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Fire Behavior Worksheets for BEHAVE: Fire Behavior Prediction System

FIRE1 & FIRE2 Programs in the BURN Subsystem

PMS 428-2
NFES 2289

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BEHAVE FIRE1 & FIRE2 KEYWORD HIERARCHY

- FIRE1
  - DIRECT
    - SIZE
      - CONTAIN
    - SCORCH
      - MORTALITY
    - SPOT
  - SITE
    - SIZE
      - CONTAIN
  - SIZE
  - CONTAIN
  - SCORCH
    - MORTALITY
  - MORTALITY
  - SPOT
  - DISPATCH
  - MAP
  - SLOPE
  - CUSTOM
- FIRE2
  - MOISTURE
  - IGNITE
  - RH

FINE DEAD FUEL MOISTURE CALCULATIONS

A.	PROJECTION POINT				
B.	DAY OR NIGHT (D/N)	D/N	D/N	D/N	D/N
DAY TIME CALCULATIONS					
C.	DRY BULB TEMPERATURE, °F				
D.	RELATIVE HUMIDITY, %				
E.	REFERENCE FUEL MOISTURE, % (FROM TABLE A)				
F.	MONTH				
G.	UNSHADED OR SHADED (U/S)	U/S	U/S	U/S	U/S
H.	TIME				
I.	ELEVATION CHANGE B = 1000' - 2000' BELOW SITE L = ± 1000' OF SITE LOCATION A = 1000' - 2000' ABOVE SITE	B/L/A	B/L/A	B/L/A	B/L/A
J.	ASPECT				
K.	SLOPE				
L.	FUEL MOISTURE CORRECTION, % (FROM TABLE B, C, OR D)				
M.	FINE DEAD FUEL MOISTURE, % (LINE E + LINE 1)				
NIGHT TIME CALCULATIONS					
N.	DRY BULB TEMPERATURE, °F				
O.	RELATIVE HUMIDITY, %				
P.	REFERENCE FUEL MOISTURE, % (FROM TABLE E)				
	USE TABLE F ONLY IF A STRONG INVERSION EXISTS AND A CORRECTION MUST BE MADE FOR ELEVATION OR ASPECT CHANGE.				
Q.	ASPECT OF PROJECTION POINT				
R.	ASPECT OF SITE LOCATION				
S.	TIME				
T.	ELEVATION CHANGE B = 1000' - 2000' BELOW SITE L = ± 1000' OF SITE LOCATION A = 1000' - 2000' ABOVE SITE	B/L/A	B/L/A	B/L/A	B/L/A
U.	CORRECTION FOR PROJECTION POINT LOCATION (FROM TABLE F)				
V.	CORRECTION FOR SITE LOCATION (L) (FROM TABLE F)				
W.	FUEL MOISTURE CORRECTION, % (LINE U - LINE V)				
X.	FINE DEAD FUEL MOISTURE, % (LINE P + LINE W)				

OUTPUT TABLE

TABLE NO _____ TABLE ITEM _____ ROW ITEM _____ COL ITEM _____

PROJECTION PT ___ COLUMN VALUES: _____ _____ _____ _____ _____ _____ _____

ROW NO.	ROW VALUE	TABLE VALUES
1.	_____	_____ _____ _____ _____ _____ _____ _____
2.	_____	_____ _____ _____ _____ _____ _____ _____
3.	_____	_____ _____ _____ _____ _____ _____ _____
4.	_____	_____ _____ _____ _____ _____ _____ _____
5.	_____	_____ _____ _____ _____ _____ _____ _____
6.	_____	_____ _____ _____ _____ _____ _____ _____
7.	_____	_____ _____ _____ _____ _____ _____ _____

OUTPUT TABLE

TABLE NO _____ TABLE ITEM _____ ROW ITEM _____ COL ITEM _____

PROJECTION PT ___ COLUMN VALUES: _____ _____ _____ _____ _____ _____ _____

ROW NO.	ROW VALUE	TABLE VALUES
1.	_____	_____ _____ _____ _____ _____ _____ _____
2.	_____	_____ _____ _____ _____ _____ _____ _____
3.	_____	_____ _____ _____ _____ _____ _____ _____
4.	_____	_____ _____ _____ _____ _____ _____ _____
5.	_____	_____ _____ _____ _____ _____ _____ _____
6.	_____	_____ _____ _____ _____ _____ _____ _____
7.	_____	_____ _____ _____ _____ _____ _____ _____

OUTPUT TABLE

TABLE NO _____ TABLE ITEM _____ ROW ITEM _____ COL ITEM _____

PROJECTION PT ___ COLUMN VALUES: _____ _____ _____ _____ _____ _____ _____

ROW NO.	ROW VALUE	TABLE VALUES
1.	_____	_____ _____ _____ _____ _____ _____ _____
2.	_____	_____ _____ _____ _____ _____ _____ _____
3.	_____	_____ _____ _____ _____ _____ _____ _____
4.	_____	_____ _____ _____ _____ _____ _____ _____
5.	_____	_____ _____ _____ _____ _____ _____ _____
6.	_____	_____ _____ _____ _____ _____ _____ _____
7.	_____	_____ _____ _____ _____ _____ _____ _____

OUTPUT TABLE

TABLE NO _____ TABLE ITEM _____ ROW ITEM _____ COL ITEM _____

PROJECTION PT ___ COLUMN VALUES: _____ _____ _____ _____ _____ _____ _____

ROW NO.	ROW VALUE	TABLE VALUES
1.	_____	_____ _____ _____ _____ _____ _____ _____
2.	_____	_____ _____ _____ _____ _____ _____ _____
3.	_____	_____ _____ _____ _____ _____ _____ _____
4.	_____	_____ _____ _____ _____ _____ _____ _____
5.	_____	_____ _____ _____ _____ _____ _____ _____
6.	_____	_____ _____ _____ _____ _____ _____ _____
7.	_____	_____ _____ _____ _____ _____ _____ _____

SHEET _____ OF _____

NAME OF FIRE _____ FIRE PREDICTION SPEC. _____

DATE _____ TIME _____

PROJ. PERIOD DATE _____ PROJ. TIME FROM _____ TO _____

OUTPUT TABLE

TABLE NO _____ TABLE ITEM _____ ROW ITEM _____ COL ITEM _____

PROJECTION PT ___ COLUMN VALUES: _____ _____ _____ _____ _____ _____ _____

ROW NO.	ROW VALUE	TABLE VALUES
1.	_____	_____ _____ _____ _____ _____ _____ _____
2.	_____	_____ _____ _____ _____ _____ _____ _____
3.	_____	_____ _____ _____ _____ _____ _____ _____
4.	_____	_____ _____ _____ _____ _____ _____ _____
5.	_____	_____ _____ _____ _____ _____ _____ _____
6.	_____	_____ _____ _____ _____ _____ _____ _____
7.	_____	_____ _____ _____ _____ _____ _____ _____

OUTPUT TABLE

TABLE NO _____ TABLE ITEM _____ ROW ITEM _____ COL ITEM _____

PROJECTION PT ___ COLUMN VALUES: _____ _____ _____ _____ _____ _____ _____

ROW NO.	ROW VALUE	TABLE VALUES
1.	_____	_____ _____ _____ _____ _____ _____ _____
2.	_____	_____ _____ _____ _____ _____ _____ _____
3.	_____	_____ _____ _____ _____ _____ _____ _____
4.	_____	_____ _____ _____ _____ _____ _____ _____
5.	_____	_____ _____ _____ _____ _____ _____ _____
6.	_____	_____ _____ _____ _____ _____ _____ _____
7.	_____	_____ _____ _____ _____ _____ _____ _____

DIRECT MODULE Input/Output

(FIRE1 program)

			UNITS English	UNITS Metric			
INPUT							
0	PROJECTION						_____
1	FUEL MODEL NUMBER		(0-99)	(0-99)			_____
	(1) DOMINANT FUEL MODEL NUMBER		(1-99)	(1-99)			_____
	(1) PERCENT COVER		(51-80)	(51-80)			_____
	(1) OTHER FUEL MODEL		(1-99)	(1-99)			_____
2*	1-H FUEL MOISTURE		(1-60%)	(1-60%)	_____,	_____,	_____
3*	10-H FUEL MOISTURE		(1-60%)	(1-60%)	_____,	_____,	_____
4*	100-H FUEL MOISTURE		(1-60%)	(1-60%)	_____,	_____,	_____
5*	LIVE HERB MOISTURE		(30-300%)	(30-300%)	_____,	_____,	_____
6*	LIVE WOODY MOISTURE		(30-300%)	(30-300%)	_____,	_____,	_____
7*	MIDFLAME WINDSPEED		(0-99 MI/H)	(0-159 KM/H)	_____,	_____,	_____
8*	SLOPE		(0-100%) (0-45 DEG)	(0-100%) (0-45 DEG)	_____,	_____,	_____
9*	DIRECTION OF WIND VECTOR, DEG. CLOCKWISE FROM UPHILL		(0-360 DEG)	(0-360 DEG)	_____,	_____,	_____
10	PREDICT AT MAX			(Y/N)			_____
(10*)	DIRECTION OF SPREAD CALC., DEG. CLOCKWISE FROM UPHILL OR WIND VECTOR IF SLOPE IS ZERO		(0-360 DEG)	(0-360 DEG)	_____,	_____,	_____
OUTPUT							
0	FUEL MODEL					_____ ( )	_____ ( )
1	RATE OF SPREAD		CH/H	M/MIN		_____	_____
2	HEAT PER UNIT AREA		BTU/SQFT	KJ/SQM		_____	_____
3	FIRELINE INTENSITY		BTU/FT/S	KW/M		_____	_____
4	FLAME LENGTH		FT	M		_____	_____
5	REACTION INTENSITY		BTU/SQFT/M	KW/SQM		_____	_____
6	EFFECTIVE WINDSPEED		MI/H	KM/H		_____	_____
7	DIRECTION OF MAXIMUM SPREAD, DEG. CLOCKWISE FROM UPHILL		DEG	DEG		_____	_____
8	WEIGHTED RATE OF SPREAD		CH/H	M/MI		_____	

* A RANGE OF VALUES IS ALLOWED

SIZE MODULE Input/Output

(FIRE1 program)

		UNITS English	UNITS Metric	
INPUT				
0	PROJECTION POINT			____
1*⊕	RATE OF SPREAD	(.1-500 CH/H)	(.1-168 M/MIN)	____, ____, ____
2*⊕	EFFECTIVE WINDSPEED	(0-99 MI/H)	(0-159 KM/H)	____, ____, ____
3*	ELAPSED TIME	(.5-8 H)	(.5-8 H)	____, ____, ____
OUTPUT				
1	AREA	(AC)	(HA)	____
2	PERIMETER	(CH)	(M)	____
3	LENGTH-TO-WIDTH RATIO			____
4	FORWARD SPREAD DISTANCE	(CH)	(M)	____
5	BACKING SPREAD DISTANCE	(CH)	(M)	
6	MAXIMUM FIRE WIDTH	(CH)	(M)	____
				____

* A RANGE OF VALUES IS ALLOWED
⊕ MAY COME FROM DIRECT

OUTPUT TABLE

TABLE NO _____ TABLE ITEM _____ ROW ITEM _____ COL ITEM _____

PROJECTION PT ___ COLUMN VALUES: ____ ____ ____ ____ ____ ____ ____

ROW NO.	ROW VALUE	TABLE VALUES
1.	_____	____ ____ ____ ____ ____ ____ ____
2.	_____	____ ____ ____ ____ ____ ____ ____
3.	_____	____ ____ ____ ____ ____ ____ ____
4.	_____	____ ____ ____ ____ ____ ____ ____
5.	_____	____ ____ ____ ____ ____ ____ ____
6.	_____	____ ____ ____ ____ ____ ____ ____
7.	_____	____ ____ ____ ____ ____ ____ ____

CONTAIN MODULE Input/Output

(FIRE1 program)

		UNITS English	UNITS Metric	
INPUT				
0	PROJECTION POINT			____
1	RUN OPTION 1 = COMPLETE LINE BUILDING RATE 2 = COMPUTE BURNED AREA	(1-2)	(1-2)	____
2	MODE OF ATTACK 1 = HEAD 2 = REAR	(1-2)	(1-2)	____
3*⊕	FORWARD RATE OF SPREAD	(.1-500 CH/H)	(.1-168 M/MIN)	____, ____, ____
4*⊕	INITIAL FIRE SIZE	(.1-100 AC)	(.1-40 HA)	____, ____, ____
5*⊕	LENGTH-TO-WIDTH RATIO	(1-7)	(1-7)	____, ____, ____
6*	BURNED AREA TARGET	(.1-2000 AC)	(.1-808 HA)	____, ____, ____
7*	TOTAL LINE BUILDING RATE	(.1-100 CH/H)	(.1-67 M/MIN)	____, ____, ____
OUTPUT				
1	TOTAL LENGTH OF LINE	(CH)	(M)	____
2	CONTAINMENT TIME	(H)	(H)	____
3	TOTAL LINE BUILDING RATE	(CH/H)	(M/MIN)	____
	OR			
	FINAL FIRE SIZE	(AC)	(HA)	____

* A RANGE OF INPUTS IS ALLOWED
⊕ MAY COME FROM SIZE LINKED TO DIRECT

SHEET _____ OF _____

NAME OF FIRE _____ FIRE PREDICTION SPEC. _____

DATE _____ TIME _____

PROJ. PERIOD DATE _____ PROJ. TIME FROM _____ TO _____

SCORCH MODULE Input/Output

(FIRE1 program)

		UNITS English	UNITS Metric	
INPUT				
0	PROJECTION POINT			_____
1*	AMBIENT AIR TEMPERATURE	(33-120° F)	(.6-49° C)	_____, _____, _____
2*@	FLAME LENGTH	(.1-100 FT)	(.1-30 M)	_____, _____, _____
3*@	MIDFLAME WINDSPEED	(0-99 MI/H)	(0-159 KM/H)	_____, _____, _____
OUTPUT				
1	CROWN SCORCH HEIGHT	(FT)	(M)	_____

* A RANGE OF VALUES IS ALLOWED
@ MAY COME FROM DIRECT

OUTPUT TABLE

TABLE NO _____ TABLE ITEM _____ ROW ITEM _____ COL ITEM _____

PROJECTION PT ___ COLUMN VALUES: _____ _____ _____ _____ _____ _____ _____

ROW NO.	ROW VALUE	TABLE VALUES
1.	_____	_____ _____ _____ _____ _____ _____ _____
2.	_____	_____ _____ _____ _____ _____ _____ _____
3.	_____	_____ _____ _____ _____ _____ _____ _____
4.	_____	_____ _____ _____ _____ _____ _____ _____
5.	_____	_____ _____ _____ _____ _____ _____ _____
6.	_____	_____ _____ _____ _____ _____ _____ _____
7.	_____	_____ _____ _____ _____ _____ _____ _____

MORTALITY MODULE Input/Output

(FIRE1 program)

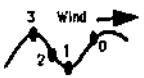
		UNITS English	UNITS Metric	
INPUT				
0	PROJECTION POINT			_____
1@*	SCORCH HEIGHT	(1-200 FT)	(.3-61 M)	_____, _____, _____
2*	TREE HEIGHT	(20-200 FT)	(6-61 M)	_____, _____, _____
3*	CROWN RATIO	(.1-1)	(.1-1)	_____, _____, _____
4	BARK THICKNESS OPTION 1 = determine by species and DBH 2 = direct entry	(1-2)	(1-2)	_____
(4)	TREE SPECIES 1 = western larch, Douglas-fir 2 = western hemlock 3 = Engelmann spruce, western red cedar 4 = lodgepole pine, subalpine fir 5 = none of these	(1-5)	(1-5)	_____
*(4)	TREE DBH	(5-30 IN)	(13-76 CM)	_____, _____, _____
*(4)	BARK THICKNESS (direct entry)	(.1-2 IN)	(.3-5 CM)	_____, _____, _____
OUTPUT				
1	MORTALITY LEVEL	(%)	(%)	_____
2	CROWN SCORCH VOLUME	(%)	(%)	_____

@ MAY COME FROM SCORCH
* A RANGE OF VALUES IS ALLOWED

SPOT MODULE Input/Output

(FIRE1 program)

		UNITS English	UNITS Metric	
INPUT				
0	PROJECTION POINT			_____
1	FIREBRAND SOURCE 1 = TORCHING TREES 3 = WIND DRIVEN SURFACE FIRE 2 = BURNING PILES	(1-3)	(1-3)	_____
2*	MEAN COVER HEIGHT (IF FOREST IS OPEN, DIVIDE BY 2. OTHERWISE, RETAIN FULL HEIGHT.)	(0-300 FT)	(0-91 M)	_____ , _____ , _____
3*⊕	20-FT WINDSPEED	(0-99 MI/H)	(0-159 KM/H)	_____ , _____ , _____
4*	RIDGE - TO - VALLEY ELEVATION DIFFERENCE	(0-4000 FT)	(0-1219 M)	_____ , _____ , _____
5*	RIDGE - TO - VALLEY HORIZONTAL DISTANCE	(0-4 MI)	(0-6 KM)	_____ , _____ , _____
6	SPOTTING SOURCE LOCATION	(0-3)	(0-3)	_____



0 = MIDSLOPE, WINDWARD SIDE
1 = VALLEY BOTTOM
2 = MIDSLOPE, LEEWARD SIDE
3 = RIDGETOP

7 TREE SPECIES

1 = ENGELMANN SPRUCE
2 = DOUGLAS-FIR SUBALPINE FIR
3 = HEMLOCK
4 = PONDEROSA, LODGEPLE PINE
5 = WHITE PINE
6 = BALSAM FIR, GRAND FIR
7 = SLASH PINE, LONGLEAF PINE
8 = POND PINE, SHORTLEAF PINE
9 = LOBLOLLY PINE

8*	TORCHING TREE DBH	(5-40 IN)	(13-102 CM)	_____ , _____ , _____
9*	TORCHING TREE HEIGHT	(10-300 FT)	(3-91 M)	_____ , _____ , _____
10*	NUMBER OF TREES TORCHING TOGETHER	(1-30)	(1-30)	_____ , _____ , _____
11*	CONTINUOUS FLAME HEIGHT	(1-100 FT)	(.1-30 M)	_____ , _____ , _____
12*⊕	FLAME LENGTH	(1-100 FT)	(.1-30 M)	_____ , _____ , _____
OUTPUT				
1	MAXIMUM SPOT FIRE DISTANCE	MI	KM	_____

*** A RANGE OF VALUES IS ALLOWED.**
⊕ MAY COME FROM DIRECT.

DISPATCH MODULE Input/Output

(FIRE1 program)

		UNITS English	UNITS Metric	
INPUT				
0	PROJECTION POINT			_____
1	FUEL MODEL	(1-99)	(1-99)	_____
2	DEAD FUEL MOISTURE	(1-60%)	(1-60%)	_____
3	LIVE FUEL MOISTURE	(30-300%)	(30-300%)	_____
4	20-FOOT WINDSPEED	(0-99 MI/H)	(0-159 KM/H)	_____
5	WIND ADJUSTMENT FACTOR	(.1-1)	(.1-1)	_____
6	SLOPE	(0-100%) 0-45 DEG)	(0-100% OR 0-45 DEG)	_____
7	ELAPSED TIME FROM IGNITION TO ATTACK	(.1-8 H)	(.1-8 H)	_____
8	TOTAL LINE BUILDING RATE	(.1-200 CH/H)	(.1-67 M/MIN)	_____
OUTPUT				
	FORWARD RATE OF SPREAD	(CH/H)	(M/MIN)	_____
	HEAT PER UNIT AREA	(BTU/FT)	(KJ/M)	_____
	FIRELINE INTENSITY	(BTU/FT/S)	(KW/M)	_____
	FLAME LENGTH	(FT)	(M)	_____
	AREA AT TIME OF ATTACK	(AC)	(HA)	_____
	PERIMETER AT TIME OF ATTACK	(CH)	(M)	_____
HEAD ATTACK:				
	ELAPSED TIME FROM ATTACK TO CONTAINMENT	(H)	(H)	_____
	TOTAL LENGTH OF LINE	(CH)	(M)	_____
	FINAL FIRE SIZE	(AC)	(HA)	_____
REAR ATTACK:				
	ELAPSED TIME FROM ATTACK TO CONTAINMENT	(H)	(H)	_____
	TOTAL LENGTH OF LINE	(CH)	(M)	_____
	FINAL FIRE SIZE	(AC)	(HA)	_____

SHEET _____ OF _____

NAME OF FIRE _____ FIRE PREDICTION SPEC. _____

DATE _____ TIME _____

PROJ. PERIOD DATE _____ PROJ. TIME FROM _____ TO _____

SITE/MOISTURE MODULE Input/Output

(SITE in FIRE1 program; MOISTURE in FIRE2 program)

INPUT		UNITS English	UNITS Metric	
0	PROJECTION POINT			_____
1#	MOISTURE RUN OPTION 1 = BURN TIME CALCULATIONS 2 = HOURLY CALCULATIONS (GRAPHIC OUTPUT)	(1-2)	(1-2)	_____
TIME AND LOCATION				
2	MONTH OF BURN	(1-12)	(1-12)	_____
3	DAY OF BURN	(1-31)	(1-31)	_____
4	LATITUDE (N or S), @ STATE	(0-90 DEG)	(0-90 DEG)	_____
5	BURN TIME (2400 hour clock)	(0000-2359)	(0000-2359)	_____
FUEL MODEL				
6	FUEL MODEL	(1-99)	(1-99)	_____
FUEL MOISTURE				
7@	10-H FUEL MOISTURE	(1-60%)	(1-60%)	_____
8@	100-H FUEL MOISTURE	(1-60%)	(1-60%)	_____
9@	LIVE HERBACEOUS MOISTURE	(30-300%)	(30-300%)	_____
10@	LIVE WOODY MOISTURE	(30-300%)	(30-300%)	_____
SLOPE, ELEVATION, ASPECT				
11*	SLOPE	(0-100% or 0-45 DEG)	(0-100% or 0-45 DEG)	_____, _____, _____
	@ MAP SCALE 0 = DIRECT ENTRY REP. FRAC. or IN/MI 1 = 1:253,440 1/4 2 = 1:126,720 1/2 3 = 1: 63,360 1 4 = 1: 31,680 2 REP. FRAC. or IN/MI 5 = 1:24,000 2.64 6 = 1:21,120 3 7 = 1:15,840 4 8 = 1: 7,920 8	(0-8)	(1000-500,000 REP. FRAC.) or (.2-32 CM/KM)	_____
	@ CONTOUR INTERVAL	(10-500 FT)	(3-152 M)	_____
	@ MAP DISTANCE	(.1-10 IN)	(.3-25 CM)	_____
	@ NUMBER OF CONTOUR INTERVALS	(1-100)	(1-100)	_____
12*	ELEVATION OF FIRE LOCATION	(0-12000 FT)	(0-3658 M)	_____, _____, _____
13	WEATHER OBS. AT SAME ELEV.	(0-12000 FT)	(0-3658 M)	_____
14*	ASPECT (N, NE, E, SE, S, SW, W, NW)			_____, _____, _____
TIMBER OVERSTORY DESCRIPTION				
15*	CROWN CLOSURE (ENTER THE CLOSURE AS IF THERE WERE FOLIAGE)	(0-100%)	(0-100%)	_____, _____, _____
16	FOLIAGE PRESENT	(Y/N)	(Y/N)	_____
17	SHADE TOLERANT	(Y/N)	(Y/N)	_____

(Site & moisture module input, continued:)

INPUT		UNITS English	UNITS Metric	
18	DOMINANT TREE TYPE 1 = CONIFEROUS 2 = DECIDUOUS	(1-2)	(1-2)	_____
19*	AVERAGE TREE HEIGHT	(10-300 FT)	(3-91 M)	_____, _____, _____
20*	RATIO OF CROWN LENGTH TO TREE HEIGHT	(.1-1)	(.1-1)	_____, _____, _____
21*	RATIO OF CROWN LENGTH TO CROWN DIA.	(.2-7)	(.2-7)	_____, _____, _____
EARLY AFTERNOON WEATHER				
22*	BURN DAY 1400 TEMPERATURE	(33-120° F)	(.6-49° C)	_____, _____, _____
23*	BURN DAY 1400 RELATIVE HUMIDITY	(1-100%)	(1-100%)	_____, _____, _____
24*	BURN DAY 1400 20-FT WINDSPEED	(0-99 MI/H)	(0-159 KM/H)	_____, _____, _____
25*	BURN DAY 1400 CLOUD COVER	(0-100%)	(0-100%)	_____, _____, _____
26	BURN DAY 1400 HAZINESS 1 = VERY CLEAR SKY 2 = AVERAGE CLEAR FOREST ATMOSPHERE 3 = MODERATE FOREST BLUE HAZE 4 = DENSE HAZE	(1-4)	(1-4)	_____
SUNSET WEATHER				
27*	SUNSET TEMPERATURE	(33-120° F)	(.6-49° C)	_____, _____, _____
28*	SUNSET RELATIVE HUMIDITY	(1-100%)	(1-100%)	_____, _____, _____
29*	SUNSET 20-FT WINDSPEED	(0-99 MI/H)	(0-159 KM/H)	_____, _____, _____
30*	SUNSET CLOUD COVER	(0-100%)	(0-100%)	_____, _____, _____
SUNRISE WEATHER				
31*	SUNRISE TEMPERATURE	(33-120° F)	(.6-49° C)	_____, _____, _____
32*	SUNRISE RELATIVE HUMIDITY	(1-100%)	(1-100%)	_____, _____, _____
33*	SUNRISE 20-FT WINDSPEED	(0-99 MI/H)	(0-159 KM/H)	_____, _____, _____
34*	SUNRISE CLOUD COVER	(0-100%)	(0-100%)	_____, _____, _____
BURN TIME WEATHER				
35*	BURN TIME TEMPERATURE	(33-120° F)	(.6-49° C)	_____, _____, _____
36*	BURN TIME RELATIVE HUMIDITY	(1-100%)	(1-100%)	_____, _____, _____
37*	BURN TIME 20-FT WINDSPEED	(0-99 MI/H)	(0-159 KM/H)	_____, _____, _____
38*	BURN TIME CLOUD COVER	(0-100%)	(0-100%)	_____, _____, _____
39	BURN TIME HAZINESS 1 = VERY CLEAR SKY 2 = AVERAGE CLEAR FOREST ATMOSPHERE 3 = MODERATE FOREST BLUE HAZE 4 = DENSE HAZE	(1-4)	(1-4)	_____
BURN TIME WIND				
40	EXPOSURE OF FUELS TO THE WIND 0 = DON'T KNOW (SITE ONLY) 1 = EXPOSED 2 = PARTIALLY SHELTERED 3 = FULLY SHELTERED – OPEN STAND 4 = FULLY SHELTERED – DENSE STAND 5 = DIRECT ENTRY OF WIND ADJUSTMENT FACTOR	(0-5)	(0-5)	_____

 # MOISTURE ONLY
@ SITE ONLY
*** A RANGE OF VALUES IS ALLOWED IN MOISTURE ONLY, RUN OPTION 1**

(Site & moisture module input, continued:)

INPUT

41 @ BURN TIME DIRECTION OF WIND VECTOR DEGREES CLOCKWISE FROM UPHILL	(0-360 DEG)	(0-360 DEG)	_____
42 @ DIRECTION FOR SPREAD CALCULATIONS, DEG CLOCKWISE FROM UPHILL OR WIND VECTOR IF SPREAD = 0	(Y/N)	(Y/N)	_____
(DIRECTION OF MAX SPREAD CAN BE CALCULATED)	(IF N, 0-360)	(IF N, 0-360)	_____

MOISTURE INITIALIZATION OPTION

43 MOISTURE INITIALIZATION OPTION 1 = 1-HR MOISTURE KNOWN FOR BURN DAY -1 2 = COMPLETE WEATHER DATA FOR 3-7 DAYS 3 = INCOMPLETE WEATHER DATA; RAIN THE WEEK BEFORE BURN 4 = INCOMPLETE WEATHER DATA; NO RAIN THE WEEK BEFORE BURN AND WEATHER PATTERN IS HOLDING (NO ADDITIONAL INPUT) 5 = INCOMPLETE DATA; WEATHER PATTERN CHANGING	(1-5)	(1-5)	_____

FINE FUEL MOISTURE KNOWN FOR THE DAY BEFORE THE BURN

44* BURN DAY -1 1-HR FUEL MOISTURE	(1 -100%)	(1-100%)	_____, _____, _____

COMPLETE WEATHER AVAILABLE FOR 3-7 DAYS PRIOR TO THE BURN

45 NUMBER OF DAYS OF WEATHER	(3-7)	(3-7)	_____

	-1	-2	-3	-4	-5	-6	-7
46 BURN DAY -X 1400 TEMPERATURE, F OR C	___	___	___	___	___	___	___
47 BURN DAY -X 1400 RELATIVE HUMIDITY, PERCENT (%)	___	___	___	___	___	___	___
48 BURN DAY -X 1400 20-FT WINDSPEED, MI/H OR KM/H	___	___	___	___	___	___	___
49 BURN DAY -X 1400 CLOUD COVER, PERCENT (%)	___	___	___	___	___	___	___
50 BURN DAY -X RAIN AMOUNT, HUNDRETHS OF IN. or CM	___	___	___	___	___	___	___

INCOMPLETE WEATHER DATA; RAIN THE WEEK BEFORE THE BURN

51* NUMBER OF DAYS BEFORE BURN RAIN OCCURRED	(1 - 7)	(1 - 7)	_____, _____, _____
52* RAIN AMOUNT	(.01-4 IN.)	(.3-102 CM)	_____, _____, _____
53* 1400 TEMPERATURE ON DAY IT RAINED	(33 - 120° F)	(.6-49° C)	_____, _____, _____
54 SKY CONDITION FROM RAIN DAY TO BURN DAY 1 = CLEAR 2 = CLOUDY 3 = PARTLY CLOUDY	(1 - 3)	(1 - 3)	_____

INCOMPLETE WEATHER DATA; WEATHER PATTERN CHANGING

55* BURN DAY - 1 1400 TEMPERATURE	(33 - 120° F)	(.6-49° C)	_____, _____, _____
56* BURN DAY - 1 1400 RELATIVE HUMIDITY	(1 - 100%)	(1-100%)	_____, _____, _____
57* BURN DAY - 1 1400 20-FT WINDSPEED	(0 - 99 MI/H)	(0-159 KM/H)	_____, _____, _____
58* BURN DAY - 1 1400 CLOUD COVER	(0 -100%)	(0-100%)	_____, _____, _____
59 WEATHER CONDITION PRIOR TO BURN DAY -1 1 = HOT AND DRY 2 = COOL AND WET 3 = BETWEEN 1 AND 2	(1-3)	(1-3)	_____, _____, _____

@ SITE ONLY
* A RANGE OF VALUES IS ALLOWED IN MOISTURE ONLY, RUN OPTION 1

SITE MODULE Output

(FIRE1 program)

	UNITS English	UNITS Metric	
INTERMEDIATE VALUES			
TIME OF SUNSET			_____
TIME OF SUNRISE			_____
WIND ADJUSTMENT FACTOR			
FUEL SURFACE TEMPERATURES	(°F)	(°C)	_____
FUEL LEVEL RELATIVE HUMIDITY	(%)	(%)	_____
PER CENT SHADE	(%)	(%)	_____
1-HR FUEL MOISTURE	(%)	(%)	_____
BASIC INPUT			
FUEL MODEL			_____
1-H FUEL MOISTURE	(%)	(%)	_____
10-H FUEL MOISTURE	(%)	(%)	_____
100-H FUEL MOISTURE	(%)	(%)	_____
LIVE HERBACEOUS FUEL MOISTURE	(%)	(%)	_____
LIVE WOODY FUEL MOISTURE	(%)	(%)	_____
MIDFLAME WINDSPEED	(MI/H)	(%)	_____
SLOPE	(%)	(%)	_____
DIRECTION OF WIND VECTOR, DEGREES CLOCKWISE FROM UPHILL (OR FROM THE WIND VECTOR IF SLOPE IS ZERO)	(DEG)	(DEG)	_____
DIRECTION FOR SPREAD CALCULATIONS, DEGREES CLOCKWISE FROM UPHILL (OR FROM THE WIND VECTOR IF SLOPE IS ZERO)	(DEG)	(DEG)	_____
OUTPUT			
RATE OF SPREAD	(CH/H)	(M/MIN)	_____
HEAT PER UNIT AREA	(BTU/FT^2)	(KW/M^2)	_____
FIRELINE INTENSITY	(BTU/FT/S)	(KW/M)	_____
FLAME LENGTH	(FT)	(M)	_____
REACTION INTENSITY	(BTU/FT^2/MIN)	(KW/M^2)	_____
EFFECTIVE WINDSPEED	(MI/H)	(KM/H)	_____
DIRECTION OF MAXIMUM SPREAD, DEGREES CLOCKWISE FROM UPHILL	(DEG)	(DEG)	_____

SHEET _____ OF _____

NAME OF FIRE _____ FIRE PREDICTION SPEC. _____

DATE _____ TIME _____

PROJ. PERIOD DATE _____ PROJ. TIME FROM _____ TO _____

MOISTURE MODULE Output

(FIRE2 program)

OUTPUT		UNITS English	UNITS Metric	
1	1-HOUR MOISTURE	(%)	(%)	_____
2	DRY BULB TEMPERATURE	(°F)	(°C)	_____
3	AIR RELATIVE HUMIDITY	(%)	(%)	_____
4	FUEL LEVEL TEMPERATURE	(°F)	(°C)	_____
5	FUEL LEVEL RELATIVE HUMIDITY	(%)	(%)	_____
6	MID FLAME WINDSPEED	(MI/H)	(KM/H)	_____
7	FUEL LEVEL WINDSPEED	(MI/H)	(KM/H)	_____
8	SHADE	(%)	(%)	_____
9	PROBABILITY OF IGNITION	(%)	(%)	_____

OUTPUT TABLE

TABLE NO _____ TABLE ITEM _____ ROW ITEM _____ COL ITEM _____

PROJECTION PT ___ COLUMN VALUES: ____ ____ ____ ____ ____ ____ ____

ROW NO.	ROW VALUE	TABLE VALUES
1.	_____	____ ____ ____ ____ ____ ____ ____
2.	_____	____ ____ ____ ____ ____ ____ ____
3.	_____	____ ____ ____ ____ ____ ____ ____
4.	_____	____ ____ ____ ____ ____ ____ ____
5.	_____	____ ____ ____ ____ ____ ____ ____
6.	_____	____ ____ ____ ____ ____ ____ ____
7.	_____	____ ____ ____ ____ ____ ____ ____

IGNITE MODULE Output

(FIRE2 program)

INPUT		UNITS English	UNITS Metric	
0	PROJECTION POINT			_____
1*	DRY BULB TEMPERATURE	(33-120° F)	(.6-49° C)	_____, _____, _____
2*	1-H FUEL MOISTURE	(1-60%)	(1-60%)	_____, _____, _____
3*	SHADE	(0-100%)	(0-100%)	_____, _____, _____
OUTPUT				
1	PROBABILITY OF IGNITION	%	%	_____

* A RANGE OF VALUES IS ALLOWED

RH MODULE Input/Output

(FIRE2 program)

INPUT		UNITS English	UNITS Metric	
0	PROJECTION POINT			____
1*	DRY BULB TEMPERATURE	(33-120° F)	(.6-49° C)	____, ____, ____
2*	WET BULB TEMPERATURE	(0-120° F)	(-18-49° C)	____, ____, ____
3*	ELEVATION	(0-12000 FT)	(0-3658 M)	____, ____, ____
OUTPUT				
1	RELATIVE HUMIDITY	%	%	____
2	DEW POINT	°F	°C	____

* A RANGE OF VALUES IS ALLOWED

MAP MODULE Input/Output

(FIRE1 program)

		UNITS English	UNITS Metric	
INPUT				
0	PROJECTION POINT			____
1	MAP SCALE 1 = REP FAC 1 = REP FAC 2 = IN/MI 2 = CM/KM	(1-2)	(1-2)	____
	(1) REPRESENTATIVE FRACTION? 0 = DIRECT ENTRY 1 = 1 : 253,440 5 = 1 : 24,000 2 = 1 : 126,720 6 = 1 : 21,120 3 = 1 : 63,360 7 = 1 : 15,840 4 = 1 : 31,680 8 = 1 : 7,920	(0-8)	(1000-500000)	____
	(1) INCHES/MILE	(.1-20 IN/MI)	(.2-32CM/KM)	____
2	UNITS OPTION 1 = SPREAD DISTANCE 2 = SPOT DISTANCE 3 = RATE OF SPREAD	(1-3)	(1-3)	____
3*	SPREAD DISTANCE	(.1-1000 CH)	(2-20110 M)	____ , ____ , ____
4*	MAXIMUM SPOTTING DISTANCE	(.1-10 MI)	(.2-16 KM)	____ , ____ , ____
5*	RATE OF SPREAD	(.1-500 CH/H)	(.1-168 M/MIN)	____ , ____ , ____
6*	ELAPSED TIME	(.1-8 H)	(.1-8 H)	____ , ____ , ____
OUTPUT				
	MAP SPREAD DISTANCE	(IN)	(CM)	____
	OR			
	MAP MAXIMUM SPOTTING DISTANCE	(IN)	(CM)	____

* A RANGE OF VALUES IS ALLOWED

SLOPE MODULE Input/Output

(FIRE1 program)

		UNITS English	UNITS Metric	
INPUT				
0	PROJECTION POINT			____
1	MAP SCALE 1 = REP FAC 1 = REP FAC 2 = IN/MI 2 = CM/KM	(1-2)	(1-2)	____
	(1) REPRESENTATIVE FRACTION? 0 = DIRECT ENTRY 1 = 1 : 253,440 5 = 1 : 24,000 2 = 1 : 126,720 6 = 1 : 21,120 3 = 1 : 63,360 7 = 1 : 15,840 4 = 1 : 31,680 8 = 1 : 7,920	(0-8)	(1000-500000)	____
	(1) INCHES/MILE	(.1-20 IN/MI)	(.2-32 CM/KM)	____
2*	CONTOUR INTERVAL 1 = SPREAD DISTANCE 2 = SPOT DISTANCE 3 = RATE OF SPREAD	(10-500 FT)	(3-152 M)	____
3*	MAP DISTANCE	(.1-10 IN)	(.3-25 CM)	____ , ____ , ____
4*	NUMBER OF CONTOUR INTERVALS	(.1-10 MI)	(.2-16 KM)	____ , ____ , ____
OUTPUT				
1	SLOPE	(IN)	(CM)	____
2	ELEVATION CHANGE	(IN)	(CM)	____
3	HORIZONTAL DISTANCE	(FT)	(M)	____

* A RANGE OF VALUES IS ALLOWED