Interagency Wildland Fire Module Field Guide

2018-2020

TABLE OF CONTENTS

This document is intended to supplement, and not replace, existing NWCG approved guides including the Incident Response Pocket Guide (IRPG, NFES 1077) and Fireline Handbook (NFES 0065), among others. In addition, this document is not intended to replace previous editions of the Interagency Fire Use Module Field Guide.

Additions/Changes to this document will be considered by the Interagency Wildland Fire Module Steering Committee.

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Cover Photo: Saguaro WFM - Corral Fire , Six Rivers N.F., August 2013

MISSION AND PURPOSE
(draft PMS 430 – January 2018)

The MISSION of the Interagency Wildland Fire Module Program is to develop and provide an innovative, safe, highly mobile, logistically independent, and versatile fire module with a commitment to achieving diverse management objectives.

The PURPOSE of the Interagency Wildland Fire Module program is to facilitate the use of fire and other management techniques involving planned and unplanned wildland fire events. WFMs are highly skilled and versatile fire crews, which provide technical and ecological based expertise in the areas of prescribed fire and wildfire response such as long-term planning, ignitions, holding, suppression, hazard fuels reduction, and fire effects monitoring; with an emphasis in fire fulfilling its natural or historic role to meet resource and management objectives.

CHIEF OF PARTY CHECKLIST

General:
- Safety of group at all times is your paramount responsibility
- Accept your role as the leader
- Be ready at all times.
- Work hard, be safe

Mobilization
- Obtain copy of Resource Order and make 5 copies
- Update crew Manifest and make 5 copies
- Update crew Quals sheet and make 5 copies
- Document accountable property you are taking (e.g. Radios, GPS units, etc.)
- Download GPS Maps for assignment location
- Document start mileage for vehicles
- Plan travel route and ETA, make hotel reservations if necessary
- Collect applicable maps from files
- Coordinate with the incident/requesting unit re: Food, Backcountry Gear, etc.
- Copies to Office: Manifest, Travel Authorizations, Travel Route, and ETA
- Coordinate with incident/requesting unit while en route

At Assignment
- Check in: Notify Home Unit/Duty Officer of arrival
- Manifest and time records to overhead
- Obtain radio freqs and program by hand or computer (Never Clone from Incident Radios!!)
- Find out specific assignment, sleeping, food, etc.
- Attend all operational briefings.
- Fill out and submit signed CTR's every day
- Pass along any and all updates on progress, changes and status
- Pre-plan Logistical needs: Place orders by 1300 for next shift
- Log chainsaw use and maintenance
- Fill-out and submit 214s and all Documentation
- AAR every shift

Check-Out
- Verify that times on CTRs match times on FTRs for each person
- On most incidents, never depart without signed FTRs in hand
- Make copies if possible of all reports, assignments, photos and maps
- Obtain S #'s for all equipment to be fire replaced, treat supply nicely
- Obtain and review crew evaluations
- Notify Home Unit/Duty Officer and dispatch of departure and travel plans (ie: routes, ETA, RONs)
- If moving between incidents, Start time = Departure time from current incident

Return to Station
- Notify Duty Officer and Home Dispatch of return
- Tell Dispatch to change status in ROSS for R&R and module availability
- Fuel all vehicles
- Fill out mileage forms
- Clean inside and outside of vehicles
- Disinfect all food containers, cook equipment and water coolers
- Rehab and log all chainsaws, tools, pumps, etc.
- Before departure, all module gear and vehicles are fire ready
- Restock the fire monitoring kits
- Fill out fire report and make copies and send one to Home Unit
- Fire Folder: All reports, trip manifest, resource order, CTR's collated, Maps, Relevant IAP's, Travel documentation, Crew evaluation, fire report, incident replacement requisitions, C of P Guidelines
- Documentation to Home Unit: Time records, fire reports, crew evaluations, travel sheets, mileage forms

CHAINSAW GUIDES

> **Use caution when making chainsaw carburetor adjustments.**
> **Instructions below are intended for those who are experienced saw tuners.**
> **If you are unfamiliar with these procedures, seek out someone who is.**

If your saw fails to start, check the following:

1. Gas (50:1)
2. On/off switch is turned ON
3. Spark plug has spark
4. Exhaust screen is clean
5. Air filter is clean
6. Jets are adjusted correctly: NEVER OVER TIGHTEN JETS
   Turn both jets to the right (clockwise) until snug.
   Then, back to the left (counter-clockwise) until desired setting.
   Stihl: high 3/4 turn, low 1/4 turn
7. Carburetor is flooded:
   Tighten high jet until its snug.
   Pull starter cord until saw starts.
   Turn jet left to correct setting.

JET and IDLE Field Adjustments

1. Clean or replace air filter. You cannot properly tune the carb unless the air filter is clean and in good condition.
2. Run saw at full throttle. Turn HS screw in (clockwise) slowly. As the HS screw is turned in, saw is being leaned out (more air, less gas). Keep leaning as long as the saw flutters. Go to flat line (no flutter) and back off.
3. Release throttle and let saw idle. If saw idles too fast (chain turning) or too slow (dies), adjust idle screw only. Turn screw counter clockwise to stop chain or clockwise if saw dies.
4. Idle for 30 seconds. Do the dump/roll test. Saw should idle in all positions. If saw fails the dump test, tighten (turn clockwise) the LS screw a quarter turn. Fuel is pooling and flooding out the engine. Repeat.
5. Throttle up saw. Saw should immediately respond. If it stutters, the LS is too lean. Back out (counter clockwise) the LS screw a quarter turn or less. Repeat until saw revs immediately. Adjust Idle as needed, and repeat steps 3 thru 5.
6. **TACH TUNE ASAP. HIGH RPMS SHOULD BE 13,500 OR LESS. IDLE RPM~2,500.**

Purging Instructions:

1. Drain fuel tank.
2. Run saw until it stops.
3. Attempt restarting with choke on until saw fails to detonate.
4. Remove fuel tank cap and invert saw for 5 minutes.
5. Remove spark plug
6. Pull starter cord until piston is at lowest point in cylinder
7. Spray WD-40 into cylinder and pull cord a few times
8. Replace cap and plug

Commonly replaced *STIHL* Parts	
Part Description	*STIHL*/Mfg Part #
E clip	9460 624 0801
7 tooth Rim Sprocket	0000 642 1223
Sprocket Washer	0000 958 1032
HD Air Filter	0000 120 1654
Fuel Filter/Pick-up body	0000 350 3504
Spark Plug (NGK)	BPMR 7 A
Spark Plug (Bosch)	WSR 6 F
Round File, Box of 1 Dozen	5605 773 5512
91 Driver **Full Skip Chisel Chain** 3/8" Pitch, .050" gauge	33RSF (specify # of drivers w/ this part #)
28" bar Rollomatic ES Widetip **91 drivers 3/8" pitch, .050" gauge**	3003 000 9638

STIHL Bars	
3/8" Pitch .050 Gauge	
Bar Length	# of Drivers
25"	84
28"	91
32"	105
36"	114

2-CYCLE MIX QUANTITIES (Ounces)					
	Gasoline Quantity				
Mix Ratio	**.5 gal**	**1.0 gal**	**2.0 gal**	**2.5 gal**	**5 gal**
16 : 1	4.0	8.0	16.0	20.0	40.0
24 : 1	2.7	5.4	10.7	13.4	27.0
32 : 1	2.0	4.0	8.0	10.0	20.0
40 : 1	1.6	3.2	6.4	8.0	16.0
50 : 1	1.3	2.6	5.2	6.4	12.8

TACH RPM GUIDE		
Model	**Idle**	**High**
Stihl		
MS360	2800	13500
MS440	2500	13500
MS460	2500	13500
MS660	2500	13500
Husky		
372 XP	2700	13500
385 XP	2700	12500
395 XP	2500	12000

MIXING GUIDE: 3:1 SLASH MIX- 5 GALLONS		
# of cans	**3 Parts Diesel** Stop fuel pump@__ gal:	**1 Part Gasoline** Stop fuel pump@__ gal:
1	**3.75**	**1.25**
2	**7.5**	**2.50**
3	**11.25**	**3.75**
4	**15.00**	**5.00**
5	**18.75**	**6.25**
6	**22.50**	**7.50**
7	**26.25**	**8.75**
8	**30.00**	**10.00**

1 CUP =	8 ounces
1 PINT =	2 Cups 16 Ounces
1 QUART =	4 Cups 2 Pints 32 Ounces .946 liters
1 GALLON =	4 Quarts 128 Ounces 3.785 liters 8.33 lbs

PORTABLE PUMP OPERATING INSTRUCTIONS

FUEL

- Use **24:1** mix (that's 5 gal. gas / 27 oz. oil) for 2 **stroke**
- **Some new "mini pumps" are 4 stoke engines which take straight gas!! Double check fuel requirements!!**
- Connect fuel can line to tank with quick connect. Loosen lid on tank for venting.

> **Fuel Consumption:**
> - Mark III, 5 gal/ 3 hours
> - Shindaiwa 5 gal/ 10 hours

CAUTIONS:

1. Do not run engine at full speed until it is thoroughly warmed up (1 minute).
2. Do not run engine with pump disconnected
3. Do not run pump dry.
4. Do not use suction hose without foot valve strainer
5. Remove and drain pump after final use, and at night if temperatures below freezing.

SETTING UP AND STARTING MARK III AND MARK 26 PUMPS

1. Connect fuel line to fuel can and pump as specified above.
2. Connect suction hose to the pump. Be sure to connect the foot valve to the male end of the suction hose. Make sure that the rubber gasket or washer is in place before attaching the female end to the pump. **Tighten firmly with a spanner wrench**. Put the foot valve inside the canvas bucket in the pump kit, and/or use rope or a float to the strainer to keep it from being too close to the water surface or resting on the bottom in the mud.
3. Attach wye valve to discharge side of pump. Hand-tighten only. Twist priming pump onto one leg of the wye and hose on the other. Close valve to the hose, leave primer valve open. Stroke primer till water squirts out the small holes, or until resistance is too great to keep at it. After priming, close valve to primer and open valve to hose.
4. Pull the decompression switch out until it comes to a "click" stop. (New pumps don't have decompression switches).
5. Put the choke on START, if the engine is cold.
6. Move throttle to "START AND WARM UP" position.
7. Give starter rope several quick, steady pulls until engine starts or pops. Turn choke off immediately after engine makes any noise to prevent flooding on the next pull.
8. Put choke on RUN and pull engine over until it starts usually 1 to 3 pulls.
9. Push decompression switch fully in as soon as engine starts.
10. Allow engine to warm up fully (hot to the touch) before using full throttle.
       If the pump shuts down automatically, you may need to <u>reset</u> the automatic cutout
        Do this by pushing in on the reset rod (yellow circular wire located below stop switch)

STOPPING A MARK III OR MARK 26 PUMP

1. Move throttle lever to "stop" position.
2. Let pump run for about two minutes in this position.
3. Press and hold stop switch until engine is fully stopped.

ORDERING PUMPS:

- Order two pump kits (NFES 0870) (one is probably short something you really need).
- Hose and appliances: Figure 100 ft. 1" laterals for every 200 ft. 1 ½" trunk line.
- Remember: Gated "Y's", nozzles, hose clamps, reducers, etc.

STRUCTURE PROTECTION TIPS
From the Alaska Smokejumper Operations Guide

1. Identify fire hazards that need to be mitigated to protect cabin
   a) Is the roof clear?
   b) Are the eaves clear?
   c) Are there building materials or fire wood stacked against the cabin?
   d) Are there trees, snags, or other vegetation that pose a direct hazard to the cabin?

2. Sprinkler system set up tips
   a) Sprinkler coverage should wet all surfaces of the structure.
   b) **Sprinklers at the structure corners provide the best coverage**
   c) Vary heights to provide the best coverage.
   d) Set two sprinklers at opposite corners above the roof line and the other two below the roof line.
   e) Adjust sprinklers for long range spray or short range mist.

High _____ Low

```
+-----------------------------+
|                             |
|          Structure          |
|                             |
+-----------------------------+
```

Low _____ High
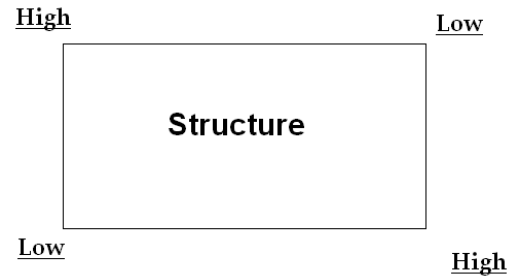
3. Sprinkler head attachment methods.
   a) Set sprinkler heads on poles, tripods, or stands to get them above ground/cabin
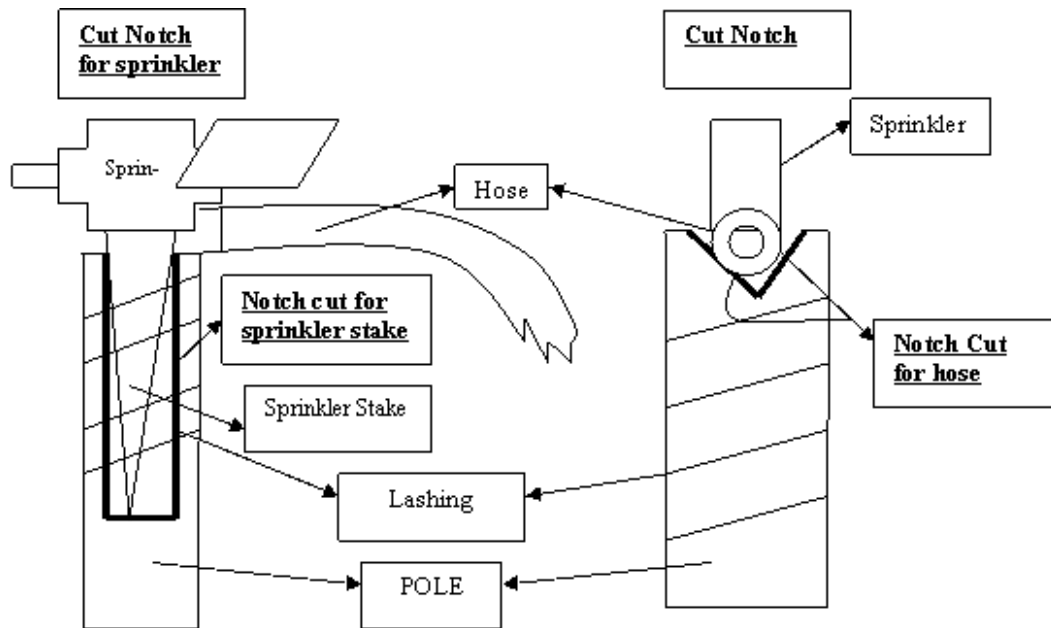
Saw cuts for sprinkler attachment - *Notches prevent sprinklers from rotating when hose is charged*

4. Pumps
   a) Shindaiwa type pumps work well close to water sources
   b) Use 5 gal can and fuel line attachment in Sprinkler Kit for Shindaiwa
   c) Mark III type pumps work well when the structure is far from, or high above the water source.

5. Misc.
   a) Use extra sprinklers on wood piles or surrounding fuels
   b) **Make sure your hose lay is protected**
   c) Take the extra step to prevent water from entering the structure

BASIC CABIN PROTECTION ORDER

- 1 pump kit (#0870)
- 1 sprinkler kit (either #0920 or #1048)
- 700' of 1" hose (#7273)
- 10 gallon premix (#7358)

SPRINKLER KIT CONTENTS

Cache Item: NFES 1048 (new kit as of 2008)

Cache Item	Quantity	Description
0010	1	REDUCER - 1 1/2" NH-F (9 TPI) TO 1" NPSH-M (11 1/2 TPI)
0136	1	NOZZLE - GARDEN HOSE, 3/4" NH, ADJUSTABLE, BRASS
0137	1	NOZZLE - PLASTIC, 60 GPM, 1 1/2'' NH-F X 4 3/4'' LONG
0235	1	WRENCH - SPANNER, 11", 1 1/2" TO 2 1/2" HOSE SIZE
0321	1	HAMMER - CLAW
0394	12	TIE WRAPS - ONE WAY, 15" - 17"
0402	4	REGULATOR - WATER PRESSURE, R.V.,40-50 PSI, 3/4" M/F-H BRASS
0473	1	WRENCH - ADJUSTABLE, 10"
0538	12	PIN - PANEL, HOLD DOWN, 8" LONG
0721	5	GASKET - GARDEN HOSE, 3/4"
0729	1	FORM, - INSTRUCTIONS SPRINKLER KIT ()
0731	4	TEE - HOSELINE, 1 1/2" NH-F X 1 1/2" NH-M X 1" NPSH-M W/CAP
0733	4	REDUCER - 1'' NPSH-F (11 1/2 TPI) TO 3/4'' NH-M (11 1/2 TPI)
0744	1	PACKSACK - WATERPROOF, W/STRAPS
0808	1	CARTON - FIBERBOARD, 16" X 14" X 12", DOUBLE WALL W/HAND HOLDS
0824	2	BLOCK - WOOD, 2" X 4" X 6"
0835	4	VALVE - SHUT OFF, BRASS, BALL, 3/4" NH
0882	1	NAILS - DUPLEX, DOUBLE HEAD, 16D, 3"
0904	2	VALVE - WYE, GATED, BRASS, 3/4" NH-F X 3/4" NF-M X 3/4" NH-M
0913	8	STAKE - W/CLAMP, SPRINKLER, METAL, 18" X 1" X 1"
0937	1	SAW - PRUNING, 10"
0999	4	SPRINKLER ASSEMBLY - 1/2", SPRINKLER HEAD W/COUPLINGS
1016	5	HOSE - GARDEN, SYNTHETIC, 3/4" NH X 50'
3305	2	CORD - NYLON, 1/8'' X 100'
3318	1	BAG - COTTON, LUNCH OR TOOL, 10'' X 24''

WRAPPING STRUCTURES – TIPS & CONSIDERATIONS

Structure wrap (NFES #0881) comes in 54" x 300' (1350 ft^2).

Suggested order list:
- Ladders (min. 2) tall enough to reach roof peak
- Staplers and staples (order extra)
- Scissors
- Needle-nose pliers
- Sharpies/Permanent markers
- 3" Aluminum tape (avail in rolls of 360')

Things to think about:
- Take some time to plan.
- Start from the bottom of the building so your seams don't catch embers.
- Consider likely wind/fire-front direction when deciding how to overlap vertical seams.
- Using aluminum tape on seams should reduce the number of staples needed.
- Draw windows on outside of wrap to prevent breaking them in the process of wrapping & unwrapping.
- Can you safely work on the roof (if necessary)? Will it support your weight? Are there other options?
- Will you still need access to the inside of the building?
- Consider the unwrapping stage when deciding how many staples to use.

BENDIX KING DPHX PROGRAMMING AND CLONING INSTRUCTIONS

**The instructions below are for analog narrowband frequencies. If you need to program digital frequencies,
See the **Digital Programming** *section below.***

1a. Using a programming plug, hold red plug button then Function [FCN] key until display shows *"-- -- -- ID"*
1b. If programing a mobile radio, press and hold "HOM/SQL" on the mobile while holding "FCN" on the mike.
2. Enter Password (usually 000000), then press the Enter [ENT] key
3. Display will read *"CH 00"*. Select a channel by entering the channel you want (1-16) then press the [FCN]key
4. Display will show "RX" receive frequency. To change, press [CLR], then enter desired frequency (the decimal will insert automatically). ***THEN PRESS [ENT]***.
5. Display will show *"MODE--A".** DO NOT CHANGE. Press [FCN]
6. Display will show RX CG, the Code Guard or Tone. To change, press [CLR], enter in desired 4 digits (the decimal will insert automatically), ***THEN PRESS [ENT]***. To skip press [FCN].
7. Display will show *"NAC0000".** DO NOT CHANGE-Press [FCN] to skip.
8. Display will show *"SQL—NRM".** DO NOT CHANGE- Press [FCN] to skip.
9. Display will show "TX" transmit frequency. To change, press [CLR], then enter desired frequency (the decimal will insert automatically) ***THEN PRESS [ENT]***.
10. Display will show *"MODE--A"* DO NOT CHANGE. Press [FCN] to skip.
11. Display will show TX CG, the Code Guard or Tone. To change, press [CLR], enter in desired 4 digits (the decimal will insert automatically)***THEN PRESS [ENT]***. To skip press[FCN].
12. Display will show *"NAC0000".** DO NOT CHANGE. Press [FCN] to skip.
13. Display will show *"TG00001".** DO NOT CHANGE. Press [FCN] to skip.
14. Display will show channel label. See page 9 below for label editing instructions. To skip press [FCN]
15. Display will read *"CH XX"*. Select next channel (press [PRI] for next channel) to program and repeat steps 1-14.

*=DIGITAL FUNCTIONS

CLONING

1. Obtain programmed Master radio.
2. Turn on Master and Slave (your) radios and attach cloning cable between radios. Make sure all scan and priority switches are OFF for both radios.
3. Select desired group to program in Slave radio
4. Access Programming mode of MASTER radio. (see above)
5. With Master radio display reading *"CH 00",* press the * key on the Master radio
6. "PRGM" will appear in screen and flash.
7. Press the Function [FCN] key and "PRGM" will appear without flashing as the slave radio is programmed (Slave radio's screen will flash VH-1)
8. Turn off slave, and connect and program the next slave by pressing the [FCN] key once again.
If display reads "FAIL" - an error has occurred. Turn off both radios then repeat steps 2-8. If "FAIL" appears again, seek help.

NOTES:
▪ **If you want to change a frequency from Narrowband to Wide band, here's what you do:**
   1. In step 4 above, after you enter in a channel number, *15* for example, you may see *15N.* The *N* means the frequency is Narrowband.
   2. Press the # key. You should see the *N* disappear, and now the channel is Wideband
▪ If you have trouble keying in a tone or changing groups, your keypad may be locked. Look at your screen, and if it says *"LOCKED"* than press and hold the [FCN] key until you see *"UNLOCKED."*

BENDIX KING - "ZERO CODES"

The "Zero Codes" control numerous features of your BK radio. USE CAUTION WHEN CHANGING.

- Follow programming steps 1-2 above. Press "FCN" 7 times to arrive at zero code group 1, 8 times for group 2, and 9 times for group 3.
- Zero Codes are specific to each group.
- Common settings are indicated with <mark>yellow highlights</mark> below.
- In the table below, a function is enabled if a particular number is **Grey**.
- In your radio, a function is enabled if the number is flashing. For example, to enable DTMF encoder, the number 5 must be flashing in the Group 2 functions. In the chart, you'll see that the number **5** is grey next to the DTMF
- To change a number from flashing to solid (ie disable a function), simply touch the number on the keypad, ***THEN PRESS [ENT]***. The opposite will also work: to enable a function, touch the number on the keypad, ***THEN PRESS [ENT]***.
- To change the "*LITE*" settings (BACKLIGHT OPERATION) touch the [PRI] button to scroll thru your options, ***THEN PRESS [ENT]***.

COMMON SETTINGS	
GROUP FUNCTION	FLASHING (ENABLED)
1	<mark>**2,3**</mark>
2	<mark>**1,3,5**</mark>
3	**5**

Grey numbers = Flashing numbers= Enabled Function
<mark>**Yellow**</mark> numbers=Flashing numbers=Common Settings

Group One Functions						
Battery Saver Off *(If 1 is flashing, Battery Saver is OFF!!)*	1	1	2	3	4	5
<mark>Group Scan List</mark>	1	1	2	3	4	5
<mark>Transmit on PRI 1 (old PRI Mode C)</mark>	1	1	2	3	4	5
Priority Key Lockout	1	1	2	3	4	5
Scan List Lockout	1	1	2	3	4	5
Group Two Functions						
<mark>User Code Guard Enabled</mark>	2	1	2	3	4	5
<mark>Busy Channel Indicator enabled</mark>	2	1	2	3	4	5
Busy Channel Lockout enabled *(rarely enabled)*	2	1	2	3	4	5
Busy Channel Override enabled *(rarely enabled)*	2	1	2	3	4	5
ANI enabled *(rarely enabled)*	2	1	2	3	4	5
<mark>Manual DTMF Encoder enabled</mark>	2	1	2	3	4	5
Group Three Functions						
Light on Display Change	3	1	2	3	4	5
Light on Key Press	3	1	2	3	4	5
<mark>Alpha-numeric Mode enabled</mark>	3	1	2	3	4	5
Back Light Duration CHOOSE LITE OFF!!						
Group Label (SEE BELOW)						

National Standard Tones / NACs			
Std Tone #	Analog Freq	DEC NAC	HEX NAC
1	110.9	1109	455
2	123.0	1230	4CE
3	131.8	1318	526
4	136.5	1365	555
5	146.2	1462	5B6
6	156.7	1567	61F
7	167.9	1679	68F
8	103.5	1035	40B
9	100.0	1000	3E8
10	107.2	1072	430
11	114.8	1148	47C
12	127.3	1273	4F9
13	141.3	1413	585
14	151.4	1514	5EA
15	162.2	1622	656
16	192.8	1928	788

*Note: If your goal is only to change the Priority settings:
1. Follow programming steps 1-2 above.
2. Press "FCN" 5 or 6 times, to arrive at priority setting 1 or 2, respectively
3. Press "PRI" repeatedly to cycle through "ON" (selected channel), "OFF" (not functional), and the 16 channels to set your first and second priority

NOAA WX Freqs
RX 162.400
RX 162.425
RX 162.450
RX 162.475
RX 162.500
RX 162.525
RX 162.550

LABEL EDITING
Channel and Group Labels

1. To enter a new label, press the [**FCN**] key. The display becomes blank.
2. Press the [**PRI**] key repeatedly to cycle through characters 0-9, A-Z, -, *, $, /, +, %, \, _, <, >, h, blank, then back to the start again. The characters appear in position eight. (if you pass the desired character, press the [**PRI**] key repeatedly until you reach that character again).
3. Press the [**FCN**] key to shift the display left by one position, leaving position eight blank.
4. Press the [**PRI**] key repeatedly to enter the next character, or press the [**FCN**] key a second time to enter a blank space.
5. Press number keys to enter 0-9 in positions one through seven. The digits start in position seven, then move left.
6. Press the [**#**] key to toggle a decimal on or off to the right of the character in position seven. The decimal moves left with the number in position seven as new numbers are entered.
7. To abandon changes, press the [**CLR**] key, restoring the original label.
8. Press the [**ENT**] key to store changes and go back to the starting point.

DIGITAL PROGRAMMING

In order to use your DPH as a digital radio, there are several things that you need in order for it to work.

MODE: Must Be **D** (Digital) or **M** (Mixed)
NAC=Network Access Code: Essentially a digital "tone." This code will be provided for you, and it is required for digital freqs to work. The code may be either HEX or DECIMAL. MAKE SURE YOU KNOW WHICH ONE: Hand programming requires Decimal inputs.
SQ OP: don't change from default of "Normal"
TG=Talk Group ID: provided for you by management unit -usually talk group 1.

Things to remember:

- DPH radios can be set up with digital and analog frequencies in a single group.
- When transmitting on a digital frequency, key your mic and wait one full second before speaking.
- Digital repeaters may not be set up with a transmission "tail" or "kick-back". An actual voice transmission may be needed to verify contact with the repeater.
- If you know you'll be using digital frequencies, plan ahead- you may have most success programming your radios with the laptop and the BK software.
- You can clone digital frequencies between DPH radios, just like analog frequencies.

NACS
F7E is what you program in if you want to listen in. F7E will listen to any digital signal
F7e is hexadecimal= 3966 is decimal (Hand Programming Mode Requires Decimal)
F7e is a receive nac only
Convert hexadecimal to decimal and vice-versa with the Microsoft calculator in Scientific Mode.

RIGGING POSTER
LONG LINE REMOTE HOOK

HAZARD AREA

Cargo Hook

Long Line

Remote Hook

Swivel

Lead Line

Lighter, more fragile cargo OR FOOD

Cargo Net

Heavier, more durable loads rigged below OR FUEL/HAZMAT

Cargo Net
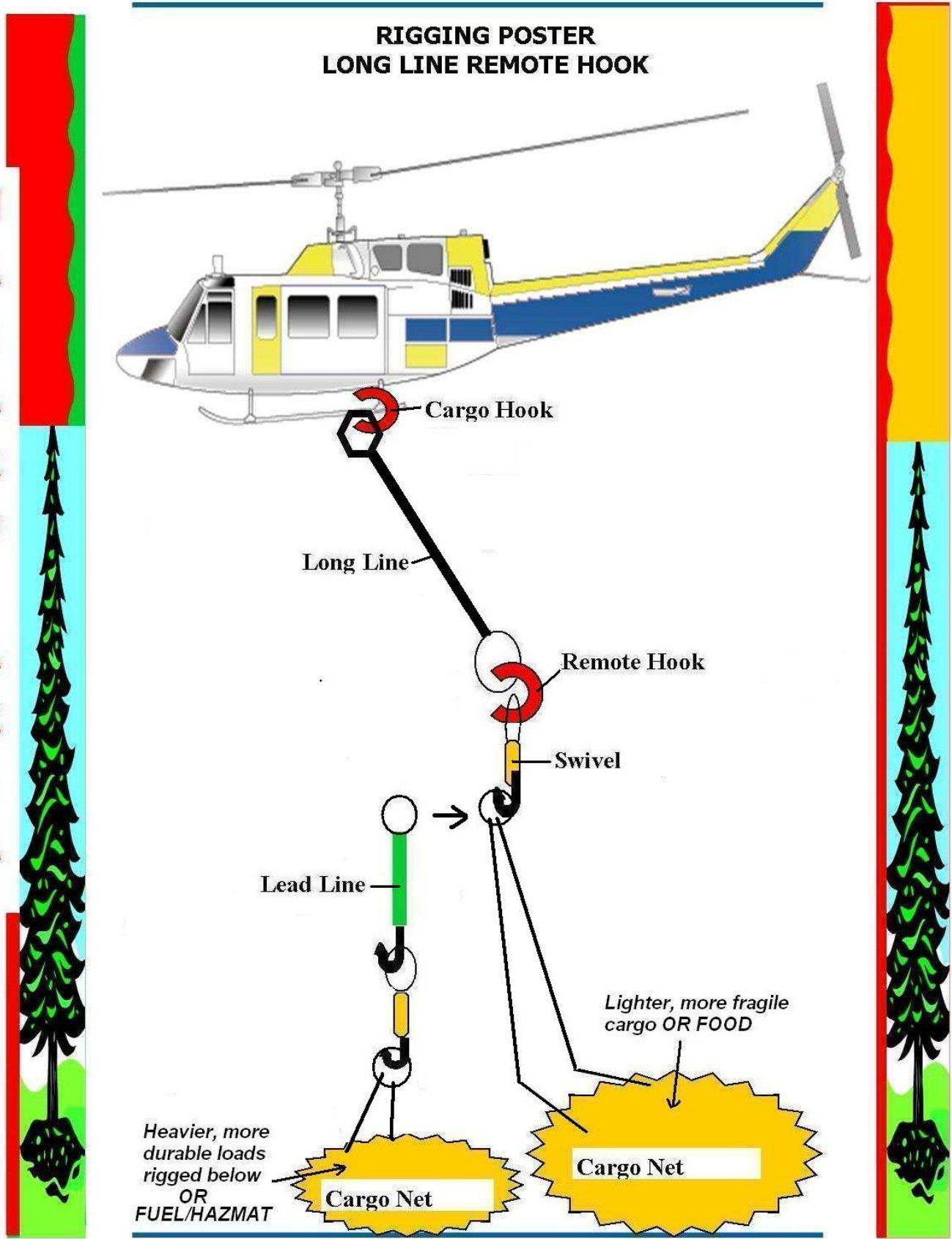
Ensure adequate long-lines by providing helibase with accurate tree heights!

TOWNSHIP/RANGE SYSTEM OF LAND MEASURE

Township Lines run EAST to WEST six miles apart
Range Line run NORTH to SOUTH six miles apart

Within each township are 36 sections, each one mile square. Each section contains 640 acres.

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

Section Numbers in a Typical Township

Third Principal Meridian				Range Line
T2N R2W	T2N R1W	T2N R1E	T2N R2E	
T1N R2W	T1N R1W	T1N R1E	T1N R2E	
T1S R2W	T1S R1W	T1S R1E	T1S R2E	Township Line
T2S R2W	T2S R1W	T2S R1E	T2S R2E	

Base Line
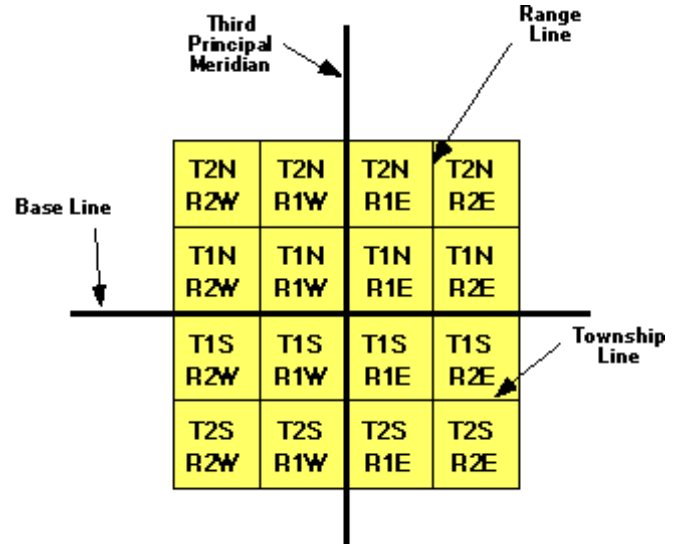
Within each section, the land is referred to as half and quarter sections. A one-sixteenth division is called a quarter of a quarter, as in the NW1/4 of the NW1/4.

The descriptions are read from the smallest division to the largest. ↓↓

NW 1/4 of NW 1/4	NE 1/4 of NW 1/4	NE 1/4 = 160 acres	
SW 1/4 of NW 1/4	SE 1/4 of NW 1/4		
N 1/2 of SW 1/4		W 1/2 of SE1/4	E1/2 of SE 1/4
S 1/2 of SW 1/4			
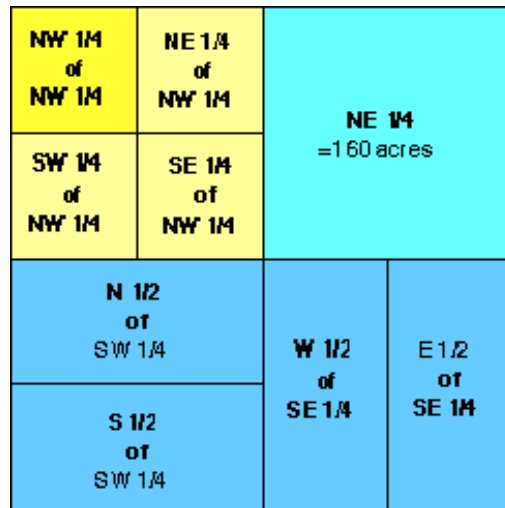
CONVERTING LATITUDE LONGITUDE

BY FAR THE EASIEST WAY TO DO THIS IS WITH A MOBILE APP (AVENZA, MOTION-X, GAIA)

1. Avenza Maps – in the map view, simply click on the coordinates displayed at the bottom center of the screen. All possible coordinate formats will be displayed. Make a selection.
2. Motion X – Menu > Setup > Display > edit "coordinate format"
3. GAIA – Menu > Settings > Coordinate Type

If you do not have that option, do this:

Latitude and Longitude may be shown in three different formats:

FORMAT	WHAT IT LOOKS LIKE	HOW YOU SAY IT (Radio Etiquette)
A. Degrees Decimal Minutes (*Aircraft*)	48° 36.12' 114° 08.12'	"Four-eight degrees, three six point one two minutes."
B. Degrees Minutes Seconds (*many maps*)	48° 36' 12" 114° 08' 12"	"Four-eight degrees, three six minutes, and one two seconds."
C. Degrees Decimal Degree (*seldom used*)	48.3612° 114.0812°	"Four-eight point three six one two degrees."

To convert **Degrees Minutes <u>Seconds</u>** to **Degrees Decimal Minutes**, divide seconds by 60.
- Example: 48° 20' <u>30"</u>   ⇨   **(**<u>30"</u>)/60 = .5'   ⇨   48° 20.5'

To convert **Degrees <u>Decimal Minutes</u>** to **Degrees Minutes Seconds**, multiply hundredths (i.e. .12) by 60.
- Example: 48° 20.5'   ⇨   .5' x 60 = 30"   ⇨   48° 20' 30"

- **One degree of latitude or longitude = 60 minutes (60')**
- **One minute of latitude or longitude = 60 seconds (60")**
- **A 7.5 minute quad covers 7.5 minutes of longitude and 7.5 minutes of latitude**

Aviation Datum=WGS 84 Units: Decimal/Minutes (ddd°mm.mmm')

CONVERSION CHARTS

UNITS OF MEASURE

1 inch	2.54 centimeters
1 foot	.3048 meters
1 Meter	3.28 feet 39.37 inches
1 Kilometer	.623 miles 1,093.6 yards 3280.8ft
1 Chain	66 feet 20.11 meters
1 Acre	10 square chains 208.7 x 208.7 ft 43,560 sq. feet .405 hectares
1 Mile	5280 feet 80 chains 1.6 kilometers
Township	36 square miles
Section	1 square mile 640 acres

1 CUP	8 ounces
1 PINT	2 Cups 16 Ounces
1 QUART	4 Cups 2 Pints 32 Ounces .946 liters
1 GALLON	4 Quarts 128 Ounces 3.785 liters 8.33 lbs

MAP SCALE CONVERSION

MAP SCALE	1 inch on the map=	1 Mile on the Earth= ___inches on map
1:5,000	416.67 feet 127.00 meters	12.67
1:10,000	833.33 feet 254.00 meters	6.34
1:12,500	1,041.66 feet 317.00 meters	5.07
1:20,000	1,666.70 feet 508.00 meters	3.17
1:24,000 7.5" Quad	2,000 feet 609.6 meters	2.64
1:25,000 7.5" Quad	2,083.30 feet 635.00 meters	2.53
1:50,000	4,166.70 feet 1,270.0 meters	1.27
1:62,500 15" Quad	.986 Miles 5206.1 feet 1586.8 meters	1.014
1:63,360 Alaska Maps	5,280.00 feet 1,609.3 meters	1
1:100,000	8,333.30 feet 2,540.0 meters	.634
1:250,000	20,833.00 feet 6,350.0 meters	.253
1:500,000	41,667.00 feet 12,700.0 meters	.127

World Magnetic Model - 2017 Magnetic Declination

NOAA National Centers for Environmental Information (NCEI)
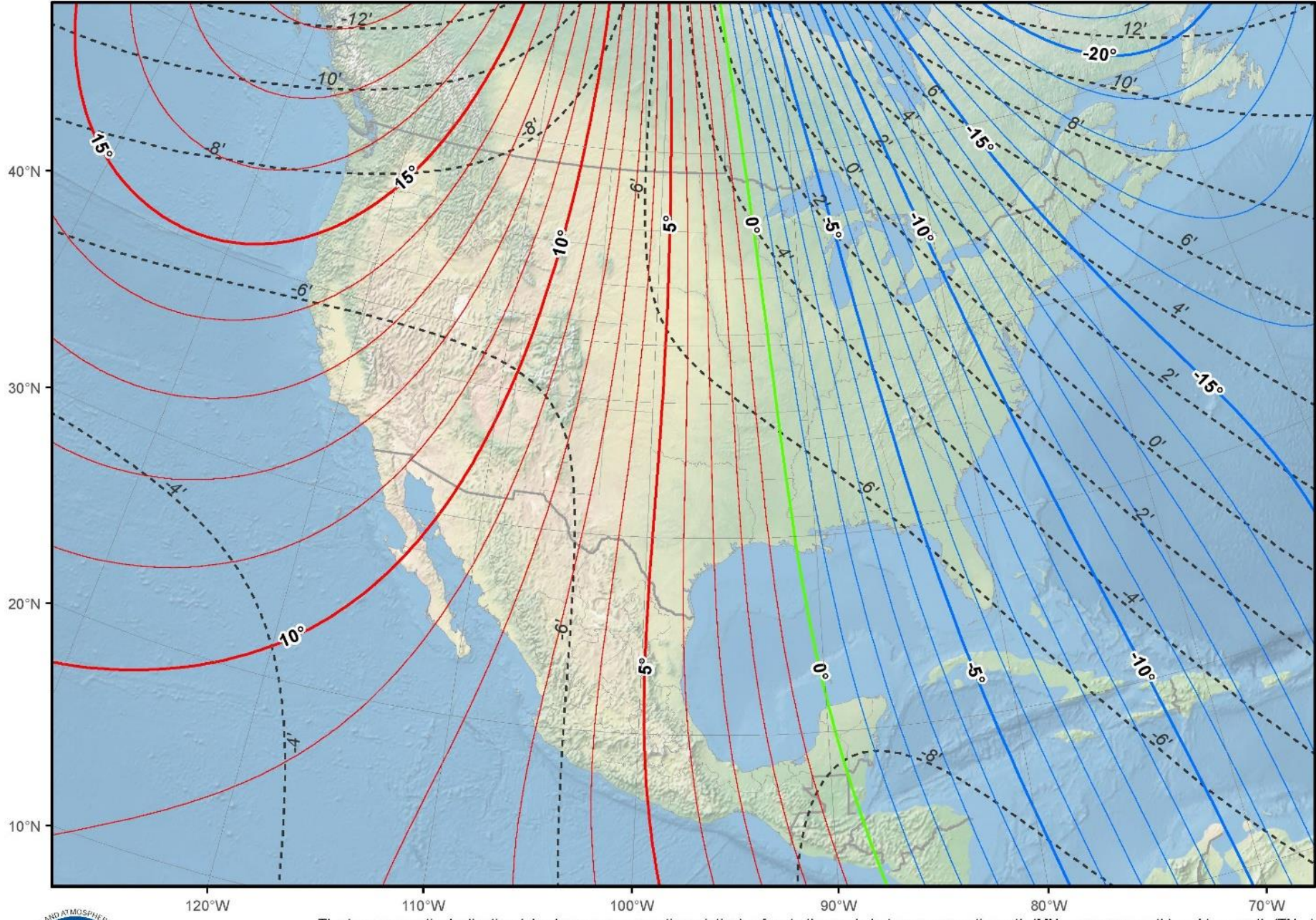
AVENZA & MOBILE MAPPING GUIDE

- ▪ **Recording Waypoints and Tracks**
  - ● **These days there are several apps you can use to easily record points and tracks and easily share them via AirDrop (IOS), traditional Bluetooth (Android) or email (IOS & Android). The following apps have all but replaced the GPS for modern day WFM crewmembers**
    - ▪ **Avenza Maps – Full service GPS App with downloadable basemaps (see below).**
    - ▪ **Motion-X GPS (IOS only) – Full service GPS App. Needs cell service for basemaps**
    - ▪ **GAIA GPS - Full service GPS App with downloadable basemaps. Free as NPS employee**
    - ▪ **ArcGIS Collector – Used by IMT's for FOBS-like data collection on large incidents**

- ▪ **Acquiring Maps (Avenza Specific):**
  - ● **Under the "store" tab, click on the "+" sign at the top right side of the screen**
    - ▪ **Click "get a map from the store" to download topos, park and forest maps, etc**
      - 1) **It's usually best to click "find maps" and filter for "free maps only", OR**
    - ▪ **Click on the QR symbol at the top right side of the screen if there's an incident QR, OR**
    - ▪ **Go to ftp.nifc.gov/incident_specific_data/ to download maps from large incidents, OR**
    - ▪ **For iPhone users, AirDrop a map to your friend**
      - 1) **Open the map you'd like to share and click on the   symbol (bottom right)**
      - 2) **Click on the   symbol (bottom right) to export**

      - 3) **Use a straightforward "filename", send to "airdrop", select "custom" data and make sure you've checked the box next to the map. Click "apply"**
      - 4) **Click "Export" (upper right), make sure your AirDrop is turned on, and wait for your friend's AirDrop to show up.**
      - 5) ***Note: This is also the same process for sharing points and lines in Avenza**

- ▪ **Recording Tracks and Calculating Acreage**
  - ● **Avenza**
    - ▪ **While in the map view where your perimeter will go, click on the "wrench" tool (bottom right)**
    - ▪ **Click "record GPS Tracks" and click "Start". Walk the perimeter. Click "Stop" when you've finished the track or completed the perimeter.**
    - ▪ **This is the "track" you'll send to whomever needs it. Unfortunately it won't give you acreage directly, so you'll have to**
      - 1) **Click on the "wrench" tool again**
      - 2) **Click on "measure" and click on the "protractor" icon to switch to "area calc"**
      - 3) **Click on the "+" symbol repeatedly as you trace over your perimeter and watch as the acreage is calculated on the fly. Relay this info to whomever needs it.**
  - ● **GAIA GPS**
    - ▪ **Simply record a track, and when you've completed the track, click "convert to area"**

Cloud Types

High Clouds

Cirrus (Ci)
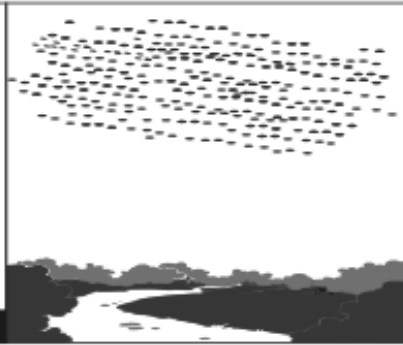
Cirrocumulus (Cc)
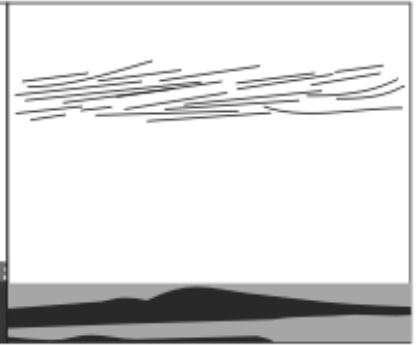
Cirrostratus (Cs)

Middle Clouds
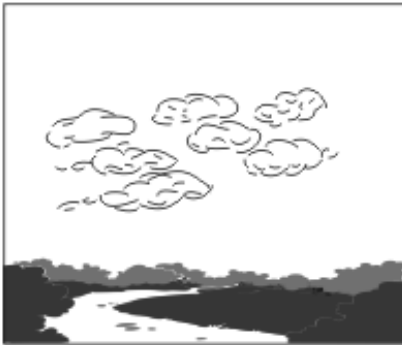
Altocumulus (Ac)
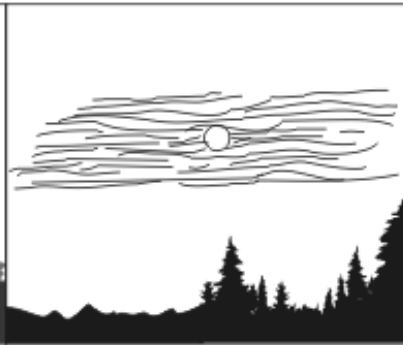
Altostratus (As)

Low Clouds
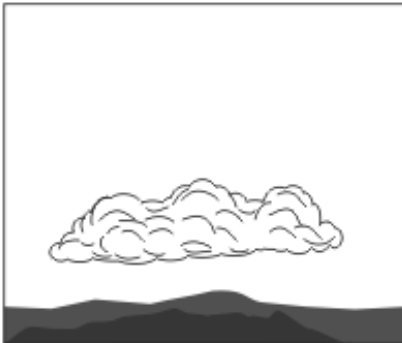
Stratocumulus (Sc)
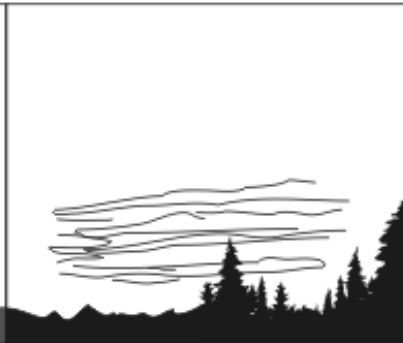
Stratus (St)
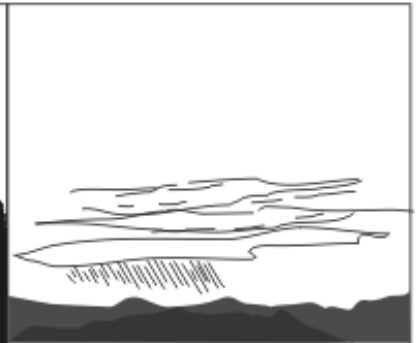
Nimbostratus (Ns)

clouds of Vertical Development

Cumulus (Cu)

Cumulonimbus (Cb)

HIGH CLOUDS above 20,000 ft.

CIRRUS (whispy)

CIRROCUMULUS (whispy, puffed up)

CIRROSTRATUS (whispy, layered)

MIDDLE CLOUDS 7,000 to 20,000 ft.

ALTOCUMULUS (high, puffed up)

ALTOSTRATUS (high, layered)

CUMULONIMBUS (puffed up, rain cloud)

CUMULUS (puffed up)

LOW CLOUDS below 7,000 ft.

STRATOCUMULUS (layered, puffed up)

STRATUS (layered)

NIMBOSTRATUS (rain cloud, layered)
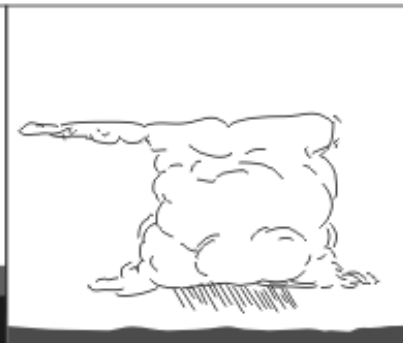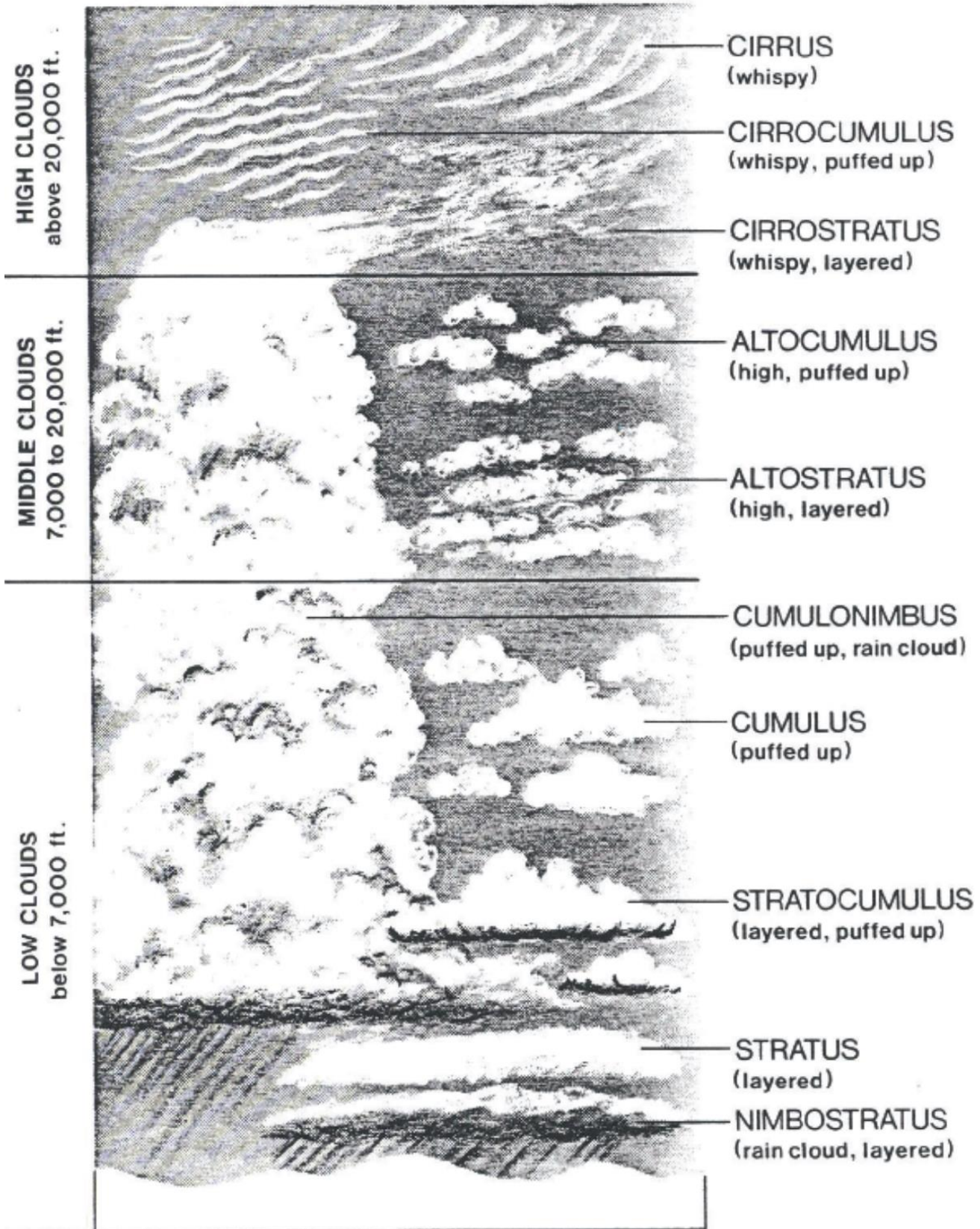
Cloud Base Height (AGL):
Temperature – Dew Point/3.5 x 1000

Wind Adjustment for Exposure of Fuels to Wind
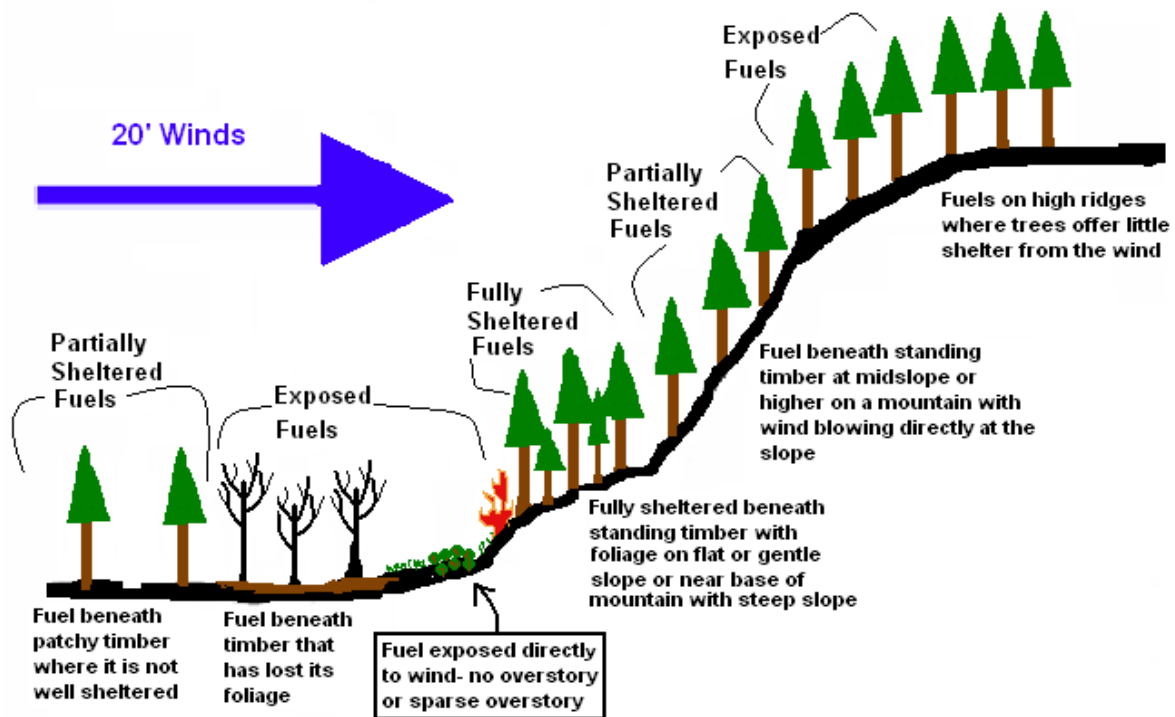
Fuel Exposure	Fuel Model	Adjustment Factor*
Exposed Fuels Fuel exposed directly to the wind. No or sparse overstory. Fuel beneath timber that has lost its foliage overstory; fuel beneath timber near clearings or clear-cuts; fuel on high ridges where trees offer little shelter from the wind.	**4** 13 All others*	**0.6** 0.5 0.4
Partially Sheltered Fuels Fuel beneath patchy timber where it is not well sheltered; fuel beneath standing timber at mid-slope or higher on a mountain with wind blowing directly at the slope	All Fuel Models	**0.3**
Fully Sheltered Fuels Fuel sheltered beneath standing timber on flat or gentle slope or near base of mountain with steep slopes	All Fuel Models	0.2 Open Stands 0.1 Dense Stands

*Fuel Models 2 and 7 are usually partially sheltered
Fuel models 8, 9 and 10 are usually fully sheltered

*NOTE: The adjustment factor is used to reduce the 20-foot wind to eye level wind (e.g. A forecasted 10 mph 20-foot wind in a partially sheltered stand would likely produce a 3 mph eye level wind)

RATE OF SPREAD ESTIMATOR

Spread distance (ft)				ROS ch/hr
1	**3**	**5**	**10**	
Time in Minutes(') and Seconds(")				
3'38"	10'55"	18'10"	36'22"	0.25
1'49"	5'27"	9'05"	18'10"	0.5
55"	2'44"	4'33"	9'05"	1
36"	1'49"	3'02"	6'04"	1.5
27"	1'22"	2'16"	4'33"	2
18"	55"	1'31"	3'02"	3
14"	41"	1'08"	2'16"	4
11"	33"	55"	1'49"	5
9"	27"	45"	1'31"	6
8"	23"	39"	1'18"	7
7"	20"	34"	1'08"	8
6"	18"	30"	1'01"	9
5"	16"	27"	55"	10
4"	11"	18"	36"	15
3"	8"	14"	27"	20
2"	7"	11"	22"	25
2"	5"	9"	18"	30
2"	5"	8"	16"	35
1"	4"	7"	14"	40
1"	3"	5"	11"	50
1	**3**	**5**	**10**	
Spread distance (ft)				

Use this chart as an aid to *estimate* rate of spread

Here's how:

1. Measure out 1, 3, 5 or 10 feet. Mark distance with two points.
2. Time fire as it spreads between your two points and record this time.
3. Using the appropriate spread distance column (1, 3, 5 or 10), place your time on the sheet between two times listed, your "bracketed" times.
4. Move to the right with the bracket times. This is your ROS range.

> **Time Key**
> 1' 49" = 1 minute and 49 seconds
> 36" = 36 seconds

Example: Say you're monitoring a backing fire burning in light ponderosa needle cast. You measure out 3 feet, and place two stones at each of the points. You time the fire as it moves between the stones. In this case, say the fire takes 1 minute 6 seconds (1'6") to move 3 feet. Looking at the 3 column, you move down until you see two times which bracket our time: 1'22" and 55". You then scroll right and see that the rate of spread is between 2 and 3 chains per hour.

Flame Length

Flame Height

|<--------Flame Zone Depth-------->|
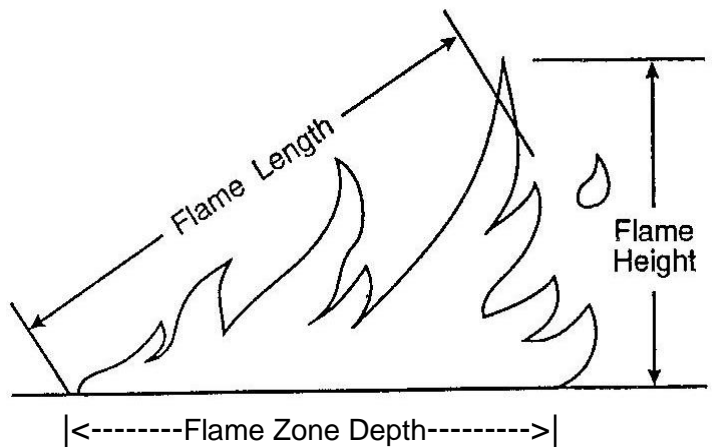
FIRE BEHAVIOR TERMINOLOGY

Smoldering – no flame, barely spreading
Creeping – low flame, slow spread
Running – definite flames, rapid spread in surface fuels with well-defined head
Torching – fire runs up ladder fuels into crowns of individual trees with no crown to crown spread
Crowning – fire spreading from crown to crown, either dependent or independent of surface fire
Flame length – length from base to tip, not vertically
Rate of spread – chains per hour = feet per minute
Ground fire – fire burning in organic material below surface litter
Surface fire – fire that burns surface litter, other loose debris of the forest floor and small vegetation
Backing – fire spreading against the wind, or spreading on level or downward-sloping ground with no wind
Flanking – fire spreading perpendicular to the wind
Backfire – fire used as an indirect attack method to stop, slow or turn a wildfire
Burnout – fire set to fuels inside the control line, to strengthen line, as a part of line construction
Flare-up – any sudden acceleration of fire spread or intensification of the fire. A flare-up is of relatively short-duration and doesn't radically change existing control plans.
Spot Fire – fire outside the perimeter of the main fire started by flying, or rolling sparks or embers

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SLING PSYCHROMETER USE

The following are instructions for determining wet and dry bulb temperatures using the sling psychrometer. These instructions are based on those from page 259 of the S-290 Instructors Manual. Several additional comments have been added.

1. Stand in a shaded, open area away from objects that might be struck during whirling. If in open country, use your body shade to shade the psychrometer. If possible, take your weather observations over a fuel bed that is representative of the fuels that the fire is burning in.
2. If your sling has been in your pack, you may need to hang it in a tree, in the shade, to let it adjust to the outside air temperature.
3. Face the wind to avoid influence of body heat/moisture on the thermometers.
4. Saturate the wick of the wet bulb with clean, mineral free water (distilled). Never touch the wick.
5. Ventilate the thermometers by whirling at full arm's length. Your arm should be parallel to the ground. Whirl for 1 minute.
6. Note the wet bulb temperature. Whirl for another 40 or 50 times and read again. If the wet bulb is lower than the first reading, continue to whirl and read until it will go no lower. Read and record the lowest point. If the wet bulb is not read at the lowest point, the calculated relative humidity will be too high.
7. **Read the dry bulb immediately after the lowest wet bulb reading is obtained**. If the wet bulb reading increases, you've allowed the wick to dry out. Wet the wick and begin again.
8. Determine the relative humidity from the tables.

Important Tips:
1. Never sling weather in the black
2. Insure a quality sling (clean wick, non-separated mercury/liquid, clean water, etc)
3. Always use the correct elevation chart for RH & DP.

Rule of thumb: RH in % divided by 5 = estimate of FDFM

FUEL MOISTURE SAMPLING

General Guidelines
- Record site name, date, time, observer name, observed weather, general site description
- DO NOT collect samples if water drops or dew are present on samples
- Keep samples in a cool and dry location
- Seal containers with tape that will not leave residue. Electrical works best

Dead Fuels (1-hr, 10-hr, 100-hr, & 1000-hr fuels)
- Samples should not be attached to live trees or shrubs
- Avoid decayed samples that crumble or splinter when rubbed
- Collect samples from several different plants
- Ensure container is ¾ full to avoid overfilling/spilling between measurements
- Do not collect buried samples
- Pick samples of different size within the time lag class
- Recently fallen material should be avoided, especially for the larger size classes
- Remove all lichen, moss, and very loose bark from sample
- 1000-hr fuels should be collected at least 1 foot from the end of the downed log, and should ideally be cut with a handsaw, rather than a chainsaw. Storage of the "cookie" should be in an airtight container and "wet" weight should be read as soon as possible. An auger/drill can also be used to collect 1000-hr woodchips, which can be stored in a standard fuel tin.

Duff and Soil
- Remove all soil and live tree or plant roots from sample
- Avoid any soil particles in duff samples and vice versa

Litter
- Collect only un-compacted dry litter from both sunny and shady areas

Live Fuels (live woody shrub leaves and tree needles/leave)
- Only collect foliage and very small twigs and remove flowers, seeds, nuts, or berries
- Pack containers loosely to avoid spillage but ensure container is ¾ full
- Include stems of herbaceous plants
- Replace lid on container immediately after collecting sample and seal with electrical tape

Drying Samples:
-Preheat drying oven between 60°C (140°F) – 100°C (212°F). Be sure to note temp used.
-Place sample cans with closed lids on scale and record "wet" weights (be sure to remove tape first)
-Remove lid just prior to placing in oven. If material is lost, re-weigh sample
-Dry sample for 24 hours (very wet samples 48 hours)
-Replace Lids immediately after sample is removed from oven and weigh
-Calculate fuel moisture using the following formula:

$$\frac{\text{wet weight of sample} - \text{dry weight of sample}}{\text{dry sample weight} - \text{container tare weight}} \,(100) = \text{percent moisture content}$$

Please see example below:

A		B	C	D	E	F
Gross Weight			Container Tare Weight	Water Weight	Dry Weight	% Moisture
Wet		Dry				
Calculation Summary						
A – B = D						
B – C = E						
(D / E) x 100 = F						

Live Fuel Moisture Estimates

Guidelines for estimating live fuel (foliage) moisture content. Live fuel moisture is required for fuel models 2,4,5,7, and 10. If data are unavailable for estimating live fuel moisture the following rough estimates can be used.

Stage of vegetative development	Moisture content
Fresh foliage, annuals developing, early in growing cycle	300%
Maturing foliage, still developing with full turgor	200%
Mature foliage, new growth complete and comparable to older perennial foliage	100%
Entering dormancy, coloration starting, some leaves may have dropped from stem	50%
Completely cured	Less than 30%, treat as a dead fuel

FUEL SIZE CLASSES – woody debris

Dead woody class			Piece diameter
			inches (cm)
DWD	FWD	1-hr	0–0.25 (0–0.6)
		10-hr	0.25–1.0 (0.6–2.5)
		100-hr	1.0–3.0 (2.5–8.0)
	CWD	1,000-hr and greater	3.0 and greater (8.0 and greater)

SCOTT AND BURGAN FUEL MODELS (2005) - "THE NEW 40"

•Determine the general fire-carrying fuel type (**grass, grass/shrub, shrub, timber/understory, timber litter, slash**).

•Determine general climate for your area (**arid, semi-arid, sub-humid, humid**). TIMBER LITTER Fuel models do not have climate groupings.

•Match **fuel model** description (fuel depth, fuel load, fuel continuity) with fuels of interest.

1. Nearly pure grass and/or forb type (Grass):

➤ *Arid to semiarid climate (rainfall deficient in summer). Extinction moisture content is 15%.*

GR1-Grass is short, patchy and possibly heavily grazed. Spread rate moderate; flame length low.

GR2-Moderately coarse continuous grass, average depth about 1ft. Spread rate high; flame length moderate.

GR4-Moderately coarse continuous grass, average depth about 2ft. Spread rate very high; flame length high.

GR7-Moderately coarse continuous grass, average depth about 3ft. Spread rate very high; flame length very high.

➤ *Subhumid to humid climate (rainfall adequate in all seasons). Extinction moisture content is 30 - 40 %.*

GR1-Grass is short, patchy, and possibly heavily grazed. Spread rate moderate; flame length low.

GR3-Very coarse grass, average depth about 2 ft. Spread rate high; flame length moderate.

GR5-Dense, coarse grass, average depth about 1 - 2ft. Spread rate very high; flame length high.

GR6-Dryland grass about 1 - 2 ft tall. Spread rate very high; flame length very high.

GR8-Heavy, coarse, continuous grass 3 - 5 ft tall. Spread rate very high; flame length very high.

GR9-Very heavy, coarse, continuous grass 5 - 8 ft tall. Spread rate extreme; flame length extreme.

2. Mixture of grass and shrub, up to about 50 percent shrub coverage (Grass-Shrub)

➤ *Arid to semiarid climate (rainfall deficient in summer). Extinction moisture content is 15 %.*

GS1-Shrubs are about 1 ft high, low grass load. Spread rate moderate; flame length low.

GS2-Shrubs are 1 - 3 ft high, moderate grass load. Spread rate high; flame length moderate.

➤ *Subhumid to humid climate (rainfall adequate in all seasons). Extinction moisture content is 30 – 40%.*

GS3-Moderate grass/shrub load, average grass/shrub depth < 2 ft. Spread rate high; flame length moderate.

GS4-Heavy grass/shrub load, depth greater than 2 ft. Spread rate high;flame length very high.

3. Shrubs cover at least 50 percent of the site; grass sparse to nonexistent (Shrub)

➤ *Arid to semiarid climate (rainfall deficient in summer). Extinction moisture content is 15 %.*

SH1-Low shrub fuel load, fuelbed depth about 1 ft; some grass may be present. Spread rate very low; flame length very low.

SH2-Moderate fuel load (higher than SH1), depth about 1 ft, no grass fuel present. Spread rate low to moderate; flame length low to moderate.

SH5-Heavy shrub load, depth 4 - 6 ft. Spread rate very high; flame length very high.

SH7-Very heavy shrub load, depth 4 - 6 ft. Spread rate lower than SH5, but flame length similar. Spread rate high; flame length very high.

➤ *Subhumid to humid climate (rainfall adequate in all seasons). Extinction moisture content is 30 – 40%*

SH3-Moderate shrub load, possibly with pine overstory or herbaceous fuel, fuel bed depth 2 - 3 ft. Spread rate low; flame length low.

SH4-Low to moderate shrub and litter load, possibly with pine overstory, fuel bed depth about 3 ft. Spread rate high; flame length moderate.

SH6-Dense shrubs, little or no herb fuel, depth about 2 ft. Spread rate high; flame length high.

SH8-Dense shrubs, little or no herb fuel, depth about 3 ft. Spread rates high; flame length high.

SH9-Dense, finely branched shrubs with significant fine dead fuel, about 4 - 6 ft tall; some herbaceous fuel may be present. Spread rate high, flame length very high.

4. Grass or shrubs mixed with litter from forest canopy (Timber-Understory)

➤ *Semiarid to Subhumid climate. Extinction moisture content is 20 %.*

TU1-Fuelbed is low load of grass and/or shrub with litter. Spread rate low; flame length low.

TU4-Fuelbed is short conifer trees with grass or moss understory. Spread rate moderate; flame length moderate.

TU5-Fuelbed is high load conifer litter with shrub understory. Spread rate moderate; flame length moderate.

➤ *Humid climate. Extinction moisture content is 30 %.*

TU2-Fuelbed is moderate litter load with shrub component. Spread rate moderate; flame length low.

TU3-Fuelbed is moderate litter load with grass and shrub components. Spread rate high; flame length moderate.

5. Dead and down woody fuel (litter) beneath a forest canopy (Timber Litter)

➤ *Fuelbed is recently burned but able to carry wildland fire.*

TL1-Light to moderate load, fuels 1 - 2 in deep. Spread rate very low; flame length very low.

➤ *Fuelbed composed of broadleaf (hardwood) litter.*

TL2-Low load, compact. Spread rate very low; flame length very low.

TL6-Moderate load, less compact. Spread rate moderate; flame length low.

TL9-Very high load, fluffy. Spread rate moderate; flame length moderate.

➤ *Fuelbed composed of long-needle pine litter.*

TL8-Moderate load and compactness may include small amount of herbaceous load. Spread rate moderate; flame length low.

➤ *Fuelbed not composed broadleaf or long-needle pine litter.*

TL4-Moderate load, includes small diameter downed logs. Spread rate low; flame length low.

TL7-Heavy load, includes larger diameter downed logs. Spread rate low; flame length low.

TL3-Moderate load conifer litter. Spread rate very low; flame length low.

TL5-High load conifer litter; light slash or mortality fuel. Spread rate low; flame length low.

TL9-Very high load broadleaf litter; heavy needle-drape in otherwise sparse shrub layer. Spread rate moderate; flame length moderate.

6. Activity fuel (Slash) or debris from wind damage.

➤ *Fuelbed is activity fuel.*

SB1-Fine fuel load is 10 - 20 tons/acre, weighted toward fuels 1 - 3 in diameter class, depth is <1 ft. Spread rate moderate; flame length low.

SB2-Fine fuel load is 7 -12 tons/acre, evenly distributed across 0 - 0.25

SB3-Fine fuel load is 7 - 12 tons/acre, weighted toward 0 to 0.25 in diameter class, depth is >1 ft. Spread rate high; flame length high.

➤ *Fuelbed is blowdown*

SB2-Blowdown is scattered, with many trees still standing. Spread rate moderate; flame length moderate.

SB3-Blowdown is moderate, trees compacted to near the ground. Spread rate high; flame length high.

SB4-Blowdown is total, fuel bed not compacted, foliage still attached. Spread rate very high; flame length very high.

7. Insufficient wildland fuel to carry wildland fire under any condition (Nonburnable)

NB1-Urban or suburban development; insufficient wildland fuel to carry wildland fire.

NB2-Snow/ice.

NB3-Agricultural field, maintained in nonburnable condition.

NB8-Open water.

NB9-Bare ground.

ANDERSON FUEL MODELS - "THE ORIGINAL 13"

Primary carrier of the fire is GRASS

FM1-Grass is fine structured, generally below knee level, and cured primarily. Grass is essentially continuous. Spread rate moderate; flame length low. *Grasslands, savanna, grass tundra*

FM2-Grass is usually under an open timber or brush overstory. Litter from overstory is involved, but grass carries the fire. Expected ROS is < FM1 and intensity is < FM3. Spread rate moderate; flame length moderate. *Open shrub land and pine stands, some pinon-juniper*

FM3-Grass is coarse structured, above knee level (average about 3ft. deep) and can be difficult to walk through. 1/3 of stand is dead or cured. Spread rate high; flame length high.

Primary Carrier of the fire is BRUSH or litter beneath the BRUSH.

FM4-Brush is head height (>6ft.), with heavy loadings of dead woody fuel. Fire may involve foliage, live and dead woody material and canopy. Spread rate very high; flame length very high. *Mixed chapparal, high pocosins, pine barrens of New Jersey, closed jack pine stands of north central states*

FM5-Brush is about 2ft. high, with light loading of brush litter underneath. Litter may carry fire, especially at low wind speeds. Spread rate low to moderate; flame length low to moderate *Young green stands with little or no deadwood. Laurel, vine maple, alder, manzanita*

FM6-Live fuels are absent or sparse. Brush averages 2 to 4ft. high. Brush requires moderate winds to carry fire. Spread rate high (with wind); flame length high. FM6 may not predict rate of spread accurately in mature PJ or taller oak brush. *Chapparal, chamise, oak brush, low pocosin, Alaskan black spruce, taiga, shrub tundra, PJ at high winds (20mph at 20' level)*

FM7-Fires burn through the surface and shrub strata with equal ease and can occur at higher dead fuel moisture contents due to the flammability of live foliage and other live material. Stands of shrubs are generally between 2 and 6ft. high. Spread rate high; flame length high. *Palmetto-gallberry understory with pine overstory, Alaskan black spruce with shrub*

Primary Carrier of the fire is LITTER beneath a TIMBER stand.

FM8-Dead foliage is tightly compacted, short needle (2 in. or less) conifer or hardwood litter. Spread rate low; flame length low with occasional jackpot of heavy fuels increasing intensity. *White and lodgepole pine, spruce, true firs, larches*

FM9-Dead foliage litter is loosely compacted long needle pine or hardwoods. Spread rate moderate; flame length moderate. Concentrations of dead-down woody material will contribute to possible torching out of trees, spotting, and crowning. *Closed stands of long needle pine- Jeffrey ponderosa, and southern pine plantations*

FM10-There is a significant amount of larger fuels with attached branches and twigs, or has rotted enough that it is splintered and broken. The larger fuels are fairly well distributed over the area. Some green fuel may be present. Overall depth of the fuel is primarily below knees, but some fuel may be higher. Any forest type may be considered if heavy down material is present. Crowning out, spotting, and torching of individual trees are more frequent in this fuel situation, leading to potential fire control difficulties. Spread rate moderate to high; flame length high. *Insect- or disease-ridden stands, windthrown stands, overmature situations with deadfall, and aged light thinning or partial-cut slash*

Primary Carrier of the fire is LOGGING SLASH.

FM11-Slash is not continuous. Needle litter or small amounts of grass or shrubs must be present to carry the fire, but primary carrier is still slash. Live fuels are absent or do not play a significant role in fire behavior. Spread Rate low; flame length moderate. *Light partial cuts or thinning ops in mixed conifer or hardwood stands and southern pine harvests*

FM12-Slash generally covers the ground (heavier loadings than FM11), though there may be some bare spots or areas of light coverage. Average slash depth is about 2ft. Slash is not excessively compacted. Approximately ½ of the needles may still be on the branches but are not red. Live fuels are absent, or are not expected to affect fire behavior. Spread rate low; flame length moderate to high. *Heavily thinned conifer stands, clear cuts and med to heavy partial cuts*

FM13-Slash is continuous or nearly so (heavier loadings than FM12). Slash is not extremely compacted and has an average depth of 3ft. Approximately ½ of the needles are still present and are red, or all of the needles are still on the branches but are green. Live fuels are not expected to influence fire behavior. Spread rate low; flame length high. *Clear cuts and heavy partial cuts in mature or over mature stands where slash is dominated by >3" material or load like FM12 but with "red" needles still attached*

Elevations between 0 and 500 feet

Dry Bulb Temperatures 41 to 60 F (Read Across)

Wet Bulb Temperatures 28 to 59 F (Read Down)

Wet Bulb Temperatures 23 to 40 F

Dry Bulb Temperatures

Legend: DP (blue) = Dew Point, RH (red) = Relative Humidity

Top panel — Dry Bulb 41–51, Wet Bulb 28–48

Wet Bulb →	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
41 DP	-36	-12	-1	7	13	18	22	25	29	31	34	37	39							
41 RH	3	10	17	24	32	39	44	53	61	68	74	84	92							
42 DP		-23	-7	3	10	15	20	23	27	30	33	35	38	40						
42 RH		5	12	19	26	33	40	47	54	62	69	77	84	92						
43 DP	-49	-15	-2	4	12	17	21	25	28	31	34	36	39	41						
43 RH	1	8	14	21	28	35	41	48	55	62	70	77	85	92						
44 DP		-29	-9	2	9	14	19	23	26	29	32	35	37	40	42					
44 RH		4	10	17	23	29	36	43	49	54	63	70	78	85	92					
45 DP			-18	-4	5	11	16	21	24	28	31	34	36	39	41	43				
45 RH			6	12	19	25	31	37	44	51	57	64	71	78	85	93				
46 DP			-33	-11	0	7	13	18	22	26	29	32	35	37	40	42	44			
46 RH			2	8	14	20	26	32	39	45	52	58	65	72	79	86	91			
47 DP				-22	-6	3	10	16	20	24	27	31	33	36	38	41	43	45		
47 RH				5	10	16	22	28	34	40	46	53	59	64	72	79	86	93		
48 DP				-45	-14	-2	6	13	18	22	26	29	32	35	37	40	42	44	46	
48 RH				1	7	12	18	24	29	35	41	47	54	60	64	71	79	84	93	
49 DP					-27	-8	2	9	15	20	24	27	30	33	36	39	41	43	45	47
49 RH					3	9	14	20	25	31	37	42	48	54	61	67	73	80	86	93
50 DP					-17	-3	5	12	17	21	25	29	32	35	37	40	42	44	46	48
50 RH					5	10	14	21	27	32	38	44	49	55	61	68	74	80	87	93
51 DP					-33	-11	1	8	14	19	23	27	30	33	34	39	41	43	45	47	49
51 RH					2	7	12	17	23	28	34	39	45	52	56	62	68	74	81	87	93

Bottom-left panel — Dry Bulb 31–40, Wet Bulb 23–30

Wet Bulb →	23	24	25	26	27	28	29	30
31 DP	-8	1	8	13	18	22	25	28
31 RH	18	27	37	47	57	68	78	89
32 DP	-16	-4	4	10	15	19	23	26	29
32 RH	11	20	30	39	49	59	69	79	89
33 DP	-31	-12	-1	4	12	17	21	24	28	30
33 RH	5	14	23	32	41	51	60	70	80	90
34 DP	-22	-7	2	9	14	18	22	26	29	32
34 RH	8	16	25	34	43	52	62	71	81	90
35 DP	-47	-16	-4	5	11	16	20	24	27	30	33
35 RH	2	10	19	27	36	45	54	63	72	81	91
36 DP	-30	-11	0	7	13	18	22	25	28	31	34
36 RH	5	13	21	29	38	47	55	64	73	82	91
37 DP	-21	-4	3	9	15	19	23	26	29	32	35
37 RH	7	15	23	31	40	48	57	65	74	82	91
38 DP	-42	-14	-2	4	12	17	21	25	28	31	33	36
38 RH	2	10	18	25	33	42	50	58	66	74	83	91
39 DP	-27	-9	1	8	14	19	22	26	29	32	34	37
39 RH	5	12	20	28	35	43	51	59	67	75	83	92
40 DP	-18	-4	4	11	16	20	24	27	30	33	35	38
40 RH	7	15	22	30	37	45	52	60	68	76	84	92

Bottom-right panel — Dry Bulb 52–60

Wet Bulb →	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
52 DP	-21	-5	4	11	17	21	25	29	32	35	37	40	42	44	46	48	50			
52 RH	4	9	14	19	24	29	35	40	44	51	57	63	69	75	81	87	94			
53 DP	-42	-13	-1	8	14	19	23	27	30	33	36	39	41	43	45	47	49	51		
53 RH	1	6	11	16	21	26	31	34	41	47	51	58	64	69	75	81	87	94		
54 DP	-25	-7	3	11	16	21	25	28	32	35	37	40	42	44	47	49	50	52		
54 RH	3	8	12	17	22	27	32	37	42	48	53	59	64	70	76	82	88	94		
55 DP	-15	-2	7	13	18	23	27	30	33	36	39	41	43	46	48	50	51	53		
55 RH	5	9	14	19	24	28	33	38	41	49	54	59	65	70	76	82	88	94		
56 DP	-29	-8	3	10	16	21	26	29	32	35	37	40	42	45	47	49	51	53	54	
56 RH	2	7	11	16	20	25	30	35	39	44	50	55	60	65	71	77	82	89	94	
57 DP	-17	-3	6	13	18	23	27	30	33	36	39	41	44	46	48	50	52	54	55	
57 RH	4	8	13	17	22	27	31	36	41	45	50	56	61	66	71	77	83	88	94	
58 DP	-33	-10	2	10	14	21	25	28	32	35	38	40	43	45	47	49	51	53	55	56
58 RH	2	6	10	14	19	23	28	32	37	42	46	51	56	61	67	72	77	83	88	94
59 DP	-19	-4	6	13	18	23	27	30	33	36	39	41	44	46	48	50	52	54	56	57
59 RH	3	7	12	16	21	24	29	33	38	43	47	52	57	62	67	72	78	83	89	94
60 DP	-38	-11	1	9	15	20	25	29	32	35	38	40	43	45	47	49	51	53	55	57	58
60 RH	1	5	9	13	17	21	26	30	34	39	44	48	53	58	63	68	73	78	85	89	94

Elevations between 0 and 500 feet

Wet Bulb Temperatures — 40 to 79 F *(Read Down)*

Dry Bulb Temperatures — 61 to 80 F *(Read Across)*

Legend: each cell contains **DP** (Dew Point, blue, upper value) over **RH** (Relative Humidity, red, lower value), shown below as `DP / RH`. A dash (–) means no RH value is printed.

Wet Bulb column headers 40–60 are labeled on the chart; columns 61–77 continue the wet‑bulb scale (unlabeled on the chart, marked by the diagonal Dry‑Bulb labels).

Dry Bulb	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77
61	-21/3	-4/7	5/11	12/15	18/19	23/23	27/27	30/31	34/36	36/40	39/44	42/49	44/54	46/58	48/63	50/68	52/73	54/78	56/84	58/89	59/94																	
62	-44/1	-12/6	1/8	9/12	15/16	20/20	25/24	29/28	32/32	35/37	38/41	41/45	43/50	45/54	48/59	50/64	52/69	54/74	55/79	57/84	59/89	60/95																
63		-23/2	-7/6	3/10	12/14	18/17	23/21	27/25	31/29	34/33	37/38	39/42	42/46	44/51	47/55	49/60	51/64	53/69	55/74	56/79	58/84	60/89	61/95															
64		-50/1	-11/4	0/8	9/11	18/15	21/19	25/23	29/26	32/30	35/34	38/39	41/43	43/47	46/51	48/56	50/60	52/65	54/70	56/74	57/79	59/84	61/89	62/95														
65			-23/2	-5/6	5/9	12/11	18/16	23/20	27/24	31/28	34/31	37/35	40/39	42/44	45/48	47/52	49/56	51/61	53/65	55/70	57/75	59/80	60/85	62/90	63/95													
66			-57/–	-13/4	0/7	9/10	15/14	21/18	25/21	29/25	33/29	36/32	39/36	41/40	44/44	46/49	48/53	50/57	52/62	54/66	56/71	58/75	60/80	61/85	63/90	64/95												
67				-26/2	-6/5	5/8	12/12	18/15	23/19	27/22	31/26	34/30	37/34	40/37	43/41	45/45	47/49	50/54	52/58	54/62	55/66	57/71	59/76	61/80	62/85	64/90	65/95											
68					-14/3	0/7	9/10	16/13	21/17	25/20	29/24	33/27	36/31	39/34	42/38	44/42	47/46	49/50	51/54	53/58	55/63	57/67	58/71	60/76	62/81	63/85	65/91	67/95										
69					-26/2	-6/5	5/8	13/11	19/14	23/18	28/21	31/23	35/28	38/32	41/35	43/39	44/43	48/47	50/51	52/55	54/59	56/63	58/67	60/72	61/76	63/81	64/85	66/90	68/95									
70						-14/3	0/6	9/9	16/12	21/16	26/19	30/22	33/26	36/29	39/33	42/36	45/40	47/44	49/48	51/51	53/55	55/60	57/64	59/68	61/72	62/77	64/81	66/86	67/90	69/95								
71						-26/2	-5/5	5/8	13/11	19/14	24/17	28/20	32/23	35/27	38/30	41/34	44/37	46/41	48/45	51/48	53/52	55/54	56/60	58/64	60/68	62/73	63/77	65/81	67/86	68/90	70/95							
72							-13/3	1/6	10/9	16/12	22/15	26/18	30/21	34/24	37/29	40/31	43/35	45/38	47/42	50/45	52/49	54/53	56/57	58/61	59/65	61/69	63/73	64/77	66/82	68/85	69/91	71/95						
73							-26/2	-5/4	6/7	13/10	19/13	24/16	29/19	32/22	36/25	39/29	41/32	44/35	47/39	49/42	51/44	53/50	55/53	57/57	59/61	61/65	62/69	64/73	66/77	67/82	69/84	70/91	72/95					
74							-13/1	1/6	10/8	17/11	22/14	27/17	31/20	34/23	37/24	40/30	43/33	46/34	48/40	50/43	52/47	54/50	56/54	58/58	60/62	62/66	63/70	65/74	67/78	68/82	70/84	71/91	73/95					
75							-25/2	-4/4	6/7	14/10	20/12	25/15	29/18	33/21	34/24	39/27	42/31	45/34	47/37	49/40	52/44	54/47	56/51	58/55	59/58	61/62	63/66	65/70	66/74	68/78	69/82	71/87	72/91	74/95				
76							-57/–	-12/3	2/5	11/8	17/11	23/14	27/16	31/19	35/22	38/25	41/28	44/31	46/35	49/38	51/41	53/45	55/48	57/52	59/55	61/59	62/63	64/64	66/70	67/74	69/78	70/82	72/87	73/91	75/95			
77								-23/2	-3/4	7/7	15/9	21/12	25/15	30/18	33/20	37/23	40/24	43/29	45/32	48/35	50/39	52/42	54/45	56/49	58/52	60/54	62/59	63/63	65/67	67/71	68/75	70/79	71/83	73/87	74/91	76/94		
78								-49/–	-11/3	3/5	12/8	18/10	23/13	28/16	32/19	35/21	39/24	41/27	44/30	47/33	49/36	51/39	53/43	56/46	57/49	59/53	61/56	63/60	65/63	66/67	68/71	69/75	71/79	72/83	74/87	75/91	77/94	
79								-21/2	-2/4	8/6	15/9	21/12	26/14	30/17	34/20	37/22	40/25	43/28	44/31	48/34	51/37	53/40	55/43	57/47	59/50	61/53	62/57	64/60	66/64	67/68	69/71	70/75	72/79	73/83	75/87	76/91	78/94	
80								-43/–	-9/3	4/5	12/8	19/10	24/13	29/15	33/18	36/21	39/23	42/26	45/29	47/32	50/35	52/38	54/41	56/44	58/47	60/50	62/54	64/57	65/61	67/64	68/68	70/72	72/75	73/79	74/83	76/87	77/91	79/94

Elevations between 0 and 500 feet

Wet Bulb Temperatures
50 to 90 F
(Read Down)

Dry Bulb Temperatures 81 to 100 F (Read Across)

Legend: DP (blue) = Dew Point, RH (red) = Relative Humidity. Cells below are given as **DP / RH** for each Dry Bulb (rows) × Wet Bulb (columns) intersection. Green diagonal numbers are saturation (Wet Bulb = Dry Bulb) markers.

DB \ WB	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
81	-19/2	-1/4	9/6	16/9	22/11	27/14	31/16	35/19	38/21	41/24	44/27	46/30	49/33	51/35	53/38	55/42	57/45	59/48	61/51	63/54	65/58	66/61	68/65	70/68	71/72	73/76	74/80	76/83	77/87	78/92	80/96
82	-37/1	-7/3	5/5	13/7	20/10	25/12	29/15	33/17	37/20	40/22	43/25	45/28	48/31	50/33	53/36	55/39	57/42	59/45	61/48	62/52	64/55	66/58	68/62	69/65	71/69	72/72	74/76	75/80	77/84	78/88	79/95
83			-16/2	0/4	10/6	17/9	23/11	28/13	32/16	35/18	39/21	42/23	44/26	47/29	50/31	52/34	54/37	56/40	58/43	60/46	62/49	64/52	65/55	67/59	69/62	70/65	72/69	73/73	75/76	76/80	78/84
84			-31/1	-6/3	6/5	14/7	21/10	26/12	30/14	34/17	37/19	41/22	43/24	46/27	49/29	51/32	53/35	55/38	57/41	59/43	61/46	63/50	65/53	67/56	68/59	70/62	71/66	73/69	74/73	76/76	77/80
85			-14/2	2/4	11/6	18/8	24/11	28/13	33/15	36/18	39/20	42/22	45/25	48/28	50/30	53/33	55/36	57/38	59/41	61/44	63/47	64/50	66/53	68/56	69/60	71/63	72/66	74/70	75/73	77/77	78/80
86			-26/1	-4/3	8/5	15/7	22/9	27/12	31/14	35/16	38/18	41/21	44/23	47/26	49/28	52/31	54/34	56/36	58/39	60/42	62/45	64/48	66/51	67/54	69/57	70/60	72/63	74/67	75/70	77/73	78/77
87				-11/2	3/4	12/6	19/8	25/10	29/13	33/15	37/17	40/19	43/22	44/24	49/27	51/29	53/32	55/34	58/37	59/40	61/42	63/45	65/48	67/51	68/54	70/57	72/60	73/64	75/67	76/70	78/74
88				-22/1	-2/3	9/5	17/7	23/9	28/11	32/13	36/16	39/18	42/20	45/22	48/25	50/27	53/30	55/32	57/35	59/38	61/41	63/43	64/46	66/49	68/52	70/55	71/58	73/61	74/64	76/67	77/71
89				-45/1	-8/2	5/4	14/6	20/8	26/10	30/12	34/14	38/17	41/19	44/21	47/23	49/26	52/28	54/30	56/33	58/36	60/38	62/41	64/44	66/46	67/49	69/52	71/55	72/58	74/61	75/64	77/68
90				-17/1	0/3	11/5	18/7	24/9	29/11	33/13	37/15	40/17	43/20	44/22	48/24	51/26	53/29	55/31	58/34	60/36	62/39	63/41	65/44	67/47	69/50	70/53	72/55	73/58	75/62	76/65	78/68
91				-34/1	-5/2	7/4	15/6	22/8	27/10	31/12	35/14	39/16	42/18	45/20	48/23	50/25	53/27	55/29	57/32	59/34	61/37	63/39	65/42	66/45	68/47	70/50	71/53	73/56	75/59	76/62	78/65
92				-13/2	3/3	12/5	19/7	25/9	30/11	34/13	37/15	41/17	44/19	47/21	49/23	52/26	54/28	56/30	58/33	60/35	62/37	64/40	66/43	68/45	69/48	71/51	73/53	74/56	76/59	77/62	79/65
93				-26/1	-3/2	9/4	17/6	23/8	28/10	32/12	36/14	40/16	43/18	46/20	48/22	51/24	53/26	55/28	58/31	60/33	62/36	64/38	65/41	67/43	69/46	71/48	72/51	74/54	75/57	77/60	78/63
94			-10/2	5/3	14/5	21/7	26/9	31/11	35/13	38/14	42/16	45/18	48/21	50/23	52/25	55/27	57/29	59/31	61/34	63/36	65/39	67/41	69/44	70/46	72/49	73/52	75/54	76/57	78/60	79/63	81/66
95			-20/1	0/3	11/4	18/6	24/8	29/10	33/11	37/13	41/15	44/17	47/19	49/21	52/23	54/25	56/28	59/30	61/32	63/34	64/37	66/39	68/42	70/44	71/47	73/49	75/52	76/55	78/57	79/60	81/63
96			-39/2	-6/4	7/5	15/7	22/9	27/10	32/12	36/14	39/16	43/18	46/20	48/22	51/24	53/26	56/28	58/30	60/33	62/35	64/37	66/40	68/42	69/45	71/47	73/50	74/52	76/55	77/58	79/61	80/64
97			-14/1	2/3	12/4	20/6	25/8	30/10	35/11	38/13	42/15	45/17	48/19	50/21	53/23	55/25	57/27	59/29	61/31	63/33	65/36	67/38	69/40	71/43	72/45	74/48	75/50	77/53	78/55	80/58	81/61
98			-28/1	-3/2	9/4	17/5	23/7	29/9	33/10	37/12	40/14	44/16	47/18	49/19	52/21	54/23	57/25	59/27	61/30	63/32	65/34	67/36	68/38	70/41	72/43	73/46	75/48	76/51	78/53	79/56	81/59
99			-10/1	5/3	14/5	21/6	27/8	32/9	36/11	39/13	43/15	46/16	48/18	51/20	54/22	56/24	58/26	60/28	62/30	64/32	66/34	68/37	70/39	71/41	73/44	75/46	76/48	78/51	79/54	81/56	82/59
100			-20/1	0/2	11/4	19/5	25/7	30/9	34/10	38/12	42/14	45/15	48/17	50/19	53/21	55/23	57/25	60/27	62/29	64/31	66/33	67/35	69/37	71/39	73/42	74/44	76/46	77/49	79/51	80/54	82/57

Green saturation markers (Wet Bulb = Dry Bulb) along the diagonal: 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95.

Elevations between 0 and 500 feet

Wet Bulb Temperatures, 58 to 95 F
(Read Down)

Dry Bulb Temperatures 101 to 119 F (Read Across)

Each cell shows **DP** (Dew Point, upper value) / **RH** (Relative Humidity, lower value).

Dry Bulb	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
101	-40	-6/2	8/3	16/5	23/6	28/8	33/9	37/11	40/13	44/14	47/16	49/18	52/20	54/21	57/23	59/25	61/27	63/29	65/31	67/33	69/36	70/38	72/40	74/42	75/45	77/47	79/49	80/52	81/54	83/57	84/60	86/62	87/65	88/68	90/71	91/74	92/77	94/80
102		-14/1	3/3	13/4	21/5	26/7	31/9	36/10	39/12	43/13	46/15	49/17	51/18	54/20	56/22	58/24	61/26	63/28	65/30	66/32	68/34	70/36	72/38	73/40	75/43	77/45	78/47	80/50	81/52	83/55	84/57	86/60	87/63	88/65	90/68	91/71	92/74	93/77
103		-26/1	-2/2	10/3	18/5	24/6	30/8	34/9	38/11	42/12	45/14	48/16	50/17	53/19	55/21	58/23	60/25	62/26	64/28	66/30	68/32	70/34	71/37	73/39	75/41	76/43	78/45	79/48	81/50	82/53	84/55	85/58	87/60	88/63	89/66	91/68	92/71	93/74
104			-8/1	6/3	15/4	22/6	26/7	33/9	37/10	40/12	44/13	47/15	50/16	52/18	55/20	57/22	59/23	61/25	63/27	65/29	67/31	69/33	71/35	73/37	74/39	76/41	77/44	79/46	80/48	82/51	83/53	85/55	86/58	88/61	89/63	90/66	92/69	93/72
105			-18/1	2/2	12/4	20/5	26/6	31/8	35/9	39/11	43/12	46/14	49/15	51/17	55/19	56/20	59/22	61/24	63/26	65/28	67/30	69/31	70/33	72/35	74/38	75/40	77/42	79/44	80/46	82/49	83/51	85/53	86/56	87/58	89/61	90/63	91/66	93/69
106			-34/2	-4/3	9/4	18/6	24/7	29/8	34/10	38/11	42/13	45/14	48/16	51/18	53/19	56/21	58/23	60/25	62/26	64/28	66/30	68/32	70/34	72/36	73/38	75/40	77/42	78/44	80/47	81/49	83/51	84/54	86/56	87/59	88/61	90/64	91/66	92/66
107				-11/1	5/2	15/4	22/5	28/6	33/8	37/9	41/11	44/12	47/14	50/15	53/17	55/18	57/20	60/22	62/23	64/25	66/27	68/29	70/31	71/32	73/34	75/36	76/38	78/41	79/43	81/45	83/47	84/49	85/52	87/54	88/56	90/59	91/61	92/64
108				-22/1	0/2	12/3	20/4	26/6	31/7	35/8	39/10	43/11	46/13	49/14	52/16	54/17	57/19	59/21	61/22	63/24	65/26	67/27	69/29	71/31	73/33	74/35	76/37	78/39	79/41	81/43	82/45	84/47	85/50	87/52	88/54	89/57	91/59	92/62
109				-46	-6/1	8/3	17/4	24/5	29/6	34/8	38/9	42/11	45/12	48/13	51/15	54/16	56/18	58/20	61/21	63/23	65/24	67/26	69/28	70/30	72/32	74/33	76/35	77/37	79/39	80/41	82/43	83/46	85/48	86/50	88/52	89/55	90/57	92/60
110					-14/1	4/2	14/3	22/5	28/6	33/7	37/8	41/10	44/11	47/13	50/14	53/15	55/17	58/19	60/20	62/22	64/23	66/25	68/27	70/28	72/30	74/32	75/34	77/36	78/38	80/40	82/42	83/44	85/46	86/48	87/50	89/53	90/55	91/57
111					-26	-1/2	11/3	19/4	26/5	31/6	36/8	39/9	43/10	46/12	49/13	52/15	55/16	57/18	59/19	62/21	64/22	66/24	68/26	70/27	71/29	73/31	75/33	76/34	78/36	80/38	81/40	83/42	84/44	86/46	87/49	89/51	90/53	91/55
112						-7/1	8/2	17/3	24/5	29/6	34/7	38/8	42/10	45/11	48/12	51/14	54/15	56/17	59/18	61/20	63/21	65/23	67/24	69/26	71/28	73/29	74/31	76/33	78/35	79/37	81/39	82/41	84/43	85/45	87/47	88/49	90/51	91/53
113						-16/1	3/2	14/3	22/4	28/5	33/7	37/8	41/9	44/10	48/12	50/13	53/14	56/16	58/17	60/19	63/20	65/22	67/23	69/25	70/27	72/28	74/30	76/32	77/33	79/35	81/37	82/39	84/41	85/43	87/45	88/47	89/49	91/51
114						-31	-2/1	11/3	19/4	26/5	31/6	36/7	40/8	43/10	47/11	50/12	52/14	55/15	57/16	60/18	62/19	64/21	66/22	68/24	70/25	72/27	74/29	75/30	77/32	79/34	80/36	82/38	83/39	85/41	86/43	88/45	89/47	91/50
115							-9/1	7/2	17/3	24/4	29/5	34/7	39/8	42/9	46/10	49/12	52/13	54/14	57/16	59/17	61/18	64/20	66/21	68/23	70/24	71/26	73/28	75/29	77/31	78/33	80/34	81/36	83/38	85/40	86/42	87/44	89/46	90/48
116							-18/1	3/2	14/3	22/4	28/5	33/6	37/7	41/8	45/10	48/11	51/12	54/13	56/15	59/16	61/17	63/19	65/20	67/22	69/23	71/25	73/26	75/28	76/30	78/31	80/33	81/35	83/37	84/38	86/40	87/42	89/44	90/46
117							-35	-3/1	11/2	19/3	26/4	31/6	36/7	40/8	44/9	47/10	50/11	53/13	55/14	58/15	60/17	63/18	65/19	67/21	69/22	71/24	72/25	74/27	76/28	78/30	79/32	81/33	82/35	84/37	85/39	87/41	88/43	90/44
118								-9	7/1	17/2	24/3	30/4	35/5	39/7	43/8	46/10	49/11	52/12	55/13	57/15	60/16	62/17	64/19	66/20	68/21	70/23	72/24	74/26	76/27	77/29	79/31	80/32	82/34	84/36	85/37	87/39	88/41	89/43
119								-19	2/1	14/2	22/4	28/5	33/6	38/7	42/8	45/9	48/10	51/11	54/13	57/14	59/15	61/16	64/18	66/19	68/20	70/22	72/23	73/25	75/26	77/28	79/29	80/31	82/33	83/34	85/36	86/38	88/40	89/41

Legend: **DP** (blue) = Dew Point; **RH** (red) = Relative Humidity

31

Elevations between 501 and 1,900 feet

Dry Bulb Temperatures 41 to 60 F (Read Across)

Wet Bulb Temperature 28 to 59 F (Read Down)

Wet Bulb Temperatures

Dry Bulb Temperatures

	DP	DP
	RH	RH

Dry Bulb 41–50 (cells show DP / RH; Wet Bulb across)

Dry Bulb	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
41	-26/5	-9/11	1/18	8/24	14/33	18/40	22/47	26/54	29/61	32/69	34/77	37/84	39/92									
42		-18/7	-4/14	5/21	11/28	16/34	20/41	24/48	27/55	30/62	33/70	35/77	38/85	40/92								
43		-33/3	-11/9	0/16	8/23	13/29	18/36	22/42	25/49	28/54	31/63	34/70	36/78	39/85	41/92							
44			-21/5	-6/12	3/18	10/24	13/31	20/37	23/44	27/50	30/57	33/64	35/71	38/78	40/85	42/93						
45			-42/2	-13/8	-1/14	6/20	12/26	17/32	21/39	25/45	28/51	31/58	34/65	36/72	39/78	41/86	43/93					
46				-25/4	-7/10	2/16	9/22	14/28	19/34	23/40	26/46	30/52	32/59	35/65	38/72	40/79	42/86	44/93				
47				-36/1	-16/6	-3/12	5/18	11/23	17/29	21/35	25/41	28/47	31/53	34/60	36/66	39/73	41/79	43/86	45/93			
48					-29/3	-10/8	1/14	8/19	14/25	19/31	23/36	26/42	29/48	32/54	35/60	38/67	40/73	42/80	44/86	46/93		
49						-19/5	-5/10	4/16	11/21	16/26	20/32	24/38	28/43	31/49	34/55	36/61	39/67	41/74	43/80	45/87	47/93	
50						-37/2	-12/7	-1/12	7/17	13/22	18/28	22/33	26/39	29/44	32/50	35/56	38/62	40/68	42/74	44/80	46/87	48/93

Dry Bulb 31–40 (cells show DP / RH; Wet Bulb across)

Dry Bulb	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
31	-37/1	-19/10	-8/20	2/29	9/38	14/48	18/58	22/68	25/78	28/89									
32		-34/4	-13/13	-3/22	5/31	11/40	15/50	20/60	23/69	26/79	29/90								
33			-25/7	-9/15	0/24	7/33	13/42	17/52	21/61	25/71	28/80	30/90							
34			-36/1	-18/9	-5/18	3/26	9/35	14/44	19/53	23/62	26/72	29/81	32/91						
35				-34/4	-13/12	-2/20	4/29	11/37	16/46	20/55	24/64	27/73	30/82	33/91					
36					-14/6	-8/14	1/22	8/31	14/39	18/48	22/54	25/65	28/74	31/82	34/91				
37					-50/1	-17/9	-4/17	4/25	10/33	15/41	20/49	24/58	27/66	30/74	32/83	35/91			
38						-31/4	-11/11	0/19	7/27	13/35	17/43	21/51	25/59	28/67	31/75	33/83	34/91		
39							-21/7	-6/14	3/21	9/29	15/37	19/44	23/52	26/60	29/67	32/75	34/83	37/92	
40							-42/2	-14/9	-2/16	6/23	12/31	17/38	21/46	24/53	28/61	30/68	33/76	36/84	38/92

Dry Bulb 51–60 (cells show DP / RH; Wet Bulb across)

Dry Bulb	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59
51	-23/4	-6/9	3/14	10/19	15/24	20/29	24/35	28/40	31/46	34/51	36/57	39/63	41/69	43/75	45/81	47/87	49/93									
52	-47/1	-14/6	-2/11	6/15	13/20	18/25	22/31	26/36	29/41	32/47	35/52	38/58	40/63	42/69	44/75	46/81	48/87	50/94								
53		-27/3	-8/7	2/12	9/17	15/22	20/27	24/32	27/37	31/42	34/48	36/53	39/58	41/64	43/70	46/76	48/82	49/88	51/96							
54			-17/5	-3/14	6/19	12/23	17/28	22/33	26/38	29/43	32/49	35/54	38/59	40/65	42/70	45/76	47/82	49/88	50/94	52/94						
55			-32/2	-10/6	1/11	9/15	15/20	20/25	24/30	27/34	31/39	34/44	36/49	39/55	41/60	44/65	46/71	48/76	50/82	52/88	53/94					
56				-19/4	-4/8	5/13	12/17	17/21	22/26	26/31	29/36	32/40	35/45	38/50	40/55	43/61	45/66	47/71	49/77	51/82	53/88	54/94				
57				-37/1	-11/4	1/10	8/14	14/18	19/23	24/27	27/32	31/37	34/41	37/46	39/51	42/56	44/61	46/67	48/72	50/77	52/83	54/88	55/94			
58					-21/3	-5/7	5/11	11/16	17/20	22/24	26/29	29/33	32/38	35/42	38/47	40/52	43/57	45/62	47/67	49/72	51/78	53/83	55/89	56/94		
59					-43/1	-12/5	0/9	8/13	14/17	19/21	24/25	28/30	31/34	34/39	37/43	39/48	42/53	44/58	46/63	48/68	50/73	52/78	54/83	56/89	57/94	
60						-24/3	-6/7	4/10	11/14	17/18	22/22	26/27	29/31	33/35	36/40	38/44	41/49	43/54	45/58	47/63	49/68	51/73	53/78	55/83	57/88	58/94

Elevations between 501 and 1,900 feet

Wet Bulb Temperatur 39 to 80 F (Read Down)

Dry Bulb Temperatures 61 to 80 F (Read Across)

Legend: each cell shows **DP** (dew point, blue, top) / **RH** (relative humidity, red, bottom).

DB \ WB	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
61	-50/1	-14/4	-1/8	8/12	14/16	19/20	24/24	28/28	31/32	34/34	37/41	40/45	42/50	44/54	47/59	49/64	51/69	53/74	54/79	56/84	58/89	59/95																			
62		-25/2	-6/6	4/10	11/13	17/17	22/21	26/25	30/29	33/33	34/37	38/42	41/44	43/50	44/55	48/60	50/64	52/69	54/74	55/79	57/84	59/89	60/95																		
63		-54/4	-14/7	-1/11	8/15	14/19	20/22	24/24	28/30	31/34	34/38	37/43	40/47	42/51	45/56	47/60	49/65	51/70	53/74	55/79	57/84	58/89	60/90	61/95																	
64			-27/2	-7/5	4/9	11/12	17/14	22/20	26/24	30/27	33/31	34/35	39/39	41/43	44/48	46/52	48/54	50/61	52/65	54/70	56/75	58/80	59/85	61/90	62/95																
65				-15/3	-1/7	8/10	14/14	20/17	24/21	28/25	32/29	35/32	38/34	40/40	43/44	45/48	47/53	49/57	51/61	53/64	55/70	57/75	59/80	60/85	62/90	63/95															
66				-28/2	-7/5	4/8	11/12	17/15	22/19	24/22	30/26	33/30	36/33	39/37	42/41	44/45	46/49	49/53	51/58	53/62	54/64	56/71	58/74	60/80	61/85	63/90	64/95														
67					-15/3	-1/6	8/10	15/13	20/16	24/20	28/23	32/27	35/31	38/34	41/38	43/42	44/46	48/50	50/54	52/58	54/63	56/67	57/71	59/76	61/80	62/85	64/90	66/95													
68					-29/2	-7/5	4/8	12/11	18/14	22/18	27/21	30/24	34/28	37/32	40/35	42/39	45/43	47/47	49/51	51/55	53/59	55/63	57/67	59/72	60/76	62/81	63/85	65/90	67/95											
69						-15/3	-1/4	8/9	15/12	20/16	25/19	29/22	32/24	35/29	38/33	41/34	44/40	46/44	48/47	50/51	52/55	54/59	56/64	58/68	60/72	61/77	63/81	65/84	66/90	68/95										
70						-29/1	-7/4	4/7	12/10	18/14	23/17	27/20	31/23	34/27	37/30	40/34	43/37	45/41	47/44	50/48	52/52	54/56	55/60	57/64	59/68	60/72	62/77	64/81	66/86	67/90	69/95									
71							-15/3	0/6	9/9	15/12	21/15	25/18	29/21	33/24	34/28	39/31	42/34	44/38	46/42	49/45	51/49	53/53	55/57	57/60	58/65	60/69	62/73	63/77	65/82	67/86	68/91	70/95								
72							-28/1	-6/4	5/7	12/10	18/13	23/16	28/19	31/22	35/25	38/29	40/32	43/35	44/39	48/42	50/44	52/50	54/53	56/57	58/61	60/65	61/69	63/73	65/77	66/82	68/86	69/91	71/95							
73								-14/3	0/5	9/8	16/11	21/14	26/17	30/20	33/23	34/26	39/30	42/33	45/36	47/40	49/43	51/47	53/50	55/55	57/58	59/62	61/65	62/69	64/74	66/78	67/82	69/84	70/91	72/95						
74								-27/1	-4/4	5/7	13/10	19/12	24/15	28/18	32/21	35/24	38/27	41/30	44/34	46/37	48/40	51/44	53/47	55/51	57/54	58/58	60/62	62/64	64/70	65/74	67/78	68/82	70/87	71/91	73/95					
75									-13/3	1/5	10/8	16/11	22/13	26/16	30/19	34/22	37/25	40/28	43/31	45/35	48/38	50/41	52/44	54/48	56/51	58/55	60/59	61/62	63/66	65/70	66/74	68/78	69/82	71/87	72/91	74/95				
76									-25/1	-5/4	4/7	14/9	20/12	24/15	29/17	32/20	34/23	39/26	42/29	44/32	47/35	49/39	51/42	53/45	55/49	57/52	59/56	61/59	62/63	64/67	66/71	67/75	69/79	70/83	72/87	73/91	75/96			
77									-57/3	-12/5	2/8	10/10	17/13	22/16	27/18	31/21	34/24	38/27	41/30	43/33	46/36	48/39	50/43	53/46	55/49	57/53	58/56	60/60	62/63	64/67	65/71	67/75	68/79	70/83	71/87	73/91	74/96	76/96		
78										-23/1	-4/4	7/6	14/9	20/11	25/14	29/17	33/19	36/22	39/25	42/28	45/31	47/34	50/37	52/40	54/43	56/46	58/50	60/53	61/57	63/60	65/64	66/67	68/71	69/75	71/79	72/83	74/87	75/91	77/96	
79										-48/3	-11/5	3/8	11/10	18/13	23/15	28/18	32/20	35/23	38/26	41/29	44/32	46/35	49/38	51/41	53/44	55/47	57/50	59/54	61/57	63/61	64/64	66/68	67/72	69/75	71/79	72/83	74/87	75/91	76/96	78/96
80											-21/2	-2/4	8/6	15/9	21/11	26/14	30/16	34/19	37/21	40/24	43/27	45/30	48/32	50/35	52/38	54/41	56/45	58/48	60/51	62/54	64/58	65/61	67/65	69/68	70/72	72/76	73/79	75/83	76/87	77/92	79/96

Elevations between 501 and 1,900 feet

Wet Bulb Temperature (green, Read Down) — columns.
Dry Bulb Temperatures 81 to 100 F (Read Across) — rows.
Each cell shows DP (dew point, blue) / RH (relative humidity, red).

Wet Bulb Temperature 49 to 91 F

Legend: DP (blue) / RH (red)

Dry Bulb	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89
81	-40/1	-9/3	4/5	12/7	19/10	24/12	28/15	32/17	34/20	39/22	42/25	45/28	47/30	49/33	52/36	54/39	56/42	58/45	60/48	61/51	63/55	65/58	67/62	68/65	70/69	71/72	73/76	74/80	76/84	77/88	78/92	80/96									
82		-18/2	-1/4	9/6	16/8	22/10	27/13	31/16	34/18	38/21	41/23	44/26	46/28	49/31	51/34	53/37	55/40	57/43	59/46	61/49	63/52	64/55	66/59	68/62	69/65	71/69	72/73	74/76	75/80	77/84	78/88	79/92	81/96								
83		-34/1	-7/3	5/5	13/7	20/9	25/12	29/14	33/17	34/19	40/21	43/24	45/27	48/29	50/32	52/35	54/38	56/40	58/43	60/46	62/49	64/53	66/56	67/59	69/62	70/66	72/69	73/73	75/76	76/80	78/84	79/88	80/92	82/96							
84			-15/2	1/4	10/6	17/8	23/10	27/13	32/15	35/17	38/20	41/22	44/25	47/27	49/30	52/33	54/35	56/38	58/41	60/44	62/47	63/50	65/53	67/56	68/59	70/63	71/66	73/70	74/73	76/77	77/80	79/84	80/88	81/92	83/96						
85			-29/1	-5/3	7/5	14/7	21/9	26/11	30/14	34/16	37/18	40/21	43/23	46/26	48/28	51/31	53/33	55/36	57/39	59/42	61/45	63/47	65/50	66/54	68/57	69/60	71/63	73/66	74/70	76/73	77/77	80/81	81/84	82/88	84/92	85/96					
86				-12/2	2/4	11/6	18/8	24/10	28/12	32/15	36/17	39/19	42/22	45/24	48/26	50/29	52/32	54/34	57/37	59/40	60/42	62/45	64/48	66/51	67/54	69/57	71/60	72/64	74/67	75/70	77/74	78/77	79/81	81/84	82/88	83/92	85/96				
87				-24/1	-3/3	6/5	16/7	22/9	27/11	31/13	35/16	38/18	41/20	44/22	47/25	49/27	52/30	54/32	56/35	58/37	60/40	62/43	64/46	65/49	67/51	69/54	70/58	72/61	73/64	75/67	76/70	78/74	79/77	80/81	82/85	83/88	84/92	86/96			
88				-50/2	-10/4	4/6	13/8	16/10	25/12	29/14	33/16	37/19	40/21	43/23	46/26	48/28	51/31	53/33	55/36	57/39	59/41	61/43	63/46	65/49	66/52	68/55	70/58	71/61	73/64	74/67	76/71	77/74	79/78	80/81	81/85	83/89	84/92	85/96	87/96		
89					-19/1	-1/3	10/5	17/7	23/9	28/11	32/13	36/15	39/17	42/19	45/22	48/24	50/26	52/29	55/31	57/34	59/36	61/39	62/41	64/44	66/47	68/50	69/52	71/55	72/58	74/61	76/65	77/68	78/71	80/74	81/78	83/81	84/85	85/88	86/92	88/96	
90					-37/2	-7/4	6/6	14/8	21/10	26/12	30/14	34/16	38/18	41/20	44/22	47/25	49/27	52/29	54/32	56/34	58/37	60/39	62/42	64/45	66/47	67/50	69/53	71/56	72/59	74/62	75/65	77/68	78/71	79/75	81/78	82/82	84/85	85/89	86/92	87/96	89/96
91						-15/1	1/3	11/5	18/7	24/9	29/11	33/13	37/15	40/17	43/19	46/21	48/23	51/25	53/28	55/30	57/32	59/35	61/37	63/40	65/42	67/45	68/48	70/51	72/53	73/56	76/59	78/62	79/65	81/68	82/72	83/75	85/78	86/82	87/85	88/89	90/92
92						-28/1	-4/2	8/4	16/6	22/8	27/10	31/12	35/14	39/16	42/18	45/20	47/22	50/24	52/26	55/28	57/31	59/33	61/35	63/38	65/40	66/43	68/46	70/48	71/51	73/54	74/57	76/60	77/63	79/66	80/69	82/72	83/75	84/78	85/82	87/85	88/89
93						-11/2	4/3	13/5	20/7	25/9	30/11	34/12	38/14	41/16	44/18	47/20	49/23	52/25	54/27	56/29	58/31	60/34	62/36	64/38	66/41	68/43	69/46	71/49	72/51	74/54	75/57	77/60	78/63	80/66	81/69	83/72	84/75	85/79	86/82	88/85	89/89
94						-21/1	-1/3	10/4	17/6	23/8	28/10	32/11	36/13	40/15	43/17	46/19	48/21	51/23	53/25	55/28	58/30	60/32	62/34	63/37	65/39	67/41	69/44	70/47	72/49	74/52	75/55	77/57	78/60	80/63	81/66	82/69	84/72	85/76	86/79	88/82	89/86
95						-43/2	-7/4	6/5	14/7	21/9	26/10	31/12	35/14	39/16	42/18	45/20	47/22	50/24	52/26	55/28	57/30	59/33	61/35	63/37	65/40	67/42	68/45	70/47	72/50	73/52	75/55	76/58	78/61	79/64	81/66	82/70	83/73	85/76	86/79	87/82	89/86
96		-16/1	1/3	11/4	19/6	25/8	29/9	34/11	37/13	41/15	44/17	47/19	49/21	52/23	54/25	56/27	58/29	60/31	62/33	64/35	66/38	68/40	70/43	71/45	73/48	74/50	76/53	77/55	79/58	80/61	82/64	83/67	85/70	86/73	87/76	88/79	90/82	91/86	92/89	94/93	95/96
97		-30/1	-4/2	8/4	16/5	23/7	28/9	32/10	36/12	40/14	43/16	46/17	48/19	51/21	53/23	56/25	58/27	60/29	62/32	64/34	66/36	67/38	69/41	71/43	72/45	74/48	76/51	77/53	79/56	80/59	81/61	83/64	84/67	86/70	87/73	88/76	90/79	91/83	92/86	93/89	95/93
98			-11/1	4/3	13/5	20/6	26/8	31/9	35/11	38/13	42/15	45/16	48/18	50/20	53/22	55/24	57/26	59/28	61/30	63/32	65/34	67/37	69/39	70/41	72/44	74/46	75/48	77/51	78/54	80/56	81/59	83/62	84/64	85/67	87/70	88/73	89/76	91/80	92/83	93/86	94/89
99			-21/1	-1/2	10/4	18/5	24/7	29/9	33/10	37/12	41/14	44/15	47/17	49/19	52/21	54/23	57/25	59/27	61/29	63/31	65/33	66/35	68/37	70/39	72/42	73/44	75/46	76/49	78/51	79/54	81/57	82/59	84/62	85/65	86/68	88/71	89/74	90/77	92/80	93/83	94/86
100			-43/2	-7/3	4/5	15/6	22/8	27/9	32/11	36/13	40/14	43/16	46/18	49/20	51/21	54/23	56/25	58/27	60/29	62/31	64/33	66/35	68/38	70/40	71/42	73/44	74/47	76/49	78/52	79/54	81/57	82/60	83/62	85/65	86/68	87/71	89/74	90/77	91/80	93/83	94/86

Elevations between 501 and 1,900 feet

Wet Bulb Temperatures, 58 to 95 F
(Read Down)

Dry Bulb Temperatures 101 to 119 F (Read Across)

Legend: DP (blue, top value) / RH (red, bottom value)

Dry Bulb	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
101 DP	-15	2	12	20	26	30	35	38	42	45	48	50	53	55	57	60	62	64	65	67	69	71	72	74	76	77	79	80	82	83	84	86	87	89	90	91	92	94
101 RH	1	3	4	5	7	8	10	12	13	15	17	18	20	22	24	26	28	30	32	34	36	38	40	43	45	47	50	52	55	57	60	63	65	68	71	74	77	80
102 DP	-28	-3	9	17	24	29	33	37	41	44	47	50	52	55	57	59	61	63	65	67	69	70	72	74	75	77	78	80	81	83	84	86	87	88	90	91	92	93
102 RH	1	2	3	5	6	8	9	11	12	14	16	17	19	21	23	25	26	28	30	32	34	36	39	41	43	45	48	50	53	55	58	60	63	66	68	71	74	77
103 DP		-10	5	15	21	27	32	36	40	43	46	49	51	54	56	58	60	63	64	66	68	70	72	73	75	76	78	80	81	82	84	85	87	88	89	91	92	93
103 RH		1	3	4	6	7	8	10	12	13	15	16	18	20	21	23	25	27	29	31	33	35	37	39	41	43	46	48	50	53	55	58	60	63	66	69	71	74
104 DP		-19	1	12	19	25	30	35	38	42	45	48	51	53	55	58	60	62	64	66	68	69	71	73	75	76	78	79	81	82	84	85	86	88	89	90	92	93
104 RH		1	2	3	5	6	8	9	11	12	14	15	17	19	20	22	24	26	28	29	31	33	35	37	40	42	44	46	48	51	53	56	58	61	63	66	69	72
105 DP		-37	-5	8	17	23	29	33	37	41	44	47	50	52	55	57	59	61	63	65	67	69	71	72	74	76	77	79	80	82	83	85	86	87	89	90	91	93
105 RH		2	3	4	6	7	8	10	11	13	14	16	18	9	21	23	24	26	28	30	32	34	36	38	40	42	44	47	49	51	54	56	59	61	64	66	69	
106 DP			-12	4	14	21	27	32	36	40	43	46	49	52	54	56	59	61	63	65	67	69	70	72	74	75	77	79	80	82	83	84	86	87	89	90	91	93
106 RH			1	2	4	5	6	8	9	11	12	14	15	17	18	20	22	23	25	27	29	30	32	34	36	38	40	42	45	47	49	52	54	56	59	61	64	67
107 DP			-23	-1	11	19	25	30	35	38	42	45	48	51	53	56	58	60	62	64	66	68	70	72	73	75	77	78	80	81	83	84	86	87	88	90	91	92
107 RH			1	2	3	4	6	7	8	10	11	13	14	16	17	19	20	22	24	26	27	29	31	33	35	37	39	41	43	45	47	50	52	54	57	59	62	64
108 DP			-49	-7	7	16	23	29	33	37	41	44	47	50	53	55	57	60	62	64	66	68	70	71	73	75	76	78	79	81	82	84	85	87	88	89	91	92
108 RH			1	3	4	5	6	8	9	10	12	13	15	16	18	19	21	23	24	26	28	30	31	33	35	37	39	41	43	46	48	50	52	55	57	59	62	
109 DP				-15	3	13	21	27	32	36	40	43	46	49	52	54	57	59	61	63	65	67	69	71	73	74	76	78	79	81	82	84	85	86	88	89	91	92
109 RH				1	2	3	5	6	7	8	10	11	13	14	15	17	18	20	22	23	25	27	28	30	32	34	36	38	40	42	44	46	48	50	53	55	57	60
110 DP				-28	-2	10	19	25	30	35	39	42	45	48	51	54	56	58	61	63	65	67	69	70	72	74	76	77	79	80	82	83	85	86	88	89	90	92
110 RH				2	3	4	5	6	8	9	10	12	13	15	16	18	19	21	22	24	25	27	29	31	32	34	36	38	40	42	44	46	48	51	53	55	58	
111 DP					-8	7	16	23	29	33	37	41	44	48	50	53	55	58	60	62	64	66	68	70	72	73	75	77	78	80	81	83	84	86	87	89	90	91
111 RH					1	2	3	5	6	7	8	10	11	12	14	15	17	18	20	21	23	24	26	28	29	31	33	35	37	39	41	43	45	47	49	51	53	56
112 DP					-17	2	13	21	27	32	36	40	44	47	50	52	55	57	60	62	64	66	68	70	71	73	75	76	78	80	81	83	84	86	87	88	90	91
112 RH					1	2	3	4	5	7	8	9	10	12	13	14	16	17	19	20	22	23	25	26	28	30	32	33	35	37	39	41	43	45	47	49	51	54
113 DP					-32	-3	10	18	25	30	35	39	42	46	49	52	54	57	59	61	63	65	67	69	71	73	74	76	78	79	81	82	84	85	87	88	90	91
113 RH					1	1	2	4	5	6	7	8	10	11	12	14	15	16	18	19	21	22	24	25	27	29	30	32	34	36	37	39	41	43	45	47	50	52
114 DP						-10	6	16	23	29	33	38	41	45	48	51	53	56	58	61	63	65	67	69	71	72	74	76	77	79	81	82	84	85	86	88	89	91
114 RH						1	2	3	4	5	7	8	9	10	11	13	14	15	17	18	20	21	23	24	26	27	29	31	32	34	36	38	40	42	44	46	48	50
115 DP						-19	2	13	21	27	32	36	40	44	47	50	53	55	58	60	62	64	66	68	70	72	74	75	77	79	80	82	83	85	86	88	89	90
115 RH						1	2	3	4	5	6	7	8	10	11	12	13	15	16	17	19	20	22	23	25	26	28	30	31	33	35	36	38	40	42	44	46	48
116 DP							-3	10	18	25	30	35	39	43	44	49	52	55	57	59	62	64	66	68	70	71	73	75	77	78	80	81	83	84	86	87	89	90
116 RH							1	2	3	4	6	7	8	9	10	11	13	14	15	17	18	19	21	22	24	25	27	28	30	32	33	35	37	39	41	42	44	46
117 DP							-10	6	16	23	29	34	38	42	45	48	51	54	56	59	61	63	65	67	69	71	73	75	76	78	80	81	82	84	85	87	89	90
117 RH							1	2	3	4	5	6	7	8	10	11	12	13	14	16	17	18	20	21	23	24	26	27	29	30	32	34	36	37	39	41	43	45
118 DP							-20	2	13	21	27	32	37	41	44	47	50	53	56	58	60	63	65	67	69	71	72	74	76	78	79	81	82	84	85	87	88	90
118 RH							1	1	2	3	5	6	7	8	9	10	11	12	14	15	16	18	19	20	22	23	25	26	28	29	31	33	34	36	38	39	41	43
119 DP							-40	-4	10	19	25	31	35	40	43	47	50	52	55	58	60	62	64	66	68	70	72	74	76	77	79	80	82	84	85	87	88	
119 RH							1	1	2	3	4	5	6	7	8	9	11	12	13	14	15	17	18	19	21	22	24	25	27	28	30	31	33	35	36	38	40	

Elevations between 1,901 and 3,900 feet

Dry Bulb Temperatures 41 to 60 F (Read Across)

Wet Bulb Temperatures 27 to 57 F (Read Down)

	DP
DP	**RH**
RH	

Each cell lists **DP** (dew point, blue, top) over **RH** (relative humidity, red, bottom).

Dry Bulb 41–60 table (Wet Bulb headers 27 28 29 30 31 32 33 34 35 36 37 38 39 40 …)

Dry Bulb	DP (top) / RH (bottom)
41	DP: -43 -15 -3 5 11 16 20 23 26 29 32 34 37 39 — RH: 2 8 15 22 28 35 42 49 56 63 70 77 85 92
42	DP: -27 -9 0 8 13 18 21 25 28 31 33 36 38 40 — RH: 4 11 17 24 30 37 43 50 57 64 71 78 85 92
43	DP: -18 -5 4 10 15 19 23 26 29 32 34 37 39 41 — RH: 7 13 19 26 32 38 45 51 58 64 71 78 85 93
44	DP: -32 -11 -1 7 12 17 21 24 28 30 33 36 38 40 42 — RH: 3 9 15 21 27 33 39 46 52 59 65 72 79 86 93
45	DP: -21 -6 3 9 14 19 23 26 29 32 34 37 39 41 43 — RH: 5 11 17 23 29 35 41 47 53 59 66 72 79 86 93
46	DP: -38 -13 -2 6 12 16 21 24 27 30 33 36 38 40 42 44 — RH: 2 8 13 19 25 30 36 42 48 54 60 67 73 80 86 93
47	DP: -24 -7 2 9 14 18 22 26 29 32 34 37 39 41 43 45 — RH: 4 10 15 21 26 32 37 43 49 55 61 67 74 80 87 93
48	DP: -46 -15 -3 5 11 16 20 24 27 30 33 36 38 40 42 44 46 — RH: 1 6 12 17 22 28 33 39 44 50 56 62 68 74 80 87 93
49	DP: -26 -9 1 8 13 18 22 26 29 32 34 37 39 41 43 45 47 — RH: 3 8 13 18 24 29 34 40 45 51 57 63 68 75 81 87 93
50	DP: -57 -17 -4 4 11 16 20 24 27 30 33 36 38 40 42 44 46 48 — RH: 1 5 10 15 20 25 30 36 41 46 52 57 63 69 75 81 87 94
51	DP: -31 -11 0 7 13 18 22 26 29 32 34 37 39 41 44 46 47 49 — RH: 2 7 12 17 22 27 32 37 42 47 53 58 64 70 75 81 88 94
52	DP: -20 -5 4 10 15 20 24 27 30 33 36 38 40 43 45 47 48 50 — RH: 4 9 14 18 23 28 33 38 43 48 54 59 65 70 76 81 86 94
53	DP: -36 -12 -1 7 13 18 22 25 29 32 34 37 39 42 44 46 48 50 51 — RH: 2 6 11 15 20 24 29 34 39 44 49 54 60 65 71 76 82 88 94
54	DP: -22 -6 3 10 15 20 24 27 30 33 36 38 41 43 45 47 49 51 52 — RH: 4 8 12 17 21 26 30 35 40 45 50 55 60 66 71 77 82 88 94
55	DP: -42 -14 -2 6 12 17 22 25 29 32 35 37 40 42 44 46 48 50 52 53 — RH: 1 5 9 14 18 23 27 32 36 41 46 51 56 61 66 72 77 83 88 94
56	DP: -25 -7 2 9 15 20 24 27 30 33 36 39 41 43 45 47 49 51 53 54 — RH: 3 7 11 15 20 24 28 33 37 42 47 52 57 62 67 73 78 83 89 94
57	DP: -50 -15 -2 6 12 17 22 26 29 32 35 37 40 42 44 46 48 50 52 54 55 — RH: 1 5 9 13 17 21 25 30 34 39 43 48 53 57 62 67 73 78 83 89 94
58	DP: -27 -8 2 9 15 20 24 27 31 34 36 39 41 43 46 48 49 51 53 55 56 — RH: 2 6 10 14 18 22 26 31 35 40 44 49 53 58 63 68 73 78 84 89 94
59	DP: -16 -3 6 12 17 22 26 29 32 35 38 40 42 45 47 49 51 52 54 56 57 — RH: 4 8 12 16 20 24 28 32 36 41 45 50 54 59 64 69 73 79 84 89 94
60	DP: -29 -9 2 9 15 20 24 28 31 34 37 39 41 44 46 48 50 52 53 55 57 58 — RH: 2 6 9 13 17 21 25 29 33 37 41 49 50 55 59 64 69 74 79 84 89 95

Dry Bulb 31–40 table — Wet Bulb Temperatures headers 22 23 24 25 26 27 28 29 30

Dry Bulb Temperatures (lower-left block)

Dry Bulb	DP (top) / RH (bottom)
31	DP: -13 -3 5 10 15 19 22 25 28 — RH: 14 23 32 41 50 60 69 79 89
32	DP: -23 -6 0 7 12 16 20 24 27 29 — RH: 8 17 25 34 43 52 61 71 80 90
33	DP: -43 -16 -5 3 9 14 18 22 25 28 31 — RH: 2 11 19 27 36 45 54 63 72 81 91
34	DP: -29 -12 -2 5 11 16 20 23 26 29 32 — RH: 5 13 21 29 38 46 55 64 73 82 91
35	DP: -21 -7 1 8 13 17 21 25 28 30 33 — RH: 8 16 23 31 40 48 57 65 74 83 91
36	DP: -39 -15 -4 4 10 15 19 23 26 29 31 34 — RH: 3 10 18 26 33 42 50 58 66 75 83 91
37	DP: -27 -10 0 7 12 17 21 24 27 30 32 35 — RH: 5 13 20 28 35 43 51 59 67 75 83 91
38	DP: -57 -18 -6 3 9 14 19 22 26 28 31 34 36 — RH: 1 8 15 22 30 37 45 53 60 68 76 84 92
39	DP: -33 -12 -2 4 11 16 20 24 27 30 32 35 37 — RH: 3 10 17 24 32 39 47 54 61 69 76 84 92
40	DP: -23 -7 2 8 14 18 22 25 28 31 33 36 38 — RH: 6 13 19 26 34 41 48 55 62 69 77 84 92

Elevations between 1,901 and 3,900 feet

Wet Bulb Temperatures 39 to 79 F (Read Down)

Dry Bulb Temperatures 61 to 80 F (Read Across)

Legend: each cell shows DP (blue, dew point) over RH (red, relative humidity), written as DP / RH.

DB \ WB	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
61	-17/4	-3/7	6/11	12/14	18/18	22/22	26/26	29/30	33/34	35/38	38/42	40/47	43/51	45/56	47/60	49/65	51/69	53/74	55/79	56/84	58/89	59/95																			
62	-31/2	-9/5	2/9	9/12	15/16	20/20	24/23	28/27	31/31	34/35	37/39	39/43	42/48	44/52	46/56	48/61	50/65	52/70	54/75	56/80	57/85	59/90	60/95																		
63		-18/3	-3/7	6/10	12/14	18/17	22/21	26/25	30/28	33/32	36/36	38/40	41/44	43/48	45/53	47/57	49/61	51/66	53/70	55/75	57/80	58/85	60/90	61/95																	
64		-32/1	-9/5	2/8	9/11	15/15	20/18	24/22	28/26	31/29	34/33	37/37	40/41	42/45	45/49	47/53	49/57	51/62	53/66	54/71	56/75	58/80	59/85	61/90	63/95																
65			-18/3	-3/6	6/9	13/13	18/16	23/20	27/23	30/27	33/30	36/34	39/38	41/42	44/46	46/50	48/54	50/58	52/62	54/67	55/71	57/76	59/80	60/85	62/90	64/95															
66			-32/1	-9/4	2/8	10/11	16/14	21/17	25/21	29/24	32/28	35/31	38/35	40/39	43/43	45/47	47/51	49/55	51/59	53/63	55/67	57/72	58/76	60/81	61/85	63/90	65/95														
67				-18/3	-3/6	6/9	13/12	18/15	23/19	27/22	30/25	34/29	37/32	39/36	42/40	44/43	46/47	48/51	50/55	52/59	54/63	56/68	58/72	59/76	61/81	63/86	64/90	66/95													
68				-32/1	-9/4	2/7	10/10	16/13	21/17	25/20	29/23	32/26	35/30	38/33	41/37	43/41	45/44	48/48	50/52	52/56	54/60	55/64	57/68	59/72	60/77	62/81	64/86	65/90	67/95												
69					-17/3	-3/6	7/9	13/12	19/15	23/18	27/21	31/24	34/27	37/31	40/34	42/38	45/41	47/45	49/49	51/53	53/56	55/60	56/64	58/69	60/73	62/77	63/81	65/86	66/91	68/95											
70					-31/1	-9/4	3/7	10/10	16/13	21/16	26/19	29/22	33/25	36/28	39/32	41/35	44/39	46/42	48/46	50/49	52/53	54/57	56/61	58/65	59/69	61/73	63/77	64/82	66/86	67/91	69/95										
71						-17/3	-2/5	7/8	14/11	19/14	24/17	28/20	31/23	35/26	38/29	40/33	43/36	45/39	47/43	49/46	51/50	53/54	55/58	57/61	59/65	60/69	62/73	64/78	65/82	67/86	68/91	70/95									
72						-30/1	-8/4	3/7	11/9	17/12	22/15	26/18	30/21	33/24	36/27	39/30	42/34	44/37	46/40	49/44	51/47	53/51	55/54	56/58	58/62	60/66	62/70	63/74	65/78	66/82	68/86	69/91	71/95								
73							-16/3	-1/5	8/8	15/11	20/13	24/16	28/19	32/22	35/25	38/28	41/31	43/34	46/38	48/41	50/44	52/48	54/51	56/55	58/59	59/62	61/66	63/70	64/74	66/78	67/82	69/87	70/91	72/95							
74							-28/1	-7/4	4/6	12/9	18/12	23/14	27/17	31/20	34/23	37/26	40/29	42/32	45/35	47/38	49/42	51/45	53/48	55/52	57/55	59/59	61/63	62/67	64/70	65/74	67/78	68/83	70/87	71/91	73/95						
75								-14/3	0/5	9/8	15/10	21/13	25/16	29/18	33/21	36/24	39/27	41/30	44/33	46/36	48/39	51/42	53/46	55/49	56/52	58/56	60/60	62/63	63/67	65/71	66/75	68/79	69/83	71/87	72/91	74/96					
76								-26/1	-6/4	5/6	13/9	18/11	23/14	27/17	31/19	35/22	38/25	40/28	43/31	45/34	48/37	50/40	52/43	54/46	56/50	58/53	59/57	61/60	63/64	64/67	66/71	68/75	69/79	70/83	72/87	73/91	75/96				
77								-54/1	-13/3	1/5	9/7	16/10	21/12	26/15	30/18	33/20	36/23	39/26	42/29	45/32	47/34	49/37	51/41	53/44	55/47	57/50	59*/54	61/57	62/61	64/64	66/68	67/71	69/75	70/79	71/83	73/87	74/91	76/96			
78									-23/1	-4/4	6/6	13/9	19/11	24/13	28/16	32/19	35/21	38/24	41/27	44/29	46/32	48/35	51/38	53/41	55/44	56/48	58/51	60/54	62/57	63/61	65/64	67/68	68/72	70/76	71/79	73/83	74/87	75/91	77/96		
79									-45/1	-11/3	2/5	10/7	17/10	22/12	27/14	30/17	34/20	37/22	40/25	43/27	45/30	48/33	50/36	52/39	54/42	56/45	58/48	60/51	61/55	63/58	65/61	66/65	68/68	69/72	71/76	72/80	74/84	75/88	76/92	78/96	
80										-20/2	-3/4	7/6	14/8	20/11	25/13	29/15	33/18	36/20	39/23	42/26	44/28	47/31	49/34	51/37	53/40	55/43	57/46	59/49	61/52	62/55	64/58	66/62	67/65	69/69	70/72	72/76	73/80	75/84	76/88	77/92	79/96

Elevations between 1,901 and 3,900 feet

Wet Bulb Temperatures 49 to 89 F (Read Down)

Dry Bulb Temperatures 81 to 100 F (Read Across)

For each Dry Bulb temperature the upper (blue) value and lower (red) value are given for each Wet Bulb column.

Dry Bulb	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
81	-9	3	12	18	23	27	31	35	38	41	43	46	48	50	53	55	57	58	60	62	64	65	67	68	70	71	73	74	76	77	78	80										
	3	5	7	9	12	14	16	19	21	24	26	29	32	35	37	40	43	46	49	52	56	59	62	66	69	73	76	80	84	88	92	96										
82	-17	-1	8	15	21	26	30	33	37	40	42	45	47	50	52	54	56	58	60	61	63	65	66	68	70	71	72	74	75	77	78	79	81									
	2	4	6	8	10	13	15	17	20	22	25	27	30	33	35	38	41	44	47	50	53	56	59	63	66	69	73	77	80	84	88	92	96									
83	-31	-7	5	13	19	24	28	32	35	39	41	44	47	49	51	53	55	57	59	61	63	64	66	68	69	71	72	74	75	76	78	79	80	82								
	1	3	5	7	9	11	14	16	18	21	23	26	28	31	33	36	39	42	44	47	50	53	57	60	63	66	70	73	77	80	84	88	92	96								
84		-14	1	10	17	22	27	31	34	37	40	43	46	48	50	53	55	57	59	60	62	64	66	67	69	70	72	73	75	76	77	79	80	81	83							
		2	4	6	8	10	12	15	17	19	21	24	26	29	31	34	37	39	42	45	48	51	54	57	60	63	67	70	74	77	81	84	88	92	96							
85		-26	-5	6	14	20	25	29	33	36	39	42	45	47	50	52	54	56	58	60	62	63	65	67	68	70	71	73	74	76	77	78	80	81	82	84						
		1	3	5	7	9	11	13	15	18	20	22	25	27	30	32	35	37	40	43	46	48	51	54	57	61	64	67	70	74	77	81	85	88	92	96						
86			-11	2	11	18	23	28	32	35	38	41	44	47	49	51	53	55	57	59	61	63	65	66	68	69	71	72	74	75	77	78	80	81	82	83	85					
			2	4	6	8	10	12	14	16	19	21	23	25	28	30	33	35	38	41	43	46	49	52	55	58	61	64	67	71	74	78	81	85	88	92	96					
87			-21	-2	8	15	21	26	30	34	37	40	43	46	48	50	53	55	57	59	61	62	64	66	67	69	71	72	74	75	76	78	79	81	82	83	84	86				
			1	3	5	7	9	11	13	15	17	19	22	24	26	29	31	33	36	39	41	44	47	49	52	55	58	61	64	68	71	74	78	81	85	88	92	96				
88			-39	-8	4	13	19	24	29	33	36	39	42	45	47	50	52	54	56	58	60	62	64	65	67	69	70	72	73	75	76	78	79	80	82	83	84	85	87			
			2	4	6	8	10	12	14	16	18	20	22	25	27	29	32	34	37	39	42	44	47	50	53	56	59	62	65	68	71	75	78	81	85	89	92	96				
89				-17	0	9	17	22	27	31	35	38	41	44	47	49	51	53	56	58	59	61	63	65	67	68	70	71	73	74	76	77	78	80	81	83	84	85	87	88		
				1	3	5	7	9	11	13	15	17	19	21	23	25	28	30	32	35	37	40	42	45	48	50	53	56	59	62	65	68	71	75	78	82	85	89	92	96		
90				-30	-6	6	14	20	25	30	34	37	40	43	46	48	51	53	55	57	59	61	63	64	66	68	69	71	72	74	75	77	78	80	81	82	84	85	86	88	89	
				1	2	4	6	8	10	12	13	15	17	20	22	24	26	28	31	33	35	38	40	43	45	48	51	54	56	59	62	65	69	72	75	78	82	85	89	92	96	
91					-13	2	11	18	23	28	32	36	39	42	45	47	50	52	54	56	58	60	62	64	66	67	69	71	72	74	75	77	78	79	81	82	83	85	86	87	89	90
					2	3	5	7	9	11	12	14	16	18	20	22	25	27	29	31	34	36	38	41	43	46	49	51	54	57	60	63	66	69	72	75	79	82	85	89	93	96
92					-23	-3	8	16	22	27	31	35	38	41	44	47	49	51	54	56	58	60	62	63	65	67	69	70	72	73	75	76	78	79	80	82	83	84	86	87	88	90
					1	3	4	6	8	10	11	13	15	17	19	21	23	25	27	30	32	34	36	39	41	44	46	49	52	54	57	60	63	66	69	72	75	79	82	86	89	93
93					-45	-9	4	13	19	25	29	33	37	40	43	46	48	51	53	55	57	59	61	63	65	66	68	70	71	73	74	76	77	79	80	81	83	84	85	87	88	89
					2	3	5	7	9	10	12	14	16	18	20	22	24	26	28	30	32	35	37	39	42	44	47	50	52	55	58	60	63	66	69	73	76	79	82	86	89	
94						-17	0	10	17	23	28	32	36	39	42	45	47	50	52	54	57	59	61	62	64	66	68	69	71	72	74	76	77	78	80	81	83	84	85	87	88	89
						1	3	4	6	8	9	11	13	15	17	19	20	22	24	27	29	31	33	35	38	40	42	45	47	50	53	55	58	61	64	67	70	73	76	79	82	86
95						-31	-5	6	15	21	26	30	34	38	41	44	47	50	52	54	56	58	60	62	64	66	67	69	71	72	74	75	77	78	80	81	82	84	85	86	88	89
						1	2	4	5	7	9	10	12	14	16	17	19	21	23	25	27	29	31	34	36	38	40	43	45	48	50	53	56	58	61	64	67	70	73	76	79	83
96							-12	3	12	19	24	29	33	37	40	43	46	48	51	53	55	57	59	61	63	65	67	68	70	72	73	75	76	78	79	81	82	83	85	86	87	89
							1	3	4	6	8	9	11	13	14	16	18	20	22	24	26	28	30	32	34	36	39	41	43	46	48	51	53	56	59	61	64	67	70	73	76	79
97							-23	-2	9	16	22	27	32	36	39	42	45	48	50	52	55	57	59	61	63	65	66	68	70	71	73	74	76	77	79	80	82	83	84	86	87	88
							1	2	4	5	7	8	10	12	13	15	17	19	21	23	24	26	28	30	33	35	37	39	41	44	46	49	51	54	56	59	62	65	67	70	73	76
98							-44	-8	5	14	20	26	30	34	38	41	44	47	49	52	54	56	58	60	62	64	66	68	69	71	73	74	76	77	79	80	81	83	84	85	87	88
							2	3	5	6	8	9	11	13	14	16	18	19	21	23	25	27	29	31	33	35	37	40	42	44	47	49	52	54	57	59	62	65	68	71	74	
99								-16	1	11	18	24	29	33	37	40	43	46	49	51	53	56	58	60	62	64	65	67	69	71	72	74	75	77	78	80	81	83	84	85	87	88
							1	2	4	5	7	8	10	12	13	15	17	18	20	22	24	26	28	30	32	34	36	38	40	42	45	47	50	52	55	57	60	62	65	68	71
100								-29	-4	8	16	22	27	32	35	39	42	45	48	50	53	55	57	59	61	63	65	67	68	70	72	73	75	76	78	79	81	82	84	85	86	88
							1	2	3	5	6	8	9	11	12	14	16	17	19	21	23	24	26	28	30	32	34	36	38	41	43	45	48	50	52	55	57	60	63	65	68

Elevations between 1,901 and 3,900 feet

Wet Bulb Temperatures, 57 to 90 F
(Read Down)

DP (blue) / **RH** (red)

Dry Bulb Temperatures 101 to 119 F (Read Across)

DB		57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
101	DP	-11	4	13	20	25	30	34	38	41	44	47	50	52	54	57	59	61	63	65	66	68	70	71	73	75	76	78	79	81	82	83	85	86	87
101	RH	1	3	4	5	7	8	10	11	13	15	16	18	20	21	23	25	27	29	31	33	35	37	39	41	43	46	48	50	53	55	58	60	63	66
102	DP	-20	-1	10	18	24	29	33	37	40	43	46	49	51	54	56	58	60	62	64	66	68	69	71	73	74	76	77	79	80	82	83	84	86	87
102	RH	1	2	3	5	6	8	9	11	12	14	15	17	19	20	22	24	26	27	29	31	33	35	37	39	42	44	46	48	51	53	56	58	61	63
103	DP	-37	-6	7	15	22	27	32	36	39	42	45	48	51	53	55	58	60	62	64	65	67	69	71	72	74	75	77	78	80	81	83	84	86	87
103	RH		2	3	4	6	7	8	10	11	13	14	16	18	19	21	23	24	26	28	30	32	34	36	38	40	42	44	48	49	51	53	56	58	61
104	DP		-13	3	13	20	25	30	34	38	41	44	47	50	52	55	57	59	61	63	65	67	69	70	72	74	75	77	78	80	81	83	84	85	87
104	RH		1	2	4	5	6	8	9	11	12	13	15	17	18	20	21	23	25	27	28	30	32	34	36	38	40	42	45	47	49	51	54	56	59
105	DP		-24	-2	9	17	24	29	33	37	40	43	46	49	52	54	56	58	61	63	64	66	68	70	72	73	75	76	78	79	81	82	84	85	86
105	RH		1	2	3	4	6	7	8	10	11	13	14	16	17	19	20	22	24	25	27	29	31	33	35	37	39	41	43	45	47	49	52	54	57
106	DP		-48	8	6	15	22	27	32	36	39	43	46	48	51	53	56	58	60	62	64	66	68	69	71	73	74	76	78	79	80	82	83	85	86
106	RH			1	3	4	5	6	8	9	10	12	13	15	16	18	19	21	23	24	26	28	30	31	33	35	37	39	41	43	45	48	50	52	54
107	DP			-16	2	12	19	25	30	34	38	42	45	48	50	53	55	57	59	62	64	65	67	69	71	72	74	76	77	79	80	82	83	84	86
107	RH			1	2	3	4	6	7	8	10	11	12	14	15	17	18	20	22	23	25	27	28	30	32	34	36	38	40	42	44	46	48	50	52
108	DP			-28	-3	9	17	23	29	33	37	41	44	47	49	52	54	57	59	61	63	65	67	69	70	72	74	75	77	78	80	81	83	84	86
108	RH			1	2	3	4	5	6	8	9	10	12	13	14	16	17	19	20	22	24	25	27	29	31	32	34	36	38	40	42	44	46	48	51
109	DP				-9	5	15	21	27	32	36	40	43	46	49	51	54	56	58	60	63	64	66	68	70	72	73	75	77	78	80	81	83	84	85
109	RH				1	2	3	5	6	7	8	10	11	12	14	15	17	18	19	21	23	24	26	28	29	31	33	35	36	38	40	42	44	47	49
110	DP				-18	1	12	19	25	30	35	38	42	45	48	51	53	56	58	60	62	64	66	68	70	71	73	75	76	78	79	81	82	84	85
110	RH				1	2	3	4	5	6	8	9	10	12	13	14	16	17	19	20	22	23	25	26	28	30	31	33	35	37	39	41	43	45	47
111	DP				-32	-4	9	17	24	29	33	37	41	44	47	50	52	55	57	59	61	64	65	67	69	71	73	74	76	77	79	80	82	83	85
111	RH				1	2	4	5	6	7	8	10	11	12	13	15	16	18	19	21	22	24	25	27	28	30	32	34	35	37	39	41	43	45
112	DP				-10	5	15	22	27	32	36	40	43	46	49	52	54	57	59	61	63	65	67	69	70	72	74	76	77	79	80	82	83	84	85
112	RH				1	2	3	4	5	7	8	9	10	11	13	14	15	17	18	20	21	23	24	26	27	29	31	32	34	36	38	40	42	44
113	DP				-19	1	12	19	25	31	35	39	42	45	48	51	54	56	58	60	63	65	66	68	70	72	74	75	77	78	80	81	83	84
113	RH				1	2	3	4	5	6	7	8	10	11	12	13	15	16	17	19	20	22	23	25	26	28	29	31	33	35	36	38	40	42
114	DP				-35	-4	9	17	24	29	34	38	41	44	47	50	53	55	58	60	62	64	66	68	70	71	73	75	76	78	80	81	83	84
114	RH				1	2	3	4	5	6	7	8	9	11	13	14	15	16	18	19	21	22	24	25	27	28	30	32	33	35	37	39	40
115	DP				-11	5	15	22	27	32	36	40	44	47	50	52	55	57	59	61	64	66	67	69	71	73	74	76	78	79	81	82	84
115	RH				1	2	3	4	5	6	7	8	9	11	12	13	14	16	17	18	20	21	23	24	26	27	29	30	32	34	35	37	39
116	DP				-20	1	12	20	26	31	35	39	43	46	49	51	54	56	59	61	63	65	67	69	71	72	74	76	77	79	81	82	84
116	RH				1	2	2	4	5	6	7	8	9	10	11	12	14	15	16	18	19	20	22	23	25	26	28	29	31	32	34	36	38
117	DP				-38	-4	9	17	24	29	34	38	42	45	48	51	56	58	60	63	65	67	68	70	72	74	75	77	79	80	82	83
117	RH				1	2	3	4	5	6	7	8	9	11	12	13	14	15	17	18	19	21	22	24	25	26	28	30	31	33	34	36
118	DP					-11	5	15	22	28	33	37	41	46	47	50	53	55	58	60	62	64	66	68	70	72	73	75	77	78	80	81	83
118	RH					1	2	3	4	5	6	7	9	10	11	12	13	15	16	17	18	20	21	23	24	25	27	28	30	32	33	35
119	DP					-21	1	12	20	26	31	36	40	43	46	49	52	55	57	59	62	64	66	68	69	71	73	75	76	78	80	81	83
119	RH					1	1	2	3	4	5	6	7	8	9	11	12	13	14	15	16	18	19	20	22	23	24	26	27	29	30	32	34

39

Elevations between 3,901 and 6,100 feet

Dry Bulb Temperatures 41 to 60 F (Read Across)

Wet Bulb Temperatures 27 to 56 F (Read Down)

Key: each cell shows DP (blue, top) / RH (red, bottom)

DP	DP
RH	RH

Dry Bulb 41–49 (Wet Bulb across the top)

DB \ WB	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
41	-22/6	-8/12	1/18	8/25	13/31	17/38	21/44	24/51	27/58	30/64	32/71	35/78	37/85	39/93								
42	-39/2	-15/8	-3/14	4/20	10/27	15/33	19/39	23/46	26/52	29/58	31/64	34/71	36/78	38/85	40/93							
43		-25/5	-9/10	0/16	7/22	13/29	17/35	21/41	24/47	27/53	30/59	32/66	35/72	37/79	39/86	41/93						
44		-48/1	-17/7	-4/13	4/18	10/24	15/30	19/36	22/42	25/48	28/54	31/60	34/66	36/73	38/80	40/86	42/93					
45			-29/4	-10/9	0/15	7/20	12/26	17/31	20/37	24/43	27/49	30/55	32/61	35/67	37/73	39/80	41/86	43/93				
46				-19/6	-5/11	3/17	9/22	14/27	18/33	22/38	25/44	28/50	31/56	34/62	36/68	38/74	40/80	42/87	44/93			
47				-32/3	-12/8	-1/13	6/18	12/23	16/29	20/34	24/40	27/45	30/51	32/57	35/62	37/68	39/74	41/81	43/87	45/93		
48					-20/5	-6/10	2/15	9/20	14/25	18/30	22/35	25/41	28/46	31/52	34/57	36/63	38/69	40/75	42/81	44/87	46/94	
49					-35/2	-13/7	-2/12	5/17	11/21	16/26	20/31	24/37	27/42	30/47	32/53	35/58	37/64	39/70	42/75	44/81	45/87	47/94

Dry Bulb 50–60 (Wet Bulb across the top)

DB \ WB	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58
50	-22/4	-7/9	2/13	8/18	14/23	18/28	22/33	25/38	28/43	31/48	34/53	36/59	39/64	41/70	43/76	45/82	46/88	48/94									
51	-39/2	-14/6	-3/10	5/15	11/20	16/24	20/29	24/34	27/39	30/44	33/49	35/54	37/60	40/65	42/71	44/76	46/82	48/88	49/94								
52		-24/3	-8/8	1/12	8/17	13/21	18/26	22/30	25/35	28/40	31/45	34/50	36/55	39/60	41/66	43/71	45/77	47/82	49/88	50/94							
53		-45/1	-16/5	-3/9	5/14	11/18	16/23	20/27	24/32	27/36	30/41	33/46	35/51	38/56	40/61	42/66	44/72	46/77	48/83	50/88	51/94						
54			-27/1	-9/7	1/11	8/15	13/19	18/24	22/28	25/33	29/37	31/42	34/47	37/52	39/57	41/62	43/67	45/72	47/77	49/83	51/89	52/94					
55			-53/1	-17/5	-4/8	4/13	11/17	16/21	20/25	24/29	27/34	30/38	33/43	36/48	38/52	40/57	42/62	44/67	46/73	48/78	50/83	52/89	53/94				
56				-29/2	-10/6	0/10	8/14	13/18	18/22	22/26	26/31	29/35	32/39	34/44	37/49	39/53	41/58	44/63	46/68	47/73	49/78	51/83	52/89	54/94			
57				-18/4	-4/8	4/12	11/15	16/19	20/23	24/28	27/32	30/36	33/40	36/45	38/49	41/54	43/59	45/64	47/68	49/73	50/79	52/84	54/89	55/94			
58				-31/2	-10/6	0/9	7/13	13/17	18/21	22/25	26/29	29/33	32/37	35/41	37/46	40/50	42/55	44/59	46/64	48/69	50/74	51/79	53/84	55/89	56/95		
59					-19/4	-5/7	4/11	11/14	16/18	20/22	24/26	28/30	31/34	34/38	36/42	39/47	41/51	43/55	45/60	47/65	49/69	51/74	53/79	54/84	56/89	57/95	
60					-32/2	-11/5	0/9	8/12	13/16	18/19	22/23	26/27	29/31	32/35	35/39	38/43	40/47	42/52	44/56	46/61	48/65	50/70	52/75	54/79	55/84	57/90	58/95

Wet Bulb Temperatures / Dry Bulb 31–40

DB \ WB	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
31	-20/10	-8/18	0/26	6/35	11/44	16/52	19/61	23/71	26/80	28/90							
32	-35/4	-15/12	-4/20	3/28	9/37	13/45	17/54	21/63	24/73	27/81	30/90						
33	-25/7	-10/15	-1/22	5/30	11/39	15/47	19/56	22/64	25/73	28/82	31/91						
34	-48/2	-18/9	-6/17	2/25	8/32	12/40	17/49	20/57	24/65	27/74	29/83	32/91					
35		-31/4	-13/12	-3/19	4/27	10/34	14/42	18/50	22/58	25/67	28/75	30/83	33/92				
36		-22/7	-9/14	0/21	7/29	12/36	16/44	20/52	23/60	26/68	29/76	32/84	34/92				
37		-40/3	-16/9	-5/16	3/23	9/31	14/38	18/46	22/53	25/61	28/69	30/76	33/84	35/92			
38			-27/5	-11/12	-1/19	6/26	11/33	16/40	20/47	23/55	26/62	29/69	31/77	34/84	36/92		
39			-55/1	-19/7	-6/14	2/21	8/27	13/34	18/42	21/49	25/56	27/63	30/70	33/77	35/85	37/92	
40				-32/3	-13/10	-2/16	5/23	11/29	15/36	19/43	23/50	26/57	29/64	31/71	34/78	36/85	38/92

Wet Bulb Temperatures (left axis, read down); Dry Bulb Temperatures (bottom/left labels)

Elevations between 3,901 and 6,100 feet

Wet Bulb Temperatures 38 to 79 F (Read Down) — top/blue value in each cell = **DP** (Dew Point); bottom/red value = **RH** (Relative Humidity).

Dry Bulb Temperatures 61 to 80 F (Read Across) — left-hand labels.

Each cell below is shown as **DP / RH**.

Dry Bulb	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
61	-19/3	-5/7	4/10	11/14	16/17	21/21	24/24	28/28	31/32	34/36	37/40	39/44	41/48	43/52	46/57	48/61	49/66	51/70	53/75	55/80	56/85	58/90	59/95																			
62	-33/1	-11/5	0/8	8/11	14/15	19/18	23/22	26/26	30/29	33/33	35/37	38/41	40/45	43/49	45/53	47/57	49/62	51/66	52/71	54/75	56/80	57/85	59/90	61/95																		
63		-19/3	-5/6	4/9	11/13	16/16	21/20	25/23	28/27	31/30	34/34	37/38	39/42	42/46	44/50	46/54	48/58	50/62	52/67	54/71	55/76	57/80	58/85	60/90	62/95																	
64		-34/1	-11/4	0/8	8/11	14/14	19/17	23/21	27/24	30/28	33/31	36/35	38/39	41/43	43/46	45/50	47/54	49/59	51/63	53/67	55/72	56/76	58/81	60/85	61/90	63/95																
65			-19/3	-4/6	5/9	11/12	17/15	21/19	25/22	29/25	32/29	35/32	37/36	40/40	42/43	44/47	47/51	49/55	50/59	52/63	54/68	56/72	57/76	59/81	61/86	62/90	64/95															
66			-33/1	-10/4	1/7	8/10	14/13	19/16	23/20	27/23	31/26	34/30	36/33	39/37	41/40	44/44	46/48	48/52	50/56	52/60	53/64	55/68	57/72	58/77	60/81	62/86	63/90	65/95														
67				-19/3	-4/6	5/8	12/11	17/15	22/18	26/21	29/24	32/27	35/31	38/34	40/38	43/41	45/45	47/49	49/52	51/56	53/60	55/64	56/68	58/73	60/77	61/81	63/86	64/90	66/95												
68				-32/1	-10/4	1/7	9/10	15/13	20/16	24/19	28/22	31/25	34/28	37/32	39/35	42/39	44/42	46/46	48/49	50/53	52/57	54/61	56/65	57/69	59/73	61/77	62/82	63/86	65/91	67/95											
69					-18/3	-3/5	6/8	12/11	18/14	22/17	26/20	30/23	33/26	36/29	38/33	41/36	43/39	45/43	48/46	50/50	52/54	53/57	55/61	57/65	59/69	60/73	62/78	63/82	65/86	66/91	68/95										
70					-31/1	-9/4	2/7	10/9	15/12	20/15	25/18	28/21	32/24	35/27	37/30	40/33	42/37	45/40	47/44	49/47	51/51	53/54	55/58	56/62	58/66	60/70	61/74	63/78	64/82	66/86	67/91	69/95									
71						-17/3	-3/5	6/8	13/11	18/13	23/16	27/19	30/22	33/25	36/28	39/31	41/34	44/38	46/41	48/44	50/48	52/51	54/55	56/58	57/62	59/66	61/70	62/74	64/78	65/82	67/87	68/91	70/95								
72						-29/1	-8/4	3/6	10/9	16/12	21/14	25/17	29/20	32/23	35/26	38/29	41/32	43/35	45/38	47/42	49/45	51/48	53/52	55/55	57/59	59/63	60/66	62/70	63/74	65/78	66/83	68/87	69/91	71/95							
73							-15/3	-2/5	7/8	14/10	19/13	23/16	27/18	31/21	34/24	37/27	40/30	42/33	44/36	47/39	49/42	51/46	53/49	55/52	56/56	58/59	60/63	61/67	63/71	64/75	66/79	67/83	69/87	70/91	72/96						
74							-26/1	-7/4	4/6	11/9	17/11	22/14	26/17	30/19	33/22	36/25	39/28	41/31	44/34	46/37	48/40	50/43	52/46	54/50	56/53	58/56	59/60	61/64	62/67	64/71	66/75	67/79	68/83	70/87	71/91	73/96					
75							-52/3	-14/5	0/7	8/10	15/12	20/15	24/18	28/20	32/23	35/26	38/29	40/31	43/34	45/37	47/41	49/44	51/47	53/50	55/53	57/57	59/60	60/64	62/68	64/71	65/75	67/79	68/83	70/87	71/91	72/96	74/96				
76								-24/2	5/4	5/6	12/9	18/11	22/13	27/16	30/19	33/21	36/24	39/27	42/29	44/32	47/35	49/38	51/41	53/44	55/47	56/51	58/54	60/57	62/61	63/64	65/68	66/72	68/75	69/79	71/83	72/87	73/91	75/96			
77								-43/3	-12/5	1/7	9/10	15/12	21/14	25/17	29/19	32/22	35/25	38/27	41/30	43/33	46/36	48/39	50/42	52/45	54/48	56/51	58/55	59/58	61/61	63/65	64/68	66/72	67/76	69/80	70/83	72/87	73/92	74/96	76/96		
78									-21/2	-4/4	6/6	13/8	19/11	23/13	27/15	31/18	34/20	37/23	40/26	43/28	45/31	47/34	49/37	51/40	53/42	55/46	57/49	59/52	61/55	62/58	64/62	65/65	67/69	68/72	70/76	71/80	73/84	74/88	75/92	77/96	
79									-36/1	-10/3	2/5	10/7	16/9	21/12	26/14	30/16	33/19	36/21	39/24	42/26	44/29	46/32	49/35	51/37	53/40	55/43	57/46	58/49	60/52	62/56	63/59	65/62	66/66	68/69	69/73	71/76	72/80	74/84	75/88	76/92	78/96
80										-18/2	-2/4	7/6	14/8	20/10	24/13	28/15	32/17	35/20	38/22	41/25	43/27	46/30	48/32	50/35	52/38	54/41	56/44	58/47	60/50	61/53	63/56	65/59	66/63	68/66	69/69	71/73	72/77	73/80	75/84	76/88	77/92	79/96

41

Elevations between 3,901 and 6,100 feet

Wet Bulb Temperatures 48 to 89 F (Read Down) — column headings across the top.

Legend (left box): **DP / DP** (blue, Dew Point), **RH / RH** (red, Relative Humidity). **Dry Bulb Temperatures 81 to 100 F (Read Across)** — row labels down the left side.

In each cell the upper (blue) number is the **Dew Point (DP)** and the lower (red) number is the **Relative Humidity (RH)**. Cells below are written as **DP / RH**.

Dry Bulb \ Wet Bulb	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
81	-8/3	4/5	11/7	17/9	22/11	27/14	30/16	34/18	37/21	40/23	42/25	45/28	47/31	49/33	51/36	53/39	55/41	57/44	59/47	61/50	62/53	64/56	66/60	67/63	69/66	70/70	72/73	73/77	74/80	76/84	77/88	78/92	80/96										
82	-15/2	-1/4	8/6	15/8	21/10	25/12	29/15	33/17	36/19	39/21	41/24	44/26	46/29	49/31	51/34	53/37	55/39	57/42	59/45	60/48	62/51	64/54	65/57	67/60	68/63	70/67	71/70	73/73	74/77	75/81	77/84	78/88	80/92	80/96									
83	-26/1	-6/3	5/5	13/7	19/9	23/11	28/13	31/15	35/18	38/20	41/22	43/25	46/27	48/29	50/32	52/35	54/37	56/40	58/43	60/45	61/48	63/51	65/54	66/57	68/60	69/64	71/67	72/70	74/74	75/77	76/81	78/84	79/88	80/92	82/96								
84	-49	-12/2	1/4	10/6	16/8	22/10	26/12	30/14	34/16	37/18	40/21	42/23	45/25	47/28	49/30	52/33	54/35	56/38	57/41	59/43	61/46	63/49	64/52	66/55	68/58	69/61	71/64	72/67	73/71	75/74	76/77	78/81	79/85	80/88	81/92	83/96							
85		-21/1	-3/3	7/5	14/7	20/9	24/11	29/13	32/15	36/17	39/19	41/22	44/24	46/26	49/28	51/31	53/33	55/36	57/38	59/41	61/44	62/47	64/49	66/52	67/55	69/58	70/61	72/64	73/68	74/71	76/74	77/78	79/81	80/82	81/88	82/92	84/96						
86			-37/1	-9/2	3/4	11/6	18/8	23/10	27/12	31/14	34/16	38/18	40/20	43/22	46/25	48/27	50/29	52/32	54/34	56/36	58/39	60/42	62/44	63/47	65/50	67/53	68/56	70/59	71/62	73/65	74/68	76/71	77/74	78/78	80/81	81/85	82/89	83/92	85/96				
87				-17/2	-1/3	8/5	15/7	21/9	26/11	30/13	33/15	36/17	39/19	42/21	45/23	47/25	50/28	52/30	54/32	56/35	58/37	60/40	61/42	63/45	65/48	66/50	68/53	69/56	71/59	72/62	74/65	75/68	77/71	78/75	79/78	81/82	82/85	83/89	85/92	86/96			
88					-29/1	-6/2	5/4	13/6	19/8	24/10	28/12	32/14	35/15	38/17	41/19	44/22	46/24	49/26	51/28	53/31	55/33	57/35	59/38	61/40	63/43	64/45	66/48	67/51	69/54	71/56	72/59	73/62	75/65	76/68	78/72	79/75	80/78	82/82	83/85	84/89	86/92	87/96	
89						-13/2	1/3	10/5	17/7	22/9	27/11	31/12	34/14	37/16	40/18	43/20	46/22	48/24	50/27	53/29	55/31	57/33	58/36	60/38	62/41	64/43	65/46	67/49	69/51	70/54	72/57	73/60	74/63	76/66	77/69	79/72	80/75	81/78	83/82	84/85	85/89	87/93	88/96
90							-22/1	-3/3	7/4	14/6	20/8	25/10	29/11	33/13	36/15	39/17	42/19	45/21	47/23	50/25	52/27	54/30	56/32	58/34	60/36	62/39	63/41	65/44	67/46	68/49	70/52	71/54	73/57	74/60	76/63	77/66	78/69	80/72	81/75	82/79	85/82	86/85	(90)
91								-40/2	-9/4	3/5	12/7	18/9	23/10	28/12	32/14	35/16	38/18	41/20	44/22	47/24	49/26	51/28	53/30	55/32	57/35	59/37	61/39	63/42	65/44	66/47	68/49	69/52	71/55	72/58	74/60	75/63	77/66	78/69	80/72	81/76	82/79	84/82	85/86
92									-17/1	-1/3	9/4	16/6	22/8	26/9	30/11	34/13	37/15	40/17	43/19	46/20	48/22	51/24	53/27	55/29	57/31	59/33	61/35	62/38	64/40	66/42	67/45	69/47	71/50	72/52	74/55	75/58	76/61	78/64	79/67	81/70	82/73	83/76	85/79
93										-29/1	-6/2	6/4	14/5	20/7	25/9	29/10	33/12	36/14	39/16	42/17	45/19	48/21	50/23	52/25	54/27	56/29	58/31	60/34	62/36	64/38	65/40	67/43	69/45	70/48	72/50	73/53	75/56	76/58	78/61	79/64	80/67	82/70	83/73
94											-12/2	2/3	11/5	18/6	23/8	28/9	32/11	35/13	38/14	41/16	44/18	47/20	49/22	51/24	54/26	56/28	58/30	60/32	61/34	63/36	65/39	67/41	68/43	70/46	71/48	73/51	74/53	76/56	77/59	79/61	80/64	81/67	83/70
95											-22/1	-3/2	8/4	15/5	21/7	26/9	30/10	34/12	37/13	40/15	43/17	46/19	48/21	51/22	53/24	55/26	57/28	59/30	61/33	63/35	65/37	66/39	68/41	69/44	71/46	73/49	74/51	76/54	77/56	78/59	80/62	81/65	82/67
96											-39/2	-8/3	4/5	13/6	19/8	24/9	29/11	33/13	36/14	40/16	42/18	45/19	48/21	50/23	52/25	55/27	57/29	59/31	60/33	62/35	64/37	66/40	67/42	69/44	71/47	72/49	74/51	75/54	77/57	78/59	80/62	81/65	82/68
97												-16/1	0/3	10/4	17/5	23/7	27/8	32/10	35/12	39/13	42/15	44/17	47/18	49/20	52/22	54/24	56/26	58/28	60/30	62/32	64/34	65/36	67/38	69/40	70/42	72/45	73/47	75/49	76/52	78/54	79/57	81/60	82/62
98												-27/1	-4/2	7/3	15/5	21/6	26/8	30/9	34/11	37/12	41/14	44/16	46/17	49/19	51/21	53/23	55/24	58/26	59/28	61/30	63/32	65/34	67/36	68/38	70/41	72/43	73/45	75/47	76/50	78/52	79/55	80/57	82/60
99												-54/1	-10/1	3/3	12/4	19/6	24/7	29/8	33/10	36/11	40/13	43/15	45/16	48/18	50/20	53/21	55/23	57/25	59/27	61/29	63/31	65/33	66/35	68/##	70/39	71/41	73/43	74/46	76/48	77/50	79/53	80/55	81/58
100												-19/1	-1/2	9/4	17/5	22/6	27/8	32/9	35/11	39/12	42/14	45/15	47/17	50/19	52/20	54/22	56/24	58/26	60/27	62/29	64/31	66/33	68/35	69/37	71/39	72/41	74/44	75/46	77/48	78/51	80/53	81/55	83/58

(Diagonal green markers 81–90 along the upper-right indicate the saturation line where Wet Bulb = Dry Bulb.)

Elevations between 3,901 and 6,100 feet

Wet Bulb Temperatures, 55 to 90 F
(Read Down)

Top number in each cell = **DP** (Dew Point, blue). Bottom number = **RH** (Relative Humidity, red).
Left column = **Dry Bulb Temperatures 101 to 119 F** (Read Across).

Dry Bulb		55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
101	DP	-33	-6	6	14	21	26	30	34	38	41	44	46	49	51	54	56	58	60	62	64	65	67	69	70	72	74	75	77	78	79	81	82	84	85	86	88
	RH		2	3	4	6	7	8	10	11	13	14	16	18	19	21	23	24	26	28	30	32	34	36	38	40	42	44	46	49	51	53	56	58	61	63	66
102	DP		-13	2	12	19	24	29	33	37	40	43	46	48	51	53	55	57	59	61	63	65	67	68	70	72	73	75	76	78	79	81	82	83	85	86	87
	RH		1	2	4	5	6	8	9	11	12	13	15	17	18	20	21	23	25	27	28	30	32	34	36	38	40	42	44	47	49	51	54	56	59	61	64
103	DP		-22	-2	9	16	22	27	32	35	39	42	45	48	50	52	55	57	59	61	63	65	66	68	70	71	73	74	76	77	79	80	82	83	84	86	87
	RH		1	2	3	4	6	7	8	10	11	13	14	16	17	19	20	22	24	25	27	29	31	33	35	37	39	41	43	45	47	49	52	54	56	59	61
104	DP	-39	-7	5	14	20	26	30	34	38	41	44	47	49	52	54	56	58	60	62	64	66	68	69	71	73	74	76	77	79	80	81	83	84	86	87	
	RH		1	3	4	5	6	8	9	10	12	13	15	16	18	19	21	23	24	26	28	29	31	33	35	37	39	41	43	45	47	50	52	54	57	59	
105	DP		-14	2	11	18	24	29	33	37	40	43	46	49	51	53	56	58	60	62	64	65	67	69	71	72	74	75	77	78	80	81	83	84	85	87	
	RH		1	2	3	5	6	7	8	10	11	12	14	15	17	18	20	21	23	25	26	28	30	32	34	36	37	39	41	44	46	48	50	52	55	57	
106	DP			-25	-3	8	16	22	27	32	36	39	42	45	48	50	53	55	57	59	61	63	65	67	69	70	72	73	75	77	78	80	81	82	84	85	86
	RH			1	2	3	4	5	6	8	9	10	12	13	14	16	17	19	20	22	24	25	27	29	30	32	34	36	38	40	42	44	46	48	50	53	55
107	DP			-47	-8	5	14	20	26	30	35	38	41	44	47	50	52	54	57	59	61	63	65	66	68	70	72	73	75	76	78	79	81	82	83	85	86
	RH				1	2	4	5	6	7	8	10	11	12	14	15	17	18	19	21	23	24	26	27	29	31	33	35	36	38	40	42	44	46	49	51	55
108	DP				-16	1	11	18	24	29	33	37	40	44	46	49	52	54	56	58	60	62	64	66	68	69	71	73	74	76	77	79	80	82	83	85	86
	RH				1	2	3	4	5	7	8	9	10	12	13	14	16	17	19	20	22	23	25	26	28	30	31	33	35	37	39	41	43	45	47	49	51
109	DP				-27	-3	8	16	23	28	32	36	39	43	46	48	51	53	56	58	60	62	64	66	67	69	71	72	74	76	77	79	80	82	83	84	86
	RH					2	3	4	5	6	7	8	10	11	12	13	15	16	18	19	21	22	24	25	27	28	30	32	34	35	37	39	41	43	45	47	49
110	DP				-58	-9	5	14	21	26	31	35	38	42	45	48	50	53	55	57	59	61	63	65	67	69	70	72	74	75	77	78	80	81	83	84	85
	RH					1	2	3	4	5	7	8	9	10	11	13	14	15	17	18	20	21	23	24	26	27	29	31	32	34	36	38	40	41	43	45	47
111	DP					-17	1	11	19	24	29	34	37	41	44	47	49	52	54	57	59	61	63	65	67	68	70	72	73	75	77	78	80	81	82	84	85
	RH					1	2	3	4	5	6	7	8	10	11	12	13	15	16	17	19	20	22	23	25	26	28	29	31	33	34	36	38	40	42	44	46
112	DP					-29	-4	8	16	23	28	32	36	40	43	46	49	51	54	56	58	60	62	64	66	68	70	71	73	75	76	78	79	81	82	84	85
	RH						1	2	3	4	6	7	8	9	10	11	13	14	15	16	18	19	21	22	24	25	27	28	30	31	33	35	37	38	39	42	44
113	DP						-10	5	14	21	26	31	35	39	42	45	48	51	53	55	58	60	62	64	66	68	69	71	73	74	76	77	79	80	82	83	85
	RH						1	2	3	4	5	6	7	8	10	11	12	13	14	16	17	18	20	21	23	24	26	27	29	30	32	34	35	37	39	41	43
114	DP						-18	1	11	19	25	30	34	38	41	44	47	50	53	55	57	59	61	63	65	67	69	71	72	74	76	77	79	80	82	83	85
	RH						1	2	3	4	5	6	7	8	9	10	11	12	14	15	16	17	19	20	22	23	24	26	27	29	31	32	34	36	37	39	41
115	DP						-31	-4	8	17	23	28	33	37	40	44	47	49	52	54	57	59	61	63	65	67	69	70	72	74	75	77	78	80	81	83	84
	RH						1	2	3	4	5	6	7	8	9	11	12	13	14	15	17	18	19	21	22	23	25	26	28	29	31	33	34	36	38	40	
116	DP						-10	5	14	21	27	32	36	39	43	46	49	51	54	56	58	60	62	64	66	68	70	72	73	75	77	78	80	81	83	84	
	RH						1	2	3	4	5	6	7	8	9	10	11	12	13	15	16	17	18	20	21	23	24	25	27	28	30	31	33	35	36	38	
117	DP						-18	1	12	19	25	30	35	38	42	45	48	51	53	55	58	60	62	64	66	68	70	71	73	75	76	78	79	81	82	84	
	RH						1	1	2	3	4	5	6	7	8	9	11	12	13	14	15	16	18	19	20	22	23	24	26	27	29	30	32	33	35	37	
118	DP						-31	-3	9	17	24	29	33	37	41	44	47	50	52	55	57	59	62	64	65	67	69	71	73	74	76	78	79	81	82	84	
	RH						1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	16	17	18	19	21	22	23	25	26	28	29	31	32	34	35	
119	DP							-9	6	15	22	27	32	36	40	43	46	49	52	54	57	59	61	63	65	67	69	71	72	74	76	77	79	80	82	83	
	RH							1	2	3	4	4	5	6	7	8	9	10	12	13	14	15	16	17	19	20	21	22	24	25	27	28	30	31	33	34	

DP / RH (legend shown at left)

Elevations between 6,101 and 8,500 feet

Wet Bulb Temperatures 20 to 50 F (Read Down)

Dry Bulb Temperatures 31 to 50 F (Read Across)

Legend: **DP** (blue) / **RH** (red)

Each cell shows DP (top, blue) / RH (bottom, red). The green boxed number on the diagonal marks where Wet Bulb = Dry Bulb.

Dry Bulb \ Wet Bulb	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
31	-29/6	-13/14	-4/22	3/30	8/38	13/46	17/55	20/63	23/72	26/81	28/90																			
32	-57/1	-21/9	-9/16	-1/24	5/32	10/40	14/48	18/56	21/64	24/73	27/82	30/91																		
33		-36/4	-16/11	-5/18	2/26	7/34	12/41	16/49	20/57	23/66	36/74	28/83	31/92																	
34			-26/6	-11/13	-2/21	4/28	10/35	14/43	18/51	21/59	24/67	27/75	30/84	32/92																
35			-44/2	-19/9	-7/16	1/23	7/30	12/37	16/45	19/52	23/60	26/68	28/76	31/84	33/92															
36				-31/4	-13/11	-4/18	3/25	9/32	13/39	17/46	21/54	24/61	27/69	29/77	32/84	34/92														
37					-22/7	-9/13	0/20	6/27	11/34	15/41	19/48	22/55	25/63	28/70	31/77	33/85	35/92													
38					-37/3	-16/9	-5/16	3/22	8/29	13/35	17/42	21/49	24/57	27/64	29/71	32/78	24/85	36/92												
39						-25/5	-10/11	-1/18	4/24	11/31	15/37	19/44	22/51	25/58	28/64	30/71	33/78	35/85	37/93											
40						-45/2	-18/8	-6/14	2/20	8/26	13/32	17/39	21/46	24/52	27/58	29/65	32/72	34/79	36/86	38/93										
41							-29/4	-12/10	-2/16	5/22	10/28	15/34	19/41	22/47	25/53	28/59	30/66	33/72	35/79	37/86	39/93									
42							-57/1	-20/6	-7/12	1/18	8/24	13/30	17/36	20/42	24/48	27/54	29/60	32/66	34/73	36/80	38/86	40/93								
43								-33/3	-13/9	-3/14	4/20	10/26	15/31	19/37	22/43	25/49	28/55	30/61	33/67	35/73	37/80	39/86	41/93							
44									-22/5	-8/11	1/16	7/22	12/27	17/33	20/38	24/44	26/50	29/56	32/62	34/68	36/74	38/80	40/87	42/93						
45									-37/2	-14/7	-3/13	4/18	10/24	15/29	18/34	22/40	25/45	28/51	31/57	33/62	35/68	37/74	39/81	41/87	43/93					
46										-24/4	-9/9	0/15	7/20	12/25	16/30	20/35	23/41	26/46	29/52	32/57	34/63	36/69	39/75	41/81	42/87	44/94				
47										-41/2	-15/7	-4/12	4/17	10/21	14/26	18/31	22/37	25/42	28/47	31/53	33/58	35/64	38/70	40/75	42/81	43/87	45/94			
48											-25/4	-9/9	0/13	7/18	12/23	16/28	20/33	23/38	27/43	29/48	32/53	34/59	37/64	39/70	41/76	43/82	45/88	46/94		
49											-45/1	-16/6	-4/11	3/15	9/20	14/24	18/29	22/34	25/39	28/44	31/49	33/54	36/60	38/65	40/71	42/76	44/82	46/88	47/94	
50												-26/3	-9/8	0/12	6/17	12/21	16/26	20/30	24/35	27/40	29/45	32/50	35/55	37/60	39/66	41/71	43/77	45/82	47/88	48/94

Elevations between 6,101 and 8,500 feet

Wet Bulb Temperatures
31 to 70 F
(Read Down)

Dry Bulb Temperatures
51 to 70 F
(Read Across)

DP	DP
RH	RH

Wet Bulb Temperature columns (read across): 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 …

Each cell lists **DP** (top, blue) and **RH** (bottom, red). The green number at the end of each row marks the point where Wet Bulb = Dry Bulb.

Dry Bulb	Wet Bulb start	DP values (top / blue)	RH values (bottom / red)
51	31	-44 -16 -5 3 9 14 18 22 25 28 31 33 36 38 40 42 44 46 48 49	1 5 10 14 18 23 27 32 36 41 46 51 56 61 66 72 77 83 88 94
52	31	-27 -10 -1 6 12 16 20 24 27 30 32 35 37 39 41 43 45 47 49 50	3 7 11 15 20 24 28 33 37 42 47 52 57 62 67 72 77 83 88 94
53	31	-50 -18 -5 3 9 14 18 22 25 28 31 34 36 38 40 42 44 46 48 50 51	1 5 9 13 17 21 25 30 34 38 43 48 52 57 62 67 73 78 83 89 94
54	32	-29 -11 -1 4 12 16 20 24 27 30 33 35 37 40 42 44 46 47 49 51 52	2 6 10 14 18 22 26 31 35 39 44 49 53 58 63 68 73 78 83 89 94
55	32	-57 -19 -6 3 9 14 18 22 26 29 31 34 36 39 41 43 45 47 48 50 52 53	4 8 12 16 20 24 28 32 36 40 45 49 54 59 64 68 73 79 84 89 94
56	32	-30 -11 -1 4 12 16 21 24 27 30 33 35 38 40 42 44 46 48 50 51 53 54	2 6 9 13 17 21 25 29 33 37 41 46 50 55 59 64 69 74 79 84 89 95
57	33	-19 -6 3 9 14 19 22 26 29 32 34 37 39 41 43 45 47 49 51 52 54 55	4 7 11 15 18 22 26 30 34 38 42 47 51 55 60 65 69 74 79 84 89 95
58	33	-22 -12 -1 6 12 17 21 24 28 31 33 36 38 40 42 44 46 48 50 52 53 55 56	2 5 9 12 16 20 23 27 31 35 39 43 47 52 56 61 65 70 75 79 84 90 95
59	34	-20 -6 3 9 15 19 23 26 29 32 35 37 39 42 44 46 48 49 51 53 54 56 58	3 7 10 14 17 21 25 28 32 36 40 44 48 52 57 61 66 70 75 80 85 90 95
60	34	-32 -12 -1 6 12 17 21 25 28 31 34 36 39 41 43 45 47 49 50 52 54 55 57 59	2 5 8 12 15 18 22 26 29 33 37 41 45 49 53 57 62 66 71 75 80 85 89 95
61	35	-20 -4 3 10 15 19 23 27 30 33 35 38 40 42 44 46 48 50 52 53 55 56 58 60	3 6 10 13 16 20 23 27 30 34 38 42 46 50 54 58 62 67 71 76 80 85 90 95
62	35	-32 -11 -1 7 13 17 21 25 28 31 34 37 39 41 43 45 47 49 51 52 54 56 58 59 61	2 5 8 11 14 17 21 24 28 31 35 39 43 46 50 54 59 63 67 72 76 81 85 90 95
63	36	-19 -5 4 10 15 20 24 27 30 33 36 38 40 43 45 47 49 50 52 54 55 57 59 60 62	3 6 9 12 15 19 22 25 29 32 36 40 43 47 51 55 59 63 68 72 76 81 85 90 95
64	36	-32 -11 0 7 13 18 22 26 29 32 35 37 40 42 44 46 48 50 52 53 55 57 58 60 61 63	1 4 7 10 13 17 20 23 26 30 33 37 40 44 48 52 56 60 64 68 72 77 81 86 90 95
65	37	-19 -5 4 11 16 20 24 28 31 34 36 39 41 43 45 47 49 51 53 54 56 58 59 61 62 64	3 6 9 12 15 18 21 24 27 31 34 38 41 45 49 52 56 60 64 68 73 77 81 86 90 95
66	37	-31 -10 0 8 14 18 22 26 29 32 35 38 40 42 44 46 48 50 52 54 55 57 59 60 62 63 65	1 4 7 10 13 16 19 22 25 28 32 35 39 42 44 49 53 57 61 65 69 73 77 82 86 91 95
67	38	-18 -44 5 11 16 21 25 28 31 34 37 39 41 44 46 48 50 51 53 55 57 58 60 61 63 64 66	3 4 8 11 14 17 20 23 26 29 33 34 39 43 46 50 54 57 61 65 69 73 78 82 86 91 95
68	38	-29 -9 1 8 14 19 23 27 30 33 34 38 41 43 45 47 49 51 53 54 54 58 59 61 62 64 65 67	1 4 7 10 12 15 18 21 24 27 30 33 37 40 44 47 51 54 58 62 66 70 74 78 82 86 91 95
69	38	-54 -16 -3 5 12 17 21 25 29 32 35 37 40 42 44 46 48 50 52 54 56 57 59 60 62 63 65 66 68	3 5 8 11 13 16 19 22 25 28 31 34 38 41 44 48 51 55 58 62 66 70 74 78 82 87 91 95
70	39	-27 -8 2 9 5 20 24 27 31 34 36 39 41 43 46 48 50 51 53 55 57 58 60 61 63 64 66 67 69	2 4 7 9 12 15 17 20 23 26 29 32 35 38 42 45 48 52 55 59 63 66 70 74 78 82 87 91 95

Elevations between 6,101 and 8,500 feet

Wet Bulb Temperatures
42 to 81 F
(Read Down)

Dry Bulb Temperatures
71 to 90 F
(Read Across)

DP = blue (dewpoint), RH = red (relative humidity). Each cell shown as DP / RH.

DB \ WB	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85
71	-15/3	-2/5	4/8	13/10	18/13	22/16	26/18	29/21	32/24	35/27	38/30	40/33	43/34	45/39	47/42	49/46	51/49	53/52	54/56	56/59	58/63	59/67	61/71	63/75	64/79	65/83	67/87	68/91	70/96															
72	-25/2	-7/4	3/6	10/9	16/11	20/14	24/17	28/19	31/22	34/25	37/28	39/31	42/34	44/37	46/40	48/43	50/46	52/50	54/53	56/56	57/60	59/64	61/67	62/71	64/75	65/7*9	67/83	68/87	69/91	71/96														
73	-43/1	-13/3	-1/5	7/8	13/10	18/13	23/15	27/18	30/20	33/23	36/26	39/29	41/32	43/34	46/37	48/41	50/44	52/47	53/50	55/53	56/57	58/60	60/64	62/68	63/71	65/75	66/79	67/83	69/87	70/91	72/96													
74		-22/2	-6/4	4/6	11/9	16/11	21/14	25/16	29/19	32/21	35/24	38/27	40/29	43/32	45/35	47/38	49/41	51/44	53/47	55/51	56/54	58/57	60/61	61/64	63/68	64/72	66/75	67/79	69/83	70/87	71/91	73/96												
75		-37/1	-12/3	0/5	8/7	14/10	19/12	24/15	27/17	31/20	34/22	37/25	39/28	42/30	44/33	46/36	48/39	50/42	52/45	54/48	56/51	58/55	59/58	61/61	62/65	64/68	65/72	67/76	##/80	70/83	71/87	72/92	74/96											
76			-19/2	-4/4	5/6	12/9	17/11	22/13	26/16	30/18	33/21	36/23	38/26	41/28	43/31	45/34	48/37	50/40	52/43	53/46	55/49	57/52	59/55	60/58	62/62	63/65	65/69	66/72	68/76	69/80	71/84	72/88	73/92	75/96										
77			-32/1	-10/3	2/5	9/7	15/10	20/12	24/14	28/17	32/19	35/21	37/24	40/26	42/29	45/32	47/35	49/37	51/40	53/43	55/46	56/49	58/52	60/55	61/59	63/62	65/66	66/69	68/73	69/76	70/80	72/84	73/88	74/92	76/96									
78				-17/2	-3/4	4/6	13/8	18/11	23/13	27/15	30/17	33/20	34/22	39/25	42/27	44/30	46/33	48/35	50/38	52/41	54/44	56/47	58/50	59/53	61/56	63/59	64/63	66/66	67/69	69/73	70/76	71/80	73/84	74/88	75/92	77/96								
79				-27/1	-8/3	3/5	11/7	16/9	21/12	25/14	29/16	32/18	35/21	38/23	41/26	43/28	45/31	48/33	50/36	52/39	54/41	55/44	57/47	59/50	61/53	62/56	64/60	66/63	67/66	68/70	70/73	71/77	73/80	74/84	75/88	76/92	78/96							
80					-52/2	-14/4	-1/6	8/8	14/10	19/12	24/15	28/17	31/19	34/22	37/24	40/26	42/29	45/31	47/34	49/37	51/39	53/42	55/45	57/48	58/51	60/54	62/57	63/60	65/63	66/67	68/70	69/73	71/77	72/81	73/84	75/88	76/92	77/96						
81						-21/1	-3/3	5/5	12/7	17/9	22/11	26/13	30/16	33/18	36/20	39/22	42/25	44/27	46/30	48/32	50/35	52/37	54/40	56/43	58/45	60/48	61/51	63/54	64/57	66/60	68/64	69/67	70/70	72/74	73/77	75/81	76/84	77/88	78/92	80/96				
82						-40/1	-11/3	1/4	9/6	15/8	20/10	25/12	29/14	32/16	35/19	38/21	41/23	43/25	46/28	48/30	50/33	52/35	54/38	56/41	57/43	59/46	61/49	62/52	64/55	66/58	67/61	69/64	70/67	71/71	73/74	74/77	76/81	77/85	78/88	79/92	81/96			
83						-19/2	-3/3	4/5	13/7	19/9	23/11	27/13	31/15	34/17	37/19	40/22	42/24	45/26	47/29	49/31	51/33	53/36	55/38	57/41	59/44	60/47	62/49	64/52	65/55	67/58	68/61	70/64	71/68	73/71	74/74	75/78	77/81	78/85	79/88	80/92	82/96			
84						-31/1	-8/3	3/4	11/6	17/8	22/10	26/12	30/14	33/16	36/18	39/20	42/22	44/25	46/27	49/29	51/32	53/34	55/37	56/39	58/42	60/44	62/47	63/50	65/53	66/56	68/59	69/62	71/65	72/68	74/71	75/74	76/78	78/81	79/85	80/89	82/92	83/96		
85							-15/2	-1/4	8/5	14/7	20/9	24/11	28/13	32/15	35/17	38/19	41/21	43/23	46/25	48/28	50/30	52/32	54/35	56/37	58/40	59/42	61/45	63/48	64/50	66/53	68/56	69/59	70/62	72/65	73/68	74/71	76/75	77/78	79/81	80/85	81/89	83/92	84/96	
86							-25/1	-6/3	5/4	12/6	18/8	23/10	27/12	31/14	34/16	37/18	40/20	42/22	43/24	47/26	49/28	51/31	53/33	55/35	57/38	59/40	61/43	62/45	64/48	66/51	67/54	69/56	70/59	72/62	73/65	74/68	76/72	77/75	78/78	80/82	81/85	82/89	84/92	85/96
87							-44/2	-12/4	1/5	9/7	16/9	21/11	26/13	29/14	33/16	36/18	39/20	42/22	44/25	46/27	49/29	51/31	53/33	55/36	57/38	59/41	60/43	62/46	64/48	65/51	67/54	68/57	70/60	71/63	73/66	74/69	75/72	77/75	78/78	79/82	81/85	82/89	83/92	85/96
88								-20/1	-3/3	7/5	14/6	19/8	24/10	28/12	32/13	35/15	38/17	41/19	43/21	46/23	48/25	50/27	52/30	54/32	56/34	58/36	60/39	62/41	63/44	65/46	66/49	68/52	69/54	71/57	72/60	74/63	75/66	77/69	78/72	79/75	81/79	82/82	83/85	84/89
89								-33/1	-8/2	3/4	11/5	17/7	21/9	27/11	30/12	34/14	37/16	40/18	43/20	45/22	47/24	50/26	52/28	54/30	56/32	58/35	59/37	61/39	63/42	64/44	66/47	68/49	69/52	71/55	72/58	73/60	75/63	76/66	78/69	79/72	80/76	81/79	83/82	84/86
90									-15/2	-1/3	8/5	15/6	21/8	25/10	29/11	33/13	36/15	39/17	42/19	44/21	47/22	49/25	51/27	53/29	55/31	57/33	59/35	61/38	62/40	64/42	66/45	67/47	69/50	70/52	72/55	73/58	75/61	76/64	77/67	79/70	80/73	81/76	83/79	84/82

DP
RH

Elevations between 6,101 and 8,500 feet

Wet Bulb Temperatures, 50 to 85 F

(Read Down)

DP = Dew Point · **RH** = Relative Humidity

Dry Bulb Temperatures 91 to 109 F (Read Across)

47

Dry Bulb		50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85
91	DP	-25	-5	5	13	19	24	28	32	35	38	41	43	46	48	50	53	55	57	58	60	62	64	65	67	68	70	71	73	74	76	77	78	80	81	82	84
91	RH	1	2	4	5	7	9	10	12	14	16	17	19	21	23	25	27	29	31	34	36	38	40	43	45	48	50	53	56	58	61	64	67	70	73	76	79
92	DP	-44	-11	2	10	17	22	27	30	34	37	40	43	45	48	50	52	54	56	58	60	61	63	65	66	68	70	71	73	74	75	77	78	79	81	82	83
92	RH		2	3	5	6	8	10	11	13	15	16	18	20	22	24	26	28	30	32	34	36	39	41	43	46	48	51	53	56	59	61	64	67	70	73	76
93	DP		-18	-2	6	15	20	25	29	33	36	39	42	44	47	49	51	53	55	57	59	61	63	64	66	69	69	71	72	74	75	76	78	79	81	82	83
93	RH		1	3	4	6	7	9	10	12	14	15	17	19	21	23	24	26	28	30	33	35	37	39	41	44	46	49	51	54	56	59	62	64	67	70	73
94	DP		-31	-7	4	12	18	23	28	32	35	38	41	44	46	49	51	53	55	57	59	61	62	64	66	67	69	70	72	73	75	76	78	79	80	82	83
94	RH		1	2	3	5	6	8	9	11	13	14	16	18	20	21	23	25	27	29	31	33	35	37	40	42	44	47	49	51	54	57	59	62	65	68	71
95	DP			-13	1	10	16	22	26	30	34	37	40	43	45	48	50	52	54	56	58	60	62	64	65	67	69	70	72	73	75	76	77	79	80	81	83
95	RH			1	3	4	6	7	9	10	12	13	15	17	18	20	22	24	26	28	30	32	34	36	38	40	42	45	47	49	52	54	57	60	62	65	68
96	DP			-22	-3	7	14	20	25	29	33	36	39	42	45	47	50	52	54	56	58	60	61	63	65	67	68	70	71	73	74	76	77	78	80	81	82
96	RH			1	2	4	5	6	8	9	11	12	14	16	17	19	21	23	24	26	28	30	32	34	36	38	41	43	45	47	50	52	55	57	60	63	65
97	DP			-38	-9	4	12	18	23	28	32	35	38	41	44	46	49	51	53	55	57	59	61	63	64	66	68	69	71	72	74	75	77	78	80	81	82
97	RH				2	3	4	6	7	9	10	12	13	15	16	18	20	21	23	25	27	29	31	33	35	37	39	41	43	45	48	50	53	55	58	60	63
98	DP				-16	0	3	16	22	26	30	34	37	40	43	46	48	50	53	55	57	59	61	62	64	66	67	69	71	75	74	75	76	78	79	81	82
98	RH				1	2	4	5	6	8	9	11	12	14	15	17	19	20	22	24	26	27	29	31	33	35	37	39	41	44	46	48	51	53	55	58	60
99	DP				-26	-5	4	14	20	25	29	33	36	39	42	45	48	50	52	54	56	58	60	62	64	65	67	69	70	72	73	75	76	78	79	80	81
99	RH				1	2	3	4	6	7	9	10	11	13	14	16	18	19	21	23	24	26	28	30	32	34	36	38	40	42	44	46	49	51	53	56	58
100	DP				-47	-10	3	11	18	23	28	32	35	39	42	44	47	49	51	54	56	58	60	61	63	65	67	68	70	71	73	74	76	77	79	80	81
100	RH					1	3	4	5	7	8	9	11	12	14	15	17	18	20	21	23	25	27	28	30	32	34	36	38	40	42	44	47	49	51	54	56
101	DP					-18	-1	9	16	22	26	31	34	38	41	43	46	49	51	53	55	57	59	61	63	65	66	68	70	71	73	74	75	77	78	80	81
101	RH					1	2	3	5	6	7	9	10	11	13	14	16	17	19	20	22	24	25	27	29	31	33	35	37	39	41	43	45	47	49	52	54
102	DP					-29	-4	6	14	20	25	29	33	37	40	43	45	48	50	53	55	57	59	61	62	64	66	68	69	71	72	74	75	77	78	80	81
102	RH						2	3	4	5	7	8	9	11	12	13	15	16	18	19	21	23	24	26	28	29	31	33	35	37	39	41	43	45	47	50	52
103	DP						-12	2	11	18	23	28	32	36	39	42	45	47	50	52	54	56	58	60	62	64	66	67	69	70	72	74	75	76	78	79	81
103	RH						1	2	4	5	6	7	9	10	11	13	14	15	17	18	20	22	23	25	26	28	30	32	34	35	37	39	41	43	46	48	50
104	DP						-20	-2	9	16	22	27	31	35	38	41	44	46	49	51	54	56	58	60	62	63	65	67	68	70	72	73	75	76	78	79	80
104	RH						1	2	3	4	5	7	8	9	10	12	13	15	16	17	19	20	22	24	25	27	29	30	32	34	36	38	40	42	44	46	48
105	DP						-33	-6	6	14	20	25	30	33	37	40	43	44	48	51	53	55	57	59	61	63	65	66	68	70	71	73	74	76	77	79	80
105	RH							1	3	4	5	6	7	9	10	11	12	14	15	17	18	20	21	23	24	26	27	29	31	33	34	36	38	40	42	44	46
106	DP							-13	2	11	18	24	28	32	36	39	42	45	48	50	52	55	57	59	61	63	64	66	68	69	71	73	74	76	77	79	80
106	RH							1	2	3	4	6	7	8	9	10	12	13	14	16	17	19	20	22	23	25	26	28	30	31	33	35	37	39	41	43	45
107	DP							-21	-2	9	16	22	27	31	35	38	41	44	47	49	52	54	56	58	60	62	64	66	67	69	71	72	74	75	77	78	80
107	RH							1	2	3	4	5	6	7	9	10	11	12	14	15	16	18	19	21	22	24	25	27	28	30	32	34	35	37	39	41	43
108	DP							-35	-7	5	14	20	25	30	34	37	41	43	44	49	51	53	56	58	60	62	63	65	67	69	70	72	74	75	77	78	79
108	RH								1	2	3	5	6	7	8	9	10	12	13	14	15	17	18	20	21	23	24	26	27	29	31	32	34	36	38	39	41
109	DP							-13	2	11	18	24	29	33	36	40	43	45	48	51	53	55	57	59	61	63	65	67	68	70	72	73	75	76	78	79	
109	RH							1	2	3	4	5	6	7	9	10	11	12	13	15	16	17	19	20	22	23	25	26	28	29	31	33	34	36	38	40	

Elevations between 8,501 and 11,000 feet

Wet Bulb Temperatures 19 to 50 F (Read Down)

Dry Bulb Temperatures 31 to 50 F (Read Across)

Each cell shows **DP** (dew point, top) / **RH** (relative humidity, bottom).

Dry\Wet	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
31	-38/4	-18/11	-8/18	-1/25	5/33	10/41	14/49	17/57	21/65	23/73	26/82	28/90																			
32		-28/6	-13/13	-5/20	2/27	7/35	11/42	15/50	19/58	22/66	25/74	27/82	30/91																		
33		-49/2	-21/9	-9/15	-2/22	4/29	9/37	13/44	17/52	20/59	23/67	26/75	28/83	31/92																	
34			-33/4	-15/11	-6/17	1/24	6/31	11/38	15/46	19/53	22/61	25/68	27/76	30/84	32/92																
35				-24/7	-11/13	-3/20	4/26	9/33	13/40	17/47	20/54	23/62	26/69	29/77	31/85	33/92															
36				-39/3	-18/9	-7/15	0/22	6/28	11/35	15/42	19/49	22/56	25/63	27/71	30/78	32/85	34/92														
37					-27/5	-13/11	-3/17	3/24	8/30	13/37	17/43	20/50	23/57	26/64	29/71	31/78	33/85	35/93													
38					-47/2	-20/7	-8/13	0/19	6/25	10/32	15/38	18/45	22/52	25/59	27/65	30/72	32/79	34/86	36/93												
39						-31/4	-14/10	-4/15	3/21	8/27	12/34	16/40	20/46	23/53	26/59	29/66	31/72	33/79	35/86	37/93											
40						-60/1	-22/6	-9/12	-1/17	5/23	10/29	14/35	18/41	22/48	25/54	27/60	30/67	32/73	34/80	36/86	38/93										
41							-35/3	-15/8	-5/14	2/19	8/25	12/31	16/37	20/43	23/49	26/55	29/61	31/67	33/74	35/80	37/87	39/93									
42								-24/5	-10/10	-1/16	5/21	10/27	14/33	18/39	22/44	25/50	27/56	30/62	32/68	34/74	36/80	38/87	40/93								
43								-39/2	-16/7	-6/12	2/18	8/23	12/29	17/34	20/40	23/45	26/51	29/57	31/63	33/68	36/75	37/81	39/87	41/93							
44									-25/4	-11/9	-2/14	5/20	10/25	15/30	18/36	22/41	25/46	27/52	30/57	32/63	35/69	37/75	39/81	40/87	42/94						
45									-43/2	-17/6	-6/11	2/16	8/21	13/27	16/32	20/37	23/42	26/47	29/53	31/58	34/64	36/70	38/75	40/81	41/87	43/94					
46										-27/4	-11/8	-2/13	5/18	10/23	15/28	18/33	22/38	25/43	28/48	30/54	33/59	35/65	37/70	39/76	41/82	43/88	44/94				
47										-46/1	-18/6	-6/10	2/15	8/20	13/25	16/29	20/34	23/39	26/44	29/49	31/54	34/60	36/65	38/71	40/76	42/82	44/88	45/94			
48											-28/3	-11/8	-2/12	5/17	10/21	15/26	18/31	22/35	25/40	28/45	30/50	33/55	35/60	37/66	39/71	41/77	43/82	45/88	46/94		
49											-49/1	-18/5	-6/10	2/14	8/18	13/23	17/27	20/32	23/37	26/41	29/46	32/51	34/56	36/61	38/66	40/72	42/77	44/83	46/88	47/94	
50												-29/3	-11/7	-2/12	5/16	10/20	15/24	18/29	22/33	25/38	28/42	30/47	33/52	35/57	38/62	40/67	41/72	43/77	45/86	47/89	48/94

Elevations between 8,501 and 11,000 feet

Wet Bulb Temperatures 31 to 70 F (Read Down)

Dry Bulb Temperatures 51 to 70 F (Read Across)

	DP	DP
	RH	**RH**

Each cell shows DP (top, blue) and RH (bottom, red). Columns are Wet Bulb Temperatures (31–70); rows are Dry Bulb Temperatures (51–70).

DB	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69
51 DP	-18	-6	2	8	13	17	20	24	27	29	32	34	37	39	41	43	44	46	48	49																			
51 RH	5	9	13	17	21	26	30	34	39	43	48	53	57	62	67	73	78	83	89	94																			
52 DP	-29	-11	-2	5	10	15	19	22	25	28	31	33	36	38	40	42	44	45	47	49	50																		
52 RH	3	7	11	15	19	23	27	31	35	40	44	49	53	58	63	68	73	78	83	89	94																		
53 DP	-51	-18	-6	2	8	13	17	21	24	27	30	32	35	37	39	41	43	45	47	48	50	51																	
53 RH	1	5	8	12	16	20	24	28	32	36	41	45	50	54	59	64	68	73	79	84	89	94																	
54 DP		-28	-11	-2	5	11	15	19	22	25	28	31	34	36	38	40	42	44	46	48	49	51	52																
54 RH		3	6	10	14	17	21	25	29	33	37	42	46	50	55	59	64	69	74	79	84	89	95																
55 DP		-50	-18	-6	2	8	13	17	21	24	27	30	32	35	37	39	42	43	45	47	49	50	52	53															
55 RH		1	4	8	11	15	19	22	26	30	34	38	43	47	51	56	60	65	69	74	79	84	89	95															
56 DP			-29	-11	-2	5	11	15	19	23	26	29	31	34	37	39	41	43	45	46	48	50	51	53	54														
56 RH			2	6	9	13	16	20	24	27	31	35	39	43	48	52	56	61	65	70	75	80	84	90	95														
57 DP			-52	-19	-6	2	8	13	18	21	24	27	30	33	35	38	40	42	44	46	48	49	51	52	54	55													
57 RH			1	4	7	11	14	18	21	25	29	32	36	40	44	48	53	57	61	66	70	75	80	85	90	95													
58 DP				-29	-11	-2	5	11	16	20	23	26	29	32	34	37	39	41	43	45	47	49	50	52	53	55	56												
58 RH				2	5	9	12	15	19	22	26	30	33	37	41	45	49	53	58	62	66	71	75	80	85	90	95												
59 DP				-53	-18	-6	2	9	14	18	22	25	28	31	33	36	38	40	42	44	46	48	50	51	53	55	56	58											
59 RH				1	4	7	10	13	17	20	24	27	31	34	38	42	46	50	54	58	62	67	71	76	80	85	90	95											
60 DP					-29	-11	-1	6	11	16	20	24	27	30	32	35	37	39	42	44	46	47	49	51	53	54	56	57	59										
60 RH					2	5	8	11	15	18	21	25	28	32	35	39	43	47	51	55	59	63	67	72	76	81	85	90	95										
61 DP						-18	-5	3	9	14	18	22	25	28	31	34	36	39	41	43	45	47	49	50	52	54	55	57	58	60									
61 RH						3	6	10	13	16	19	22	26	29	33	36	40	44	47	51	55	59	63	68	72	76	81	86	90	95									
62 DP						-28	-11	-1	6	12	17	21	24	27	30	33	35	38	40	42	44	46	48	50	51	53	55	56	58	59	61								
62 RH						2	5	8	11	14	17	20	23	27	30	34	37	41	44	48	52	56	60	64	68	72	77	81	86	90	95								
63 DP							-17	-5	3	9	15	19	23	26	29	32	34	37	39	41	43	45	47	49	51	53	54	56	57	59	60	62							
63 RH							3	6	9	12	15	18	21	24	28	31	34	38	41	45	49	53	56	60	64	68	73	77	81	86	90	95							
64 DP							-27	-10	0	7	12	17	21	25	28	31	33	36	38	40	43	45	47	49	50	52	54	55	57	58	60	61	63						
64 RH							2	5	8	10	13	16	19	22	25	29	32	35	39	42	46	49	53	57	61	65	69	73	77	82	86	91	95						
65 DP							-47	-16	-4	4	10	15	20	23	27	30	32	35	37	40	42	44	46	48	50	52	53	55	56	58	59	61	62	64					
65 RH							1	3	6	9	12	14	17	20	23	26	30	33	36	40	43	46	50	54	58	61	65	69	73	78	82	86	91	95					
66 DP								-26	-9	1	7	13	18	22	25	28	31	34	36	39	41	43	45	47	49	51	53	54	56	58	59	60	62	63	65				
66 RH								2	5	7	10	13	16	18	21	24	27	31	34	37	40	44	47	51	54	58	62	66	70	74	78	82	86	91	95				
67 DP								-43	-15	-3	5	11	16	20	24	27	30	33	35	38	40	42	45	47	49	50	52	54	55	57	59	60	61	63	64	66			
67 RH								1	3	6	8	11	14	17	19	22	25	28	31	35	38	41	44	48	51	55	59	62	66	70	74	78	82	87	91	95			
68 DP									-24	-8	2	8	14	18	22	26	29	32	35	37	39	42	44	46	48	50	52	53	55	57	58	60	61	63	64	65	67		
68 RH									2	4	7	10	12	15	18	20	23	26	29	32	35	39	42	45	48	52	55	59	63	67	70	74	78	83	87	91	95		
69 DP									-39	-14	-2	5	12	17	21	25	28	31	34	36	39	41	43	45	47	49	51	53	54	56	58	59	61	62	64	65	66	68	
69 RH									1	3	6	8	11	13	16	19	21	24	27	30	33	36	39	42	46	49	52	56	60	63	67	71	75	79	83	87	91	96	
70 DP										-22	-7	3	9	15	19	23	27	30	33	35	38	40	42	44	46	48	50	52	54	56	57	59	60	62	63	65	66	67	69
70 RH										2	4	7	9	12	14	17	20	22	25	28	31	34	37	40	43	46	50	53	56	60	64	67	71	75	79	83	87	91	95

Elevations between 8,501 and 11,000 feet

Wet Bulb Temperatures 41 to 80 ºF

Each cell shows the blue value (top) over the red value (bottom) as **blue / red**. Green diagonal cells repeat the row (dry-bulb) label.

Table 1 — rows 71–80 (dry bulb), wet bulb 41–72

	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72
71	-12/3	-1/6	6/8	12/10	17/13	22/15	25/18	29/21	32/23	34/26	37/29	39/32	42/35	44/38	46/41	48/44	50/47	52/50	53/54	55/57	57/60	58/64	60/68	61/71	63/75	64/79	66/83	67/87	68/91	70/96	**71**	
72	-19/2	-5/4	4/7	10/9	15/11	20/14	24/16	27/19	30/22	33/24	36/27	38/30	41/32	43/35	45/38	47/41	49/44	51/48	53/51	55/54	56/57	58/61	60/64	61/68	63/72	64/75	65/79	67/83	68/88	69/91	71/96	**72**
73	-31/1	-10/3	0/6	7/8	13/10	18/13	22/15	26/17	29/20	32/22	35/25	38/28	40/30	42/33	44/36	46/39	48/42	50/45	52/48	54/51	56/55	57/58	59/61	61/66	62/68	64/72	65/76	66/80	68/83	69/87	70/92	72/96

(green **73** follows column 72)

	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73
74	-17/2	-4/4	5/7	11/9	16/11	21/14	25/16	28/18	31/21	34/23	37/26	39/29	41/31	44/34	46/37	48/40	50/43	52/46	54/49	55/52	57/55	59/58	60/62	62/65	63/69	65/72	66/76	67/80	69/84	70/88	71/92	73/96	
75	-27/1	-9/3	2/6	9/8	14/10	19/12	23/14	27/17	30/19	33/22	36/24	38/27	41/29	43/32	45/35	47/37	49/40	51/43	53/46	55/49	57/52	58/56	60/59	61/62	63/66	64/69	66/73	67/76	69/80	70/84	71/88	72/92	74/96

(green **75** follows column 74)

	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
76	-15/2	-2/4	6/7	12/9	17/11	22/13	26/15	29/18	32/20	35/23	37/25	40/27	42/30	44/33	47/35	49/38	50/41	52/44	54/47	56/50	58/53	59/56	61/59	63/63	64/66	65/69	67/73	68/76	70/80	71/84	72/88	73/92	75/96						
77	-23/2	-7/3	3/6	10/8	15/10	20/12	24/14	28/16	31/19	34/21	37/23	39/26	41/28	44/31	46/33	48/36	50/39	52/42	54/44	55/47	57/50	59/53	61/56	62/60	64/63	65/66	67/70	68/73	69/77	71/80	72/84	73/88	74/92	76/96					
78	-37/1	-12/3	0/5	7/7	13/9	18/11	23/13	26/15	30/17	33/19	36/22	38/24	41/27	43/29	45/32	47/34	49/37	51/39	53/42	55/45	57/48	58/51	60/54	62/57	63/60	65/63	66/67	68/70	69/73	70/77	72/81	73/84	74/88	75/92	77/96				
79	-19/2	-5/4	5/6	11/7	16/10	21/12	25/14	29/16	32/18	35/20	37/23	40/25	42/28	45/32	47/35	49/37	51/40	53/43	54/46	56/48	58/51	60/54	61/57	63/60	64/64	66/67	67/70	69/74	70/77	71/81	73/84	74/88	75/92	76/96	78/96			
80	-31/1	-10/3	1/5	9/7	14/9	19/10	24/13	27/15	31/17	34/19	37/21	39/23	42/26	44/28	46/30	48/33	50/35	52/38	54/41	56/43	57/46	59/49	61/52	62/55	64/58	66/61	67/64	68/67	70/71	71/74	72/77	74/81	75/85	76/88	77/92	79/96		

(green diagonal labels **76 77 78 79 80** appear at the right end of their respective rows)

Table 2 — rows 81–90 (dry bulb), wet bulb 45–80

	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
81	-16/2	-2/4	6/6	13/7	18/9	22/11	26/13	30/15	33/18	36/20	38/22	41/24	43/26	45/29	47/31	49/34	51/36	53/39	55/41	57/44	59/47	60/49	62/52	64/55	65/58	67/61	68/64	69/68	71/71	72/74	73/78	75/81	76/85	77/88	79/92	80/96
82	-25/1	-7/3	3/5	10/6	16/8	20/10	25/12	28/14	32/16	35/18	37/20	40/23	42/25	44/27	47/29	49/32	51/34	53/37	55/39	56/42	58/44	60/47	62/50	63/53	65/56	66/59	68/62	69/65	71/68	72/71	73/74	75/78	76/81	77/85	80/89	81/92
83	-13/2	0/4	8/6	14/7	19/9	23/11	27/13	31/15	34/17	37/19	39/21	42/23	44/26	46/28	48/30	50/32	52/35	54/37	56/40	58/42	59/45	61/48	63/50	64/53	66/56	67/59	69/62	70/65	72/68	73/71	74/75	76/78	77/81	78/85	79/89	81/92
84	-20/1	-5/3	5/5	12/7	17/8	22/10	26/12	29/14	33/16	36/18	38/20	41/22	43/24	46/26	48/28	50/31	52/33	54/35	55/38	57/40	59/43	61/45	62/48	64/51	66/54	67/56	69/59	70/62	71/65	73/68	74/72	75/75	77/78	78/82	79/85	80/89
85	-32/1	-10/2	2/4	9/6	15/7	20/9	24/11	28/13	32/15	35/17	38/19	40/21	43/23	45/25	47/27	49/29	51/31	53/34	55/36	57/38	58/41	60/43	62/46	64/48	65/51	67/54	68/57	70/60	71/63	72/66	74/69	75/72	76/75	78/78	79/82	80/85
86	-16/2	-2/3	7/5	13/7	18/8	23/10	27/12	30/14	34/15	37/17	39/19	42/21	44/23	46/25	49/28	51/30	53/32	54/34	56/37	58/39	60/41	61/44	63/46	65/49	66/52	68/54	69/57	71/60	72/63	74/66	75/69	76/72	77/75	79/79	80/82	81/85
87	-25/1	-7/3	4/4	11/6	17/7	21/9	25/11	29/13	33/14	36/16	39/18	41/20	44/22	46/24	48/26	50/28	52/30	54/33	56/35	58/37	59/39	61/42	63/44	64/47	66/49	67/52	69/55	70/57	72/60	73/63	75/66	76/69	77/72	79/76	80/79	81/82
88	-12/2	0/3	8/5	15/7	20/8	24/10	28/12	32/13	35/15	38/17	40/19	43/21	45/23	47/25	49/27	51/29	53/31	55/33	57/35	59/38	61/40	62/42	64/45	66/47	67/50	69/52	70/55	72/58	73/61	74/64	76/66	77/69	78/73	80/76	81/79	82/82
89	-20/1	-4/3	6/4	13/6	18/7	23/9	27/11	30/12	34/14	37/16	40/18	42/20	44/21	47/23	49/25	51/27	53/29	55/31	57/34	58/36	60/38	62/40	63/43	65/45	67/48	68/50	70/53	71/55	73/58	74/61	75/64	77/67	78/70	79/73	81/76	82/79
90	-31/1	-9/2	3/4	10/5	16/7	21/8	25/10	29/11	33/13	36/15	39/17	41/18	44/20	46/22	48/24	50/26	52/28	54/30	56/32	58/34	60/36	61/39	63/41	65/43	66/46	68/48	69/51	71/53	72/56	74/59	75/61	77/64	78/67	79/70	80/73	82/76

(green diagonal labels **81 82 83 84 85 86 87 88 89** appear to the right of each row; header group **71 72 73 74 75 76 77 78 79 80** is highlighted in green)

FINE DEAD FUEL MOISTURE TABLES

Reference Fuel Moisture (1) + Fuel moisture correction (2E/2S) = Fine Dead Fuel Moisture (3E/3S)

- **1+2E= 3E Exposed Fuel Moisture** *(<50% fuels shaded by clouds/canopy)*
- **1+2S= 3S Shaded Fuel Moisture** *(>50% fuels shaded by clouds/canopy)*

❖ **Before you begin: What time is it? What month is it? B, L or A? (see pg 54)**

ReferenceFuel Moisture
Day Time
0800 - 1959

1	Relative Humidity (%)																			
Dry Bulb Temp. (F)	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65 - 69	70 - 74	75 - 79	80 - 84	85 - 89	90 - 94	95 - 99	100
10 - 29	1	2	2	3	4	5	5	6	7	8	8	8	9	9	10	11	12	12	13	13	14
30 - 49	1	2	2	3	4	5	5	6	7	7	7	8	9	9	10	10	11	12	13	13	13
50 - 69	1	2	2	3	4	5	5	6	6	7	7	8	8	9	9	10	11	12	12	12	13
70 - 89	1	1	2	2	3	4	5	5	6	7	7	8	8	8	9	10	10	11	12	12	13
90 - 109	1	1	2	2	3	4	5	5	6	7	7	8	8	8	9	10	10	11	12	12	13
109 +	1	1	2	2	3	4	4	5	6	7	7	8	8	8	9	10	10	11	12	12	12

Dead Fuel Moisture Content Corrections

Feb. March April Aug. Sept. Oct.

2E — EXPOSED

Exposed - Less than 50% shading of surface fuels

ASPCT	Slope	0800 to			1000 to			1200 to			1400 to			1600 to			1800 to		
		B	L	A	B	L	A	B	L	A	B	L	A	B	L	A	B	L	A
N	0 - 30%	3	4	5	1	2	3	1	1	2	1	1	2	1	2	3	3	4	5
N	31%+	3	4	5	3	3	4	2	3	4	2	3	4	3	3	4	3	4	5
E	0 - 30%	3	4	5	1	2	3	1	1	1	1	1	2	1	2	3	3	4	5
E	31%+	3	3	4	1	1	1	1	1	1	1	2	3	3	4	5	4	5	6
S	0 - 30%	3	4	5	1	2	2	1	1	1	1	1	1	1	2	3	3	4	5
S	31%+	3	4	5	1	2	2	0	1	1	0	1	1	1	2	2	3	4	5
W	0 - 30%	3	4	5	1	2	3	1	1	1	1	1	1	1	2	3	3	4	5
W	31%+	4	5	6	3	4	5	1	2	3	1	1	1	1	1	1	3	3	4

2S — SHADED

Shaded - Greater than or equal to 50% shading of surface fuels

ASPCT	Slope	B	L	A	B	L	A	B	L	A	B	L	A	B	L	A	B	L	A
N	All	4	5	6	4	5	5	3	4	5	3	4	5	4	5	5	4	5	6
E	All	4	5	6	3	4	5	3	4	5	3	4	5	4	5	6	4	5	6
S	All	4	5	6	3	4	5	3	4	5	3	4	5	3	4	5	4	5	6
W	All	4	5	6	4	5	6	3	4	5	3	4	5	3	4	5	4	5	6

May June July

2E — EXPOSED

Exposed - Less than 50% shading of surface fuels

ASPCT	Slope	0800 to			1000 to			1200 to			1400 to			1600 to			1800 to		
		B	L	A	B	L	A	B	L	A	B	L	A	B	L	A	B	L	A
N	0 - 30%	2	3	4	1	1	1	0	0	1	0	0	1	1	1	1	2	3	4
N	31%+	3	4	4	1	2	2	1	1	2	1	1	2	1	2	2	3	4	4
E	0 - 30%	2	2	3	1	1	1	0	0	1	0	0	1	1	1	2	3	4	4
E	31%+	1	2	2	0	0	1	0	0	1	1	1	2	2	3	4	4	5	6
S	0 - 30%	2	3	3	1	1	1	0	0	1	0	0	1	1	1	1	2	3	3
S	31%+	2	3	3	1	1	2	0	1	1	0	1	1	1	1	2	2	3	3
W	0 - 30%	2	3	4	1	1	2	0	0	1	0	0	1	0	1	1	2	3	3
W	31%+	4	5	6	2	3	4	1	1	2	0	0	1	0	0	1	1	2	2

2S — SHADED

Shaded - Greater than or equal to 50% shading of surface fuels

ASPCT	Slope	B	L	A	B	L	A	B	L	A	B	L	A	B	L	A	B	L	A
N	All	4	5	5	3	4	5	3	3	4	3	3	4	3	4	5	4	5	5
E	All	4	4	5	3	4	5	3	3	4	3	4	4	3	4	5	4	5	6
S	All	4	4	5	3	4	5	3	3	4	3	3	4	3	4	5	4	5	6
W	All	4	5	6	3	4	5	3	3	4	3	3	4	3	4	5	4	4	5

Dead Fuel Moisture Content Corrections
Nov. Dec. Jan.

2E EXPOSED			0800 to			1000 to			1200 to			1400 to			1600 to			1800 to		
Exposed - Less than 50% shading of surface fuels																				
ASPCT	Slope		B	L	A	B	L	A	B	L	A	B	L	A	B	L	A	B	L	A
N	0 - 30%		4	5	6	3	4	5	2	3	4	2	3	4	3	4	5	4	5	6
N	31%+		4	5	6	4	5	6	4	5	6	4	5	6	4	5	6	4	5	6
E	0 - 30%		4	5	6	3	4	4	2	3	3	2	3	3	3	4	5	4	5	6
E	31%+		4	5	6	2	3	4	2	2	3	3	4	4	4	5	6	4	5	6
S	0 - 30%		4	5	6	3	4	5	2	3	3	2	2	3	3	4	4	4	5	6
S	31%+		4	5	6	2	3	3	1	1	2	1	1	2	2	3	3	4	5	6
W	0 - 30%		4	5	6	3	4	5	2	3	3	2	3	3	3	4	4	4	5	6
W	31%+		4	5	6	4	5	6	3	4	4	2	2	3	2	3	4	4	5	6
2S SHADED																					
Shaded - Greater than or equal to 50% shading of surface fuels																				
N	All		4	5	6	4	5	6	4	5	6	4	5	6	4	5	6	4	5	6
E	All		4	5	6	4	5	6	4	5	6	4	5	6	4	5	6	4	5	6
S	All		4	5	6	4	5	6	4	5	6	4	5	6	4	5	6	4	5	6
W	All		4	5	6	4	5	6	4	5	6	4	5	6	4	5	6	4	5	6

NIGHT TIME FUEL MOISTURE CHARTS

Reference Fuel Moisture
Night Time
2000 - 0759

Dry Bulb Temp. (F)	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65 - 69	70 - 74	75 - 79	80 - 84	85 - 89	90 - 94	95 - 99	100
10 - 29	1	2	4	5	5	6	7	8	9	10	11	12	12	14	15	17	19	22	25	25+	25+
30 - 49	1	2	3	4	5	6	7	8	9	9	11	11	12	13	14	16	18	21	24	25+	25+
50 - 69	1	2	3	4	5	6	6	8	8	9	10	11	11	12	14	16	17	20	23	25+	25+
70 - 89	1	2	3	4	4	5	6	7	8	9	10	10	11	12	13	15	17	20	23	25+	25+
90 - 109	1	2	3	3	4	5	6	7	8	9	9	10	10	11	13	14	16	19	22	25	25+
109 +	1	2	2	3	4	5	6	6	8	8	9	9	10	11	12	14	16	19	21	24	25+

Relative Humidity (%)

Dead Fuel Moisture Corrections
Night Time
2000 - 0759

Aspect	2000 to			2200 to			2400 to			0200 to			0400 to			0600 to		
	B	L	A	B	L	A	B	L	A	B	L	A	B	L	A	B	L	A
N & E	9	1	1	13	1	2	16	2	2	17	1	1	18	1	1	16	2	1
S & W	9	0	1	14	0	1	16	0	2	17	0	1	18	0	0	9	0	1

PROBABILITY OF IGNITION TABLE

	Shading (%)	Dry Bulb Temperature (°F)	Fine Dead Fuel Moisture (%)															
			2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
3E / **EXPOSED**	Unshaded <50%	110+	100	100	80	70	60	60	50	40	40	30	30	20	20	20	20	10
		100 - 109	100	90	80	70	60	60	50	40	40	30	30	20	20	20	10	10
		90 - 99	100	90	80	70	60	50	40	40	30	30	30	20	20	20	10	10
		80 - 89	100	90	80	70	60	50	40	40	30	30	20	20	20	10	10	10
		70 - 79	100	80	70	60	60	50	40	40	30	30	20	20	20	10	10	10
		60 - 69	90	80	70	60	50	50	40	30	30	20	20	20	20	10	10	10
		50 - 59	90	80	70	60	50	40	40	30	30	20	20	20	10	10	10	10
		40 - 49	90	80	70	60	50	40	40	30	30	20	20	20	10	10	10	10
		30 - 39	80	70	60	50	50	40	30	30	20	20	20	10	10	10	10	10
3S / **SHADED**	Shaded >50%	110+	100	90	80	70	60	50	50	40	40	30	30	20	20	20	10	10
		100 - 109	100	90	80	70	60	50	50	40	30	30	30	20	20	20	10	10
		90 - 99	100	90	80	70	60	50	40	40	30	30	20	20	20	10	10	10
		80 - 89	100	80	70	60	60	50	40	40	30	30	20	20	20	10	10	10
		70 - 79	90	80	70	60	50	50	40	30	30	30	20	20	20	10	10	10
		60 - 69	90	80	70	60	50	40	40	30	30	20	20	20	10	10	10	10
		50 - 59	90	80	70	60	50	40	40	30	30	20	20	20	10	10	10	10
		40 - 49	90	80	60	50	50	40	30	30	30	20	20	20	10	10	10	10
		30 - 39	80	80	60	50	50	40	30	30	20	20	20	10	10	10	10	10

Determining A, L, B
For Fine Dead Fuel Moisture Calculations

B – Weather observations are taken between 1,000' and 2,000' **ABOVE** the fire behavior observations/projections.

L – Weather observations are taken between 1,000 above and 1,000' below or' **Level** with the fire behavior observations/projections.

A – Weather observations are taken between 1,000' and 2,000' **BELOW** the fire behavior observations/projections.

The question is simple: "Where is the Fire?"

Is the fire ABOVE your WX site? If so, use **A**

Is the Fire BELOW your WX site? If so, use **B**

2018 PAYROLL SCHEDULE

○ END OF PAY PERIOD

▦ HOLIDAYS

JANUARY

S	M	T	W	T	F	S	
	1	2	3	4	5	6	(2)
7	8	9	10	11	12	13	
14	15	16	17	18	19	20	(3)
21	22	23	24	25	26	27	
28	29	30	31				

FEBRUARY

S	M	T	W	T	F	S	
				1	2	3	(4)
4	5	6	7	8	9	10	
11	12	13	14	15	16	17	(5)
18	19	20	21	22	23	24	
25	26	27	28				

MARCH

S	M	T	W	T	F	S	
				1	2	3	(6)
4	5	6	7	8	9	10	
11	12	13	14	15	16	17	(7)
18	19	20	21	22	23	24	
25	26	27	28	29	30	31	(8)

APRIL

S	M	T	W	T	F	S	
1	2	3	4	5	6	7	
8	9	10	11	12	13	14	(9)
15	16	17	18	19	20	21	
22	23	24	25	26	27	28	(10)
29	30						

MAY

S	M	T	W	T	F	S	
		1	2	3	4	5	
6	7	8	9	10	11	12	(11)
13	14	15	16	17	18	19	
20	21	22	23	24	25	26	(12)
27	28	29	30	31			

JUNE

S	M	T	W	T	F	S	
					1	2	
3	4	5	6	7	8	9	(13)
10	11	12	13	14	15	16	
17	18	19	20	21	22	23	(14)
24	25	26	27	28	29	30	

JULY

S	M	T	W	T	F	S	
1	2	3	4	5	6	7	(15)
8	9	10	11	12	13	14	
15	16	17	18	19	20	21	(16)
22	23	24	25	26	27	28	
29	30	31					

AUGUST

S	M	T	W	T	F	S	
			1	2	3	4	(17)
5	6	7	8	9	10	11	
12	13	14	15	16	17	18	(18)
19	20	21	22	23	24	25	
26	27	28	29	30	31		

SEPTEMBER

S	M	T	W	T	F	S	
						1	(19)
2	3	4	5	6	7	8	
9	10	11	12	13	14	15	(20)
16	17	18	19	20	21	22	
23	24	25	26	27	28	29	(21)
30							

OCTOBER

S	M	T	W	T	F	S	
	1	2	3	4	5	6	
7	8	9	10	11	12	13	(22)
14	15	16	17	18	19	20	
21	22	23	24	25	26	27	(23)
28	29	30	31				

NOVEMBER

S	M	T	W	T	F	S	
				1	2	3	
4	5	6	7	8	9	10	(24)
11	12	13	14	15	16	17	
18	19	20	21	22	23	24	(25)
25	26	27	28	29	30		

DECEMBER

S	M	T	W	T	F	S	
						1	
2	3	4	5	6	7	8	(26)
9	10	11	12	13	14	15	
16	17	18	19	20	21	22	(27)
23	24	25	26	27	28	29	
30	31						

Dept. Of Agriculture, USFS Payroll Calendar

PAY PERIOD CALENDAR 2018

Month	Pay Period	S	M	T	W	T	F	S
JAN	26		**1**	2	3	4	5	6
	01	7	8	9	10	11	12	13
		14	**15**	16	17	18	19	20
	02	21	22	23	24	25	26	27
		28	29	30	31			
FEB	03					1	2	3
		4	5	6	7	8	9	10
		11	12	13	14	15	16	17
	04	18	**19**	20	21	22	23	24
		25	26	27	28			
MAR	05					1	2	3
		4	5	6	7	8	9	10
		11	12	13	14	15	16	17
	06	18	19	20	21	22	23	24
		25	26	27	28	29	30	31
APR	07	1	2	3	4	5	6	7
		8	9	10	11	12	13	14
	08	15	16	17	18	19	20	21
		22	23	24	25	26	27	28
	09	29	30					
MAY				1	2	3	4	5
		6	7	8	9	10	11	12
	10	13	14	15	16	17	18	19
		20	21	22	23	24	25	26
		27	**28**	29	30	31		
JUN	11						1	2
		3	4	5	6	7	8	9
	12	10	11	12	13	14	15	16
		17	18	19	20	21	22	23
	13	24	25	26	27	28	29	30

Month	Pay Period	S	M	T	W	T	F	S
JUL	13	1	2	3	**4**	5	6	7
	14	8	9	10	11	12	13	14
		15	16	17	18	19	20	21
	15	22	23	24	25	26	27	28
		29	30	31				
AUG	16				1	2	3	4
		5	6	7	8	9	10	11
		12	13	14	15	16	17	18
	17	19	20	21	22	23	24	25
		26	27	28	29	30	31	
SEP	18							1
		2	**3**	4	5	6	7	8
		9	10	11	12	13	14	15
	19	16	17	18	19	20	21	22
		23	24	25	26	27	28	29
	20	30						
OCT			1	2	3	4	5	6
		7	**8**	9	10	11	12	13
	21	14	15	16	17	18	19	20
		21	22	23	24	25	26	27
	22	28	29	30	31			
NOV						1	2	3
		4	5	6	7	8	9	10
	23	11	**12**	13	14	15	16	17
		18	19	20	21	**22**	23	24
	24	25	26	27	28	29	30	
DEC								1
	25	2	3	4	5	6	7	8
		9	10	11	12	13	14	15
		16	17	18	19	20	21	22
	26	23	24	**25**	26	27	28	29
		30	31					

FORM NFC-1217 (Revised 7/15)

57

2019 PAYROLL SCHEDULE

◯ END OF PAY PERIOD

▨ HOLIDAYS

Dept. Of Interior, Payroll Calendar

JANUARY

S	M	T	W	T	F	S	
	1	2	3	4	5		①
6	7	8	9	10	11	12	
13	14	15	16	17	18	19	②
20	21	22	23	24	25	26	
27	28	29	30	31			

FEBRUARY

S	M	T	W	T	F	S	
					1	2	③
3	4	5	6	7	8	9	
10	11	12	13	14	15	16	④
17	18	19	20	21	22	23	
24	25	26	27	28			

MARCH

S	M	T	W	T	F	S	
					1	2	⑤
3	4	5	6	7	8	9	
10	11	12	13	14	15	16	⑥
17	18	19	20	21	22	23	
24	25	26	27	28	29	30	⑦
31							

APRIL

S	M	T	W	T	F	S	
	1	2	3	4	5	6	
7	8	9	10	11	12	13	⑧
14	15	16	17	18	19	20	
21	22	23	24	25	26	27	⑨
28	29	30					

MAY

S	M	T	W	T	F	S	
			1	2	3	4	
5	6	7	8	9	10	11	⑩
12	13	14	15	16	17	18	
19	20	21	22	23	24	25	⑪
26	27	28	29	30	31		

JUNE

S	M	T	W	T	F	S	
						1	
2	3	4	5	6	7	8	⑫
9	10	11	12	13	14	15	
16	17	18	19	20	21	22	⑬
23	24	25	26	27	28	29	
30							

JULY

S	M	T	W	T	F	S	
	1	2	3	4	5	6	⑭
7	8	9	10	11	12	13	
14	15	16	17	18	19	20	⑮
21	22	23	24	25	26	27	
28	29	30	31				

AUGUST

S	M	T	W	T	F	S	
				1	2	3	⑯
4	5	6	7	8	9	10	
11	12	13	14	15	16	17	⑰
18	19	20	21	22	23	24	
25	26	27	28	29	30	31	⑱

SEPTEMBER

S	M	T	W	T	F	S	
1	2	3	4	5	6	7	
8	9	10	11	12	13	14	⑲
15	16	17	18	19	20	21	
22	23	24	25	26	27	28	⑳
29	30						

OCTOBER

S	M	T	W	T	F	S	
		1	2	3	4	5	
6	7	8	9	10	11	12	㉑
13	14	15	16	17	18	19	
20	21	22	23	24	25	26	㉒
27	28	29	30	31			

NOVEMBER

S	M	T	W	T	F	S	
					1	2	
3	4	5	6	7	8	9	㉓
10	11	12	13	14	15	16	
17	18	19	20	21	22	23	㉔
24	25	26	27	28	29	30	

DECEMBER

S	M	T	W	T	F	S	
1	2	3	4	5	6	7	㉕
8	9	10	11	12	13	14	
15	16	17	18	19	20	21	㉖
22	23	24	25	26	27	28	
29	30	31					

PAY PERIOD CALENDAR 2019

Month	Pay Period	S	M	T	W	T	F	S	Month	Pay Period	S	M	T	W	T	F	S
JAN	26			1	2	3	4	5	JUL	13		1	2	3	4	5	6
	01	6	7	8	9	10	11	12		14	7	8	9	10	11	12	13
		13	14	15	16	17	18	19			14	15	16	17	18	19	20
	02	20	21	22	23	24	25	26		15	21	22	23	24	25	26	27
		27	28	29	30	31					28	29	30	31			
FEB	03						1	2	AUG	16					1	2	3
		3	4	5	6	7	8	9			4	5	6	7	8	9	10
		10	11	12	13	14	15	16			11	12	13	14	15	16	17
	04	17	18	19	20	21	22	23		17	18	19	20	21	22	23	24
		24	25	26	27	28					25	26	27	28	29	30	31
MAR	05						1	2	SEP	18	1	2	3	4	5	6	7
		3	4	5	6	7	8	9			8	9	10	11	12	13	14
		10	11	12	13	14	15	16		19	15	16	17	18	19	20	21
	06	17	18	19	20	21	22	23			22	23	24	25	26	27	28
		24	25	26	27	28	29	30		20	29	30					
	07	31							OCT				1	2	3	4	5
APR			1	2	3	4	5	6			6	7	8	9	10	11	12
		7	8	9	10	11	12	13		21	13	14	15	16	17	18	19
	08	14	15	16	17	18	19	20			20	21	22	23	24	25	26
		21	22	23	24	25	26	27		22	27	28	29	30	31		
		28	29	30					NOV							1	2
MAY	09				1	2	3	4			3	4	5	6	7	8	9
		5	6	7	8	9	10	11		23	10	11	12	13	14	15	16
	10	12	13	14	15	16	17	18			17	18	19	20	21	22	23
		19	20	21	22	23	24	25		24	24	25	26	27	28	29	30
		26	27	28	29	30	31		DEC		1	2	3	4	5	6	7
	11							1		25	8	9	10	11	12	13	14
JUN		2	3	4	5	6	7	8			15	16	17	18	19	20	21
	12	9	10	11	12	13	14	15		26	22	23	24	25	26	27	28
		16	17	18	19	20	21	22			29	30	31				
	13	23	24	25	26	27	28	29									
		30															

FORM NFC-1217 (Revised 7/15)

2020 PAYROLL SCHEDULE

○ END OF PAY PERIOD

▨ HOLIDAYS

JANUARY

S	M	T	W	T	F	S	
			1	2	3	4	(1)
5	6	7	8	9	10	11	
12	13	14	15	16	17	18	(2)
19	20	21	22	23	24	25	
26	27	28	29	30	31		

FEBRUARY

S	M	T	W	T	F	S	
						1	(3)
2	3	4	5	6	7	8	
9	10	11	12	13	14	15	(4)
16	17	18	19	20	21	22	
23	24	25	26	27	28	29	(5)

MARCH

S	M	T	W	T	F	S	
1	2	3	4	5	6	7	
8	9	10	11	12	13	14	(6)
15	16	17	18	19	20	21	
22	23	24	25	26	27	28	(7)
29	30	31					

APRIL

S	M	T	W	T	F	S	
			1	2	3	4	
5	6	7	8	9	10	11	(8)
12	13	14	15	16	17	18	
19	20	21	22	23	24	25	(9)
26	27	28	29	30			

MAY

S	M	T	W	T	F	S	
					1	2	
3	4	5	6	7	8	9	(10)
10	11	12	13	14	15	16	
17	18	19	20	21	22	23	(11)
24	25	26	27	28	29	30	
31							

JUNE

S	M	T	W	T	F	S	
	1	2	3	4	5	6	(12)
7	8	9	10	11	12	13	
14	15	16	17	18	19	20	(13)
21	22	23	24	25	26	27	
28	29	30					

JULY

S	M	T	W	T	F	S	
			1	2	3	4	(14)
5	6	7	8	9	10	11	
12	13	14	15	16	17	18	(15)
19	20	21	22	23	24	25	
26	27	28	29	30	31		

AUGUST

S	M	T	W	T	F	S	
						1	(16)
2	3	4	5	6	7	8	
9	10	11	12	13	14	15	(17)
16	17	18	19	20	21	22	
23	24	25	26	27	28	29	(18)
30	31						

SEPTEMBER

S	M	T	W	T	F	S	
		1	2	3	4	5	
6	7	8	9	10	11	12	(19)
13	14	15	16	17	18	19	
20	21	22	23	24	25	26	(20)
27	28	29	30				

OCTOBER

S	M	T	W	T	F	S	
				1	2	3	
4	5	6	7	8	9	10	(21)
11	12	13	14	15	16	17	
18	19	20	21	22	23	24	(22)
25	26	27	28	29	30	31	

NOVEMBER

S	M	T	W	T	F	S	
1	2	3	4	5	6	7	(23)
8	9	10	11	12	13	14	
15	16	17	18	19	20	21	(24)
22	23	24	25	26	27	28	
29	30						

DECEMBER

S	M	T	W	T	F	S	
		1	2	3	4	5	(25)
6	7	8	9	10	11	12	
13	14	15	16	17	18	19	(26)
20	21	22	23	24	25	26	
27	28	29	30	31			

PAY PERIOD CALENDAR 2020

Month	Pay Period	S	M	T	W	T	F	S
JAN	26				**1**	2	3	4
	01	5	6	7	8	9	10	11
		12	13	14	15	16	17	18
	02	19	**20**	21	22	23	24	25
		26	27	28	29	30	31	
FEB								1
	03	2	3	4	5	6	7	8
		9	10	11	12	13	14	15
	04	16	**17**	18	19	20	21	22
		23	24	25	26	27	28	29
MAR	05	1	2	3	4	5	6	7
		8	9	10	11	12	13	14
	06	15	16	17	18	19	20	21
		22	23	24	25	26	27	28
	07	29	30	31				
APR					1	2	3	4
		5	6	7	8	9	10	11
	08	12	13	14	15	16	17	18
		19	20	21	22	23	24	25
	09	26	27	28	29	30		
MAY							1	2
		3	4	5	6	7	8	9
	10	10	11	12	13	14	15	16
		17	18	19	20	21	22	23
		24	**25**	26	27	28	29	30
	11	31						
JUN			1	2	3	4	5	6
	12	7	8	9	10	11	12	13
		14	15	16	17	18	19	20
	13	21	22	23	24	25	26	27
		28	29	30				

Month	Pay Period	S	M	T	W	T	F	S
JUL	13			1	2		**3**	4
	14	5	6	7	8	9	10	11
		12	13	14	15	16	17	18
	15	19	20	21	22	23	24	25
		26	27	28	29	30	31	
AUG								1
	16	2	3	4	5	6	7	8
		9	10	11	12	13	14	15
	17	16	17	18	19	20	21	22
		23	24	25	26	27	28	29
		30	31					
SEP	18			1	2	3	4	5
		6	**7**	8	9	10	11	12
	19	13	14	15	16	17	18	19
		20	21	22	23	24	25	26
	20	27	28	29	30			
OCT						1	2	3
		4	5	6	7	8	9	10
	21	11	**12**	13	14	15	16	17
		18	19	20	21	22	23	24
	22	25	26	27	28	29	30	31
NOV		1	2	3	4	5	6	7
	23	8	9	10	**11**	12	13	14
		15	16	17	18	19	20	21
	24	22	23	24	25	**26**	27	28
		29	30					
DEC	25			1	2	3	4	5
		6	7	8	9	10	11	12
		13	14	15	16	17	18	19
	26	20	21	22	23	24	**25**	26
		27	28	29	30	31		

WESTERN AIR AMBULANCE PHONE LIST (NOT GARAUNTEED TO BE CURRENT)

STATE	SERVICE NAME	HOSPITAL / LOCATION	PHONE #'S
ALASKA	MAST	AK STATE TROOPERS	907-451-5333
ARIZONA	GUARDIAN AIR	FLAGSTAFF MEDICAL CTR	800-523-9391
	CLASSIC LIFE GUARD	PAGE	800-444-9223
CALIFORNIA	MERCY AIR AMB.	MERCY MED CTR, REDDING	530-225-7252
	MOUNTAIN LIFEFLIGHT	SUSANVILLE	800-926-0801
	AIR MED TEAM	REDDING MED CTR	800-432-9944
COLORADO	ST. MARY'S AIR LIFE	ST. MARY'S, GRAND JUNCTION	800-332-4923
	YAMPA VALLEY AIR AMB.	STEAMBOAT SPRINGS	800-900-6800
	FLIGHT FOR LIFE	COLORADO SPRINGS	800-4222254
	AIR RESPONSE	ENGLEWOOD	303-768-8089
	FLIGHT FOR LIFE	ST ANTHONY'S, DENVER	800-525-3712
	TRANSPORT CARE	MEMORIAL, COLO SPRINGS	800-763-4373
IDAHO	LIFE FLIGHT	ST. ALPHONSUS, BOISE	800-367-3230
	LIFE FLIGHT	BANNOK MED CTR, POCATELLO	800-232-0911
	ACCESS AIR	BOISE	208-333-9911
MONTANA	LIFE FLIGHT	ST. PATRICK'S, MISSOULA	800-991-SEND
	MERCY FLIGHT/MEDFLIGHT	GREAT FALLS	800-972-4000
	MEDFLIGHT	BILLINGS	800-325-1774
NEVADA	MERCY AIR	LAS VEGAS	800-842-4431
	MEDIC AIR	RENO	800-234-3822
	ACCESS AIR	ELKO	775-738-3493
	CARE FLIGHT	RENO, GARDNERVILLE, TRUKEE	775-858-5700
NEW MEXICO	SOUTHWEST AIR AMB.	FAIRACRES/LAS CRUCES	505-525-2660
	MED FLIGHT AIR AMB.	ALBUQUERQUE	800-842-4431
	LIFEGUARD AIR EMERGENCY	ALBUQUERQUE	800-633-5438
	GALLUP MED FLIGHT	GALLUP	505-863-6606
OREGON	AIR LIFE OF OREGON	BEND	800-522-2828
	LIFE FLIGHT	PORTLAND	800-452-7434
	LIFEGUARD AIR AMB.	HILLSBORO	503-640-2927
UTAH	AIR MED	U OF UT HEALTH CTR, SALT LAKE	800-453-0120
	LIFE FLIGHT	INTERMT HLTH CARE, SALT LAKE	801-321-1234
WASHINGTON	NORTHWEST MEDSTAR	SPOKANE	800-422-2440
	AIRLIFT NORTHWEST	SEATTLE	800-426-2430
WYOMING	WYOMING LIFE FLIGHT	WY MED CTR, CASPER	800-442-2222

Western U.S.
Standard Air to Ground
Frequencies for
Air Ambulance/Air MedEvac
on Wildland Fire Incidents

NATIONAL INTERAGENCY FIRE CENTER
BOISE, IDAHO

Map Symbols Legend

- Bureau of Land Management
- Bureau of Reclamation
- Department of Defense
- National Park Service
- US Fish & Wildlife Service
- US Forest Service
- Other Federal Agencies
- Indian Reservation Tribal Lands
- State Lands
- Local Government Lands
- Private Lands
- State Borders

DISCLAIMER:
The designation of these standard frequencies does not prevent alternate or contingent frequencies from being established. Please coordinate with local interagency fire dispatch centers.

No warranty is made by the Bureau of Land Management for use of this data for purposes not intended by BLM

For Official Use Only:
FOIA Release Exempt, Data to be protected as Sensitive But Unclassified (SBU)

GCS: WGS 84
PCS: Web Mercator
Scale: 1:6,500,000

0   100   200   300   400
Miles

Date: 3/23/2017, BTF

Washington
No Standard Established.
Coordinate with local interagency fire dispatch centers.

Oregon
No Standard Established.
Coordinate with local interagency fire dispatch centers.

Montana
Standard A/G Frequency = "VMed28"
(locally called "Tan")
Rx 155.3400
Tx 155.3400
Tx CTCSS 156.7

North Dakota
Standard A/G Frequency =
"VLAW31"
Rx 155.4750
Tx 155.4750
Tx CTCSS 156.7

South Dakota
Standard A/G Frequency =
"VMed28"
Rx 155.3400
Tx 155.3400
Tx CTCSS 156.7

Idaho
Standard A/G Frequency =
"StateCom/EMS2"
Rx 155.2800
Tx 155.2800
Tx CTCSS 156.7

Wyoming
Standard A/G Frequency = "VMed28"
Rx 155.3400
Tx 155.3400
Tx CTCSS 156.7
*Excluding Yellowstone N.P.

Nebraska
Standard A/G Frequency =
"VMed28"
Rx 155.3400
Tx 155.3400
Tx CTCSS 156.7

Nevada
Standard A/G Frequency = "VMed28"
(locally called "NEVCORD1")
Rx 155.3400
Tx 155.3400
Tx CTCSS 156.7
Secondary A/G Frequency = "VMed29"
(locally called "NEVCORD2")
Rx 155.3475
Tx 155.3475
Tx CTCSS 156.7

Utah
Standard A/G Frequency =
"VMed28"
Rx 155.3400
Tx 155.3400
Tx CTCSS 156.7
Secondary A/G Frequency =
"VMed29"
Rx 155.3475
Tx 155.3475
Tx CTCSS 156.7

Colorado
Standard A/G Frequency =
"VFIRE21"
Rx 154.2800
Tx 154.2800
Tx CTCSS 156.7

Kansas

California
Standard A/G Frequency =
"CALCORD"
Rx 156.0750
Tx 156.0750
Tx CTCSS 156.7

Arizona
Standard A/G Frequency = "VMed28"
Rx 155.3400
Tx 155.3400
Tx CTCSS 156.7

New Mexico
Standard A/G Frequency = "VMed28"
Rx 155.3400
Tx 155.3400
Tx CTCSS 156.7

Oklahoma

Texas

Brian Mueller, Sources: Esri, USGS, NOAA

Medical Incident Report

FOR A NON-EMERGENCY INCIDENT, WORK THROUGH CHAIN OF COMMAND TO REPORT AND TRANSPORT INJURED PERSONNEL AS NECESSARY.

FOR A MEDICAL EMERGENCY: IDENTIFY ON SCENE INCIDENT COMMANDER BY NAME AND POSITION AND ANNOUNCE "MEDICAL EMERGENCY" TO INITIATE RESPONSE FROM IMT COMMUNICATIONS/DISPATCH.

Use the following items to communicate situation to communications/dispatch.

1. CONTACT COMMUNICATIONS / DISPATCH (Verify correct frequency prior to starting report)
   Ex: "Communications, Div. Alpha. Stand-by for Emergency Traffic."

2. INCIDENT STATUS: *Provide incident summary (including number of patients) and command structure.*
   Ex: "Communications, I have a Red priority patient, unconscious, struck by a falling tree. Requesting air ambulance to Forest Road 1 at (Lat./Long.) This will be the Trout Meadow Medical, IC is TFLD Jones. EMT Smith is providing medical care."

Severity of Emergency / Transport Priority	☐ **RED / PRIORITY 1 Life or limb threatening injury or illness. Evacuation need is IMMEDIATE** *Ex: Unconscious, difficulty breathing, bleeding severely, 2º – 3º burns more than 4 palm sizes, heat stroke, disoriented.* ☐ **YELLOW / PRIORITY 2 Serious Injury or illness. Evacuation may be DELAYED if necessary.** *Ex: Significant trauma, unable to walk, 2º – 3º burns not more than 1-3 palm sizes.* ☐ **GREEN / PRIORITY 3 Minor Injury or illness. Non-Emergency transport** *Ex: Sprains, strains, minor heat-related illness.*	
Nature of Injury or Illness & Mechanism of Injury		*Brief Summary of Injury or Illness (Ex: Unconscious, Struck by Falling Tree)*
Transport Request		*Air Ambulance / Short Haul/Hoist Ground Ambulance / Other*
Patient Location		*Descriptive Location & Lat. / Long. (WGS84)*
Incident Name		*Geographic Name + "Medical" (Ex: Trout Meadow Medical)*
On-Scene Incident Commander		*Name of on-scene IC of Incident within an Incident (Ex: TFLD Jones)*
Patient Care		*Name of Care Provider (Ex: EMT Smith)*

3. INITIAL PATIENT ASSESSMENT: *Complete this section for each patient as applicable (start with the most severe patient)*

Patient Assessment: See IRPG page 106

Treatment:

4. TRANSPORT PLAN:

Evacuation Location (*if different*): (*Descriptive Location (drop point, intersection, etc.) or Lat. / Long.*) Patient's ETA to Evacuation Location:_____

Helispot / Extraction Site Size and Hazards:

5. ADDITIONAL RESOURCES / EQUIPMENT NEEDS:

Example: Paramedic/EMT, Crews, Immobilization Devices, AED, Oxygen, Trauma Bag, IV/Fluid(s), Splints, Rope rescue, Wheeled litter, HAZMAT, Extrication

6. COMMUNICATIONS: Identify State Air/Ground EMS Frequencies and Hospital Contacts as applicable

Function	Channel Name/Number	Receive (RX)	Tone/NAC *	Transmit (TX)	Tone/NAC *
COMMAND					
AIR-TO-GRND					
TACTICAL					

7. CONTINGENCY: *Considerations: If primary options fail, what actions can be implemented in conjunction with primary evacuation method? Be thinking ahead...*

8. ADDITIONAL INFORMATION: *Updates/Changes, etc.*

REMEMBER: **Confirm ETA's of resources ordered. Act according to your level of training. Be Alert. Keep Calm. Think Clearly. Act Decisively.**

FIRE LINE LEADER RESPONSIBILITIES
(Establish clear Leader's Intent and Supervise at the scene of action not in your truck/office)

Initial Attack Incident Commander (ICT4/5): also see pages 60-61
- Provide for Safety and welfare of assigned personnel
- Initiate and maintain Incident Briefing(ICS Form 201)
- Size up fire situation and concisely communicate resource needs
- Analyze Incident complexity
- Plan appropriate method of attack
- Brief personnel and keep them informed
- Direct and coordinate assigned resources
- Monitor weather, fire behavior, and environmental factors to anticipate changes
- Adjust tactics to meet changing conditions
- Maintain current Unit Log(ICS Form 214)
- Solicit Feedback and participate in AARs

Task Force/Strike Team Leader:
- Obtain briefing from DIVS/IC
- Review assignment with assigned resources
- Travel to and from line with assigned resources
- Monitor and inspect progress; make changes as necessary
- Coordinate action with adjacent resources
- Keep supervisor informed of status and progress
- Obtain logistics/equipment needs from assigned resources
- Retain control of assigned resources while off-line
- Maintain a current unit log (ICS form 214)

Single Resource Boss (CRWB, ENGB, FIRB, FELB):
- Responsible for supervising and directing a firefighting module such as: hand crew, engine, dozer, firing team, and fallers.
- Obtain briefing from Task Force/Strike Team Leader/IC
- Review assignment with module and assign work tasks
- Obtain Necessary equipment and supplies
- Review current and predicted Wx conditions and expected Fire Bx
- Brief module on safety including escape routes and safety zones
- Monitor work progress; make changes as necessary
- Keep supervisor informed of progress and changes
- Inform supervisor promptly of problems
- Brief/Debrief with relief personnel on the fireline
- Complete and turn in time records

INITIAL ATTACK FIRE SIZE-UP

1. FIRE NAME:		FIRE NUMBER	DOI
			USDA
2. IC NAME:			STATE
			PRIVATE

Descriptive location:
Reported by:

3. ARRIVAL DATE:			TIME:	

4. LEGAL:	Township:		Range:		Section(s):
Coordinates:	Latitude:			Longitude:	
UTM:	E:			N:	

5. ESTIMATED SIZE (acres):			6. OWNERSHIP:	

7. FUELS BURNING:	☐ Grass	☐ Re-prod	☐ Snag	☐ Duff	☐ Timber (light, heavy)
	☐ Brush	☐ Slash	☐ Logs	☐ Hardwood	
ADJACENT FUELS:	☐ Grass	☐ Re-prod	☐ Snag	☐ Duff	☐ Timber (light, heavy)
	☐ Brush	☐ Slash	☐ Logs	☐ Hardwood	

8. CHARACTER OF FIRE:	☐ Smoldering	☐ Running	☐ Crowning
	☐ Creeping	☐ Torching	☐ Spotting

9. FLAME LENGTH:	☐ under 2'	☐ 2-4'	☐ 4-8	☐ 8-11	☐ 11 plus

10. POSITION ON SLOPE:	☐ Bottom 1/3	☐ Middle 1/3	☐ Top 1/3

11. PERCENT SLOPE:	☐ 0-30	☐ 30-45	☐ 45-60	☐ 60 plus

12. ASPECT:	☐ North	☐ East	☐ South	☐ West	☐ Flat/Ridge top

13. WIND SPEED:	
WIND DIRECTION:	☐N ☐E ☐S ☐W ☐ Upslope ☐ Up Canyon ☐ Down Slope ☐ Down Canyon

14. WIND INDICATORS:	☐ Cumulus	☐ Lenticular	☐ Cold Fronts	☐ Other:

15. GROWTH POTENTIAL (estimate acres for next operational period):			☐ Acres:	
☐ None	☐ Low	☐ Moderate	☐ High	☐ Very High

16. VALUES AT RISK (Check all that apply):			
☐ Houses	☐ T&E Species	☐ Water Quality	☐Public Safety
☐Improvements	☐ Cultural/Historical	☐Other:	

17. IS FIRE NEAR ANY SENSITIVE AREAS?		☐ No	☐ Yes - *Check Below*
☐ Rivers or Streams	☐ Surface Waters	☐ Aspen Trees	☐ 5 Needle Pines
☐ Meadow	☐ Forest Edge	☐ Other (Specify)	

18. HAZARDS OR CONCERNS (Check all that apply):			
☐ Snags	☐ Hazmat	☐ Urban Interface	☐ Power Lines
☐ Mine Shafts	☐ Evacuation Concerns	☐ Cliffs	☐ Other

19. CAUSE:	☐ Lightning	☐ Human Cause	☐ Other

20. PROPOSED ACTION:	☐ Resource Benefit	☐ Confine	☐ Suppress

21. ADDITIONAL RESOURCES:		☐ No	☐ Yes - *Specify Below*
Personnel:	Equipment:	Supplies:	Aircraft:

REMOTE OPERATIONS UPDATE
CALL-IN CHEAT SHEET

When providing an update on a remote portion of a fire, managers may have specific questions about the current status of a fire, and they'll usually let you know what those are. If not, these items listed below will assist you in painting a decent picture of an ongoing fire's status.

- Estimated (or known) current fire size
- Growth Overnight/ since last checked
- % Active Perimeter
- Active portion / quadrant (N, S, E, W)
- Fuel Model carrying fire (pay special attention to FM transitions)
- Fire Behavior Observed: ROS, Flame Length, torching, spotting, smoke obs.
- Time of Activity (burning window)
- Weather highlights: High Temps, Low RH, wind speed and direction
- Communicate your plan for the shift
- Ask if any other information is needed (when they'd like the next update, etc)
- Specific safety or operational concerns/mitigations

When communicating with a dispatch center/ ICP, consider the additional communication SOPs:

- Notify Dispatch when you begin your travel to and from the fire, when you begin driving and when you begin hiking. This may get redundant, but they'll at least know where you are.
- Let Dispatch know when you've arrived on the fire, and give them an estimate of when you'll provide a fire update.
- Communicate your info only when it's appropriate to do so: if other radio traffic exists, wait patiently for a break in radio traffic, and be only as a detailed as necessary with your update.
- Always be cordial and polite when communicating with dispatch centers.

ONE DAY ORDER AMOUNTS

ITEM	QUANTITY
Water, 5 gal cubie	½ per person
MRE's	4 per person
Batteries, AA	15 per radio
Toilet Paper	1 roll per 8 people
Fuel (unleaded)	5 gal = 20 hours chainsaw use
Bar Oil	10 qts = 20 hours chainsaw use
2 cycle mix	12.8 oz = 20 hours chainsaw use
Fuel (24:1)	Mark III 5 gal = 3 hours, Shindawa 5 gal = 10hrs

SLOPE

- 1000% (84.29°)
- 500% (78.69°)
- 300% (71.57 °)
- 200% (63.43 °)
- 150% (56.31 °)
- 100% (45 °)
- 75% (36.87 °)
- 50% (26.57 °)
- 40% (21.80 °)
- 30% (16.70 °)
- 20% (11.31 °)
- 10% (5.71 °)
- 0% (0°)

90° 80° 70° 60° 50° 40° 30° 20° 10° 0°

68