

# Northwest Montana Aviation Zone

Flathead National Forest  
Kootenai National Forest  
Montana DNRC Northwest Lands Office  
Glacier National Park

## FLIGHT CREW BRIEFING 2019

Version 3 July 2019



### I. INTRODUCTION

Welcome to the Northwest Montana aviation zone. This document is intended to provide an initial overview for pilots and aircrews to the area, which includes the Kootenai and Flathead National Forests, the Northwest Lands Office of the Montana DNRC, and Glacier National Park. Aircraft are often shared across these unit boundaries and may respond to incidents anywhere within the entire zone.

This document is intended as an introduction for firefighting aircraft. Additional questions can be answered by local fire and aviation managers; a contact list is included. This briefing is intended for fire response. Search and rescue procedures are not addressed herein; if an aircraft is requested for a SAR in Glacier National Park or elsewhere in the zone, pilots and aircrews will receive a thorough briefing tailored to the incident.

### II. ZONE ORIENTATION

The Northwest Montana aviation zone covers nearly five million acres, encompassing two national forests, a national park, and state protected lands.

The area is supported by two centralized dispatching offices: The Kootenai Interagency Dispatch center (KDC) for the Kootenai National Forest and the Libby Unit of the DNRC, and the Kalispell Interagency Dispatch center (KIC) for the Flathead National Forest and the Kalispell, Stillwater and Swan Units of the DNRC. KIC also provides dispatching and flight following for firefighting aircraft operating in Glacier National Park.

The DNRC and the Kootenai and Flathead National Forests host exclusive use helitack programs. A Type 3 helicopter and 10 person module is hosted on the Flathead National Forest and a Type 2 rappel helicopter and 16-person module is hosted on the Kootenai National Forest during the fire season. The Kootenai hosts a Type 1 Exclusive Use helicopter based at Libby. The Montana DNRC has a Type 2 helicopter and crew based at Kalispell City Airport.

Each forest also has one or more CWN fixed wing contracts for reconnaissance/air attack; these aircraft are often shared between the forests. The DNRC has a fixed wing aerial detection platform based at Kalispell City Airport.

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### III. KEY CONTACTS

#### Kootenai National Forest

PHONE NUMBERS			
POSITION	NAME	WORK	CELL
FOREST FIRE MANAGEMENT OFFICER	Dan Rose	406-283-7742	406-291-0489
FOREST AVIATION OFFICER	Deborah Lampton	406-283-7729	406-291-2848
KIDC CENTER MANAGER	Jamey Graham	406-283-7777	
ASSISTANT CENTER MANAGER	Liz Figgins	406-283-7733	
KOOTENAI INTERAGENCY DISPATCH	Main Line: 406-283-7740 After Hours Phone: 406-334-0239		
LIBBY HELIBASE		406-283-7865	
HELITACK SUPERVISOR	Tom Rawlings	406-283-7873	406-261-1673
HELITACK ASST MANAGER	Teagen Blaz	406-283-7868	406-250-1247
HELITACK ASST MANAGER	Stacia Marks	406-283-7867	509-954-7711

#### Flathead National Forest

PHONE NUMBERS*			
POSITION	NAME	WORK	CELL
FOREST FIRE MANAGEMENT OFFICER	Rick Connell	406-758-5621	406-250-5230
FOREST AVIATION OFFICER	Deborah Lampton	406-283-7729	406-291-2848
KIC CENTER MANAGER	Mike Gibbons	406-758-6486	
ASSISTANT CENTER MANAGER	Sarah Whetzel	406-758-5330	
KIC Aircraft Dispatcher	Ivy Gehling	406-758-6486	
KALISPELL INTERAGENCY DISPATCH	Main Line: 406-758-5260 After Hours Phone: 406-871-3894		
HUNGRY HORSE HELIBASE		406-387-3864	
HELITACK SUPERVISOR	Lynn Emerick	406-387-3864	406-291-2847
HELITACK ASST. MANAGER	Darren Borgen	406-387-3864	406-250-8280

**Montana DNRC, Northwestern Land Office**

<b>PHONE NUMBERS</b>			
<b>POSITION</b>	<b>NAME</b>	<b>WORK</b>	<b>CELL</b>
AREA FIRE MANAGEMENT OFFICER	Jesse Best	406-751-2243	406-212-4822
AREA ASSISTANT FIRE MANAGEMENT OFFICER / AVIATION OFFICER	Jesse Best	406-751-2243	406-212-4822
AVIATION OPERATIO S SPECIALIST	Kevin Devine	406-755-3328	406-212-5839
NWLO AIR BASE		406-755-3328	
NWLO OFFICE		406-751-2240	

**Glacier National Park**

<b>PHONE NUMBERS</b>			
<b>POSITION</b>	<b>NAME</b>	<b>WORK</b>	<b>CELL</b>
FIRE MANAGEMENT OFFICER/AVIATION MGR	Jeremy Harker	406-888-7812	406-240-7541
WILDLAND FIRE OPS SPECIALIST	Eric Morgan	406-888-7811	208-290-6020
PARK DISPATCH		406-888-7801	
SUPERVISORY DISPATCHER	Holly Riffe	406-888-7804	
FIRE DUTY OFFICER			406-250-0029

## IV. AIR SAFETY

### GENERAL

Air safety is a high priority for the zone. Unsafe procedures or equipment will not be tolerated. Safe air operations require a joint effort by everyone involved. The pilot has the ultimate authority to refuse or curtail a mission due to safety concerns. It is the responsibility of every air crewmember to report unsafe acts or conditions. Every effort will be made to remedy the situation promptly.

### HAZARDOUS FLYING CONDITIONS

Mountain flying in the heat of summertime can be hazardous. Aviation operations occasionally need to be shut down due to winds, turbulence, downdrafts, and other weather conditions. Pilots are usually the first to become aware of these types of conditions. Aircrew members should not hesitate to recommend the cessation of operations until conditions improve.

The Northwest Montana aviation zone has a flight hazard map, copies of which are available at the DNRC helibase at Kalispell City Airport, Hungry Horse Helibase and Libby Helibase. Copies are available for viewing at each of the Interagency Dispatch offices and Park and DNRC offices, as well as electronically. This map should be reviewed prior to any mission in the zone. See Appendix A for a copy of the Flight Hazard Map. For general information, the major flight hazards on the zone are:

1. **MOUNTAIN FLYING** – Flying conditions in mountainous areas can be hazardous. Clear, calm weather can change or deteriorate rapidly. Fixed wing landing at backcountry airstrips will be limited to early morning and late afternoon when temperatures are lower and winds are light. All aircraft should avoid flying through squall lines when possible and be alert for sudden down drafts and wind shears.
2. **WIRES, POWER LINES AND LIFT OPERATED SKI AREAS** – The river canyons contain many wires, cables and power lines. Major power transmission lines free span across small canyons. There are three ski areas in the zone—Whitefish Resort (Big Mountain), Blacktail and Turner Mountain—all have overhead lines typical for lift operated ski runs. Big Mountain operates a summer season zip line tour; cables run as high as 300 feet off the ground.
3. **CANADIAN BORDER** – Any aircraft operating within 10 miles either side of the Canadian border is subject to increased scrutiny due to security issues and may be subject to flight interception and law enforcement actions if proper protocols are not followed. Aircraft engaged in fire suppression actions need to be transmitting the proper transponder code at all times.

If you need to be working adjacent to the border, let Dispatch know your location and expected duration of time in that area. Dispatchers will contact the Department of Homeland Security, Customs and Border Protection, Air/Marine Operations Center (1-800-553-9072, request North Ops) and relay aircraft type, color scheme, aircraft registration number, transponder code and expected duration of the flight. Only one call needs to be made for an operational period, even if multiple entries are made.

NAVCANADA has established 126.7 as the Air to Air frequency to be monitored. Recommend that this frequency is monitored by all flights on each side of the International Border for safety reasons and used to “call in the blind” when operating within the Threat Zone.

Special authorizations must be given to aircraft that cross the border and land on the Canadian side. Any unauthorized landings made on the Canadian side will subject the pilot to an investigation and possible legal actions that could include fines, incarceration or suspension of pilot’s license.

4. **OTHER AIRCRAFT** – General aviation backcountry air traffic is increasing yearly. Other government agencies use aviation resources for aerial reconnaissance and survey work, personnel transport and search and rescue missions. Utility companies in the area occasionally utilize aircraft for power line inspections. Aircraft come from all over the country and may not be familiar with the area. Pilots should announce locations in the blind, on Unicom 122.9, when flying into or out of the backcountry and maintain a high awareness of the potential for other aircraft.

Besides the ALERT air ambulance that operates in the area. The Flathead County Sheriff’s Office operates a Bell 429 as a search and rescue/law enforcement platform. This aircraft is owned by Two Bear Aviation, but is operated as a Public Use by the Flathead County Sheriff’s Office. This aircraft is dispatched through the county sheriff’s office and utilizes the call sign “Air 1”. The Bell 429 (Air One) helicopter has night vision and hoist capability.

5. **LIBBY AMPHIBOLE FIRE SUPPRESSION RESTRICTED ZONE (OU3)** – Located approximately 7 air miles northeast of Libby is the former vermiculite mining and processing operations site of the Zonolite Mine. The mine ceased operations in 1992; prior to that the mine processed asbestos contaminated vermiculite. Within the restricted zone (identified on Flight Hazard maps), only initial attack ground resources trained and outfitted for operating in this zone will be assigned. The pond at the mine is not to be used as a water bucket/snorkel dip site. Specific procedures for taking action in this area will be coordinated through and directed by Kootenai Interagency Dispatch Center (KDC). See Appendix B for more information.
6. **MILITARY LOW LEVEL TRAINING ROUTES** –There are currently no Military Training Routes, Military Operations Areas or Special Use Areas located on the zone.
7. **GLACIER NATIONAL PARK AIR TOURS** – Sightseeing helicopter tours may operate within Glacier National Park during the summer season. Pilots should be alert to the possibility of tour aircraft anywhere in the park. Both fixed wing and rotor wing tour aircraft may be using the airspace above the park. The tour companies operate on the 122.9 frequency.

## V. LANDING AREAS

The Kalispell City airport is attended during daylight hours. The Montana DNRC airbase is located on the edge of Class D airspace (Glacier Park International Airport). Glacier Park International airport is staffed with a tower. Aircraft entering Glacier Park International airspace must contact GPI Tower before entering at 5 NM (TWR- 124.55, ATIS- 121.6, GRND-121.6).

The Libby airport is unattended; fixed wing aircraft landing there should fly the standard left hand pattern, announcing downwind, base, and final on Unicom Frequency 122.8. Rotor-wing aircraft should announce intentions on 122.8, and make a straight in approach to their destination. The Libby rifle range is located east-northeast of the Libby Airport, directly across the Farm to Market Road. Helicopter traffic around the airport needs to avoid low-level approaches/departures in proximity to the range.

Helicopters landing at Hungry Horse Helibase should communicate with the helibase on Flathead primary air to ground to receive parking information. There are numerous suitable landing areas for rotor wing aircraft throughout the zone. Pilots landing off-site at temporary helibases or helispots should contact ground personnel and/or Dispatch for instruction.

The Flathead National Forest has several backcountry airstrips. Pilots must be approved for remote landings to operate from these airstrips. In some cases there are restrictions on the numbers of landings permitted per year on these airfields. Pilots will be provided all necessary information prior to missions involving these airstrips.

Landing within Glacier National Park requires permission from park managers. Pilots should communicate with Dispatch prior to any missions within the Park.

Landings within any of the designated wilderness areas in the zone must be reported. Slingloads are considered landings.

There are no designated jettison areas for water and retardant; pilots should attempt to avoid waterways and populated areas if possible in a jettison situation.

Until August 15, aircraft must be parked no later than ½ hour after sunset. From August 15 until the end of the year, all aircraft should plan to cease tactical operations by sunset. The ½ hour after sunset may be used for ferry purposes. This is due to reduced daylight conditions for that time of year at coupled with terrain features that affect visibility. However, pilots have the authority to cease any flight operations at any time if visibility is hampered for any reason, including low light.

See Appendix D for local airfields and Appendix E for a list of common landing areas within the zone.

## **VI. MAINTENANCE/SERVICING**

All scheduled aircraft maintenance, including 50 to 100 hour inspections, needs to be coordinated with Dispatch or the Helibase Manager of the incident on which the aircraft is assigned. Please inform Dispatch, the Unit Aviation Officer, Helibase Manager, or the local Helitack Manager of upcoming maintenance well in advance so arrangements can be made to facilitate the needs of ongoing incidents and IA. All aircraft should be serviced after each flight and made ready for the next assignment; this includes fueling.

## **VII. FLIGHT-DUTY TIME**

Flight and duty time should be monitored closely by pilots and helicopter managers. Any issues should be reported to the Helitack Manager, Helibase Manager, or the Unit Aviation Officer.

## **VIII. ACCIDENT/INCIDENT REPORTS AND SAFECOMS**

The prompt reporting of accidents/incidents and other aviation hazards is critical in promoting aviation safety. Please report any incidents that have occurred while you are on the zone via a SAFECOM. This form can be submitted through the following website: <http://www.safecom.gov/>. Please make every effort to communicate with everyone involved in the incident prior to submitting the SAFECOM; this system is not meant to be punitive but instead to promote a learning culture.

Hard copies of this form are available through Dispatch, the Libby, Hungry Horse or DNRC Helibases or the Unit Aviation Officers.

Immediately report any accidents to Dispatch and the hosting Unit Aviation Officer.

## **IX. MEDICAL FACILITIES**

There are fully staffed hospitals at Libby, Kalispell and Whitefish, with ambulance service available and helipads. All aircraft medevacs are coordinated through the Interagency Dispatch Offices. Air medical transport is generally provided by air ambulances associated with the hospitals; however a firefighting helicopter may be used to transport an ambulatory patient to a waiting ambulance or a medical aircraft. A designated frequency (TAN) is used to communicate with the air ambulances. See Appendix F for a list of local medical facilities and air ambulances.

## **X. FLIGHT OPERATIONS**

### **ROLE OF THE DISPATCH CENTERS**

The primary mission of the Kootenai and Kalispell Interagency Dispatch Centers is to maintain prompt and accurate communications and to ensure the coordination of all incidents in the zone.

The Dispatch staff coordinates all aircraft use on the Kootenai and Flathead National Forests and the DNRC—NW MT Land Office. The Dispatch Centers also often support adjoining forests and neighboring regions with aircraft. They also flight follow firefighting aircraft on state



protected lands and within Glacier National Park. It may be necessary to relay through the Glacier Park Dispatch to Kalispell Interagency Dispatch in certain areas of the park; pilots should program the Parkwide frequencies and understand how they are used.

The ultimate goal of each Dispatch Office is efficient utilization of aircraft with safety being the highest priority.

## **FLIGHT FOLLOWING PROCEDURES**

Current federal contracts require an onboard, functioning Automated Flight Following (AFF) unit installed on the aircraft. If the system fails on an aircraft, flight may continue utilizing 15-minute radio check-ins for flight following. If AFF is not working due to a satellite issue or flight obstacles, aircraft may continue working provided radio communications are in place. If radio communications are used in the absence of AFF, a flight crew member must notify Dispatch of each landing and takeoff and give position reports every 15 minutes in flight. Position reports will include: location (either geographic or latitude and longitude), heading and any mission changes. Coordinates will be reported in degrees, minutes and tenths (decimal minutes: DDD.MM.M). If aircrew members are not able to contact Dispatch or another resource to report their position (such as a lookout), the aircraft should return to base. If an aircraft utilizing 15 minute radio check-ins for flight following crosses dispatch boundaries, the originating dispatch will coordinate with affected dispatch offices and ensure that the means of flight following has been conveyed.

Initial reports at takeoff will include number of personnel on board, destination, approximate time in route and fuel on board reported as useable hours.

The following procedures will apply for all missions:

- ✓ Upon departure, request that Dispatch confirm AFF is activated and receive confirmation that AFF is working.
- ✓ Dispatch will monitor AFF at least every fifteen minutes to ensure the system is properly tracking and to document that flight following procedures are being followed. If mission changes from last report to Dispatch, inform Dispatch of new tactical objective (i.e. respond to new fire start).
- ✓ AFF will be the primary method of aircraft tracking when available; dispatch will track aircraft location every 15 minutes and document that flight following procedures are being followed.

The use of Automated Flight Following does not substitute for the ability to navigate, know your location at all times and competently operate the on board radio system.

See Appendix G for a list of zone frequencies and repeater locations.

## **RADIO TRAFFIC PROCEDURES**

At all times, the following priorities are in effect:

1. **LIFE AND DEATH**
2. **AIRCRAFT**
3. **NEW FIRE REPORTS**
4. **ON-GOING FIRES**
5. **WEATHER REPORTS**
6. **ADMINISTRATIVE**

The Incident Commander assigned to a developing fire is responsible for frequency management on that incident. The Incident Commander will ensure frequency coordination with the appropriate Dispatch Center.

The IC will coordinate air/ground frequencies with the Air Tactical Group Supervisor or lead plane over the incident. Normally, this will be on the established air-to-ground frequency.

All air-to-air communication will be on a VHF frequency assigned by dispatch. If the operation requires a Temporary Air Space Restriction (TFR - FAR part 91.137), KDC/KIC will assign a discrete VHF frequency for the incident. When a discrete frequency is assigned, the Air Tactical Group Supervisor will switch all aircraft on the incident to that frequency.

The pilot of the Air Tactical Aircraft will ALWAYS monitor 122.900 for other, non-incident aircraft in the vicinity.

All aircraft dispatched to an incident will also monitor the appropriate FM frequency. At this time, KDC does not have the capability to monitor VHF frequencies. KIC is able to transmit and receive on VHF.

## **WATER SOURCES/DIP SITES**

There are numerous lakes, rivers, reservoirs, ponds and streams available to serve as a dip site for bucket/snorkel/scooper operations. Before use of a water source, pilots should contact Dispatch to ensure its ownership, especially after an incident is no longer within the initial attack operational period.

When working in the Bob Marshall Wilderness, water should not be transported from one side of the Continental Divide to the other. In addition, permission must be granted prior to dipping from wilderness lakes. Pilots and managers must also keep track of gallons extracted from lakes in any of the designated wilderness areas in the zone, and from private sources as well.

The Flower Creek Reservoir on the Kootenai NF cannot be used as a water source as it is the municipal water supply for Libby.

Permission must also be requested to dip from water sources in Glacier National Park.

## **AQUATIC INVASIVE SPECIES PREVENTION**

Some water sources may contain aquatic invasive species. Known locations are the Noxon Reservoir, Savage Lake, and the Cabinet Gorge Reservoir, all on the Kootenai, and Beaver Lake on the Flathead. Water from these sources should be avoided if possible. At a minimum, aviation operations will follow the direction contained in the *NWCG Guide to Preventing Aquatic Invasive Species Transport by Wildland Fire Operations, Chapter 5 Aviation Operations*. Operations within GNP will require that buckets/snorkels/tanks are treated to those standards after use anywhere and prior to any water delivery actions within the park. Incoming aviation crews will be asked to treat their equipment prior to operations within the zone if documentation, signed by an agency or cooperator Helicopter Manager, indicating that equipment has been treated since the last use cannot be provided. High pressure, hot water treatment equipment is located at the DNRC Helibase at Kalispell City Airport, the Hungry Horse Helibase and the Libby Helibase at the Libby Airport.

## **CRASH RESCUE PROCEDURES**

Incoming aviation resources should familiarize themselves with the local Aviation Mishap Response Guide and Checklist. This document is available at the Kootenai and Kalispell Dispatch centers, the DNRC helibase, the Park Dispatch office, and at the Libby and Hungry Horse Helibases. This checklist outlines emergency actions, procedures in the event of missing or overdue aircraft, and contains emergency contact information for each Forest, the Montana DNRC, and Glacier National Park. Checklists to be used in the event of an aircraft accident, and helicopter ambulance request forms, are included.

Response to aircraft mishaps will differ depending on the location of the incident. Established helibases have crash rescue procedures in place. Glacier Park International Airport has a fire department on scene. In most instances, a 911 call would be the quickest method to activate emergency services; Dispatch should also be informed as soon as possible via radio or phone. In the field where phone service is not available, a radio call to Dispatch will activate the proper response. Mishaps must also be reported to 1-888-464-7427 (1-800-MISHAP).

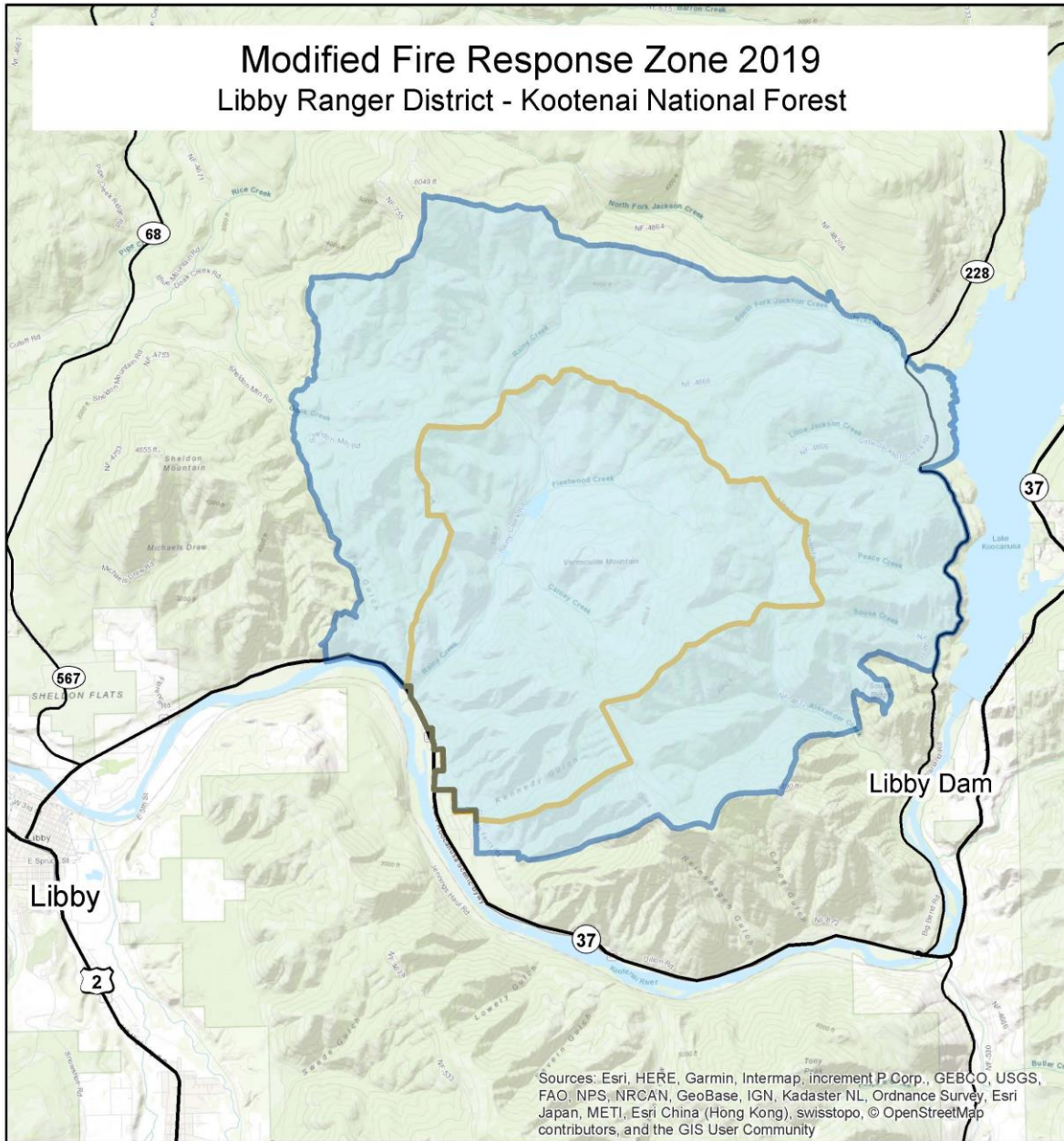
## **APPENDIX A. FLIGHT HAZARD MAPS and OU3 Map**

For the most recent hazard map of the NW Montana zone—please reference the QR code link to access a georeferenced version. The following page includes a representation of the hazard map but is not intended to be used for navigation purposes. Wall maps may be printed to facilitate pilot and aircrew inbriefs.



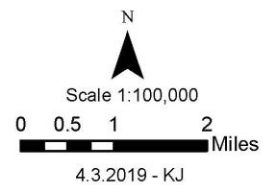
# Modified Fire Response Zone 2019

## Libby Ranger District - Kootenai National Forest



### Legend

- Modified Fire Response Zone (27,967 Acres)
- EPA OU3 Boundary
- SecondaryHighways
- MajorHighways



## **APPENDIX B. LIBBY SUPERFUND (OU3) FIRE SUPPRESSION AVIATION RESOURCE BRIEFING PAPER KOOTENAI NATIONAL FOREST**

**Background:** In 2009, the EPA issued a Public Health Emergency determination for the Libby Superfund Site. This is the first such determination in the history of the EPA. Since that time, the EPA has conducted assessments and cleanups on approximately 8000 private and commercial properties in and around Libby and Troy, Montana. In addition, Operable Unit 3 (OU3), the former Vermiculite mine and surrounding forested area where asbestos contaminated vermiculite was mined, has undergone a rigorous assessment that includes sampling of soil, tree bark, forest duff and air to understand the magnitude of forest contamination and determine the portions of the forest requiring remedial action (cleanup).

Subsequent to a site-wide human health risk assessment, the original OU3 boundary, included approximately 40,000 acres of forest and the former mine site, was reduced to an area of approximately 10,000 acres that is being evaluated for remedial actions. Due to the documented presence of higher levels of Libby Amphibole (LA) asbestos in duff and tree bark in this 10,000 acre area of forested lands, there is a potential risk to firefighters from exposure to asbestos-contaminated airborne dust and ash during wildfires. The USFS is taking extra precautions for employees performing ground disturbing activities in and around OU3 until further employee occupational health and safety data can be collected. See attached Modified Fire Response Zone map. Additionally, studies indicate that many activities (hiking, camping, ATV driving, etc.) conducted within OU3 and surrounding areas do not pose unacceptable risk from exposure to asbestos.

### **Key Points:**

- 1) The Forest Service has responsibility for wildfire suppression on lands in and around OU3 as part of the Montana fire protection exchange agreement with the MT DNRC. Fire records indicate less than one fire per year within the EPA's 10,000 acre OU3 boundary.
- 2) The highest levels of asbestos have been detected within two miles of the former Vermiculite mine. Levels beyond four miles from the mine have levels indistinguishable from naturally-occurring levels. Data indicate that exposure to low levels of asbestos for short durations (less than one month) is associated with less health risk than exposure for long durations (many years).
- 3) Investigations conducted of a small understory burn and combustion experiments in the laboratory have found that when asbestos-contaminated duff and bark are burned, *the majority of the asbestos remains in the ash*. Fire fighters may be exposed to the asbestos-containing ash during dust generating activities such as dry fire suppression in areas where higher levels of asbestos are located. Exposures are lower during wet suppression (wet mop-up) activities.
- 4) The Kootenai NF has established protocols and procedures for initial responses to wildfires in and around OU3 that include aviation resources and ground crews. Firefighters on the ground within and around OU3 are equipped with personal protective equipment including Powered Air Purifying Respirators (PAPRs) during firefighting activities.
- 5) To inform decisions regarding community public health during fires within OU3, Lincoln County, with assistance from the EPA, will establish station air samplers to determine the presence of asbestos in downgradient smoke. There may also be a monitor available for placement in a helicopter to measure air concentrations at higher elevations.

- 6) Wildfire response within the Libby Asbestos Superfund area will generate media and political interest.
- 7) The use of aviation resources to contain a wildfire will be the first response considered. Pilots utilized will be briefed on the issues regarding LA. Pilots always have the right, at any time, to refuse a mission.

**Mitigation Measures:**

- ✓ Avoid flying in the smoke for longer durations. If longer exposures to smoke from OU3 fires is unavoidable, report the conditions to the Air Tactical Group Supervisor or Dispatch and consider suspending the mission.
- ✓ Best management practices outlined below are recommended but not required to help reduce cross-contamination. The USFS can provide an appropriate vacuum and assist with proper disposal of spent cleaning materials and air filters. Coordinate through Dispatch and the Forest Aviation Officer.
  - Removal of visible dust from exterior surfaces utilizing a pressure washer or other means that will not damage the helicopter components
  - Replacing air filters before demobilizing the helicopter from the area
  - Vacuuming the interior of the helicopter using a vacuum equipped with a high-efficiency particulate air (HEPA) filter
  - Wet-wiping hard surfaces of the helicopter interior to remove visible dust
  - Bagging and properly disposing of spent cleaning materials and air filters
- ✓ Rainy Creek and the ponds at the mine site will NOT be used as water sources. Generally, Kootenai Reservoir is the preferred dip site. A dip site observer will be in place when no other ground resources are assigned.

**More Information:**

CARD—Center for Asbestos Related Diseases link

<http://www.libbyasbestos.org/>

Environmental Protection Agency:

Mike Cirian, EPA project manager, 406-293-6194

(EPA) Libby Superfund Site link:

<https://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0801744>

Version 18 June 2019



**APPENDIX C. Reserved**

## APPENDIX D. LOCAL AIRFIELDS AND FUEL

Prior to using any airfield, pilots should check latest flight publications, flight hazard maps, and NOTAMs to determine current status of airports and airstrips. Aircraft and pilots should not be scheduled into any remote airstrip unless they are familiar with the airstrip and prior approval has been made with the Forest.

Pilots should check with Dispatch for current weather and field conditions before scheduling flights to backcountry airstrips. If extensive use of private fields is anticipated, contact Dispatch or the Forest Aviation Officer, who in turn must contact field owner for approval.

Following is a list of airfields within and adjacent to the zone:

AIRFIELD	ELEVATION	LENGTH	LIGHTS	REMARKS
<b>Libby, MT (S59)</b> 48°17.03N 115°29.41W	2601	5000	Yes	<b>100 LL Av Gas and Jet A available. No fuel truck.</b> <b>FS Libby Helibase located on north ramp.</b> <b>FBO Phone # (406) 293-9776</b> <b>Helibase Phone # (406) 283-7863</b> <b>CTAF 122.8</b>
<b>Troy, MT (57S)</b> 48°28.8N 115°54.1W	2017	3570 large threshold displacement	No	<b>Fixed wing operations should be restricted to Single engine, fixed gear aircraft due to rough nature of runway surface with loose gravel.</b> <b>No fuel/services</b> <b>CTAF 122.9</b>
<b>Eureka, MT (88M)</b> 48°58.13N 115°04.23W	2668	4200	Yes	<b>Limited 100LL AV Gas service,</b> <b>Unapproved taxi way to North end of runway. FBO phone (406) 296-2984</b> <b>CTAF 122.9</b>
<b>Thompson Falls, MT (THM)</b> 47°34.50N 115°17.06W	2460	4200	Yes	<b>Wire 7 mi. east; Wire 2 mi. west.</b> <b>CTAF 122.9</b>
<b>Kalispell City (S27)</b> Kalispell, MT 48°10.71N 114°18.22W	2932	3600	Yes	<b>Attended Daylight</b> <b>FBO phone (406) 758-7700</b> <b>CTAF 122.8</b>
<b>Glacier Intl. (FCA)</b> Kalispell, MT 48°18.69N 114°15.31W	2972	8000	Yes	<b>Full Service</b> <b>Tower 124.55</b>
<b>Boundary Cnty, (65S)</b> Bonners Ferry, ID 48°43.58N 116°17.73W	2330	4000	Yes	<b>FBO Phone (208) 267-3711</b> <b>CTAF 123.0</b>
<b>Polson (8S1)</b> Polson, MT 47°41.72N 114°11.11W	2941	4195	Yes	<b>100LL Jet A; 24 hr self service</b> <b>Attended 0800-1700</b> <b>FBO phone (406) 883-2482</b> <b>CTAF 122.8</b>
<b>Ronan (7S0)</b> Ronan, MT 47°34.03N 114° 06.06W	3086	4800	Yes	<b>100LL Jet A; 24 hr self service</b> <b>Unattended</b> <b>CTAF 122.8</b>

AIRFIELD	ELEVATION	LENGTH	LIGHTS	REMARKS
<b>Condon (S04)</b> Condon, MT 47°32.32N 113°43.22W	3686	2575	No	<b>No fuel/services</b> <b>Unattended</b> <b>CTAF 122.9</b>
<b>Spotted Bear (8U4)</b> USFS 47°57.50'N 113°33.60'W	3670	3800	No	<b>Backcountry airstrip</b> <b>No fuel/services</b> <b>CTAF 122.9</b>
<b>Schafer (8U2)</b> USFS 48°05.24N 113°15.05'W	4855	3200	No	<b>Backcountry airstrip in wilderness</b> <b>Landings per year limited</b> <b>Unattended</b> <b>CTAF 122.9</b>
<b>Meadow Creek (0S1)</b> USFS 47°50.96N 113°25.04W	3894	2830	No	<b>Backcountry airstrip</b> <b>No fuel/services</b> <b>CTAF 122.9</b>

## APPENDIX E. COMMONLY USED LANDING AREAS

KNF Landing Areas			
Location	LAT	LONG	Comment
Eureka Ranger Station	48 55.08	115 03.45	concrete pad; lights
Ant Flat Work Center	48 43.37	114 52.50	Mowed grass
Sylvanite Work Center	48 43.61	115 52.52	asphalt pad
Upper Yaak Work Center (Upper Ford)	48 55.01	115 39.56	meadow
Canoe Gulch Ranger Station	48 22. 29	115 20.41	concrete; fenced
Cabinet Ranger Station	47 52.12	115 37.52	grass
Eureka Old Airport	48 55.08	115 05.21	need permission
Rocky Gorge	48 39.33	115 18.70	
Barron Creek Flats	48 31.05	115 18.20	
Detwiler's Field	48 04.65	115 58.11	meadow
South Portal	48 27.02	114 56.86	beach due east of RS
Gravel Pit/Bull River (Little Spar HB)	48 12.00	115 51.60	Gravel pit; can be dusty
Napoleon Gulch	48 08.27	115 46.53	
Dodge Creek Summit	48 55 70	115 21 35	
DNRC Libby Unit	48 21.5	115 19.0	west of railroad tracks
Cripple Horse Pit	48 28.5	115 15.0	gravel pit; highway 37
Ross (Avista)	48 11.58	115 49.52	permission needed
Mt. Henry Lookout	48 53 03	115 31.05	7243'
Blue Mountain Lookout	48 29.9	115 27.10	6040'
Black Butte Lookout*	48 51.85	115 07.45	4164'
Swede Mountain Lookout*	48 22.25	115 27.50	4305'
Scenery Lookout site	48 24.96	114 43.05	6876'
Ziegler Mountain Lookout	48 34.60	115 15.78	5394'
Star Peak Lookout	48 05.62	115 55.58	6167'
Keeler Mountain Lookout	48 19.27	115 53.69	4943'
Marston Lookout*	48 45.87	114 47.33	7343'
Wam Lookout	48 57.33	114 48.53	7203'
Stahl Peak Lookout	48 55.25	114 50.76	7435'

\*Lookouts staffed 2019

FNF Landing Areas			
Location	LAT	LONG	Comment
Hungry Horse Helibase	48 22.67	114 03.45	exclusive use base
Boorman Work Center	48 08.75	114 43.04	concrete pad
Ferndale Airstrip	48 03.54	113 59.80	
Star Meadows	48 22.89	114 42.55	
Challenge Cabin	48 13.86	113 19.87	
Anna Creek	48 10.10	113 47.47	
Betty Creek	48 09.38	113 43.90	
Marias Pass	48 19.17	113 21.34	
Lost Creek Airstrip	47 53.25	113 49.04	
Robert Complex Helibase site	48 23.77	114 08.97	
Swan DNRC (Goat Creek)	47 44.98	113 49.45	concrete pad
Wedge Canyon Helibase site	48 41.24	114 11.82	
Peters Ridge Trailhead	48 12.28	114 00.12	
Piper Creek	47 39.71	113 49.53	
Birch Creek	48 08.40	113 58.40	Jewel Basin road access
Mt. Aeneas	48 08.89	113 55.17	above Jewel Basin
Stony Hill	47 55.14	113 35.16	generator site
Stillwater DNRC	48 32.50	114 34.11	
Lost Creek Airstrip	47 53.25	113 49.04	
Napa Point	47 47.18	113 44.01	trailhead 31
KOA campground (private)	48 27.71	113 59.45	For missions in GNP
South Fork Lost helispot	47 51.42	113 41.81	below South Fork Lost fire
Spotted Bear Lookout*	47 54.17	113 26.39	7221'
Cyclone Lookout*	48 43.43	114.18.83	6030'
Thoma Lookout*	48 57.65	114.32.88	7077'
Daniher Cabin	47 20.74	113 00.96	Bob Marshall wilderness
Holland Peak Lookout	47 28.04	113 33.67	

\*Lookouts staffed 2019

GNP Known Landing Areas			
Location	LAT	LONG	Comment
Saint Mary(1913 Ranger Station)	48 44.32	113 26.21	parking lot
Belly River Ranger Station	48 55.87	113 42.74	No road access.
Big Bend (GTSR)	48 43.61	113 43.45	GTSR parking lot
Big Prairie GNP	48 49.48	114 19.88	next to road
Essex QRU*	48 17.11	113 36.42	parking lot-Outside Park
Goat Haunt	48 57.49	113 53.50	inlet beach
Granite Park Chalet	48 46.28	113 46.27	due NE of chalet
Headquarters	48 30.11	113 59.09	due north of gas pumps
Huckleberry LO**	48 36.00	114 80.05	No landing
Logan Creek Pit	48 43.11	113 46.61	maintenance staging area
Logan Pass	48 41.75	113 43.01	parking lot
Lone Pine Prairie	48 44.82	114 15.02	next to road
Loneman Lookout	48 29.34	113 46.17	ridgetop
Lunch Creek(GTSR)	48 41.97	113 42.20	parking lot
Many Glacier (Keyhole)	48 47.93	113 39.92	by MG picnic area
Marias Pass*	48 19.05	113 21.31	between RR tracks & US 2
Numa Lookout**	48 53.02	114 10.77	near lookout
Nyack Flats Area*	48 27.25	113 49.50	MT DOT site
Polebridge Ranger Station	48 47.02	114 16.85	parking lot
Red Rock Point Pullout (GTSR)	48 41.70	113 49.04	GTSR 1 mi N Avalanche
Round Prairie	48 51.68	114 21.34	next to road
Sandy Point Pullout (GTSR)	48 33.54	113 56.30	GTSR pullout 4 mi N Apgar
Scalplock Lookout**	48 18.01	113 34.47	ridgetop
Schellinger's Pit*	48 19.180	113 38.29	Grassy area west of pit
Siyeh Bend (GTSR)	48 42.03	113 40.05	parking lot
South Pasture/Corral (HQ area)	48 30.58	114 00.06	near Quarter Circle bridge
Sperry Chalet	48 36.35	113 47.16	rock outcrop east of chalet
Sun Point (GTSR)	48 40.57	113 34.80	parking lot
Swiftcurrent Lookout**	48 47.14	113 46.02	ridgetop

\*Outside Park Boundary, Non-NPS ownership

\*\*Lookouts staffed 2019

## APPENDIX F. MEDICAL INFORMATION

<b>MEDICAL PLAN</b>	<b>1. Incident Name:</b>	<b>2. Date Prepared:</b>	<b>3. Time Prepared:</b>	<b>4. Operational Period:</b>		
<b>5. INCIDENT MEDICAL AID STAION</b>						
<b>Medical Aid Station</b>	<b>Location</b>					<b>Para Medics?</b>
<b>6. TRANSPORTATION</b>						
<b>A. AMBULANCE SERVICES</b>						
<b>NAME</b>	<b>ADDRESS</b>	<b>PHONE</b>	<b>Para Medics?</b>			
<b>ALERT Air Rescue</b>	310 Sunnyview Lane, Kalispell, MT	406-752-5111	Y			
<b>LIFE Flight</b>	Community Hospital, Missoula, MT	800-991-7363	Y			
<b>Care Flight</b>	St. Patricks Hospital, Missoula, MT	406-721-5236	Y			
<b>Mercy Flight</b>	Williams-Ario Regional, Great Falls, MT	800-972-4000	Y			
<b>NW Medstar</b>	6315 E. Rutter Ave., Spokane, WA	509-536-5462	Y			
<b>B. INCIDENT AMBULANCES</b>						
<b>Medical Aid Station</b>	<b>Location</b>					<b>Para Medics?</b>
<b>7. HOSPITALS</b>						
<b>NAME</b>	<b>ADDRESS</b>	<b>PHONE</b>	<b>TRAVEL</b>	<b>TRAUMA</b>	<b>HELIPAD</b>	<b>BURN CTR</b>
			<b>TIME</b>			
Kalispell Regional	10 Sunnyview Ln, Kalispell, MT	406-752-5111		YES	YES	NO
North Valley	1600 Hospital Way, Whitefish, MT	406-863-5377		YES	YES	NO
St. Joseph	6 13th Ave E. Polson, MT	406-883-5377		YES	YES	NO
Cabinet Peaks Medical Center	209 Health Park Dr Libby, MT	406-283-7000		YES	YES	NO
Harbor View	Seattle, WA	206-731-3299		YES	YES	YES
<b>8. MEDICAL EMERGENCY PROCEDURES</b>						
In the event of a medical emergency provide the following information to Dispatch:						
1. The nature of the emergency						
1.a Medical injury/illness? If injury/illness is it Life Threatening?						
2. If Life Threatening, then request that the designated frequency be cleared for emergency traffic.						
3. Identify the on-scene Point of Contact (POC) by Resource and Last Name (i.e. POC is TFLD Smith)						

4. Identify nature of incident, number injured, patient assessment(s), and location (geographic and Lat/long)	
5. Identify on-scene medical personnel by position and name (i.e. EMT Jones)	
6. Identify preferred method of patient transport	
7. Request any additional resource and/or equipment needed	
8. Document all information received and transmitted on the radio or phone	
9. Identify any changes in the on-scene Point of Contact or medical personnel as they occur.	
Medical helicopter Air/Ground: Tan RX/TX 155.3400 Tone 156.7	
9. PREPARED BY (MEDICAL UNIT LEADER):	10. REVIEWED BY (SAFETY OFFICER):



## **APPENDIX G. RADIO FREQUENCIES**

### **Kootenai NF Frequencies**

#### **Group 3 Air Ops East Zone**

<b>CH #</b>	<b>Channel Name</b>	<b>RX Freq</b>	<b>RX CG</b>	<b>TX Freq</b>	<b>TX CG</b>	<b>COMMENTS</b>
1	LIBBY	172.2500	0.0	172.2500	123.0	South East Zone—Libby DIRECT
2	KSANKA	171.2625	0.0	171.2625	123.0	North East Zone
3	DECK	163.7125	0.0	163.7125	110.9	Deck
4	BLULIBBY	172.2500	0.0	164.1250	167.9	South East Zone
5	BLUKSAN	171.2625	0.0	163.3500	167.9	North East Zone
6	CALX	172.2500	0.0	164.1250	146.2	South East Zone
7	ALLENLIB	172.2500	0.0	164.1250	151.4	South East Zone
8	WEBB	171.2625	0.0	163.3500	103.5	North East Zone
9	PINKHAM	171.2625	0.0	163.3500	107.2	North East Zone
10	MARSTON	171.2625	0.0	163.3500	114.8	North East Zone
11	A/G 52 E	168.3875	0.0	168.3875		East Zone A/G
12	A/G 29 W	166.9000	0.0	166.9000		West Zone A/G
13	FNF DIRCT	173.1125	0.0	173.1125	123.0	Flathead NF (IA/FF) DIRECT
14	FNF A/G PRI	169.1250	0.0	169.1250	123.0	FNF A/G Primary
15	TAN (VMED28)	155.3400	0.0	155.3400	156.7	MT Mutual Aid-State A/G/EMS
16	AIR GUAR	168.6250	0.0	168.6250	110.9	Air Guard – Emergency Use Only

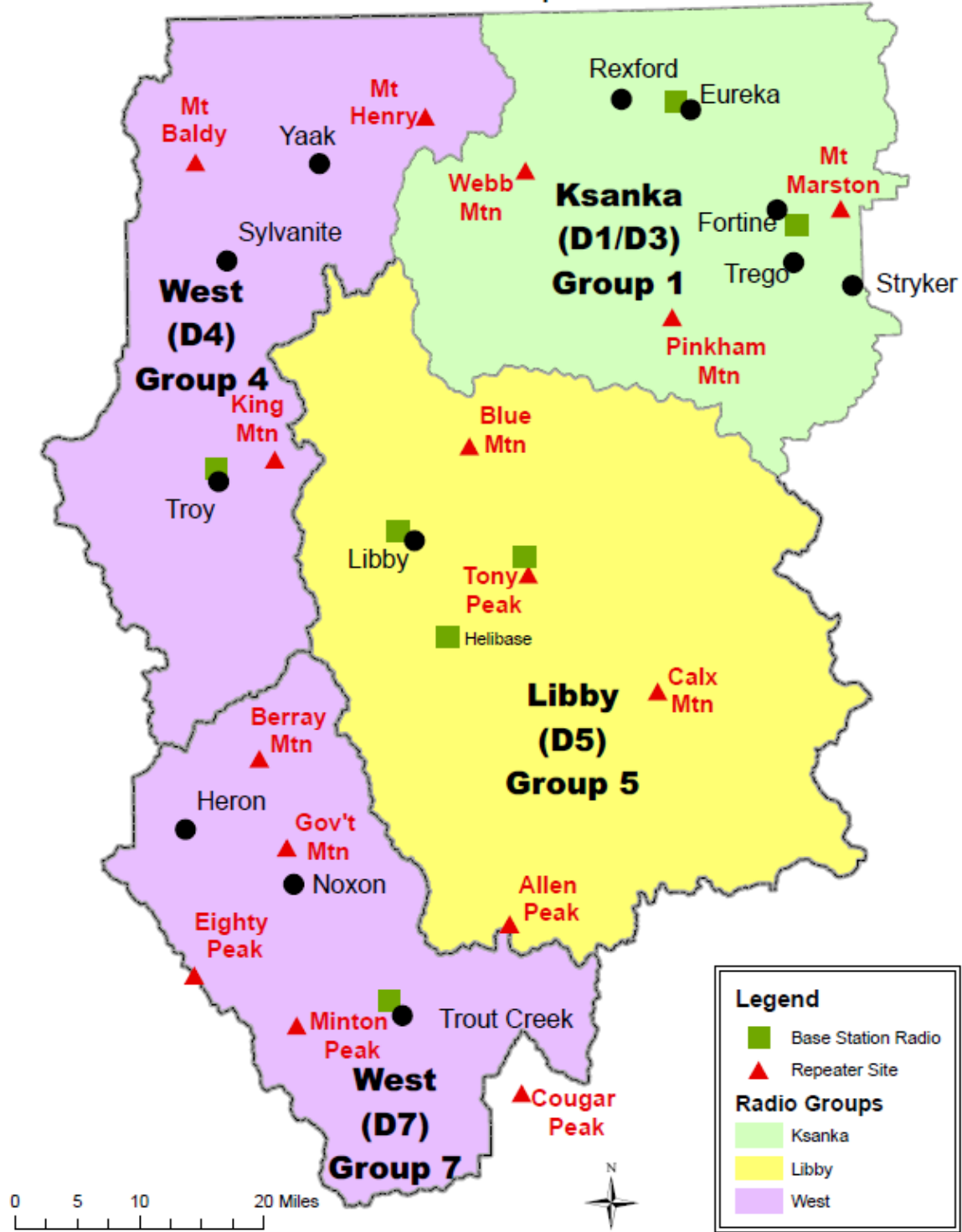
### **Kootenai NF Frequencies**

#### **Group 6 Air Ops West Zone**

<b>CH #</b>	<b>Channel Name</b>	<b>RX Freq</b>	<b>RX CG</b>	<b>TX Freq</b>	<b>TX CG</b>	<b>COMMENTS</b>
1	WEST	171.3875	0.0	171.3875	127.3	West Zone DIRECT
2	BALDY	171.3875	0.0	165.4625	136.5	West Zone
3	DECK	163.7125	0.0	163.7125	110.9	Deck
4	KING	171.3875	0.0	165.4625	110.9	West Zone
5	HENRY	171.3875	0.0	165.4625	156.7	West Zone
6	GOVERNMENT	171.3875	0.0	165.4625	131.8	West Zone
7	80 PEAK	171.3875	0.0	165.4625	100.0	West Zone
8	ALLEN WEST	171.3875	0.0	165.4625	151.4	West Zone
9	COUGAR	171.3875	0.0	165.4625	141.3	West Zone
10	MINTON	171.3875	0.0	165.4625	127.3	West Zone
11	BERRAY	171.3875	0.0	165.4625	162.2	West Zone
12	A/G 29 W	166.9000	0.0	166.9000		West Zone A/G
13	A/G 52 E	168.3875	0.0	168.3875		East Zone A/G
14	DNRCCALX	151.2650	0.0	159.3525	114.8	DNRC LU Calx Repeater
15	YELLOW	151.2200	0.0	151.2200		A/G Tactical DNRC (Yellow)
16	AIR GUAR	168.6250	0.0	168.6250	110.9	Air Guard – Emergency Use Only

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# Kootenai NF Repeater/Dispatch Zone Map



## Flathead NF Frequencies

### Group 1 - SO Fire & Aviation - USER CODE GUARD

CH	RX	TX	Tone	Name	Function
1	173.1125	173.1125	110.9	FNF DIR	FNF Direct Contact
2	173.1125	164.3750	123.0	FNF RPT	FNF Repeater Select
3	151.1750	151.1750	131.8	DNR KU	DNRC Kalispell Unit Direct
4	151.1750	151.4750	136.5	DNRKURPT	DNRC Kalispell Unit Repeater
5	151.1975	159.3675	146.2	DNRSWNRP	DNRC Swan Unit Repeater
6	168.1625	168.1625	156.7	FNFWORK1	FNF Work
7	163.7125	163.7125	167.9	WORK 2	Local Wide Area Work Channel 2
8	167.1125	167.1125	103.5	R1 TAC	Region 1 Tactical
9	154.0700	154.0700	100.0	RED	State Fire Mutual Aid
10	155.7600	155.7600	107.2	CNTYFIRE	Flathead County Fire
11	155.3400	155.3400	114.8	TAN / MED	State Medical Air to Ground
12	151.2200	151.2200	127.3	YELLOW	State Air to Ground - Initial Attack
13	169.1250	169.1250	141.3	FNF A/G	FNF Air to Ground
14	166.9000	166.9000	151.4	AG 29	Incident Air to Ground #29
15	168.3875	168.3875	162.2	AG 52	Incident Air to Ground #52
16	168.6250	168.6250	192.8	AIRGUARD	National Air Guard

USER CG TONE #	FNF REPEATER	DNRC REPEATER
1	Elbow	
2	Kerr	
3	Ashley	
4	Werner	
5	Jumbo	
6	Napa Pt	
7	Numa	
8	Scalplock	
9	Patrol	
10	Desert	
11	Lookout	Meadow Pk/Richards/Calx
12	Teton	
13	Baptiste	
14	Mud Lake	
15	Jewel	
16	Roamer	Blacktail/Napa

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# Base Radio and Repeater Locations Flathead National Forest



## Glacier National Park Frequencies

- All GNP frequencies are Digital and Analog.
- All GNP Fire staff should be using radios in ANALOG MODE for TX frequencies.

All aircraft should use *Analog Mode* with these frequencies and indicate such when contacting dispatch. Example: "Glacier Dispatch, this is Nxxx on PARKWIDE 1 Analog"

All the repeaters in the Park are linked and can be used on either of two channels with the same TX frequency. Notice, however that the RX frequency is different. Depending where you are you may not hear the transmission if you do not listen to both. This seems to be the case when an aircraft gets to a lower altitude and is working on the incident. At this point you may be able to eliminate one by trial and error. Please program both frequencies into the radio in *Analog Mode*.

	RX	Tone RX	TX	Tone TX
PARKWIDE 1	166.3750		167.0250	156.7
PARKWIDE 2	162.1625		167.0250	156.7
GNP TAC 1 (Air to Ground)	166.9750	173.8	166.9750	173.8

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## DNRC Frequencies

Aircraft responding into DNRC protection areas should be assigned one of the repeaters and air/ground frequencies listed below for flight following and air/ground communication with DNRC resources.

<b>Kalispell Unit—Kalispell Interagency Dispatch (KIC)</b>			
Yellow DNRC A/G Initial Attack (Primary)	Rx 151.2200	Tx 151.2200	Narrow
Kalispell Unit/Kalispell	Rx 151.1750	Tx 151.1750	Narrow
DNRC Big Mt	Rx 151.1750	Tx 151.1750/192.8	Narrow
DNRC Blacktail Mt	Rx 151.1750	Tx 151.4750/192.8	Narrow
Meadow Peak	Rx 151.1750	Tx 151.4750/114.8	Narrow
<b>Stillwater/Olney Unit—Kalispell Interagency Dispatch (KIC)</b>			
Stillwater Unit/Olney	Rx 151.2500	Tx 151.2500	Narrow
Yellow DNRC A/G Initial Attack (Primary)	Rx 151.2200	Tx 151.2200	Narrow
<b>Swan Unit—Kalispell Interagency Dispatch (KIC)</b>			
Swan Unit/Goat Creek	Rx 151.1975	Tx 151.1975/192.8	Narrow
Napa Point	Rx 151.1975	Tx 159.3675/192.8	Narrow
Yellow DNRC A/G Initial Attack (Primary)	Rx 151.2200	Tx 151.2200	Narrow
<b>Plains Unit—Kalispell Interagency Dispatch (KIC)</b>			
Plains Unit	Rx 151.190	Tx 151.190/141.3	Narrow
Pat's Knob Repeater	Rx 151.190	Tx 159.360/141.3	Narrow
Richard's Peak Rpt	Rx 151.190	Tx 159.360/114.8	Narrow
Orange DNRC A/G (Primary)	Rx 151.400	Tx 151.400	Narrow
<b>Libby Unit—Kootenai Interagency Dispatch Center (KDC)</b>			
LU Direct	Rx 151.2650	Tx 151.2650/114.8	Narrow
Calx Mt Repeater	Rx 151.2650	Tx 159.3525/114.8	Narrow
Yellow DNRC A/G Initial Attack (Primary)	Rx 151.2200	Tx 151.2200	Narrow

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## **APPENDIX H. INITIAL FIRE SIZEUP**

## FIRE SIZE UP INFORMATION

1) Incident Name:

2) Incident Commander's Name:

3) Latitude : Longitude: Elevation:

4) Legal Description T R S Subsection:

5) Fire Size (Acres)

6) Fire Behavior -> Smoldering Creeping Running Crowning Spotting Other->

7) Fuel Type -> Grass Intermountain Brush Ponderosa/Conifer Aspen Grass/Brush Open Pine w/Grass Spruce/Fir Slash Other\_\_\_\_\_

8) Slope at Head of Fire:\_\_\_\_\_ Position on Slope: Ridgetop Upper 1/3 Middle 1/3 Lower 1/3 Flat/Rolling Valley Bottom

9) Aspect: Flat N NE E SE S SW W NW Ridge Top

10) Wind:

(Direction) -> N NE E SE S SW W NW  
-> Down Canyon Up Canyon Down Slope Up Slope

(Speed - mph) -> Calm 0-5 6-10 10-20 20-30 30+

11) Weather Conditions: Clear Building Cumulus Lightning Intermittent Showers Scattered Clouds T-Storms in area  
Overcast Heavy Showers

12) Values at Risk? No Yes (If Yes, Describe Situation)

13) Spread Potential : Low Moderate High Extreme (Describe Situation) ->

14) Fire Intensity Level ( In feet ) : \_\_\_\_\_

15) Additional Resources Needed:

Engine(s)\_\_\_\_\_ Handcrew(s)\_\_\_\_\_ Airtanker(s)\_\_\_\_\_ Helicopter(s)\_\_\_\_\_

Air Attack\_\_\_\_\_ Dozer(s)\_\_\_\_\_ Water Tender(s)\_\_\_\_\_ Jumpers\_\_\_\_\_ Other->

16a) Fire Cause -> Lightning Human Specific Cause-> 16b) Investigator Needed No Yes

17) Best Access:

18) Frequencies: Repeater Name\_\_\_\_\_ Tactical Name\_\_\_\_\_

19) Control Problems? Yes\_\_\_\_\_ No\_\_\_\_\_



# APPENDIX I—Aquatic Invasive Species.



## **Northern Rockies Coordinating Group**

Federal, State, and Local Government Agencies Working Together In Emergency Response Management

March 29, 2018

To: Northern Rockies Interagency Wildland Fire Community

From: Chair, Northern Rockies Coordinating Group

Subject: AIS Decontamination/Prevention Methods for Air and Ground Wildland Fire Water Delivery Resources

The NWCG Guide to Preventing Aquatic Invasive Species Transport by Wildland Fire Operations (PMS 444) is available and addresses Best Management Practices (BMP's) in Chapter 3, Ground Operations in Chapter 4, and Aviation Operations in Chapter 5.

The NRCG Aviation and Equipment Committees have been tasked with recommending supplemental information for prevention/decontamination of wildland aviation & fire apparatus with regard to the spread of Aquatic Invasive Species (AIS). The Columbia River Basin in the western portion of the Geographic Area is, at this time, not infested with the Zebra or Quagga mussels. States within the Columbia River Basin are actively managing the threat of these invaders and others. Even though these mussels are the main topic of the decontamination and prevention, the transportation of all AIS is a huge concern. In addition, the NRCG recommends additional Best Management Practices (BMP's) for limiting risk for transporting AIS:

### **AVIATION**

#### **Prevention**

- Obtain local unit information on known aquatic invasive species locations, whenever possible.
- Avoid using bodies of water with known aquatic invasive species infestations.
- Avoid dipping or scooping water from multiple water sources within the same operational period to minimize cross-contamination of water sources.
- Use deeper (blue) water whenever possible. Avoid areas that will intake mud or plants.
- Switch out a contaminated helicopter bucket with a clean bucket before moving to a new water source.
- Avoid transferring water between drainages or between unconnected waters within the same drainage. Do not dump water directly from one stream or lake into another. Avoid spraying suppression water into local waterbodies (ponds, lakes, rivers, streams, wetlands, seeps, or springs).
- When cross contamination is suspected and hot water or ample drying time is not in the perceivable future the alternate bucket should be utilized until appropriate decontamination procedures can take place.
- If cross-contamination occurs or anyone believes it may have occurred report the incident to the on-site aviation manager (e.g. helicopter manager, helicopter





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crewmember, etc.) who will forward to their supervisor, incident management, or an agency administrator.

### Inspection and Cleaning

- Daily, or when possible during maintenance and operations, visually inspect water handling equipment (snorkel hoses, pumps, foot valves/screens, buckets, intakes & tanks) to remove any plant, animal, or dirt/mud material.
- When contamination is suspected or contact with untreated water has occurred, clean and sanitize accessible, exposed surfaces with hot (> 140°F) water for 5-10 seconds before moving to new, unconnected water sources or new incidents.
- Clean and sanitize accessible, exposed surfaces with hot (> 140°F) water for 5 – 10 seconds as part of scheduled maintenance when possible.
- When hot water (> 140°F) is not available or practical, use municipal treated water to thoroughly flush invasive species from the system.
- Alternatively, completely dry equipment in the sun when quick fire suppression turnaround is not required. Thorough drying alone is an easy and effective sanitizing method, but required drying times vary considerably with the type equipment, e.g., metal, rubber, fabric and may not be practical for a quick turnaround.
- Documentation of inspection and cleaning by an agency representative/aviation manager in daily diaries and/or on flight invoices is recommended.
- Use hot water (140 F) to decontaminate aviation equipment (not QUAT or BLEACH CHEMICALS) products, as they can corrode equipment.
  - If a helicopter bucket has a butyl (rubber) valve seal, avoid prolonged application of hot water spray to seal to prevent softening of material. Power washing greatly reduces the likelihood that any target aquatic invasive species are present.

### **GROUND BASED EQUIPMENT**

Resources, crossing the continental divide from the eastside, must be decontaminated prior to going into service on an assignment and again before returning to work on the home unit. All resources need to be decontaminated and inspected for AIS before going into service in the Northern Rockies Geographic Area. Decontamination sites to be available at inspection sites, incident base, or local unit.

### Prevention

- The area of emphasis to prevent the spread of AIS is ensuring the foot valves are in working order and do not allow backflow from the apparatus into the water source. By focusing on drafting techniques rather than the difficult decontamination of internal tanks, which may or may not contain AIS) we can abolish the use of large volumes of chemicals disinfectants and instead rely on prevention measures.
- To minimize potential for engine water leakage through the foot valve, **ALWAYS prime with water from the drafting source rather than using water from the engine tank.** Additionally, don't leave draft hose full with foot valve engaged and submerged in water source when not





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- pumping.
- Any apparatus with a tank must have a foot valve for drafting
- Avoid drafting from untreated (raw) water. Use municipal water sources when available. When possible use port-a-tanks or dedicated filler pump for apparatus.
- If possible, carry extra foot valve and draft hose in the event water source is changed. Ensure both the draft hose and foot valve are completely dried before being used in a new or different water source. Testing of the foot valves can be found in *Appendix B of PMS 444*.

### Inspection and Cleaning at Check in; Demobilization, or During an Incident, or at a GACC inspection Site for local hosted resources

- In order of preference, the following decontamination measures are to be followed for foot valves and draft hoses:
  - 1. Preferred method: chlorine bleach (see supplemental HOW TO Guide)
    - Chemicals can be used to treat foot valves (see PMS 444 for chemicals recommended, as well as supplemental HOW TO guide) and draft hose, if the chemical can be disposed of properly.
    - Chemical can be applied by spray or bath (preferred)
    - DO NOT mix decontamination methods as that will create a hazardous situation.
  - OR
  - 2. Power wash with hot water (140 F, allow spray to contact surfaces for 2 minutes) using a hot pressure washer (e.g. a 'hotsy'); OR Hot 140 F water bath for 10 minute contact time.

### Inspection and Cleaning between Incidents (back at home unit)

- Do not drain tank within 300 ft. of any stream or body of water or storm drains that could become infested with AIS.
- Upon return to home unit, If possible, use compressed air to blow water out of the lines, leaving valves and tank fill open to dry out the tank as much as possible.
- The cache equipment needs to be decontaminated as residual water may harbor invasive mussel larvae (in summer, 5 days survival time in internal tanks; in cooler months, 28 days).
  - This can be done utilizing either a hot water bath (140 F) or chlorine treatment depending on the equipment being cleaned.
- DO NOT use hot water or chemicals in internal tanks.

A copy of PMS 444 can be found on the NWCG website: <https://www.nwcg.gov/publications/444>

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