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CHAPTER 60

PREDICTIVE SERVICES

PREDICTIVE SERVICES OVERVIEW

Predictive Services is a decision support unit for federal, state and local land management agencies for operational management and strategic planning for wildland fire management resources. Predictive Services accomplishes this by analyzing weather, climate, fuels, fire activity, and fire behavior.

Intelligence gathering is a fundamental component of Predictive Services for federal, state and local land agencies. Intelligence staff accomplish intelligence coordination by compiling reports from each level of the firefighting organization and communicating with individual GACCs and local jurisdictions about their historic, current, and expected fire occurrence.

The products and services from Predictive Services provide support for proactive management of wildland fire with an eye toward safety, cost containment, efficiency, and ecosystem health.

Wildland Fire Weather Forecasts

The National Weather Service provides Wildland Fire Weather.

Local dispatch centers will have protocols in place for monitoring, requesting, and disseminating fire weather forecasts, spot weather forecasts, fire weather watches, red flag warnings and other severe weather events (e.g., severe storm warnings, flash flood warnings, tornado warnings) to firefighters, incident commanders, and field-going personnel.

[Northern Rockies Supplement](#)

Fire Weather

The “Northern Rockies Area Fire Weather Annual Operating Plan” (AOP) is the official document to describe fire weather services in the Northern Rockies Area. The Fire Weather AOP, available fire weather forecasts, and a variety of weather intelligence is available online via the “Weather” section of the NRCC Web site: [click here for the NRCC weather web site](#).

PREDICTIVE SERVICES PRODUCTS

7-Day Significant Fire Potential Outlook

The [National 7-Day Significant Fire Potential Outlook](#) is a composite of outlooks produced by each of the Geographic Area Predictive Services. The 7-Day provides a week-long projection of fuel dryness, weather and fire potential. The 7-Day depicts a nationwide view of the significant fire potential for the next seven days with links to the individual Geographic Area 7-Day Outlooks. The system is database-driven and is updated periodically as each Geographic Area Predictive Services posts its outlook. Each Geographic Area Predictive Services will determine whether to routinely produce a morning or afternoon product. Issuance times for each Area’s outlook can be found in their respective Geographic Area Mobilization Guide and/or National Weather Service/ Predictive Services Annual Operating Plan. Geographic Areas are required to provide 7-Day Outlooks daily, except when the Geographic Area Predictive Services is not staffed. Forecasts will include the forecaster’s name or other agreed upon identifier to facilitate coordination.

National Wildland Significant Fire Potential Outlook

The [National Significant Wildland Fire Potential Outlook](#) is prepared and distributed by NICC Predictive Services on the first day of each month. It is a composite of outlooks prepared by the individual Geographic Area Predictive Services units and National Discussions are prepared by NICC Predictive Services. The Outlook identifies areas where significant wildland fire activity is expected to be above or below normal levels, and provides fire managers with the information needed to make long-range decisions concerning resource staffing and allocation.

The Outlook covers a four-month period, divided into four one-month sections. Maps for each period display areas of below normal, normal, and above normal significant wildland fire potential. The report includes a brief synopsis of the current and predicted national and GACC situation. The Outlook begins with an executive summary which provides a brief synopsis of the past month's weather and a national overview of each of the outlook periods. The Past Weather and Drought section summarizes the weather of the past month and the evolution of any drought conditions to illustrate how fuels and fire conditions reached the current state. The Weather and Climate Outlooks section summarizes the broad climate patterns that will affect temperature and precipitation for the next four months. The Geographic Area Forecasts section provides brief but more specific weather, fuels and fire potential information for each of the Geographic Areas.

GACC monthly outlooks are mandatory. They provide greater detail than the national outlook issued by NICC. GACC monthly outlooks will adhere to the following protocols:

- GACC and NICC outlooks must be geospatially equivalent.
- GACC websites are required to link to the national outlook.
- GACCs are required to provide draft forecast maps, as well as narrative highlights for the outlook period to NICC no later than five business days before the end of each month.
- GACC monthly outlooks will be issued and posted to the web on the first business day of each month.
- Maps will show areas where above normal, normal and below normal significant fire potential are expected.
- Outlooks will include a discussion of fuel conditions, climate outlooks, and other pertinent information.

[Northern Rockies Supplement](#)

[NRGA Fire Environment Video Briefings](#)

Predictive Services personnel post videos of select products and services to the Weather section of the NRCC website. The intent is to provide a flexible means for Predictive Services customers to view decision- support information. Frequency of video posting is dependent on fire activity and staffing.

[Monthly/Seasonal Outlook Briefing](#)

This briefing will feature the monthly and seasonal fire potential outlooks. These will be produced and posted usually in the first 5 days of each month except for January. This will be found in the Outlooks section of the NRCC Predictive Services Web Page.

Daily Outlooks

During the fire season, daily weather maps indicating a broad overview of the forecast weather for days 1 through 7 will be posted. The maps will show General wind, Potential Weather, Fronts, High/Low Pressure Centers, and Minimum Relative Humidity. These maps are generally produced by 10 am MDT when the NRCC is in operation.

Fuel and Fire Behavior Advisories

Fuels and Fire Behavior Advisories are alerts issued as needed to address an exceptional or extreme circumstance that could threaten firefighter safety. Conditions that could be reasonably expected normally do not warrant a Fuels and Fire Behavior Advisory. Advisories will focus on fuel conditions and fire behavior that have long-term impacts, not atmospheric conditions that can change significantly over short periods of time and found in other products.

Advisories will highlight conditions that are currently ongoing and give specific examples that have been experienced in the field. Advisories should be tailored so that firefighters at all experience levels can recognize the situation and act accordingly. Advisories should be coordinated with neighboring administrative units to ensure that all areas with similar conditions are being addressed. All Advisories that extend beyond a single local administrative unit or will be posted on the National Advisory Map must be coordinated with the NICC and Geographic Area Coordination Center Predictive Services.

Each Advisory must include a map of the affected area. Only one Advisory may be active at any time over any area. If multiple Advisory conditions are present incorporate them into one Advisory. Advisories will remain in effect for 14 days from issuance. If the Advisory conditions continue beyond the 14 days a new Advisory will need to be issued to update conditions and circumstances with more timely information. <https://www.nifc.gov/nicc/predictive-services/fuels-fire-danger>

Northern Rockies Supplement

During periods of high fire activity, general wildland fire behavior information will be distributed to zone dispatch centers through the NRCC. Zone dispatch centers will disseminate this information to firefighting personnel.

INTELLIGENCE

Incident Status Summary (ICS-209)

The Incident Status Summary (ICS-209) conforms to National Incident Management System (NIMS) policy and is used to report large wildland fires and other significant events on lands under federal protection/ownership. Lands administered by states and other federal cooperators may also utilize this report.

The ICS-209 is submitted by the agency with protection responsibility for the incident, regardless of which agency administers the land. If the protection agency is non-federal and chooses not to meet federal reporting standards, the federal agency which has administrative jurisdiction should submit the ICS-209. Geographic Area Intelligence Coordination staff will ensure that their local dispatch centers submit complete and accurate ICS-209 reports for any wildland fire meeting the requirements specified in the [When to Report Wildland Fire Incidents with an ICS-209](#) flowchart.

Northern Rockies Supplement

NR Intelligence Coordinator(s) have overall responsibility for the management of the 209 Application for the Northern Rockies Geographic Area (NRGA), including facilitating access to the 209 Program, establishing procedures and protocols for the program in the NRGA, and maintaining a database of all ICS-209s for purposes of analysis. In conjunction with other information sources, the information included on the 209 can be used by managers (including the Northern Rockies Multiagency Coordinating Group – NR MAC) to determine the priority of an incident and allocation of scarce resources.

Each NRGA zone dispatch center has overall responsibility for initiating, updating, and finalizing all ICS-209s within the dispatch area, or being the point of contact for all ICS-209's within a dispatch area when the ICS-209 is completed outside of the dispatch center. Turning the responsibility of updating the ICS-209 over to agency personnel outside of the dispatch office (i.e., IMT, District FMO/AFMO, Bureau FMO/AFMO, etc.) is beneficial to reducing the workload in the dispatch center, however, the dispatch center will continue to be the point of contact and must continue to oversee submissions of all ICS-209's within their jurisdiction.

Required Reporting of Wildland Fires

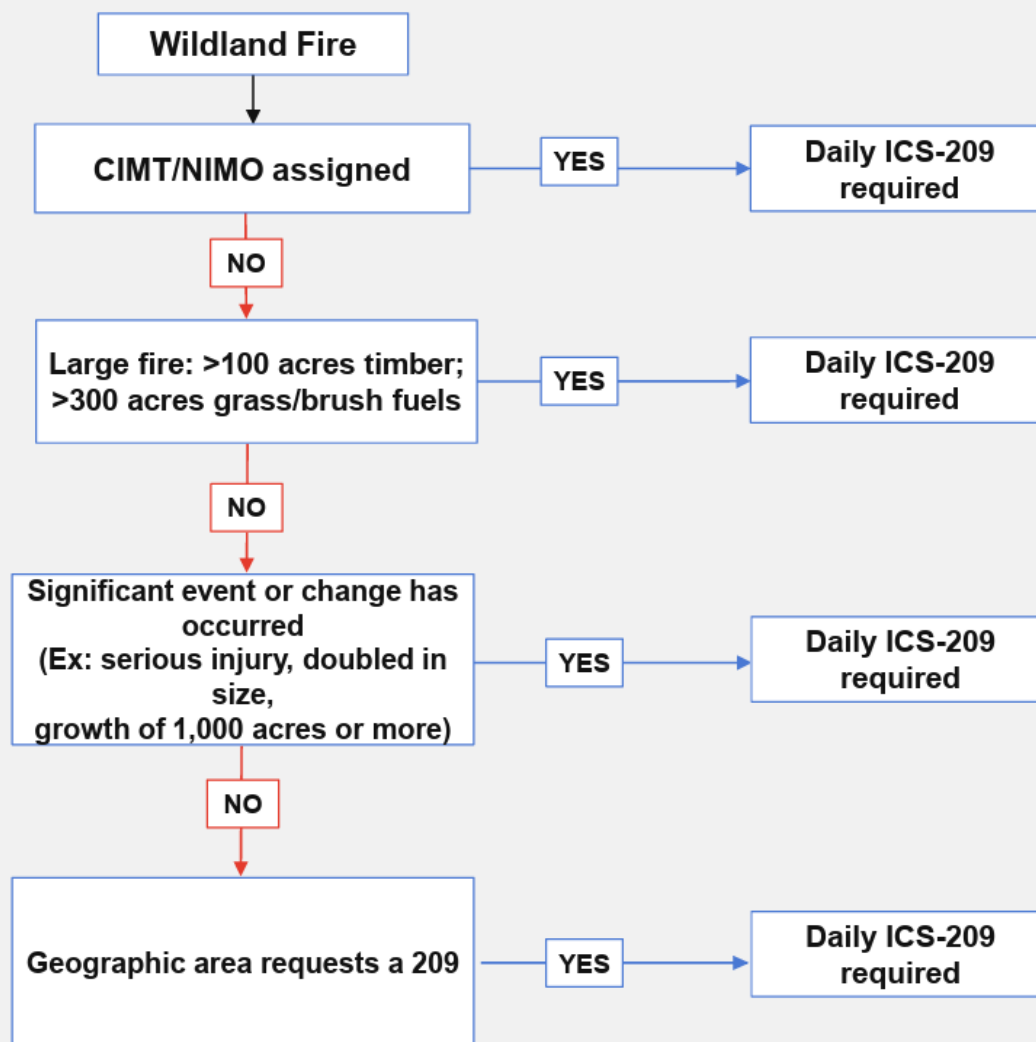
The NICC classifies large wildland fires as 100 acres or larger in timber or slash fuel models; and 300 acres or larger in grass or brush fuel models; or when a Complex, Type 1, or Type 2 Incident Management Team is assigned.

All wildland fires that meet large fire criteria, regardless of suppression strategy, will submit an ICS-209 by 0200 Mountain Time to report the previous day's activity until the incident is controlled or contained. Refer to GACC Mobilization Guides or agency policy for reporting requirements once containment is achieved.

Change in suppression strategies for lands under USFS and DOI jurisdiction can be found in the [Fire Management Board Memorandum No. 26-002](#).

When to Report Wildland Fire Incidents with an ICS-209

Daily ICS-209 is required for any incident that meets at least one criterion below.



A final 209 shall be completed at containment and/or control.

A 209 shall be submit daily if the total acreage of a complex meets large fire criteria.

Non-Fire Incidents

An ICS-209 will be submitted for other events in which a significant commitment of wildland fire resources has occurred, or when a Complex, Type 1, or Type 2 Incident Management Team has been assigned.

Wildland fires within a complex should be aggregated and included in one ICS-209. A complex is two or more individual wildland fires located in the same general proximity, assigned to a single Incident Commander or Unified Command.

Northern Rockies Supplement

It is imperative that an “initial” ICS-209 be submitted on the day an incident indicates it will meet the minimum reporting requirements (i.e., see below). Completing this “initial” ICS-209 early in the incident provides the intelligence needed at the NICC, NRCC, and NR MAC for incident prioritization and resource allocation decisions, as well as situational awareness of wildland fire activity on the landscape.

Access to the SIT209 Application is via FAMAAuth: [click here for the FAMAAuth login page](#).

***Reports are due no later than 1800 Mountain Time.** If this time frame cannot be met, the dispatch center will call the NR Intelligence Coordinator(s) and negotiate a later submission time. ICS-209 User’s Guide: [click here to download the ICS-209 User’s Guide](#).*

- ***Daily** if a Complex, Type 1, or Type 2 IMT assigned (see IMT Assignment section below).*
- ***Daily** if national resources (Type 1 or Type 2 Helicopter, Type 1 Crew, or Smokejumpers) are assigned to the incident for more than 72 hours.*
- ***Daily** if the incident is one of the following large fire criteria:*
 - *Greater than 100 acres when the primary fuel model is timber/slash (Fuel Models 8-13)*
 - *Greater than 300 acres when the primary fuel model is grass/brush (Fuel Models 1-7)*
 - *The following tables describe the 13 fuel models, which category they fall into (grass/brush or timber/slash), and correlating selection for block 29.*

<i>Grass / Brush</i>	
1	<i>Short Grass (1 foot)</i>
2	<i>Timber (Grass Understory)</i>
3	<i>Tall Grass (2.5 feet)</i>
4	<i>Chaparral (6 feet)</i>
5	<i>Brush (2 feet)</i>
6	<i>Dormant Brush, Hardwood Slash</i>
7	<i>Southern Rough</i>

<i>Timber / Slash</i>	
8	<i>Closed Timber Litter</i>
9	<i>Hardwood Litter</i>
10	<i>Timber (Litter and Understory)</i>
11	<i>Light Logging Slash</i>
12	<i>Medium Logging Slash</i>
13	<i>Heavy Logging Slash</i>

- ***Daily** if a significant event occurs or is expected to occur. This may include:*
 - *Damage to values at risk (i.e., structures, infrastructure, etc.).*
 - *A significant accident, injury, or fatality occurs.*

- Critical fire weather event (i.e., low relative humidity, strong surface wind, unstable air, etc.).
 - Sufficient increase in acres or activity (such as smoke production) to create public health or nuisance concerns.
 - The incident strategy is modified.
 - The incident commander changes.
- **Daily** if the incident is to be prioritized for resource allocation or meet situational awareness considerations for specific agency(s).
 - Incidents that will be active beyond 72-hours from discovery which do **not** meet large fire criteria and do **not** have national resources assigned will create an "Initial" ICS-209 and submit an "Updated" ICS-209 **Thursday** no later than 1800 (mountain time). If/when it reaches large fire criteria or a CIMT or NIMO is assigned, daily reporting will be required.
 - A **"Final"** ICS-209 can be submitted once the incident is declared 100% contained or completed. An ICS-209 may be changed from "Final" status to an "Update" should the incident escape containment and then become "Final" once again upon re-containment.
- **Complex Incidents:** To maintain data management, reporting integrity, resource management and cost accountability for individual wildland fire incidents within a parent complex and to facilitate the necessary data sharing between fire application systems through IRWIN, the following complex reporting business practices must be followed:
 - The complex parent is a unique record and is not a converted wildland fire incident record.
 - The complex parent record should be created in an IRWIN recognized CAD system, or as an individual ICS-209. The parent incident shall include the word "Complex" and cannot be named from an existing fire.
 - Individual child incidents can be added to a complex within the 209 program as either preexisting ICS-209 incidents or as individual IRWIN incidents created from another IRWIN recognized application using the 'Complex by Incident' button in block 7 of the 209 data entry screen. Finalize an existing ICS-209 child incident prior to associating the incident to the parent Complex.
 - Incidents that do not have a unique IRWIN record cannot be added to the complex using the 'Complex by Incident' button.
 - If an incident is removed from the complex, it may resume ICS-209 reporting as an individual incident if appropriate, using normal ICS-209 reporting guidelines.
- **When a Prescribed Fire is Declared a Wildfire:** Prescribed fires will be reported following the requirements outlined in the When to Report Wildland Fire Incidents document.

- *IMT Assignment*

- If an IMT is to be assigned, the dispatch center will generally submit the “Initial” and any “Updated” ICS-209’s until the IMT is in place and has assumed command.
- The dispatch center will need to give “ADS (Authoritative Data Source)” in WildCAD-E to the SIT209 Application for the period the IMT is in place.
- If an IMT remains assigned past the containment date, an ICS-209 will continue to be submitted by the IMT until the IMT transfers command at which time the receiving unit (i.e., dispatch center/district/field office, etc.) will continue ICS-209 submissions or submit a final ICS-209.
- While an IMT is assigned, the dispatch center is responsible for receiving and entering daily acreage updates into the SIT application (i.e., Daily Fire Statistics tab).
- If an IMT departs before 100% containment or completion, daily submission of the ICS-209 will be continued by the dispatch center (district/field office) until the incident is declared 100% contained or completed. If needed, the dispatch center can call the NR Intelligence Coordinator(s) and negotiate an alternative schedule.

***Note:** When greater sage-grouse habitat is burned or threatened by wildland fire, the following documentation should be included on ICS-209 in accordance with National Multi-Agency Coordinating Group (NMAC) Correspondence #2015-7 [Click here to download the NMAC #2015-7 correspondence](#) dated June 23, 2015 or [click here for the Office of Wildland Fire \(OWF\) Policy Memorandum #2015-007](#):*

- “Sage-grouse habitat burned” in Block 30,
- Damage Assessment. “Sage-grouse habitat threatened” in Block 38, Current Incident Threat Summary and Risk Information in the 12-24-48-72-hour timeframes and beyond.

Incident Prioritization Process

NRCC and NR MAC, when activated, will use the Risk Management Assistance Dashboard (RMA) supported by information contained within current ICS-209’s and daily IC calls to establish priorities. [Click here to access the RMA Dashboard](#).

The Risk Management Assistance Dashboard (RMA) intersects predicted wildfire growth with all-lands risk assessment and GIS data associated with values at risk.

ICS-209’s and IC calls will be used to evaluate social, political, economic impacts, cultural resources, incident objective attainment, containment/completion, critical resource needs, and any other relevant considerations.

Interagency Situation Report

GACC Intelligence staff will ensure that all dispatch centers within their geographic area submit Situation Reports through the SIT/209 Application at different frequencies throughout the year. The reporting period for this report is 0001 to 2400. NICC Intelligence staff will retrieve situation

reports from the SIT/209 Application by 0200 Mountain Time. Fires and acres shall be reported by protection responsibility.

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To keep fire managers (locally, geographically, and nationally) abreast of current activity throughout the Northern Rockies Area, centers will report all wildland fire activity via the SIT/209 application accessed through FAMAuth ([to access FAMAuth click here](#)). Information from this application is utilized to produce summary reports which are used by agency managers as a decision-making tool. Agency information officers may also use the reports to disseminate incident activity to the media, congressional leaders, and the general public.

*As per national direction, **reporting is required for all fire activity year-round** through the SIT/209 application. Northern Rockies dispatch centers will report all activity:*

- ***May 17 through September 19:** SIT reporting will be completed daily by close of business or 1800 Mountain Time, whichever comes first whether or not there are fires or acres to report. If the 1800 time frame cannot be met, the dispatch center will call the NR Intelligence Coordinator(s) and negotiate a later submission time. Should the geographic area's Preparedness Level remain at 2 or higher prior to May 17, SIT reporting will be submitted daily. The NR Intelligence Coordinator(s) produce the Morning Report on the same schedule, requiring daily SIT entries.*
- ***September 20 through May 15:** SIT reporting will be submitted by close of business or 1800 Mountain Time, whichever comes first, when any wildland fire activity occurs (including prescribed fire). Should the geographic area's Preparedness Level be elevated to 2 or higher after September 20, SIT reporting will be submitted daily. NR Intelligence Coordinator(s) will produce the Morning Report at PL 2 or higher.*

The SIT Report application is divided into five tabs:

- ***Daily Fire Statistics:** Dispatch centers will report fire danger, preparedness level, wildfire activity, and completed prescribed fire activity occurring during the past 24 hours (reporting period is 0001 to 2400 local time) on their units. Enter all fire and acreage statistics by land ownership for the unit with protection responsibilities. This means the specific piece of land the fire started on and land(s) on which the fire burned.*
 - *There is no relationship between the ICS-209 Program and the SIT Report Program regarding acres reported. This means data entered into the ICS-209 Program will not rollover into the SIT Report Program. If the wildland fire meets ICS-209 reporting criteria, all acres burned must be manually entered each day in the SIT Report application. If an IMT is assigned to an incident, a good rule of thumb is to wait for the completion of the ICS-209 by an IMT and then enter the updated acreage. Do not wait until the fire is controlled or declared out to report acres in the SIT Report application. If acres need adjusted later due to better mapping, acres must be updated in the YTD Statistics tab in the SIT Report application.*
 - *Incidents that cross dispatch boundaries will be reported by each impacted dispatch center. Coordination among dispatch centers must occur to report the appropriate acres burned in each dispatch center's jurisdiction. When this does*

occur, SIT Report Ownership and Protection acres may not match for the local dispatch center and/or GACC. Reference the National Acreage Summary Dashboard or spreadsheet.

- *Do not use the daily statistics tab to catch-up activity from previous days. This is important because the users of the data assume the data is current and active for the given date only. Corrections in numbers of fires/acres will be made in the YYTD Statistics tab only.*
- *Rx fires and acres should be reported per burn plan. For example, one burn plan would be recorded as one fire and acres associated will aggregate without reporting a new fire, even if there are multiple units within the burn plan.*
- ***Planned Rx:*** *This tab is optional.*
- ***Remarks:*** *Dispatch Centers should select the preparedness level for the dispatch area and include a general synopsis of current or expected weather, fuel/drought conditions and anticipated fire activity in Remarks. Include significant events or problems, resource shortages, expected lightning or wind events and clarification for “Daily Fire Statistics” or “YTD Statistics”. This area also captures on-call contact information for units/dispatch centers.*
- ***YTD Statistics:*** *This tab captures fire statistics on a calendar year basis (January 1 – December 31). The SIT Report application automatically calculates the new fires and acres reported via the Daily Fire Statistics tab.*
 - *Please note, if catch-up data needs to be entered, it should be accomplished through the YTD Statistics tab. If updates are completed on this tab, please note this via the “Remarks” tab.*
- ***Incident Priority:*** *Dispatch centers will use this tab to assign their internal incident priorities.*

Incident Management Situation Report

The National Incident Management Situation Report (IMSR) will be issued seven days a week, regardless of the National Preparedness Level.

NICC Intelligence staff prepares the IMSR from information and data derived from the SIT/209 Application.

Large full suppression wildland fires are typically reported in the IMSR until:

- The incident is contained.
- The incident is 90% contained and has less than 100 personnel assigned.
- The incident is no longer demonstrating significant activity.

Northern Rockies Supplement

How to Read the IMSR

Dispatch Center Call-Around

June through September (as activity dictates), NR Intelligence Coordinator(s) may call around to each zone dispatch center, approximately between 1445 and 1530 Mountain Time daily to

collect information on the current day's situation. NR Intelligence Coordinator(s) may be able to gather most required information from CAD systems but may contact dispatch centers to ensure accuracy. Incident activity received from each zone dispatch center will be disseminated to the Northern Rockies Operations Specialist, the NRCC staff, and NR GMAC (during NR PL 4 and 5) for incident prioritization and resource allocation planning purposes within the geographic area. Current day's information is also shared with NICC for informational sharing and planning purposes at the national level.

NR Intelligence Coordinator(s) will be requesting information on:

- Initial attack activity for the day, including the number of fires and their sizes. Please provide protection unit and structures threatened information (how many, kind, proximity if known).*
- Emerging Incidents with potential (any initial attack fires that are likely to grow to large fire size, i.e., 100 acres in timber/slash or 300 acres in grass/brush.)*
- Whether a Complex, Type 1, or Type 2 Incident Management Team will or could potentially be assigned.*
- National resource commitments (Airtankers, Lead planes/ASMs, Type 1 Crews, Smokejumpers, etc.).*
- Notable resource shortages.*
- Any other significant events that happened throughout the day (i.e. large incident updates, accidents, injuries, medical evacuations, structures destroyed, etc.).*
- Current critical fire potential weather (i.e. thunderstorm activity, receiving lightning, etc.)*

GYA Situation Report

The Greater Yellowstone Area Units will report their fire situation using the SIT application.

IRWIN - Integrated Reporting of Wildland Fire Information

IRWIN is an "end-to-end" fire reporting capable system coordinating data exchange between several applications and programs. As the central hub, IRWIN moves data from one program to another and reverse, passing pre-populated data and keeping the data synchronized and up to date. In the Intelligence community, primary wildland fire applications currently within the IRWIN environment include EGP, SIT209 Application, WildCAD, and WFDSS, among others. As the IRWIN environment continues to grow and progress, all dispatch centers must be familiar with the purpose, function, and methodologies of IRWIN as they relate to Intelligence operations.

- IRWIN Observer
 - Allows the monitoring of all incident-related activity throughout the day.*
 - The program can be found via the NRCC website on the Dispatch Operations page or click this link to the IRWIN Observer website.**

- *For additional information or if you have questions about IRWIN Observer as it relates to Intelligence applications, please contact the NR Intelligence Coordinator(s).*