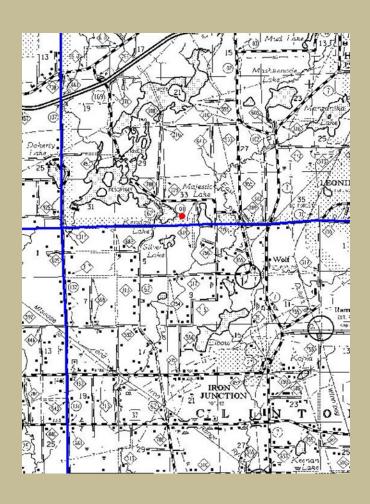
Tactical Aircraft Request Form

**Check Hazard Map** 

Pilot and crew move to A/C

#### **Landview printout**

- May be available
- Valuable to Fuel Truck driver



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.



Tactical Aircraft Request Form

**Check Hazard Map** 

Pilot and crew move to A/C

Landview printout

Fuel truck driver briefing

Manager moves to helicopter



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



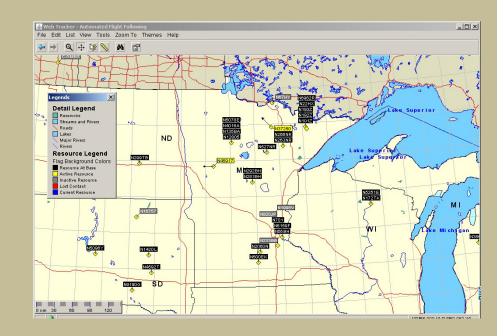
- Identifier
- Location
- # of souls onboard
- Fuel
- Direction of travel
- ETA
- Confirm AFF

# 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

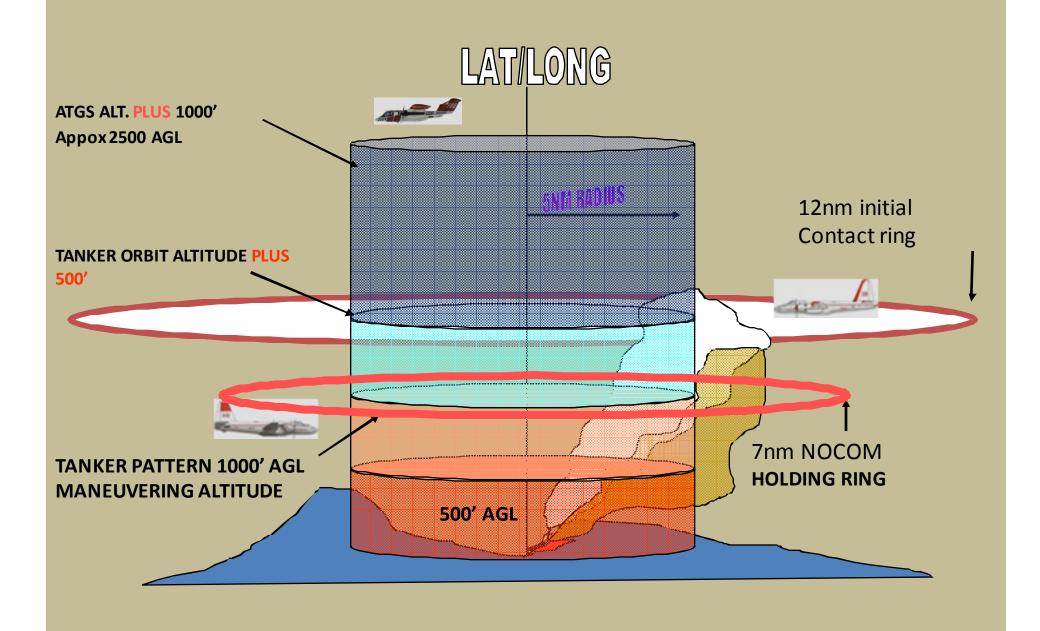
7nm – Do not enter unless: Have Clearance

Have Commo

Can Comply

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

### **FTA DIMENSIONS**



## **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





# **Mission Supervision**

#### If ATGS platform is overhead:

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

#### If ATGS platform is <u>not</u> 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

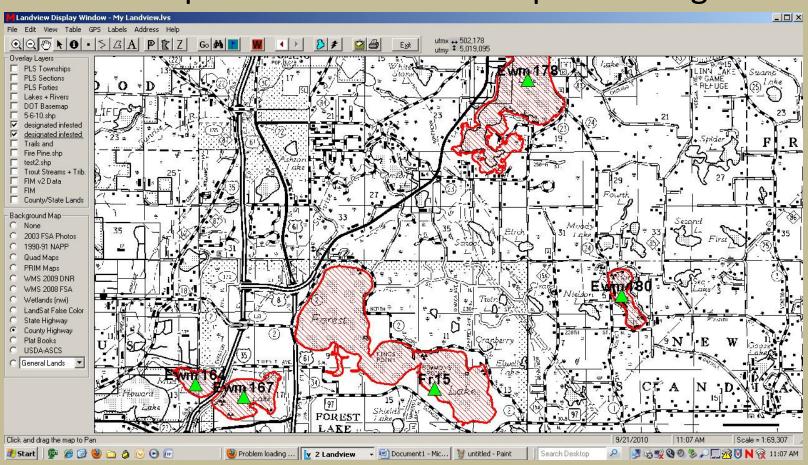


## **Invasive Species**

**Review Plan** 

Know status of lake before using.

Confirm procedures with Helicopter Manager.



# **Invasive Species**

**Eurasian Water Milfoil** 



Spiny Water Flea



Zebra Mussels

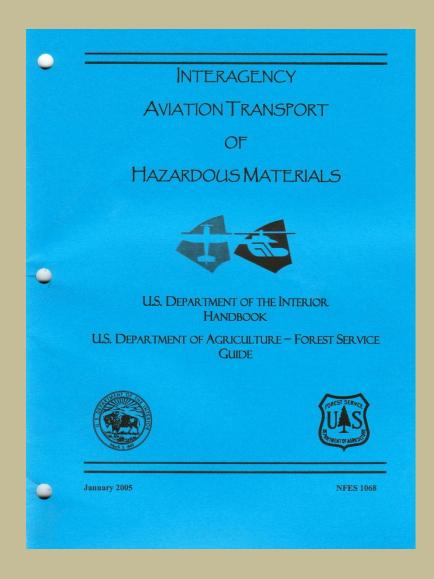


**Others** 



#### **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

	MI	N DNR	FORES	TRY -	HELICO	PTER C	ONTR	ACT DA	ILY D	DIARY		
T I	DATE:		04/17/10			Page	1	of	1	1	4/8/200	
1. Contract	or:	So	otts Helicopt	ers	9. Designate	d Base:		Hibbing		Excl.Use CWN	XX	
2. A/C Make Model & F	A SERVICE AND A	Bell	206 BII	60N	10. Current / Location				Hibbing			
3. Helicopte	70.50 S.		Mike Balch		11.Pilot Qua	lifications:		Recon.	XX	Bucket xx		
з. пенсори	er Filot.		WIKE DAIGH		Aerial Ignition- PSD xx			Helitorch xx		Long Line xx		
4. Fuel Tr	uck Driver:		Anson		12. Weather S			Olean		T	61	
and an	THE STATE OF THE S		ADMINISTRACE.	_	Sky Con Wind Speed:	18 G29	144-41	Clear Direction:	N	Temp:	19%	
5. Mechanic	c:				13. Canadian	FFMC:	91.3	DMC:	36.5	DC:	128.3	
					Fuel Index	ISI:	17.4	BUI:	42.6	FWI:	30.2	
6. Total # o	f Contractor	Personnel:		2	4.4 Antinita	Summary:		9.011		erial Ignition	00.2	
					Logistical Fir		(cneck all	Standby	XX	LA.	XX	
7. Fuel Truck Capacity in Gallons:			270	Non-Fire	-		Training		Ferry	XX		
8.Daily Ava	B.Daily Availability Begin			Total Hours	15. Helitack			, i i i i i i i i i i i i i i i i i i i		Total F		
	nd-By:	0600	2000	14	HELM		Fr	ame		14		
Pilot D	outy Day:	0600	2000	14	HELM(T)							
Driver [	Outy Day:	0600	1900	14	HECM		thun		14			
Mechanic	Duty Day:							ntsar		14		
	ct Rates: (No						-	E + 015	Delta	Daily Ava	Nata Wal	
Flight Rate/Hour Ferry Flight Rate/H			t Rate/Hour	Fuel Tru	ck Rate/Mile	Per Dier	n Rate	Ext. St/b	v Rate	Dairy Ava		
253	\$765.00 \$765.00							1000	W/7/5141		0.000	
17. Narrativ	ve Report: (	Include prob	elems encou	ntered, des	\$1,50 scription of mis end analysis of	ompleted, re	COMs sul	\$30. bmitted, activ any unavailal	00 ities, bility, etc.	\$614	0.000	
Ferry flight f Dispatched was coded to	from Roseau from there to to MIFC proje	Include prob maintenan- to Hibbing. I Pike Lake F ect code, ma	elems encou ce performe Briefed Man Fire. Extende y need to ch	ntered, ded d, power tr ager and C ed Standby ange it to I	scription of misend analysis of crewmember. Experience of the control of the cont	sions, SAFE ompleted, re Did repairs or ght and Pike	COMs su asons for n State bu Lake fire	\$30. bmitted, activ any unavailal cket. Dispato Duty day en	ities, bility, etc. hed to Ra ded at 20	) angeline fire.	.00	
17. Narrativ Ferry flight f Dispatched was coded t	from Roseau from there to to MIFC proje	Include prob maintenan- to Hibbing. I Pike Lake F ect code, ma	elems encou ce performe Briefed Man Fire. Extende y need to ch	ntered, ded d, power tr ager and C ed Standby ange it to I	scription of mis end analysis of rewmember. Do due to ferry fli	isions, SAFE completed, re Did repairs or ght and Pike	asons for n State bu Lake fire.	\$30. bmitted, activ any unavailal cket. Dispato Duty day en	ities, bility, etc. hed to Ra ded at 20	) angeline fire.	.00	
Ferry flight f Dispatched was coded to	from Roseau from there to to MIFC proje	maintenan to Hibbing. I Pike Lake F ect code, ma	elems encou ce performe Briefed Man Fire. Extende y need to ch	ntered, det d, power tr ager and C ed Standby ange it to l	scription of misend analysis of crewmember. Experience of the control of the cont	ompleted, re Did repairs of ght and Pike	COMs suresons for a State but Lake fire.	\$30. bmitted, activ any unavailal cket. Dispato Duty day en	ootoox))	) angeline fire.	.00	
Ferry flight f Dispatched was coded to 18. Flight In From: Beg.Hobbs	from Roseau from there to to MIFC proje information: ( Rose End Hobbs	Include prob maintenan to Hibbing. I Pike Lake F ect code, ma Show total f	olems encou ce performe Briefed Man Fire. Extendo y need to ch light time an To:	ntered, det d, power tr ager and C d Standby ange it to I d mileage H Total Miles	scription of misend analysis of crewmember. Experience of the first fill the following of the fill the	isions, SAFE completed, re Did repairs or ght and Pike	COMs suresons for a State but Lake fire.	\$30. bmitted, activ any unavailal cket. Dispato Duty day en	ootoox))	) angeline fire. 00 for pilot. F	.00	
Ferry flight f Dispatched was coded to 18. Flight Ir From:	from Roseau from Roseau from there to to MIFC proje	Include prob maintenant to Hibbing. It Pike Lake F cct code, ma Show total f	elems encou ce performe Briefed Man- ire. Extende y need to ch light time an To:	ntered, des d, power tr ager and C ed Standby ange it to l d mileage	scription of mis end analysis o crewmember. It due to ferry fli Hibbing.	sions, SAFE completed, re Did repairs or ght and Pike Incide Project Nan DNR Project # Sec.	COMs su asons for n State bu Lake fire. Lake fire.	\$30. bmitted, active any unavailal coket. Dispato: Duty day end	ootoox))	) angeline fire. 00 for pilot. F	.00	
17. Narrativ Ferry flight f Dispatched was coded t  18. Flight ir From: Beg.Hobbs 224.6 From:	re Report: ( from Roseau from there to to MIFC proje  Rose End Hobbs 225.8  Hibb	Include prob maintenant to Hibbing. It Pike Lake F ct code, ma Show total f eau Flight Time 1.2	olems encourse performe Briefed Man irre. Extende y need to ch To: Flight Cost \$918.00	ntered, det d, power tr ager and C d Standby ange it to I d mileage H Total Miles	scription of mis end analysis o crewmember. I due to ferry fli Hibbing.  for each incide ibbing  Truck Cost \$421.50  Orr	isions, SAFE completed, re pairs or ght and Pike int / project, Incide Project Nan DNR Project # Sec. Incide Project #	COMs su asons for n State bu Lake fire. Lake fire.	\$30. bmitted, active any unavailal cket. Dispatci Duty day endurea in "To" bi	ities, bility, etc. hed to Ra ded at 20 (xx)	y Flight Agency:	.00	
17. Narrativ Ferry flight f Dispatched was coded t  18. Flight Ir From: Beg.Hobbs 224.6 From: Beg.Hobbs	ve Report: ( from Roseau from there to to MIFC proje  Rose End Hobbs  225.8 Hibb End Hobbs	Include prob maintenant to Hibbing. It Pike Lake F ct code, ma Show total f eau Flight Time 1.2	olems encourse performe Briefed Man Fire. Extended to change of the Bright time and To: Flight Cost \$918.00 To: Flight Cost	ntered, det d, power tr ager and C dd Standby ange it to I d mileage H Total Miles 281	scription of mise and analysis corewmember. Let due to ferry fli- Hibbling.  Truck Cost \$421.50  Orr	isions, SAFE completed, re point of repairs or ght and Pike int / project, Incide Project Nan DNR Project # Sec. Incide Project # DNR	COMs su asons for n State bu Lake fire. Lake fire.	\$30. bmitted, active any unavailal cket. Dispatci Duty day endurea in "To" bi	ities, bility, etc. hed to Ra ded at 20 (xx)	y Flight Agency:	.00	
17. Narrativ Ferry flight f Dispatched was coded t  18. Flight Ir From: Beg.Hobbs 224.6 From: Beg.Hobbs 225.8	ve Report: ( from Roseau from there to to MIFC proje  nformation: ( Rose End Hobbs 225.8  Hibb End Hobbs 226.7	Include protomaintenanto Hibbing. It Pike Lake Foot code, ma  Show total figure 1.2  Ing Flight Time 0.9	olems encouse performe Briefed Man Fire. Extende y need to chillight time and To: Flight Cost \$918.00 To: Flight Cost \$688.50	ntered, det d, power tr ager and C ed Standby ange it to I  d mileage  H  Total Miles  281  Total Miles  52	scription of misend analysis of rewmember. It due to ferry fill idlibiting.  Truck Cost. \$421.50  Orr  Truck Cost. \$78.00	sions, SAFE pmpleted, re Did repairs or ght and Pike int / project, Incide Project Nan DNR Project # Sec. Incide Project # Sec.	COMs su asons for n State bu Lake fire. Lake fire.	\$30. bmitted, active any unavailal cket. Dispatc Duty day en  urea in "To" bi  37119990 Twp.	ities, bility, etc. hed to Ra ded at 20 (xx)	y Flight Agency: Rge.	.00 erry fligh	
17. Narrativ Ferry flight f Dispatched was coded f  18. Flight ir From: Beg.Hobbs 224.6 From: Beg.Hobbs 225.8	re Report: ( from Roseau from Horseau from there to to MIFC projet  Rose End Hobbs 225.8  Hibb End Hobbs 226.7	Include protomaintenant to Hibbing. It Pike Lake Foot code, ma Show total fleat Flight Time 1.2 ing Flight Time 0.9	elems encouse performe Briefed Man irre. Extende y need to children and the second sec	ntered, det d, power tr ager and C ed Standby ange it to i  d mileage H Total Miles 281  Total Miles 52	scription of misend analysis of rewmember, C. due to ferry fli-libbing.  for each incide libbing.  Truck Cost \$421.50  Orr  Truck Cost \$78.00  and Daily Cost and Daily Cos	sions, SAFE pmpleted, re pid repairs or ght and Pike int / project, Incide Project Nan DNR Project # Sec. Incide Project # Project # Sec. sts:	asons for n State bu b Lake fire. Lake fire. Lake fire. Lake fire. Lake fire. Lake fire. Lake fire. Lake fire. Lake fire.	\$30. bmitted, active any unavailal cket. Dispatci Duty day en arrange in "To" bit arra	000 itites, bility, etc. hed to Raded at 20  (DX)  Ferry  Range	y Flight Agency: Rge. Agency:	DNR	
17. Narrativ Ferry flight f Dispatched was coded f  18. Flight ir From: Beg.Hobbs 224.6 From: Beg.Hobbs 225.8	ve Report: ( from Roseau from there to to MIFC proje  nformation: ( Rose End Hobbs 225.8  Hibb End Hobbs 226.7	Include protomaintenant to Hibbing. It Pike Lake Foot code, ma Show total fleat Flight Time 1.2 ing Flight Time 0.9	elems encouse performe Briefed Man irre. Extende y need to children and the second sec	ntered, det d, power tr ager and C dd Standby ange it to I  d mileage  H  Total Miles  52  Itshments tee Hours	scription of misend analysis of rewmember, C. due to ferry fli-libbing.  for each incide libbing.  Truck Cost \$421.50  Orr  Truck Cost \$78.00  and Daily Cost and Daily Cos	sions, SAFE pmpleted, re Did repairs or ght and Pike int / project, Incide Project Nan DNR Project # Sec. Incide Project # Sec.	asons for n State bu b Lake fire. Lake fire. Lake fire. Lake fire. Lake fire. Lake fire. Lake fire. Lake fire. Lake fire.	\$30. bmitted, activ any unavaital cket. Dispato Duty day en  rea in "To" bi  37119990 Twp.  32410004 Twp.  Ext. Sta. Co.	000 000 000 000 000 000 000 000 000 00	y Flight Agency: Rge. Agency:	DNR DNR 24	
17. Narrativ Ferry flight f Dispatched was coded f  18. Flight ir From: Beg.Hobbs 224.6 From: Beg.Hobbs 225.8	re Report: ( from Roseau from there to to MIFC proje  from the to t	Include protomaintenant to Hibbing. It Pike Lake Foot code, ma Show total fleat Flight Time 1.2 ing Flight Time 0.9	elems encourse performe street Mansiere. Extende y need to chilight time an To: Flight Cost \$918.00 To: Flight Cost \$688.50 ge, Accomp	ntered, det d, power tr ager and C dd Standby ange it to I  d mileage  H  Total Miles  52  Itshments tee Hours	scription of misend analysis of rewmember. Corewmember. C	sions, SAFE pmpleted, re pid repairs or ght and Pike int / project, Incide Project Nan DNR Project Sec. Incide Project # Sec. Sec. Sec. Sec. Sec. Sec. Sec. Sec.	asons for n State bu Lake fire. list DNR A ent / ne: 10	\$30. bmitted, activ any unavaital cket. Dispato Duty day en  rea in "To" bi  37119990  Twp.  32410004  Twp.  Ext. Sta	000 000 000 000 000 000 000 000 000 00	y Flight Agency: Rge.  Miscelia	DNR DNR 24	
17. Narrativ Ferry flight if Dispatched was coded if 18. Flight ir From: Beg.Hobbs 224.6 From: Beg.Hobbs 225.8 19. Summa	re Report: ( from Roseau from there to to MIFC proje  from there to to MIFC proje  Rose End Hobbs  225.8  Hibb  End Hobbs  226.7  In of Flight Taily Availability Cost	Include protomaintenant to Hibbing. It Pike Lake Foot code, ma Show total fleat Flight Time 1.2 ing Flight Time 0.9	olems encourse performed and the performance and the perfo	ntered, det d, power tr ager and C dd Standby ange it to I  d mileage  H  Total Miles  52  Itshments tee Hours	scription of misend analysis of rewmember. Corewmember. C	sions, SAFE pmpleted, re pid repairs or ght and Pike int / project, Incide Project Nan DNR Project Nan DNR Project Bec. Incide Project Sec. Incide Project Sec. Incide Project Sec. Co	asons for n State bu Lake fire. I Lake fire.	\$30. bmitted, activ any unavaital cket. Dispato Duty day en  rea in "To" bi  37119990 Twp.  32410004 Twp.  Ext. Sta. Co.	000 itities, itities, hed to Ra fed at 20  Fern  Range  55  andby st	y Flight Agency: Rge.  Miscelia	DNR DNR 24	
Ferry flight f Dispatched was coded t  18. Flight f From: Beg.Hobbs 224.6 From: Beg.Hobbs 225.8	re Report: ( from Roseau from there to to MIFC proje from there to to MIFC proje  Rose End Hobbs 225.8  Hibb End Hobbs 226.7  rry of Flight Cost \$514.00	Include protomaintenant to Hibbing. It Plike Lake Foot code, maintenant to Hibbing. It Plike Lake Foot code, maintenant to Hibbing. It Plight Time 1.2 ing Flight Time 0.9	olems encouse performed and the second of th	ntered, det d, power tr ager and C dd Standby ange it to I d mileage H Total Miles 281  Total Miles 52  Isshments tee Hours	scription of misend analysis of rewmember. Corewmember. C	sions, SAFF completed, re project, re incident project, incident project, and DNR Project # Sec. Incident project # Sec. Sec. Sec. Sec. Sec. Sec. Sec. Sec.	asons for n State bu Lake fire. I Lake fire.	\$30. bmitted, active any unavailable cket. Dispatc Duty day en  37119990 Twp. 32410004 Twp. Ext. Stat. Core \$3000	000 itities, itities, hed to Ra fed at 20  Fern  Range  55  andby st	y Flight Agency: Rge. Agency: Rge. Misoelia Costs /	DNR DNR 24	
17. Narrativ Ferry flight f Dispatched was coded t 18. Flight Ir From: Beg.Hobbs 224.6 From: Beg.Hobbs 225.8 19. Summa D	re Report: ( from Roseau from there to to MIFC proje  Rose End Hobbs 225.8  Hibb End Hobbs 226.8  Yer of Flight Cost \$614.00  Flight Cost \$4,380.50	Include protomaintenant to Hibbing. It Plike Lake Foot code, maintenant to Hibbing. It Plike Lake Foot code, maintenant to Hibbing. It Plike Lake Foot code, maintenant to Hibbing. It Plike Time 1.2 ing Flight Time 0.9 Flight Time 0.9 Flight Time Truck Miles	elems encouse performed and the performance and the performa	ntered, deid, power In ager and C do Standby ange it to I discourage it is a discourage i	scription of misend analysis of rewmember. Crewmember.	islons, SAFE completed, re- complete	asons for n State bu Lake fire. I Lake fire.	\$30. bmitted, active any unavailable cket. Dispatc Duty day en  37119990 Twp. 32410004 Twp. Ext. Stat. Core \$3000	ooo titles, so titles, etc. etc. etc. etc. etc. etc. etc. etc.	y Flight Agency: Rge. Agency: Rge. Miscella Costs /	DNR DNR 24	

# **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.

	Le Sue	ur, MN 56058	ORM A-										MINNESOTA DIR - FORESTRY RECORD OF AIRCRAFT USE / HELICOPTER											
	Le Sue	D Box 92 ur, MN 56058	Α-	PILOTS		AIRCRAFT INFORMATION CONTRACT RATES								CONTRACT BASE										
	Le Sue	ur, MN 56058	A-		PILOTS		AKE		Bell		FLIG	HT RATE		\$	765.00	per	hour	-	- Charles and the	н	BBING		-	
						Balch MODEL		206 B III		FUEL TRUCK RATE		-	1.50	per	mile	_	ΔΙ	TERM	NATE E	RASE				
	507		B-	Fall	ko	FAA N#			60	DN / 3	9101	DAIL	Y AVAILIBIL	ITY	\$	614.00	per	day	-				7,01	-
		-665-4064	C-			BUCKE	TCA	PACITY	108	gal	lons	PER	DIEM RATE		5	100.00	-	person		-	ONTE	ACT	VDE	
			D-			FUEL T	RUC	K CAP.	270	-	lons	EXT	ENDED STA	NDBY	\$	30.00	-	hour	-			IEN-NE		
	FLIGHT	COST CODING IN	FOR	MATION		TIME	& M	ILEAGE I	NFORM	MATI	ON					STAN	NDB)	Y & TOTA	L CC	STS				
PILOT	USE			AREA/AGENCY		HOURS		COST	-	_							1	PER				-		TOTAL
	-		_				-	-			COST	AVA	AILABILITY	HOURS		COST	$\vdash$	DIEM	ST	ANDBY	CC	STS	$\vdash$	COSTS
A	FERRY	HIB		32349990	3198.4	1.6	\$	1,224.00	269	\$	403.50			1	\$	-	\$		\$		\$		\$	1,627.50
A	FIRE	HIB Deer River Number 8	fire	221/DNR 32210000	3198.4 3201.0	2.6	\$	1,989.00	88	\$	132.00	\$			\$		\$				\$		\$	2,121.00
A	STBY	нтв		234/DNR 32349990	3201.0 3201.0		\$			\$		\$	614.00		\$		\$	200.00	\$	120.00	\$		\$	934.00
A	STBY	нтв		234/DNR 32349990	7178.6 7178.6		\$			\$		\$	614.00	2.0	\$	1,530.00	\$	200.00	\$		\$		\$	2,344.00
A	STBY	НТВ		32349990	7180.4		\$			\$		\$	614.00	2.0	\$	1,530.00	\$	200.00	\$		\$		\$	2,344.00
В	STBY			32349990	7180.4		\$			\$		\$	614.00	2.0	\$	1,530.00	\$	200.00	\$		\$		\$	2,344.00
В	FIRE	Mud Hen Lk #23		32340000	7180.9	0.5	\$	382.50	36	\$	54.00	\$			\$		\$	٠	\$		\$		\$	436.50
В	STBY	HTB		32349990			\$			\$		\$	614.00	1.5	\$	1,147.50	\$	200.00	\$	٠	\$		\$	1,961.50
В	STBY			32349990			\$			\$	•	\$	614.00		\$		\$	200.00	\$		\$	•	\$	814.00
В	FIRE	Deer River #15		32210000	7182.3	1.4	\$	1,071.00	105	\$	157.50	\$	•		\$		\$		\$		\$		\$	1,228.50
В	FIRE	Grygla/HTB		31210200	7182.3 7186.4	4.1	\$	3,136.50	337	\$	505.50	\$			\$	•	\$		\$	120.00	\$	•	\$	3,762.00
							\$			\$		\$	•		\$	•	\$	•	\$		\$	•	\$	•
							\$			Ľ.		\$			-		-		_		\$	•	1	-
							ř			-	-	\$			-		-	•	-		\$		-	
	-			-			ŀ.	-		-		-	-		-		-	•	_				<u> </u>	
-	_						Ľ.	-		-	•	-					-			-	\$	•	-	
							1,			,	-	,			1,		,		•		•		1,	
					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
					HELICOP	TER M	IANA	AGER			7	Dan	ia Fran	ne			Г	DA	TE			0	1/02/10	<b></b>
lik	A A A A B B B B B B B B B B B B B B B B	A FERRY A FIRE A STBY A STBY B STBY C	LOCATION FROM   LOCATION FROM   LOCATION TO	LOT	CODE	LOT   USE	LOCATION FROM   AREAIAGENCY   START HOBBS   HOURS	LOCATION FROM   AREA/AGENCY   START HOBBS   HOURS	LOCATION FROM   AREA/AGENCY   START HOBBS   HOURS   LOCATION TO   PROJ. CODE   END HOBBS   HOURS   COST	LOCATION FROM   LOCATION FROM   LOCATION FROM   PROJ. CODE   END HOBBS   LOCATION TO   END HOB	LOCATION FROM   LOCATION FROM   LOCATION TO   PROJ. CODE   END HOBBS   LOCATION TO   END HOBBS   LOCATION T	LOCATION FROM   LOCATION FROM   LOCATION FROM   LOCATION TO   PROJ. CODE   END HOBBS   LOCATION TO   PROJ. CODE   THE   LOCATION TO   THE	LOCATION FROM   LOCATION FROM   LOCATION FROM   LOCATION TO   PROJ. CODE   END HOBBS   LOCATION TO   PROJ. CODE   THE   LOCATION TO   THE   LOCAT	LOCATION FROM   LOCATION FROM   LOCATION TO   PROJ. CODE   END HOBBS   LOCATION TO   LOCATION TO   PROJ. CODE   END HOBBS   LOCATION TO   PROJ. CODE   END HOBBS   LOCATION TO   PROJ. CODE   END HOBBS   LOCATION TO   LOCATION TO   PROJ. CODE   END HOBBS   LOCATION TO   PROJ. CODE   END HOB	LOCATION FROM   AREA/AGENCY   START HOBBS   HOURS   LOCATION TO   PROJ. CODE   END HOBBS   HOURS   LOCATION TO   PROJ. CODE   END HOBBS   HOURS   LOS   LOS   LOS   LOS   HIB   324/9990   3199.8   1.6   \$ 1,224.00   269   \$ 403.50		LOCATION FROM   AREA/AGENCY   START HOBBS   LOCATION TO   PROJ. CODE   END HOBBS   LOCATION TO   END HOBBS   END HOBBS   END HOBBS   LOCATION TO   END HOBBS   E		LOCATION FROM   AREA/AGENCY   START HOBBS   LOCATION TO   PROJ. CODE   END HOBBS   LOCATION TO   PROJ. CODE   END HOBBS   LOSATION TO   PROJ. CODE   PROJ. CODE	LOCATION FROM   AREA/AGENCY   START HOBBS   LOCATION TO   PROJ. CODE   END HOBBS   LOCATION TO   PROJ. CODE   END HOBBS   LOCATION TO   PROJ. CODE   END HOBBS   THE   LOCATION TO   PROJ. CODE   END HOBBS   THE   LOCATION TO   PROJ. CODE   END HOBBS   THE   THE		A   FRE	Note   Code   Cocation From   Area/Agency   Start Hobes   Code   Cocation From   Proc. Co	LOCATION FROM   REALIZED   PROJ. CODE   EUR   HOURS   COST   FUEL TRUCK   MILES   COST   AVAILABILITY   HOURS   COST   OST   COST   C



# **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**



# **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**

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

	FFMC	<u>DMC</u>	<u>DC</u>	<u>ISI</u>	<u>BUI</u>	<u>FWI</u>
Agassiz	88.5	31.9	145.1	<b>4.</b> 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	<b>6.</b> 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	<b>54.</b> 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	<b>4.</b> 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

	FFMC	<u>DMC</u>	<u>DC</u>	<u>ISI</u>	<u>BUI</u>	<u>FWI</u>
Agassiz	88.5	31.9	145.1	<b>4.</b> 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	<b>6.</b> 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	<b>57.4</b>	17.3
Cass Lake	90.5	38.5	236.9	7.1	<b>54.</b> 7	18.2
Cutfoot	89.5	39.3	265.6	4.5	<b>57.4</b>	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	<b>271.</b> 7	7.6	51.9	18.7
Grand Portage	87.3	39.2	190.5	<b>4.</b> 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**





High

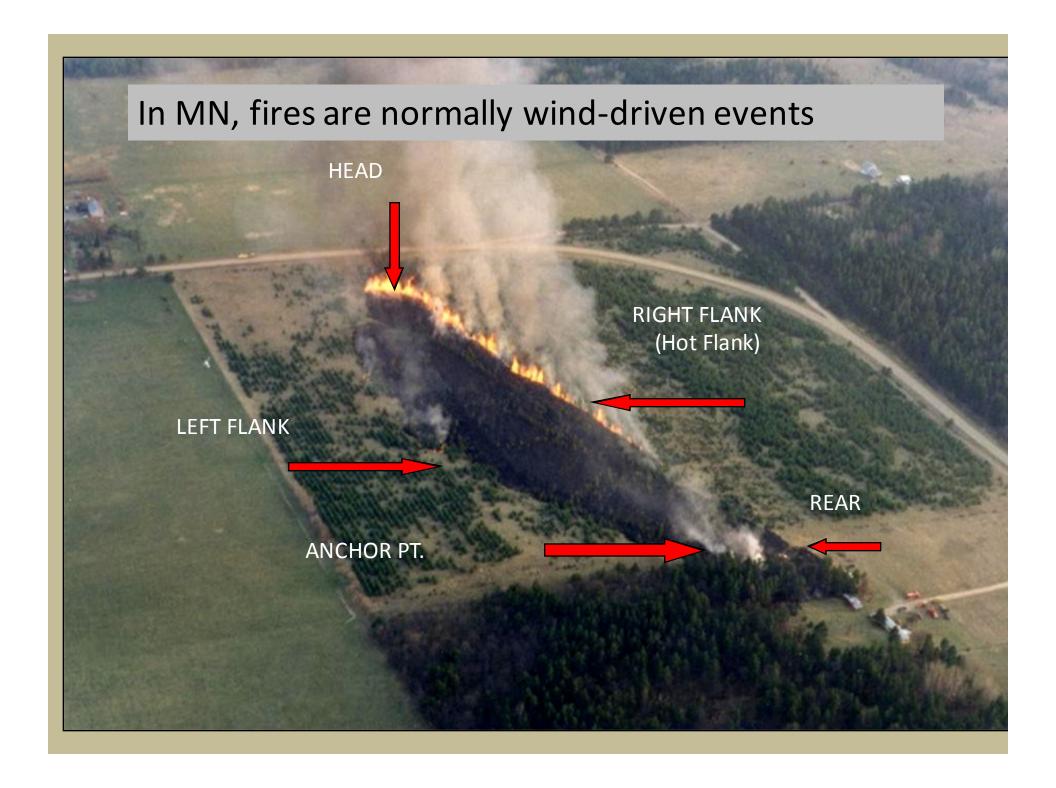
Very High

Extreme

	FFMC	<b>DMC</b>	<u>DC</u>	<u>ISI</u>	<u>BUI</u>	<u>FWI</u>
Agassiz	88.5	31.9	145.1	<b>4.</b> 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	<b>6.</b> 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	<b>57.4</b>	17.3
Cass Lake	90.5	38.5	236.9	7 <b>.1</b>	<b>54.</b> 7	18.2
Cutfoot	89.5	39.3	265.6	4.5	<b>57.4</b>	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	<b>271.</b> 7	7.6	51.9	<b>18.</b> 7
Grand Portage	87.3	39.2	190.5	<b>4.</b> 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

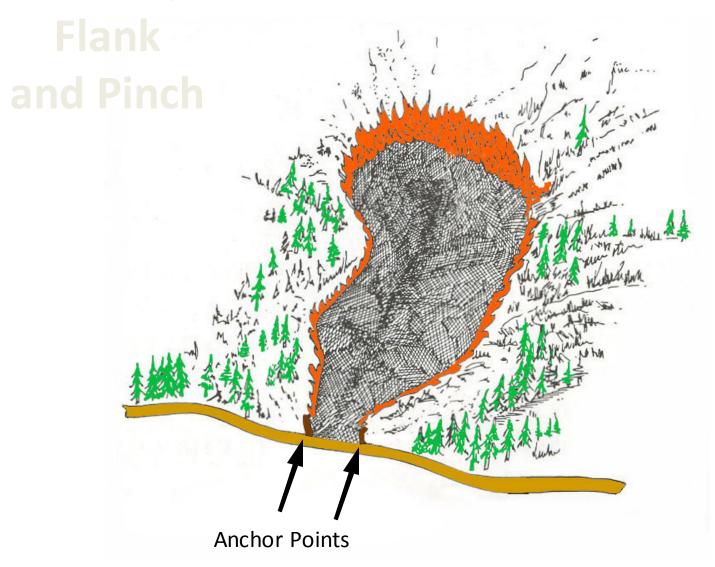




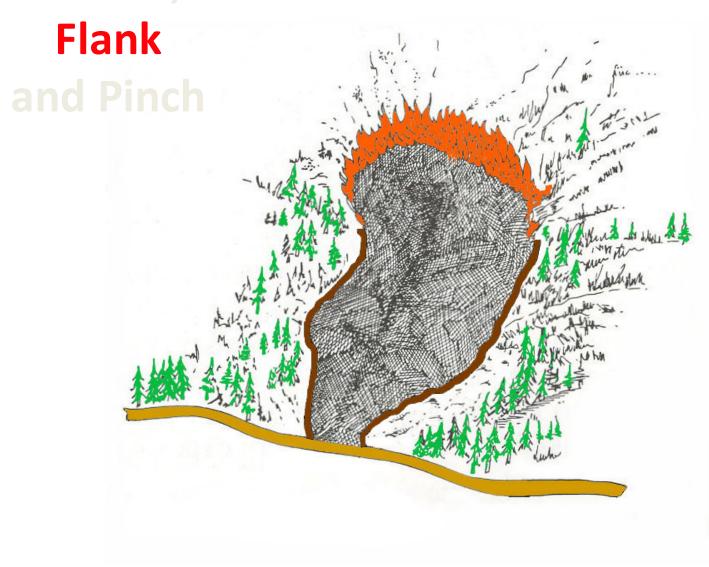


Anchor, Flank and Pinch

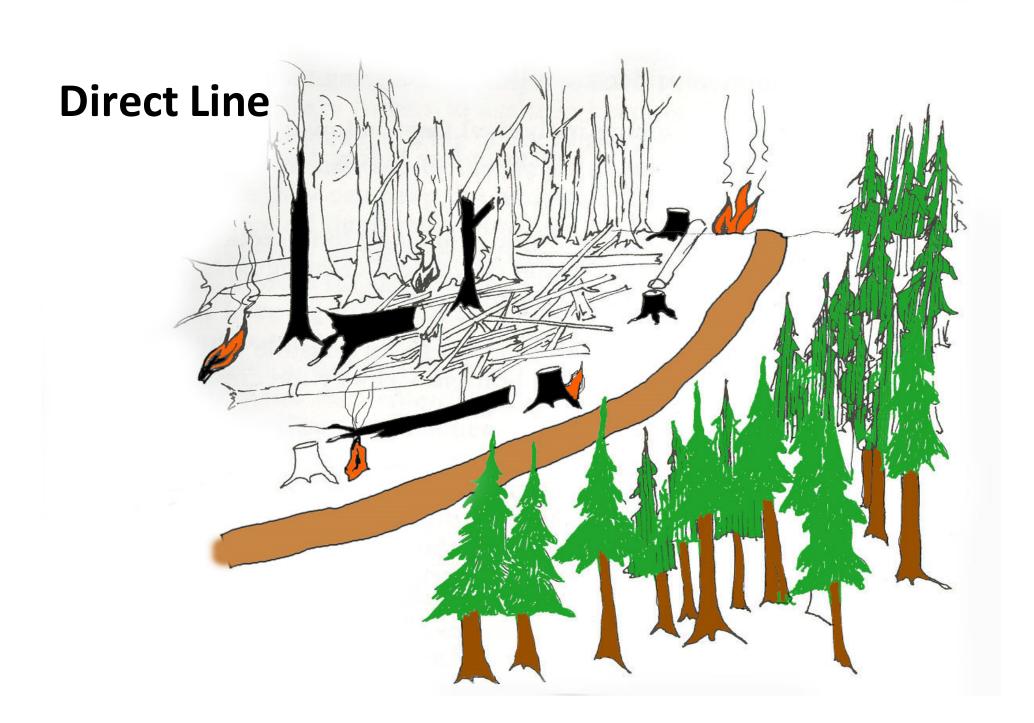
# Anchor,



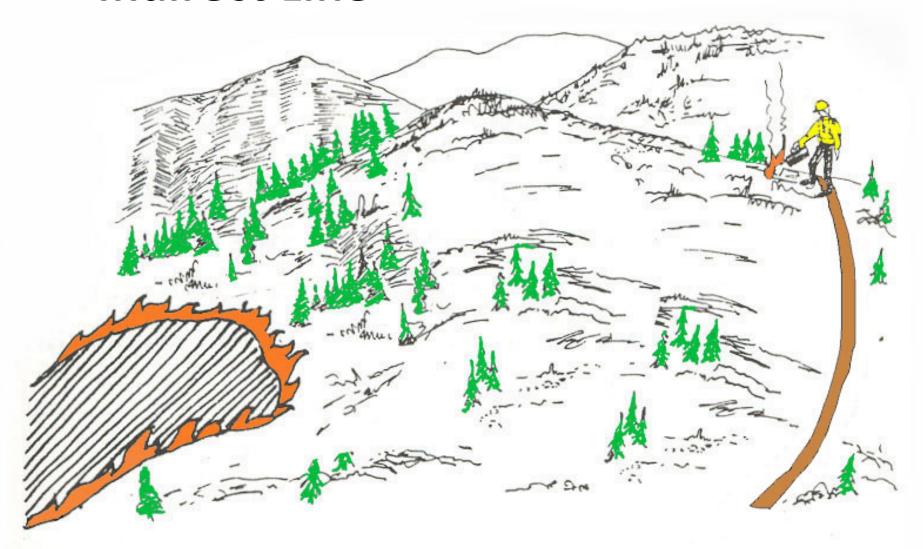
Anchor,



and Pinch

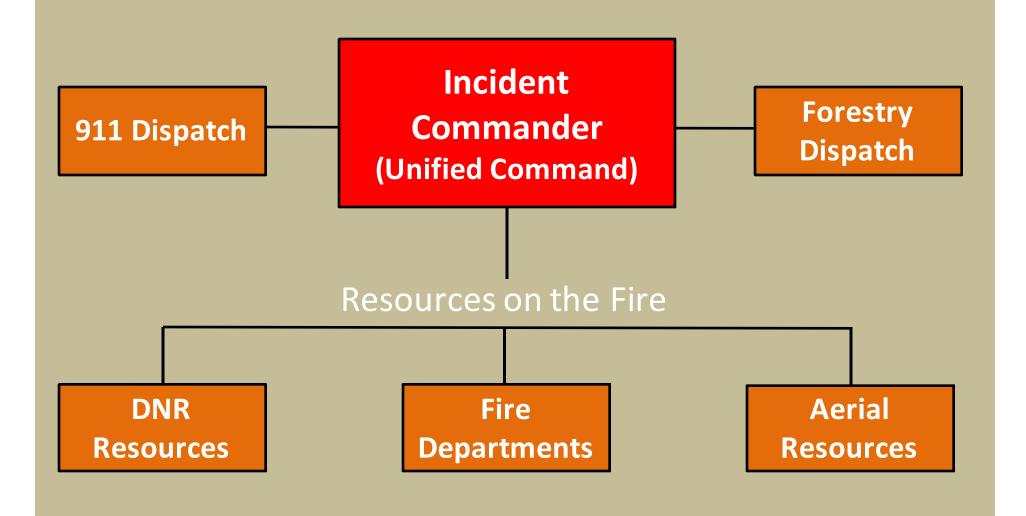


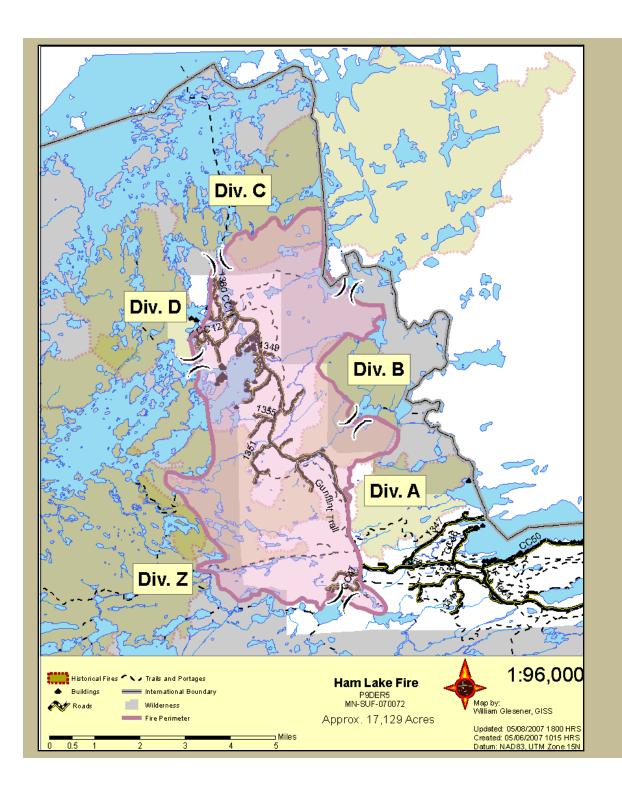
## **Indirect Line**





# **Small Fire Organization**





# Larger Fire Organization

Divisions Management Team



# DNR Engines







# Fire Department Engines

Pumper







# Fire Department Engines

Tender









# DNR Tracked Vehicles







# Fire Department Off-Road Vehicles





## **Dozers**







# Hoselays

Portable pumps set up at a water source

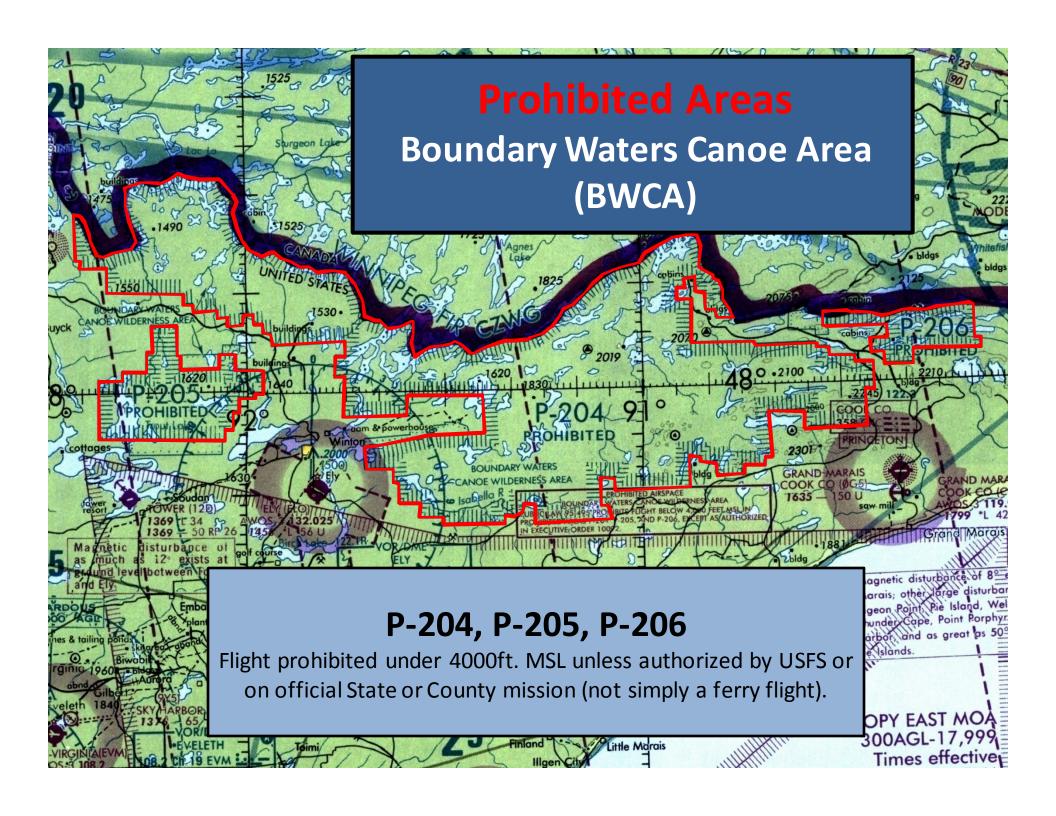


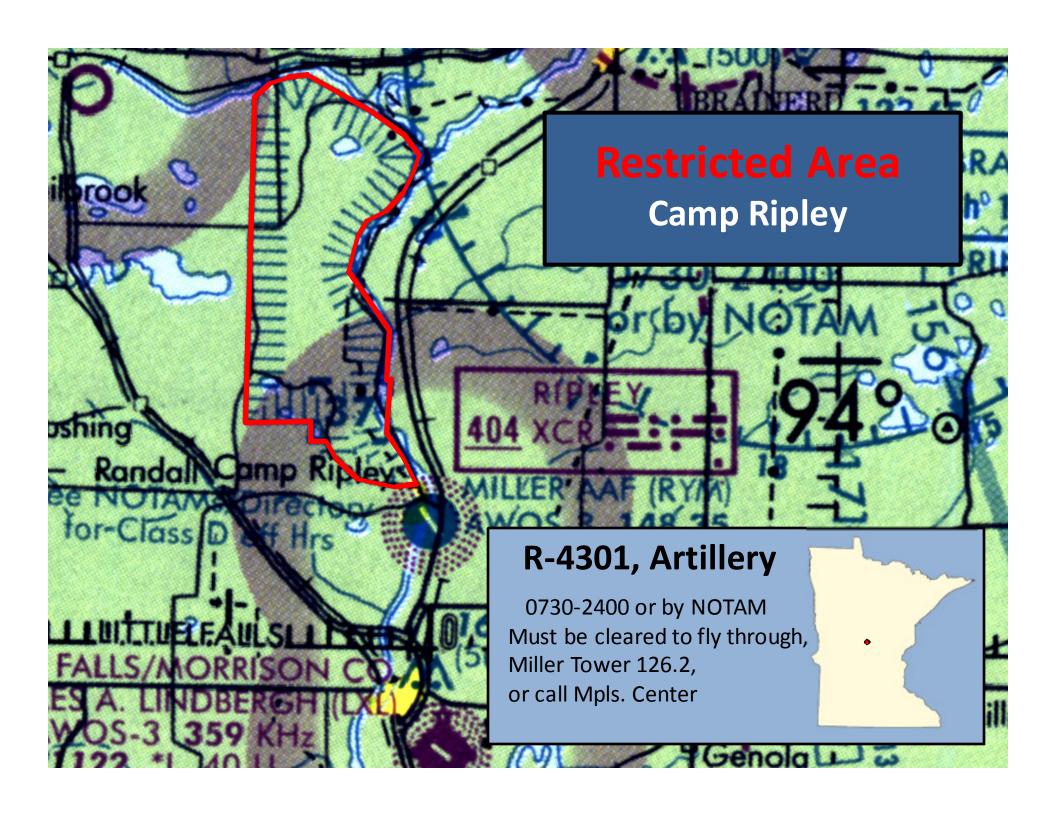


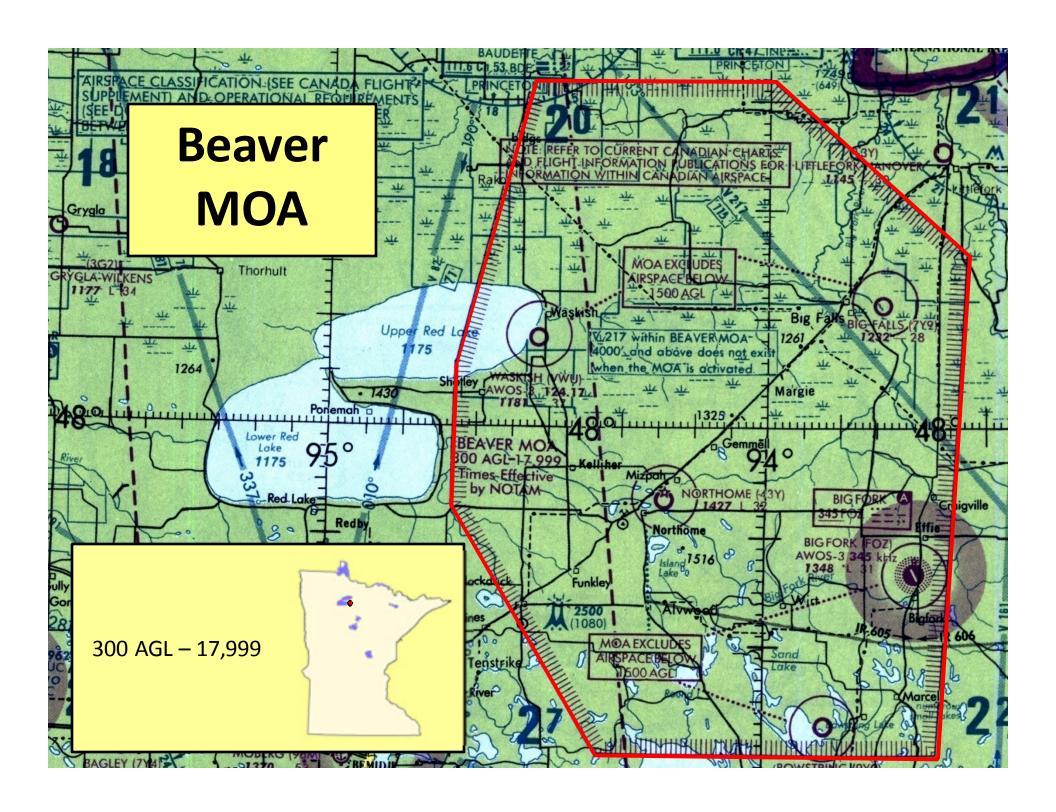


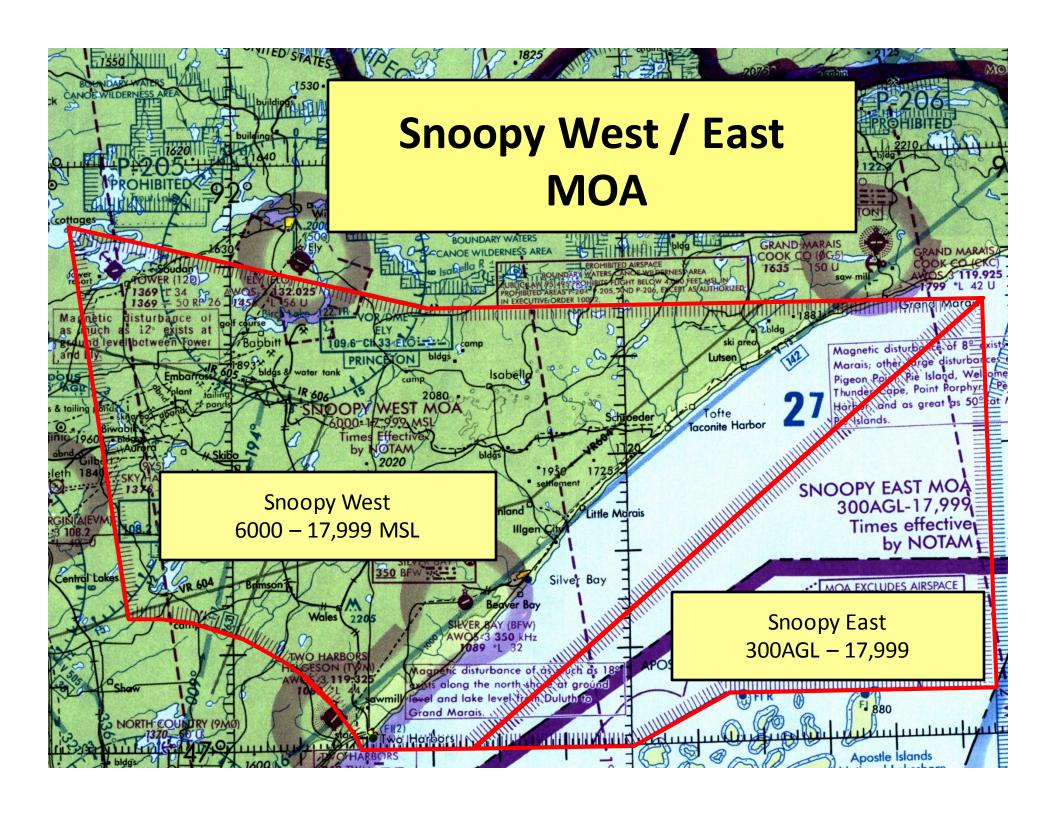










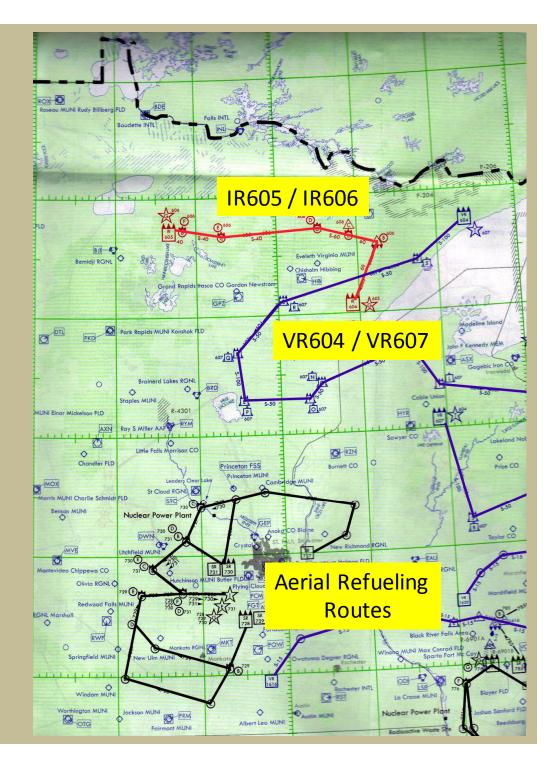


#### **MTRs**

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

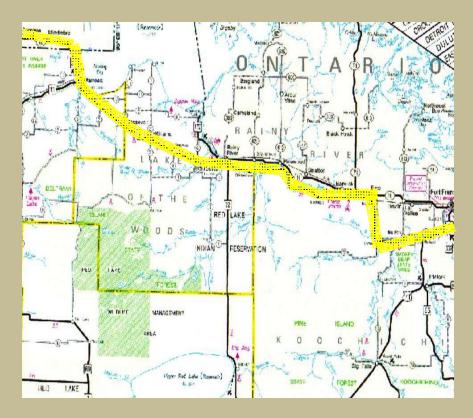
 UAS's are authorized by the FAA to operate within a 150 mile radius of Grand Forks (East to Red Lake)

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 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.

#### SAFECOM AVIATION SAFETY COMMUNIQUE

Reported By (Optional)

ame Steve Newbloom Phone 218-879-082

Organization DNR Forestry Date 05:06/2004

EVENT	Date
MISSION	Type Detection Procurement Contract  Fro. Corpo. Rosco. Storg. Long Suc. Rappel. etc.  Number of Persons On board 2 Special Use? Name Hazardous Materials Onboard? Number of Persons On board 2 Special Use? Name Hazardous Materials Onboard? Number of Persons On board 2 Special Use? Name Hazardous Materials Onboard? Number of Persons On board 2 Special Use? Name Hazardous Materials Onboard? Number of Persons On board 2 Special Use? Name Hazardous Materials Onboard? Number of Persons On board 2 Special Use? Name Number of Persons On board 2 Special Use? Number of Persons On board 3 Special Use? Number of Persons On board 3 Special Use? Number of Persons On board 4 Special Use? Number of Persons On board 4 Special Use? Number of Persons On board 5 Special Use? Number of Persons On
AIRCRAFT	N#9011T Manufacturer Cessus • Model _182_ Owner/Operator _Anderson AcroPriorMark_Lands(
Observer n Sandstone Upon calli smoke. Cl that they w Closurt di	at occurred in the Cloquet detection area. Our detection plane spotted a smoke in the Sandstone area. The detection adioed that they would check it out. The dispatcher informed St. Louis 1 to "Standby" while a call was made to the dispatch.  In gandstone, Cloquet dispatch was informed that they had their detection plane heading towards the reported oquet dispatch called St. Louis 1 to inform them that they could resume their route. Detection then informed dispatch were over the fire.  In spatch immediately informed St. Louis to go back to the Cloquet area and resume their route. Dispatch and the liscussed the incident. The observer was reminded of the protocol used for flying into another Area's air space.
We have pre-season observer, with their SAFETS We have o we need to	TRY CHIEF PILOT'S NOTES:  recoedures for crossing area boundaries; they are reviewed at Fire Team Leader meetings. Dispatcher meetings and at a detection start up meetings. The observer is the person in charge of the flight. The pilot takes direction from the The person managing the individual detection contract should review the procedures for crossing Area boundaries observers and pilots. Make people accountable for their actions. This is not the only Area having this problem.  ADVISOR'S NOTES:  restablished good procedures to help avoid mid air collision or near mid air collisions in these types of situations. Now o identify why we continue to have these types of incidents despite our procedures: Supervision failure? Training ommunication failure? Inadequate briefings? Other?
same? C	emitterine in manue : monochima na manifes e e enere

This form is used to report any condition, observance, act, maintenance problem, or circumstance which has potential to cause an axiation 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



# **ADDITIONAL COMMENTS?**

