# McDonald Incident Action Plan

ugust 01, 2010 0600,2100

- Delive slow on tine agas services
  - & Use a spotter as necessary
- To control dust-keep speed down on Junipe Richa Road

- With the wing beat and low RH majataining proper his difficult yet VERY important
- Consider drinking water and sports drink at a

# Mossup and Patrol

- Watch for fatigue and complacency:
- Estate a break and nefocus on the task
- Use proper body mechanics to avoid injury
- Maintain LCES and be aware of the
  - justing state of the state of t
    - NOD 3685 FXP2/PDFNP8 (1502)
    - ELM Northern Colfornia District
- on a zerre zerre of allem Michele Charles Charles

IN	CIDENT OBJECTIVES	1. In	cident Nar	ne		2. Date Prepared	3. Time Prepared
	ICS 202	McE	Oonald In	cident		07/31/2010	2000
	Operational Period						
	/01/2010 Day Shift 0600 - 2100						
5.	General Control Objectives for the	Incide	nt (include	alternatives)			
	<ol> <li>Provide for public and firefige Process.</li> <li>Keep fire west of Cold Spring.</li> <li>Protect high value wildlife high using direct attack method.</li> <li>Large islands of sagebrush out.</li> </ol>	ngs Ro nabitat o	ad. (sage gro ere possi	use NE of fire, ble.	, Pro	onghorn antel	ope, mule deer)
6.	Weather Forecast for Period  See attached spot weather forecast	ast					
	oco attacinos opot weather forest	401					
7.	General Safety Message						
8.		ttachme					
Х	Organization List-ICS 203	х	<u> </u>	Plan ICS-220	х	Fire Weather	
х	Division Assignment List-ICS 204	X	Incident	·	х	Fire Behavior	
х	Communications Plan-ICS 205		Traffic Pl	an	Х	Unit Log ICS	214
Х	Medical Plan-ICS 206	х	Safety M	essage		Vicinity Map	
	Prepared by					Incident Comn	
Va	lery Lambeth			Kent Swartzla	ndei	Kar Le	of Com

OPCANI	ZATION ASSIG	NMENT LIST	9.		erations Section
Incident Name	EAHON ASSI	JINTERN SIVI	Operations	Day	Alec Lane / Robin Wills (T)
	d Incident			Night	
	a incluent	3. Time	Planning OPS	La Bist	Steve Burns
2. Date		2100	a, Bra Branch Director	inch 1 - Divisi	on/Groups
July 31, 2010		2100			, , , , , , , , , , , , , , , , , , , ,
4. Operational Period	2010 0600 -	2100		AY	
Day August 1, 2	0000 -		Division/Group	A	Greg Moon
Position		Name	Division/Group	B/C	Chris Stevens/Tad Hair (T)
The state of the s	Commander c	Actual Company of the party of	Division/Group	D	Paul Johnson/Bob Beebe (T)
Incident Commander		nder / Mike Minton (T)	Division/Group	Υ	Dave McCandliss/Joe Johnson (T)
Deputy	Paul Whitcom		Division/Group		Ed Merrill/Casey Boespflug
Safety Officer	Rich Rubin /Do	ave Kirste / Michele Tanzi			
Information Officer	Yvonne Jones	/ Phyllis Swanson /	A CONTRACTOR OF THE CONTRACTOR	inch 2 - Divis	ion/Groups r
	Jim Mackense	en (T)	Branch Director		·
Liaison Offier			Division/Group		
6. Agency R	epresentative		Division/Group		
Agency Admin	Nancy Haug		Division/Group		
Agency Admin Rep	Alan Uchida		Division/Group		
Resource Advisor	Mike Dolan		Division/Group		
			Division/Group		
			o, Bro	anch III - Divis	sion/Groups
7.1.	Planning Se	ction	Branch Director		
Chief	Valery Lambe	eth / Lance Noxon (T)	Deputy		
Deputy	Dave Sinclea	r	Division/Group		
Resources Unit	Rita Mustatia	/ Lou Ann Charbonnier	Division/Group		
Situation Unit	Chris Wikeen	/ Melissa Hennessey (T)	Division/Group		
Documentation Unit		· · · · · · · · · · · · · · · · · · ·	Division/Group		
Demobilization Unit	Gary Deboi		11	Operations	Branch
Technical Specialists		·	Air Operations B		Bruce Wicks
Human Resources			Director		
Training	Dominic Panr	10	Air Attack Supe		Dan White / Mike Frederick
CTSP	George Steel		Air Support Supe		Ken Crawford
GIS	Kyle Felker / I	(arl Todd/Trisha Bauer (T)	Helicopter Coor		
FBAN	Bob Patton		Air Tanker Coord		
IMET	Jon Bonk		10.	FIN	ancé Section
8.	Logistics Se	ction	Chief	<u> </u>	Lois Charlton
Chief	Paul Montgo	mery	Deputy Time Unit	<del></del>	Shannon Ammon
Deputy	Mike Jellison	/ Brett Shurr (T)			GIGHLIOH / MILLIOH
Supply Unit / Ordering	Tom Charltor		Procurement Ur Compensation/		Debbie McIntosh
Facilities Unit		lo / Jeff Huhtala	Cost Unit		Sissy Hoaglen
Ground Support Unit	Harry Zabel /	John Camacho			Sissy nougieri
Communications Unit	Rick Cartosc	elli / Phil Shafer	Prepared by (Reso		
Medical Unit	Josh Ramey	-	L. Charbonnie		
Receiving & Distribution	Ron Pierce /	Fred Johnson	E. OHGIDOHING		
Security Unit	Elizabeth Kur	pies	1		
Food Unit	Jay Westlake				

ICS 203 NFES 1327

Division Assignment Li	st					·	Α
3. Incident Name MCDONALD (W-23)		4. Operational F	Period 08/01/1	0 S	unday	Day Shift 0600 - 21	00
5.		Operatio	ns Persor		•	- 1.75° - 1.75° - 1.75°	
Operations Chief ALEC LANE; F	ROBIN WIL	LS (t)			Superviso	r GREG MOON	
Planning Operations Chief STEVE BURNS			Air Attack	Super	visor		
Branch Director			Safety Of	ficer			RSTE;MICHELE TANZI
6.		Resources A		2.4. A.K. 24. C. A.		ne egitir jeril. Siy	
Strike Team/Task Force/ Resource Designa		Leader		lum of Pers.	Trans. Y/N	Drop Off PT./Time	Pick Up PT./Time
ALMANOR CREW 1	JERIO	K DOMINGUE	S	11	N	Per DIVS	Per DIVS
EAGLE LAKE CREW 2 T2IA	ROBE	RT S BROWN	ı	21	N	Per DIVS	Per DIVS
UELS CREW 3266/3265	ROBE	RT PRESTON	1	22	N	Per DIVS	Per DIVS
HIA ENGINE 9532	WILL	AM CARPENT	ER	5	N	Per DIVS	Per DIVS
HIA ENGINE 9531	NELS	NELSON		5	N	Per DIVS	Per DIVS
SOF2 (A/Y/Z)	МІСН	ELE TANZI		1	N	Per DIVS	Per DIVS
	01165	NAC CALL		4	N	Per DIVS	Per DIVS
EMTP (A/Z)		MC CALL NIE HORNSB		1	N	Per DIVS	Per DIVS
EMTB (A/Z)	- MELA	INIE HURINSB	Y		IN	- Fei Divo	1 el Divo
					-		
					-		
					-		
					ļ <u> </u>		
				_			
7. Control Operations							•
- Secure line and mop-up 100' in.							
8. Special Instructions							
- Water-bar handlines.							
- Follow fireline repair guidelines -Backhaul all trash,supplies, and unu	ısed equipn	nent.					
-1 Crew to fly to H1	acca oquip.						
-Rehab H1							
9.	Div	ision/Group Con	nmunicatio	ons Su	ımmary		Section 1
Function Frequency - RX Fred	uency - TX	Tone	Sys	stem		Channel Syste	em Channel
	0.4250 N	3		FC		1	
Tactical Div/Group 168.0500 N 16	8.0500 N		N	IFC		5	
Logistics							
Air to Ground 168.5375 1	68.5375		i	IFC		12	
Prepared by (Resource Unit Leader)	Appr	oved by (Planning	Section Cl	nief)		Date Prepared	Time-Prepared
Rita Mustatia		thomo	Lear			07/31/10	1900
ICS 204	·	Fi	inal			Pag	ge of ICS 204 Forms

1. Branch

2. Division/Group

Division As	signment List		1. Branch				2. Division/Git	B/ <u>C</u>	ج ا
3. Incident Name	significant List		4. Operational f	Period	<del></del> -				
MCDON	ALD (W-23)			08/01/10	) S	unday	Day Shift 0600	- 2100	
5.			Oberand	ns Person	**********				
	ALEC LANE; RO	BIN WIL	LS (t)				CHRIS STEVE	ENS; TAI	) HAIR (t)
Planning Operations Chief	STEVE BURNS			Air Attack		rvisor			
Branch Director				Safety Off	icer		RICH RUBIN; DA	VE KIRSTI	E;MICHELE TANZI
6.			Resources A		*************	× 2000000000000000000000000000000000000			2.55
Strike Team/Task Force/	Resource Designator		Leader	1	um of Pers.	Trans. Y/N	Drop Off PT./Tim	ne	Pick Up PT./Time
HAT CREEK CREW 3		CHU	CK LUBCHENK	(0	11	N	Per DIVS		Per DIVS
LNF ENGINE 32		RICH	IARD DAVIS		5	N	Per DIVS		Per DIVS
LNF ENGINE 83		CHR	IS WATKINS		5	N	Per DIVS		Per DIVS
LNF ENGINE 36		RAY	DOMBROSKI		5	N	Per DIVS		Per DIVS
LNF ENGINE 16		JEFF	ST CLAIR		5	N	Per DIVS		Per DIVS
STCR		JOH	N WARD		1	N	Per DIVS		Per DIVS
STCR (t)		JOEI	SCHILLING (t	)	1	N	Per DIVS		Per DIVS
LNF WT 1		THO	MAS MOLINA		5	N	Per DIVS		Per DIVS
ENF WT 5		BRIA	N LEVINE		2	N	Per DIVS		Per DIVS
SOFR (B/C/D)		KEN	KUMPE		1	N	Per DIVS		Per DIVS
EMTP (C/D BREAK)		MIKE	FINCHAN		1	N	Per DIVS		Per DIVS
EMTB (C/D BREAK)		MAT	T READ		1	N	Per DIVS		Per DIVS
<ol> <li>Control Operations</li> <li>Secure line and mop</li> </ol>	100' in								
- Secure line and mop	-up 100 iii.								
8. Special Instructions									
- Water-bar handlines									
- Follow fireline repail -Backhaul all trash,su	r guidelines	d equin	ment						
-Dacknaul all trasti, st	ipplies, and unuse	u equipi	Hone						
		Dis	/ision/Group Con	nmunicatio	ns Si	ımmarv			
9. Function Frequ	iency - RX   Frequer		Tone	Sys			Channel	System	Channel
	3.0750 N 170.42		3	NII			1		
Tactical Div/Group 168	3.6000 N 168.6	000 N		NII	FC		6		
Logistics									
Air to Ground 16	88.5375 168.			Nil			12		
Prepared by (Resource U	Init Leader)	Аррі	oved by (Planning	Section Ch	ief)		Date Prepared		Time Prepared 0920
Rita Mustatia			+ Duc	<u>Jea</u>			07/31/10		of ICS 204 Form
ICS 204			DR	RAFT				Page	OI 100 204 FOIII

		1. Branch				2. Division/Group	
Division Assignment List							D
Incident Name     MCDONALD (W-23)		4. Operational F		Sun	day	Day Shift 0600 - 21	100
5.		Operation	ons Personnel	Suri	uay	Day Shift 0000 - 2	100
Operations Chief ALEC LANE; RO	BIN WII			Sup	ervisor	PAUL JOHNSON;	BOB BEEBE (t)
Planning Operations Chief STEVE BURNS			Air Attack Sup			7,02,001,110,011,	
Branch Director			Safety Officer			RICH RUBIN; DAVE K	IRSTE;MICHELE TANZI
6.		Resources A	ssigned this P	eriod	1	<u> </u>	
Strike Team/Task Force/ Resource Designator		Leader	Num Pers	of Tra		Drop Off PT./Time	Pick Up PT./Time
TRUCKEE IHC	BOBE	BY HUBBY			<u> </u>	Per DIVS	Per DIVS
BLUE RIDGE T2IA	BRIA	N FRISBY	2	1 1	1 T		
PLEASANT VALLEY T2IA	PAT	MOORE	2	2 1	<u> </u>		
NOD ENGINE 3234		N HAYS			v	Per DIVS	Per DIVS
NOD ENGINE 3235		/IS WRIGHT			v	Per DIVS	Per DIVS
SRF WT 15		HONY WILLIAM			v		<u> </u>
SOFR (B/C/D)		KUMPE			V	Per DIVS	Per DIVS
EMT-B (C/D BREAK)	REAL	D, MATT		1 1	V	Per DIVS	Per DIVS
EMT-P (C/D BREAK)	MIKE	FINCHAN		1 1	N	Per DIVS	Per DIVS
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	_						<u>                                     </u>
	_						
				+-			
				-			<u> </u>
7. Control Operations - Secure line and mop-up 100' in.							
- Secure line and mop-up 100 in.							
8. Special Instructions							
- Water-bar handlines.							
- Follow fireline repair guidelines		,					
-Backhaul all trash, supplies, and unuse	nqiupa t	nent					
9,	~7 / 2 2 0000 0000 0000 0000 0000 0000	ision/Group Com		umm			
Function Frequency - RX Frequency -		Tone 3	System NIFC		Cł	nannel Syste	em Channel
			NIFC			9	
S. Carrier and C. Car	OU IN		NIFC			3	
Logistics	-075		NUE O	$\perp$		40	
Air to Ground 168.5375 168.5		and by (DI-	NIFC		<del></del>	12	Time Preneral
Prepared by (Resource Unit Leader) Rita Mustatia	Appro	oved by (Rlanning	Section Chief)			Date Prepared 07/31/10	Time Prepared 1930
TAIG MUSICIA	No. 1 .	$\mathcal{N}\mathcal{N}\mathcal{M}$		_		01,01,10	1 .000

Division Assign	nment List		1. Branch				2. Divis	ion/Group	Y	
3. Incident Name			4. Operational F							
MCDONALD	•		<u> </u>	08/01/10		unday	Day Shift	0600 - 210	0	
5. Operations Chief ALE	C LANE; ROBIN	1 10///11	Operatio			2000 200 200 Million		3.77		JOHNSTON (t)
Planning Operations Chief STE		IVVILI	-S (i)	Air Attack			DAVE IVIC	CANDLISS,		Oring Folk (t)
Branch Director	VE BURNS			Safety Offi		V1301	RICH RUBI	N: DAVE KIR	STE:M	ICHELE TANZI
1			Resources A			lad			•	
6.				60000000 <del>0</del> 0000000000000000000000000000	lum of		**************************************		*************	
Strike Team/Task Force/ Reso			Leader		Pers.	Y/N	Drop Off F			k Up PT./Time
DIAMOND MT IHC			ARNEY		19	N	Per D			Per DIVS
GRANITE MT IHC			MARSH		19	N	Per D			Per DIVS
MORMON LAKE IHC			CAOUETTE		20	N	Per D			Per DIVS
SWR ENGINE 8430	i		ONY ARENDT		5	N	Per D			Per DIVS
STF ENGINE 14		SHAU	N CRAIG		5	N	Per D	olvs		Per DIVS
0050 (4.0//7)		ALC: II	TIE TANIZI		1	N	Per D	111/0		Per DIVS
SOF2 (A/Y/Z)		VIICHI	ELE TANZI		- 1	IN	- Fei L	1173		rei Div3
		-								<del></del>
							<del></del>	-		
							<del></del>			
										<u> </u>
7. Control Operations Secure Line and mop-up	100 feet in.									
8. Special Instructions - Water-bar handlines Follow fireline repair guid -Backhaul all trash,supplie		quipm	ent							
19.	71. Santalo (1988)	Divis	sion/Group Com	ımunicatlor	ns Sur	· mmary				
Function Frequency -	RX Frequency -		Tone	Syste	em		Channel	System	i	Channel
Command 168.0750			3	NIF			1			
Tactical Div/Group 166.7250	N 166.7250	N		NIF	C		8			
Logistics										
Air to Ground 168.537		- 1		NIF			12	<u> </u>		
Prepared by (Resource Unit Lea	ader)	Approv	ved by (Planning	Section Chi	et)		Date Prepa	ared 31/10	ııme	Prepared 1930
Nita iviustalia		1	M Bring	XVQ-			1 0770	, , , , ,		

Division Assignment List		1. Branch				2. Divis	ion/Group	Z	
3. Incident Name		4. Operational F	Period						
MCDONALD (W-23)			08/01/		unday	Day Shift	0600 - 210	)0	
5.		Operatio				TER MERO			DEL UO
Operations Chief ALEC LANE; ROE	BIN WIL	LS (t)				or ED MERR	ILL; CASEY	BOES	PFLUG
Planning Operations Chief STEVE BURNS			Air Attac	-	VISOF	DICH DUBI	N: DAVE KIR	STE-MI	CHELE TANZI
Branch Director				STATE OF THE STATE	ادما	MOTTODI	IN, DAVE KIIN	O 1 E,IVII	ONEEL IMALI
6.	Т	Resources A	ssigned	0.0000000000000000000000000000000000000			T		== ==
Strike Team/Task Force/ Resource Designator		Leader		Pers.	Y/N	Drop Off P			Up PT./Time
GLOBE IHC		K BABIERACK		23	N	Per [			Per DIVS
ENGINE S/T - T3 - 1652 C		RLIE GLENDEN	INING	27	N	Per [			Per DIVS
ENF WT 5		N LEVINE		2	N	Per [			Per DIVS
SOF2 (A/Y/Z)	MICH	IELE TANZI		1	N	Per I	אוע		Per DIVS
EMTP (A/Z BREAK)	СНАГ	D McCALL		1	N	Per [	DIVS		Per DIVS
EMTB (A/Z BREAK)		ANIE HORNSB	Υ	1	N	Per [			Per DIVS
LIVITO (A/Z DINLAN)	- IVILLY	4412 11014102							
	+								
	+					<u></u>			
									<del>-</del>
			-						
	+								
	-								
7. Control Operations	<u> </u>		-						
- Secure Line and mop-up 100 feet in.									
					•				
8. Special Instructions									
- Water-bar handlines per fireline repair									
- Backhaul all trash,supplies, and unuse	d equip	ment							
						•			
9.	Ďίν	ision/Group Com	municati	ions Sui	mmarv				
Function Frequency - RX Frequency		Tone		stem		Channel	System	1	Channel
Command 168.0750 N 170.429		3		IIFC		1			
Tactical Div/Group 164.1375 N 164.13	75 N		N	IIFC		7			
Logistics									
Air to Ground 168.5375 168.53			1	IIFC		12			<u> </u>
Prepared by (Resource Unit Leader)	Appro	oved by (Planning	Section C	hief)		Date Prepa 07/3		Time	Prepared 0919
L. Charbonnier		A SMO	een			07/3	1/10	<u> </u>	918

Division Assignment L	.ist	1. Branch			2. Div	ision/Group <b>Firelin</b>	e Repair
Incident Name     MCDONALD (W-23)		4. Operational i	Period 08/01/10	Sunday	/ Day Shi	ft 0600 - 210	
5.		Operation	ons Personnel	Surida	y Day Sili	11 0000 - 210	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Operations Chief ALEC LANE;	PORIN WII		Division/Grou	n Superv	isor		
Planning Operations Chief STEVE BUR			Air Attack Su				
Branch Director			Safety Officer		DICH DI II	SIN: DAVE KID	STE;MICHELE TANZI
1			Land Committee and American St.	alle Williams was thousan		JIIV, DAVE KIK	OTE, WICHELL TANKE
6.	T -	Resources A	ssigned this F	construction of the section of	T	Т	
Strike Team/Task Force/ Resource Design	nator	Leader	Pers	of Trans. S. Y/N	Drop Off	PT./Time	Pick Up PT./Time
READ	MIKE	DOLAN		1 N			
EXCAVATOR	TBA			1 N			
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						.	
7. Control Operations							
8. Special Instructions							
- Resource Advisor will direct operati	ions.						
9, 1		sion/Group Com	munications §	Summary			
Function Frequency - RX Fre	quency - TX	Tone	System		Channel	System	Channel
	70.4250 N	3	NIFC		<u> </u>		
5.10	7.1125 N		NIFC		10		
Logistics							
	168.5375		NIFC		12		
Prepared by (Resource Unit Leader)		ved by (Planning	Section Chief)		Date Prep		Time Prepared
L. Charbonnier	Vale	ry Lambeth			07/	31/10	1900

### Fire Weather Forecast

**FORECAST NO: 4** 

NAME OF INCIDENT: McDonald

PREDICTION FOR: Day Shift

**UNIT:** BLM – Nor Cal District

SHIFT DATE: Sunday 8/1/10

SIGNED:

TIME AND DATE

FORECAST ISSUED: Saturday 7/31/10 @ 1900

Jon Bonk

**Incident Meteorologist** 

WEATHER DISCUSSION: Decreased winds today, however still somewhat gusty. Otherwise, very little change in temperatures or humidity. Still have potential for evening Northwest downslope winds as atmosphere begins to stabilize after sunset. Shallow nighttime inversion will continue to result in poor humidity recovery for most of the night. Little change in conditions expected through Tuesday.

### **WEATHER FORECAST TODAY:**

WEATHER: Clear.

LAL: 1

**CWR: 0%** 

MAX TEMPERATURE: Valley: 93

Ridge: 86

MIN HUMIDITY: Valley: 10%

Ridge: 17%

20 FT WINDS:

Lower/Mid Slopes - Upslope 4 to 10 becoming Southwest 8 to 12 mph with gusts to 22 mph around

1100 then increasing to 12 to 18 mph with gusts to 25 mph after 1500.

Ridges/Upper Slopes - Southwest 8 to 12 mph shifting West 15 to 20 with gusts to 30 mph after

1400.

Max Mixing Height: 14,000 feet ASL

**Inversion Breaking:** Around 1100

SUNDAY NIGHT FORECAST: Clear. Low temperatures... Valley 47, Mid-slope 60.

Maximum RH... Valley 40-45%, Mid-slope 25-30%, Lower slope winds... West 12 to 18 mph with gusts to 25 becoming drainage 2 to 7 mph after sunset. Ridgetop winds...West 15 to 20 mph with gusts to 25 mph shifting Northwest 10 to 20 mph after 1800 then becoming light after midnight.

### Extended Outlook:

Monday: Clear. Highs...88 to 94. Minimum RH...10% to 15%. Afternoon Winds: Valley...West 10 to 15 mph with gusts to 25 mph. Ridge/upper slope winds... West 14 to 18 mph with gusts to 25 mph. Tuesday: Clear. Highs...90 to 93. Minimum RH...8% to 14%. Afternoon Winds: Valley...West 10 to 15 mph with gusts to 22 mph. Ridge/upper slope winds... Northwest 12 to 16 mph with gusts to 25 mph.

Fire Behavio	r Forecast #5
Name of Incident: McDonald	Administrative Unit: Norcal BLM
<b>Date &amp; Time Issued:</b> 07/31/2010@2000	Operational Period: <u>Day</u> Shift 08/1/2010
SITL: Chris Wikeen	Signed: BOS to TON
Select and a selec	
Weather	Summary
See attached Weather Forecast.	
Fire Behavi	or Summary

### General

Predicted BI: 73 Predicted ERC:23

Fuels within the McDonald Fire consist of sagebrush, cheat grass, and juniper. Heavy precipitation in the late spring contributed to relatively high live fuel moisture values for this time of year at around 120% in sagebrush. Cheat grass growth is abnormally heavy due to the high precipitation. It is cured in most locations.

### **Specific Assignments:**

Smoke production has decreased significantly in the past twenty-four hours which is a good. Hot material along the perimeter of the fire has either been mopped up or went out. And is looking secure both from the air and the ground. As the remaining fuels continue to burn out, expect isolated tree torching within the fire perimeter. Although fire behavior within the fire perimeter has decreased dramatically, there is always the probability for a slopover, spot, or a new start. With that, expect the rate of spread to be around 0-10+ ch/hr when slope and wind are in alignment depending on the continuity of the fuels. Flame lengths could range from 1-8'. Maximum spotting distances around 500' into a receptive fuel bed. On slopes sheltered from the wind fire behavior should be low to moderate.

**All Divisions:** The only problem area indentified yesterday was a mahogany patch near the D/Y Break. Southwest-west winds will continue to test control lines here, and on similar lines that are oriented in which the wind could blow embers across them.

<u>Air Operations</u>: Gusty southwest-west winds could hamper air operations.

### Safety

Looking out for our people includes not only those who work for us but also our leaders and peers. Leader afluencing others to accomplish tasks that are in the best interest of our organization which often means in bove us and leading up. Similarly, we are open to upward leadership – and, in fact, encourage and reward it.

norcal\_erc

Average -- shows peak fire season over 13 years (1972 observations) 90th Percentile -- Only 10% of the 1972 days from 1992 - 2004

# Local Thresholds - Watch out: Combinations

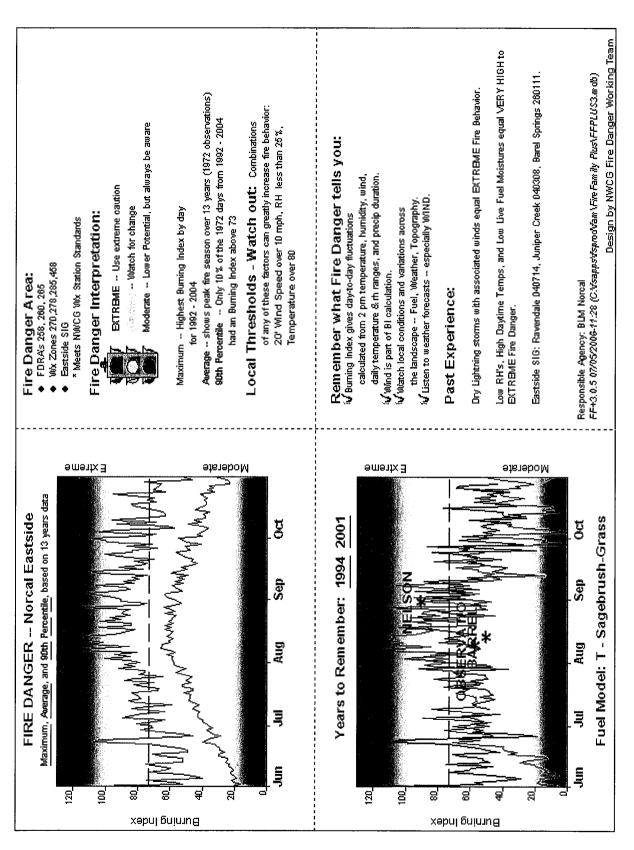
20' Wind Speed over 10 mph, RH less than 25%,

Dry Lightning storms with associated winds equal EXTRBME Fire Behavior.

Low RH's, High Daytime Temps, and Low Live Fuel Moistures equal VERY HIGH to

Eastside S16: Ravendale 040714, Juniper Creek 040308, Barel Springs 260111.

Design by NWCG Fire Danger Working Team



Back

7/29/2010

INCIDE	NT RADIO COMM	INCIDENT RADIO COMMUNICATIONS PLAN	Incident Name McDONALD INCIDENT	NCIDENT		Date/Time Prepared 7/31/2010 2000	o 2000		Operational Period Date/Time Day Shiff 8/01/10, 0600-2100
	Only frequencies	l listed on this 205 are au	Only frequencies listed on this 205 are authorized for use on this incident.						
# 5	Function	Channel Name/Trunked Radio System Talkgroup	Assignment	RX Freq N/W	X Tone T	RX Tone TX Freq N or W	TX Tone	Mod e	Remarks
_	COMMAND	NIFC C-3	ALL DIVISIONS	168.0750 N		170.4250 N	131.8	∢	MUST USE Tone 3
5	COMMAND	NIFC C-10	UNAVAILABLE/FUTURE USE	170.4125 N		165.9625 N	131.8	∢	MUST USE Tone 3
က	NOD ADMIN NET	BLM ADMIN RPT	NOD BLM ADMIN	166.3750 N		166.9750 N	167.9	⋖	Tone 3 OR 7
4	NOD FIRE NET	BLM FIRE RPT	NOD BLM IA	166.4875 N		167.0750 N	167.9	∀	Tone 3 OR 7
Ω	TACTICAL	NIFC TAC-1	DIVISION A	168.0500 N		168.0500 N		∢	
9	TACTICAL	NIFC TAC-3	DIVISION BC	168.6000 N		168.6000 N		∢	
7	TACTICAL	NIFC TAC-4	DIVISION Z	164.1375 N		164.1375 N		4	
8	TACTICAL	NIFC TAC-5	DIVISION Y	166.7250 N		166.7250 N		∢	
6	TACTICAL	NIFC TAC-6	DIVISION D	166.7750 N		166.7750 N		A	
10	TACTICAL	R5 TAC-5	FIRE REPAIR	167.1125 N		167.1125 N		∢	
<b>-</b>	TACTICAL	R5 TAC-6	UNASSIGNED	168.2375 N		168.2375 N		∢	
12	A/G TACTICAL	AIR TO GROUND	ALL DIVISIONS	168.5375 N		168.5375 N		4	
13	AIR TO GROUND MEDICAL	CALCORD	ALL DIVISIONS	156.0750 W		156.0750 W		<	
14		AIR GUARD	ALL DIVISIONS	168.6250 N		168.6250 N	110.9	< <	TONE 1 USED FOR EMERGENCY OR INITIAL CONTACT WITH AIRCRAFT
15	AIR TO GROUND MEDICAL	CALCORD	ALL DIVISIONS	156.0750 W		156.0750 W		∢	
91		AIR GUARD	ALL DIVISIONS	168.6250 N		168.6250 N	110.9	4	TONE 1 USED FOR EMERGENCY OR INITIAL CONTACT WITH AIRCRAFT
5. Prepared by RICK Cartoso	5. Prepared by RICK Cartoscelli Nor Cal Team 1, COML	1, COML		л О	ncident Location County State: La	incident Location County State: Lassen CA	Fire Latitude N		Longitude W
]	on colle for fractions	1 1 1 to to oborgiform diagra of the observe	After the deciment alone following by outlone on		1), Oz. 6 (4)	(4, 17) c 6 (4, 17) domondine	4404.44	4 c4+ 40	Land object to the factorious of the control of the south of the second

The convention calls for frequency lists to show four digits after the decimal place, followed by either an "N" or a "W" depending on whether the frequency is narrow or wide band

# **McDonald Incident Phone List**

IC/DEPUTY	530-234-2083
INFO/LOST AND FOUND	530-234-2012
PLANS	530-234-1076
PLANNING MEETING ROOM	530-234-1050
OPERATIONS	530-234-2071
SAFETY	530-234-2064
COMMUNICATIONS PRIMARY	530-234-2026
COMMUNICATIONS SECONDARY	530-234-2073
COMM TECHS	530-234-2045
FIRE BEHAVIOR	530-234-1051
MEDICAL	530-277-1213
FINANCE	530-234-2096
COST	530-234-1077
TRAINING	530-234-2086
DEMOB	530-234-2115
CHECK IN	530-234-1039
ORDERING	530-234-2103/2083/1041
GROUND SUPPORT	530-234-2126
FRONT DESK MAIN SCHOOL	530-234-2010

AIR OPERATIONS SUMMARY   Prepared By: Bruce W	Prepared By: Bruce Wicks AOBD	Prepared Date: 07/	07/31/10	Prepared Time 1855 hrs.	ý
1. INCIDENT NAME:	2. OPS PERIOD DATE:	TE: START TIME:	END TIME:	SUNRISE:	SUNSET:

3. REMARKS (Safety Notes, Hazards, Air Operations Special Equipment, etc.):	4. Medivac capable AIRCRAFT: 5. TFR: 0/487	5. TFR: 0/48
MONITOR AIR TO GROUND FREQ WHEN AIRCRAFT ARE IN YOUR DIVISION.	SEE MEDICAL PLAN and/or	Altitude 10,0
SITUATIONAL AWARNESS IS HIGH PRIORITY ALONG WITH BUCKET WORK!	SEE BELOW	Center Pt: La
FLY WITH LIGHTS AND TRANDSPONDER ON (1255)		Long

3. REMARKS (Safety Notes, Hazards, Air Operations Special Equipment, etc.):	4. Medivac capable AIRCRAFT: 5. TFR: 0/4873 Radius 7 nm	5. TFR: 0/4873 Radius 7 nm
MONITOR AIR TO GROUND FREQ WHEN AIRCRAFT ARE IN YOUR DIVISION.	SEE MEDICAL PLAN and/or	Altitude 10,000 MSL
SITUATIONAL AWARNESS IS HIGH PRIORITY ALONG WITH BUCKET WORK!	SEE BELOW	Center Pt: Lat 40 56 20 N
FLY WITH LIGHTS AND TRANDSPONDER ON (1255)		Long 120 40 40 W

PERSONNEL         AIRTANKERS- None assigned - RASGS         AIRTANKERS- None assigned - RASGS           AOBD         Bruce Wicks         530-906-2224         AIRV AIR RW:         119.6250         AIRTANKERS- None assigned - RASGS           ASGS         Ken Crawford         916-531-1817         AIRV AIR RW:         132.5250         LEAD PLANES- None assigned - RASGS           ATGS         Mike Frederick Prederick ATGS-1399         National FLIGHT         Tone110.9         Tone110.9         ATGS Aircraft - N1165Z Frederick ATGS Aircraft - N1165Z Frederick ATGS-100           HELIBASE         AIR GUARD         RX168.0750N         ATGS Aircraft - N1165Z Frederick ATGS-250N         ATGS Aircraft - N1165Z Frederick ATGS-250N           SIFC         Charity (Air Desk)         DECK         163.100         McDonald HB 40.47.973N X 12           Expanded         530-257-5575         DECK         163.100         McDonald HB 40.47.973N X 12		NAME	PHONE #	7. FREQUENCIES	AM	FM	8. FIXED-WING Avail/ Type/ Make-Model/ N#/ Base
Bruce Wicks         530-906-224         AIR/ AIR RW:         119:6250           Ken Crawford         916-531-1817         AIR/ AIR RW:         132:5250.           Mike Frederick         707-954-1399         National FLIGHT         168:6500N           Dan White         530-251-6905         FOLLOWING         168:6500N           COMMAND         Rx168:0750N         168:5375N           TX170:4250Tone131.8         TX170:4250Tone131.8           AIR GUARD         TX170:4250Tone131.8           Charity (Air         530-257-5575         DECK           Desk)         TOLC         163:100           TOLC         TOLC	PERSONNEL						
Ken Crawford         916-531-1817         AIR/ AIR RW:         132.5250.           Milke Frederick         707-954-1399         National FLIGHT         168.6500N           Dan White         530-251-6905         FOLLOWING         168.6500N           COMMAND         Rx168.0750N         168.5375N           AIR GUARD         Rx168.0750N         168.6250N           Tone 110.9         0n Tx           Charity (Air         530-257-5575         DECK         163.100           Desk)         TOLC         163.100	AOBD	Bruce Wicks	530-906-2224	AIR/ AIR FW:	119.6250		AIRTANKERS- None assigned - Request thru Air Attack
Mike Frederick Dan White         707-954-1399 FOLLOWING         National FLIGHT FOLLOWING         168.6500N TX           Sa0-251-6905         AIR/ GROUND         168.5375N           COMMAND         Rx168.0750N Tx170.4250Tone131.8           AIR GUARD         Tx170.4250Tone131.8           Charity (Air Desk)         530-257-5575         DECK         163.100           Desk)         TOLC         163.100	ASGS	Ken Crawford	916-531-1817	AIR/ AIR RW:	132.5250.		LEAD PLANES- None assigned - Request thru Air Attack
Dan White         530-251-6905         FOLLOWING         Tone110.9 on Tx           COMMAND         Rx168.0750N         168.5375N           AIR GUARD         Tx170.4250Tone131.8           AIR GUARD         Tx170.4250Tone110.9 on Tx           Charity (Air         530-257-5575         DECK         163.100           Desk)         TOLC         163.100	ATGS	Mike Frederick	707-954-1399	National FLIGHT		168.6500N	
AIR/ GROUND   168.5375N   COMMAND   Tx170.4250Tone131.8   Tx170.4250Tone131.8   Tx170.4250Tone131.8   Tx170.4250Tone131.8   Tx170.4250Tone110.9   Tx170.		Dan White	530-251-6905	FOLLOWING		Tone110.9	
AIR/ GROUND   168.5375N   COMMAND   Tx170.4250Tone131.8   Tx170.						on Tx	
COMMAND         Rx168.0750N           Tx170.4250Tone131.8           AIR GUARD         168.6250N           Tone 110.9         on Tx           Desk)         TOLC           TOLC         TOLC	HEB1			AIR/ GROUND		168.5375N	
AIR GUARD         Tx170.4250Tone131.8           AIR GUARD         Tone 110.9           Charity (Air         530-257-5575         DECK         163.100         McDonald HB           Desk)         TOLC         TOLC         According HB           530-257-5575         TOLC         According HB	HELIBASE			COMMAND	Rx168.0750	Z	ATGS Aircraft - N1165Z Frederick & White (A-55)
AIR GUARD         168.6250N           Tone 110.9         Tone 110.9           On Tx         McDonald HB           Desk)         TOLC           Tolc         Tolc           530-257-5575         Tolc					Tx170.4250	Tone131.8	
Charity (Air Desk)         530-257-5575         DECK Desk)         TOLC         McDonald HB           70LC         TOLC         TOLC         According HB						168.6250N	
Charity (Air         530-257-5575         DECK         163.100         McDonald HB           Desk)         TOLC         TOLC         According to the property of the property						Tone 110.9	
Charity (Air Desk)         530-257-5575         DECK Desk         163.100         McDonald HB           Desk)         TOLC         TOLC         According to the property of t						on Tx	
530-257-5575	SIFC	Charity (Air Desk)	530-257-5575	DECK		163.100	McDonald HB 40 47.973N X 120 21.999
				TOLC			
	Expanded		530-257-5575				

9. HELICOPTERS (Use Additional Sheets as Necessary)

	<sub>Q</sub>					:	
SKS KS	ive Us						
REMARKS	Exclusive Use	CWN					
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		(76-0)					
	lsh	ander (					
MANAGER	ly We	ın Alex					
MAN	Rowdy Welsh	Natha					
	bucket/cargo/pax						
N N	cargo/						
MISSION	oucket	recon					
START	0800	0830					
AVAIL	0220	0800		:			
<b>▼</b>							
SE SE	M'Donald HB	M'Donald HB					
BASE	M'D	M'D	-				
FAA N# T MAKE/ BASE AVAIL STAR	# # #	4					
MAKE/	B-205++	Bell L-4			:		
<b>⊢&gt;</b>		က					
FAA N#	×	N988B					
ΕĀ	28HX	86N					

10. LASK/ MISSION/ ASSIGN	10. IASK/ MISSION/ ASSIGNMEN (1) yee/ function includes: Air lactical, Retardant, Recon, Personnel Transport, Bucket Operations, SAK,	I ransport, Buck	et Operations, SAR, e	etc.
TYPE/FUNCTION	NAME OF PERSONNEL OR CARGO (if applicable) or instructions for tactical aircraft	MISSION	FLY FROM	FLY TO
Air Attack	Maintain coverage as directed by Operations	080	SVE or 005	Fire
Bucket Support	Bucket support as requested by Ops., Branch, or Division	0830	McDonald HB	Fire
PAX/Cargo	Fly 10 pax to H-1	0800	McDonald HB	Fire
MEDIVAC	Request through ICP Communications & MEDL on Command Repeater. Give location: lat/long if known. Check Medical plan/IAP	As requested	McDonald HB	As directed
Recon/ Mapping		As requested	McDonald HB	Fire
Fixed-wing aerial retardant & Lead plane	Request to Air Attack, (approve thru Ops.) via initial Air/Ground. Give location and ground contact name.	As requested	Various Tanker Bases	Fire
Aerial Ignition				
Initial Attack within TFR	Aircraft to be available for I.A. within TFR. Initial attack missions within TFR are requested through Ops or Air Ops and should be coordinated through Air Attack. Notify SIFC	As requested	McDonald HB	As directed
NOTES:	No retardant closer than 300 ft. from any visible water.			
	NO DIPPING IN MERDIBOURE RESERVOIR			
Other equipment assigned to helibase:				

MEDICAL PLAN	PLAN  1. Incident Name  McDonald Fire		2. Date Pi 07/31/	repared	3	·		•	Operational Period 0 0600-2100		
		5.	Incident Me	dical Ai	d Statio	neg fil beje vere		11.0			
Medical Aid Stations			Location		S. M. 1022				aramed Yes	lics No	
Frontline Medical (ce	II: 530-258	-9155)	McDonald N 40° 50.3			shopper Rd., Term 0.794	o, CA		Х		
			6. Trans	sportatio	on .			:			
			AIR Re	source	8						
Name		Address				Phone			Parame Yes	edics No	
Mountain Life Flight		710 Ash St.	Susanville,	CA 961	30	911 or 530-2	51-2844		RN		
Care Flight (Day/Nig	ıht)	450 Edison,	Reno, NV 8	9502		911 or 800-6	48-4888		RN		
Enloe FlightCare (Day/Night) 1531 Esplana			ade, Chico,	CA 959	926	911 or 530-3	32-6774		RN		
CHP (hoist with 165' line) Benton Airfie			eld, Redding	ı, CA		911 or 530-2	25-2040		Х		
Cal Fire-Bieber 202(Short haul) 510 Bridge S			St., Beiber, (	CA 9600	)9	911 or 530-2	94-5251				
BLM 553 (BLS medivac) Helibase, Ra			avendale, C	A		911 or 530-2	57-5575				
Ground Ambulance Services											
Name Location					_				Paramedics Yes No		
Medic 73 (cell :530-859-3871) McDonald IC			ald ICP. (Incident Ambulance)						X		
Semsa Ambulance Susanville, C									Х		
Modoc Med Center Ambulance Alturas, CA			uras, CA X								
			7. Ho	spitals							
Name Address				Trayel Air	Time Ground	Phone	Helipad Yes	No	Burn Yes	Center No	
Banner Lassen Medical Center			usanville 10	20 min.	50 min.	530-252-2096 (good for med. control)	Х			х	
		vell, Alturas C 3/ W 120°32.42		20 min.	45 min.	530-233-5131	Х			х	
		t.,Reno, NV /W119°47.4	5	1 hr.	1:30 min.	775-982-2005	Х			х	
UC Davis Level I 2315 Stockton Blvd. Sacr Trauma/Burn Cntr. N38°33.17 / W 121°27.05				1:45 min.	6 hrs.	916- 734-3636 916- 734-3790	Х		х		
8. Medical Emergency Procedures											
Contact McDonald Communications and declare a medical emergency on Command, advising your location and situation  The closest Division Supervisor will respond to the location to take control and direct necessary actions  The closest Safety Officer and EMTs will respond to the location to assist with patient care  Use the attached Injury/Incident Communications Worksheet to coordinate appropriate care and transportation  Secure the scene area and identify witnesses for later investigation – Keep a log											
Prepared by (Medical Unit L Josh Ramey MEDL		ea Ran	ren		riewed by Rubin S	(Safety, Officer) OF2	0	^			
530-277-1213	person	10000		I		KIM	1 Th	No.		(	

### **Injury or Incident Communications Protocol**

Location					
Situation					
Any special equipment re					
Number of injured	Type of	f injuries			
Immediate transport requ	ired: <u>Yes</u>	No Best me	thod: <u>Ambulance</u>	Helicopter	<u>Vehicle</u>
Closest pick up point (DP	, Helispot)_				
LOC	_ Resp	Pulse	BP	Weight	
Injury				. <u>.</u>	
Medical History/Allergies					
	_				

### **Air Transportation Triage**

### Contact EMS Helicopters on CALCORD freq.

	Air Ambulance	Transport to Med Unit
Mechanism	Struck by tree Fall of 10' or more Snake bite with pain and swelling Insect bite with shortness of breath Signs of heat stroke (hot, dry, disoriented) Burn Injury greater than 1% body area	Minor dehydration Cut or laceration with bleeding controlled Minor bites and Stings Minor burns
Area Injured	Significant Blunt or Penetrating Trauma to Head, Neck, Chest, Abdomen or pelvis Any Arm or Leg fracture	Minor blunt trauma Minor penetrating trauma Extremity sprains and strains
Symptoms	Disoriented Chest Pain <u>or</u> Shortness of Breath Weak or absent radial pulse Pale, cold and sweating	Alert and oriented No shortness of breath Good pulses

### **Medivac Sites**

**DP-2** N 40° 57.31 / W 120° 20.36 **H-1** N 40° 56.069 / W 120° 24.575

### If air or ground ambulance is DELAYED:

Package and transport patient to rendezvous with Incident Ambulance. Re-route EMS helicopter to rendezvous point as appropriate.

### If Declaring an "Incident within the Incident"

The closest DIVS will respond to manage the incident. They are responsible for giving an accurate size up, ensuring scene safety, setting priorities and initiating an appropriate response. The closest Safety Officer and Line EMS will respond to the scene to assist the Branch Director or DIVS. Secure site and begin initial investigation when situation is stabilized.

### McDonald Incident Risk Analysis (215a)

Div.	LCES Analysis of Tactical Applications (Hazardous Actions or Conditions)	LCES Mitigations/Warnings/Remedies
All	Driving Hazards	<ul> <li>Fire Access roads require slow speeds and occasional spotters</li> <li>Drive with your headlights on. Use chock blocks. Keep windshields clean. Look before backing and use backers.</li> <li>Maintain driving situational awareness.</li> <li>Observe speed limits</li> <li>The roads in the area are open to the public</li> </ul>
All	Mop Up and Patrol	<ul> <li>Use proper body mechanics to avoid injury</li> <li>Maintain adequate escape routes and safety zones. Advise all personnel if these are compromised or changed. Set trigger points when appropriate.</li> <li>Maintain LCES and adhere to the 10 standard orders.</li> <li>Be aware of the light, flashy fuels and the winds that affect them.</li> </ul>
All	Hydration	<ul> <li>With the heat, wind and poor RH hydration is an issue</li> <li>Drink water before, during, and after shifts.</li> <li>Be alert for signs of heat stress in yourself and others</li> <li>Be sure to eat throughout the shift to better assimilate energy/hydration needs</li> </ul>
All	Foot Travel	<ul> <li>Watch footing, both in camp and on the line</li> <li>Minimize fatigue by pacing yourself</li> <li>Treat "hot spots" on your feet before they become blisters</li> </ul>
All	Fatigue and Complacency	<ul> <li>Affects judgment, decision making, and performance</li> <li>Take a break and the re-focus on the task at hand</li> </ul>

Date & Time Prepared: July 31, 2010 @ 1800 Operational Period: 08/01/2010 Prepared By: Dave Kirste/SOF2, Michele Tanzi/SOF1, Rich Rubin/SOF2

0600-2100

CA-NOD-3688

### BLM Northern California District

Northern California Incident Management Team 1



Six Minutes Home Page

### **DRIVING SAFETY**

Driving is one of the most hazardous tasks that we perform when assigned to fires. Because of the fact that we perform the task literally hundreds of times in the course of our daily lives we tend to take it for granted. Based on recent accident trends, vehicle accidents are the source of more deaths and serious injuries to wildland firefighters than any other single cause. Vehicle operators need to recognize their own poor driving habits and strive to develop proper defensive driving techniques.

- ♣ A good starting point is attitude. A positive attitude towards improving your defensive driving skills will help you achieve the necessary changes in your driving habits. Most of what you do in operating vehicles is performed from habit. You do not consciously think about every thing you do when you drive. Rather, your subconscious performs most techniques. It's important to remember that a bad habit is as easy to develop as a good one. Take a good, hard look at your driving habits. Are you training yourself to do the right things the right way, like fastening your seat belt, checking your mirrors, and maintaining safe following distances?
- ◆ Inattentiveness is a major contributing factor in motor vehicle accidents within the wildland firefighting community. Because driving is such a common component of our lives, it is difficult to realize that it requires 100% of our attention. Since the average adult attention span is 15-20 minutes we must develop techniques that allow us to refocus our attention on the task at hand, operating a motor vehicle safely. There are many forms of inattentive driving; fatigue, telematics, daydreaming, eating, drinking, reading, writing, and talking. Here are some techniques for maintaining your attention while driving.
  - Drive only when you are well rested and alert; avoid driving during the hours of 10:00 PM and 6:00 AM. Take a 10 to 15 minute break after every 2 hours of driving.
  - Practice situational awareness when driving; be aware of what is happening in front, behind, and on both sides of your vehicle. Never drive when taking medications that make you drowsy.
  - Avoid using cell phones, radios, GPS units, CD players or computers while driving. Have a passenger operate them, or pull off the road and park.
  - By constantly moving your vision, checking mirrors and distant road conditions, you can avoid highway hypnosis and daydreaming.
  - Avoid eating or drinking while driving. Take frequent breaks to perform these activities.
  - Do not attempt to read maps or write directions while driving, pull over and park.
  - When talking with passengers, keep your eyes on the road and both hands on the steering wheel. Keep conversations causal and limited to small talk. Avoid conversations of a serious or technical nature. Do not engage in confrontational or argumentative conversations.
  - Do not be in a hurry, be patient. The more impatient you are, the more agitated you can become. Agitation will only magnify other inattentive driving behaviors.

### TRAINING SPECIALIST MESSAGE

### All Trainees:

If as much work as possible has been completed in the position task book, trainees may close their assignment with the Training Specialist prior to the demob process.

### <u>BEAT THE RUSH!</u>

# Bring the following to the exit interview

- A completed and signed Performance Evaluation
- Your Task Book, filled in by your trainer

Forms are available at the Training Unit

Domíníc Panno Training Specialist

### McDonald Fire Suppression Repair Guidelines

### Hand Firelines

- If needed, install barrier structures, where handlines intercept four-wheel drive roads to avoid vehicle access. These structures could include large rocks or logs.
- Space waterbars based on gradient following guidelines
- Clean out debris and excess dirt from draws or ephemeral channels that were crossed by a fireline.
- Presence of 3" diameter or larger rocks that reduce rainfall impact and dissipate water, or an outsloping line, will drain without the likelihood of concentrated flow or ponding, and won't require waterbars.
- When fireline runs straight down the hill, alternate the drain direction of waterbars so they drain water off both sides of the line (herringbone pattern).

### Litter & Garbage Removal

- Remove litter & garbage from all suppression sites (staging areas, drop points, water source locations, roads, or any other areas used during fire suppression).
- All equipment and supplies will be removed from the firelines and dispersal sites, such as drop points.

### Helispots & Drop Zones

• Clean or remove any fuel or oil spills and stabilize any sites that will remain open for future use, as needed.

### The 5-D System for Effective Waterbars

When locating and building waterbars, place them the right **distance** apart, at a **diagonal** to the fireline, so that they **divert**, then **discharge**, then **dissipate** the energy of the flowing water. Be sure to make them deep enough so they'll be durable, and that soil does **not block** the water bar outlet.

### Recommended spacing for waterbars on firelines.

Fireline slope		Maximum Distance Apart (feet)
1-5	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	200
6 - 20	•••••	125
21 - 40		60
41 – 60	••••••	40
>60	•••••	25.

Waterbars should be at least 2 pulaski widths wide and 12-24 inches high.

