2004
Alaska Fire Weather Program
Annual Operating Plan
for
National Weather Service, Alaska Region (NWS)
Alaska Fire Service (AFS)
U.S. Forest Service, Region 10 (USFS), and
State of Alaska, Division of Forestry (DOF)
(Alaska Wildland Fire Coordinating Group)

A. Purpose

To describe the roles, responsibilities and operational procedures of NWS, AFS, USFS and DOF personnel in support of the 2004 Alaska Fire Weather Program, to ensure effective use of NWS fire weather products, and establish responsibilities of the Alaska Interagency Coordination Center (AICC) fire weather meteorologist.

Authorities. This Plan is maintained and coordinated by the Fire Weather Committee of the Alaska Wildland Fire Coordination Group (Appendix A). The roles described in this Operating Plan are intended to be flexible and allow for changing conditions of personnel, workload, and weather hazards.

B. Operational Guidelines

April 15 through August 27 will be the principal operating period for the Alaska Fire Weather Program. Starting and ending dates are subject to the fire weather threat.

C. NWS Responsibilities

1. The NWS will provide a Regional Fire Weather Coordinator and fire weather focal points for the principal operating period at the Anchorage, Fairbanks, and Juneau Weather Forecast Offices (WFO). The fire weather focal points and Lead Forecasters will be responsible for timely delivery and quality of fire weather products and services from their WFOs.

2. Consistent with the Interagency Agreement for Meteorological Services, the NWS also will provide the following services:

a. Routine daily fire weather forecasts, outlooks and discussions. Unless wildfire conditions exist or are anticipated, fire weather products will not be provided for forecast zones 135, 181, 185, 191, 195, 201-207, 211 and 213. The forecast will include information (as described below) for the first three periods for morning forecasts and first four periods for afternoon forecasts. The forecast also will include information for days 3 through 5. [Note: the Fire Weather Program Time Line for Products and Services is listed in Appendix C, the Daily Schedule for Products and Services is listed in Appendix D, and an example of the Fire Weather Forecast is included as Appendix H]. Details about product format are provided below.
   - Morning and afternoon Fire Weather Forecasts will include information on sky condition and weather, relative humidity, wind speed and direction, and potential for wet and/or dry thunderstorms.
   - Red Flag Warnings and Fire Weather Watches (details in section c.2.d., product examples in Appendix I) will be headlined at the top of the corresponding fire weather zone forecast. The headline will specify the area, time period, and conditions covered by the watch/warning.
   - The fire weather forecast zones will be geographically the same as the public forecast zones. Fire weather zone names, descriptions and a map of the fire weather zones are given in Appendix E.

b. The NWS will maintain, and update daily, the Alaska Fire Weather section on the NWS Alaska Region Headquarters website (http://www.arh.noaa.gov). The Fire Weather section will include daily fire weather forecasts and graphics. Any changes to the content or display of the website information should be coordinated with the AICC.

c. Weather observations.
Daily/hourly observations for ASOS/AWOS stations will be available from a file transfer protocol (FTP) location determined by local procedures.

d. Red Flag Warnings and Fire Weather Watches.
The notification and issuance of Red Flag Warnings and Fire Weather Watches will be the number one priority of the fire weather program. Red Flag Warnings should be issued for Red Flag Warning conditions forecast in the first 24 hours of the forecast period. Fire Weather Watches should be issued for Red Flag Warning conditions forecast beyond the first 24 hours of the forecast period.

Red Flag Warning/Fire Weather Watch conditions include one or more of the following:

Winds* $\geq$25 mph and Relative Humidity $\leq$40%
Winds* $\geq$20 mph and Relative Humidity $\leq$15%
Relative Humidity $\leq$10%
Dry Thunderstorms with a Scattered coverage (25% areal) and <0.10" rainfall

* In the above table Winds are defined as frequent gusts or sustained for one-hour duration or more.

WFOs will consult the AICC Intelligence Section (907-356-5691/5671) when Red Flag Warnings or Fire Weather Watches are considered. Consultation and notification calls may be the same. The AICC or its designated Regional Area Contact is responsible for determining if fuel conditions are consistent with issuing the Warning/Watch. Fuel conditions are critical to the Warning/Watch issuance decision. If fuel condition consultation with the AICC is not possible, the Warning/Watch will be issued if the above meteorological Red Flag Warning/Fire Weather Watch conditions are anticipated.

In addition to headlining the Warning/Watch in the Fire Weather Forecast, the Warning/Watch information also will be issued as a separate product and posted to the NWS Alaska Region Headquarters website, Fire Weather Section, under Red Flag Warning/Fire Weather Watch. The AICC and local dispatch office should be telephoned upon issuance of the Warning/Watch and, if time permits, the Warning/Watch also should be sent to the AICC by facsimile.

e. Spot forecasts.
Incidents will submit requests for spot forecasts, with pertinent weather observations, information or guidance, directly to the WFO having spot forecast responsibility for the location. WFO fire weather zone responsibility is listed in Appendix E. Completed forecasts are posted to the website and faxed to the originating Incident using a standardized format.

WFO spot forecast issuance should take priority over routine fire weather forecasts.

f. Prescribed burn forecasts.

The same procedures apply for prescribed burn forecasts as spot forecasts.

g. Smoke management forecasts and information.

The transport wind and the mixing height, required information for smoke management, should be included in spot and prescribed burn fire forecasts.

Forecast information on smoke from wildfires should be included in routine fire weather forecasts during the relevant forecast period and/or in the forecast discussion.

h. Consultation and technical advice.

The WFO should provide requested information and advice as urgency of situation and operational time constraints dictate.

l. Amendments/updates.

Forecasts, Red Flag Warnings, and Fire Weather Watches should be updated according to the criteria listed in Appendix F. The spot forecast is a one-time site specific product which is not routinely updated. Spot forecasts should be updated when representative observations are available to the forecaster and he/she is confident that an update could affect fire suppression or prescribed burning operations and/or the safety of personnel. Incident/land management personnel may contact the appropriate WFO for a spot update if forecast conditions appear unrepresentative of the actual weather conditions.

j. Fire weather training.

Upon the request of the AICC, NWS staff should assist in teaching sessions containing fire weather modules.

k. Special meteorological services.

Any additional meteorological services not explicitly described in this Plan may be requested by the AICC through the Regional Fire Weather Coordinator. During emergency situations outside of administrative duty hours (8 am - 5pm Monday through Friday), requests should be directed to the WFO Fire Weather focal point or lead forecaster (see Appendix B).

3. In addition, the NWS will augment the above services by providing the following:

a. Automated graphic products available via the Internet.

b. Forecasted maximum temperature, minimum relative humidity and wind speed for daily input into the Fire Weather Index Program.

c. End of Season Report.

The report should include an overview and evaluation of the program, a formal verification of the 2003 season forecast performance (based on guidelines provided in NWS Instruction 10-404), recommendations for future program development, and a synopsis of the season's weather patterns, highlighting significant weather events and their effect.

The report will be prepared by WFO Fire Weather focal points in Anchorage, Fairbanks and Juneau and forwarded to the NWS Regional Fire Weather Coordinator. The Regional Fire Weather Coordinator will prepare a cover letter and distribute the report to the NWS National Fire Weather Program Manager in Boise ID and members of the Alaska Wildland Fire Coordinating Group/Fire Weather Committee. The report should be available by January 15, 2005.

D. Alaska Interagency Coordination Center Meteorologist (AICC)

The AICC Fire Weather Meteorologist is based at the AICC in Fairbanks. Her/his duties are to value-add upon the products and services furnished by the NWS. The AICC Meteorologist will be available to all federal and state agencies to consult regarding fire weather and other long range weather issues.

Her/his duties will include, but are not limited to:

1. Weekly and Monthly Fire Weather and Fire Danger Outlooks.

AICC will prepare weekly reports and post them to the AFS website.

2. The AICC Meteorologist will provide monthly drought condition reports. Drought condition reports will be updated weekly if drought conditions dictate.

3. Air Quality and Drought Issues: Air quality and drought information will be routinely assessed by the AICC meteorologist.

4. Research.

5. Program development.

6. Statewide Briefings.

   Statewide Briefings will be conducted by the AICC Meteorologist. These briefings will be held Monday through Friday. Interested agencies will dial into an 800 number. The briefing will discuss statewide conditions and refer to graphic products displayed on the NWS and AFS maintained websites. Weekend briefings will be provided upon request, depending on the weather and severity of the fire season. Briefing content is listed in Appendix G.

   Afternoon or early evening briefings will be conducted when significant weather changes warrant, or during severe fire conditions, as requested by user agencies.

7. Pre-Season and Post-Seasonal Assessments.

   Pre-season assessment for 2003 will be prepared in the spring.

   Post-season assessment will be prepared for the Interagency Fall Fire Review Meeting.

8. Historical Climate and Weather Analysis.

9. Risk Assessments for fire behavior and fire danger potential.

   AICC Meteorologist will gather current fuels condition information from local areas and coordinate with NWS on Red Flag Warnings and Fire Weather Watches.

10. Liaison between the federal and state agencies and the NWS.

11. Team member for collaborative planning efforts.

12. Team leader for RAWS coordination.

E. Alaska Fire Service (AFS), U.S. Forest Service (USFS), Division of Forestry (DOF), and the Alaska Wildland Fire Coordinating Group (AWFCG)
   1. In concurrence with the National Agreement, the agencies will provide:
      a. Fire management computer systems. Access shall be provided via FTP for transferring forecasts.
      b. Fire weather observations. Observations from all RAWS are posted on the AFS website.
      c. Provide pertinent weather information, and observations, in support of spot forecast requests.
      d. On-site meteorological support. A request for an Incident Meteorologist (IMET) for on-site support will be initiated by the Incident using an overhead resource order and following established dispatch procedures. Logistical support for all NWS personnel assigned to wildland fires will be supplied by the Incident to which he/she is assigned.
      e. Training. NWS is welcome to nominate personnel to attend fire training sessions offered in Alaska. Acceptance is based on completion of prerequisite training requirements and space availability.
      f. Other special services. A multi-port teleconference line will be available for briefings and conferences.
      g. The AFS (http://fire.ak.blm.gov) And DOF (http://www.dnr.state.ak.us/forestry) also will maintain websites with links to NWS fire weather information.
      h. The AFS will retrieve ASOS/AWOS observations and post them in the Weather section of the AFS website.
      i. The AFS will provide real-time lightning data to the NWS.

2. In addition, the agencies have agreed to support the Fire Weather Program in the following manner:
   a. When conditions warrant, file a resource order to request IMETs to augment the staffing at any of the Alaska WFOs, the AICC, or for on-site fire assignments.
   b. Archive Weather Data. The AFS and AICC Intelligence will ensure pertinent observations from their stations of interest are archived into WIMS.

F. Administration

1. Operating Period.
The principal operating period for the Alaska Fire Weather Program will be from April 15 through August 27, 2004. During other times, the National Weather Service will provide Fire Weather Forecast product(s), as requested by the agencies, based on the severity of fire conditions.

2. Annual Meetings.
During the Fall 2004, NWS will coordinate a joint meeting of fire weather stakeholder agencies in Alaska (including the State of Alaska, Bureau of Land Management, National Park Service, U.S. Forest Service and the NWS) for the purpose of reviewing 2004 fire weather operations and preparing for the 2005 fire weather season. If requested by one of the agencies, additional meetings may be arranged.

3. Annual Operating Plan.
This document fulfills the "National Agreement for Meteorological Services in Support of Agencies with Land Management and Fire Protection Responsibilities," which establishes requirements for an Annual Operating Plan.

4. Modification of Fire Weather Operating Procedures.
Terms of this Operating Plan may be modified at any time. Agencies participating in this Operating Plan will provide reasonable advance notification of any operationally significant changes to other Alaska state fire weather stakeholder agencies, as listed in Section F.2 above.

5. Effective Date.
This Operating Plan is effective beginning April 1, 2004 and will be reviewed annually.

__4/27/04___ __<signed>_____
Date James Partain
Chief of Environmental and Scientific Services
NWS Alaska Region

__4/27/04___ __<signed>_____
Date Charlie Sink
Chair, Alaska Wildland Fire Coordinating Group

Appendix A

Alaska Wildland Fire Coordination Group
Fire Weather Committee
2004

Liaison to AWFCG

Dean Brown	Phone:	269-8476
	Fax:	269-8921
	email:	dean_brown@dnr.state.ak.us

Chair-AICC Meteorologist-NPS

Sharon Alden	Phone:	356-5691
	Fax:	356-5678
	email:	sharon_alden@ak.blm.gov

State of Alaska - Division of Forestry

Arlene Webber-Sword	Phone:	269-8471
	Fax:	269-8921
	email:	arlenes@dnr.state.ak.us

National Park Service

Brad Cella	Phone:	644-3409
	Fax:	644-3809
	email:	brad_cella@nps.gov

Tanana Chiefs Conference

James A. Bell	Phone:	452-8521 x3375
	Fax:	459-3852
	email:	jbell@tananachiefs.org

U.S. Fish and Wildlife

Sam Patten	Phone:	456-0467
	Fax:	456-0428
	email:	sam_patten@fws.gov

Bureau of Land Management - Alaska Fire Service

Mike Silva	Phone:	356-5550
	Fax:	356-5556
	email:	mike_m_silva@ak.blm.gov

U.S. Forest Service

Willie R. Thompson	Phone:	743-9440
	Fax:	743-9479
	email:	wrthompson@fs.fed.us

National Weather Service

Duane Carpenter	Phone:	271-5127
	Fax:	271-3711
	email:	duane.carpenter@noaa.gov

Appendix B

Contact Points
2004

Agency Contacts for Fire Related Questions:

State of Alaska:
Anchorage/Palmer Area

Maria Wade	Phone: 761-6218
	Fax: 761-6227
	email: maria_wade@dnr.state.ak.us

Fairbanks Area

Robert Schmoll	Phone: 451-2636
	Fax: 451-2690
	email: robert_schmoll@dnr.state.ak.us

Bureau of Land Management:

Dave Curry	Phone: 356-5677
	Fax: 356-5678
	email: dave_curry@ak.blm.gov

National Park Service
AICC Meteorologist

Sharon Alden	Phone: 356-5691
	Fax: 356-5678
	email: sharon_alden@ak.blm.gov

U.S. Forest Service:
Tongass National Forest

Dexter Duehn	Phone: 228-6316
	Fax: 228-6313
	email: dduehn@fs.fed.us

Chugach National Forest

Mike Stubbs	Phone: 271-2835fwx1!sca
	Fax: 271-3992
	email: mstubbs@fs.fed.us

National Weather Service Fire Weather Contacts:

NWS Regional Fire Weather Program Manager

Duane Carpenter	Phone:	271-5137
	Fax:	271-3711
	email:	duane.carpenter@noaa.gov

Fairbanks Weather Forecast Office

Focal Point	Mike Richmond	
	Phone:	458-3705
	Fax:	458-3737
	email:	michael.richmond@noaa.gov
Lead Forecaster	Phone:	458-3700
Meteorologist-in- Charge	John Dragomir	
	Phone:	458-3704
	email:	john.dragomir@noaa.gov
Incident Meteorologists	Mike Richmond, Ted Fathauer	
	Phone:	458-3708
	email:	theodore.fathauer@noaa.gov
		michael.richmond@noaa.gov

Anchorage Weather Forecast Office

Focal Point	Amy Bedal	
	Phone:	266-5115
	Fax:	266-5188
	email:	amy.bedal@noa.gov
Lead Forecaster	Phone:	266-5167
Meteorologist-in-Charge	Bob Hopkins	
	Phone:	266-5120
	email:	bob.hopkins@noaa.gov
Incident Meteorologist (trainee)	Amy Bedal	
	Phone:	266-5115
	email:	amy.bedal@noaa.gov

Juneau Weather Forecast Office

Focal Point	Julia Ruthford	
	Phone:	790-6824
	Fax:	790-6827
	email:	julia.ruthford@noaa.gov
Lead Forecaster	Phone:	790-6824
Incident Meteorologists	Chris Maier, Julia Ruthford	
	Phone:	790-6824
	Email:	chris.maier@noaa.gov
		julia.ruthford@noaa.gov

Fire Weather Indices and WIMS:

AICC Meteorologist

Sharon Alden	Phone:	356-5691
	Fax:	356-5678
	email:	sharon_alden@ak.blm.gov

Appendix C

PRODUCT AND SERVICE TIME LINE

April 1 through April 14

Fairbanks WFO: Spin-up operations and training for daily forecast issuance. During this period, forecasts, watches and warnings will be issued if weather and fuel conditions warrant, as requested by land management agencies.

Anchorage WFO: During this period, forecasts, watches and warnings will be issued if weather and fuel conditions warrant, as requested by land management agencies.

NWS Alaska Region: Ensures NWS Alaska Region Fire Weather Internet Home Page is operating and providing current products.

April 15 through August 27*

Anchorage WFO: Daily written forecasts (morning and afternoon).

Fairbanks WFO: Daily written forecasts (morning and afternoon) for zones 221-226

Juneau WFO: Begin daily written fire weather forecasts

AICC: Monday through Friday written statewide weather summary

May 1

AICC: Begins Monday through Friday statewide stand-up/teleconference briefing at the Alaska Interagency Coordination Center. Weekend briefings will be provided as needed.

May 1 through August 27*

Fairbanks WFO: Daily written forecasts (morning and afternoon). Add forecasts for zones 212, 214-216, 219 and 220.

May 12

Fairbanks WFO: Daily written forecasts (morning and afternoon) begin for zones 208-210, 217 and 218.

August 28

End of Principal Operating Period

August 28 - March 31

Services of NWS and AICC meteorologist provided upon request. During this period, forecasts, watches and warnings will be issued if weather and fuel conditions warrant, as requested by land management agencies.

* - Dates may be altered based on weather and fire danger.

Appendix D

PRODUCT AND SERVICE DAILY SCHEDULE

LOCAL TIME	ITEM
0800	Morning Fire Weather Forecasts for all Zones published to Internet.
0800	Forecasted Fire Weather Indices available on the AFS website.
0900	Internet briefing available on the NWS regional web page
1020	Monday, Wednesday and Friday initial attack briefing at smoke jumpers.
1030	Statewide AICC Meteorologist Briefing.
1130	Initial attack briefing at Fairbanks Area State Forestry Tuesday and Thursday. Additional briefings will be provided, if requested.
1400 - 1700	Actual Fire Weather Indices are posted on the AFS Website. Indices are automatically calculated and posted when the 1400 hr. observation for each station is received by the AFS server.
1430	State manual weather stations transmit their weather observations into NWS Anchorage and Fairbanks Forecast Offices, and via facsimile to AICC.
1700	Fire Weather Forecast for all Zones published to the Internet.
Anytime	Spot forecast as needed. Contact as early as possible.

Appendix E

Tables of Fire Weather Zone Titles and WFO Responsibility and

WFO Juneau

Fire Weather Zone Number	Zone Name
17	CAPE FAIRWEATHER TO CAPE SUCKLING COASTAL AREA
18	TAIYA INLET AND KLONDIKE HIGHWAY
19	HAINES BOROUGH AND LYNN CANAL
20	GLACIER BAY
21	EASTERN CHICHAGOF ISLAND
22	SALISBURY SOUND TO CAPE FAIRWEATHER COASTAL AREA
23	CAPE DECISION TO SALISBURY SOUND COASTAL AREA
24	EASTERN BARANOF ISLAND AND SOUTHERN ADMIRALTY ISLAND
25	JUNEAU BOROUGH AND NORTHERN ADMIRALTY ISLAND
26	INNER CHANNELS FROM KUPREANOF ISLAND TO ETOLIN ISLAND
27	DIXON ENTRANCE TO CAPE DECISION COASTAL AREA
28	SOUTHERN INNER CHANNELS
29	MISTY FJORDS

WFO Anchorage

Fire Weather Zone Number	Zone Name
101	ANCHORAGE
111	MATANUSKA VALLEY
121	WESTERN KENAI PENINSULA
125	WESTERN PRINCE WILLIAM SOUND
131	NORTHEAST PRINCE WILLIAM SOUND
135	SOUTHEAST PRINCE WILLIAM SOUND
141	COPPER RIVER BASIN
145	SUSITNA VALLEY
151	KUSKOKWIM VALLEY
155	KUSKOKWIM DELTA
161	BRISTOL BAY
171	KODIAK ISLAND
181	ALASKA PENINSULA
185	EASTERN ALEUTIANS
191	WESTERN ALEUTIANS
195	PRIBILOF ISLANDS

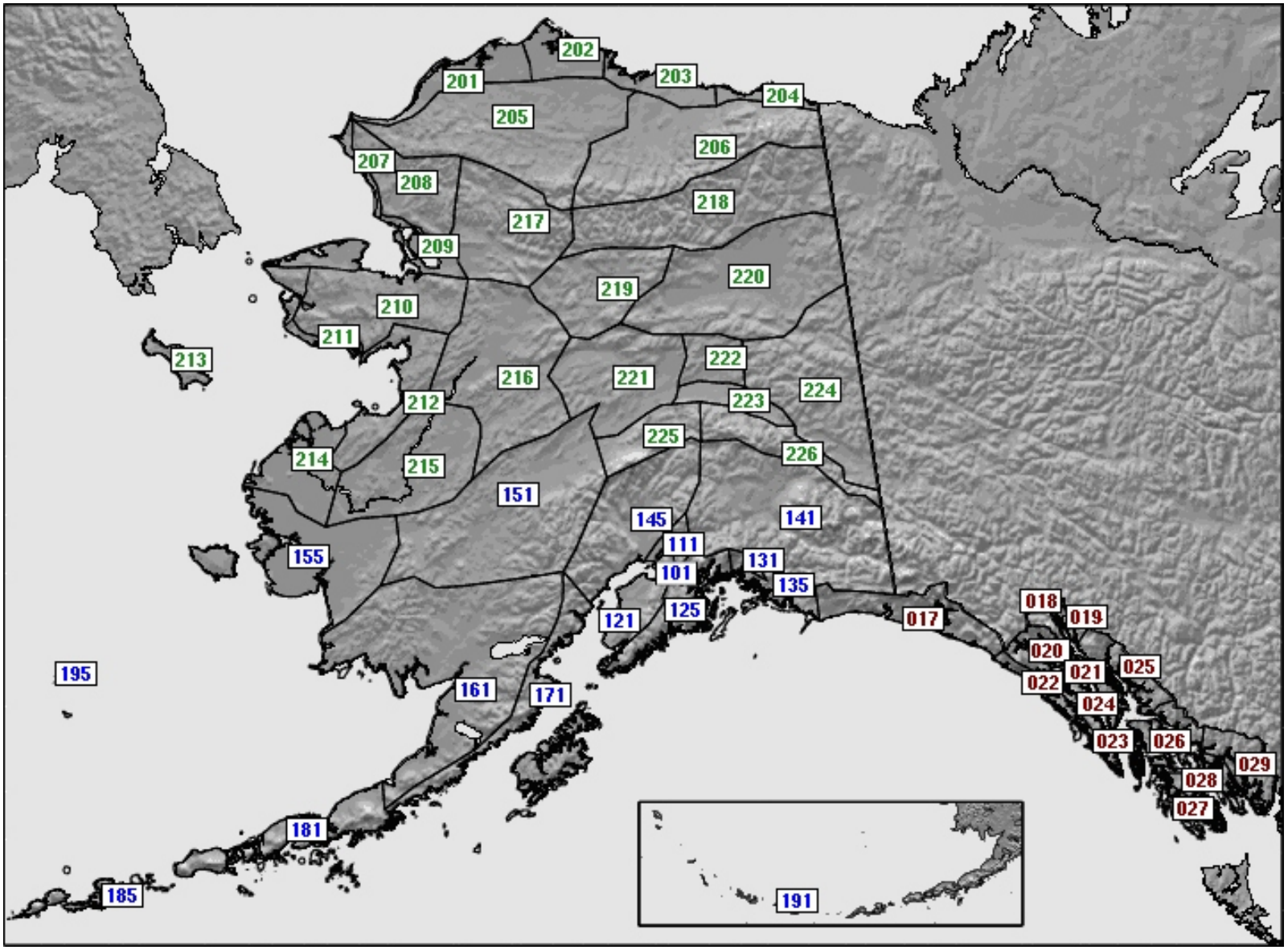
WFO Fairbanks

Fire Weather Zone Number	Zone Name
201	WESTERN ARCTIC COAST
202	NORTHERN ARCTIC COAST
203	CENTRAL BEAUFORT SEA COAST
204	EASTERN BEAUFORT SEA COAST
205	NORTHWESTERN BROOKS RANGE
206	NORTHEASTERN BROOKS RANGE
207	CHUKCHI SEA COAST
208	LOWER KOBUK AND NOATAK VALLEYS
209	BALDWIN PENINSULA AND SELAWIK VALLEY
210	NORTHERN AND INTERIOR SEWARD PENINSULA
211	SOUTHERN SEWARD PENINSULA COAST
212	EASTERN NORTON SOUND AND NULATO HILLS
213	ST LAWRENCE ISLAND AND BERING STRAIT COAST
214	YUKON DELTA
215	LOWER YUKON VALLEY
216	LOWER KOYUKUK AND MIDDLE YUKON VALLEY
217	UPPER KOBUK AND NOATAK VALLEYS
218	SOUTHEASTERN BROOKS RANGE
219	UPPER KOYUKUK VALLEY
220	YUKON FLATS AND SURROUNDING UPLANDS
221	CENTRAL INTERIOR

WFO Fairbanks (cont'd)

Fire Weather Zone Number	Zone Name
222	MIDDLE TANANA VALLEY
223	DELTANA AND TANANA FLATS
224	UPPER TANANA VALLEY AND THE FORTYMILE COUNTRY
225	DENALI
226	EASTERN ALASKA RANGE

Alaska Fire Weather Zones/Public Zones Map



Appendix F

Amendment Criteria

Red Flag Warning
Fire Weather Watches
Fire Weather Forecasts

Update when:

A. Forecasted wind direction differs from observed wind direction by 90 degrees or greater when the observed sustained wind speed is greater than 10 mph.

B. Observed sustained wind speed differs from forecasted wind speed by 10 mph or more.

C. The observed relative humidity ($RH_{observed}$) is less than 50% and the forecast relative humidity ($RH_{forecast}$) minus the observed relative humidity is greater than 10%,

$$RH_{observed} < 50\% \quad \text{and} \quad RH_{forecast} - RH_{observed} > 10\%$$

D. No thunderstorms are forecast and thunderstorms develop.

E. A Red Flag Warning or Fire Weather Watch is issued or cancelled.

BRIEFING CONTENT

Briefings shall provide general statewide fire weather information for all cooperating agencies. Discussion items shall include:

Previous Day's Red Flag Warnings/Fire Weather Watches
- Maximum Temperature/Minimum Relative Humidity
- Precipitation
- Significant weather events

Today's, tomorrow's and a longer range (3 to 10 day) forecast with an emphasis on wet or dry thunderstorm potential and discussion on temperature, humidity, winds and precipitation.

The graphics display shall consist of the following charts: (Charts used in the briefings may be flexible and up to the discretion of the AICC meteorologist.)

- previous 24 hour maximum temperature
- previous 24 hour minimum relative humidity
- previous 24 hour precipitation
- 500 mb
- Recent satellite imagery
- 4:00 a.m. analysis of the surface
- Today's forecasted maximum temperature
- Today's forecasted minimum RH
- Today's Winds
- Today's thunderstorm potential
- 500 mb forecast charts for days 2, 3-6, 7-10.

Example: Routine Daily Fire Weather Forecast for One Fire Weather Zone

FNAK51 PAFC 221618
FWFAER
FIRE WEATHER PLANNING FORECAST
NATIONAL WEATHER SERVICE ANCHORAGE AK
830 AM ADT FRI AUG 22 2003

.DISCUSSION...HIGH PRESSURE OVER SOUTH CENTRAL ALASKA WILL CONTINUE INTO SATURDAY AFTERNOON. A FRONT ACROSS THE BERING STRAIGHT THIS MORNING WILL PUSH INLAND OVER WESTERN ALASKA OVERNIGHT. THEN INTO SOUTH CENTRAL ALASKA SUNDAY MORNING.

AKZ101-230300-
ANCHORAGE-
INCLUDING THE CITIES OF...ANCHORAGE...EAGLE RIVER...INDIAN...EKLUTNA
830 AM ADT FRI AUG 22 2003

.TODAY...
SKY/WEATHER.....SUNNY AFTER AREAS OF MORNING LOW CLOUDS AND FOG.
MAX TEMPERATURE...AROUND 65.
  24 HR TREND....5 DEGREES WARMER.
MIN HUMIDITY.....50-60 PCT.
  24 HR TREND....LITTLE CHANGE.
WIND (20 FT).....VARIABLE 5 MPH BECOMING WEST TO SOUTHWEST 5 TO 15
  MPH IN THE AFTERNOON.

.TONIGHT...
SKY/WEATHER.....SUNNY IN THE EVENING. AREAS OF LOW CLOUDS AND FOG LATE.
MIN TEMPERATURE...40 TO 45.
  24 HR TREND....5 DEGREES COOLER.
MAX HUMIDITY.....100 PCT.
  24 HR TREND....LITTLE CHANGE.
WIND (20 FT).....SOUTHWEST 15 MPH BECOMING LIGHT.

.SATURDAY...
SKY/WEATHER.....INCREASING HIGH CLOUDS.
MAX TEMPERATURE...60 TO 65.
  24 HR TREND....LITTLE CHANGE.
MIN HUMIDITY.....50-60 PCT.
  24 HR TREND....LITTLE CHANGE
WIND (20 FT).....SOUTHWEST 10 TO 20 MPH.

.FORECAST FOR DAYS 3 TO 5...
.SUNDAY...MOSTLY CLOUDY. LOWS IN THE UPPER 40S. HIGHS IN THE LOWER 60S. NORTH WINDS AROUND 10 MPH.
.MONDAY...MOSTLY CLOUDY WITH A CHANCE OF RAIN. LOWS IN THE UPPER 40S. HIGHS IN THE UPPER 50S. NORTH WINDS AROUND 15 MPH.
.TUESDAY...CLOUDY WITH A CHANCE OF RAIN. LOWS IN THE LOWER 50S. HIGHS AROUND 60. NORTH WINDS AROUND 20 MPH.

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Example: Red Flag Warning and Fire Weather Watch Forecast

Red Flag Warning:

WWAK63 PAFG 250017
RFWAFG

RED FLAG WARNING
NATIONAL WEATHER SERVICE FAIRBANKS AK
400 PM ADT THU JUL 24 2003

AKZ223-226-250600-

...RED FLAG WARNING FOR STRONG WINDS FOR PORTIONS OF EAST INTERIOR ALASKA THROUGH 10PM TONIGHT...

FIRE WEATHER ZONES INCLUDED IN THIS WARNING ARE:

ZONE 223 - DELTANA AND TANANA FLATS
ZONE 226 - EASTERN ALASKA RANGE

DISCUSSION...THE NATIONAL WEATHER SERVICE HAS ISSUED A RED FLAG WARNING FOR STRONG WINDS THROUGH 10 PM TONIGHT FOR PORTIONS OF EAST INTERIOR ALASKA. SOUTH WINDS OF 20 TO 30 MPH THROUGH ALASKA RANGE PASSES WILL CONTINUE TONIGHT. THIS INCLUDES THE DELTA JUNCTION AREA. IN ADDITION...MINIMUM HUMIDITIES ARE BETWEEN 25 AND 35 PERCENT. THE HUMIDITIES WILL RISE ABOVE 40 PERCENT BY 10 PM AND THE RED FLAG WARNING WILL END THEN.

SIMILAR STRONG WINDS ARE OCCURRING NEAR HEALY, BUT THE HUMIDITIES ARE ABOVE 40% THERE.

WINDS ACROSS ALL ZONES WILL DIMINISH SOME LATE TONIGHT AND GENERALLY BE FROM 15 TO 20 MPH ON FRIDAY.

PLEASE ADVISE THE APPROPRIATE OFFICIALS OR FIRE CREWS IN THE FIELD OF THIS RED FLAG WARNING.

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Fire Weather Watch:

WWAK61 PAFC 132155
RFWAER

FIRE WEATHER WATCH
NATIONAL WEATHER SERVICE ANCHORAGE AK
200 PM ADT FRI JUN 13 2003

AKZ145-140400-

...FIRE WEATHER WATCH FOR DRY THUNDERSTORMS FOR THE SUSITNA VALLEY THIS EVENING...

FIRE WEATHER ZONES INCLUDED IN THIS WATCH ARE:

AKZ145 - SUSITNA VALLEY

THE NATIONAL WEATHER SERVICE HAS ISSUED A FIRE WEATHER WATCH FOR DRY THUNDERSTORMS THIS EVENING FOR THE SUSITNA VALLEY. WARM CONDITIONS WILL CONTINUE OVER THE REGION TODAY WITH SUNNY SKIES. LATE AFTERNOON SHOWERS WILL BEGIN TO DEVELOP OVER THE MOUNTAINS AND FORM INTO THUNDERSTORMS THIS EVENING. THUNDERSTORMS THAT DEVELOP WILL PRODUCE LITTLE PRECIPITATION IN THE NORTH SECTIONS OF THE SUSITNA VALLEY WITH OCCASIONAL LIGHTNING STRIKES. AS THE THUNDERSTORMS MOVE SOUTHEAST THIS EVENING THEY WILL PICK UP MORE MOISTURE AND PRODUCE WETTING RAINS FOR THE SOUTHERN SUSITNA VALLEY REGION.

PLEASE ADVISE THE APPROPRIATE OFFICIALS OR FIRE CREWS IN THE FIELD OF THIS FIRE WEATHER WATCH.

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FNAK71 PAFC 132118
FWSAER

SPOT FORECAST FOR HELEN 301016 FIRE...ALASKA DNR DOF
NATIONAL WEATHER SERVICE ANCHORAGE AK
1218 PM AST THU MAR 13 2003

IF CONDITIONS BECOME UNREPRESENTATIVE, CONTACT THE NATIONAL WEATHER SERVICE.

DISCUSSION...STRONG OFFSHORE FLOW WILL CONTINUE ACROSS THE AREA THROUGH SATURDAY. STRONG NORTHEAST WINDS AND VERY DRY CONDITIONS WILL CONTINUE THROUGH THIS WEEKEND OVER THE BURN AREA. FREQUENT NORTHEAST GUSTS TO 75 MPH ARE POSSIBLE THROUGH MIDNIGHT.

FOR TODAY
SKY / WEATHER.....CLEAR. AREAS OF BLOWING DUST.
TEMPERATURE.....NOON -1...MAX 7
RH.....NOON 35%...MIN 22%
20 FOOT WIND.....NORTHEAST 40 MPH GUSTING AT TIMES TO 75 MPH.
CWR.....ZERO.

FOR TONIGHT
SKY / WEATHER.....CLEAR. AREAS OF BLOWING DUST.
TEMPERATURE.....MIN -4
RH.....MAX 45%
20 FOOT WIND.....NORTHEAST 30 MPH GUSTING AT TIMES TO 65 MPH.
CWR.....ZERO.

OUTLOOK FOR TOMORROW
SKY / WEATHER.....CLEAR. AREAS OF BLOWING DUST.
TEMPERATURE.....MAX 18.
RH.....MIN 28%
20 FOOT WIND.....NORTHEAST 25 MPH GUSTING AT TIMES TO 55 MPH.
CWR.....ZERO

FORECASTER...xxx MAR 03

Appendix J
Weather Data Collection Sites in Alaska

SHORTNAME	FULLNAME	TYPE*	AREA**
PANC	ANCHORAGE	MAN	AMS
BLS	BENTALIT	RAWS	AMS
BGQ	BIG LAKE	RAWS	AMS
PAAQ	PALMER	MAN	AMS
RBT	RABBIT CREEK	RAWS	AMS
RGL	RUTH GLACIER	RAWS	AMS
SUM	SITE SUMMIT	RAWS	AMS
PATK	TALKEETNA	MAN	AMS
PABI	FORT GREELY	MAN	DAF
GEC	GEORGE CREEK RAWS	RAWS	DAF
GDP	GOODPASTURE	RAWS	DAF
AGL	ANGEL CREEK	RAWS	FAF
CPK	CARIBOU PEAK	RAWS	FAF
CHT	CHATANIKA	RAWS	FAF
PAEI	EILSON	MAN	FAF
FBK	FAIRBANKS	RAWS	FAF
PAFA	FAIRBANKS AIRPORT	MAN	FAF
PAHV	HEALY	MAN	FAF
TTL	TOTATLANIKA	RAWS	FAF
PANN	NENANA ASOS	MAN	FAF
SLR	SALCHA	RAWS	FAF
PAFM	AMBLER	MAN	GAL
PABR	BARROW	MAN	GAL
COT	COTTONWOOD	RAWS	GAL
PAGA	GALENA AWOS	MAN	GAL
HAY	HAYCOCK	RAWS	GAL
HOG	HOGATZA RIVER	RAWS	GAL
HDO	HOODOO HILL	RAWS	GAL
INK	INNOKO FLATS	RAWS	GAL
KAI	KAIYUH	RAWS	GAL
KAV	KAVET CREEK	RAWS	GAL
KEL	KELLY	RAWS	GAL
IAN	KIANA	RAWS	GAL
PAOT	KOTZEBUE	MAN	GAL
KOY	KOYUKUK NWR	RAWS	GAL
NOA	NOATAK	RAWS	GAL
PAOM	NOME	MAN	GAL
QRZ	QUARTZ CREEK	RAWS	GAL
SWK	SELAWIK	RAWS	GAL
STM	ST. MARYS	RAWS	GAL
PAUN	UNALAKLEET	MAN	GAL
BLK	BLACK CAPE	RAWS	KKA
BTL	BOOTH LAKE	RAWS	KKA
BDV	BROADVIEW	RAWS	KKA
CHF	CHIEF COVE	RAWS	KKA
GRA	GRANITE	RAWS	KKA
HO2	HOMER	RAWS	KKA
PAHO	HOMER MAN	MAN	KKA

PAEN	KENAI	MAN	KKA
KNL	KENAI LAKE	RAWS	KKA
KNA	KENAI NWR	RAWS	KKA
PADQ	KODIAK	MAN	KKA
NCK	NINILCHIK	RAWS	KKA
SGS	SKILAK GUARD STATION	RAWS	KKA
5SZ	SLANA	MAN	KKA
SXQ	SOLDOTNA	MAN	KKA
SWN	SWANSON RIVER	RAWS	KKA
TZL	TAZLINA LODGE	MAN	KKA
HAD	HAIDA	RAWS	SEAK
HON	HOONAH	RAWS	SEAK
PAJN	JUNEAU	MAN	SEAK
JNU	JUNEAU RD	RAWS	SEAK
KAK	KAKE	RAWS	SEAK
PAKT	KETCHIKAN	MAN	SEAK
POL	POLK PEAK	RAWS	SEAK
SHL	SHELTER COVE	RAWS	SEAK
PASI	SITKA	MAN	SEAK
TRN	THORNE RIVER	RAWS	SEAK
WPK	WOODPECKER	RAWS	SEAK
ZMB	ZAREMBO	RAWS	SEAK
PANI	ANIAK	MAN	SWA
PABE	BETHEL	MAN	SWA
PADL	DILLINGHAM	MAN	SWA
FWL	FAREWELL	RAWS	SWA
FLT	FLAT	RAWS	SWA
PAIL	ILIAMNA	MAN	SWA
KIL	KILBUCK	RAWS	SWA
PAMC	MCGRATH	MAN	SWA
ALS	PORT ALSWORTH	RAWS	SWA
RDR	REINDEER RIVER	RAWS	SWA
SNY	STONEY	RAWS	SWA
SRV	STONEY RIVER	RAWS	SWA
TEL	TELIDA	RAWS	SWA
TWR	ALCAN HWY MI-1244	RAWS	TAF
DRY	DRY CREEK	MAN	TAF
TET	JATAHMUND LAKE	RAWS	TAF
EFK	MILE POST 1243	RAWS	TAF
PAOR	NORTHWAY	MAN	TAF
TEE	T LAKE	RAWS	TAF
TOK	TOK	MAN	TAF
TKR	TOK RIVER VALLEY	RAWS	TAF
PABT	BETTLES	MAN	TAL
KAN	KANUTI NWR	RAWS	TAL
MHM	LAKE MINCHUMINA	RAWS	TAL
LIV	LIVENGOOD	RAWS	TAL
MCK	MCKINLEY RIVER	RAWS	TAL
NRU	NORUTAK LAKE	RAWS	TAL
POR	POORMAN	RAWS	TAL
RND	ROUND LAKE	RAWS	TAL
7MI	SEVEN MILE	RAWS	TAL
PATA	TANANA	MAN	TAL

WNL	WEIN LAKE	RAWS	TAL
WON	WONDER LAKE	RAWS	TAL
WBQ	BEAVER (WBQ)	RAWS	UYK
BEN	BEN CREEK	RAWS	UYK
BIR	BIRCH CREEK	RAWS	UYK
CIK	CHALKYITSIK	RAWS	UYK
CKN	CHICKEN	RAWS	UYK
EAG	EAGLE	RAWS	UYK
PFYU	FORT YUKON	RAWS	UYK
GRF	GRAPHITE LAKE	MAN	UYK
AWR	HELMUT MTN.	RAWS	UYK
HOZ	HODZANA	RAWS	UYK
LBK	LITTLE BLACK	RAWS	UYK
LCR	LOST CREEK	RAWS	UYK
PCK	PREACHER CREEK	RAWS	UYK
SMT	SALMON TROUT	RAWS	UYK
VZK	VUNZIK LAKE	RAWS	UYK
BGL	BERING GLACIER	RAWS	VCR
CSN	CHISANA	RAWS	VCR
CZO	CHISTOCHINA	RAWS	VCR
CXC	CHITNA	RAWS	VCR
PAGK	GULKANA	MAN	VCR
KNY	KENNY LAKE	MAN	VCR
KLA	KLAWASI	RAWS	VCR
MAC	MAY CREEK	RAWS	VCR
PAXK	PAXSON	RAWS	VCR
REN	RENEE	RAWS	VCR
TZV	TAZLINA VILLAGE	MAN	VCR

*RAWS are Remote Automated Weather Stations, owned by the land management or fire suppression agencies. Communications are through a GOES satellite. MAN are a combination of aviation observation (usually automated and owned by NWS or FAA) and manual observations taken by Alaska State Forestry. Communications are through an FTP site with the NWS or by FAX from Alaska State Forestry.

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AMS-AK Forestry	Anchorage/Mat-Su	SWA-AK Forestry	Southwest Area
DAF-AK Forestry	Delta Area	TAF-AK Forestry	Tok Area
FAF-AK Forestry	Fairbanks Area	TAL-AFS	Tanana Zone
GAL-AFS	Galena Zone	UYK-AFS	Upper Yukon Zone
KKA-AK Forestry	Kenai-Kodiak Area	VCR-AK Forestry	Copper River Area
SEAK	Southeast Alaska		

APPENDIX K

Preparedness Level Description

Levels of preparedness will be determined daily throughout the Alaska fire season in the Coastal Region. Criteria used to determine daily level of preparedness include:

1. The current and forecasted weather.
2. Wildland fire activity statewide.
3. Resources committed, demand for resources, and predicted demand. Types include:
   Tactical resources include smokejumpers, air tankers, air attack, and lead planes.
   Non-tactical resources include helicopters, engines, overhead, and crews.
   Critical resources include radio systems, equipment and supply.
4. Historical high-risk periods.
5. All risk incident support.
6. Planned and ongoing prescribed fire operations.

These levels are based on the existing wildland fire activity, probability of new wildland fire starts, burning conditions, prescribed fire activities and the commitment of resources.
The Coastal Regional Fire Management Officer will be responsible for daily monitoring of preparedness criteria in each of the Coastal Region Areas to determine the appropriate level of preparedness for the Region.

PREPAREDNESS LEVELS

I. Preparedness Level I - No significant fire activity, most units having low to moderate probability of ignition and low burning condition in all fuel types. Resistance to extinguishment by initial attack forces is low.

II. Preparedness level II - Multiple units experiencing fire starts or one unit experiencing multiple starts. Probability of ignition is low to moderate and burning conditions generally low to moderate in all fuel types. Resistance to extinguishment by initial attack forces is low to moderate. Minimal mobilization of local unit resources with no shortages of tactical resources.

III. Preparedness level III - Multiple units experiencing fire starts and/or one (1) project fire. Probability of ignition is high, burning conditions of moderate to high in all fuel types. Resistance to control is moderate to high; resistance to extinguishment is moderate. Up to 50% of non-tactical resources being mobilized, up to 75% of tactical resources committed to new ignitions. Existing weather pattern supporting fire activity is forecasted to remain for the next 48 hours.

IV. Preparedness level IV - Multiple units experiencing fire starts and/or two (2) project fires. Probability of ignition is high and burning conditions of high to extreme in all fuel types. Resistance to control is high to extreme and resistance to extinguishment is high. Over 50% of non-tactical resources are committed, over 75% of tactical resources are committed to new ignitions. Existing weather pattern supporting fire activity is forecasted to remain for the next 3 to 5 days.

V. Preparedness level V - Multiple units experiencing fire starts and/or three (3) or more project fires. Probability of ignition is high and burning conditions of extreme in all fuel types. Resistance to control is high to extreme and resistance to extinguishment is high. Over 75% of non-tactical resources are committed, over 75% of tactical resources are committed to new ignitions. Existing weather pattern supporting fire activity is forecasted to remain for the next 3 to 5 days.

APPENDIX L

INTERAGENCY AGREEMENT
for
METEOROLOGICAL SERVICES

Among the
Bureau of Land Management
Bureau of Indian Affairs
U.S. Fish and Wildlife Service
National Park Service
of the
United States Department of the Interior
and the
Forest Service
of the
United States Department of Agriculture

and the

National Weather Service
of the
United States Department of Commerce

BLM Agreement No. 1422RAI02-0030
BIA Agreement No.
FWS Agreement No.
FS Agreement No. 02-IA11130206041
NPS Agreement No.
NWS Agreement No. 201-02-002

1.0 INTRODUCTION.

Fire management and suppression in the nation's wildlands is an on-going concern to the American public and to the Department of the Interior's Bureau of Land Management, Bureau of Indian Affairs, Fish and Wildlife Service, and National Park Service, and the Department of Agriculture, Forest Service, as well as to the Department of Commerce, National Oceanic and Atmospheric Administration-National Weather Service (NWS). Considerable cooperation and coordination among these agencies exists, which is critical to the success of fire management, suppression and safety. This agreement will refer to the National Weather Service as "NWS" and the federal wildland fire management agencies as the "Interagency Wildland Fire Agencies."

The National Weather Service is legally mandated to issue weather forecasts and warnings for the protection of life and property. The Interagency Wildland Fire

Agencies are responsible for the stewardship and/or protection of lands owned or held in trust by the United States or under the jurisdiction of state agencies. The NWS and Interagency Wildland Fire Agency responsibilities are defined in Section 5. The NWS Weather Forecast Office (WFO) products and services shall be focused on respective County Warning Forecast Areas (CWFA) for the operational concerns of local wildland fire agency districts, while Interagency Wildland Fire Agencies shall focus on geographic area and national level products and services. The needs of geographic areas are met using a geographic area Memorandum of Understanding and/or geographic specific Annual Operating Plan (AOP) - (see appendix 1 for a suggested outline), and this Interagency Agreement. The NWS and Interagency Wildland Fire Agencies will coordinate and cooperate on developing fire weather policy, standards and guidelines

1.02 AUTHORITIES.

A. Economy Act of June 30, 1932 (47 Stat. 417; 31 U.S.C. 1535), as amended.

B. Travel Authority (5 U.S.C. 5702).

C. Organic Act of 1890 (15 U.S.C. 313).

D. Joint Project Authority (49 U.S.C. 44720).

E. Federal Land Policy and Management Act of 1976 (43 U.S.C. 1701 et seq.).

F. National Park Service Organic Act of August 1916 (16 U.S.C. 1).

G. National Wildlife Refuge Administration Act of June 27, 1998 (16 U.S.C. 668dd)

H. Disaster Relief Act of 1974 (42 U.S.C. 5147).

I. National Indian Forest Resources Management Act of 1990 (25 U.S.C. 3101 et seq.).

J. Cooperative Forestry Assistance Act of 1978 (P.L. 95-313, 92 Stat. 365 as amended; 16 U.S.C. 2101 (note), 2101-2103, 2103a, 2103b, 2104-2105).

K. Federal Fire Prevention and Control Act of October 29, 1974, (P.L. 93-498, 15 U.S.C. 2201 et seq., 88 Stat 1535.)

3.0 PURPOSE.

The purpose of this Inter-Agency Agreement is to combine resources and provide complementary services without duplication to best serve the needs of the public and all agencies for the protection of life, property and resource values to enhance

ecosystem health. Accurate and timely meteorological and fire danger information is required to manage these resources effectively and efficiently. It is also the purpose of this Agreement to set forth the terms and conditions under which the NWS will continue to provide meteorological services to support these efforts as requested by the Interagency Wildland Fire Agencies. It is with this knowledge that this Inter-Agency Agreement is entered into.

This Agreement supersedes the "National Agreement for Meteorological Services in Support of Agencies with Land Management and Fire Protection Responsibilities" among the six participating agencies, as listed above, that was effective June 1983.

4.0 OBJECTIVES.

The objectives of this Agreement are:

A. To identify meteorological services to be provided;

B. Establish interagency relationships; and

C. Define obligations of the NWS and Interagency Wildland Fire Agencies.

5.0 RESPONSIBILITIES.

The responsibilities listed are not all-inclusive, but are meant to provide the overall scope of services provided by the respective agencies.

A. The National Weather Service agrees to:

All obligations undertaken by the NWS under this Agreement are subject to the availability of appropriated funds.

1. Provide Basic Meteorological Services: Basic Meteorological Services will be provided in accordance with the Annual Operating Plan (AOP) for Fire Weather Service for designated NWS offices. These services will be made available without cost to Interagency Wildland Fire Agencies and will include:

    a. Routine fire weather forecast and updates during the designated period outlined in the AOP.

    b. Extended and long-range weather and climate outlooks.

    c. NWS weather observations.

    d. Fire Weather Watch and Red Flag Warning program.

    e. Site-specific forecasts for wildland fires or special federal projects (i.e. spraying, seeding, fuels management, or

search and rescue operations).

f. Provide consultation and technical advice in support of basic services to Interagency Wildland Fire Agencies.

g. Provide weather information to a central communication gateway and the internet for Interagency Wildland Fire Agencies' use and further distribution.

h. Provide a cadre of Incident Meteorologists (IMET) in support of the fire weather program.

i. Maintain a current list of offices providing basic meteorological services.

j. National scale short-range fire weather outlooks.

1. Non-Routine Services: These services will be provided by designated NWS offices.

Expenses above planned salary and operating costs will be borne by the benefiting agency.

a. Weather Observer training.

b. Weather observation station visits.

c. Participation in Wildland Fire Agency training.
   1. Course development.
   2. Classroom instruction.

d. On-site meteorological services.

e. Other special fire management services.

3. Fire Weather Training: The NWS recognizes the need for specialized training in fire weather meteorology for forecasters. Costs associated with training NWS staff will be borne by NWS. The NWS will meet this need as follows:

a. The NWS will ensure all meteorologists producing fire weather products have met the minimum fire weather forecaster training requirements.

b. The NWS will provide specialized training for the purpose of qualifying NWS IMETs.

4. Participation in interagency groups: All NWS costs will be borne by NWS.

5. Wildland fire suppression related activities: The NWS will not charge an administrative surcharge or any other expenditure that is not authorized under the Wildland Fire Agencies' Appropriation Acts related to these activities.

B. Interagency Wildland Fire Agencies

Wildland Fire Agencies' programs provide Geographic Area and national products for the strategic role of resource prioritization and utilization. Specific responsibilities of Wildland Fire Agencies are listed below.

1. Operational Support and Predictive Services

   a. Geographic Area and national level fire weather products, services and assessments will be provided for resource allocation and prioritization.

   b. Integration of weather and climatic sciences into Geographic Area Coordination Center (GACC) operations.

   c. Develop value-added products to enhance short and long-range outlooks and projections.

   d. Provide weather briefings to GACC and NIFC Coordinators and Multi-agency Coordinating Groups.

   e. Manage weather and climatology portions of GACC web site.

   f. Manage agency fire weather infrastructure.

   g. Smoke management.

2. Program Management

   Program management of federal land management and fire agencies' fire weather responsibilities, which includes:

   a. Program coordination with state agencies.

   b. Programmatic guidance, evaluation and certification.

   c. Advice and staff support to Fire Directorate

   d. Manage weather station network.

   e. Liaison between field users and service providers.

   f. Participation in activity reviews.

3. Monitoring, Feedback and Improvement

a. Transmit feedback to product and service providers.

b. Suggest improvements to providers of products and services received.

c. Advise agencies on quality control of weather observations.

d. Coordination with NWS and users in assessment and evaluation of program effectiveness.

e. Fire weather expertise in accident/incident investigations.

4. Technology Transfer

a. Transfer meteorology and climatology knowledge to field level personnel.

b. Promote proper usage by agency personnel of weather and climate products and services.

c. Conduct training/expertise needs assessment.

d. Coordinate data and technology acquisition.

e. Participation on training cadre.

5. Agency Computer Systems

Where fire management computer systems are locally available, access to the systems will be granted to NWS to provide services, as needed. Costs will be borne by the Interagency Wildland Fire Agencies for requirements that are beyond the distribution of weather information through a central communications gateway.

6. Fire Weather Observations:

a. Provide routine surface weather observations to NWS.

a. Provide all equipment, equipment maintenance, inspection of weather observation sites, and data quality control.

b. Pay all travel and per diem costs associated with Interagency Wildland Fire Agencies' requests for visits of NWS personnel to weather observing sites.

c. Provide for collection, storage and retrieval of remote automatic weather stations (RAWS) data.

d. Provide observations for site specific and other special forecasts.

7. On-Site Meteorological Support:

a. Pay costs directly associated with on-site meteorological support by NWS personnel. This includes costs incurred by the NWS IMET duty station.

b. Provide logistical and weather observation support to NWS personnel at on-site operations.

c. Provide and pay costs associated with telecommunication services.

8. Training:

a. Pay per diem and travel costs for NWS personnel instructing and providing course development in Wildland Fire Agency training.

b. Provide technical assistance, instruction, and supporting material for NWS sponsored fire weather training sessions.

9. Other Non-Routine Services

Interagency Wildland Fire Agencies will provide logistics support and pay all overtime, travel, and per diem costs of NWS personnel associated with the provision of all other special fire meteorological services, including Wildland Fire agency approved wildland fire familiarization for NWS personnel.

6.0 JOINT RESPONSIBILITIES:

NWS and Interagency Wildland Fire Agencies shall jointly prepare national and Geographic Area specific MOUs and/or AOPs for Fire Weather Services that will set policy and procedures at GACC, NIFC, state or forecast office level, and shall include:

A. Shared responsibilities of all participants shall include, but not limited to weather briefings, training, research, product/service verification as outlined in Geographic Area specific AOPs.

B. Provision for monitoring, feedback and improvement.

C. Procedure for documenting, monitoring and evaluating fire weather

products, briefings and services delivered.

D. Provision for monitoring and evaluating advances in science and technology.

E. Provision for efficient means for technology transfer.

F. Provision for participation in fire weather research activities.

G. Provision that on-site IMET services may be provided by Interagency Fire Weather Meteorologist meeting NWS standards only when NWS IMETs are not available to meet Wildland Fire Agency resource requests on a national basis. The coordination for Interagency Fire Weather Meteorologists will be done between the NWS IMET coordinator and the National Interagency Coordination Center.

H. Provision that NWS meteorologists and Interagency Wildland Fire Agency meteorologists stationed at GACCs and at NIFC will work together to ensure fire agency decision makers receive consistent and coordinated fire weather products and services.

I. Provision that the NWS and Interagency Wildland Fire Agencies will jointly develop and share technology including meteorological software and data, Advance Technology Meteorological Units, portable weather stations, etc. to improve abilities and performance.

A. The NWS and Wildland Fire Agency meteorologists shall work closely in all phases of the fire weather forecast and warning program to resolve concerns and avoid potential inconsistencies in products and services prior to delivery to fire agency customers. The goal of all agencies is to maximize firefighter and public safety through a coordinated delivery of consistent services.

The Parties recognize that, given the current administrative process for payments for fire suppression activities, it is not feasible to obligate the full amount of funds that may be required by this Agreement, because the Agreement does not constitute a binding obligation under 31 U.S.C. § 1501 since it cannot anticipate the specific goods or services for which payment will be requested, or the individual payment amounts, in each future case. This information can only be provided by Resource Orders executed when the goods or services are requested. At the same time, the Parties recognize that Resource Orders are insufficient to constitute a binding obligation under the statute because there is no evidence of intent to be bound, no authorized signatures are present, and no legal authorities are cited. However, these requirements are satisfied by the Agreement. The two documents, when taken together, contain all the elements required for an obligation under the statute. Hence, the Parties agree that this Agreement shall automatically be incorporated by reference into any Resource Orders issued under it, and that an obligation of funds will occur at the time the NWS presents a copy of this Agreement and the Resource Orders for payment. The parties also agree to work toward a more efficient resolution of this administrative process for obligation and payment of fire suppression funds.

7.0 STATEMENT OF WORK.

Procedures for notification of and obtaining services from the NWS will be prepared and specified in the Annual Operating Plans (AOP) and/or in the MOUs for the Geographic Area Coordinating Centers, and in the Geographical Area and National Mobilization Guides. An electronic copy of the *National Mobilization Guide* can be viewed via www.nifc.gov - select "National Interagency Coordination Center" – select "References" link to National Mobilization Guide.

8.0 TRANSFER OF FUNDS.

A. Billing and collection procedures will follow the Intra-governmental Payment and Collection (IPAC) system process.

B. Wildland Fire Suppression Activities: Transfers under this subsection are under the Disaster Relief Act, 42 U.S.C. § 5147. Reimbursable costs are estimated not to exceed a maximum of $2,000,000.00 per fiscal year. In the event this amount is insufficient for a particular fiscal year, this Agreement may be modified to increase the amount of funding, subject to the availability of funds. This Agreement is automatically incorporated by reference into any Resource Order that is issued under it, constituting a binding obligation. The Interagency Wildland Fire Agencies warrant that they will administratively reserve these funds to ensure that the funds will be available when the obligations are recorded. The recording of the obligations will occur upon the receipt of the billings from the NWS by the applicable Interagency Wildland Fire Agency. The billings, inclusive of copies of this Agreement, the Resource Order(s), and expenditure documentation, will define the specific services, supplied goods and costs for each order, and subsequent obligation and payment.

1. Reimbursement payments for suppression-related activities will be accomplished by submission of billings, which are inclusive of copies of the Resource Orders that define the requested services and goods, and the expenditure back-up documentation. The NWS will not charge an administrative surcharge or any other expenditure that is not authorized under the Wildland Fire Agencies' Appropriation Acts related to these activities

2. It is the responsibility of the requesting agency/office to provide billing instructions to the NWS office that provided the service, which includes the items listed below. It is also the responsibility of the requesting agency/office to conduct any required verification of costs, authorization of expenditures and reconciliation of payment.
   a) The fire name, jurisdictional unit, and incident number (The copy of the Resource Order generally includes this information);
   b) Applicable support documentation requirements;
   c) A copy of this Agreement complete with signatures;
   d) Identification (name and phone number) of NWS financial contact;
   e) Provide information to NWS regarding which payment center to send the billings for processing; and

f) Billings and support documentation are to be submitted to the appropriate payment center by the NWS within sixty-days of completion of service.

A. Non-Wildland Fire Suppression Activities: Obligation of funds and payments for non-wildland fire suppression activities that are included in the Annual Operating Plan (AOP) shall be accomplished by Task Orders against this Agreement between the concerned agencies by the responsible officers at the appropriate level operating within their authority.

2. All funding obligations must be placed against the individual agency/office's Task Order number and not against this Agreement number.

3. Task Orders to this Agreement may be approved and signed for the NWS by the Director, Office of Climate, Water and Weather Services.

4. Each federal agency shall make direct settlement from its own funds for all liabilities it incurs under this Agreement.

4. The NWS will not charge any agency that is signatory to this Agreement an indirect administrative surcharge~~s~~ for activities addressed in the respective Annual Operating Plan(s) and Geographical Area MOUs, and are requested through Task Orders or Resource Orders under the *National Mobilization Guide*.

5. Task Orders may be prepared in any format acceptable to the agencies involved in each project. At a minimum, each Task Order written in support of this Agreement will include the following items:

a) Detailed description of services to be done or supplies to be delivered;

b) Description of the deliverables;

c) Performance period for completion;

d) Cost estimates;

e) Identify responsible project officials for each Task Order agency;

f) Payment procedures (applicable billing procedures, identification of codes, method of payment—advance/reimbursement; and

g) Signature(s) by authorized personnel for each Task Order agency.

9.0 TERM OF AGREEMENT.

The terms of this Inter-agency Agreement shall become effective with and upon execution by NWS and any or all Interagency Wildland Fire Agencies and shall remain in effect for a period of five-years from the date the last signature was placed on the signatory section, or until such time as the Inter-agency Agreement is terminated by mutual agreement. Any signatory may terminate their participation in this Agreement by written notice to all other signatories provided that such notice shall be given between the dates of October 1 of any year and February 1 of the following year. Full credit shall be allowed for each party's expense and all non-cancelable obligations properly incurred up to the effective date of termination. The remaining signatories may continue the provisions of this Agreement as long as the NWS remains a signatory.

10.0 RESOLUTION OF DISAGREEMENT.

Should disagreement arise on the interpretation of the provisions of this Agreement, or modifications thereto, that cannot be resolved at the operating level, the area(s) of disagreement shall be stated in writing by each party and presented to the other party for consideration. If agreement on interpretation is not reached within thirty-days, the parties shall forward the written presentation of the disagreement to respective higher officials for appropriate resolution. Conflicts and/or disagreements that cannot be resolved at the regional (GACC) level will be elevated to the National Fire Weather Program Managers for the NWS and Interagency Wildland Fire Agencies. If the conflict cannot be resolved at the National Program Managers level, the conflict will be elevated to the Agency Director level (NWS and applicable Wildland Fire Agency Director) for final resolution.

11.0 GENERAL PROVISIONS.

A. Parties to this Agreement are not obligated to make expenditures of funds or provide services under terms of this Agreement unless such funds are appropriated or services are authorized by either the State Legislatures or the Congress of the United States, or are otherwise available under Section 101 and 102 of the Annual Appropriations Act for Interior and Related Agencies.

B. The points of contact listed in Section 13 will review this Agreement annually.

C. Modifications to this Agreement may be initiated by any signatory agency. The modifications shall not take effect until documented and signed by all signatory agencies.

1. The BLM is designated as the agency responsible for all administrative oversight of modifications to this agreement.

2. Modifications to this Agreement may be approved for the NWS and signed by the Director, Office of Climate, Water and Weather Services, or pursuant to NWS

protocol.

D. The signatory Interagency Wildland Fire Agencies agree to consider expansion of this Agreement to cover areas of mutual concern, e.g., changing technology and improved procedures, as opportunities for such cooperation become available.

12.0 WAIVER.

Each party to this agreement does hereby expressly waive all claims against the other party for compensation for any loss, damage, personal injury or death occurring in consequence of the performance of this agreement.

13.0 PRINCIPAL CONTACTS.

The Points of Contact are responsible for coordinating an annual review of the currency and adequacy of this Agreement among the signatories, and/or their designees.

National Weather Service:

National Fire Weather Program Manager
Rusty Billingsley
National Weather Service
3833 South Development Ave.
Boise, ID 83705
208/334-9824 – Office
david.billingsley@noaa.gov

Interagency Wildland Fire Agencies:

NIFC Fire Weather Program Manager
Rick Ochoa
National Interagency Fire Center
3833 South Development Ave.
Boise, ID 83705
208/387-5451-Office
rick_ochoa@nifc.blm.gov

14.0 DEFINITIONS.

When the following terms are used in this Agreement, or in an AOP, such terms will have the meanings stated below.

A. **Annual Operation Plan for Fire Weather Services (AOP):** A procedural guide, based on the National Interagency MOU and applicable Geographic Area MOUs, which describes fire meteorological services provided within the Geographic Area of responsibility, including NIFC. At a minimum the AOP will include the items in Appendix 1, *Annual Operating Plan - Required Elements and Suggested Format*.

B. **Assessment:** Fire weather and/or fire danger product based on a thorough evaluation of all pertinent sources of meteorological and fire danger information.

C. **Basic Meteorological Services:** Basic meteorological services are those state-of-the-science meteorological forecasts, warnings, observations and statements produced at a designated NWS office.

D. **Fire Weather Watch:** Fire Weather Watch is issued to advise of conditions, which could result in extensive wildfire occurrence or extreme fire behavior, which are expected to develop in the next 12 to 48 hours, but not more than 72 hours. In cases of dry lightning, a Fire Weather Watch may be issued for the next 12 hours. Fire Weather Watch meteorological and fuel criteria will be defined in the AOP.

E. **Geographic Area:** A geographic boundary designated by Interagency Wildland Fire Agencies, where these agencies work together in the coordination and effective utilization of resources within their boundaries. The *National Interagency Mobilization Guide* identifies the areas encompassed by the eleven Geographic Areas.

F. **Geographic Area Memorandum of Understanding (MOU):** A document, based on the National Interagency Memorandum of Understanding for Meteorological Services, which establishes local policy to meet unique needs of a Geographic Area.

G. **Incident Meteorologist (IMET):** A meteorologist specially trained to provide on-site meteorological support of Wildland Fire Agency designated incidents.

H. **Non-Routine Services:** Meteorological services uniquely required by interagency Wildland Fire Agencies, which usually are not provided from a designated NWS office.

I. **On-Site Meteorological Services:** Special service which dedicates an IMET to an incident so that they are removed from their normal duties.

J. **Predictive Services:** Those Geographic Area/national level fire weather and/or fire danger services and products produced by Wildland Fire Agency meteorologists in support of resource allocation and prioritization.

K. **Red Flag Warning:** Red Flag Warning is used to warn of impending or actually occurring critical weather conditions that could result in extensive wildland fire activity. A warning will be issued when the forecast time of onset is less than 24 hours. Red Flag Warning meteorological and fuel criteria will be defined in the AOP.

L. **Routine Fire Weather Forecasts:** A Routine Fire Weather Forecast is a scheduled narrative and/or matrix forecast of weather parameters pertinent fire management activities in support of protection of life, property, and resources at risk in a given area. The number of parameters may vary due to regional weather requirements, but normally include a brief weather synopsis, expected weather and clouds, duration of precipitation, maximum and minimum temperature/relative humidity, wind direction and speed, transport and stability parameters, and lightning activity level. These forecasts normally cover the next 48 hours and may include input for the computation of National Fire Danger Rating System indices. These forecasts may also include long-range outlooks.

M. **Site Specific Forecasts:** Site-specific forecasts are issued when requested by Interagency Wildland Fire Agencies for wildland fires. These forecasts differ from routine fire weather forecasts by incorporating greater detail in timing, higher resolution of terrain influences, and incorporate meso-scale and sometimes micro-scale weather influences impacting the site. These may be generated from an office with Wildland Fire supplied information (i.e., location, weather observations, objectives) or generated by an IMET assigned to the incident. Forecast formats may vary but all are highly tailored to satisfy requirements of the incident objectives.

N. **Wildland Fires:** All ignitions that occur on wildlands.

15.0 SIGNATORY.

This Agreement shall be effective on the date the last signature is placed on the signature section and it will remain in effect for a period of five-years from the date of the last signature.

_____ _____

Gregory A. Mandt, Director Date
Office of Climate, Water and Weather Services

_____ _____

Byron J. Green, Contracting Officer Date
Bureau of Indian Affairs

_____ _____

Dan Ashe, Chief, National Wildlife Refuge System Date
Fish and Wildlife Service

_____ _____

Donna Kalvels, Chief, Contract Office Date
National Park Service

Larry Hamilton, Director
Bureau of Land Management-Office of Fire & Aviation

Date

Richard A. Harter, Supervisory Contract Officer
Bureau of Land Management-Office of Fire & Aviation

Date

Phil Street, Director
DOI-Fish and Wildlife Service

Date

Jim Stires, Fire Director
DOI-Bureau of Indian Affairs

Date

Sue Vap, National Fire Management Officer
DOI-National Park Service

Date

Alice Forbes, Acting Director
USDA, Forest Service-NIFC

Date

Tory Majors, Administrative Officer
USDA, Forest Service-NIFC

Date

Appendix 1
Annual Operating Plan
Required Elements and Suggested Format

I. INTRODUCTION

The introduction will include a general statement of purpose and an explanation of the relationship between the Annual Operating Plan (AOP) and the Geographic Area Coordinating Center Memorandum of Understanding (MOU) for Meteorological Services, and the Geographic Area Mobilization Guide and/or the National Mobilization Guide will be referenced.

II. SERVICE AREA AND ORGANIZATIONAL DIRECTORY

A. List of weather offices and points of contact
B. List of agencies participating

III. SERVICES PROVIDED BY THE NATIONAL WEATHER SERVICE

A. Basic Services
   1. Routine fire weather forecasts
      a. Issuance (seasonal, daily)
      b. How forecast is issued and accessed
      c. Content of the forecast
   2. Site-specific wildland fire forecasts
      a. Criteria
      b. Contents
      c. Procedures
   3. Fire Weather Watch, Red Flag Programs
      a. Criteria
      b. Contents
      c. Procedures
   4. Participation in interagency groups.

B. Special Services. Procedures for obtaining and billing for special services.

C. Training. Procedures for obtaining and billing for special services.

IV. WILDLAND FIRE AGENCY RESPONSIBILITIES

A. Operational support and predictive services.
   1. Program management
   2. Monitoring, feedback and improvement
   3. Technology transfer
   4. Agency computer systems
   5. Fire weather observations
   6. On-site support
   7. Training

V. JOINT RESPONSIBILITIES

Negotiate service boundaries and fire weather forecast zones to meet customer and forecaster need.

VI. EFFECTIVE DATES ON THE AOP

VII. SIGNATURE PAGE

VIII. APPENDICES

A. Interagency Agreement for Meteorological Services in Support of Agencies with Land and Fire Management Responsibilities
B. Fire weather zone maps.
C. Catalog of fire weather observation sites.