

Dispatch Procedures

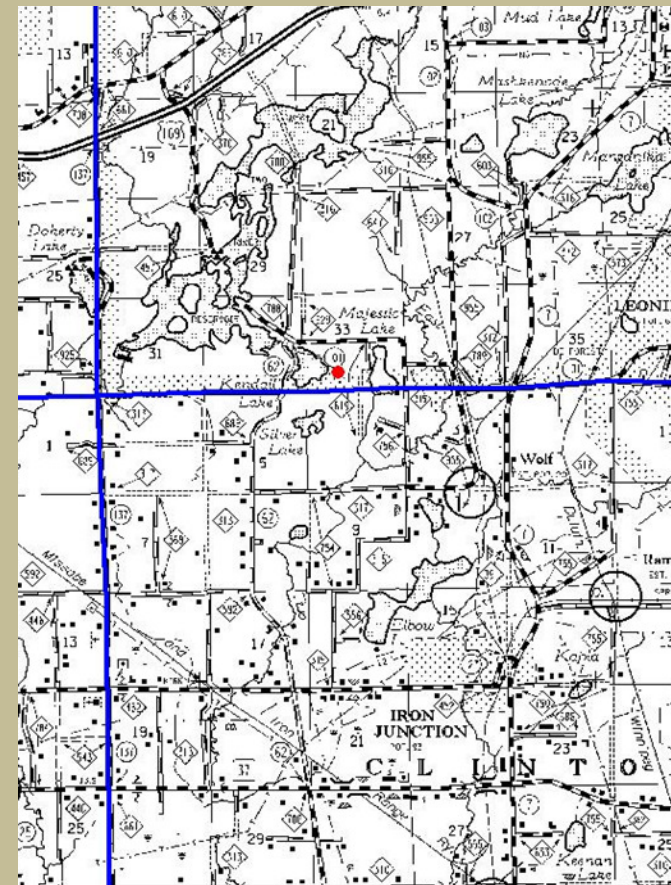
Tactical Aircraft Request Form

Check Hazard Map

Pilot and crew move to A/C

Landview printout

- May be available
- Valuable to Fuel Truck driver



Dispatch Procedures

Tactical Aircraft Request Form

Check Hazard Map

Pilot and crew move to A/C

Landview printout

Fuel truck driver briefing

- Discuss route
- Load crew bags
- Etc.



Dispatch Procedures

Tactical Aircraft Request Form

Check Hazard Map

Pilot and crew move to A/C

Landview printout

Fuel truck driver briefing

Manager moves to helicopter



Dispatch Procedures

Tactical Aircraft Request Form

Check Hazard Map

Pilot and crew move to A/C

Landview printout

Fuel truck driver briefing

Manager moves to helicopter

Contact dispatch/tanker base before lifting



Initial Contact

Refer to the Helibase Plan for radio departure procedures



- Identifier
- Location
- # of souls onboard
- Fuel
- Direction of travel
- ETA
- Confirm AFF

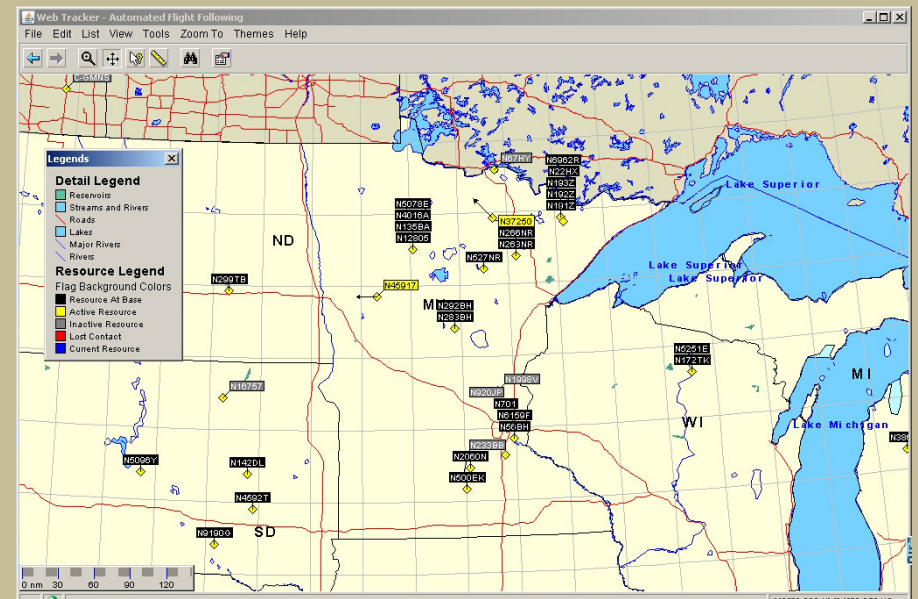
Flight Following

AFF is used for flight following.

Radio check-in every 15 minutes if AFF is inoperable.

Review Area maps and frequencies

Remember to close out
when leaving one Dispatch
Center for another



Flight Following

State Fires – AFF flight follow with:

Tanker Base, or

MIFC (Fire Center) on Air Net (simplex/repeaters)

Federal Fires – Make initial contact with a state dispatcher, then switch over to the appropriate Federal Dispatch Center and flight follow with them – confirm AFF.

ATGS – will flight follow when helicopter is in FTA with ATGS

Fire Traffic Area

12nm – Initial call– ID

Location

Distance

Direction from fire

Altitude

7nm – Do not enter unless: Have **C**learance

Have **C**ommo

Can **C**omply

Close out flight follow with Fire Center when in contact with fire or continue AFF

FTA DIMENSIONS

LAT/LONG

ATGS ALT. **PLUS** 1000'
Appox 2500 AGL



TANKER ORBIT ALTITUDE **PLUS**
500'

5NM RADIUS

12nm initial
Contact ring

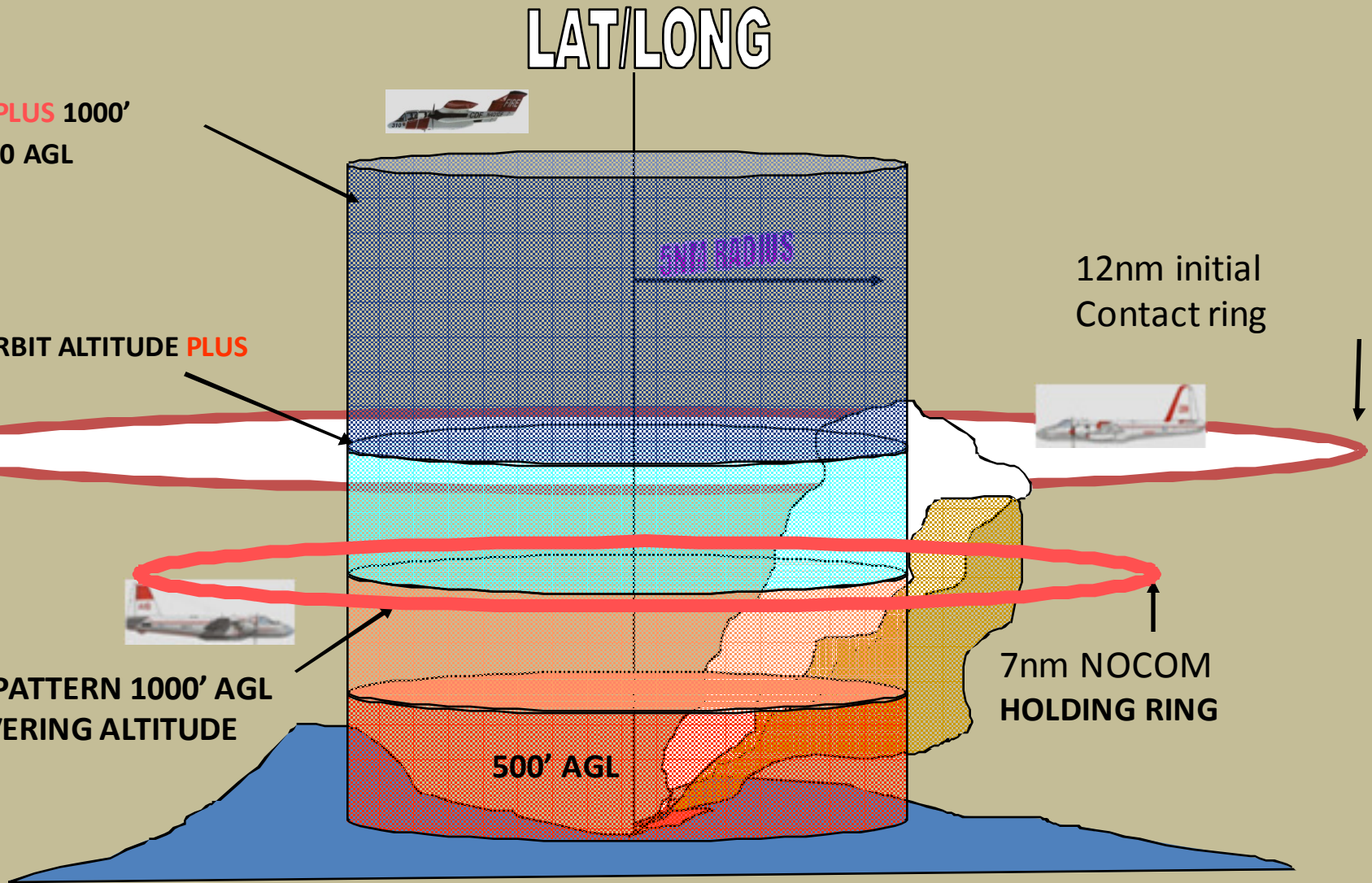


TANKER PATTERN 1000' AGL
MANEUVERING ALTITUDE



7nm NOCOM
HOLDING RING

500' AGL



Operations After Sunset

Tactical helicopter operations under this contract are for daytime only; defined as:



½ hour before sunrise to ½ hour after sunset

Operations After Sunset

Non-tactical ferry missions may be flown later than ½ hour after sunset if:

The A/C is returning to a lighted airport and is without an external load.

The flight is initiated within ½ hour after sunset.

There must be visual surface light reference sufficient to safely control the helicopter.

The pilot is consulted to ensure nighttime VFR conditions exist before planning flights.

The pilot meets currency requirements for night flights in accordance with 14 CFR Part 61.57.

Non-Fire or Logistical Missions

- Search & Rescue
 - Coordinate with State Patrol, County Sheriff, Civil Air Patrol
 - Air to Air (Victor) – 123.025
- Hover Exit
 - Intermediate Helicopters
 - Trained Pilot & Crew
- Vegetation Surveys



**When on Scene :
Air Attack is
responsible for
Airspace
Coordination**



Mission Supervision

If ATGS platform is overhead:

The helicopter is controlled by the ATGS and ground contact is the HMGB

If ATGS platform is not overhead:

The HMGB provides control and contact for the helicopter



Arriving On A Fire

- Make contact with the IC (size-up)
- Conduct high-level recon and low-level recon
- Identify landing area, dipsites and hazards
- Discuss tactics with manager

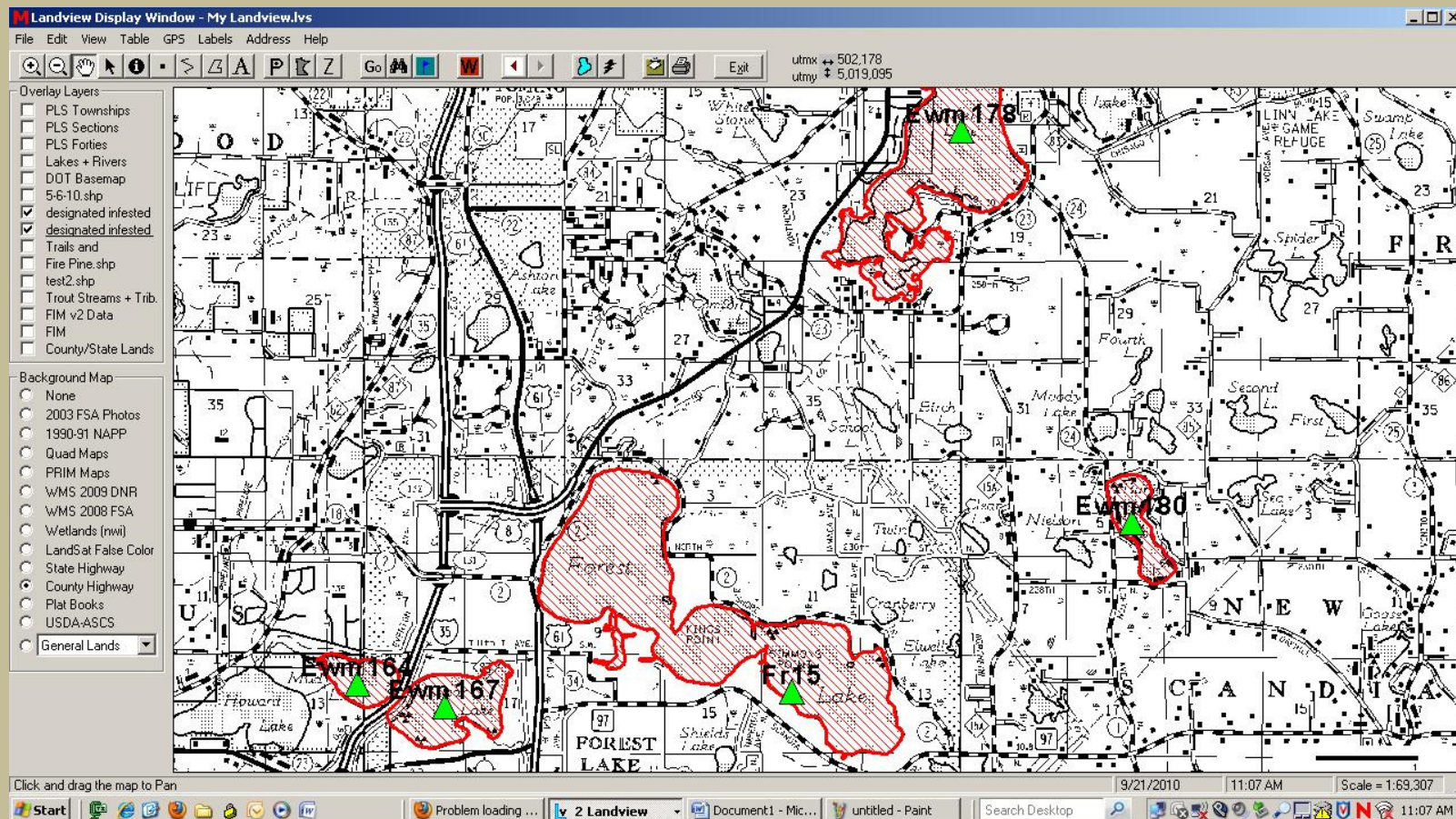


Landing On A Fire

- Crew will deploy bucket and manager will remove pilot's door
- Leave nothing at the landing area, as the pickup site may be at another location
- Before lift-off, ensure radio communications with the manager



Confirm procedures with Helicopter Manager.



Invasive Species

Eurasian Water Milfoil



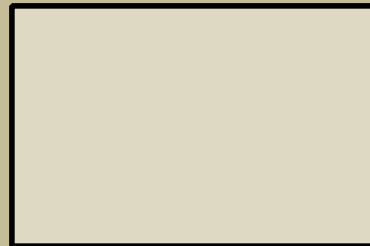
Spiny Water Flea



Zebra Mussels

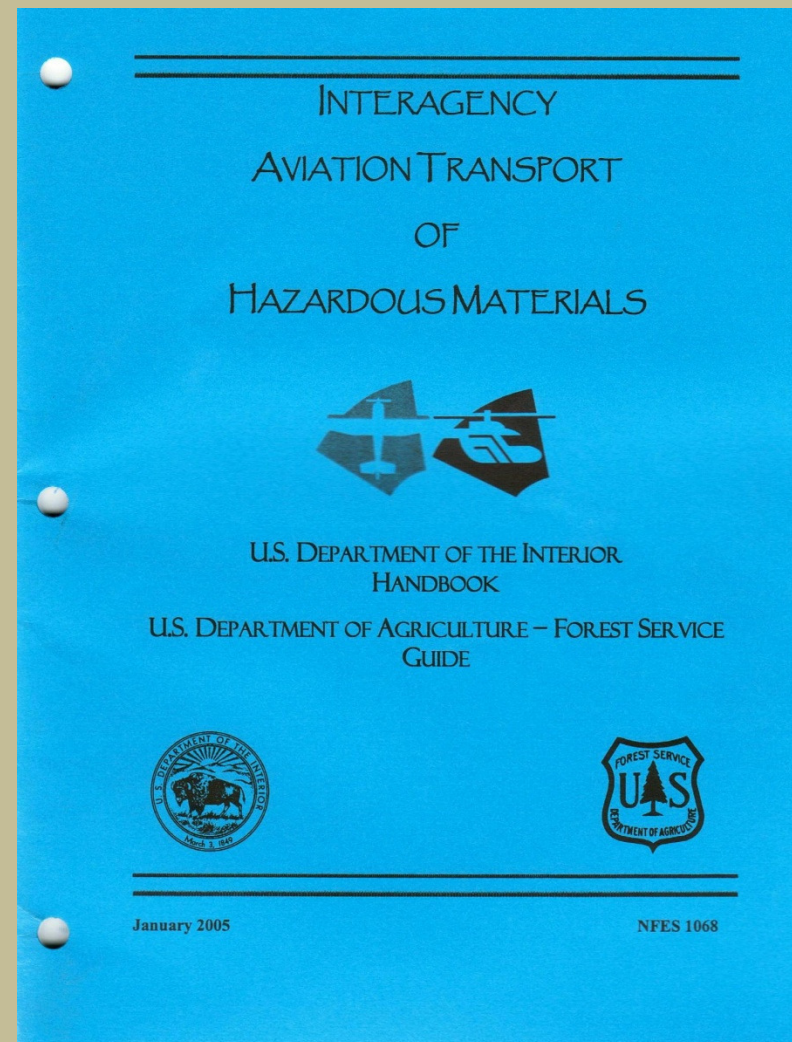


Others



Hazmat Guide

A Hazmat guide should be in the helicopter and is to be followed when transporting hazardous materials.



End of Day / After Fire Actions

Debriefings

Will be done by the HMGB or ATGS after every fire as soon as practical.

Pilots, managers, fuel truck drivers and crew members are expected to attend and encouraged to give candid observations.



End of Day / After Fire Actions

Daily Diaries

Completed daily and
emailed to the air desk

MN DNR FORESTRY - HELICOPTER CONTRACT DAILY DIARY													
DATE:		04/17/10		Page		1		of		1		4/8/2009	
1. Contractor:		Scotts Helicopters		9. Designated Base:		Hibbing		Excl. Use		CWN		XX	
2. A/C Make/Model & FAA #:		Bell 206 BII 60N		10. Current Aircraft Location:		Hibbing							
3. Helicopter Pilot:		Mike Balch		11. Pilot Qualifications:		Recon. xx		Bucket xx		Long Line xx			
4. Fuel Truck Driver:		Anson		12. Weather Summary:		Sky Condition: Clear		Temp: 61					
5. Mechanic:				13. Canadian Fuel Index		FFMC: 91.3		DMC: 36.5		DC: 128.3			
6. Total # of Contractor Personnel:		2		14. Activity Summary: (check all that apply)		Aerial Ignition							
7. Fuel Truck Capacity in Gallons:		270		Logistical Fire Missions		Standby XX		I.A. XX					
8. Daily Availability		Begin		End		Total Hours		15. Helitack Personnel:		Total Hours			
Stand-By:		0600		2000		14		HELM		Frame		14	
Pilot Duty Day:		0600		2000		14		HELM(T)					
Driver Duty Day:		0600		1900		14		HECM		Midthun		14	
Mechanic Duty Day:								HECM		Pantsar		14	
16. Contract Rates: (Not all rates apply, depending on contract.)													
Flight Rate/Hour		Ferry Flight Rate/Hour		Fuel Truck Rate/Mile		Per Diem Rate		Ext. Stby Rate		Daily Availability			
\$765.00		\$765.00		\$1.50		\$100.00		\$30.00		\$614.00			
17. Narrative Report: (Include problems encountered, description of missions, SAFECOMs submitted, activities, maintenance performed, power trend analysis completed, reasons for any unavailability, etc.)													
Ferry flight from Roseau to Hibbing. Briefed Manager and Crewmember. Did repairs on State bucket. Dispatched to Rangeline fire. Dispatched from there to Pike Lake Fire. Extended Standby due to ferry flight and Pike Lake fire. Duty day ended at 2000 for pilot. Ferry flight was coded to MIFC project code, may need to change it to Hibbing.													
18. Flight Information: (Show total flight time and mileage for each incident / project, list DNR Area in "To" box)													
From:		Roseau		To:		Hibbing		Incident / Project Name:		Ferry Flight			
Beg. Hobbs	End Hobbs	Flight Time	Flight Cost	Total Miles	Truck Cost	DNR Project #	37119990	Agency:	DNR				
224.6	225.8	1.2	\$918.00	281	\$421.50	Sec.	Twp.	Rge.					
From:		Hibbing		To:		Orr		Incident / Project Name:		Rangeline Fire			
Beg. Hobbs	End Hobbs	Flight Time	Flight Cost	Total Miles	Truck Cost	DNR Project #	32410004	Agency:	DNR				
225.8	226.7	0.9	\$688.50	52	\$78.00	Sec.	10	Twp.	55	Rge.	24		
19. Summary of Flight Time, Mileage, Accomplishments and Daily Costs:													
Daily Availability Cost		Guarantee Hours Not Flown		Per Diem Cost		Ext. Standby Cost		Miscellaneous Costs / Fees					
\$614.00				\$200.00		\$300.00							
Flight Time	Flight Cost	Truck Miles	Truck Cost	Fires	Gallons	Cargo lbs.	Pax	Values Threatened					
5.7	\$4,360.50	401.0	\$601.50	2	12,500			\$28,000.00					
20. Total Daily Costs				21. Pilot Tomorrow		22. HELM Tomorrow		23. HELM Signature					
\$6,076.00				Ward		Frame		Dana Frame					

End of Day / After Fire Actions

Aircraft Use Forms

Exclusive Use contract (42-day) and usually CWN
Aircraft Use Forms are administered on 6 day periods.

MINNESOTA DNR - FORESTRY		RECORD OF AIRCRAFT USE / HELICOPTER										2/4/2010	
VENDOR INFORMATION				AIRCRAFT INFORMATION				CONTRACT RATES				CONTRACT BASE	
NAME	Scotts Helicopter	PILOTS		MAKE	Bell		FLIGHT RATE	\$	785.00	per hour	HIBBING		
ADDRESS	PO Box 92	A-	Mike Balch	MODEL	206 B III		FUEL TRUCK RATE	\$	1.50	per mile	ALTERNATE BASE		
CITY, ST. ZIP	Le Sueur, MN 56058	B-	Falko	FAA N#	60N / 39101		DAILY AVAILABILITY	\$	614.00	per day			
PHONE	507-655-4064	C-		BUCKET CAPACITY	108	gallons	PER DIEM RATE	\$	100.00	per person	CONTRACT TYPE		
E-MAIL		D-		FUEL TRUCK CAP.	270	gallons	EXTENDED STANDBY	\$	30.00	per hour	CALL-WHEN-NEEDED		

DATE	PILOT	FLIGHT / COST CODING INFORMATION			FLIGHT TIME & MILEAGE INFORMATION				STANDBY & TOTAL COSTS						
		USE CODE	LOCATION FROM LOCATION TO	AREA/AGENCY PROJ. CODE	START HOBBS END HOBBS	HOURS	COST	FUEL TRUCK MILES COST	DAILY AVAILABILITY	GT. HOURS NOT FLOWN HOURS COST	PER DIEM	EXTENDED STANDBY	MISC. COSTS	TOTAL COSTS	
03/26/10	A	FERRY	LeSueur	234/DNR	3196.8	1.8	\$ 1,224.00	269 \$ 403.50			\$ -	\$ -	\$ -	\$ -	\$ 1,627.50
			HIB	32349990	3198.4										
03/26/10	A	FIRE	HIB	221/DNR	3198.4	2.6	\$ 1,989.00	88 \$ 132.00	\$ -		\$ -	\$ -	\$ -	\$ -	\$ 2,121.00
			Deer River Number 8 fire	32210000	3201.0										
03/26/10	A	STBY	HTB	234/DNR	3201.0		\$ -	\$ -	\$ 614.00		\$ -	\$ 200.00	\$ 120.00	\$ -	\$ 934.00
			HTB	32349990	3201.0										
03/27/10	A	STBY	HTB	234/DNR	7178.6		\$ -	\$ -	\$ 614.00	2.0	\$ 1,530.00	\$ 200.00	\$ -	\$ -	\$ 2,344.00
			HTB	32349990	7178.6										
03/28/10	A	STBY	HTB	234/DNR	7180.4		\$ -	\$ -	\$ 614.00	2.0	\$ 1,530.00	\$ 200.00	\$ -	\$ -	\$ 2,344.00
			HTB	32349990	7180.4										
03/29/10	B	STBY	HTB	234/DNR	7180.4		\$ -	\$ -	\$ 614.00	2.0	\$ 1,530.00	\$ 200.00	\$ -	\$ -	\$ 2,344.00
			HTB	32349990	7180.4										
03/30/10	B	FIRE	HTB	234/DNR	7180.4	0.5	\$ 382.50	36 \$ 54.00	\$ -		\$ -	\$ -	\$ -	\$ -	\$ 436.50
			Mud Hen Lk #23	32340000	7180.9										
03/30/10	B	STBY	HTB	234/DNR	7180.9		\$ -	\$ -	\$ 614.00	1.5	\$ 1,147.50	\$ 200.00	\$ -	\$ -	\$ 1,961.50
			HTB	32349990	7180.9										
03/31/10	B	STBY	HTB	234/DNR	7180.9		\$ -	\$ -	\$ 614.00		\$ -	\$ 200.00	\$ -	\$ -	\$ 814.00
			HTB	32349990	7180.9										
03/31/10	B	FIRE	HTB	221/DNR	7180.9	1.4	\$ 1,071.00	105 \$ 167.50	\$ -		\$ -	\$ -	\$ -	\$ -	\$ 1,228.50
			Deer River #16	32210000	7182.3										
03/31/10	B	FIRE	HTB	121/DNR	7182.3	4.1	\$ 3,136.50	337 \$ 505.50	\$ -		\$ -	\$ -	\$ 120.00	\$ -	\$ 3,762.00
			Big Fork Grygla/HTB	31210200	7186.4										
							\$ -	\$ -	\$ -		\$ -	\$ -	\$ -	\$ -	\$ -
							\$ -	\$ -	\$ -		\$ -	\$ -	\$ -	\$ -	\$ -
							\$ -	\$ -	\$ -		\$ -	\$ -	\$ -	\$ -	\$ -
							\$ -	\$ -	\$ -		\$ -	\$ -	\$ -	\$ -	\$ -
							\$ -	\$ -	\$ -		\$ -	\$ -	\$ -	\$ -	\$ -
							\$ -	\$ -	\$ -		\$ -	\$ -	\$ -	\$ -	\$ -
							\$ -	\$ -	\$ -		\$ -	\$ -	\$ -	\$ -	\$ -
REMARKS:															
3/27/10 New helicopter 101 came in to replace 60N, because of radio problems.															
3/28/10 Hobbs discrepancy of 1.8 hours due to company training, paid for by vendor.															
TOTALS				10.2	\$ 7,803.00	835	\$ 1,252.50	\$ 3,684.00	7.5	\$ 5,737.50	\$ 1,200.00	\$ 240.00	\$ -	\$ -	\$ 19,917.00
HELICOPTER MANAGER				Dana Frame				DATE				04/02/10			

An aerial photograph showing a massive wildfire. A large, billowing plume of white and grey smoke rises from the fire, dominating the left side of the frame. Bright orange and yellow flames are visible at the base of the smoke, spreading across a forested landscape. A winding river or stream is visible on the right side of the image, flowing through the forest. The overall scene depicts a severe fire event in a natural environment.

MN FIRE BEHAVIOR

Typical Fire Behavior in MN

The MN fire season occurs in the Spring for the majority of the state.



- After the snow melts and before green-up
- Normally between March 15- June 15

Typical Fire Behavior in MN



The extreme northeastern part of the state (*Arrowhead region*) will experience a later fire season due to the rocky, Canadian-shield topography and timber types.

Typical Fire Behavior in MN

Flashy fuels that occur in the brush
and grassy swamps can have

High Intensity

and a quick

Rate of Spread



Fire Behavior

Rate of Spread

Three weather factors:

- **WIND**
- **HUMIDITY**
- **TEMPERATURE**



FUEL TYPE is a non-weather related factor.

Fire Severity Related to Humidity

- **26 to 40% RH**

- High ignition hazard
- Occasional crowning and spotting
- Moderate burning conditions

- **15 to 30% RH**

- Rapid fire buildup
- Extensive Crowning
- Long distance spotting
- Dangerous burning conditions

- **<15% RH**

- Aggressive burning
- Spot fires occur often and spread rapidly
- Extreme fire behavior probable



Canadian Indices

- FPMC – Fine Fuel Moisture Code
- DMC – Duff Moisture Code
- DC – Drought Code
- ISI – Initial Spread Index
- BUI – Buildup Index
- FWI – Fire Weather Index

	<u>FFMC</u>	<u>DMC</u>	<u>DC</u>	<u>ISI</u>	<u>BUI</u>	<u>FWI</u>
Agassiz	88.5	31.9	145.1	4.7	41.2	11.3
Badoura	90.8	37.6	125.8	7.5	43.0	16.8
Baudette	79.9	33.9	238.1	2.2	50.0	6.7
Bemidji	90.7	39.4	237.7	6.3	55.7	16.8
Brainerd	89.9	34.0	251.4	8.4	50.9	19.8
Carlos Avery	91.8	37.5	305.3	6.4	57.4	17.3
Cass Lake	90.5	38.5	236.9	7.1	54.7	18.2
Cutfoot	89.5	39.3	265.6	4.5	57.4	13.1
Detroit Lakes	90.3	34.4	209.8	6.9	48.8	16.8
Effie	90.0	39.3	256.5	7.5	56.9	19.3
Ely	90.1	34.1	271.7	7.6	51.9	18.7
Grand Portage	87.3	39.2	190.5	4.7	51.8	12.9
Hibbing	89.4	41.3	234.7	6.6	57.3	17.6
Hill City	89.8	36.2	207.4	5.8	50.4	14.9

Canadian Indices

Canadian Forest Fire Weather Index (FWI) System

- Consists of six components that account for the effects of fuel moisture and wind on fire behavior
- Primarily used in MN
- Better for summer/fall season

	<u>FFMC</u>	<u>DMC</u>	<u>DC</u>	<u>ISI</u>	<u>BUI</u>	<u>FWI</u>
Agassiz	88.5	31.9	145.1	4.7	41.2	11.3
Badoura	90.8	37.6	125.8	7.5	43.0	16.8
Baudette	79.9	33.9	238.1	2.2	50.0	6.7
Bemidji	90.7	39.4	237.7	6.3	55.7	16.8
Brainerd	89.9	34.0	251.4	8.4	50.9	19.8
Carlos Avery	91.8	37.5	305.3	6.4	57.4	17.3
Cass Lake	90.5	38.5	236.9	7.1	54.7	18.2
Cutfoot	89.5	39.3	265.6	4.5	57.4	13.1
Detroit Lakes	90.3	34.4	209.8	6.9	48.8	16.8
Effie	90.0	39.3	256.5	7.5	56.9	19.3
Ely	90.1	34.1	271.7	7.6	51.9	18.7
Grand Portage	87.3	39.2	190.5	4.7	51.8	12.9
Hibbing	89.4	41.3	234.7	6.6	57.3	17.6
Hill City	89.8	36.2	207.4	5.8	50.4	14.9

Canadian Indices

Fire Danger Rating



Low



Moderate



High



Very High



Extreme

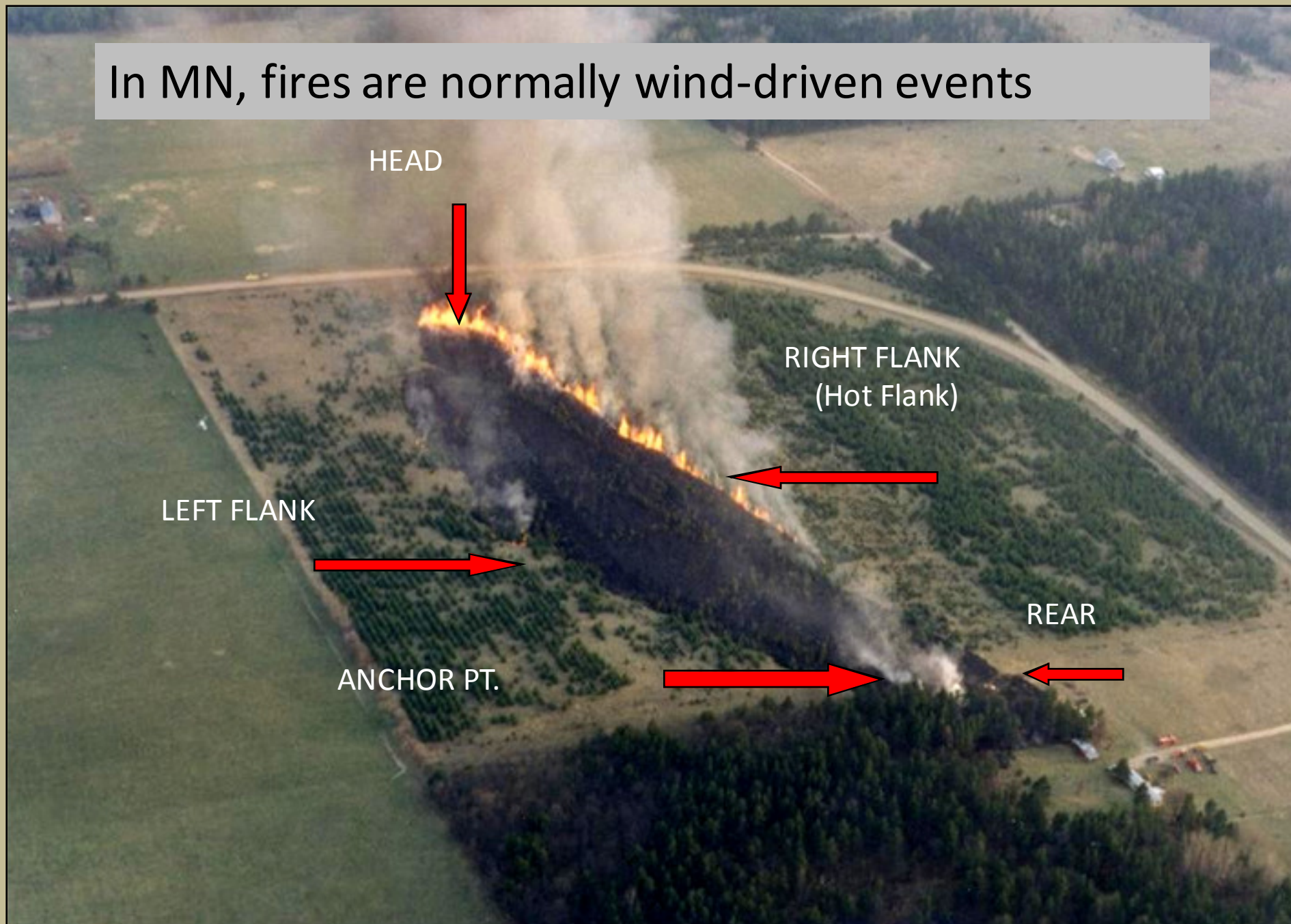
	<u>FFMC</u>	<u>DMC</u>	<u>DC</u>	<u>ISI</u>	<u>BUI</u>	<u>FWI</u>
Agassiz	88.5	31.9	145.1	4.7	41.2	11.3
Badoura	90.8	37.6	125.8	7.5	43.0	16.8
Baudette	79.9	33.9	238.1	2.2	50.0	6.7
Bemidji	90.7	39.4	237.7	6.3	55.7	16.8
Brainerd	89.9	34.0	251.4	8.4	50.9	19.8
Carlos Avery	91.8	37.5	305.3	6.4	57.4	17.3
Cass Lake	90.5	38.5	236.9	7.1	54.7	18.2
Cutfoot	89.5	39.3	265.6	4.5	57.4	13.1
Detroit Lakes	90.3	34.4	209.8	6.9	48.8	16.8
Effie	90.0	39.3	256.5	7.5	56.9	19.3
Ely	90.1	34.1	271.7	7.6	51.9	18.7
Grand Portage	87.3	39.2	190.5	4.7	51.8	12.9
Hibbing	89.4	41.3	234.7	6.6	57.3	17.6
Hill City	89.8	36.2	207.4	5.8	50.4	14.9

FIRE SUPPRESSION

Terminology



In MN, fires are normally wind-driven events



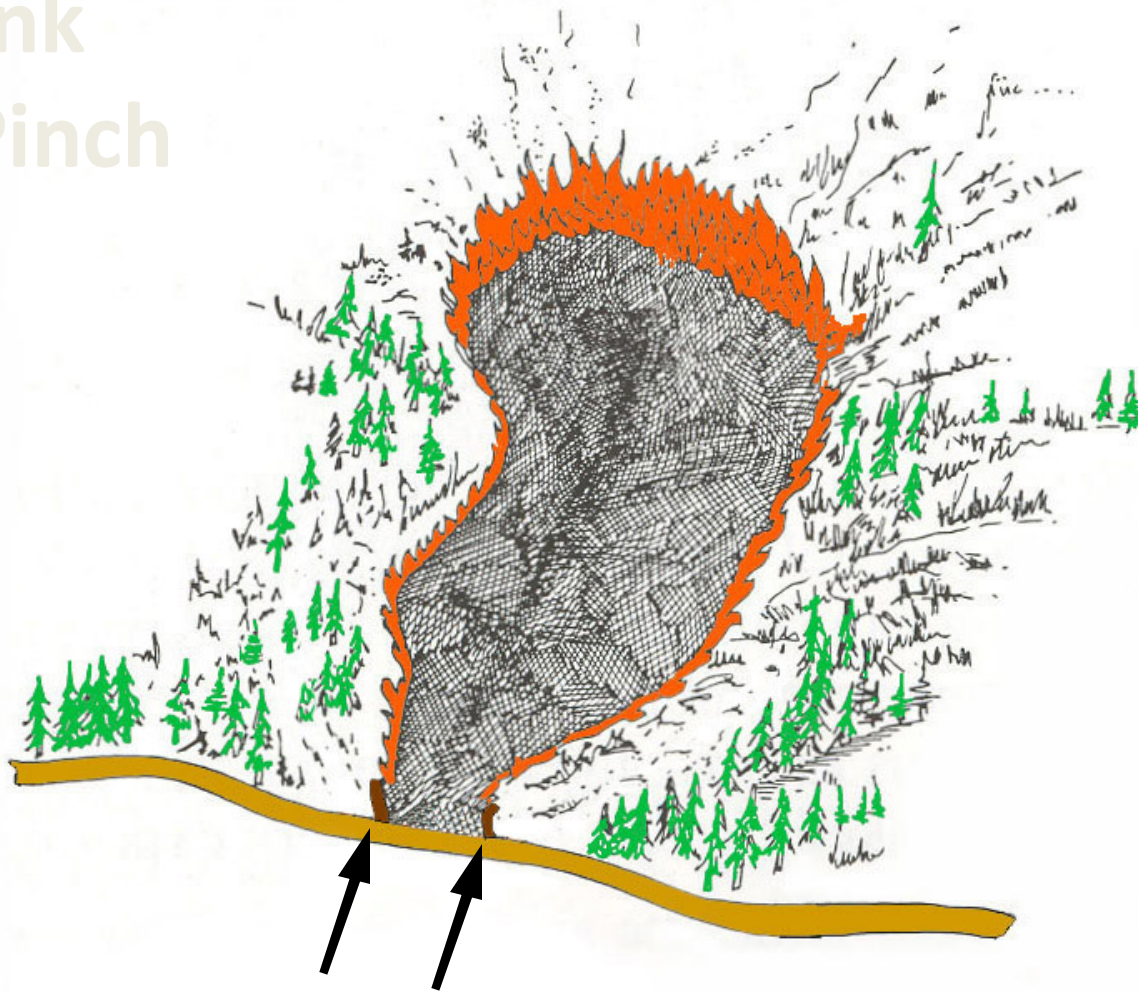
Wildfire Tactics



Anchor, Flank and Pinch

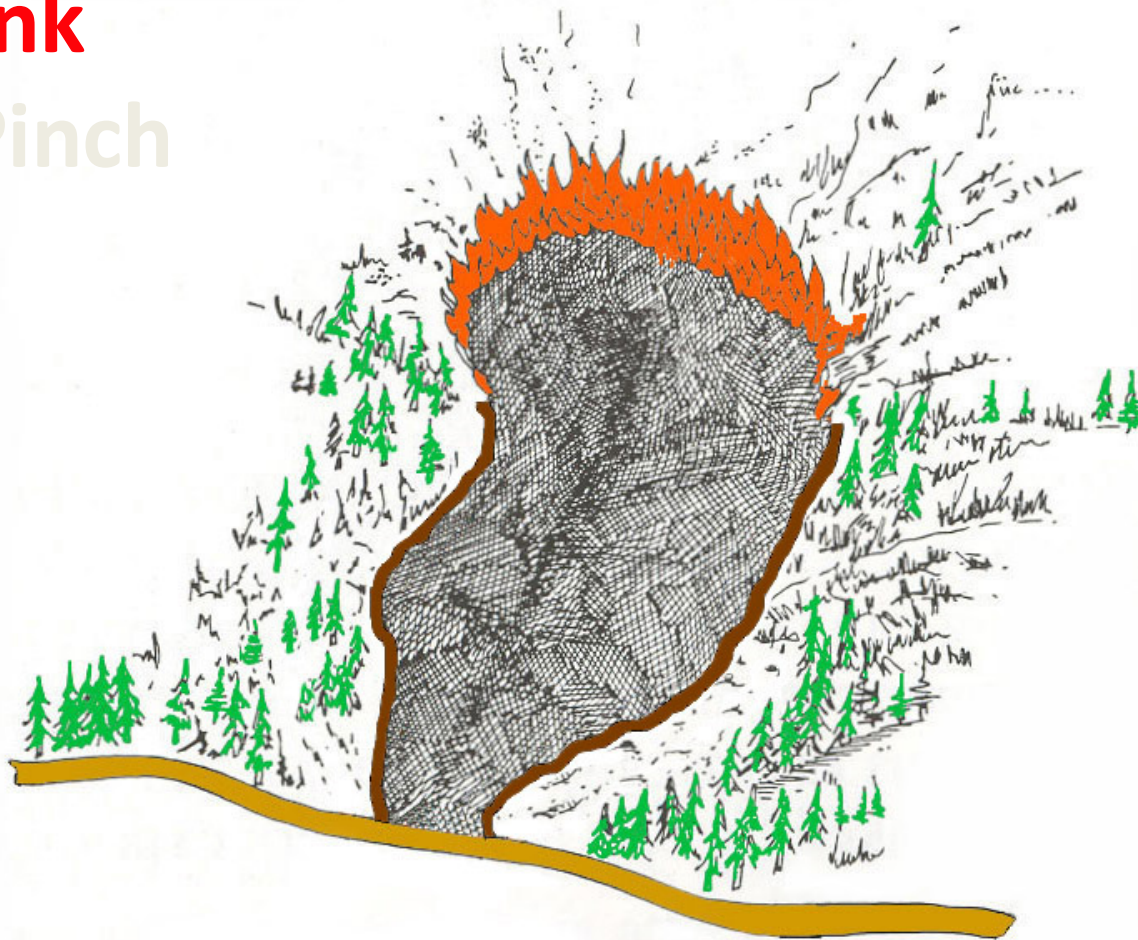


Anchor, Flank and Pinch



Anchor Points

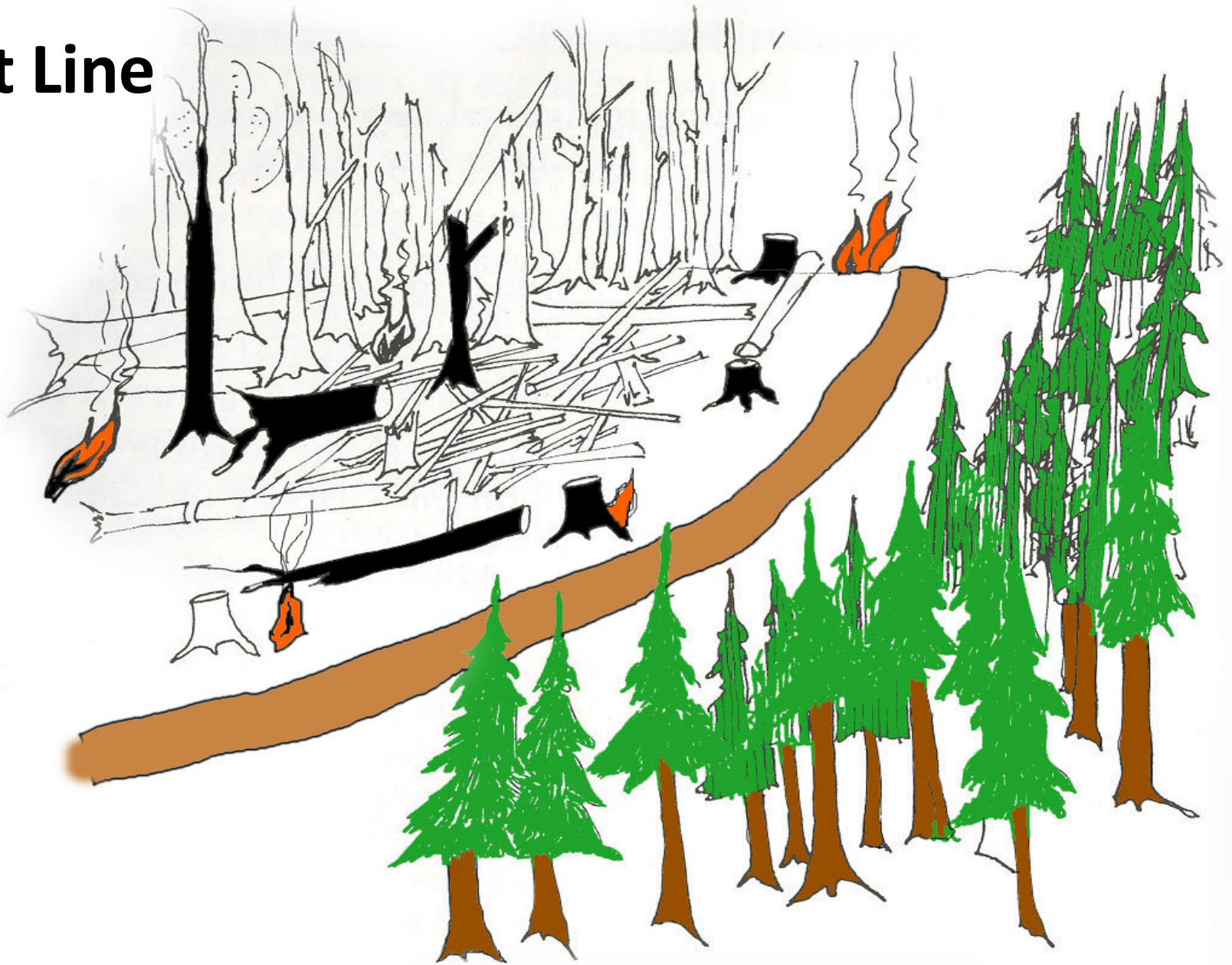
Anchor,
Flank
and Pinch



Anchor, Flank and **Pinch**



Direct Line



Indirect Line



Direct Attack vs Indirect Attack

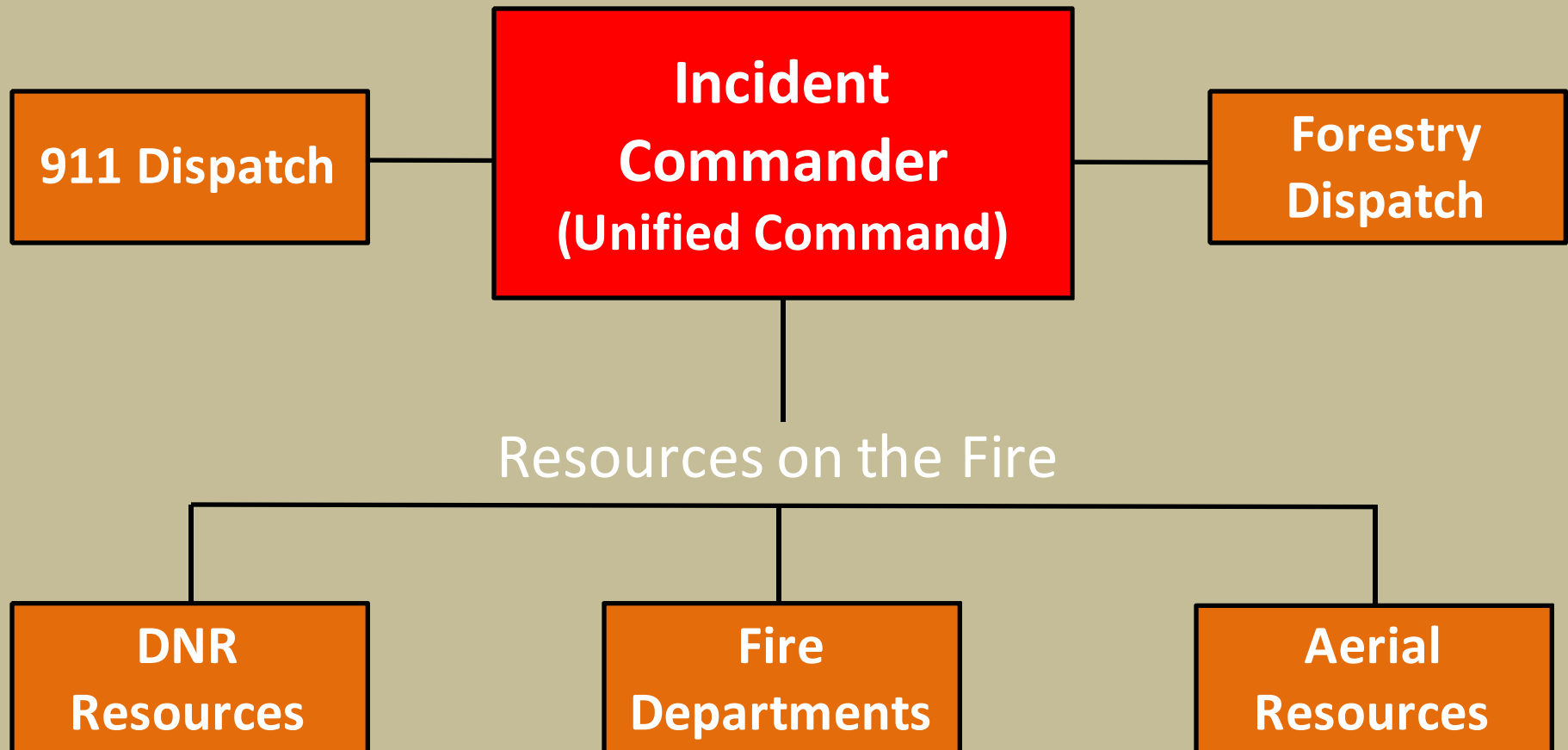
BURN OUT /BACK FIRE

Indirect Attack

Direct Attack

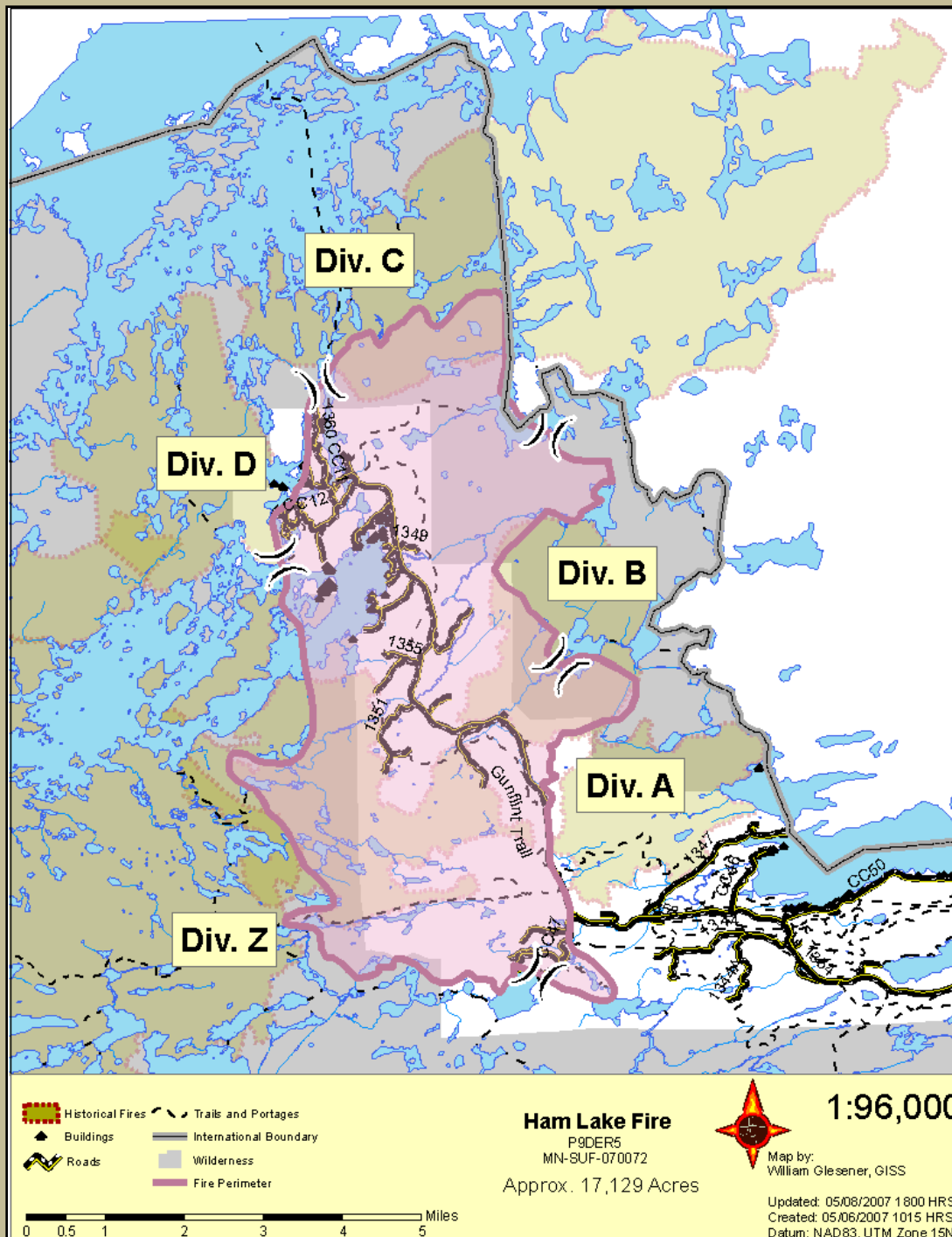


Small Fire Organization



Larger Fire Organization

Divisions
Management Team



Ground-Based Firefighting Resources



DNR Engines

Type 7



75-200 gallons

Type 6



150-400 gallons

Type 4



750+ gallons

Fire Department Engines Pumper



Lakeland Engine 1



Clinton Engine 4



Virginia Engine 1

Fire Department Engines Tender



Lakeland Engine 2



Biwabik Township



Clinton Engine 2

J-5



DNR Tracked Vehicles

Muskeg



Marshmaster





Clinton J-5

Fire Department Off-Road Vehicles



Cherry Gamma Goat



Lakeland Offroad 6

Dozers



Hoselays

Portable pumps set up at
a water source



Look at the Big Picture

Have an understanding of what's expected

BE FLEXIBLE

Plans and decisions change at a moment's notice



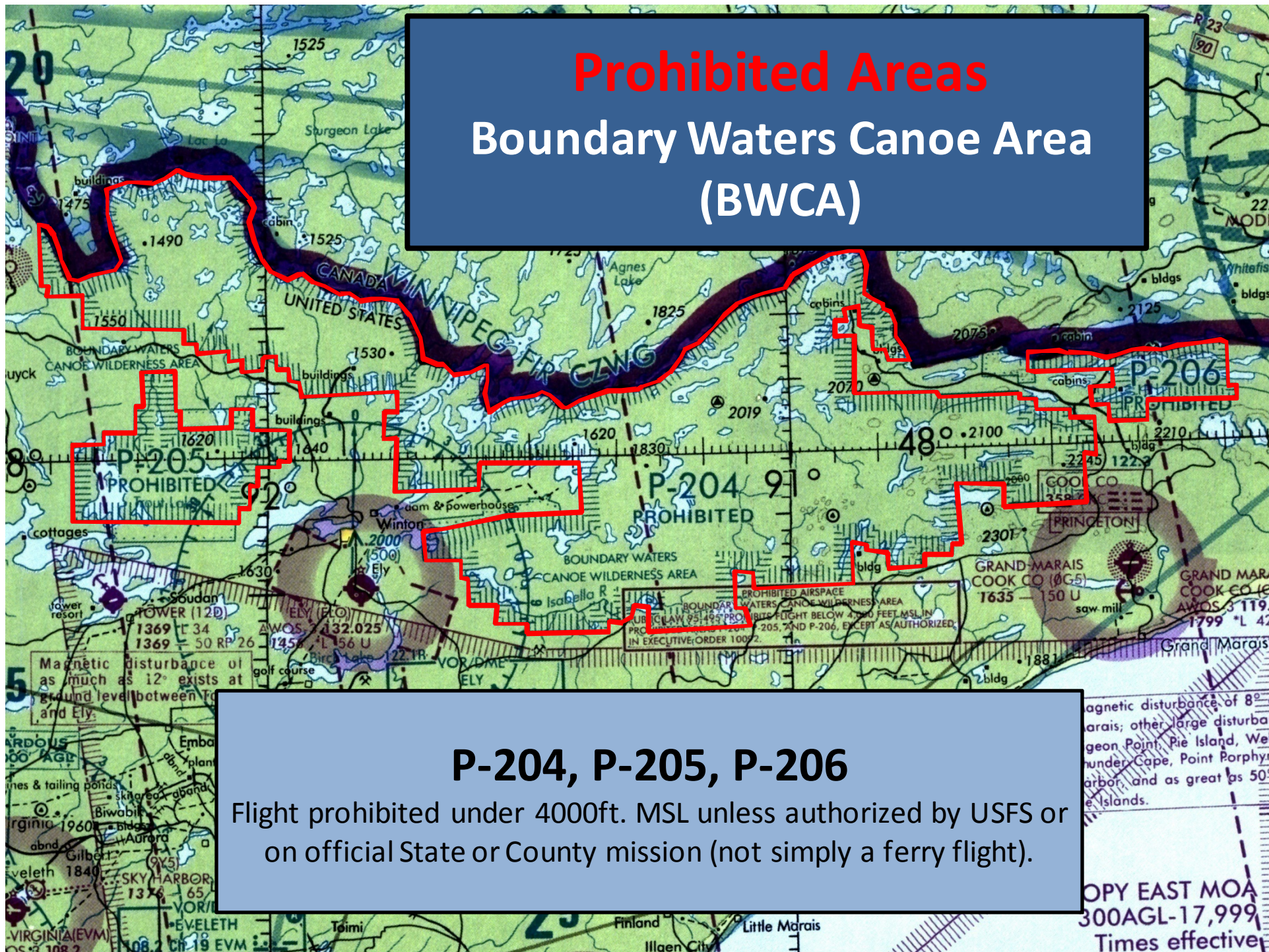


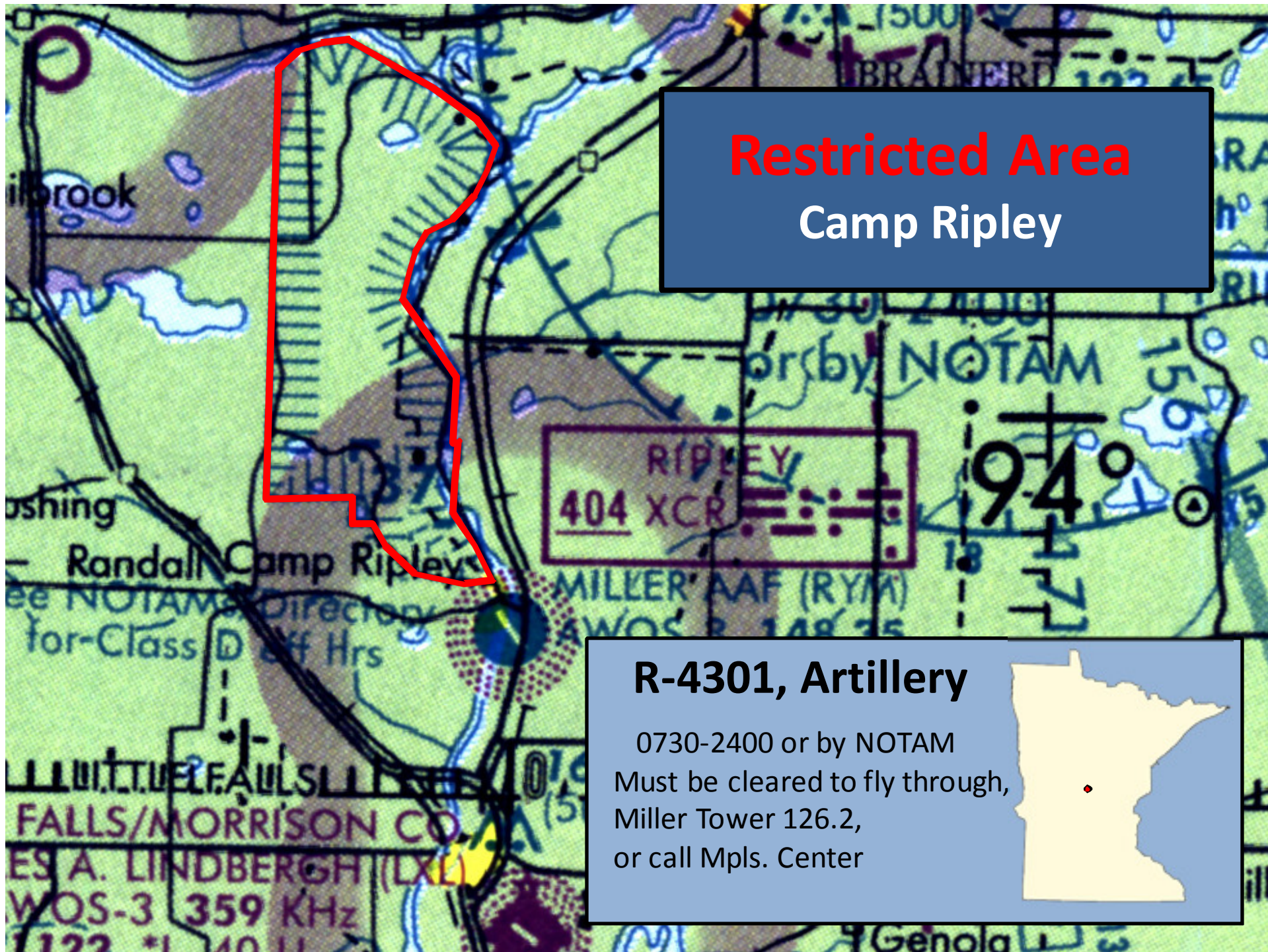
SPECIAL USE AIRSPACE

Prohibited Areas Boundary Waters Canoe Area (BWCA)

P-204, P-205, P-206

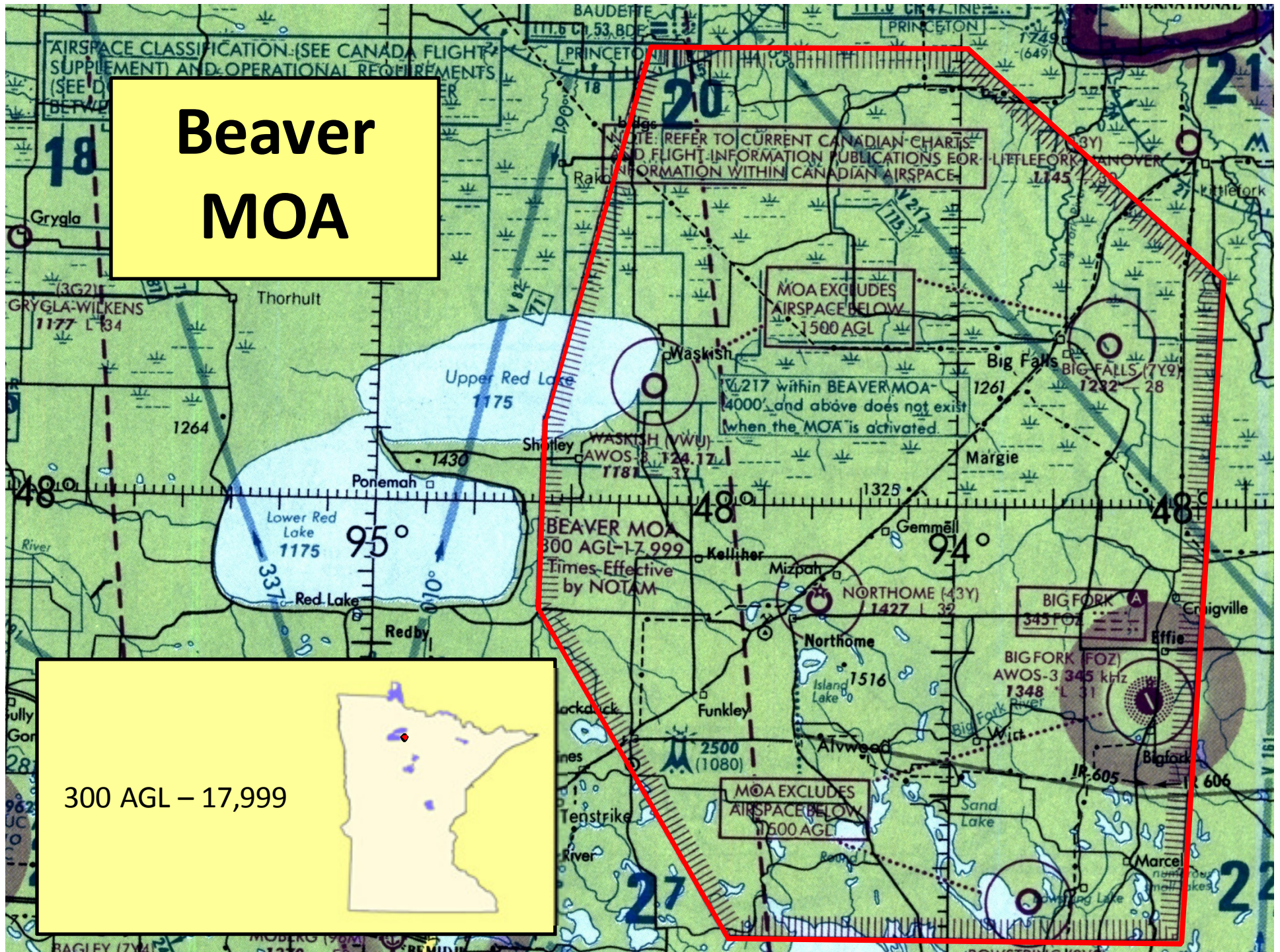
Flight prohibited under 4000ft. MSL unless authorized by USFS or on official State or County mission (not simply a ferry flight).





Beaver MOA

300 AGL – 17,999



**Snoopy West / East
MOA**

Snoopy West
6000 – 17,999 MSL
Times Effective by NOTAM • 2020

Snoopy East MOA
300AGL-17,999
Times effective by NOTAM

Snoopy East
300AGL – 17,999

Snoopy West
6000 – 17,999 MSL

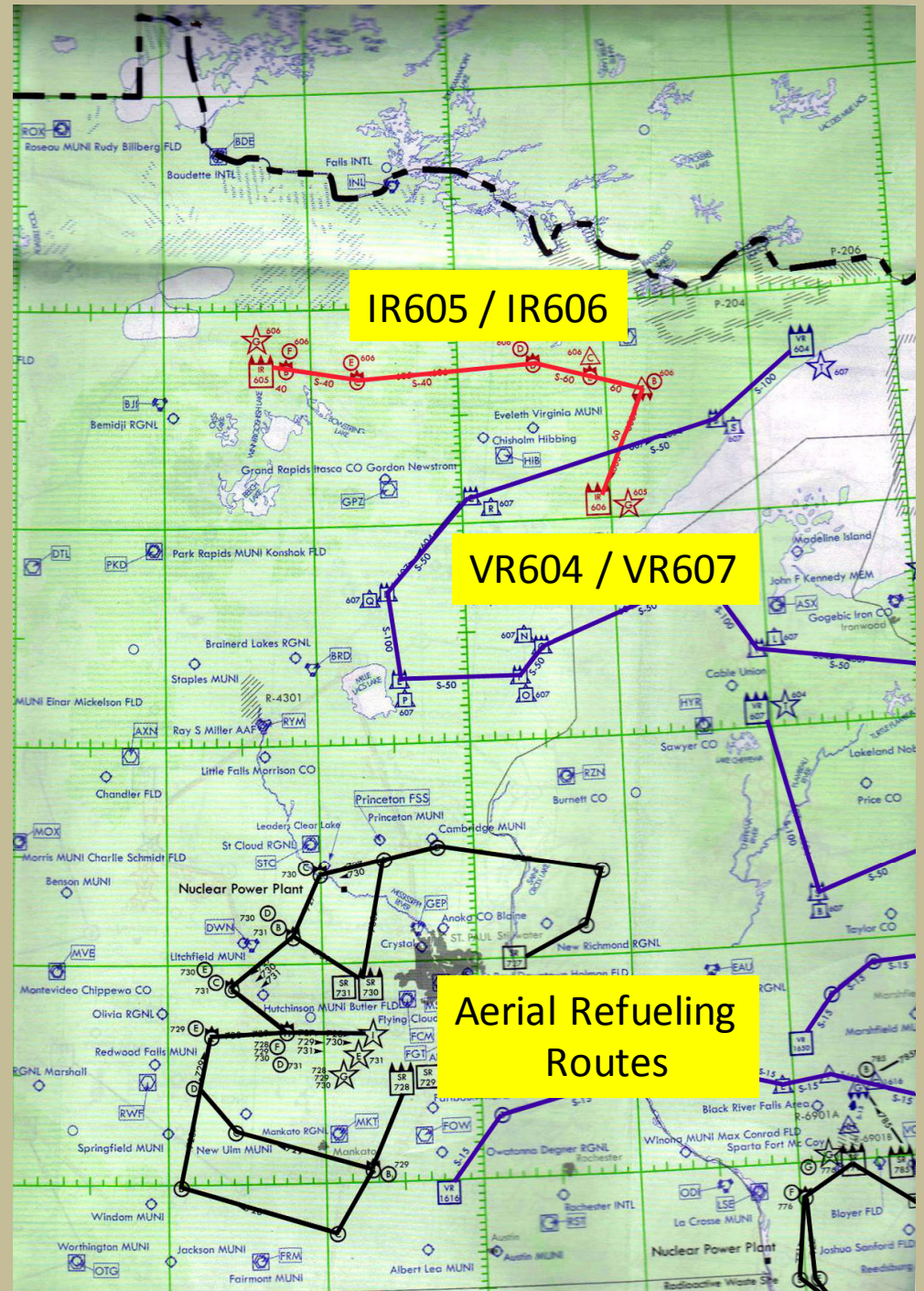
Snoopy East
300AGL – 17,999

MTRs

There are three primary MTRs in Minnesota.

Status is updated daily as noted on Aircraft Status Report.

Aviation Desk can deconflict airspace if needed.



Other Airspace Issues

Unmanned Aircraft Systems (UAS)

- All Gov't UAS's are based in Grand Forks, ND
- UAS's are authorized by the FAA to operate within a 150 mile radius of Grand Forks (East to Red Lake)

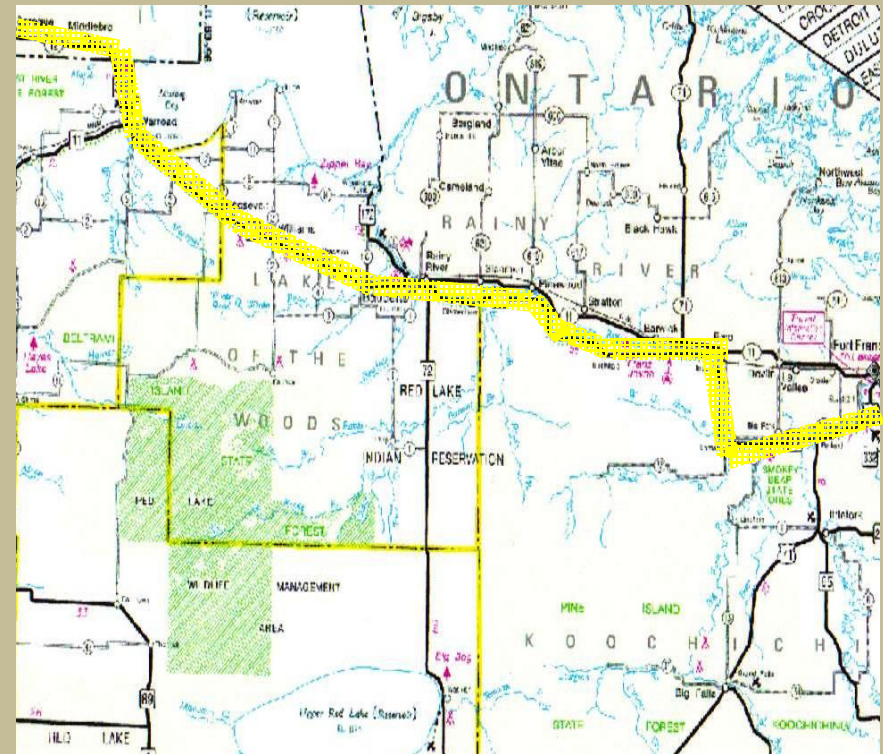


**UAS's are becoming more prevalent on wildfires.
Watch for them and notify HMGB or IC if one is seen.**



US / Canadian Border Issues

- 122.925 is a dedicated frequency 2 miles either side of border.
- Minneapolis Center
 - transponder code
- Airbust
 - California
- Border Patrol
 - Grand Forks, ND



MN / WI Border Issues

- **122.925** is a dedicated frequency 2 miles either side of border
- **WI DNR Tactical Firefighting Operations**
 - Detection is called “Patrol”
-when over a fire, they assume the ATGS role
 - Heavy Equipment has a prominent role in their fireline tactics
 - Helitack crew safety



Additional Plans

- Infested Waters Plan / Mitigations
- Airspace Coordination Guide
- All Risk Plan
- Aircraft Security Plan
- Aviation Safety Plan
- Aircraft Search, Rescue and Crash Checklist
- MNARNG Helicopter Operations Plan



SAFECOM REVIEW

SAFECOM

Form

Used to report any condition, observation, act, maintenance problem, or circumstance with the pilot or the aircraft that has the potential to cause an aviation-related mishap.

04-1

SAFECOM AVIATION SAFETY COMMUNIQUE		Reported By (Optional) Name <u>Steve Newbloom</u> Phone <u>218-879-0823</u> Organization <u>DNR Forestry</u> Date <u>05/06/2004</u>	
EVENT	Date <u>05</u> <u>06</u> <u>2004</u> <small>Mo Day Year</small>	Local Time <u>1535</u> <small>24 Hour Clock</small>	Injuries? <u>N</u> Damage <u>N</u>
	Location <u>46 33.133 92 53.414</u> <small>Airport, City, Lat., Long, or Fair Name</small>		State <u>MN</u>
MISSION	Type <u>Detection</u> <small>Fire, Cargo, Rescue, Miss, Long line, Rappel, etc.</small>		Procurement <u>Contract</u> <small>Contract, CWN, Rental, Fleet, Corporate, etc.</small>
	Number of Persons On board <u>2</u>		Special Use? <u>N</u> Hazardous Materials Onboard? <u>N</u>
	Departure Point <u>TWN</u>		Destination <u>TWN</u>
AIRCRAFT	N # <u>9011T</u> Manufacturer <u>Cessna</u> * Model <u>182</u>		
	Owner/Operator <u>Anderson Aero</u> Pilot <u>Mark Lande</u>		
<p><u>NARRATIVE:</u> <small>Please provide a brief explanation of the event.</small></p> <p>An incident occurred in the Cloquet detection area. Our detection plane spotted a smoke in the Sandstone area. The detection observer radioed that they would check it out. The dispatcher informed St. Louis 1 to "Standby" while a call was made to the Sandstone dispatch.</p> <p>Upon calling Sandstone, Cloquet dispatch was informed that they had their detection plane heading towards the reported smoke. Cloquet dispatch called St. Louis 1 to inform them that they could resume their route. Detection then informed dispatch that they were over the fire.</p> <p>Cloquet dispatch immediately informed St. Louis to go back to the Cloquet area and resume their route. Dispatch and the observer discussed the incident. The observer was reminded of the protocol used for flying into another Area's air space.</p> <p><u>FORESTRY CHIEF PILOT'S NOTES:</u> We have procedures for crossing area boundaries; they are reviewed at Fire Team Leader meetings, Dispatcher meetings and at pre-season detection start up meetings. The observer is the person in charge of the flight. The pilot takes direction from the observer. The person managing the individual detection contract should review the procedures for crossing Area boundaries with their observers and pilots. Make people accountable for their actions. This is not the only Area having this problem.</p> <p><u>SAFETY ADVISOR'S NOTES:</u> We have established good procedures to help avoid mid air collision or near mid air collisions in these types of situations. Now we need to identify why we continue to have these types of incidents despite our procedures: Supervision failure? Training failure? Communication failure? Inadequate briefings? Other?</p>			
This form is used to report any condition, observance, act, maintenance problem, or circumstance which has potential to cause an aviation-related mishap.			

CIRCUIT DISCIPLINE



CHARACTERISTICS OF A QUALITY CIRCUIT

- Direct, efficient, shortest possible turnaround time
- All aircraft following same flight pattern
- Coordinated and controlled
- Well communicated
- Rhythmic

STAGGER OR GROUP FLIGHT

- ATGS will determine staggered or group flight as appropriate for each fire
- Staggered flight
 - Short turnarounds
 - Smaller scoop lakes
 - Tactics may dictate
 - Multiple targets
 - Changing conditions

STAGGER OR GROUP FLIGHT

- Group flight
 - Longer turnarounds
 - Adequate size scoop lake
 - Working closely with ground suppression
 - Approximate half mile separation recommended or approximately 15 seconds between drops
 - Adequate spacing is required to evaluate drops and make adjustments for subsequent drops to maximize effectiveness

***MNDNR does not support formation flying



CIRCUIT DISCIPLINE

- **EXPECTATIONS**

- Scooper pilots will “call up” from the lake on every scoop
- Scooper pilots will contact the ATGS at a checkpoint if established on long turns
- Freelancing will not be tolerated. All deviations from the established circuit flight pattern will be communicated/pre-approved

CIRCUIT DISCIPLINE

- **ENCOURAGED**

- Pilot to pilot communications/reports
- Continuously assess risk/benefit-not all fires are urgent, not all phases of the fire are urgent
- If there is a need to pass another tanker, pass on the way back to the lake-communicate your intent
- Work as a team-pilots and air attack

A helicopter is shown in flight, carrying a large bucket suspended from its hoist. The helicopter is positioned in the upper center of the frame. The background is a hazy, orange-tinted landscape with a line of trees on the horizon and a field of tall grass in the foreground. The overall image has a warm, monochromatic orange color scheme.

QUESTIONS?

ADDITIONAL COMMENTS?

MISSED ITEMS?