are supplemental to the DNR Agency Work Expectations Guidelines and will be used in conjunction with that publication.

### **2. Crew Guidelines**

- a. Work hours are 0930-1800. Personnel days off are on rotation to provide coverage seven days a week. Base Manager(s) can and will make changes to the schedule as needed. Leave requests will be granted on a first come first serve basis. Leave can be denied at any time due to weather and/or staffing levels.
- b. Beginning at 0930 each morning; Squad Bosses, Firefighters, and Support Drivers will participate in a daily briefing led by the Helicopter Manager(s). The briefing will consist of fire weather, 6 minutes for safety, helicopter staffing, and work projects and/or training that will take place that day.
- c. After the weather and safety portions of the briefing, the Helicopter Manager(s) and Squad Bosses will discuss and plan any work projects and/or crew training for the day.
- d. After the briefing has been completed, all personnel will put their fire gear on assigned helicopter, support truck, or chase vehicle. Crew red bags and tents will be placed on the support truck, chase truck, or helicopter as designated by the module's Helicopter Manager. Support Drivers, and Firefighters driving chase vehicles will complete vehicle pre-trip and fire readiness inspections.
- e. Daily debrief will begin at 1730 hrs. All projects and work stations will be cleaned up and organized prior to debrief. Daily duties include: Helitack Work Center clean up, all garbage cans emptied, bathrooms cleaned.
- f. Pilots will complete a Load Calculation for their aircraft each day. Helicopter Managers will review the Load Calculation with the pilot. Pilots will keep one copy of Load Calculation; Helicopter Managers will also keep a copy, and a 3rd copy will be posted on the aircraft board (w/copy of manifest). Helicopter Managers and pilots will discuss plans for the day and any special concerns.
- g. If you are working, you are expected to be dispatch-able. If you want to limit your chances of dispatch, you may arrange to switch places with another crewmember. This will be done the evening before, and must be approved by a Base Manager. If you are unable to work, for any reason, notify a Base Manager prior to the start of the workday. A leave slip will be completed for all absences, approved or not.
- h. If, upon arriving at work, you find that all helicopters are on an incident, wait until 0930 for Base Manager(s) to arrive. If all Base Managers are on fires, a Helicopter Manager, Squad Leader or one designated Firefighter will call a Base Manager for instructions as to whether you are requested on the fire. If no instructions are given, then continue with the daily schedule and assigned work projects.



- i. The persons assigned as Support Drivers are the only ones authorized to leave the compound during the day unless permission is granted by a Base Manager; they are required to monitor a radio at all times.
- j. The use of personal cell phones during business hours is at the discretion of the supervisor at that base or office. The supervisor will set crew policy regarding use and protocol.
- k. Smoking is not permitted in state buildings or in the vicinity of helicopters, helicopter pads, and/or fuel trucks.
- l. Maintain professionalism at all times.

### **3. Facilities**

- a. The Helitack Work Center is the long shed on the west side of the Region Headquarters. Occasionally personnel may be assigned to assist with work inside the main office, or off of the compound. The main office is open to Helitack personnel for restroom use and lunchroom use only. Check with a Base Manager if you need to be in the office for other reasons. The Helitack restrooms are for all fire personnel; showers are not intended for everyday use. Shower facilities will be utilized for clean up after a fire assignment.
- b. All Helitack personnel are welcome to buy pop/coffee/snacks in the lunchroom, and to use the Helitack coffee pot, microwave and refrigerator. The refrigerator is for lunches only; it is not for personal groceries. You are expected to clean up your own mess. Deep cleaning will be assigned as necessary.
- c. Helitack personnel parking is located behind the Helitack Work Center and in the west yard aka "Bone Yard" through the gate behind the Helitack Work Center.

### **4. Individual Responsibilities**

- a. Helitack personnel are required to keep updated with the information board postings, with project work documentation, and with the completion of their own training and incident experience records. All documentation will be submitted to an Assistant Base Manager. Helitack personnel will also be responsible for assuring that task books get completed in a timely manner.
- b. Gear is to be kept in your locker (not on the floor, chairs, or tables of the Helitack Work Center). At the end of the workday, it is your responsibility to take your own gear off of the helicopter and support truck or to arrange for someone else to do it.
- c. Helitack personnel will assist department mechanics during maintenance.
- d. Anyone who will be working out of immediate contact will inform supervisor and monitor a radio at all times.
- e. When working around the main office, do not play music loud enough to disturb office personnel. All music will be appropriate for the workplace. Head phones will only be used during project work and head phone use must not compromise crewmembers ability to hear fire radio or directions from others.

- f. Helitack personnel are expected to arrive each morning fit for duty. If a crewmember is unfit for duty they will receive Leave without Pay, sent home for the day in addition to appropriate disciplinary action.

## **5. Opening and Securing Aircraft**

- a. Daily opening procedures include unlocking doors and storing locking devices along sides of transmission wells. Remove battery lock and connect main power supply to battery.  
Remove pedal control lock. Place battery control lock and pedal control lock in orange bag located in left rear aircraft storage panel. Remove pitot tube cover and store in battery compartment.
- b. Main rotor and tail rotor tie downs will remain secure until aircraft is dispatched.
- c. During daily operations, secure main and tail rotor after each aircraft shutdown.
- d. At the end of each day secure main and tail rotors, install pedal control lock, unplug main power supply from battery and install battery lock, place cover over Pitot tube, ensure window is up, and secure outside door locks.

## **6. Dispatch**

- a. Obtain the following information and fill out dispatch form; Incident #, Alpha #, Fire Name, Location—(Lat. & Long. or Township Range Section), Ground Contact, Frequencies and other resources.
- b. When called to a fire, Helitack personnel will stop what they are doing, secure their work area (e.g. unplug power tools), and immediately proceed to the aircraft. The remaining Helitack personnel will assist in cleaning up for the personnel that went on the dispatch.
- c. Time from dispatch to fire launch should be kept under 5 minutes.

## **7. Fire Assignments**

- a. While on fires, Helitack personnel will: build and maintain Helispots, assist with calling water drops, perform passenger and cargo loading/manifesting, maintain porta-tanks, construct fire line, assist with cargo drops & transportation, help establish helibases, fill in for any required helibase positions (e.g. ABRO, parking tender, deck coordinator, etc.), perform initial attack duties as needed to suppress fires, and support other helicopters as assigned.
- b. While on fire assignments Helicopter Managers will supervise assigned module. Helicopter Managers have final say in all matters concerning the crew, aircraft and support truck. Helicopter Managers will inform Base managers and attain direction in matters concerning discipline.
- c. Helitack Squad Bosses and Firefighters will not take directions from other fire personnel unless directed to by their Helicopter Manager.

- d. No equipment will be left at the fire site overnight unless it has been assigned to the fire line (e.g. a Helitack portable pump that is needed by line personnel for the remainder of that operational period.) The decision to leave Helitack equipment will be made by a Helicopter Manager.
- e. After returning from fire assignment, the assigned helicopter module will ensure aircraft and line gear is fire ready before end of shift.

## **8. Staging**

- a. Staging duty days will be 10hrs, 08:00—18:30 unless otherwise directed by host region or agency
- b. Time from dispatch to fire launch should be kept to a minimum, the goal is 5 minutes.
- c. While staging Helitack personnel might assist host facility with projects or facility upkeep with Helicopter Manager's approval.
- d. Per Diem will be used while staging unless otherwise directed by host region or agency.

## **9. Travel and Per Diem**

- a. Personnel are expected to have enough money to pay for breakfast, lunch and dinner for 12 days.
- b. An A-20 Travel Voucher will be completed by each crewmember upon returning from dispatch. Be sure to include dates, times, meals to be reimbursed and rate (available from manager), program code, alpha code, fire name, and method of transportation.
- c. Helitack personnel are responsible for maintaining A-20's as well as personal credit card receipts for hotel rooms, rental cars, rental car fuel, emergency supplies, etc., and will be turned in with the travel voucher to the Helitack office as soon as practicable, but no later than the last day of each month.
- d. Hotels may be used when staging areas do not have a DNR agreement, facilities or when work to rest will be compromised.
- e. If personnel are authorized a hotel room and one is not available within the approved state government lodging rate, the immediate group supervisor will attempt to contact WD or RP&S staff in order to facilitate price negotiations or receive approval for excess lodging costs. An Authorization to Exceed the Maximum Allowable Lodging Rate form will be signed by approved supervisors and attached with Travel Voucher for reimbursement of the excess costs.

## **10. Alcohol and Drugs**

- a. The Washington State Department of Natural Resources and the Helitack program have a zero tolerance policy towards the use or possession of alcohol, marijuana, and illegal drugs while on duty
- b. Alcohol, marijuana, illegal drugs is not permitted in any state vehicle or on any state grounds. This includes any lands that the state is using for helicopter operations.

- c. State vehicles (chase trucks, etc.) will not pick up other Helitack personnel from town after the evening dinner/pilot drop off. Other means of transportation to crew sleeping area must be made.

## **11. Vehicle Travel**

- a. Prior to leaving compound be sure vehicle has MER book and gas card, accident forms, first aid kit, fire extinguisher and gazetteer.
- b. Confirm MER book is current and begin taking miles for assigned project and code.
- c. Do a complete pre-trip inspection including: engine oil, transmission fluid, coolant, and washer fluid. Check belts, hoses and overall engine condition. Do vehicle walk around checking tires, body condition and lights and signals.
- d. When operating a vehicle employees are required to always wear a seatbelt, travel with lights on, and monitor radio at all times.
- e. Always return vehicle full of fuel and close out MER book.

# Aviation Operating Plan and Standards (AOPS)

## Chapter 12 – Fuel Trucks

2017

Washington Department of Natural Resources  
Wildfire Division – Aviation Section  
1111 Washington St SE  
Olympia, Washington 98504-7037



# WILDFIRE

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<b>REVISION PAGES &amp; MASTER TABLE OF CONTENTS</b>				
<b>Chapter Name</b>	<b>Page #</b>	<b>Initials</b>	<b>Date</b>	<b>Change</b>
Cover	12-1	MC	3/30/2017	0
Blank	12-2	MC	3/30/2017	0
Revision Page & Master TOC	12-3	MC	3/30/2017	0
1. Helicopter Fueling Requirements and Precautions	12-4	MC	3/30/2017	0
2. Refueling Operations Responsibilities	12-4	MC	3/30/2017	0
3. Personal Protective Equipment	12-4	MC	3/30/2017	0
4. Refuel Locations and Purchasing	12-5	MC	3/30/2017	0
5. Drivers and Training	12-5	MC	3/30/2017	0
6. Authorized Refuel Truck Operators	12-5	MC	3/30/2017	0
7. Refueling / Defueling Procedure	12-5	MC	3/30/2017	0
8. Licensing and Regulatory Requirements	12-6	MC	3/30/2017	0
9. Alcohol and Drug Use and Testing	12-6	MC	3/30/2017	0
10. Post-Accident / Incident Testing	12-7	MC	3/30/2017	0
11. Fuel Truck Driver Duty Limitations	12-7	MC	3/30/2017	0
12. Fuel Contaminants Prevention & Detection	12-8	MC	3/30/2017	0
13. Fuel Truck Driver Operational Phases	12-8	MC	3/30/2017	0
Fuel Truck Driver Operational Phases	12-9	MC	3/30/2017	0
Fuel Truck Driver Operational Phases	12-10	MC	3/30/2017	0

## **CHAPTER 12 – Fuel Trucks**

### **i. Helicopter Fueling Requirements and Precautions**

- a. Fuel trucks are equipped with Closed Circuit Refueling (CCR) systems to prevent spills, minimize fuel contamination, and prevent the escape of flammable fuel vapors. Rapid refueling (hot fueling - which is fueling with the helicopter engine running) is approved when a CCR nozzle is in use and:
  - i. The fuel truck is outside of the main rotor disc area
  - ii. No passengers are onboard the aircraft
  - iii. The PIC remains at the aircraft controls
  - iv. A minimum of one 20 lb. B/C fire extinguisher is available for the fuel handler
  - v. The helicopter is shut down every other fuel cycle to prevent pilot fatigue
  - vi. No tail wind is present
  - vii. When on a federal incident and federal representative has requested that CCR or pre- approved methods be used
  
- b. Aircraft Fueling is done with the following safety precautions:
  - i. The fuel truck and refueling nozzle is bonded (i.e. grounded) to the aircraft
  - ii. Fueling is not done with any open ignition source within 50', or 100' when the aircraft is directly downhill or downwind of the ignition source (Smoking is an open ignition source)
  - iii. The fuel nozzle is attended at all times while fueling is in progress
  - iv. Two 20 lb. B/C fire extinguishers are on scene, and easily accessible
  - v. Fuel handlers wear eye and hearing protection when hot fueling, long-sleeve pants and shirts (Nomex is acceptable), leather boots, gloves, and hard hat
  - vi. Only essential personnel are within the "safety circle" during fueling operations
  - vii. A spill kit is on site and readily available

### **ii. Refueling Operations Responsibilities**

- a. Fuel Truck Driver: The Fuel Truck Driver is responsible for maintaining a 100 foot safety circle around the landing pad and fuel truck whenever:
  - i. A helicopter is on the landing pad and the rotors are turning
  - ii. During take-off and landing or during hot fueling of an aircraft

The driver keeps the HMGB informed regarding the truck's fuel level and duty hour limitations. DNR's fuel trucks are not equipped with a "sleeper unit", therefore, no driver may use any part of the fuel truck as sleeping facilities.

- b. HMGB and PIC: The HMGB is responsible for the management of the assigned fuel truck and driver. Refuel planning and operations are crucial for the PIC and HMGB



to perform their missions. No other person or entity (including dispatch centers) shall re-direct the Fuel Truck Driver without first consulting with the HMGB. Direct coordination of fuel delivery by the HMGB, PIC and Fuel Truck Driver fosters successful mission planning. The HMGB, in coordination with the Fuel Truck Driver, monitors and ensures fuel needs are met while at the operations base and on all incidents.

**iii. Personal Protective Equipment**

DNR employees must wear rubber gloves and proper eye protection when transferring fuel from a fuel source into a truck, transferring fuel from one truck to another truck or pumping fuel into a helicopter. During “hot fueling” operations, DNR employees are required to wear the following PPE:

- i. Proper eye protection
- ii. Hearing protection
- iii. Nomex pants
- iv. Nomex shirt (long sleeve)
- v. Rubber gloves
- vi. Closed toe boots or shoes

**iv. Refuel Locations and Purchasing**

DNR routinely uses A-1 Petroleum and Wenatchee Petroleum as fuel sources. DNR’s SE Region has set up direct billing at these locations. When purchasing Jet-A fuel at these locations, the driver fills out a receipt showing fuel quantity, date and truck identification number.

All fuel purchased at locations other than those previously listed must be purchased using a DNR credit card issued by WD. All receipts from fuel purchases on DNR’s credit card are submitted to the crew supervisor or CP/T, who then routes them to the HOC for processing at WD in Olympia.

All purchases of fuel made for a fuel truck are coordinated through the HMGB, who coordinates through the crew supervisor to improve efficiency and reduce the cost of fuel to the program. The crew supervisor strives to reduce fuel costs, increase efficiency, minimize driver duty hours, and drive time by coordinating delivery of fuel to remote locations utilizing the 3,000 gallon tanker refurbishing truck.

**v. Drivers and Training**

DNR’s SE Region Fire Operations Manager ensures the HOM develops and maintains operating guides for the regular fueling locations listed above. In addition, the HOM is responsible for developing and maintaining a training guide for each fuel support vehicle, and ensuring each person designated or delegated to transport and conduct fueling operations is properly trained in each truck they will be assigned to.

**vi. Authorized Refuel Truck Operators**

No person other than a driver with a valid Commercial Driver's License (CDL) may operate any fuel truck on city, state or county roads other than in an emergency. In the event of an emergency, the non-CDL Driver may only operate the fuel truck to remove it from any immediate threat to the driver, public or the vehicle itself. In addition, qualified HMGB, mechanic or supervisor may operate DNR's fuel truck in the absence of a CDL driver in the following conditions:

- a. When on DNR property
- b. When refueling or defueling an aircraft
- c. When removing fuel from a support truck

**vii. Refueling / Defueling Procedure**

The fuel handler wears all appropriate PPE when transferring fuel from a fuel storage site, truck to truck, or from a truck to an aircraft. The fuel handler uses the following procedures to perform fuel transfers:

- a. The driver shall Perform a walk around of fuel truck prior starting fuel transfer to ensure all nozzles and valves are in the proper positions for the operation to be conducted (Refuel, Defuel, Refill)
- b. The driver shall bond (ground) the truck to the aircraft or fuel truck to be refueled
- c. The fuel caps shall not be removed until the driver is ready to start fuel transfer
- d. The driver shall supports the nozzle and hose during entire fueling operation regardless of hot or cold refueling
- e. The driver shall replace the fuel cap as soon as fuel flow into the receiving aircraft or fuel truck is stopped (even if the stopping is interrupted for whatever reason.
- f. The driver shall place fueling equipment (hoses, bonding cables, shut off valves and pump settings) in appropriate position when fueling ceases
- g. The driver shall record data regarding the aircraft or truck being filled (gallons transferred to or from, remaining fuel balance, hot or cold refueling, time, location and date)

Note: No vehicles ever are to move under a helicopter while rotor blades are turning.

**viii. Licensing and Regulatory Requirements**

- a. DNR's aviation fuel truck drivers shall possess a Class B CDL with Hazmat, Tank endorsements and may be required to obtain an Airbrake endorsement.
- b. Per Federal Motor Carrier Shipping Regulations (FMCSR) 177.817 cargo manifest/shipping papers must be completed and carried for transportation of hazardous materials. The cargo manifest/shipping papers must be within the driver's reach, on top of other papers, and must be left on the driver's seat or on the vehicle dashboard when the driver is out of the vehicle.

- c. Contracted fuel truck drivers shall follow all rules and regulations in accordance with state and federal transportation agencies.

**ix. Alcohol and Drug Use and Testing**

CDL holders, agency fuel truck drivers are governed by 49 CFR Part 40 in regards to alcohol/drug regulations and testing. All agency Fuel Truck Drivers shall remain drug free, and receive training regarding Federal Drug & Alcohol Testing Regulations. All Helitak fuel truck drivers shall be familiar with this regulation and DNR alcohol and drug use policies.

- a. Alcohol Concentration: No driver will report for duty or remain on duty requiring the performance of safety sensitive functions while having an alcohol concentration of 0.04 or greater (Section 382.201).
- b. Alcohol On duty Use: No driver will use alcohol while performing safety sensitive functions (Section 382.205).
- c. Alcohol Pre-duty Use: No driver will perform safety sensitive functions within four hours after using alcohol.
- d. Alcohol Use following an accident: No driver required to take a post-accident alcohol test under 382.303 will consume alcohol for eight hours following an accident, or until he/she undergoes a post-accident alcohol test, whichever occurs first (Section 382.209).
- e. Drug test Pre-employment: A drug test is required as part of the pre-employment process required for all CDL licensed drivers.
- f. A drug and/or alcohol breath test will be required: When probable cause exists that an employee may be under the influence of drugs and/or alcohol.
- g. All CDL drivers are subject to random, periodic, unannounced alcohol / drug testing

**x. Post-Accident / Incident Testing**

Following an accident or incident; as soon as possible but not longer than 32 hours after an accident or incident, fuel truck drivers involved shall be tested for illegal drugs (49 CFR 391.113 and 382.303). The involved fuel truck driver shall provide the following samples to competent authority arranged by the HOC or Helitak Program Manager:

- a. A urine sample shall be tested for the use of controlled substances as soon as possible, but not later than 32 hours after an accident if the driver of the commercial vehicle receives a citation for a moving traffic violation arising from the accident.

- b. A breath alcohol sample shall be tested as soon as practical following an accident if the driver of the commercial vehicle is involved in an accident that resulted in the loss of human life; and/or the driver receives a citation under State or local law for a moving traffic violation arising from the accident.
- c. The necessary authorization for obtaining hospital records, reports and other documents that would indicate whether there were any controlled substances in the driver's system shall be requested at the time of the accident when the driver is seriously injured and cannot be tested at the time of the accident.

Following an accident or incident, DNR fuel truck drivers will follow DNR's Fuel Truck Driver's Guidebook for:

- i. Placarded Vehicle Fire Prevention Procedures
- ii. Department of Transportation (DOT) Regulations and the Federal Motor Carrier Safety Regulations (FMCSR) for CDL holders
- iii. Breakdown, Accident, Fire or Hazmat-spill Procedures
- iv. Fuel Truck Defueling Procedures

For more information see General Operations, Accident and Incident Reporting, Fuel Truck Breakdown and Accident procedures. A copy of the DNR Fuel Truck Drivers Guidebook can be requested through WD or SE Region.

**xi. Fuel Truck Driver Duty Limitations.**

- a. DNR fuel truck operations are conducted in accordance with Washington Administrative Codes, Revised Codes of Washington and 49 CFR. In addition, drivers maintain the driver log book daily, even on the days when driving does not occur. DNR has established a 12 day duty limit, 10 hours per day maximum drive limit and a shift length not to exceed 15 hours per day for all helicopter fuel truck drivers. Shift length may exceed 15 hours, but the driver is restricted from driving during these extended hours and must have 8 hours off duty before returning to driving status.

Exception- A driver not assigned to the Helitack crew or assigned to an incident who is driving a truck over the road to fill other trucks will comply with the rules found in CFR 49, part 395, Hours of service of drivers. The hours of such a driver shall not exceed 11 hours driving during a 14-hour duty day, and will have 10 consecutive hours off duty before returning to drive status.

- b. Drivers will have one full calendar day off duty after working 12 consecutive days. After working 12 consecutive days, the driver will be paid for an 8 hour shift during the one full calendar day off, if that day falls on a regular scheduled workday.

- c. Federal and State Transportation regulations require drivers to perform pre-trip inspections and mitigate any problems prior to starting the trip. Drivers perform a walk around every 100 miles or every 2 hours, and stop at weigh stations while not responding to an incident.
- d. The HMGB may authorize the driver to go to a motel for rest if he/she determines it is in the best interest of the driver to minimize fatigue. The driver may exceed his/her duty hour limits in the case of an emergency with written permission from the Incident Commander and the driver agrees to the exceeding of the duty limits.

**xii. Fuel Contaminants Prevention & Detection.**

Helicopters are serviced from facilities having approved filtration systems. Agency fuel trucks are checked daily to ensure fuel quality. Sump findings are recorded in a fuel quality logbook. Refer to IHOG Chapter 13: Fueling Operations, Section VI—Contamination Testing, for information on sump and test procedures.

For more information on fuel sump and test procedures refer to IHOG, Chapter 13: Fueling Operations Section VI-Contamination testing.

**xiii. Fuel Truck Driver Operational Phases.**

- a. Setup Phase: When the driver has the fuel truck in position to fuel, the driver contacts the HMGB and PIC to inform them of the fuel site location via radio or text communication. In addition, the driver informs the PIC of known hazards and any other pertinent information specific to the selected location. The following is a list of standard procedures used to complete the setup phase:
  - i. The driver sets up the landing pad so that the fuel truck will be at least 35' from the pad and outside of the helicopter's rotor disk area upon landing
  - ii. The fuel truck is parallel to the pad and facing into the wind
  - iii. The fuel truck is positioned so that upon landing the aircraft will be on the driver's side (left) of the fuel truck
  - iv. The driver prepares the pump, hoses, bonding cable, wind indicator, etc. for rapid refueling
  - v. The driver moves to a position 12 o'clock from the pilot's perspective, 75' to 100' out from the intended landing area with a fire extinguisher and crash kit readily available
  - vi. The driver prepares to communicate observed risks to the pilot using a portable radio and/or hand signals during landing
  - vii. The driver waits for the pilot's signal, after landing, before approaching the truck to begin a fuel transfer or any other operation beneath the rotor disk

- b. Return to base Phase: The Driver provides the appropriate dispatch center with the following information when returning to base from an incident, when the dispatch center is available:
- i. Incident name or location of departure
  - ii. Aircraft "N" number that the truck is supporting
  - iii. Final destination
  - iv. ETA to final destination

The driver is not required to update the dispatch center hourly during the return trip back to base. If the driver cannot reach the final destination due to a duty limitation, the driver plans appropriately by stopping prior to or at the time the duty limitation is reached.

The driver does not drive beyond the duty limitation and does not use any part of the support truck or any chase vehicle as a sleeper, but may secure motel accommodations in accordance with the State Travel and Per Diem regulations and Travel, Time and Activity reports. The driver informs the HMGB, prior to departure if duty limitations will be reached during the return trip.

If the driver is delayed during the return and will reach a duty limitation prior to reaching the destination, the driver contacts the HMGB (or supervisor if the manager cannot be contacted) to provide information regarding alternate destination options, ETA to alternate destinations and estimated off duty time. If the driver cannot reach the HMGB or supervisor, the driver leaves a message on the supervisor's cell phone.

The HMGB keeps the crew supervisor apprised of the fuel truck driver's status when the driver cannot reach the destination base. Upon arrival at the base the driver completes the following (unless duty limitations are impacted):

- i. Restocks fuel truck inventory
- ii. Refuels the assigned helicopter (if requested to do so by the manager)
- iii. Posts inventory needs for next operational shift
- iv. Posts further refueling needs for next operational shift. (Example: Assigned aircraft is not refueled and/or assigned support truck is not refilled because of driver hours of duty limitations)
- v. Submits to the HMGB hours worked and miles driven for each incident
- vi. Documents any vehicle or equipment discrepancies

# Aviation Operating Plan and Standards (AOPS)

## Chapter 13 – Aviation Life Support Equipment (ALSE)

2017

Washington Department of Natural Resources  
Wildfire – Aviation  
1111 Washington St SE  
Olympia, Washington 98504-7037



# WILDFIRE

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*WA DNR Aviation Operating Plan & Standards*

<b>REVISION PAGES &amp; TABLE OF CONTENTS</b>				
<b>Chapter Name</b>	<b>Page #</b>	<b>Initials</b>	<b>Date</b>	<b>Change</b>
Cover	13-1	MC	3/30/2017	0
Blank Page	13-2	MC	3/30/2017	0
Revision Page & Master TOC	13-3	MC	3/30/2017	0
1. AUTHORITY	13-4	MC	3/30/2017	0
2. GENERAL SCOPE AND POLICY GUIDANCE	13-4	MC	3/30/2017	0
3. RESPONSIBILITIES	13-4	MC	3/30/2017	0
4. MAINTENANCE	13-4	MC	3/30/2017	0
5. INSPECTION	13-5	MC	3/30/2017	0
6. ADMINISTRATION	13-5	MC	3/30/2017	0
7. SAFETY	13-5	MC	3/30/2017	0
8. PERSONNEL	13-5	MC	3/30/2017	0
9. PUBLICATIONS	13-5	MC	3/30/2017	0
10. ADMINISTRATION AREA	13-6	MC	3/30/2017	0
11. MAINTENANCE AREA	13-6	MC	3/30/2017	0
12. WORK AREA CRITERIA	13-6	MC	3/30/2017	0
13. STORAGE AREA CRITERIA	13-6	MC	3/30/2017	0
14. FITTING AREA CRITERIA	13-6	MC	3/30/2017	0
15. TOOLS AND SPECIAL REPAIR EQUIPMENT CRITERIA	13-6	MC	3/30/2017	0
16. TRAINING AND EQUIPMENT	13-7	MC	3/30/2017	0
17. TEMPORARY STORAGE OF LIFE SUPPORT EQUIPMENT	13-7	MC	3/30/2017	0
18. FLIGHT CLOTHING	13-8	MC	3/30/2017	0
SURVIVAL GEAR AND KITS, FLOTATION EQUIPMENT	13-9	MC	3/30/2017	0
21. WAIVER AND APPROVAL AUTHORITY FOR DEVIATION	13-10	MC	3/30/2017	0

## **CHAPTER 13 – ALSE**

1. **AUTHORITY:** The Washington State Department of Natural Resources (DNR) Wildfire Division (WD) Manager maintains authority and oversight of the Aviation Life Support Equipment (ALSE) Program. Management of the program resides with the Aviation Program Manager (APM) and the Helitak Program Manager (HPM). Base line inventory will be established by the APM and HPM and resourced based on demand and necessity. The Wildfire Division Manager is the approval authority for those personnel requesting ALSE and support.
  
2. **GENERAL SCOPE AND POLICY GUIDANCE:** Management of the Washington State DNR Wildfire Division ALSE program is shared and supervised by the Wildfire Division APM and the Southeast Region HPM. Funding is resourced through the Aviation Program with Acquisition, Accountability and Quality Control as charter. Inspections, Maintenance, Repair, Issue and Record Keeping are conducted by Helitak or under Helitak's supervision. Helitak's Equipment Manager is responsible for ensuring serviceable and inspected ALSE is issued to all crewmembers that have necessity. Those crewmembers working in the Regions that have an ALSE requirement will be approved by the Wildfire Division Manager based on APM and HPM recommendation. Necessity is based on position held by employee, (i.e. Pilot, HEMG, ATGS), qualified and current in the position, and likelihood of operating as a crewmember described above. Aviation and Helitak Crewmembers shall have priority of issue and inspection over all other department employees. ALSE will not be issued to non-crewmembers.
  
3. **RESPONSIBILITIES:**
  - a. **WD Manager:** Overall oversight, authority and policy guidance of the ALSE Program
  - b. **Region Managers:** Establish requirements for users (crewmembers assigned)
  - c. **WD ADM:** Budgeting, funding, and resourcing of acquisition and training
  - d. **WD APM:** Direct management of requirements, distribution, and evolution
  - e. **WD Chief Pilot:** Regulation compliance, quality control, and evolution
  - f. **WD Helicopter Coordinator:** Equipment, parts/supply ordering, initial issue and inventory control
  - g. **SE Region HPM:** Direct management of Equipment Manager, work area, quality control, and scheduling
  - h. **SE Region Equipment MGR:** Technician management and training, inspections, maintenance, repair, issue, record keeping, work area, tools, parts, and supply sustainment. Maintain library of publications and forms
  - i. **ALSE Technicians:** Aviation Maintenance and Helitak will train and assign one technician responsible for inspections and limited maintenance functions of equipment to assist the Equipment Manager as needed
  - j. **Crewmembers:** Maintain issued ALSE in a serviceable, clean, dry, and secure condition. Ensure compliance with inspection schedule and notify the Equipment

Manager of pending inspections and unserviceable conditions immediately when discovered.

- 4. MAINTENANCE:** Aviation Life Support Equipment (ALSE) servicing facilities and technicians are based on many factors, such as the number of aircrew members assigned, and the type and quantity of equipment. With this in mind, the ALSE maintenance shop should be tailored to the needs of the aviation program, activity or facility. The minimum standards for the ALSE facility and equipment contained in this program guide are not mandatory requirements, but are standards which can be used for planning purposes. Region Managers are authorized to deviate from these standards whenever circumstances cannot be reasonably obtained.

It is the responsibility of the Aviation Program Manager to be certain that any deviation permitted will not foster unsafe or unsanitary practices, recognizing that ALSE has specific areas of supporting the user in austere conditions i.e., high altitude, overwater, land survival, etc. This equipment must perform to standards the first time upon being activated for use. These standards will not be compromised.

- 5. INSPECTION:** Inspection interval is 180 days. Crewmembers will reset their ALSE inspections in April of each calendar year as to provide currency throughout the fire season. Crewmembers will ensure that their equipment is serviceable and has a current inspection prior to each flight conducted. Flight with expired inspections is not authorized and can only be approved by the crewmembers Region or Division Manager. Each crewmember's gear will have a records jacket maintained by the Helitak Equipment manager consisting of all items issued and the inspection date with expiration date. Helmets and gear will be marked (labeled) with expiration date of inspection. Inspection Checklist are listed in the WA DNR Maintenance Operations Manual (MOM).
- 6. ADMINISTRATION:** Administration of the Division's Aviation Life Support Program must have the Division Manager's approval. The Helitak (SE Region) must provide scheduling and training for ALSE technicians. The Helitak Equipment Manager must not only supervise the ALSE technician's work, but also the training of the division aircrew personnel in the care and use of ALSE, and survival training. The ALSE technician will inspect, repair/replace, and service the equipment in accordance with the applicable Vendor Technical Manuals, Vendor Technical Orders (TOs), and maintain the required forms and records as well as supervise the ALSE training performed by aircrew personnel.
- 7. SAFETY:** The ALSE maintenance area will comply with all WA State safety regulations and Helitak Standing Operating Procedures (SOP). The area should have all regulatory signs i.e., NO SMOKING, EXIT, OXYGEN, etc., conspicuously posted. Horseplay will not be tolerated or permitted in the area at any time. Personal Protective Equipment (PPE) will be used while working/servicing ALSE i.e., goggles, face shield, apron, gloves, etc. when required. Fire extinguishers will be located as needed by type and weight. It is

recommended a fire extinguisher be located in each of the work, storage, and administrative areas.

8. **PERSONNEL:** Maintenance of ALSE will be performed only by school and master trained, qualified personnel, trained in accordance with vendor approved syllabus.

Maintenance personnel must be graduates of the resident Gentex Vendor ALSE Course, or other courses of instruction approved by Wildfire Division Manager. Graduates of the Gentex Master Trainer Course may conduct training on unit personnel as required by the Aviation Program Manager in order to have inspection coverage of out station equipment. The Aviation Program Manager has responsibility for training ALSE maintenance personnel. At a minimum, the following personnel should be dedicated as ALSE Technicians in the following capacities.

<u>Designated Positions</u>	<u>Authorization</u>	<u>Location</u>
Helitak Equipment Manager	Fully Authorized	Ellensburg DNR Work Center
Assistant Helitak Equipment Manager	Fully Authorized	Ellensburg DNR Work Center
Aviation Technical Inspectors	Inspections, Minor Repairs	Olympia AVN Maint Hangar Region
Assigned HEMGs	Inspections, Minor Repairs	Region Work Centers
Pilots	Inspections, Minor Repairs	Aviation Section

9. **PUBLICATIONS:** ALSE consists of equipment unique to aviation needs while flying or in a survival situation. This equipment covers several Federal Supply classifications when utilizing FEPP issued equipment. Because the management responsibility is fragmented between many managers, which includes Helitak and Aviation Maintenance, all ALSE items cannot be combined into a single TM.

The following paragraphs will describe the ALSE items and the references the repair manuals for that item. When no manual exists, the ALSE Equipment Manager will direct technicians to use vendor produced manuals for inspection, care, maintenance and repair of equipment.

10. **ADMINISTRATION AREA:** The ALSE administration area should have a desk, bookcase file cabinet, and enough chairs for the efficient use of the area. A library containing the necessary Technical Manuals and TOs for the ALSE being used by the units being serviced shall also be managed. Included should be a computer with current maintenance publications. A supply of ALSE maintenance forms will be maintained and used. Visual boards relating to ALSE maintenance scheduling should be located near the desk of the individual assigned to that particular equipment for quick reference.
11. **MAINTENANCE AREA:** The ALSE maintenance area consists of work, storage, and fitting areas. Access to a classroom adjacent to or in close proximity of the life support area is desired for lessons and instructions on the equipment being used and survival conditions. The shop should contain not less than 1,000 square feet of usable area that is environmentally controlled within a range of +60°F (15.6°C) to 75°F (23.8°C) and have a

potable hot and cold water source. The area should be protected from pilferage, dampness, fire, dust, insects, rodents, direct sunlight, and be free from uncontrolled foot and vehicle traffic. To ensure that all ALSE is maintained in a high state of readiness through inspecting, cleaning, fitting, testing, adjusting, and repairing, all maintenance will be in accordance with the applicable TM or TO.

12. **WORK AREA CRITERIA:** The work area should have bench surfaces free from rough or abrasive materials, splinter-free tops with a nonporous surface. The area is to be well-lighted with accessible electrical outlets to all bench and desk areas. Cabinets and work benches/tables with locks should be used for securing test equipment, tools, and supplies. The area should be restricted to ALSE personnel only. Units supporting flotation equipment should have a moisture and oil-free source of low-pressure, high-volume air and a vacuum source. A vacuum cleaner may be used; however, the vacuum cleaner must not be used for cleaning at any time because dirt and dust must not be induced into the flotation cells. The work area should have hot and cold running water for cleaning equipment as well as a wash area. Cleanliness is very important in maintaining the equipment. Smoking, eating or drinking should not be permitted in the area.
13. **STORAGE AREA CRITERIA:** The storage area should be well-ventilated, out of direct sunlight, and well-lighted. The storage area should have storage shelves and cabinets that provide security for the stored equipment and be free from dust, moisture, fire, insects, and rodents. A refrigerator should be used to store batteries used in life support equipment. Health and food service regulations prohibit food stored in these refrigerators.
14. **FITTING AREA CRITERIA:** The fitting area should be well-lighted and have enough space so personnel may be fitted with clothing and equipment being assigned to them, i.e. survival vest, flight clothing, flight helmet, etc.
15. **TOOLS AND SPECIAL REPAIR EQUIPMENT CRITERIA:** All ALSE items will be serviced and repaired in accordance with applicable TM/TO. The required and authorized tools and special repair equipment are found in the Repair Parts and Special Tools List (RPSTL) of the applicable TWO.
16. **TRAINING AND EQUIPMENT:** Most equipment used for training can be returned to service, providing the equipment is serviceable and can pass all inspection criteria for that item before it is returned to service. The exceptions are all flotation equipment. These items are to be marked FOR TRAINING ONLY and removed from issue inventory permanently.
17. **TEMPORARY STORAGE OF LIFE SUPPORT EQUIPMENT:** Equipment being stored awaiting inspection is subject to dry rot, rodent damage, mildew and contamination. It is important for the area to be environmentally controlled as well as secured.

- a. Survival Kits. Survival kits to be in temporary storage will:
  - i. Inspected, repaired, and if needed, cleaned.
  - ii. Components replaced if necessary.
  - iii. Matches and flammables removed and stored in accordance with DNR policy.
  - iv. Kits appropriately tagged with remarks of items not in the kit being stored.
  - v. Stored on shelved well-ventilated and out of direct sunlight.
  
- b. Survival Vests. Survival vests to be put in temporary storage will be inspected or have:
  - i. Inspected, repaired, and if needed, cleaned.
  - ii. Components replaced if necessary.
  - iii. Signal kits, personnel distress removed and stored in accordance with DNR policy.
  - iv. Radios removed from vest. Battery removed from the radio and put into refrigerated storage.
  - v. Light marker distress removed from the vest. Battery removed and put into refrigerated storage.
  - vi. Vest appropriately tagged and items not in the vest annotated on the tag.
  - vii. Vest will be hung on a hanger for storage, out of direct sunlight.
  
- c. Flotation Equipment. Flotation equipment to be put into storage will be stored in a location free from dry rot, rodent damage, mildew or other contamination.
  
- d. Pyrotechnics. Pyrotechnics will be stored in accordance with DNR policy, and will be secured from pilferage and accidental ignition.

18. **FLIGHT CLOTHING:** Flight clothing consists of flight coveralls or two-piece flight suits, nomex fire pants and shirt, nomex flight jackets, nomex or leather flight gloves, and flight helmet.

- a. Inspection. Inspection of flight clothing and flight helmet will be in accordance with the applicable TM or TO.
  
- b. Repair. Repair will be In accordance with Vendor TM for the item to be repaired and will be the damage repair criteria guidance.
  
- c. Cleaning. Cleaning will be done in accordance with the applicable TM/TO. Clothing will not be returned to the equipment manager needing to be cleaned. Cleaning of all flight clothing is the responsibility of the crewmember. The ALSE technician will instruct the users in the proper use and care of flight clothing.

## 19. SURVIVAL GEAR AND KITS:

- a. Survival kits currently are issued only to aviation maintenance personnel and aircraft.
- b. Inspection. Inspection of the survival kits will be in accordance with the Technical Maintenance Manual.
- c. Repair. Repair/replacement will be in accordance with the Technical Maintenance Manual. Most survival items will be required to be replaced rather than repaired. This is due to the nature of packaging for the particular item or the shelf life.
- d. Cleaning. Clean survival kits using the following procedures.
  - i. Clean the canvas inner or outer cases using procedures.
  - ii. Empty contents of all pockets of the survival vest and remove any flotation equipment. Wash the empty vest using soap and warm water. Rinse with clean, warm water. Put vest on a hanger and air dry out of direct sunlight. The vest may be machine washed using a delicate wash cycle.

**20. FLOTATION EQUIPMENT:** Flotation equipment depends on type of aircraft being flown and the number of aircrew on the aircraft. Personal Flotation Devices (PFD) consist of underarm flotation bladders or horse collar bladders (life preservers) for passengers and crew on board. Life rafts are designed for one man life rafts, seven man life rafts, and 20 man multiple aircraft life rafts. Any and all flotation equipment used for training must be marked as such and not used for missions.

All flotation equipment contains an air bladder or air chambers and an inflation device. Inflating gas will not be used on serviceable equipment for survival kits or issued for individual use in lieu of serviceable flotation (usually CO<sub>2</sub>) in cylinders of varying sizes and capacities to fit the particular piece of flotation equipment. There will be no waivers for this policy.

Flotation equipment used for training equipment will be visible on the topping off valve to replenish lost gas or to relieve excess gas marked FOR TRAINING ONLY in accordance with TM. The device will either be an oral inflation tube or a hand pump in the case of multi-place rafts. The type depends on the flotation equipment. Quantity of flotation equipment will depend on the unit's aircraft and personnel numbers. This determination will be made by the Aviation Program Manager with recommendation from the Chief Pilot and Helitak Program Manager.

- a. Precautions. Comply with the following precautions when handling or accomplishing maintenance on life rafts:
  - i. Prevent hydrocarbons, such as gasoline, oil, or grease from contacting life raft materials.

*WA DNR Aviation Operating Plan & Standards*

- ii. Do not drop or throw life rafts, as damage to life raft or accessories may occur.
- iii. Do not step or sit on packed life rafts, or place weights or items on life rafts which are not required.
- iv. Do not step on any part of life raft while wearing shoes when accomplishing inspections or repairs.

b. Stowage in Aircraft. Life rafts shall be stowed in aircraft as follows:

- i. Do not sit or place equipment or tools on life rafts stowed in aircraft.
- ii. Keep the life raft free of oil, grease, and other rubber deteriorating agents. Damage to life raft may otherwise result.

**21. WAIVER AND APPROVAL AUTHORITY FOR DEVIATION:** The Wildfire Division Manager retains final approval and waiver authority for all deviations of this document.



# Aviation Operating Plan and Standards (AOPS)

## Chapter 14 – Unmanned Aerial Systems (UAS)

2017

Washington Department of Natural Resources  
Wildfire Division – Aviation Section  
1111 Washington St SE  
Olympia, Washington 98504-7037



# WILDFIRE

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## **CHAPTER 14 – UAS**

**NOTE: Under development at this time.**

**NOTE: WA DNR is currently in progress of developing a UAS for the DNR.**

**NOTE: WA DNR Wildfire Aviation is currently in the process of licensing all currently assigned pilots as FAA Commercial Drone Operators. At the time this publication was signed Aviation Section has five (5) FAA Commercial Drone Operators Licensed.**

**NOTE: The Aviation Program Manager will retain operational control of all DNR drone operations in and around Wildfire areas unless otherwise approved by the DM.**

**CAUTION/WARNING: Drone operations in WA DNR Wildfires are prohibited at this time unless coordinated and approved in writing with the Wildfire Division Manager. Pilots observing Drones in the Fire Traffic Area are required to depart the area until the drone operator has been contacted and the Drone is grounded.**

**1. Policies and Procedures:**

**2. Organization:**

**3. Personnel:**

- a. Division Manager (DM):
- b. The Assistant Division Manager of Aviation (ADM-A):
- c. Aviation Program Manager (APM):
- d. Chief Pilot (CP):
- e. Aviation Safety Officer:
- f. UAS Maintainer:
- g. Remote Pilots:
- h. Flight Supervisors:
- i. Observers:

**4. Safety:**

**5. Medical Factors:**

**6. Training Program:**

- a. Aviation Program Manager
- b. Chief Pilot/Trainer
- c. Aviation Safety Office
- d. Drone Operator
- e. UAS Maintainer
- f. Remote Pilots
- g. Flight Supervisors
- h. Observers

**7. Drone Records Program:**

- a. Drone Operator and ASO Training Records
- b. Flight Supervisor, UAS Maintainer and Observer Training Records
- c. Drone Maintenance Records

**8. General Operating Procedures:**

**9. Emergency :**

**10. UAS Operations:**

**11. Media Communications and Other Agency / Public Interaction:**

**12. Public and Media Concerns of Government Operated UAS:**

**13. Policy Guidance:**

**14. Community Engagement:**

**15. Operational Procedures for UAS:**

**16. Drone Procurement:**

**17. Minimum Drone Requirements:**

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# Aviation Operating Plan and Standards (AOPS)

Appendix

2017

Washington Department of Natural Resources  
Wildfire Division – Aviation Section  
1111 Washington St SE  
Olympia, Washington 98504-7037



# WILDFIRE

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**WA DNR Aviation Operating Plan & Standards**

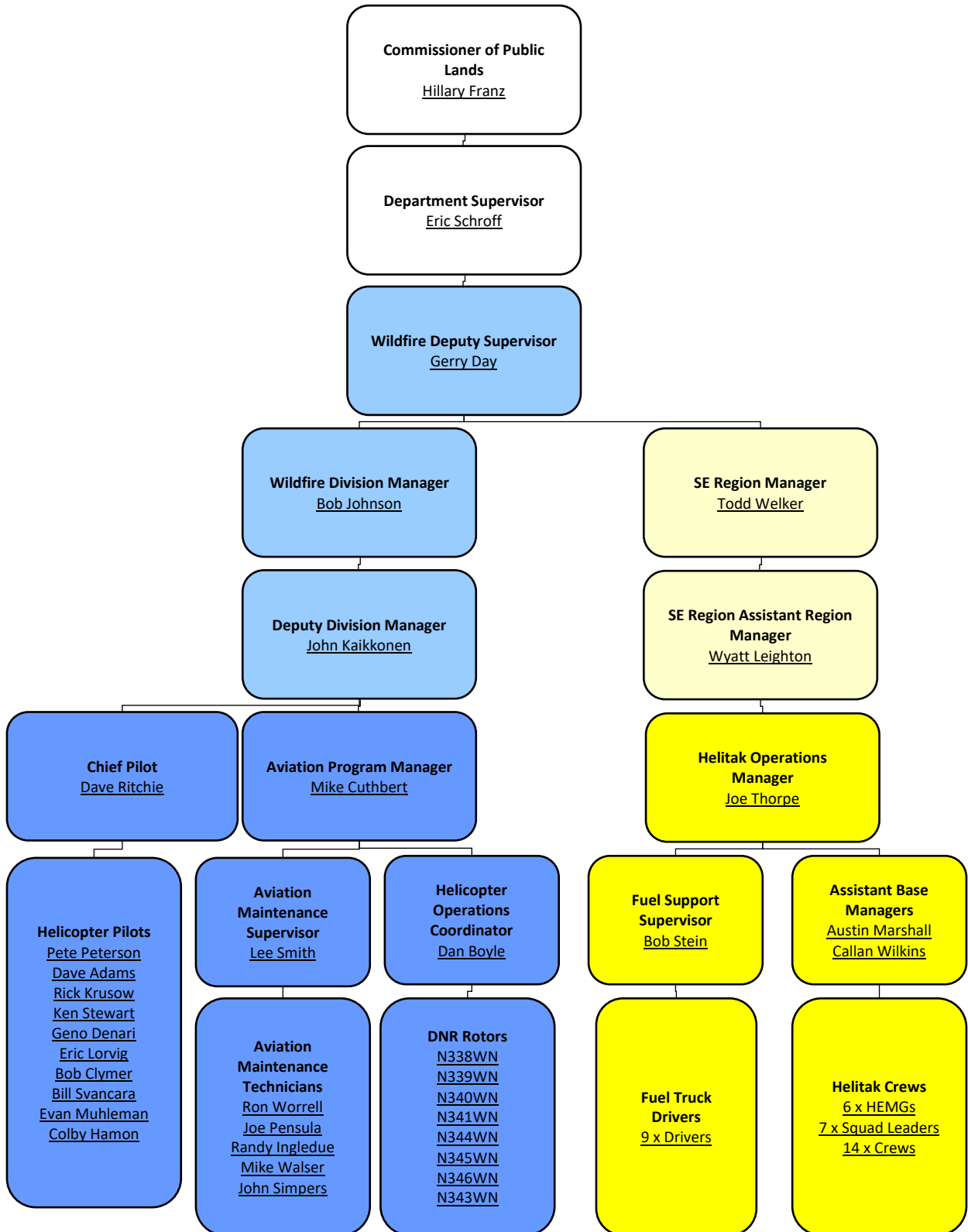
<b>REVISION PAGES &amp; TABLE OF CONTENTS</b>				
<b>Chapter Name</b>	<b>Page #</b>	<b>Initials</b>	<b>Date</b>	<b>Change</b>
Cover	A-1	MC	3/30/2017	0
Blank Page	A-2	MC	3/30/2017	0
Revision Page & Table of Contents	A-3	MC	3/30/2017	0
Revision Page & Table of Contents Cont.	A-4	MC	3/30/2017	0
Aviation Program Organizational Chart (APP-A)	A-5	MC	3/30/2017	0
Emergency Notification Call List (APP-B)	A-6	MC	3/30/2017	0
Emergency Contacts (APP-C)	A-7	MC	3/30/2017	0
Emergency Contacts	A-8	MC	3/30/2017	0
Use of Interagency Helicopter Operations Guide (App-D)	A-9	MC	3/30/2017	0
Manager / Pilot Mission Brief to Passengers (App-E)	A-10	MC	3/30/2017	0
Manager / Pilot Mission Brief to Passengers	A-11	MC	3/30/2017	0
MEDEVAC/SHORTHAUL Transport Request Info (APP-F)	A-12	MC	3/30/2017	0
Insurance and Liability Information (APP-G)	A-13	MC	3/30/2017	0
Emergency Evacuation/Medical Plan (APP-H)	A-14	MC	3/30/2017	0
Emergency Evacuation/Medical Plan	A-15	MC	3/30/2017	0
Emergency Evacuation/Medical Plan	A-16	MC	3/30/2017	0
Emergency Evacuation/Medical Plan	A-17	MC	3/30/2017	0
Emergency Evacuation/Medical Plan	A-18	MC	3/30/2017	0
Emergency Evacuation/Medical Plan	A-19	MC	3/30/2017	0
Emergency Evacuation/Medical Plan	A-20	MC	3/30/2017	0
Emergency Evacuation/Medical Plan	A-21	MC	3/30/2017	0
Emergency Evacuation/Medical Plan	A-22	MC	3/30/2017	0
Emergency Evacuation/Medical Plan	A-23	MC	3/30/2017	0
Emergency Evacuation/Medical Plan	A-24	MC	3/30/2017	0
Emergency Evacuation/Medical Plan	A-25	MC	3/30/2017	0
Emergency Evacuation/Medical Plan	A-26	MC	3/30/2017	0
Emergency Evacuation/Medical Plan	A-27	MC	3/30/2017	0
Emergency Evacuation/Medical Plan	A-28	MC	3/30/2017	0
Emergency Evacuation/Medical Plan	A-29	MC	3/30/2017	0
Emergency Evacuation/Medical Plan	A-30	MC	3/30/2017	0
Emergency Evacuation/Medical Plan	A-31	MC	3/30/2017	0
Emergency Evacuation/Medical Plan	A-32	MC	3/30/2017	0
Emergency Evacuation/Medical Plan	A-33	MC	3/30/2017	0
Emergency Evacuation/Medical Plan	A-34	MC	3/30/2017	0
Emergency Evacuation/Medical Plan	A-35	MC	3/30/2017	0
Emergency Evacuation/Medical Plan	A-36	MC	3/30/2017	0
Emergency Evacuation/Medical Plan	A-37	MC	3/30/2017	0
Emergency Evacuation/Medical Plan	A-38	MC	3/30/2017	0
Emergency Evacuation/Medical Plan	A-39	MC	3/30/2017	0
Emergency Evacuation/Medical Plan	A-40	MC	3/30/2017	0
Emergency Evacuation/Medical Plan	A-41	MC	3/30/2017	0
Emergency Evacuation/Medical Plan	A-42	MC	3/30/2017	0

*WA DNR Aviation Operating Plan & Standards*

Emergency Evacuation/Medical Plan	A-43	MC	3/30/2017	0
Emergency Evacuation/Medical Plan	A-44	MC	3/30/2017	0
Emergency Evacuation/Medical Plan	A-45	MC	3/30/2017	0
Emergency Evacuation/Medical Plan	A-46	MC	3/30/2017	0
Emergency Evacuation/Medical Plan	A-47	MC	3/30/2017	0
Emergency Evacuation/Medical Plan	A-48	MC	3/30/2017	0
Emergency Evacuation/Medical Plan	A-49	MC	3/30/2017	0
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Emergency Evacuation/Medical Plan	A-51	MC	3/30/2017	0
Emergency Evacuation/Medical Plan	A-52	MC	3/30/2017	0
Emergency Evacuation/Medical Plan	A-53	MC	3/30/2017	0
Emergency Evacuation/Medical Plan	A-54	MC	3/30/2017	0
Emergency Evacuation/Medical Plan	A-55	MC	3/30/2017	0
Emergency Evacuation/Medical Plan	A-56	MC	3/30/2017	0
Emergency Evacuation/Medical Plan	A-57	MC	3/30/2017	0
Emergency Evacuation/Medical Plan	A-58	MC	3/30/2017	0
Emergency Evacuation/Medical Plan	A-59	MC	3/30/2017	0
Emergency Evacuation/Medical Plan	A-60	MC	3/30/2017	0
Emergency Evacuation/Medical Plan	A-61	MC	3/30/2017	0
Emergency Evacuation/Medical Plan	A-62	MC	3/30/2017	0

Appendix A –

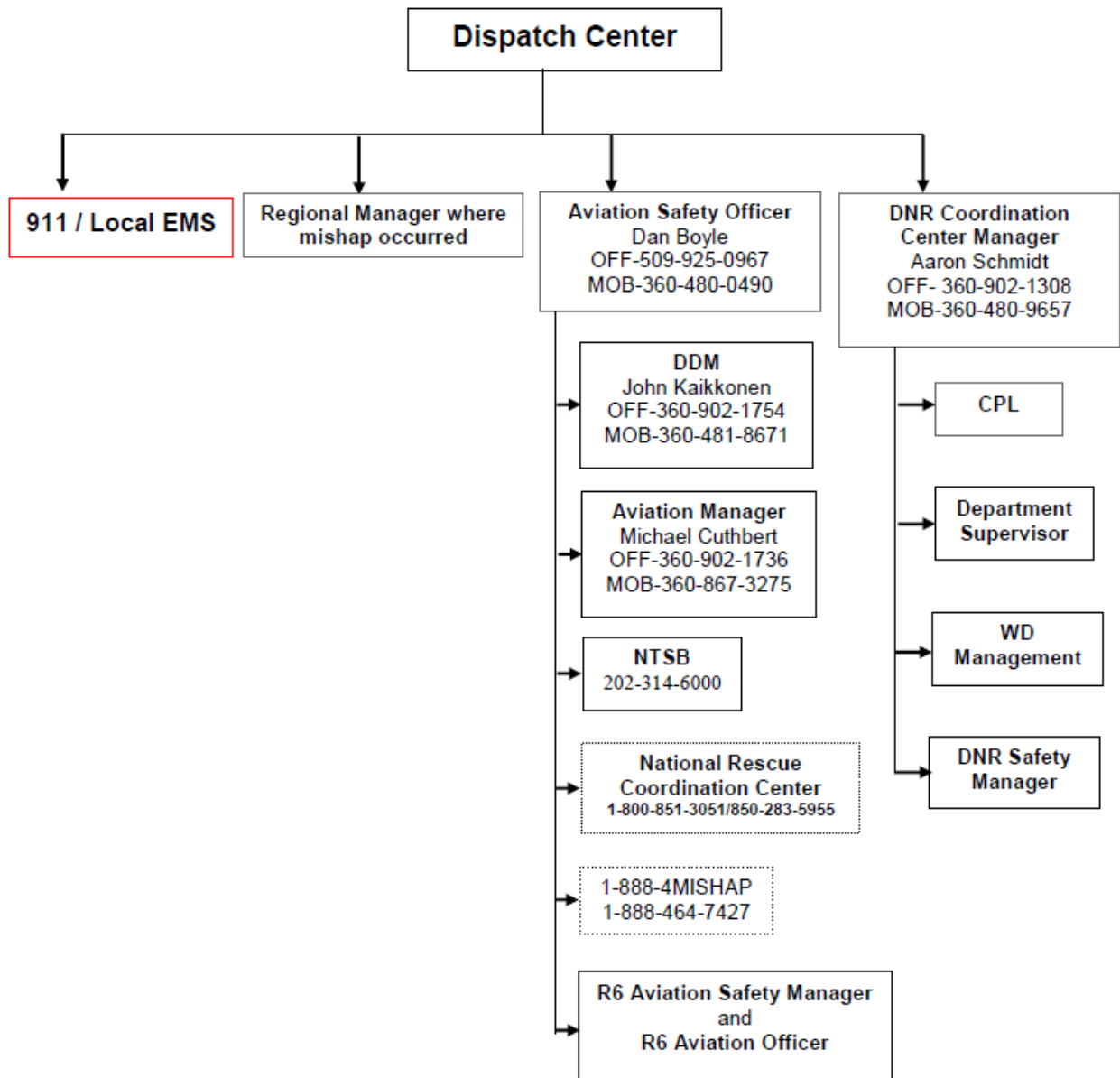
Washington State Department of Natural Resources Aviation Program Organizational Chart



Appendix B –

Washington State Department of Natural Resources Emergency Notification Call List

**WA DNR Aviation Incident/Mishap Response  
Notification Call-Down List**



If DNR personnel are involved in the mishap and are from a Region or Division other than where the mishap occurred, DNR's Department Supervisor will notify the appropriate Region/Division management

Appendix C –

Washington State Department of Natural Resources Emergency Contacts

<b>Name &amp; Title</b>	<b>Office Number</b>	<b>Cell Number/Pager</b>	<b>E-Mail</b>
Bob Johnson Wildfire Division Manager	(360) 902-1316	(360) 523-3290	bob.johnson@dnr.wa.gov
John Kaikkonen Deputy Division Manager.	(360) 902-1754	(360) 742-7442	john.kaikkonen@dnr.wa.gov
Wyatt Leighton Helitack Program, SE Region WD&S	(509) 925-0959	(509) 899-2376	wyatt.leighton@dnr.wa.gov
Vacant Aviation Assistant Div. Mgr.	(360) 902-1704	(360) 481-8671	
Aaron Schmidt Fire Operations Assistant Div. Mgr.	(360) 480-9657	(360) 902-1308	Aaron.schmidt@dnr.wa.gov
Michael Cuthbert Aviation Program Manager	(360) 902-1736	(360) 867-3275	michael.cuthbert@dnr.wa.gov
Chuck Hersey Forest Health Survey Flights	(360) 902-1691	(360) 791-6515	karen.ripley@dnr.wa.gov
Joe Thorpe Helitack Operations Manager, SE Region	(509) 925-0958	(509) 899-1847	joe.thorpe@dnr.wa.gov
Vacant Emergency Operations Manager	(360) 902-1207	(360) 259-8522	
Dan Boyle Helicopter Operations Coordinator & Aviation Safety Officer	(509) 925-0967	(360) 480-0490	dan.boyle@dnr.wa.gov
Dave Ritchie Chief Helicopter Pilot	(360) 902-1207	(360) 528-9011	bill.svancara@dnr.wa.gov
Lee Smith Aircraft Maintenance Supervisor	(360) 878-9485	(360) 480-7305	lee.smith@dnr.wa.gov
Aviation Hanger, Olympia	(360) 753-5314 (360) 664-8602		
Helitack, Ellensburg	(509) 925-0958 (509) 925-0981		

**WA DNR Aviation Operating Plan & Standards**

Pilot Ready Room, Ellensburg	(509) 925-0921		
CWICC Interagency Dispatch for Central WA	(509) 662-4393	(800) 826-3383 bus (800) 562-6010 fire	
NEWICC Dispatch Interagency Dispatch for NE WA	(509) 684-7474		
DNR Emergency Coordination Center	(360) 902-1300		
Darrel Johnston FEPP Specialist – DNR	(360) 902-2112		darrel.johnston@dnr.wa.gov
Vacant Safety & Worker’s Compensation Manager – DNR	(360) 902-1264		

## Appendix D –

### Washington State DNR Use of Interagency Helicopter Operations Guide (IHOG)

1. DNR uses the IHOG as a guide, not as official agency policy. DNR abides by IHOG regulations on fires when the jurisdiction is a governing agency for whom the IHOG is policy, with the exception of the following agency variances:
  - a. AIR OPERATIONS POSITIONS: Will meet the minimum qualifications listed in PMS 310-1 (Wildland and Prescribed Fire Qualifications System Guide) Dated November 2011.
  - b. STAFFING LEVEL: DNR provides one Aviation Manager for each helicopter. Managers will be assigned in the following order, based on qualifications:
    - i. Qualified HMGBs holding ICT4 qualifications are given top preference. Qualified HMGBs with ICT4 taskbooks are given second preference and those without ICT4 taskbooks, third preference,
    - ii. If insufficient HMGBs are available then FFT1s with ICT5 qualifications may be used if they have completed S-372 (helicopter management training).
    - iii. If none of the above are available other personnel may be used with the approval of WD's Aviation Program Manager up to three helicopters. DNR is excluded from meeting minimum staffing required by IHOG during initial attack. Once engaged in extended operations the appointed Air Operations Manager will decide on staffing levels for aviation operations after consultation with the Incident Commander and review of the Delegation of Authority. (Chapter 2-III)
  - c. APPROVAL AND CARDING: All Aircraft and Pilots follow FAA requirements for commercial or military operator, and public use aircraft requirements. (Chapter 5)
  - d. LOAD CALCULATIONS: The Pilot in command is responsible for load calculation accuracy and completeness. (Chapter 7-2, B, C)
  - e. SURVIVAL AND FIRST-AID EQUIPMENT: All aircraft are equipped per FAA regulations. Packing list are per the This manual, Maintenance Operations Manual (MOM) and the WA DNR Operator's Manual for the Huey Helicopter.
  - f. REFUELING OPERATIONS: DNR Federal Excess Helicopters are fueled in accordance with DNR procedures and guidance from FM 10-67-1 Concepts and Equipment of Petroleum Operations. All flights are planned so that the helicopter lands with a minimum of 20 minutes of fuel unless noted in this plan to increase fuel reserve due to certain situations. (Chapter 13)
  - g. PILOT FLIGHT HOURS: DNR flight hour maximum is eight hours.
  - h. AOPS Standards: All DNR pilots and contractors will follow all established procedures in this plan

## Appendix E –

### Washington State Department of Natural Resources Manager / Pilot Mission Brief to Passengers

1. Personal Protective Equipment (PPE): Appropriate head protection (Refer to IHOG Chart 9-1); Nomex clothing; ear and eye protection; boots; other survival equipment as applicable (PFD, life rafts, etc.) PPE is required for special use airplane missions and for all helicopter flights. Available and worn by all passengers, pilot(s), and aircrew members.
2. Approach and Departure Paths:
  - a. When landing in helicopters in uneven terrain, always approach and depart from the down slope (lower) side
  - b. Approach and depart helicopter in a crouch position
  - c. Keep in the pilot's field of vision at all times
  - d. Stay clear of the landing area when helicopters are landing or departing
  - e. Never go near the tail of the helicopters
3. Tools and Equipment:
  - a. Secure the hand tools and equipment awaiting transport (will not blow into rotor system)
  - b. Carry tools or other long objects parallel to the ground, not over the shoulder into the air
  - c. Make assignments for carrying tools/equipment to and from the helicopter or airplane
4. Seating in Aircraft:
  - a. No movement between seats unless authorized by pilot
  - b. Seat belt fastened at all times
  - c. Unbuckle only when specifically directed to do so by pilot or helicopter loading/unloading personnel
  - d. Follow the instructions of the pilot
  - e. Know location of first aid kit, survival kit, fire extinguisher, ELT (Emergency Locator Transmitter), fuel shutoff switch, radio operation, oxygen (if available)
5. Security of Equipment:
  - a. Loose items secured and manageable; all baggage secured in aircraft or in compartment
  - b. Never throw any object from a helicopter or airplane
  - c. Around helicopters, never reach up or dart after a hat or other object that has become unsecured
6. Smoking: Explain the rules for smoking—in and around aircraft. No smoking within 50' of aircraft.
7. Emergency Equipment and Exits: Location and Use.



8. Actions During Emergency Descent and Landing:
  - a. Follow instructions of Pilot and/or Manager
  - b. Fasten seat belt and shoulder harness: secure gear
  - c. Secure head protection and ensure properly worn
  - d. Forward facing passengers restrained with shoulder harnesses, sit in full upright position with head back against seat and arms folded across chest
  - e. Forward facing passengers without harnesses: bends forward at waist, grasp arms under legs and place head between knees
  - f. Aft (rearward) facing passengers: sit in full upright position with head and back against seat
  - g. Side facing passengers: bends forward at waist, grasp arms under legs and place head between knees
  
9. Egressing the Aircraft after Emergency Landing or Crash:
  - a. Egress only when rotor blades have stopped
  - b. Close throttle if engine still running
  - c. Turn off main fuel switch
  - d. Assist any injured person who cannot leave the aircraft (If no fire, do not move if neck or back trauma is suspected)
  - e. Move all personnel clear of the aircraft in pre-assigned rendezvous point up wind of any smoke if aircraft is burning
  - f. Use fire extinguisher only on personnel that are on fire (not aircraft)
  - g. Collect all necessary emergency gear and equipment (First Aide and Survival Kits)
  - h. Administer lifesaving first aide to personnel as necessary
  - i. Establish emergency communications (Radio, Cell Phone, and Text). Communicate Situation.
    - i. Aircraft Landing / Crash Site Location (LAT/LONG, Road Intersection, City or Town, etc.)
    - ii. Aircraft Identification
    - iii. Persons on Board
    - iv. Injuries of Personnel
    - v. Do not give names of deceased or injured personnel
  - j. Collect Pre-mission Planning and aircraft documentation
    - i. Aircraft Logbook
    - ii. Load Calculations
    - iii. Manifest
    - iv. Crew location for the day
    - v. Weather
    - vi. Crew seating
    - vii. Local Situation report
    - viii. Fuel truck and driver
    - ix. Equipment readiness
    - x. TFR / NOTAM
    - k. Take Photographs if able and time permits

Appendix F –

Washington State Department of Natural Resources MEDEVAC/SHORTHAUL Transport Request Info

**Injury Information**

---

MEDEVAC (Life Threatening): \_\_\_\_\_ Medical Transport: \_\_\_\_\_

Number of Passengers to be transported: \_\_\_\_\_ Are patients able to walk: \_\_\_\_\_

Injured Information (vitals, type and extent of injury, etc.): \_\_\_\_\_

**Incident Site Information**

---

Agency: \_\_\_\_\_ Location of Helispot: \_\_\_\_\_

Township: \_\_\_\_\_ Range: \_\_\_\_\_ Section: \_\_\_\_\_ ¼ section: \_\_\_\_\_

Latitude: N \_\_\_\_\_ Longitude: W \_\_\_\_\_

VOR: \_\_\_\_\_ Distance: \_\_\_\_\_ Bearing: \_\_\_\_\_

Is Helispot complete: \_\_\_\_\_ If not, how long to completion: \_\_\_\_\_ Condition of Helispot: \_\_\_\_\_

Wind speed: \_\_\_\_\_ Knots Direction: \_\_\_\_\_

Temperature: \_\_\_\_\_ °F Elevation (MSL): \_\_\_\_\_ Ft. Visibility: \_\_\_\_\_ Miles

Helispot size: \_\_\_\_\_ Feet x \_\_\_\_\_ Feet Terrain Factors: \_\_\_\_\_

Other Aircraft in the area: Aircraft # \_\_\_\_\_ Aircraft # \_\_\_\_\_ Aircraft # \_\_\_\_\_

**Radio Frequency Information**

---

Helispot Frequency: \_\_\_\_\_ Incident Frequencies: \_\_\_\_\_ Air to Air: \_\_\_\_\_

Air to Ground: \_\_\_\_\_ Administrative Unit Frequency: \_\_\_\_\_ Other Frequency: \_\_\_\_\_

**Ground Contact Information**

---

Contact Person at Helispot: \_\_\_\_\_

Is there a qualified Helitack on site: \_\_\_\_\_

Proximity of Helispot to injury site: \_\_\_\_\_

Contact person with injured party and radio frequency: \_\_\_\_\_ / \_\_\_\_\_

**Appendix G –**

**Washington State Department of Natural Resources Insurance and Liability Information**

**1. Liability**

DNR maintains three commercial aviation policies. The first two are listed here and the third is found under Aviation Accidental Death & Disability. Under the aircraft hull and liability insurance, there is:

- a. Coverage for accidental damage to the aircraft hull
- b. Liability coverage for bodily injury, personal injury, and property damage subject to applicable exclusions and self-insured retention. The agency helicopters are not covered under this first policy as they are owned by the USDA Forest Service (on permanent loan to DNR.)

**2. Aviation Accidental Death & Disability**

- a. The Aviation Accidental Death & Disability policy provides supplemental coverage of up to \$95,000 for passengers, pilots, operator, or crew member in or any of DNR's helicopters if injured or killed in the course of business operations for DNR. This policy is subject to bargaining under DNR and Washington Federation of State Employees (WFSE) and the Washington Public Employees Association (WPEA) agreements, and is covered in the Revised Code of Washington (RCW 43.01.120).

3. More information for benefits can be found in Chapter 1 of this plan.



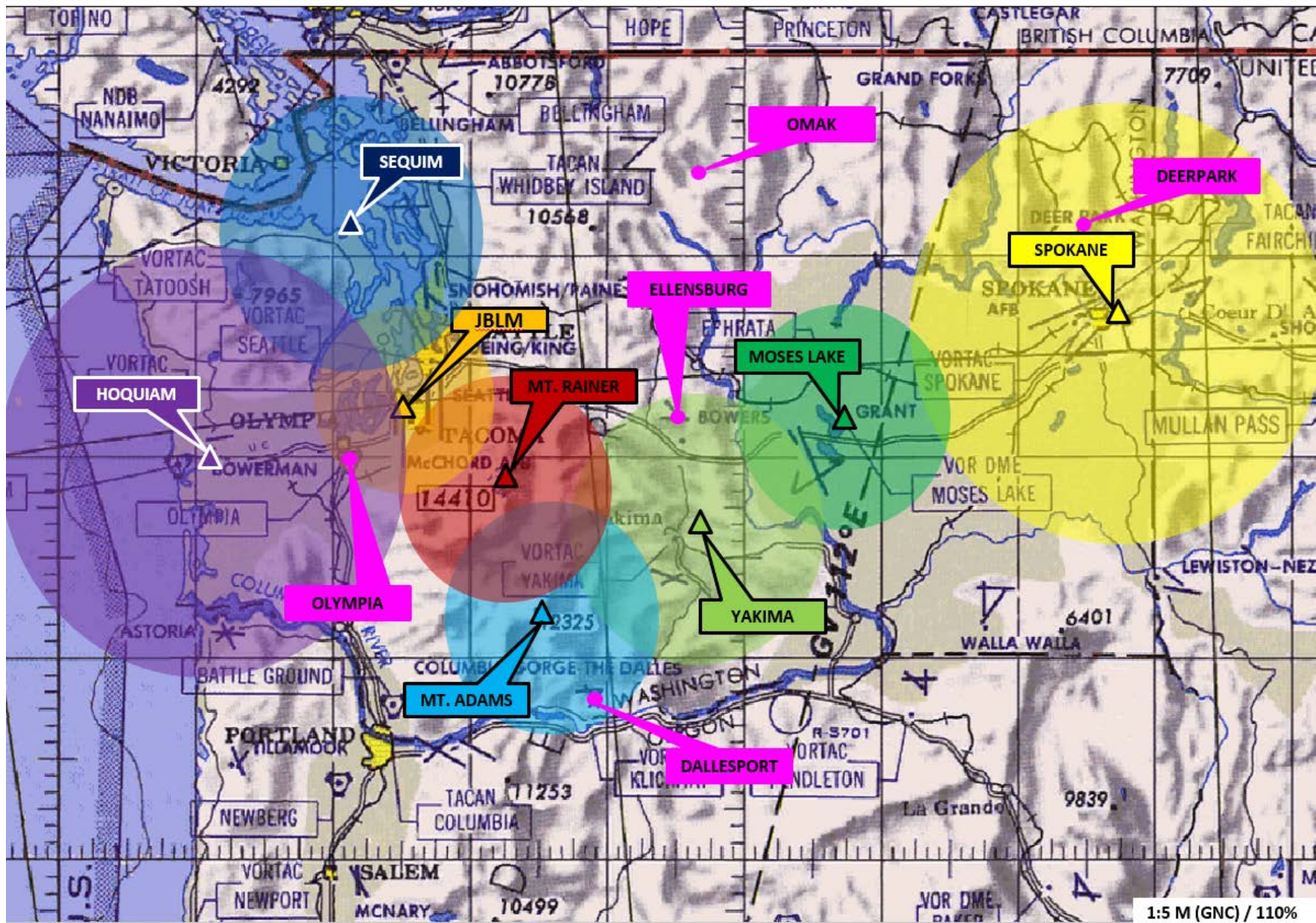
WASHINGTON STATE DEPT OF  
**NATURAL  
RESOURCES**



# WASHINGTON STATE MEDICAL PLAN

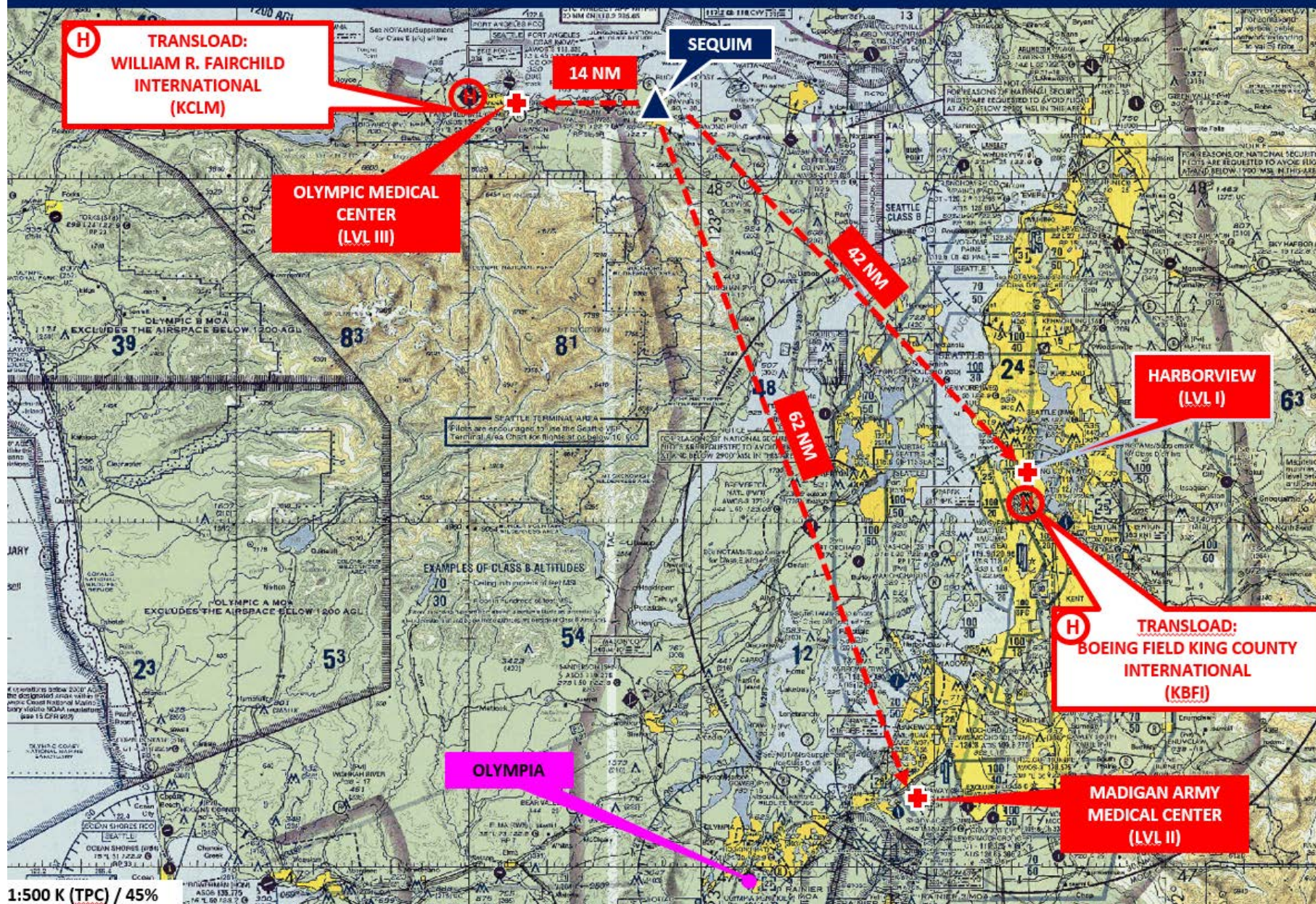
UPDATED:  
MAR 2017

# Area of Operations Orientation to Hospital





# SEQUIM, WA Area Distances to Hospitals





# SEQUIM, WA Area Transload Airport Information

**H** Port Angeles / William R. Fairchild International / CLM



**Communications**

ASOS ..... 135.175  
 CTAF/UNICOM ... 123.0  
 PCL ..... CTAF (For MIRL Rwy 08/26;  
 MALSR Rwy 08)

[LINK](#)



**Navigation**

Elevation ..... 291' MSL  
 TPA ..... 1300' MSL (1009' AGL)  
 Runway ..... 08/26; 6347'x150'; ASPH  
 13/31; 3245'x50'; ASPH  
 Lights ..... Dusk-dawn, MIRL  
 Latitude ..... N 48° 07.21'  
 Longitude ..... W 123° 29.98'

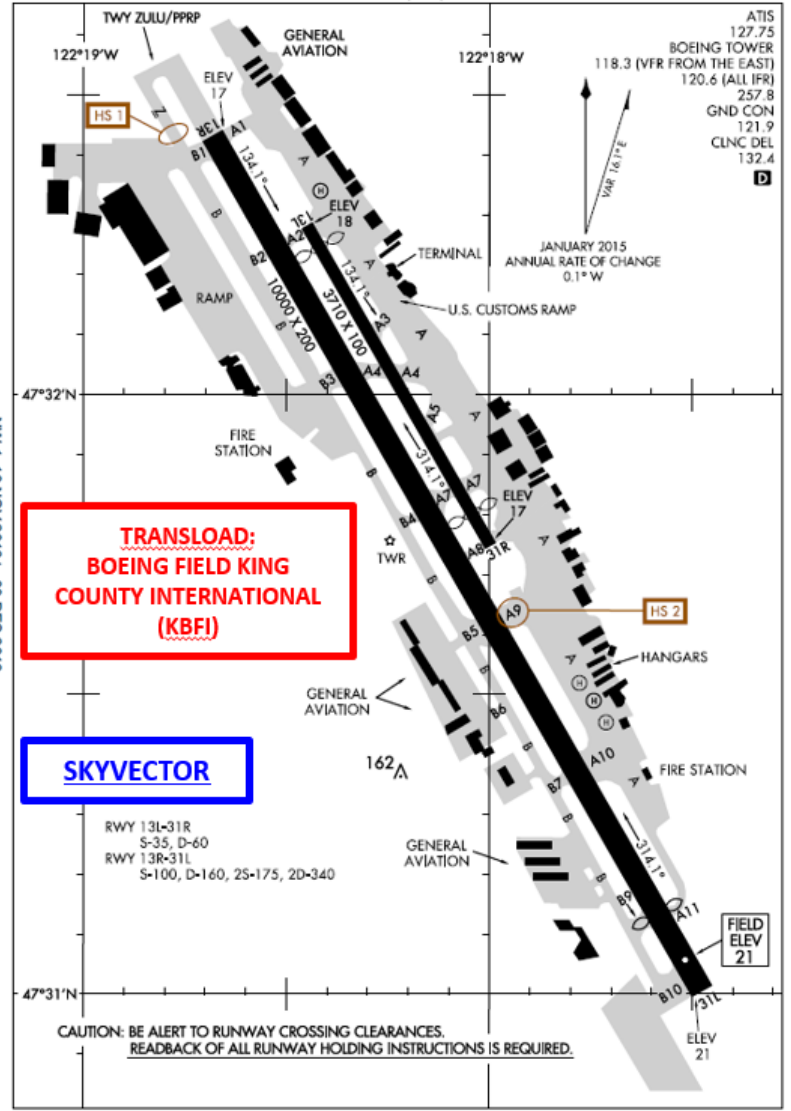
**Services**

Fuel ..... 100LL, Jet A (For after hours  
 Jet A, call 360-452-6206)

**TRANSLOAD:  
 WILLIAM R. FAIRCHILD  
 INTERNATIONAL  
 (KCLM)**

**Notes** Right hand traffic on runways 26 and 31. Waterfoul and birds on and in vicinity of airport.

161.47 **H** AIRPORT DIAGRAM AL-384 (FAA) BOEING FIELD/KING COUNTY INTL (BFI) SEATTLE, WASHINGTON



AIRPORT DIAGRAM SEATTLE, WASHINGTON BOEING FIELD/KING COUNTY INTL (BFI)



# SEQUIM, WA Area, Harborview Medical Center TL 1

## HARBORVIEW MEDICAL CENTER LVL

SEATTLE, WA. (Macro)  
47° 39.176' N 122° 19.485' W

10T ET 50756 72392

Approx. 315 feet MSL

ED: (206) 744-3074

\*Airlift Northwest Comm Center: 1-800-426-2430

VHF: 129.825\*

Updated 08 DEC 10  
DOI: Unknown  
Scale Approx.



**HLZ Description:** 200'x75' raised concrete pad with 3 HLZ's marked with white cross. Southernmost HLZ primary HLZ. **NOT H-47 CAPABLE**  
**Obstacles:** Multi story buildings to N, NE. Multi-story buildings within 0.5 mile  
**Lighting:** Pad lit during POD.  
**Approach:** Follow HWY N, NW then pedal turn into southern HLZ recommended.  
**Departure:** Pilots discretion and air traffic in AO  
**Communications:** P—Airlift Northwest on 129.825 VHF coordinate for XLD.  
A— Call Airlift NW dispatch, 1-800-426-2430 for XLD C— Have ATC alert EMS for XLD at helipad. E— Land at pad and signal through CCTV cameras on pad

## HARBORVIEW MEDICAL CENTER LVL I

SEATTLE, WA. (Micro)  
47° 39.176' N 122° 19.485' W

10T ET 50756 72392

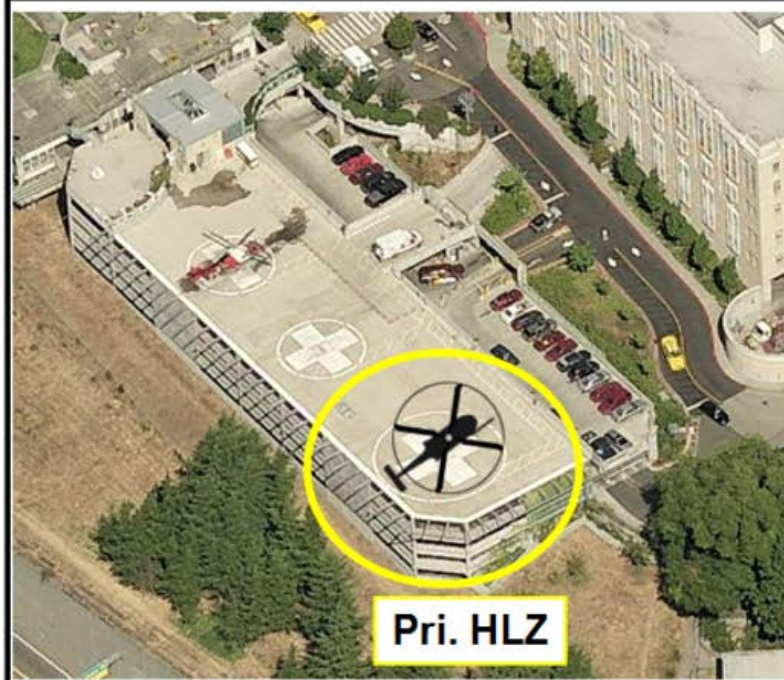
Approx. 315 feet MSL

ED: (206) 744-3074

\*Airlift Northwest Comm. Center: 1-800-426-2430

VHF: 129.825 \*

Updated 08 DEC 10  
DOI: Unknown  
Scale Approx.

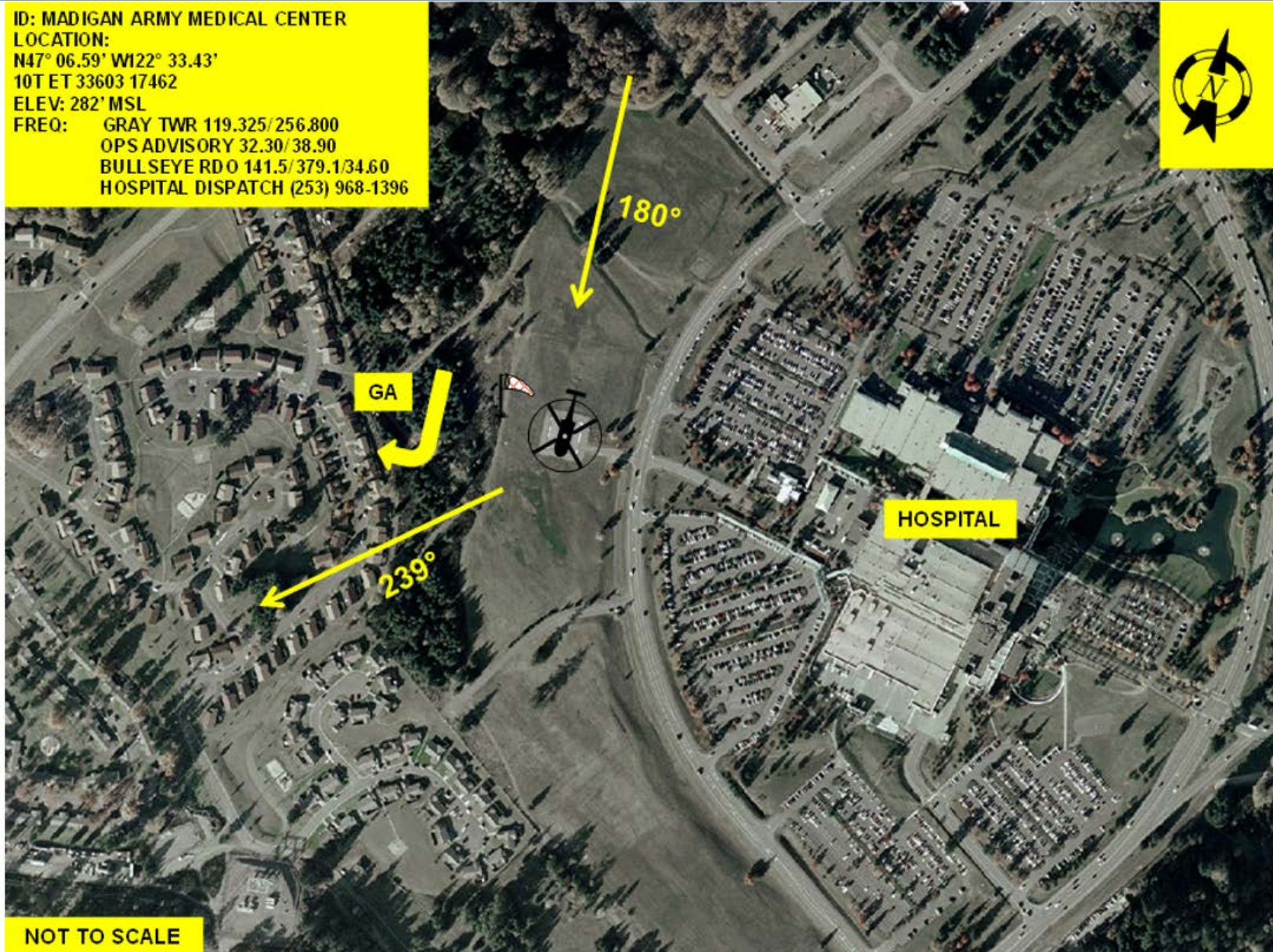


**HLZ Description:** 200'x75' raised concrete pad with 3 HLZ's marked with white cross. Southernmost HLZ primary HLZ. **NOT H-47 CAPABLE**  
**Obstacles:** Multi story buildings to N, NE. Multi-story buildings within 0.5 mile  
**Lighting:** Pad lit during POD.  
**Approach:** Follow HWY N, NW then pedal turn into southern HLZ recommended.  
**Departure:** Pilots discretion and air traffic in AO  
**Communications:** P—Airlift Northwest on 129.825 VHF coordinate for XLD.  
A— Call Airlift NW dispatch, 1-800-426-2430 for XLD C— Have ATC alert EMS for XLD at helipad. E— Land at pad and signal through CCTV cameras on pad



# SEQUIM, WA Area Madigan Army Medical Center TL 1

ID: MADIGAN ARMY MEDICAL CENTER  
LOCATION:  
N47° 06.59' W122° 33.43'  
10T ET 33603 17462  
ELEV: 282' MSL  
FREQ: GRAY TWR 119.325/256.800  
OPS ADVISORY 32.30/ 38.90  
BULLSEYE RDO 141.5/379.1/34.60  
HOSPITAL DISPATCH (253) 968-1396



# SEQUIM, WA Area of Operations

## MEDICAL COURSES OF ACTIONS (COA) (1)

### COA 1

#### **Life, Limb or Eyesight**

- Stabilize on site or in air using A/C as primary CASEVAC asset.
- A/C Transports to **AIRLIFT NORTHWEST** at **WILLIAM R. FAIRCHILD** airport.
- Coordinate transload and trauma alert. Be sure to inform **HARBOR VIEW** at **(206) 744-3074**  
# of patients.

### COA 2

#### **Life, Limb, or Eyesight**

- Stabilize on site or in air using A/C as primary CASEVAC asset.
- A/C Transports to to conduct transload with local EMS **AIRLIFT NORTHWEST** at **(800) 426-2430**.
- Contact **WILLIAM R. FAIRCHILD** airport for transload coordination .

### COA 3

#### **Life, Limb, or Eyesight**

- Stabilize at point of injury.
- Contact EMS **AIR LIFT NORTHWEST** at **(800) 426-2430**.



# SEQUIM, WA Area of Operations

## MEDICAL COURSES OF ACTIONS (COA) (2)

### Catastrophic Accident

- Notify fire and rescue via landline, cell phone, or ATC
- Insert any medical ASAP to start triage and casualty treatment.
- Utilize remaining A/C for CASEVAC to XLD sites or MTFs if situation allows.
- If life threatening injuries are suspected contact **AIRLIFT NORTHWEST** at **(800) 426-2430** to alert/launch assets as situation dictates.

### COA 4:

#### Routine/ Non-Emergency

- Assess and stabilizes patient.
- Make evacuation determination taking account of mission factors and injuries.
- Injuries/Illness requiring higher medical attention will be brought back and transported by appropriate ground transportation to **OLYMPIC MEDICAL CENTER**
- Injuries not requiring higher care will be reassessed on scene and COA adjusted to any changes in status.
- In the event of a routine injury becoming a threat to life, limb or eyesight COA 1, 2, or 3 will be implemented.

**\*\*ALWAYS CALL 911 AND ACTIVATE EMS \*\***

# SEQUIM, WA Area Hospital Contact Information

## MEDICAL FACILITIES:

### **HARBOR VIEW MEDICAL CENTER (PRIMARY)**

325 9<sup>th</sup> Avenue

Seattle, WA 98104

Hospital Information: (206) 744-3300

ER Phone: (206) 744-3074

### **OLYMPIC MEDICAL CENTER (TERTIARY)**

939 Caroline Street

Port Angeles, WA 98362

Hospital Information: (360) 417-7000

### **MADIGAN ARMY MEDICAL CENTER (SECONDARY)**

9040 Fitzsimmons Drive

Fort Lewis, WA 98431

Hospital Information: (253) 968-1110

ER Phone: (253) 968-1390

## AIR AMBULANCE:

### **AIRLIFT NORTHWEST**

(800) 426-2430

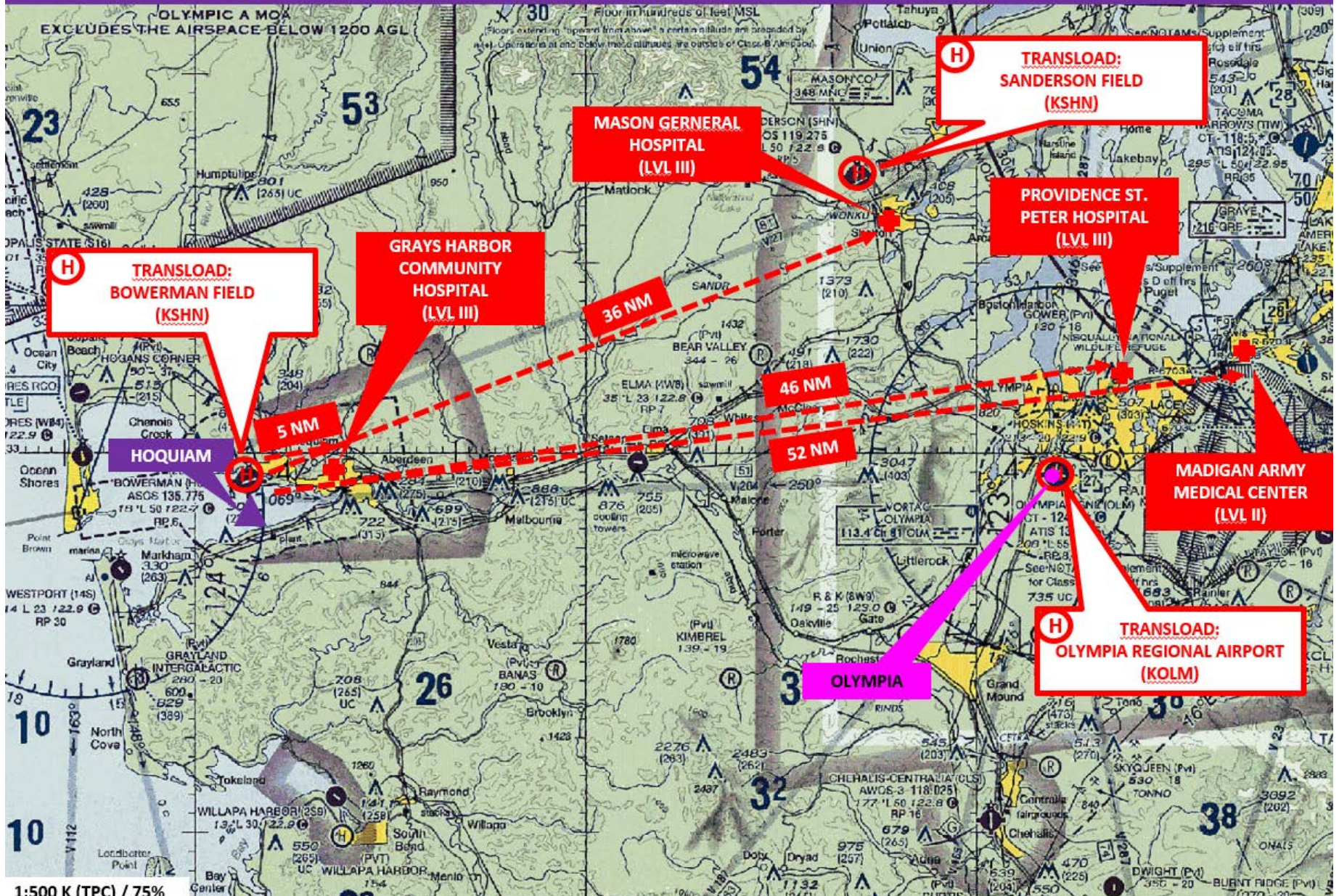
Located at **SEATTLE & OLYMPIA**

(1) A-109 (Seattle) or EC-135 (Olympia)

(2) 1 Patient unless coordinated in advance



# HOQUIAM, WA Area Distances to Hospitals





# Hoquiam, WA Area Transload Airport Information



Hoquiam / **Bowerman Field** / HQM



**Communications**

ASOS ..... 135.775  
 CTAF/UNICOM ... 122.7  
 PCL ..... CTAF (For HIRL, MALS  
 Rwy 24; REIL Rwy 06)

[LINK](#)

**Navigation**

Elevation ..... 18' MSL  
 TPA ..... 1000' MSL (982' AGL)  
 Runway ..... 06/24; 5000'x150'; ASPH  
 Lights ..... Dusk-dawn, HIRL  
 Latitude ..... N 46° 58.27'  
 Longitude ..... W 123° 56.19'

**Services**

Fuel ..... 100LL, 80, Jet A1+  
 (24-hour credit card fuel  
 services for 100LL)  
 Jet A, call 360-533-6655  
 (1700-0100Z) or  
 360-310-0201  
 (0100-1700Z)



**TRANSLOAD:  
 BOWERMAN FIELD  
 (KSHN)**

**Notes**

Right hand traffic on runway 06. Watch for waterfowl on and in vicinity of airport. Ultralights prohibited without written permission.

Hoquiam / Bowerman Field / HQM

Page 46



Shelton / **Sanderson Field** / SHN



**Communications**

ASOS ..... 119.275  
 CTAF/UNICOM ... 122.8

[LINK](#)

**Navigation**

Elevation ..... 273' MSL  
 TPA ..... 1300' MSL (1027' AGL)  
 Runway ..... 05/23; 5005'x100'; ASPH  
 Lights ..... Dusk-dawn, MIRL  
 Latitude ..... N 47° 14.01'  
 Longitude ..... W 123° 08.85'

**Services**

Fuel ..... 100LL, Jet A (24-hour credit  
 card fuel services)



**TRANSLOAD:  
 SANDERSON FIELD  
 (KSHN)**

**Notes**

Right hand traffic on runway 05. Caution: Parachute operations.

Shelton / Sanderson Field / SHN

Page 105

# HOQUIAM, WA Area of Operations

## MEDICAL COURSES OF ACTIONS (COA) (1)

### COA 1

#### **Life, Limb or Eyesight**

- Stabilize on site or in air using A/C as primary CASEVAC asset.
- A/C Transports to **AIRLIFT NORTHWEST** at **BOWERMAN** airport.
- Coordinate transload and trauma alert. Be sure to inform **HARBOR VIEW** at **(206) 744-3074**  
# of patients.

### COA 2

#### **Life, Limb, or Eyesight**

- Stabilize on site or in air using A/C as primary CASEVAC asset.
- A/C Transports to to conduct transload with local EMS **AIRLIFT NORTHWEST** at **(800) 426-2430**.
- Contact **BOWERMAN** airport for transload coordination.

### COA 3

#### **Life, Limb, or Eyesight**

- Stabilize at point of injury.
- Contact EMS **AIR LIFT NORTHWEST** at **(800) 426-2430**.

# HOQUIAM, WA Area of Operations

## MEDICAL COURSES OF ACTIONS (COA) (2)

### Catastrophic Accident

- Notify fire and rescue via landline, cell phone, or ATC
- Insert any medical ASAP to start triage and casualty treatment.
- Utilize remaining A/C for CASEVAC to XLD sites or MTFs if situation allows.
- If life threatening injuries are suspected contact **AIRLIFT NORTHWEST** at **(800) 426-2430** to alert/launch assets as situation dictates.

### COA 4:

#### **Routine/ Non-Emergency**

- Assess and stabilizes patient.
- Make evacuation determination taking account of mission factors and injuries.
- Injuries/Illness requiring higher medical attention will be brought back and transported by appropriate ground transportation to **GRAYS HARBOR COMMUNITY HOSPITAL**
- Injuries not requiring higher care will be reassessed on scene and COA adjusted to any changes in status.
- In the event of a routine injury becoming a threat to life, limb or eyesight COA 1, 2, or 3 will be implemented.

**\*\*ALWAYS CALL 911 AND ACTIVATE EMS \*\***



# HOQUIAM, WA Area Hospital Contact Information

## MEDICAL FACILITIES:

### **MADIGAN ARMY MEDICAL CENTER (PRIMARY)**

9040 Fitzsimmons Drive  
Fort Lewis, WA 98431  
Hospital Information: (253) 968-1110  
ER Phone: (253) 968-1390

### **GRAYS HARBOR COMMUNITY HOSPITAL (TERTIARY)**

1006 N H Street  
Aberdeen, WA 98520  
Hospital Information: (360) 532-8330

### **PROVIDENCE ST PETER HOSPITAL (SECONDARY)**

413 Lilly Road NE  
Olympia, WA 98506  
Hospital Information: (360) 491-9480

### **MASON GENERAL HOSPITAL (TERTIARY)**

901 Mountain View Drive  
Shelton, WA 98584  
Hospital Information: (360) 426-1611

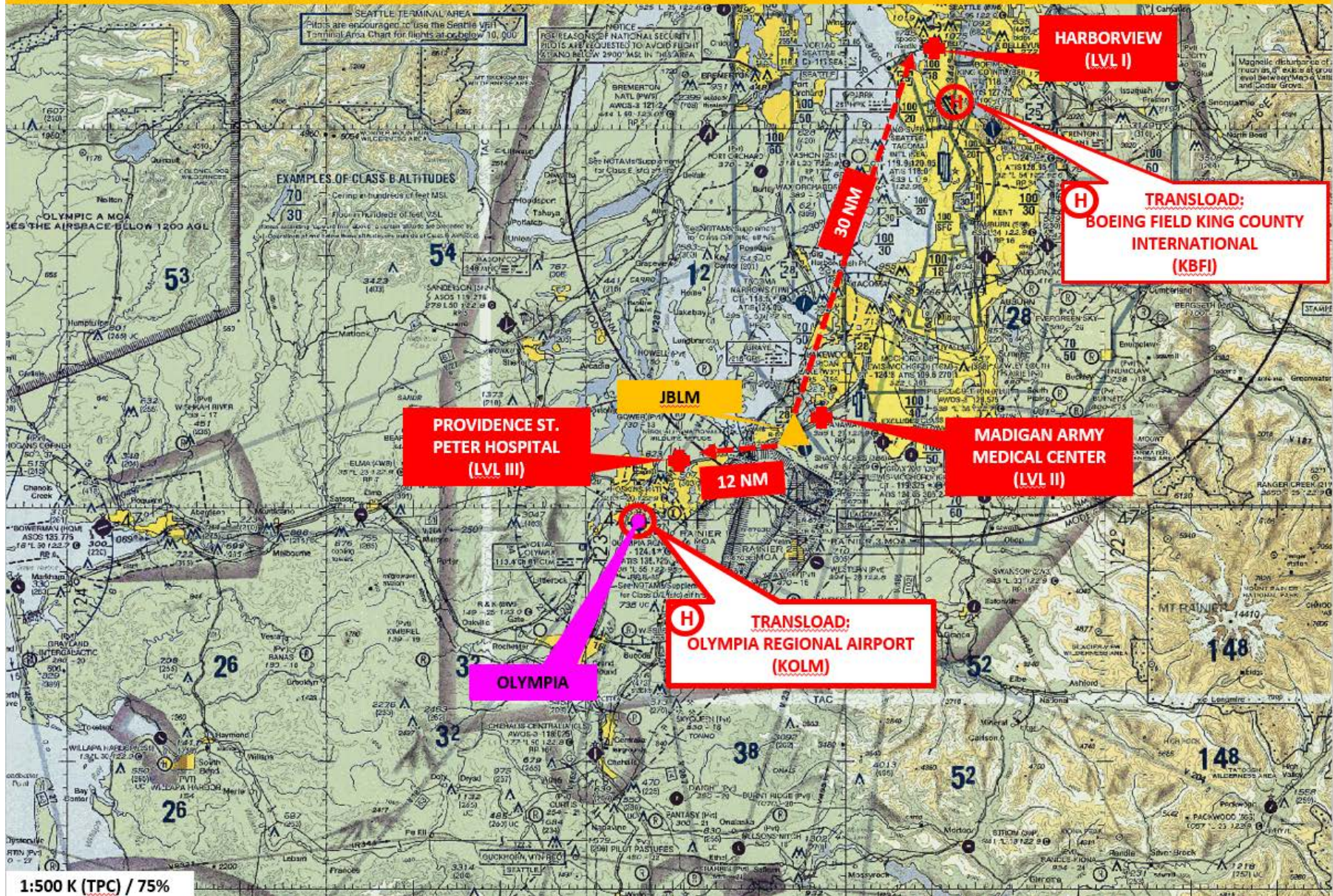
## AIR AMBULANCE:

### **AIRLIFT NORTHWEST**

(800) 426-2430  
Located at **SEATTLE & OLYMPIA**  
(1) A-109 (Seattle) or EC-135 (Olympia)  
(2) 1 Patient unless coordinated in advance



# JBLM, WA Area Distances to Hospitals





# JBLM, WA Area Madigan Army Medical Center TL 1

ID: MADIGAN ARMY MEDICAL CENTER  
LOCATION:  
N47° 06.59' W122° 33.43'  
10T ET 33603 17462  
ELEV: 282' MSL  
FREQ: GRAY TWR 119.325/256.800  
OPS ADVISORY 32.30/38.90  
BULLSEYE RD O 141.5/379.1/34.60  
HOSPITAL DISPATCH (253) 968-1396





# JBLM, WA Area Transload Airport Information

**HARBORVIEW MEDICAL CENTER LVL**  
**SEATTLE, WA. (Macro)**  
 47° 39.176' N 122° 19.485' W  
 10T ET 50756 72392  
 Approx. 315 feet MSL  
 ED: (206) 744-3074  
 \*Airlift Northwest Comm Center: 1-800-426-2430  
 VHF: 129.825\*

Updated 08 DEC 10  
 DOI: Unknown  
 Scale: Approx



**HLZ Description:** 200'x75' raised concrete pad with 3 HLZ's marked with white cross. Southernmost HLZ primary HLZ. **NOT H-47 CAPABLE**  
**Obstacles:** Multi story buildings to N, NE. Multi-story buildings within 0.5 mile  
**Lighting:** Pad lit during POD.  
**Approach:** Follow HWY N, NW then pedal turn into southern HLZ recommended.  
**Departure:** Pilots discretion and air traffic in AO  
**Communications:** P—Airlift Northwest on 129.825 VHF coordinate for XLD.  
 A— Call Airlift NW dispatch, 1-800-426-2430 for XLD C—Have ATC alert EMS for XLD at helipad. E— Land at pad and signal through CCTV cameras on pad

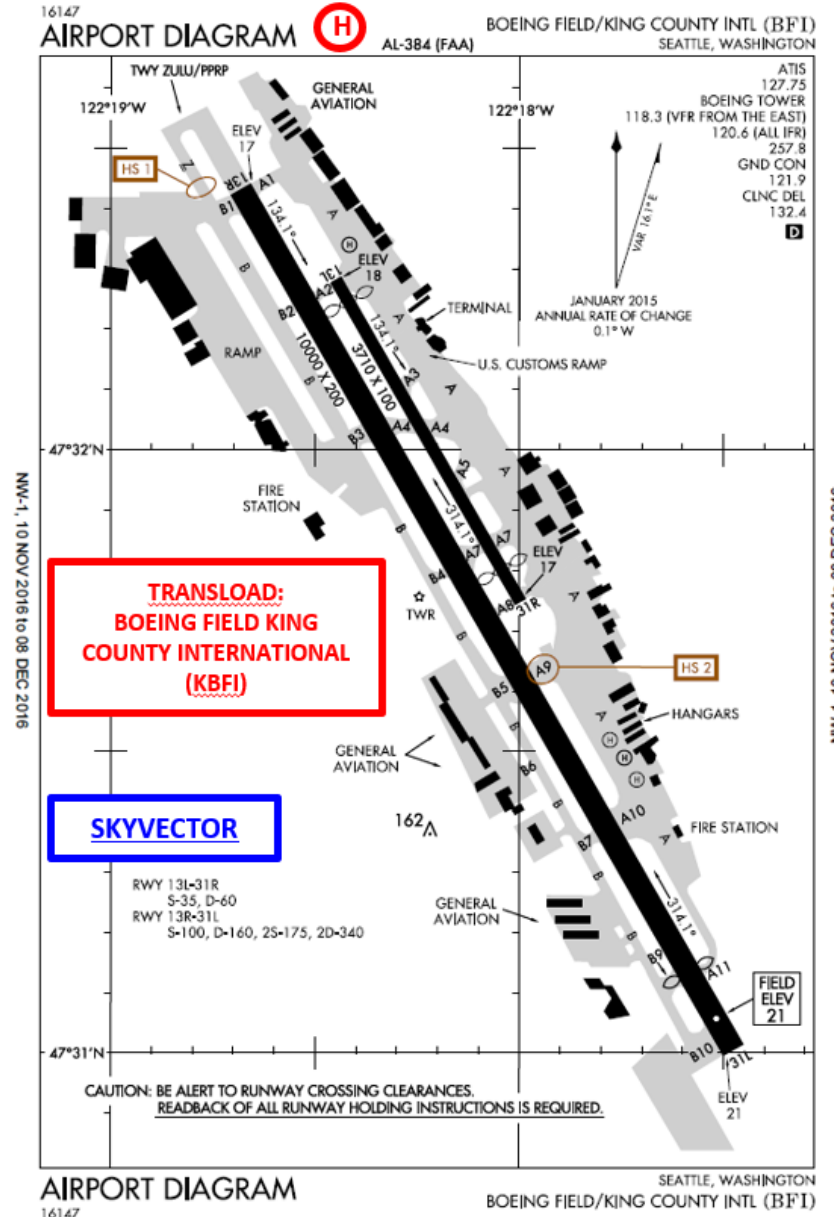
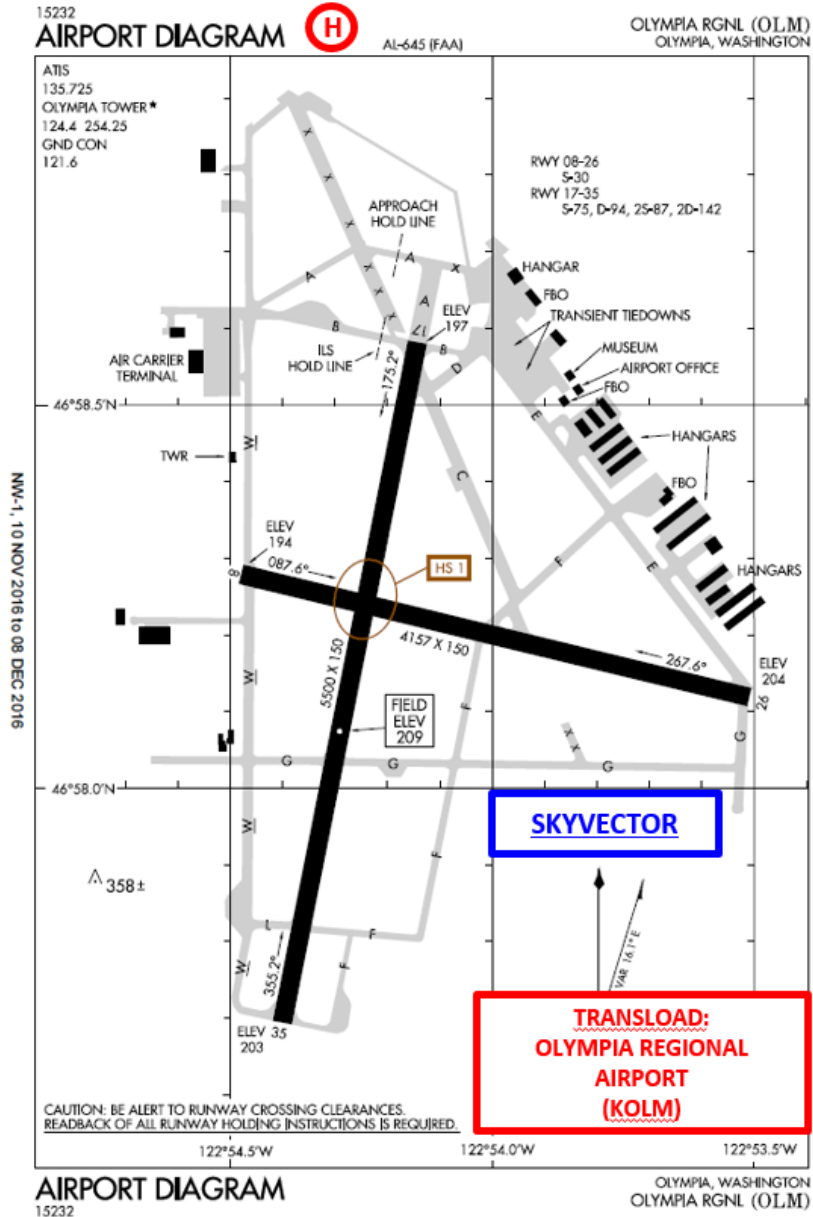
**HARBORVIEW MEDICAL CENTER LVL I**  
**SEATTLE, WA. (Micro)**  
 47° 39.176' N 122° 19.485' W  
 10T ET 50756 72392  
 Approx. 315 feet MSL  
 ED: (206) 744-3074  
 \*Airlift Northwest Comm. Center: 1-800-426-2430  
 VHF: 129.825 \*

Updated 08 DEC 10  
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**Departure:** Pilots discretion and air traffic in AO  
**Communications:** P—Airlift Northwest on 129.825 VHF coordinate for XLD.  
 A— Call Airlift NW dispatch, 1-800-426-2430 for XLD C—Have ATC alert EMS for XLD at helipad. E— Land at pad and signal through CCTV cameras on pad

# JBLM, WA Area Transload Airport Information





## JBLM, WA Area of Operations

# MEDICAL COURSES OF ACTIONS (COA) (1)

### COA 1

#### **Life, Limb or Eyesight**

- Stabilize on site or in air using A/C as primary CASEVAC asset.
- A/C Transports to **AIRLIFT NORTHWEST** at **OLYMPIA** airport.
- Coordiante transload and trauma alert. Be sure to inform **HARBOR VIEW** at **(206) 744-3074**  
# of patients.

### COA 2

#### **Life, Limb, or Eyesight**

- Stabilize on site or in air using A/C as primary CASEVAC asset.
- A/C Transports to to conduct transload with local EMS **AIRLIFT NORTHWEST** at **(800) 426-2430**  
Contact **OLYMPIA AIRPORT** for transload coordination

### COA 3

#### **Life, Limb, or Eyesight**

- Stabilize at point of injury.
- Contact EMS **AIRLIFT NORTHWEST** at **(800) 426-2430**

## JBLM, WA Area of Operations

# MEDICAL COURSES OF ACTIONS (COA) (2)

### Catastrophic Accident

- Notify fire and rescue via landline, cell phone, or ATC
- Insert any medical ASAP to start triage and casualty treatment.
- Utilize remaining A/C for CASEVAC to XLD sites or MTFs if situation allows.
- If life threatening injuries are suspected contact **AIRLIFT NORTHWEST** at **(800) 426-2430** to alert/launch assets as situation dictates.

### COA 4:

#### **Routine/ Non-Emergency**

- Assess and stabilizes patient.
- Make evacuation determination taking account of mission factors and injuries.
- Injuries/Illness requiring higher medical attention will be brought back and transported by appropriate ground transportation to **PROVIDENCE ST PETER**
- Injuries not requiring higher care will be reassessed on scene and COA adjusted to any changes in status.
- In the event of a routine injury becoming a threat to life, limb or eyesight COA 1, 2, or 3 will be implemented.

**\*\*ALWAYS CALL 911 AND ACTIVATE EMS \*\***

# JBLM, WA Area Hospital Contact Information

## MEDICAL FACILITIES:

### **HARBOR VIEW MEDICAL CENTER (PRIMARY)**

325 9<sup>th</sup> Avenue

Seattle, WA 98104

Hospital Information: (206) 744-3300

ER Phone: (206) 744-3074

### **PROVIDENCE ST PETER HOSPITAL (TERTIARY)**

413 Lilly Road NE

Olympia, WA 98506

Hospital Information: (360) 491-9480

### **MADIGAN ARMY MEDICAL CENTER (SECONDARY)**

9040 Fitzsimmons Drive

Fort Lewis, WA 98431

Hospital Information: (253) 968-1110

ER Phone: (253) 968-1390

## AIR AMBULANCE:

### **AIRLIFT NORTHWEST**

(800) 426-2430

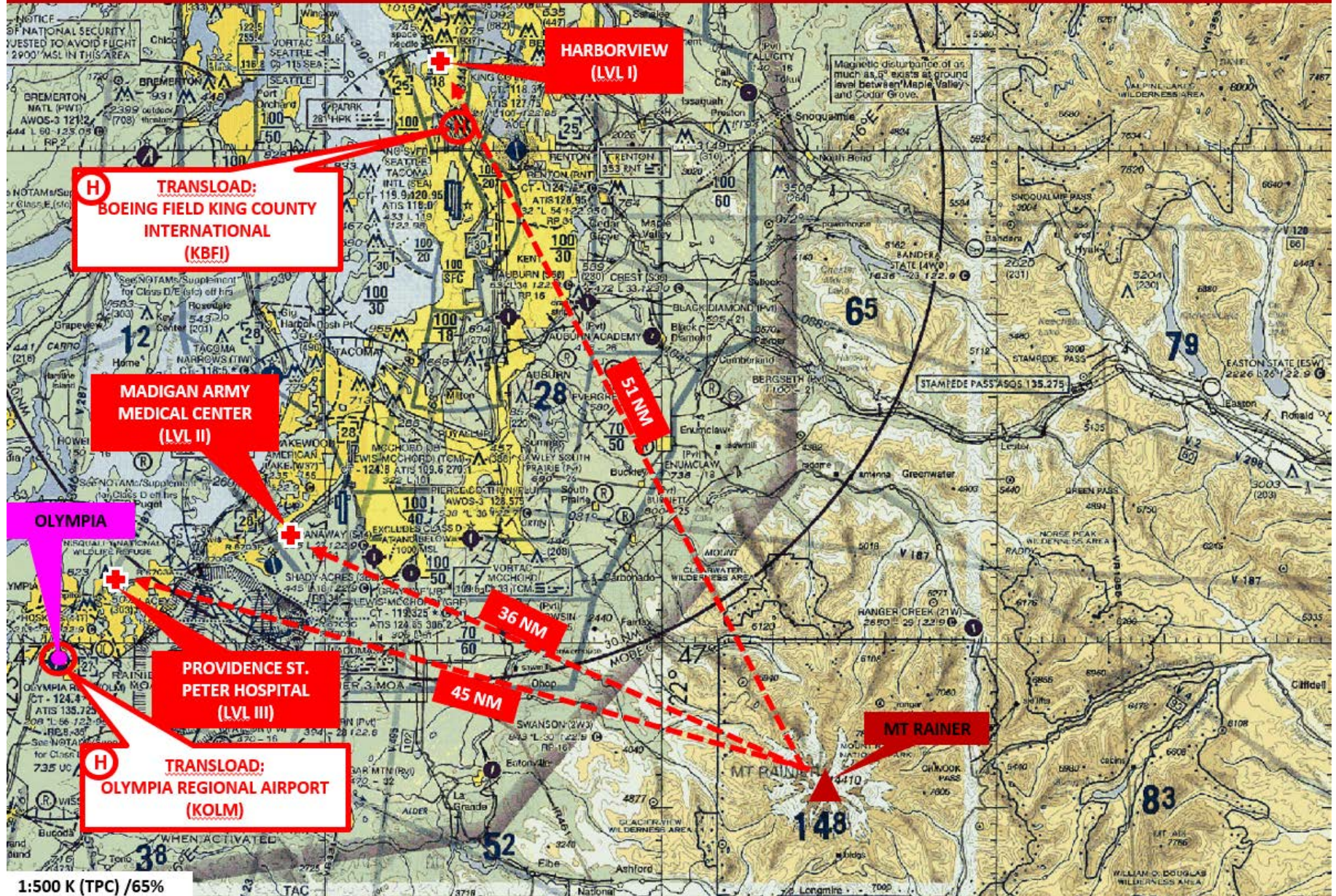
Located at **SEATTLE & OLYMPIA**

(1) A-109 (Seattle) or EC-135 (Olympia)

(2) 1 Patient unless coordinated in advance



# MT RAINIER, WA Area Distances to Hospitals

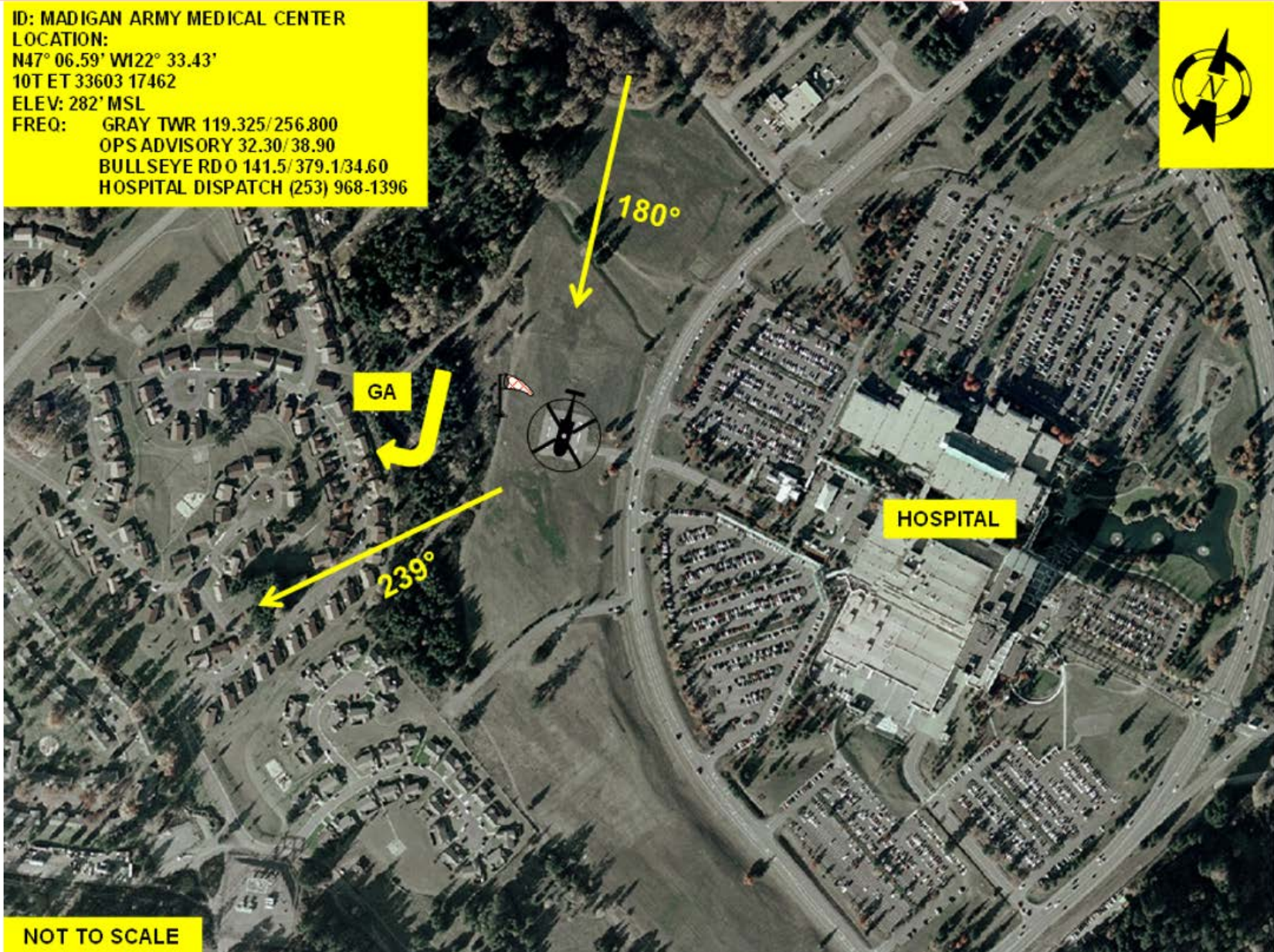


1:500 K (TPC) /65%



# MT RAINIER, WA Area Madigan Army Medical Center

ID: MADIGAN ARMY MEDICAL CENTER  
LOCATION:  
N47° 06.59' W122° 33.43'  
10T ET 33603 17462  
ELEV: 282' MSL  
FREQ: GRAY TWR 119.325/256.800  
OPS ADVISORY 32.30/38.90  
BULLSEYE RD O 141.5/379.1/34.60  
HOSPITAL DISPATCH (253) 968-1396






# MT RAINIER, WA Area Transload Airport Information

**HARBORVIEW MEDICAL CENTER LVL**  
**SEATTLE, WA. (Macro)**  
 47° 39.176' N 122° 19.485' W  
 10T ET 50756 72392  
 Approx. 315 feet MSL  
 ED: (206) 744-3074  
 \*Airlift Northwest Comm Center: 1-800-426-2430  
 VHF: 129.825\*


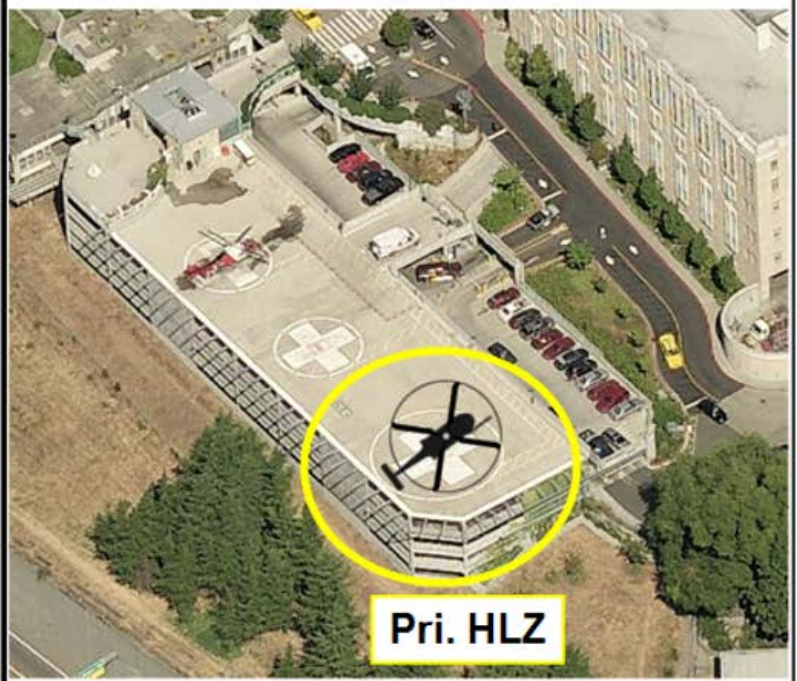
Updated 08 DEC 10  
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 Scale: Approx.




**HLZ Description:** 200'x75' raised concrete pad with 3 HLZ's marked with white cross. Southernmost HLZ primary HLZ. **NOTH-47 CAPABLE**  
**Obstacles:** Multi story buildings to N, NE. Multi-story buildings within 0.5 mile  
**Lighting:** Pad lit during POD.  
**Approach:** Follow HWY N, NW then pedal turn into southern HLZ recommended.  
**Departure:** Pilots discretion and air traffic in AO  
**Communications:** P—Airlift Northwest on 129.825 VHF coordinate for XLD.  
 A— Call Airlift NW dispatch, 1-800-426-2430 for XLD C—Have ATC alert EMS for XLD at helipad. E—Land at pad and signal through CCTV cameras on pad

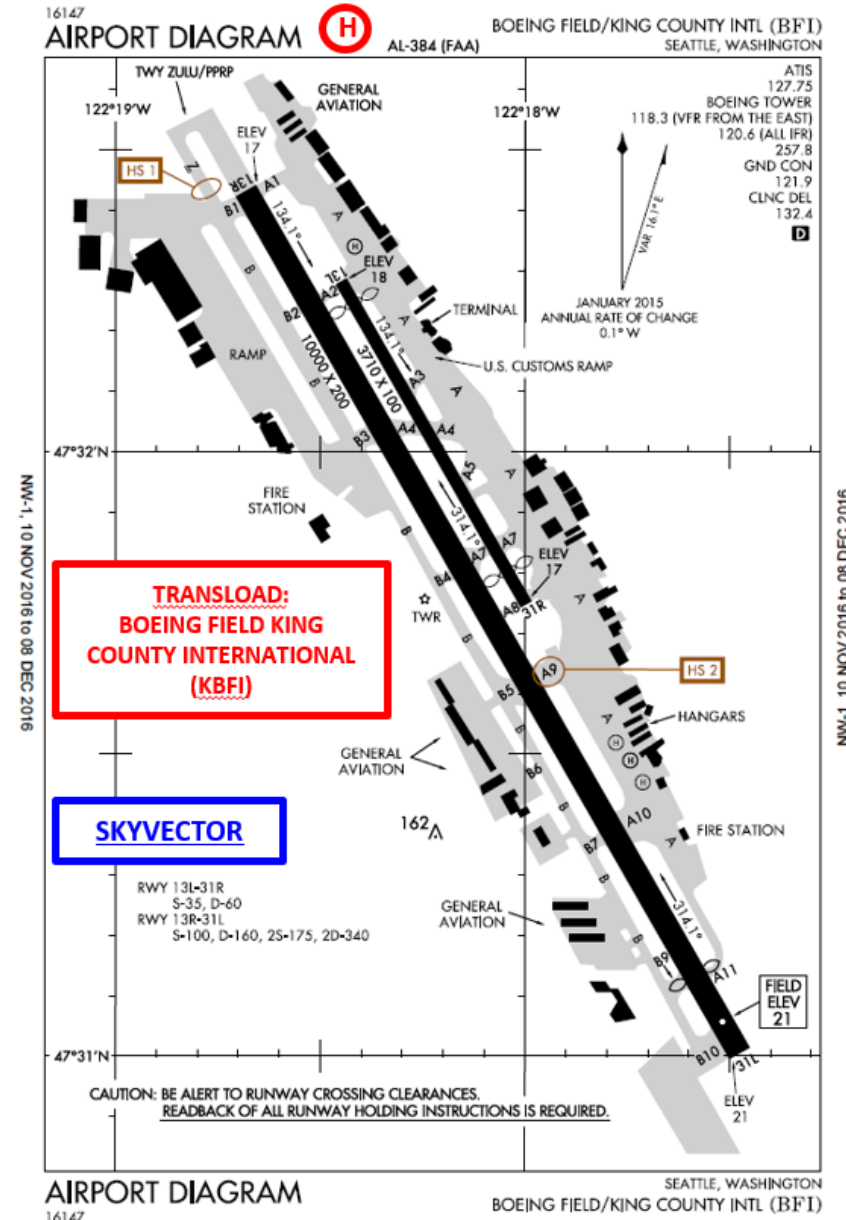
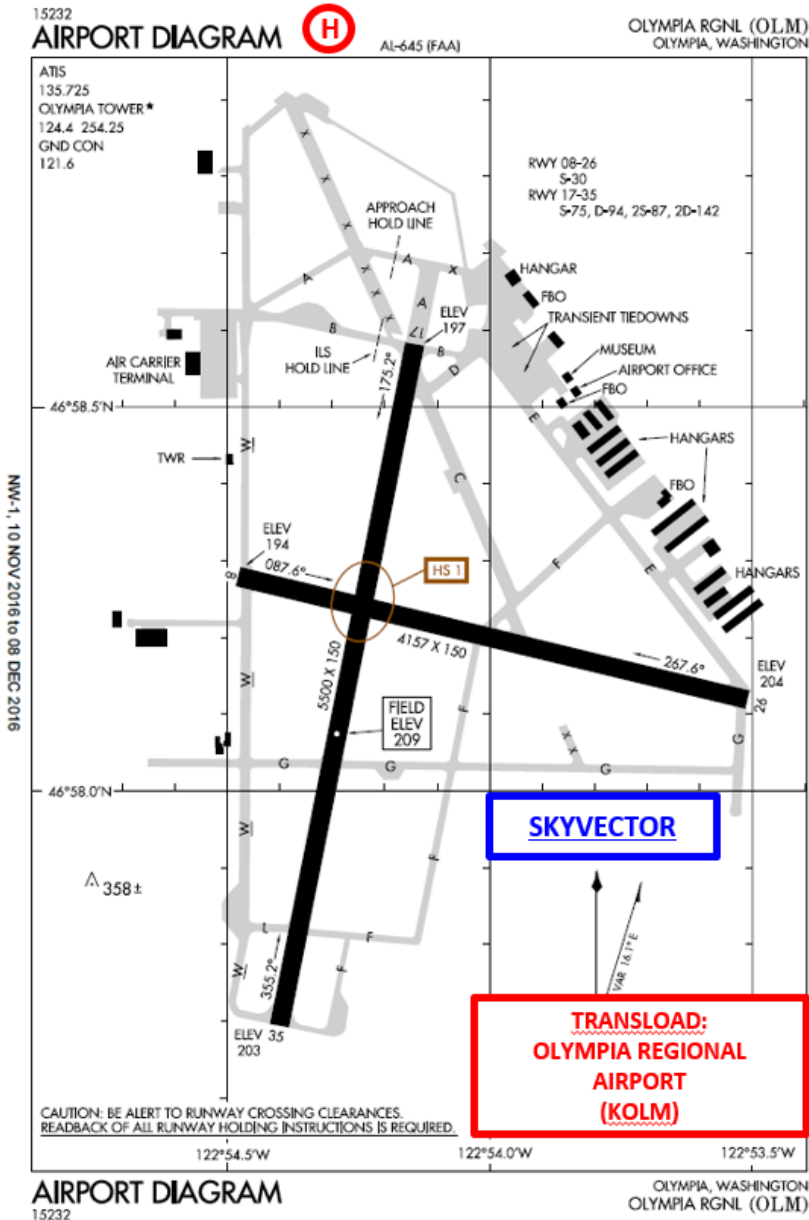
**HARBORVIEW MEDICAL CENTER LVL I**  
**SEATTLE, WA. (Micro)**  
 47° 39.176' N 122° 19.485' W  
 10T ET 50756 72392  
 Approx. 315 feet MSL  
 ED: (206) 744-3074  
 \*Airlift Northwest Comm. Center: 1-800-426-2430  
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# MT RAINIER, WA Area Transload Airport Information





# MT RAINIER, WA Area of Operations

## MEDICAL COURSES OF ACTIONS (COA) (1)

### COA 1

#### **Life, Limb or Eyesight**

- Stabilize on site or in air using A/C as primary CASEVAC asset.
- A/C Transports to **AIRLIFT NORTHWEST** at **OLYMPIA** airport.
- Coordiante transload and trauma alert. Be sure to inform **HARBOR VIEW** at **(206) 744-3074**  
# of patients.

### COA 2

#### **Life, Limb, or Eyesight**

- Stabilize on site or in air using A/C as primary CASEVAC asset.
- A/C Transports to to conduct transload with local EMS **AIRLIFT NORTHWEST** at **(800) 426-2430**  
Contact **OLYMPIA AIRPORT** for transload coordination

### COA 3

#### **Life, Limb, or Eyesight**

- Stabilize at point of injury.
- Contact EMS **AIRLIFT NORTHWEST** at **(800) 426-2430**

# MT RAINIER, WA Area of Operations

## MEDICAL COURSES OF ACTIONS (COA) (2)

### Catastrophic Accident

- Notify fire and rescue via landline, cell phone, or ATC
- Insert any medical ASAP to start triage and casualty treatment.
- Utilize remaining A/C for CASEVAC to XLD sites or MTFs if situation allows.
- If life threatening injuries are suspected contact **AIRLIFT NORTHWEST** at **(800) 426-2430** to alert/launch assets as situation dictates.

### COA 4:

#### **Routine/ Non-Emergency**

- Assess and stabilizes patient.
- Make evacuation determination taking account of mission factors and injuries.
- Injuries/Illness requiring higher medical attention will be brought back and transported by appropriate ground transportation to **PROVIDENCE ST PETER**
- Injuries not requiring higher care will be reassessed on scene and COA adjusted to any changes in status.
- In the event of a routine injury becoming a threat to life, limb or eyesight COA 1, 2, or 3 will be implemented.

**\*\*ALWAYS CALL 911 AND ACTIVATE EMS \*\***

# MT RAINIER, WA Area Hospital Contact Information

## MEDICAL FACILITIES:

### **HARBOR VIEW MEDICAL CENTER (PRIMARY)**

325 9<sup>th</sup> Avenue

Seattle, WA 98104

Hospital Information: (206) 744-3300

ER Phone: (206) 744-3074

### **PROVIDENCE ST PETER HOSPITAL (TERTIARY)**

413 Lilly Road NE

Olympia, WA 98506

Hospital Information: (360) 491-9480

### **MADIGAN ARMY MEDICAL CENTER (SECONDARY)**

9040 Fitzsimmons Drive

Fort Lewis, WA 98431

Hospital Information: (253) 968-1110

ER Phone: (253) 968-1390

## AIR AMBULANCE:

### **AIRLIFT NORTHWEST**

(800) 426-2430

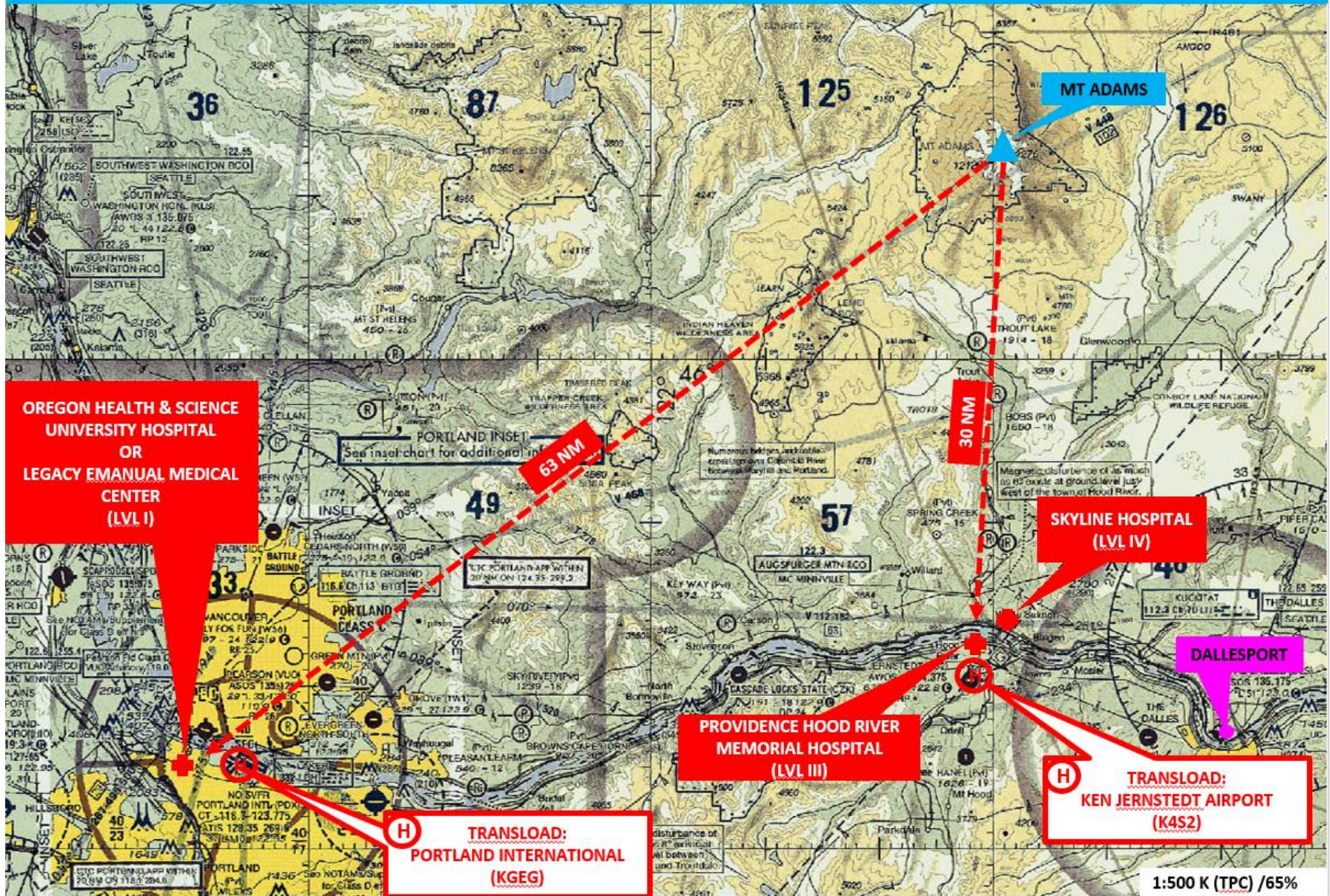
Located at **SEATTLE & OLYMPIA**

(1) A-109 (Seattle) or EC-135 (Olympia)

(2) 1 Patient unless coordinated in advance



# MT ADAMS, WA Area Distances to Hospitals

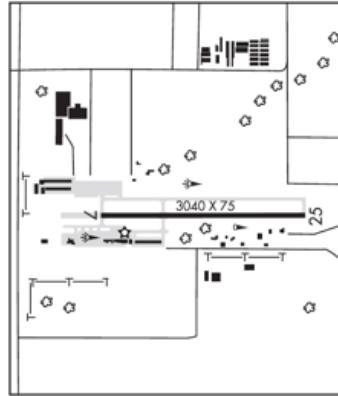




# MT ADAMS, WA Area Transload Airport Information

## HOOD RIVER H

**KEN JERNSTEDT AIRFIELD** (4S2) 2 S UTC-8(-7DT) N45°40.37' W121°32.03'  
 638 B TPA-1507(869) NOTAM FILE MMV  
 RWY 07-25: H3040X75 (ASPH) S-23 MIRL 1.1% up W  
 RWY 07: Tree.  
 RWY 25: REIL. Tree.  
**SERVICE:** S4 FUEL 100LL LGT ACTIVATE MIRL Rwy 07-25 and REIL Rwy 25-CTAF.  
**AIRPORT REMARKS:** Attended Nov-Apr 1600-0100Z, May-Oct 1600-0200Z. Frequent vehicular t/c AER 07. Gliders and ultralights use rgt t/c for Rwy 07 and Rwy 25. Rwy 07-25 alternate grass ldg area avbl in median. Not to be used simultaneously with paved rwy.  
**AIRPORT MANAGER:** 541-386-1645  
**WEATHER DATA SOURCES:** AWOS-3 134.375 (541) 386-2386.  
**COMMUNICATIONS:** CTAF/UNICOM 122.8  
**RADIO AIDS TO NAVIGATION:** NOTAM FILE DLS.  
**KLICKITAT (H) VORW/DME** 112.3 LTJ Chan 70 N45°42.82' W121°06.05' 241° 18.4 NM to fld. 3220/21E. HIWAS.

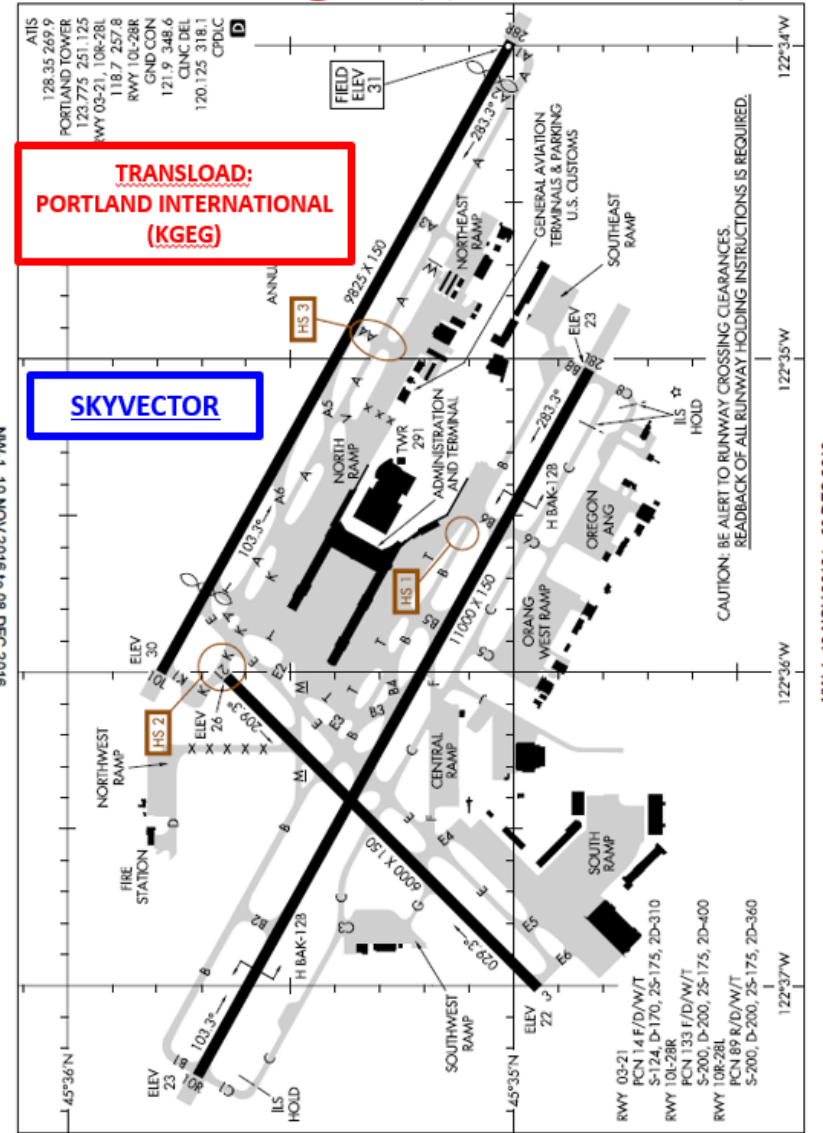


SEATTLE  
L-10, 13A

**TRANSLOAD:  
KEN JERNSTEDT AIRPORT  
(K4S2)**

**AFD (CHART  
SUPPLEMENTS)**

## 16315 AIRPORT DIAGRAM H PORTLAND INTL (PDX) AL-330 (FAA) PORTLAND, OREGON



16315 AIRPORT DIAGRAM PORTLAND, OREGON  
PORTLAND INTL (PDX)

# MT ADAMS, WA Area of Operations

## MEDICAL COURSES OF ACTIONS (COA) (1)

### COA 1

#### **Life, Limb or Eyesight**

- Stabilize on site or in air using A/C as primary CASEVAC asset.
- A/C Transports to **LIFE FLIGHT** at **KEN JERNSTEDT** airport.
- Coordinate transload and trauma alert. Be sure to inform **LEGACY EMANUEL** at **(503) 413-4121** or **OHSU** at **(503) 494-7551** # of patients.

### COA 2

#### **Life, Limb, or Eyesight**

- Stabilize on site or in air using A/C as primary CASEVAC asset.
- A/C Transports to to conduct transload with local EMS **LIFE FLIGHT NETWORK** at **(800) 232-0911**
- Contact **KEN JERNSTEDT** for transload coordination

### COA 3

#### **Life, Limb, or Eyesight**

- Stabilize at point of injury.
- Contact EMS **LIFE FLIGHT NETWORK** at **(800) 232-0911**

# MT ADAMS, WA Area of Operations

## MEDICAL COURSES OF ACTIONS (COA) (2)

### Catastrophic Accident

- Notify fire and rescue via landline, cell phone, or ATC
- Insert any medical ASAP to start triage and casualty treatment.
- Utilize remaining A/C for CASEVAC to XLD sites or MTFs if situation allows.
- If life threatening injuries are suspected contact **LIFE FLIGHT NETWORK** at **(800) 232-0911** to alert/launch assets as situation dictates.

### COA 4:

#### Routine/ Non-Emergency

- Assess and stabilizes patient.
- Make evacuation determination taking account of mission factors and injuries.
- Injuries/Illness requiring higher medical attention will be brought back and transported by appropriate ground transportation to **LEGACY EMANUEL** or **OHSU**
- Injuries not requiring higher care will be reassessed on scene and COA adjusted to any changes in status.
- In the event of a routine injury becoming a threat to life, limb or eyesight COA 1, 2, or 3 will be implemented.

**\*\*ALWAYS CALL 911 AND ACTIVATE EMS \*\***

# MT ADAMS, WA Area Hospital Contact Information

## MEDICAL FACILITIES:

### PROVIDENCE HOOD RIVER HOSPITAL

#### (PRIMARY)

810 12<sup>th</sup> Street

Hood River, OR 97031

Hospital Information: (541) 386-3911

### LEGACY EMANUEL MEDICAL CENTER

#### (TERTIARY)

2801 N Gantenbein Avenue

Portland, OR 97227

Hospital Information: (503) 413-2200

ER Phone: (503) 413-4121

### SKYLINE HOSPITAL (SECONDARY)

211 NE Skyline Drive

White Salmon, WA 98672

Hospital Information: (509) 493-1101

### OHSU (TERTIARY)

3181 SW Jackson Park Road

Portland, OR 97239

Hospital Information: (503) 494-8311

ER Phone: (503) 494-7551

## AIR AMBULANCE:

### LIFE FLIGHT NETWORK

(800) 232-0911

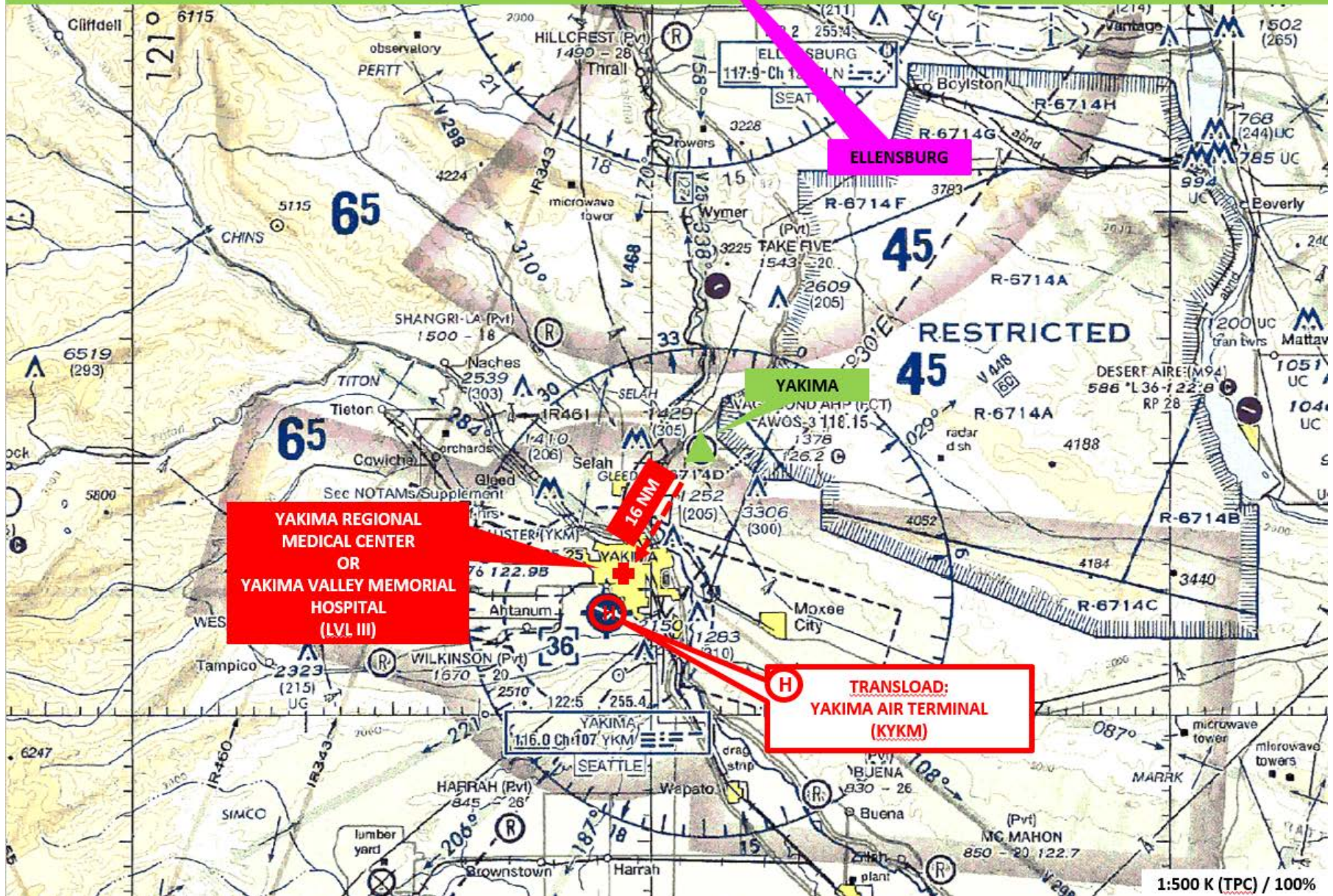
Located **COLUMBIA GORGE REGIONAL** Airport

(1) ASTAR 350B

(2) 1 Patient unless coordinated in advance

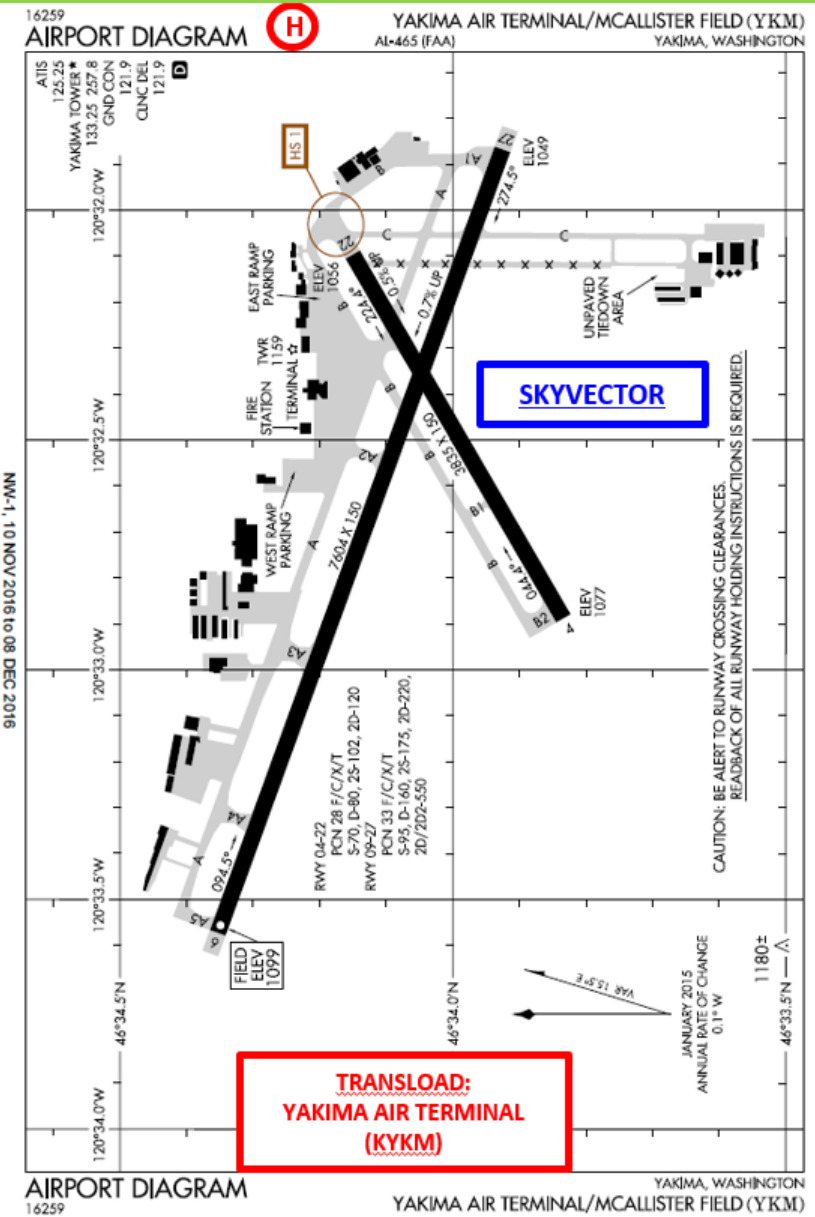


# YAKIMA, WA Area Distances to Hospitals





# YAKIMA, WA Area Transload Airport Information



NW-1, 10 NOV 2016 to 08 DEC 2016

NW-1, 10 NOV 2016 to 08 DEC 2016

# YAKIMA, WA Area of Operations

## MEDICAL COURSES OF ACTIONS (COA) (1)

### COA 1

#### **Life, Limb or Eyesight**

- Stabilize on site or in air using A/C as primary CASEVAC asset.
- A/C Transports to **AIRLIFT NORTHWEST** at **YAKIMA REGIONAL** or **YAKIMA MEMORIAL**
- Coordinate transload and trauma alert. Be sure to inform **YAKIMA REGIONAL (509) 575-5064** or **YAKIMA MEMORIAL (509) 575-8100** # of patients.

### COA 2

#### **Life, Limb, or Eyesight**

- Stabilize on site or in air using A/C as primary CASEVAC asset.
- A/C Transports to **YAKIMA AIRPORT** to conduct transload with local EMS **AIRLIFT NORTHWEST** at **(800) 426-2430**
- Contact **YAKIMA AIRPORT ATC** for transload coordination

### COA 3

#### **Life, Limb, or Eyesight**

- Stabilize at point of injury.
- Contact EMS **AIRLIFT NORTHWEST** at **(800) 426-2430**

# YAKIMA, WA Area of Operations

## MEDICAL COURSES OF ACTIONS (COA) (2)

### Catastrophic Accident

- Notify fire and rescue via landline, cell phone, or ATC
- Insert any medical ASAP to start triage and casualty treatment.
- Utilize remaining A/C for CASEVAC to XLD sites or MTFs if situation allows.
- If life threatening injuries are suspected contact **AIRLIFT NORTHWEST @ (206) 521-1599** to alert/launch assets as situation dictates.

### COA 4:

#### **Routine/ Non-Emergency**

- Assess and stabilizes patient.
- Make evacuation determination taking account of mission factors and injuries.
- Injuries/Illness requiring higher medical attention will be brought back and transported by appropriate ground transportation to **YAKIMA REGIONAL** or **YAKIMA MEMORIAL**
- Injuries not requiring higher care will be reassessed on scene and COA adjusted to any changes in status.
- In the event of a routine injury becoming a threat to life, limb or eyesight COA 1, 2, or 3 will be implemented.

**\*\*ALWAYS CALL 911 AND ACTIVATE EMS \*\***



## YAKIMA, WA Area Hospital Contact Information

### MEDICAL FACILITIES:

#### YAKIMA REGIONAL: Level III (EVEN DAYS)

110 South 9th Avenue

Yakima, WA 98902

ER Phone : (509) 575-5064

ER Frequency: FM 155.340

Security Office: (509)454-6161

#### YAKIMA MEMORIAL Level III (ODD DAYS)

2811 Tieton Drive

Yakima, WA 98902

ER Phone: (509)575-8100

ER Frequency: FM 155.340

### AIR AMBULANCE:

#### AIRLIFT NORTHWEST

(800) 426-2430

Located at **SEATTLE & OLYMPIA**

(1) A-109 (Seattle) or EC-135 (Olympia)

(2) 1 Patient unless coordinated in advance

#### 62<sup>nd</sup> MEDEVAC DUSTOFF (US ARMY)

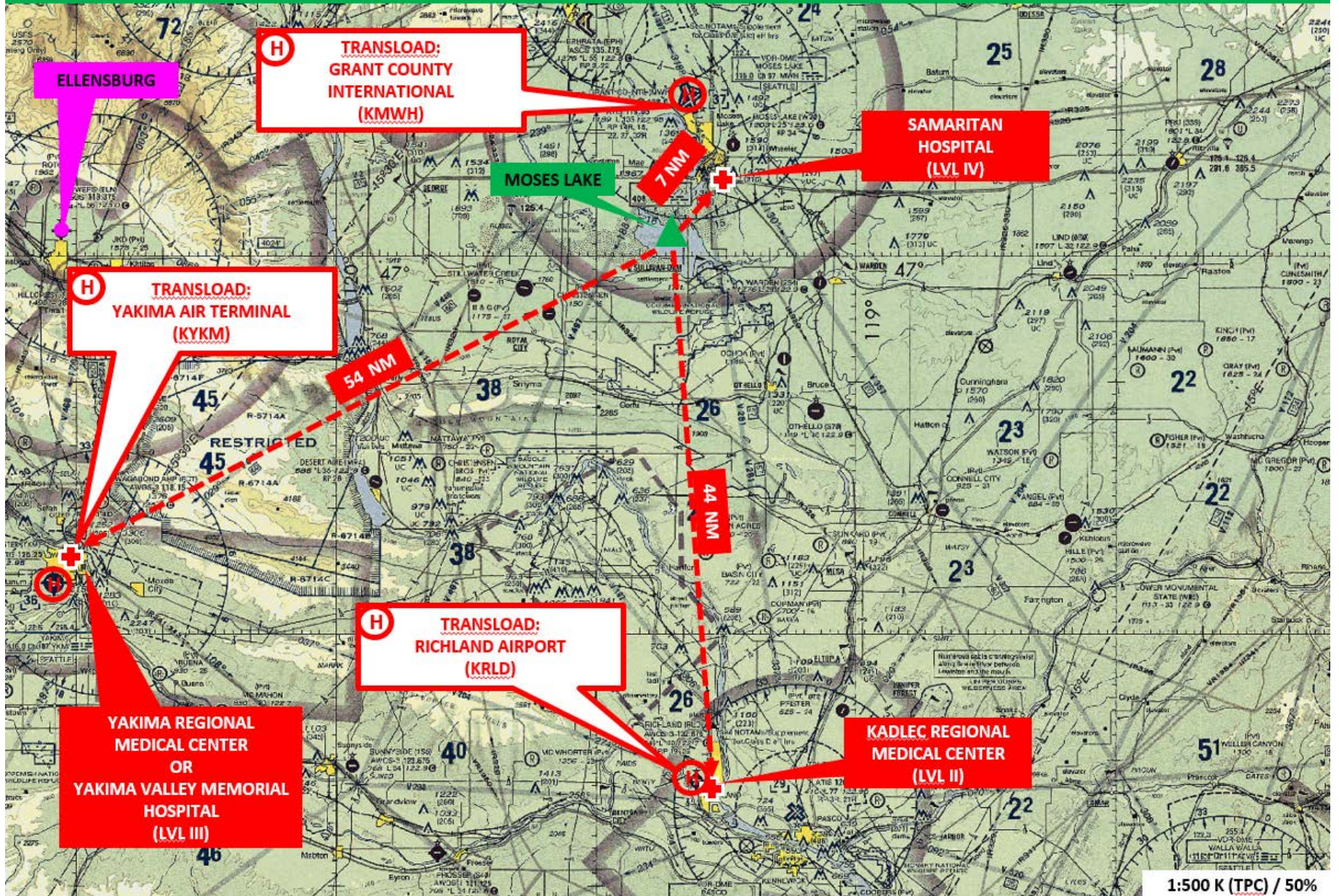
(509) 577-3495

(1) UH-60

(2) 1 Patient unless coordinated in advance

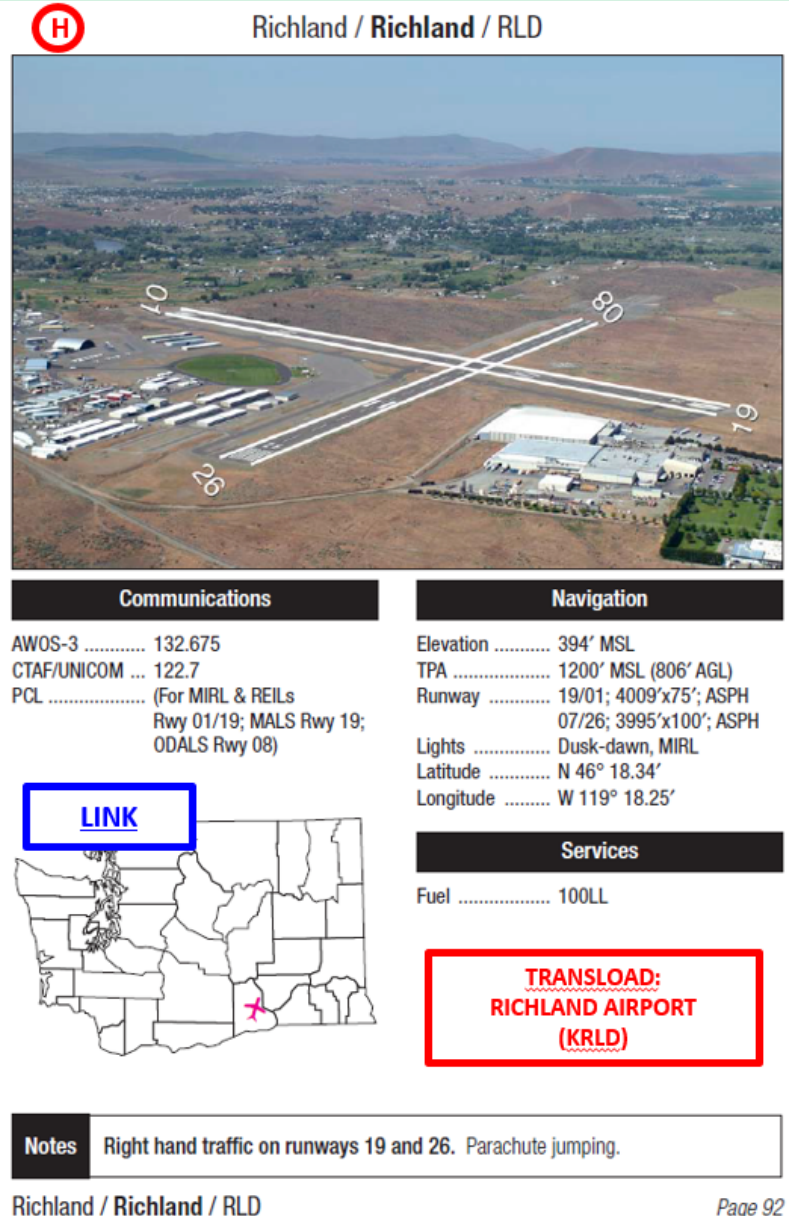
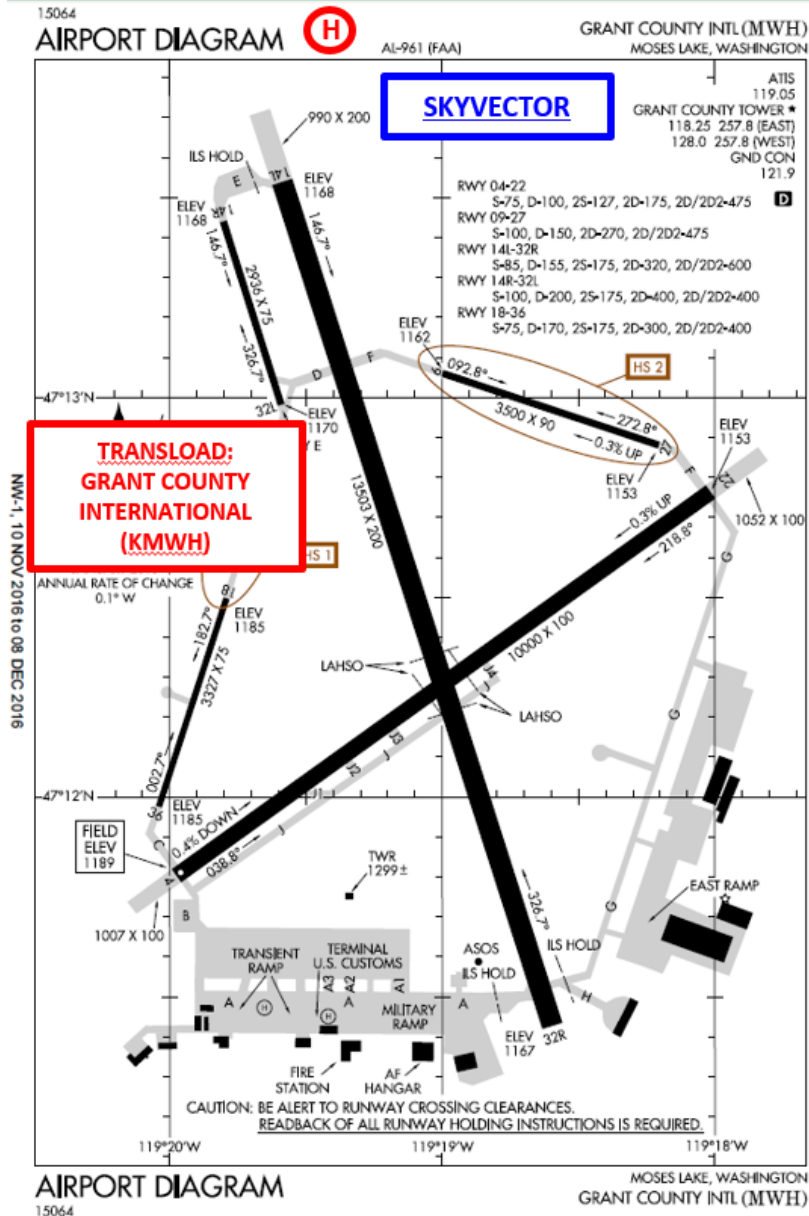


# MOSES LAKE, WA Area Distances to Hospitals

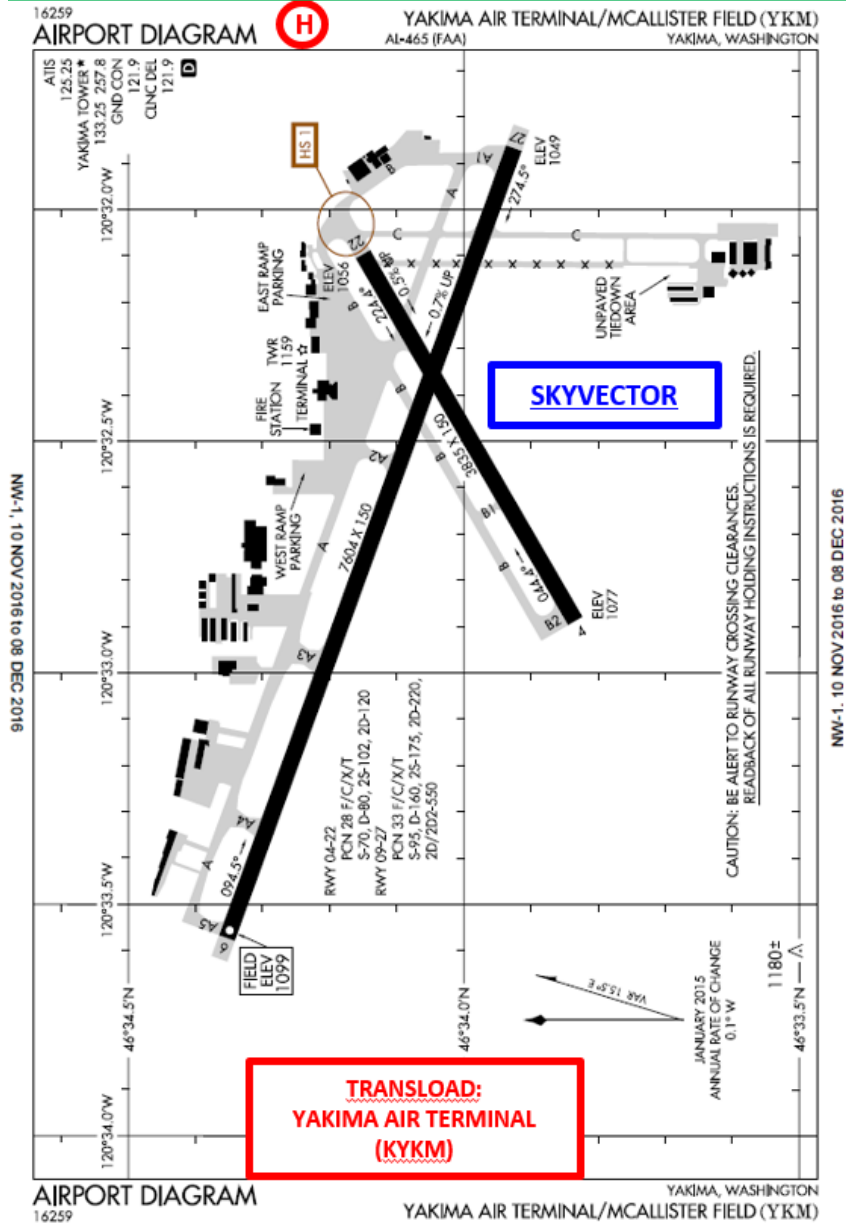




# MOSES LAKE, WA Area Transload Airport Information



# MOSES LAKE, WA Area Transload Airport Information



# MOSES LAKE, WA Area of Operations

## MEDICAL COURSES OF ACTIONS (COA) (1)

### COA 1

#### **Life, Limb or Eyesight**

- Stabilize on site or in air using mission A/C as primary CASEVAC asset.
- A/C Transports to **MEDSTAR** at **KADLEC REGIONAL**
- Contact **Richland Fire/EMS** on **154.340 VHF** or **(509) 942-7554** to coordinate transload and trauma alert. Be sure to inform **KADLEC REGIONAL (509) 942 2159** # of patients.

### COA 2

#### **Life, Limb, or Eyesight**

- Stabilize on site or in air using A/C as primary CASEVAC asset.
- A/C Transports to **KMWH** to conduct transload with local EMS **Moses Lake Fire/EMS (509) 765-2204** or **MEDSTAR** at **(800) 422-2440**
- Contact **KMWH ATC** for transload coordination **(509) 762-1367**.

### COA 3

#### **Life, Limb, or Eyesight**

- Stabilize at point of injury.
- Contact EMS **Moses Lake Fire/EMS (509) 765-2204**, **MEDSTAR (800) 422-2400 UHF 154.340**

# MOSES LAKE, WA Area of Operations

## MEDICAL COURSES OF ACTIONS (COA) (2)

### Catastrophic Accident

- Notify fire and rescue via landline, cell phone, or ATC
- Insert any medical ASAP to start triage and casualty treatment.
- Utilize remaining A/C for CASEVAC to XLD sites or MTFs if situation allows.
- If life threatening injuries are suspected contact **MEDSTAR @ (800) 422-2440** to alert/launch assets as situation dictates.

### COA 4:

#### **Routine/ Non-Emergency**

- Assess and stabilizes patient.
- Make evacuation determination taking account of mission factors and injuries.
- Injuries/Illness requiring higher medical attention will be brought back and transported by appropriate ground transportation to **SAMARITAN**
- Injuries not requiring higher care will be reassessed on scene and COA adjusted to any changes in status.
- In the event of a routine injury becoming a threat to life, limb or eyesight COA 1, 2, or 3 will be implemented.

**\*\*ALWAYS CALL 911 AND ACTIVATE EMS \*\***

# MOSES LAKE, WA Area Hospital Contact Information

## MEDICAL FACILITIES:

### **SAMARITAN HOSPITAL (PRIMARY)**

801 E. Wheeler Rd.

Moses Lake, WA 98837

Hospital Information: (509) 765-5606

ER Phone: (509) 793-9730

### **KADLEC REGIONAL (ALTERNATE)**

888 Swift Boulevard

Richland, WA 99352

Hospital Information: (509) 727-1060

ER Phone: (509) 942-2159

## AIR AMBULANCE:

### **MEDSTAR**

(800) 422 2440

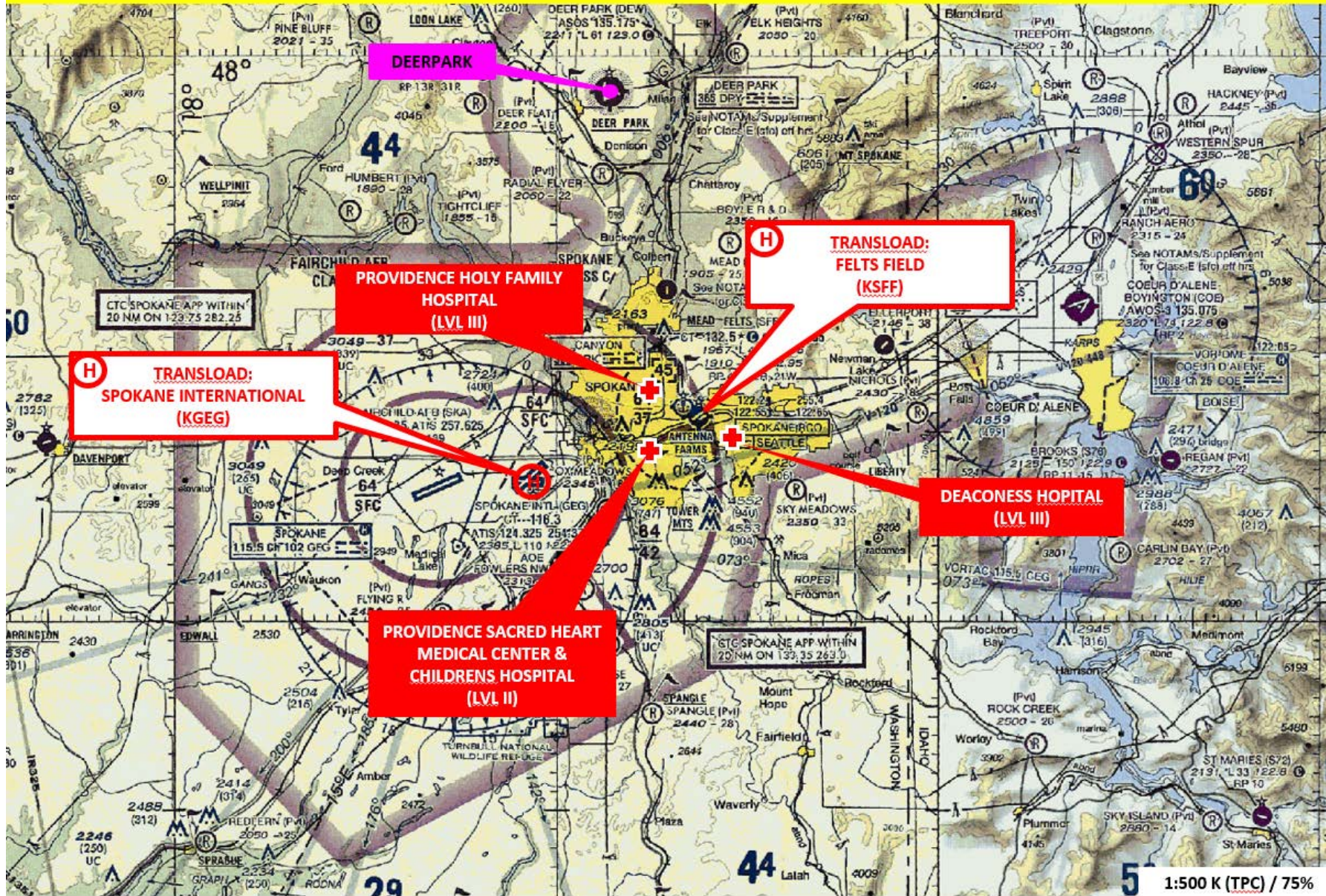
Located at TRICITIES Airport

(1) EC-145

(2) 1 Patient unless coordinated in advance

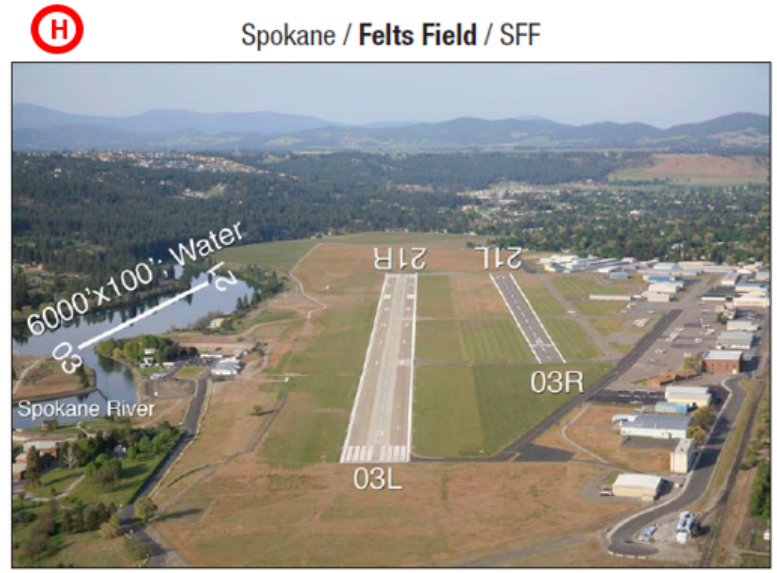
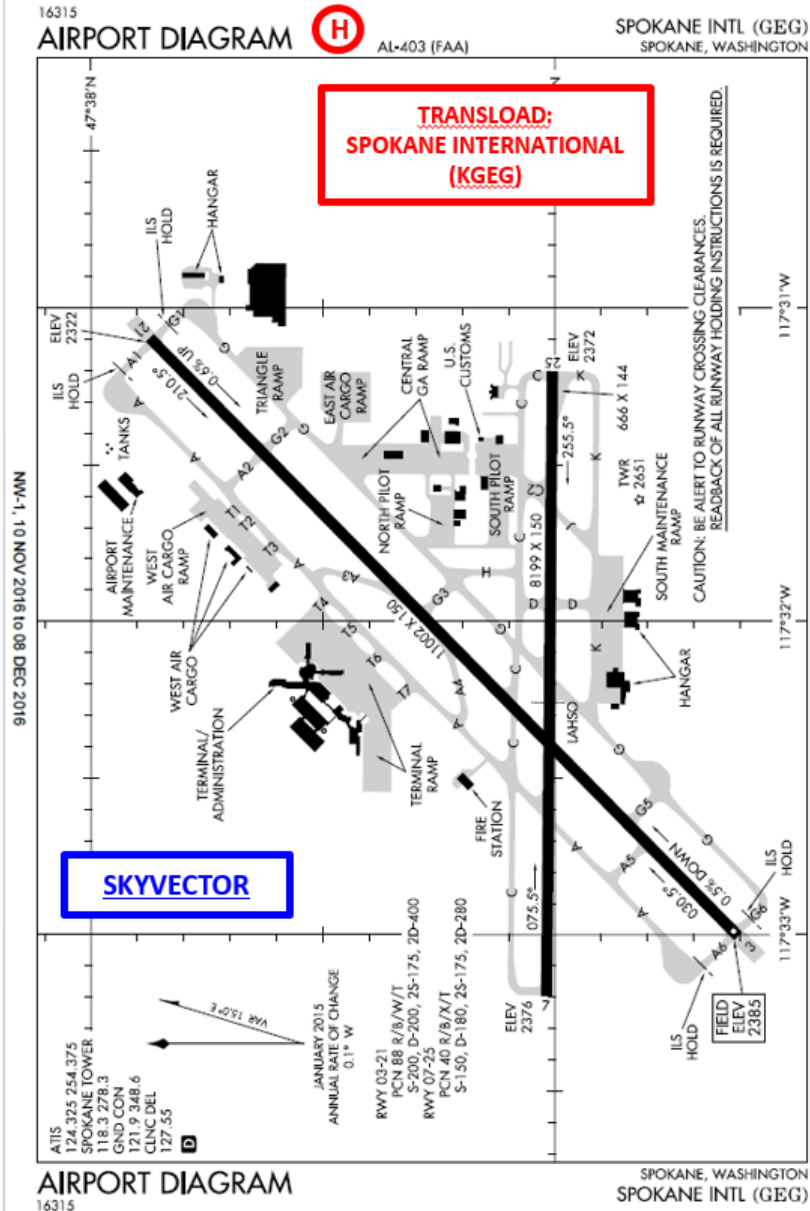


# SPOKANE, WA Area Distances to Hospitals





# SPOKANE, WA Area Transload Airport Information



Communications	Navigation
ATIS ..... 120.55	Elevation ..... 1953' MSL
TWR ..... 132.5	TPA ..... 3L/21R 3000' MSL (1047' AGL); 3R/21L 2753' MSL (800' AGL);
GND ..... 121.7	Runway ..... 03L/21R; 4500'x150'; CONC 03R/21L; 3059'x75'; ASPH 03W/21W; 6000'x100'; Water
CTAF ..... 132.5	Lights ..... Dusk-dawn, MIRL
UNICOM ..... 122.95	Latitude ..... N 47° 40.97'
PCL ..... CTAF (For MALS Rwy 21R when twr is closed)	Longitude ..... W 117° 19.35'
<p><b>LINK</b></p>	
<p><b>TRANSLOAD: FELTS FIELD (KSFF)</b></p>	

**Notes** Right hand traffic on runways 03R, 21R, and 21W. Dspld. thrd. Rwy 03R - 415' - 2644' avail. Seaplane operations advisory service only. Area not visible from tower. Seaplane dock on river. Tower operation 0600-2000 local time.

# SPOKANE, WA Area of Operations

## MEDICAL COURSES OF ACTIONS (COA) (1)

### COA 1

#### **Life, Limb or Eyesight**

- Stabilize on site or in air using mission A/C as primary CASEVAC asset.
- A/C Transports to **MEDSTAR** at **FELTS FIELD**
- Contact **FELTS FIELD TOWER** on **132.500 VHF** or **(509) 535-2946**, **MEDSTAR** on **154.160 VHF** or **(509) 532-7990** to coordinate transload and trauma alert. Be sure to inform **SACRED HEART (509) 474-3344** # of patients.

### COA 2

#### **Life, Limb, or Eyesight**

- Stabilize on site or in air using A/C as primary CASEVAC asset.
- A/C Transports to **FELTS FIELD** to conduct transload with local.
- Contact **FELTS FIELD ATC** for transload coordination.

### COA 3

#### **Life, Limb, or Eyesight**

- Stabilize at point of injury.
- Contact EMS **AMR (509) 323-8825**, **MEDSTAR (800) 422-2400 UHF 154.160**

# SPOKANE, WA Area of Operations

## MEDICAL COURSES OF ACTIONS (COA) (2)

### Catastrophic Accident

- Notify fire and rescue via landline, cell phone, or ATC
- Insert any medical ASAP to start triage and casualty treatment.
- Utilize remaining A/C for CASEVAC to XLD sites or MTFs if situation allows.
- If life threatening injuries are suspected contact **MEDSTAR** at **(800) 422-2440** to alert/launch assets as situation dictates.

### COA 4:

#### Routine/ Non-Emergency

- Assess and stabilizes patient.
- Make evacuation determination taking account of mission factors and injuries.
- Injuries/Illness requiring higher medical attention will be brought back and transported by appropriate ground transportation to **SACRED HEART**
- Injuries not requiring higher care will be reassessed on scene and COA adjusted to any changes in status.
- In the event of a routine injury becoming a threat to life, limb or eyesight COA 1, 2, or 3 will be implemented.

**\*\*ALWAYS CALL 911 AND ACTIVATE EMS \*\***

# SPOKANE, WA Area Hospital Contact Information

## MEDICAL FACILITIES:

### **SACRED HEART (PRIMARY)**

101 W 8th AVE.

Spokane, WA 99011

Hospital Information: (509) 474-3131

ER Phone: (509) 474-3344

### **DEACONESS (SECONDARY)**

800 W 5<sup>th</sup> Avenue

Spokane, WA 99204

Hospital Information: (509) 458-5800

ER Phone: (509) 473-7100

### **HOLY FAMILY HOSPITAL (TERTIARY)**

5633 North Lidgerwood Street

Spokane, WA 99204

Hospital Information: (509) 482-0111

ER Phone: (509) 483-2460

## AIR AMBULANCE:

### **MEDSTAR**

(800) 422-2440

Located at FELTS FIELD Airport

(1) EC-145

(2) 1 Patient unless coordinated in advance