

**2006**  
**Alaska Fire Weather Program**  
**Annual Operating Plan**  
**for**  
**National Weather Service, Alaska Region (NWS)**  
**Alaska Wildland Fire Coordinating Group (AWFCG)**

A. Purpose

To describe the roles, responsibilities and operational procedures of NWS, AFS, USFS, DOF and AWFCG personnel in support of the 2006 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 1 through September 1 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 Program Manager at Alaska Region Headquarters, and fire weather focal points 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 131, 135, 181, 185, 187, 191, 195, 201-207, 211 and 213 (see Appendix E for zone listings and map). Also, routine daily fire weather forecasts for Zone 171 will cease when the seasonal threat for fire has ended, as determined by the Alaska Interagency Coordination Center Meteorologist.

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,

chance of wetting rain (0.10" or more in 12-hours), and potential for wet and/or dry thunderstorms.

- Red Flag Warnings and Fire Weather Watches will be headlined at the top of the corresponding fire weather zone forecast. The headline will specify the time period, area 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 (linked from <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, when combined with burnable fuels:

- 1) Red Flag Warning for strong wind:  
Wind\*  $\geq$  25 mph. Not to be issued unless relative humidity (RH) is  $\leq$  40%
- 2) Red Flag Warning for wind and relative humidity:  
RH  $>$  10% and  $\leq$  15%. Not to be issued unless wind\* is  $\geq$  20 mph.
- 3) Red Flag Warning for relative humidity:  
RH  $\leq$  10%; no wind criteria.
- 4) Red Flag Warning for dry thunderstorms:  
Dry thunderstorms with a scattered coverage (25% areal) and  $<$  0.10" rainfall

\* - Wind is defined as frequent gusts or sustained for one-hour duration or more.

WFOs will consult the AICC Predictive Services (907-356-5691/5671) when Red Flag Warnings or Fire Weather Watches are considered. 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. A web page will be provided by the AICC for fuel conditions, but this does not preclude calling the AICC Predictive Services numbers listed above.

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 should be telephoned upon issuance of the Warning/Watch, and the Warning/Watch should be sent to the AICC by facsimile (907-356-5678).

e. Spot forecasts.

Incidents will submit requests for spot forecasts via the Alaska Region NWS Spot website, with pertinent weather observations, information or guidance, 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 Alaska Region NWS Spot website. Other dissemination means will be provided upon request. The WFO forecaster should call the requesting agency's contact to verify receipt of the forecast.

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

f. Smoke management forecasts and information.

The transport wind and the mixing height, required information for smoke management, will be included in spot forecasts upon request.

g. Consultation and technical advice.

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

h. 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 re-issued when representative observations or other weather information 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.

i. Fire weather training.

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

j. Special meteorological services.

Any additional meteorological services not explicitly described in this Plan may be requested by the AICC through the Regional Fire Weather Program Manager. During emergency situations outside of administrative duty hours (7:30am to 4:00pm 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 2006 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 Program Manager. The Regional Fire Weather Program Manager 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, 2006.

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 and monthly reports and post them to the AICC website.

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

3. Research.

The AICC meteorologist will pursue and or participate in research on Fire Weather and Fire Danger in Alaska.

4. Statewide Briefings.

Statewide Briefings will be conducted by the AICC Meteorologist. These briefings will be held Monday through Friday. Interested agencies will dial in. The briefing will discuss statewide conditions and refer to graphic products displayed on the NWS and AICC 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.

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

The AICC Meteorologist will coordinate conference calls between the AICC and NWS WFO's when significant weather or fire conditions exist.

5. Pre-Season and Post-Seasonal Assessments.

Pre-season assessment for 2006 will be prepared in the spring.

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

6. Historical Climate and Weather Analysis.

7. 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. Fuels information will be provided on the AICC website.

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

9. Team member for collaborative planning efforts.

Develop Alaska Fire Danger Operating Plan.

10. Team leader for RAWS coordination.

11. The AICC Predictive Services will ensure pertinent observations from their stations of interest are archived into WIMS in a timely fashion.

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 will 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 selected 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.
  - j. Spot forecast requests should include a voice contact phone number of the requesting agency. Spot forecast requests sent through the web spot program will be followed up by a phone call to the NWS office to verify receipt.

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.

F. Administration

1. Operating Period.

The principal operating period for the Alaska Fire Weather Program will be from April 1 through August 30, 2006. 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 2006, the chair of the Fire Weather Committee will coordinate a joint meeting of the Fire Weather Committee for the purpose of reviewing 2006 fire weather operations and preparing for the 2007 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, 2006 and will be reviewed annually.

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James Partain Chief, Environmental and Scientific Services NOAA/NWS Alaska Region	Date
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Dale Haggstrom Chair, Alaska Wildland Fire Coordinating Group	Date
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*<<Signatures on File>>*



## Appendix A

### Alaska Wildland Fire Coordination Group Fire Weather Committee 2006

#### **Liaison to AWFCG**

Dean Brown

Phone: 269-8476  
Fax:269-8921  
email: dean\_brown@dnr.state.ak.us

#### **Chair-AICC Meteorologist-NPS**

Sharon Alden

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#### **State of Alaska - Division of Forestry**

Arlene Webber-Sword

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#### **National Park Service**

Brad Cella

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#### **Tanana Chiefs Conference**

James A. Bell

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#### **U.S. Fish and Wildlife**

Sam Patten

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#### **Bureau of Land Management - Alaska Fire Service**

Tami DeFries

Phone: 356-5875  
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email: tamala\_defries@ak.blm.gov

#### **U.S. Forest Service**

Willie R. Thompson

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Fax:743-9479  
email: wrthompson@fs.fed.us

#### **National Weather Service**

Aimee Fish

Phone: 271-3705  
Fax: 271-3711  
email: aimee.fish@noaa.gov

## Appendix B

### Contact Points – 2006

#### Agency Contacts for Fire Related Questions:

##### State of Alaska:

###### Anchorage/Palmer Area

Chris Olson                      Phone: 761-6218  
    Fax: 761-6227  
    email: chris\_olson@dnr.state.ak.us

###### Mat Su District

Ray Kramer                      Phone: 761-6302  
    Fax: 761-6319  
    email: rayk@dnr.state.ak.us

###### Southwest District

Paul Van Hees      Phone: 524-3010  
    Fax: 524-3932  
    Email: paul\_van\_hees@dnr.state.ak.us

###### Fairbanks Area

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

###### Kenai-Kodiak Area

Ric Plate                      Phone 260-4220  
    Fax: 260-4263  
    Email: ric\_plate@dnr.state.ak.us

###### Valdez Copper River Area

Gary Mullen                      Phone: 822-5534  
    Fax: 822-8600  
    Email: gary\_mullen@dnr.state.ak.us

###### Tok Area

Clinton Northway                      Phone: 883-5134  
    Fax: 883-5135  
    Email: clinton\_northway@dnr.state.ak.us

###### Delta Area

Al Edgren                      Phone: 895-4225  
    Fax: 895-2125  
    Email: al\_edgren@dnr.state.ak.us

##### Bureau of Land Management:

###### AICC Coordinator

Dave Curry                      Phone: 356-5677  
    Fax: 356-5678  
    Email: dave\_curry@ak.blm.gov

###### Southern Zone

Kelly Kane                      Phone: 267-1465  
    Fax: 267-1359  
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Military Zone

Tami DeFries    Phone: 356-5875  
                         Fax: 356-5556  
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Upper Yukon Zone

Kent Slaughter    Phone: 356-5558  
                         Fax: 356-5556  
                         Email: kent\_slaughter@ak.blm.gov

Tanana Zone

Ken Coe    Phone: 356-5570  
                 Fax: 356-5556  
                 Email: ken\_coe@ak.blm.gov

Galena Zone

Dave Whitmer    Phone: 356-5623/656-1222  
                         Fax: 356-5556/656-1702  
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**National Park Service**

AICC Meteorologist

Sharon Alden    Phone: 356-5691  
                         Fax: 356-5678  
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**U.S. Forest Service:**

Tongass National Forest

Dexter Duehn    Phone: 228-6316  
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Chugach National Forest

Mike Stubbs    Phone: 271-2835  
  
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**National Weather Service Fire Weather Contacts:**

NWS Regional Fire Weather Program Manager

Aimee Fish    Phone: 271-3507  
                         Fax: 271-3711  
                         email: aimee.fish@noaa.gov

Fairbanks Weather Forecast Office

Focal Point Mike Richmond  
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Fax: 458-3737  
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Lead Forecaster Phone: 458-3700  
Meteorologist-in- Charge John Dragomir  
Phone: 458-3704  
email: john.dragomir@noaa.gov  
Incident Meteorologists Mike Richmond  
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Anchorage Weather Forecast Office

Focal Point Amy Bedal  
Phone: 266-5115  
Fax: 266-5188  
email: amy.bedal@noaa.gov  
Lead Forecaster Phone: 266-5167  
Meteorologist-in-Charge Bob Hopkins  
Phone: 266-5120  
email: bob.hopkins@noaa.gov  
Incident Meteorologists Sam Albanese, Amy Bedal (T), Joel Curtis (T)  
Phone: 266-5115  
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[sam.Albanese@noaa.gov](mailto:sam.Albanese@noaa.gov)  
[joel.curtis@noaa.gov](mailto:joel.curtis@noaa.gov)

Juneau Weather Forecast Office

Focal Point Nathan Foster  
Phone: 790-6824  
Fax: 790-6827  
email: nathan.foster@noaa.gov  
Lead Forecaster Phone: 790-6824  
Meteorologist-in-Charge Tom Ainsworth  
Phone: 790-6804  
Email: tom.ainsworth@noaa.gov  
Incident Meteorologists None

**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

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

#### March 20 through April 1

All NWS WFO's: 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.

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

#### April 1 through September 1

Anchorage WFO: Daily written forecasts (morning and afternoon). Zones started/added as fire weather conditions warrant.

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 2

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

#### May 2 through September 1

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

#### May 9

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

#### September 1

End of Principal Operating Period

#### September 2 - 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.

## Appendix D

### PRODUCT AND SERVICE DAILY SCHEDULE

<u>LOCAL TIME</u>	<u>ITEM</u>
0800	Morning Fire Weather Forecasts for all Anchorage and Juneau Zones and Fairbanks Zones 218-226 published to Internet.
0800	Forecasted Fire Weather Indices available on the AFS website.
0830	Morning Fire Weather Forecasts for Fairbanks Zones 208-210, 212 and 214-217 published to Internet.
0900	Internet briefing available on the NWS regional web page
0930	Statewide AICC Meteorologist Briefing.
1400-1500	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

WFO Juneau

Zone Number	Zone Name
017	CAPE FAIRWEATHER TO CAPE SUCKLING COASTAL AREA
018	TAIYA INLET AND KLONDIKE HIGHWAY
019	HAINES BOROUGH AND LYNN CANAL
020	GLACIER BAY
021	EASTERN CHICHAGOF ISLAND
022	SALISBURY SOUND TO CAPE FAIRWEATHER COASTAL AREA
023	CAPE DECISION TO SALISBURY SOUND COASTAL AREA
024	EASTERN BARANOF ISLAND AND SOUTHERN ADMIRALTY ISLAND
025	JUNEAU BOROUGH AND NORTHERN ADMIRALTY ISLAND
026	INNER CHANNELS FROM KUPREANOF ISLAND TO ETOLIN ISLAND
027	DIXON ENTRANCE TO CAPE DECISION COASTAL AREA
028	SOUTHERN INNER CHANNELS
029	MISTY FJORDS

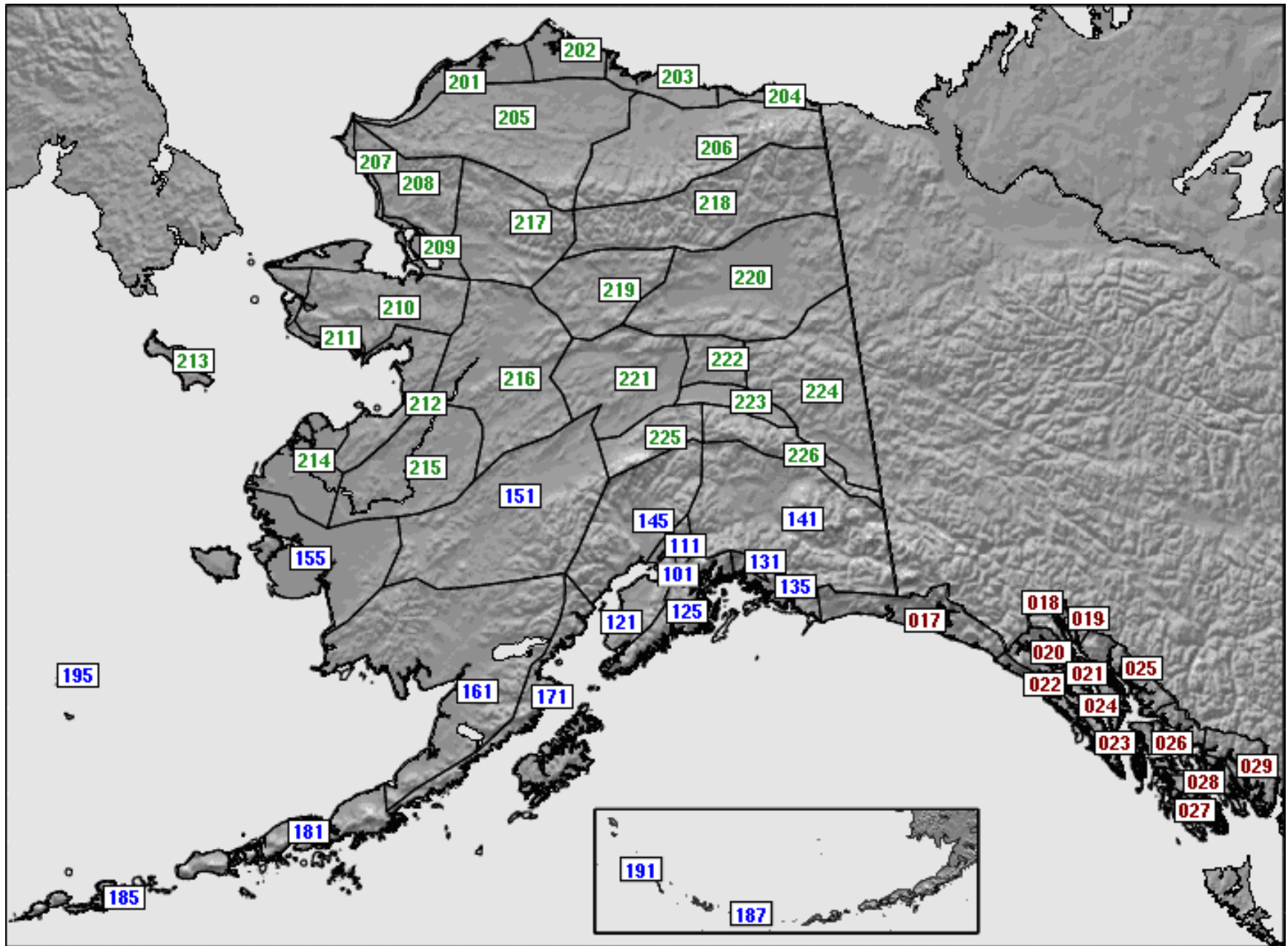
WFO Anchorage

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
187	CENTRAL ALEUTIANS
191	WESTERN ALEUTIANS
195	PRIBILOF ISLANDS



WFO Fairbanks

Zone Number	Zone Name
201	WESTERN ARCTIC COAST
202	NORTHERN ARCTIC COAST
203	CENTRAL BEAUFORT SEA COAST
204	EASTERN BEAUFOT SEA COAST
205	NORWESTERN BROOKS RANGE
206	NORTHEASTERN BROOKS RANGE
207	CHUKCHI SEA COAST
208	LOWER KOBUCK 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 NIDDLE YUKON VALLEYS
217	UPPER KOBUK AND NOATAK VALLEYS
218	SOUTHEASTERN BROOKS RANGE
219	UPPER KOYUKUK VALLEY
220	YUKOLN FLATS AND SURROUNDING UPLANDS
221	CENTRAL INTERIOR
222	MIDDLE TANANA VALLEY
223	DELTANA AND TANANA FLATS
224	UPPER TANANA VALLEY AND THE FORTY MILE COUNTRY
225	DENALI
226	EASTERN ALASKA RANGE



March 2006

## **Appendix F**

### **Amendment Criteria for Red Flag Warnings 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 ( $RH_{\text{observed}}$ ) is less than 50% and the forecast relative humidity ( $RH_{\text{forecast}}$ ) minus the observed relative humidity is greater than 10%,

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

- D. No thunderstorms are forecast and thunderstorms develop.
- E. A Red Flag Warning or Fire Weather Watch is issued or cancelled.

## **Appendix G**

### **Briefing Content**

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

## **Appendix H**

### **NWS Fire Weather Product Examples**

The following are examples of fire weather products produced by the NWS Alaska Region. Remember that there may be slight variations in products due to each WFO's own procedures and policies. For national fire weather product specifications please see the fire weather section of the NWS Directives, located at <http://www.nws.noaa.gov/directives> under the Fire Weather section (10-4 series).

1. Routine Daily Fire Weather Forecast for One Fire Weather Zone.

FNAK51 PAFC 170159  
FWFAER

FIRE WEATHER PLANNING FORECAST FOR ALASKA  
NATIONAL WEATHER SERVICE ANCHORAGE AK  
459 PM AKST THU MAR 16 2006

.DISCUSSION...

HIGH PRESSURE IN THE NORTHEAST INTERIOR COMBINED WITH A WEAK AREA OF LOW PRESSURE EAST OF KODIAK ISLAND WILL RESULT IN GUSTY NORTH TO EAST WIND FOR MUCH OF THE FORECAST AREA TONIGHT. THE AREA OF HIGH PRESSURE WILL WEAKEN THROUGH SATURDAY AND WINDS WILL DIMINISH. A WEATHER FRONT IN BRISTOL BAY THIS EVENING WILL MOVE TO THE NORTH GULF COAST FRIDAY.

AKZ131-171500-  
INCLUDING...VALDEZ...THOMPSON PASS  
459 PM AKST THU MAR 16 2006

	TONIGHT	FRI	FRI NIGHT	SAT
CLOUD COVER	CLEAR	CLEAR	PCLDY	CLOUDY
PRECIP TYPE	NONE	NONE	SNOW	SNOW
CHANCE PRECIP	0	0	30	60
TEMP (24H TREND)	-3- 7 (-7)	16 (+6)	-2- 6	16-23
RH % (24H TREND)	45-74 (+54)	33-58 (-18)	90	76-87
20FTWND(MPH)	NE 18-22	NE 9-13	E 6-10	E 12-16
CWR	0	0	0	40
LAL	1	1	1	1

REMARKS...WIND GUSTS TO 35 MPH TONIGHT.

.FORECAST FOR DAYS 3 THROUGH 5...

.SUNDAY...CLOUDY. SNOW LIKELY. LOWS AROUND 14. HIGHS IN THE MID 20S. SOUTHEAST WINDS 5 TO 35 MPH.

.MONDAY...CLOUDY. CHANCE OF SNOW. LOWS AROUND 16. HIGHS AROUND 30. SOUTHEAST WINDS 10 TO 25 MPH.

.TUESDAY...MOSTLY CLOUDY. CHANCE OF SNOW. LOWS AROUND 18. HIGHS IN THE MID 20S. EAST WINDS 10 TO 20 MPH.

\$\$

2. Red Flag Warning (with VTEC, WFO Fairbanks only)

WWAK63 PAFG 181453  
RFWAFG

RED FLAG WARNING  
NATIONAL WEATHER SERVICE FAIRBANKS AK  
653 AM ADT THU AUG 18 2005

AKZ219>222-182300-  
/X.UPG.PAFC.FW.A.0016.050818T1800Z-050819T0600Z/  
/X.NEW.PAFG.FW.W.0029.050818T1800Z-050819T0600Z/  
UPPER KOYUKUK VALLEY-YUKON FLATS AND SURROUNDING UPLANDS-  
CENTRAL INTERIOR-MIDDLE TANANA VALLEY  
653 AM ADT THU AUG 18 2005

...RED FLAG WARNING IN EFFECT FROM 10 AM THIS MORNING TO 10 PM ADT THIS  
EVENING FOR HIGH WINDS FOR PORTIONS OF THE NORTHERN INTERIOR AND CENTRAL  
INTERIOR...

FIRE WEATHER ZONES INCLUDED IN THIS WARNING ARE

219 – UPPER KOYUKUK VALLEY  
220 – YUKON FLATS AND SURROUNDING UPLANDS  
221 – CENTRAL INTERIOR  
222 – MIDDLE TANANA VALLEY

THE NATIONAL WEATHER SERVICE IN FAIRBANKS UPGRADED THE FIRE WEATHER  
WATCHES TO RED FLAG WARNINGS...WHICH ARE IN EFFECT FROM 10 AM THIS MORNING  
TO 10 PM ADT THIS EVENING FOR HIGH WINDS.

DISCUSSION...STRONG NORTHEAST WINDS ARE BLOWING ACROSS PORTIONS OF THE  
NORTHERN AND CENTRAL INTERIOR TODAY. GUSTS OF 25 TO 30 MPH WILL OCCUR  
THROUGH THE DAY AND RELATIVE HUMIDITIES WILL DROP BELOW 40 PERCENT BY  
EARLY AFTERNOON. HUMIDITIES WILL LIKELY RISE ABOVE 40 PERCENT LATE THIS  
EVENING.

A RED FLAG WARNING MEANS THAT CONDITIONS ARE OCCURRING OR WILL OCCUR  
WHICH COULD LEAD TO THE DEVELOPMENT OF LARGE AND DANGEROUS FIRES. IT IS  
DIRECTED TOWARD FIRE AGENCIES... AND THROUGH THEM... TO THE PUBLIC.

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

\$\$

3. Fire Weather Watch.

WWAK61 PAFC 132155  
RFAER

FIRE WEATHER WATCH  
NATIONAL WEATHER SERVICE ANCHORAGE AK  
200 PM ADT FRI JUN 13 2004

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 IN ANCHORAGE 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.  
\$\$



4. Spot Forecast/Prescribed Burn/Smoke Management.

FNUS79 PAFG 091433  
FWSAFG

SPOT FORECAST FOR JARVIS NORTH  
NATIONAL WEATHER SERVICE FAIRBANKS ALASKA  
533 AM AKST TUE NOV 9 2004

IF CONDITIONS BECOME UNREPRESENTATIVE, CONTACT THE NATIONAL WEATHER SERVICE.

.DISCUSSION...A CHINOOK WIND WILL DEVELOP THIS AFTERNOON,  
STRENGTHEN TONIGHT, AND LAST INTO WEDNESDAY.

FOR PLANNED IGNITION TIME OF 800 AKST 11/9/04  
SKY / WEATHER.....MOSTLY CLOUDY. BECOMING WINDY.  
TEMPERATURE.....MAX 15  
RH.....MIN 70%  
20 FOOT WIND.....EAST WINDS 10 MPH INCREASING TO 25 TO 35 MPH  
IN THE AFTERNOON.  
MIXING HEIGHT.....2000 FT  
TRANSPORT WINDS.....EAST INCREASING TO 30 MPH.

FOR TONIGHT  
SKY / WEATHER.....MOSTLY CLOUDY. WINDY. SLIGHT CHANCE OF SNOW.  
TEMPERATURE.....MIN 15  
RH.....MAX 80%  
20 FOOT WIND.....SOUTHEAST WINDS 25 TO 35 MPH.  
MIXING HEIGHT.....1000 FT.  
TRANSPORT WINDS.....SOUTHEAST 30 MPH.

OUTLOOK FOR TOMORROW  
SKY / WEATHER.....MOSTLY CLOUDY.  
TEMPERATURE.....MAX 30.  
RH.....MIN 70%  
20 FOOT WIND.....SOUTHEAST 20 MPH.  
MIXING HEIGHT.....2000 FT.  
TRANSPORT WINDS.....SOUTHEAST 20 MPH.

FORECASTER...XXXXXX

\$\$

REQUESTED BY...XXXXXX  
REASON FOR REQUEST...WILDFIRE

## Appendix I

### Weather Data Collection Sites in Alaska (sorted by Fire Management Zone <FMZ>)

WIMS_ID	SITE ID	FULL NAME	TYPE	FMZ	NWS ZONE
500961	PANC	ANCHORAGE	MAN	AMS	101
500942	RBT	RABBIT CREEK	RAWS	AMS	101
500939	BGQ	BIG LAKE	RAWS	AMS	111
500952	PAAQ	PALMER	MAN	AMS	111
500966	BLS	BENTALIT	RAWS	AMS	145
500915	PATK	TALKEETNA	MAN	AMS	145
500748	GEC	GEORGE CREEK	RAWS	DAF	223
500701	PABI	FORT GREELY	MAN	DAF	223
500743	GDP	GOODPASTURE	RAWS	DAF	224
500721	CHT	CHATANIKA	RAWS	FAF	221
500703	PANN	NENANA ASOS	MAN	FAF	221
500742	AGL	ANGEL CREEK	RAWS	FAF	222
500740	CPK	CARIBOU PEAK	RAWS	FAF	222
500741	FBK	FAIRBANKS	RAWS	FAF	222
500702	PAFA	FAIRBANKS AIRPORT	MAN	FAF	222
500744	SLR	SALCHA	RAWS	FAF	222
	DVC	DENALI VISITORS CENTER	RAWS	FAF	225
	PABR	BARROW	MAN	GAL	202
500206	IAN	KIANA	RAWS	GAL	208
500934	KEL	KELLY	RAWS	GAL	208
500212	PAOT	KOTZEBUE	MAN	GAL	209
500214	HAY	HAYCOCK	RAWS	GAL	210
500730	HDO	HOODOO HILL	RAWS	GAL	210
500215	QRZ	QUARTZ CREEK	RAWS	GAL	210
500211	PAOM	NOME	MAN	GAL	211
500203	PAUN	UNALAKLEET	MAN	GAL	212
500615	INK	INNOKO FLATS	RAWS	GAL	215
500733	COT	COTTONWOOD	RAWS	GAL	216
500309	HOG	HOGATZA RIVER	RAWS	GAL	216
500322	KAI	KAIYUH	RAWS	GAL	216
500319	KOY	KOYUKUK NWR	RAWS	GAL	216
500302	PAGA	GALENA	MAN	GAL	216
500217	KAV	KAVET CREEK	RAWS	GAL	217
500102	NOA	NOATAK	RAWS	GAL	217
500205	PAFM	AMBLER	MAN	GAL	217
500734	SWK	SELAWIK	RAWS	GAL	217
500965	HO2	HOMER	RAWS	KKA	121
500963	KNA	KENAI NWR	RAWS	KKA	121

500962 NCK	NINILCHIK	RAWS KKA	121
500941 PAEN	KENAI	MAN KKA	121
500951 PAHO	HOMER MAN	MAN KKA	121
500967 SGS	SKILAK GUARD STATION	RAWS KKA	121
500924 SWN	SWANSON RIVER	RAWS KKA	121
500929 SXQ	SOLDOTNA	MAN KKA	121
500902 BDV	BROADVIEW	RAWS KKA	125
500964 GRA	GRANITE	RAWS KKA	125
500908 KNL	KENAI LAKE	RAWS KKA	125
BLK	BLACK CAPE	RAWS KKA	171
500811 BTL	BOOTH LAKE	RAWS KKA	171
CHF	CHIEF COVE	RAWS KKA	171
KVK	CAPE KIVIAK	RAWS KKA	171
500959 PADQ	KODIAK	MAN KKA	171
PAGY	SKAGWAY	MAN SEAK	18
PAHN	HAINES	MAN SEAK	19
501013 HON	HOONAH	RAWS SEAK	21
PASI	SITKA	MAN SEAK	23
501029 JNU	JUNEAU RD	RAWS SEAK	25
501005 PAJN	JUNEAU	MAN SEAK	25
501026 KAK	KAKE	RAWS SEAK	26
501031 WPK	WOODPECKER	RAWS SEAK	26
501028 ZMB	ZAREMBO	RAWS SEAK	26
501044 HAD	HAIDA	RAWS SEAK	27
501007 PAKT	KETCHIKAN	MAN SEAK	28
501030 POL	POLK PEAK	RAWS SEAK	28
501042 SHL	SHELTER COVE	RAWS SEAK	28
501015 TRN	THORNE RIVER	RAWS SEAK	28
500625 FLT	FLAT	RAWS SWA	151
500624 FWL	FAREWELL	RAWS SWA	151
500606 PAMC	MCGRATH	MAN SWA	151
500601 PANI	ANIAK	MAN SWA	151
500956 SNY	STONEY	RAWS SWA	151
500621 SRV	STONEY RIVER	RAWS SWA	151
500620 TEL	TELIDA	RAWS SWA	151
500501 PABE	BETHEL	MAN SWA	155
500810 ALS	PORT ALSWORTH	RAWS SWA	161
500735 KIL	KILBUCK	RAWS SWA	161
500809 PADL	DILLINGHAM	MAN SWA	161
500805 PAIL	ILIAMNA	MAN SWA	161
500505 RDR	REINDEER RIVER	RAWS SWA	214
500704 PAOR	NORTHWAY	MAN TAF	224
500723 TEE	T LAKE	RAWS TAF	224
500936 TET	JATAHMUND LAKE	RAWS TAF	224

500720 TOK	TOK	MAN TAF	224
500726 TWR	ALCAN HWY MI-1244	RAWS TAF	224
500737 DRY	DRY CREEK	MAN TAF	226
500749 TKR	TOK RIVER VALLEY	RAWS TAF	226
500618 POR	POORMAN	RAWS TAL	216
500321 KAN	KANUTI NWR	RAWS TAL	219
500317 NRU	NORUTAK LAKE	RAWS TAL	219
500301 PABT	BETTLES	MAN TAL	219
500405 7MI	SEVEN MILE	RAWS TAL	220
500745 LIV	LIVENGOOD	RAWS TAL	221
500619 MCK	MCKINLEY RIVER	RAWS TAL	221
500623 MHM	LAKE MINCHUMINA	RAWS TAL	221
500305 PATA	TANANA	MAN TAL	221
500736 RND	ROUND LAKE	RAWS TAL	221
500715 WNL	WEIN LAKE	RAWS TAL	221
500710 WON	WONDER LAKE	RAWS TAL	225
500731 AWR	HELMUT MTN.	RAWS UYK	218
500423 BIR	BIRCH CREEK	RAWS UYK	220
500421 CIK	CHALKYITSIK	RAWS UYK	220
500416 GRF	GRAPHITE LAKE	RAWS UYK	220
500417 HOZ	HODZANA	RAWS UYK	220
500424 LBK	LITTLE BLACK	RAWS UYK	220
500425 LCR	LOST CREEK	RAWS UYK	220
500738 PCK	PREACHER CREEK	RAWS UYK	220
500404 PFYU	FT YUKON	MAN UYK	220
500412 SMT	SALMON TROUT	RAWS UYK	220
500420 VZK	VUNZIK LAKE	RAWS UYK	220
500418 WBQ	BEAVER (WBQ)	RAWS UYK	220
500414 BEN	BEN CREEK	RAWS UYK	224
500747 CKN	CHICKEN	RAWS UYK	224
500725 EAG	EAGLE	RAWS UYK	224
500954 5SZ	SLANA	MAN VCR	141
500933 CSN	CHISANA	RAWS VCR	141
500945 CXC	CHITNA	RAWS VCR	141
500949 CZO	CHISTOCHINA	RAWS VCR	141
500958 KLA	KLAWASI	RAWS VCR	141
500925 KNY	KENNY LAKE	MAN VCR	141
500957 MAC	MAY CREEK	RAWS VCR	141
500905 PAGK	GULKANA	MAN VCR	141
500931 PAXK	PAXSON	RAWS VCR	141
REN	RENEE	RAWS VCR	141
500955 TZL	TAZLINA LODGE	MAN VCR	141
500947 TZV	TAZLINA VILLAGE	MAN VCR	141

\*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.

\*\*Fire Management Zones

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

## Appendix J

### 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 K**

**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 Interagency Agreement 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

## 2.0 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. 93498, 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 Interagency Agreement 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.

2. 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.
- b. Provide all equipment, equipment maintenance, inspection of weather observation sites, and data quality control.
- c. Pay all travel and per diem costs associated with Interagency Wildland Fire Agencies' requests for visits of NWS personnel to weather observing sites.
- d. Provide for collection, storage and retrieval of remote automatic weather stations (RAWS) data.
- e. 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.

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](http://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.

C. 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.

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

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

3. 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 surcharges 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 <a href="mailto:david.billingsley@noaa.gov">david.billingsley@noaa.gov</a>	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 <a href="mailto:rick_ochoa@nifc.blm.gov">rick_ochoa@nifc.blm.gov</a>
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## 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.

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

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

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

\_\_\_\_\_

Donna Kalvels, Chief, Contract Office Date  
National Park Service

\_\_\_\_\_

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

\_\_\_\_\_

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

\_\_\_\_\_

Phil Street, Director Date  
DOI-Fish and Wildlife Service

\_\_\_\_\_

Jim Stires, Fire Director Date  
DOI-Bureau of Indian Affairs

\_\_\_\_\_

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

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Alice Forbes, Acting Director Date  
USDA, Forest Service-NIFC

Tory Majors, Administrative Officer Date  
USDA, Forest Service-NIFC

## **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.