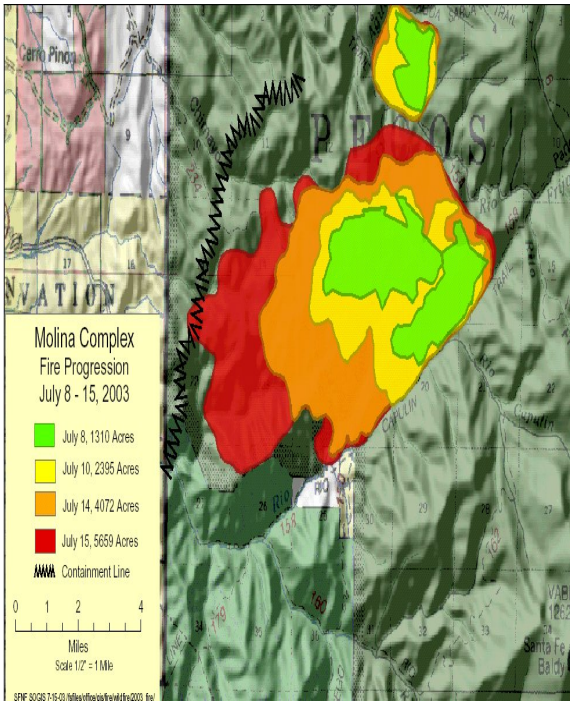
INTELLIGENCE SUPPORT SPECIALIST (INTS)

Pre-Work Package

Welcome to the **Intelligence Support Specialist (INTS)** training course. Our hope is that this course will enhance and/or advance your career objectives, as well as provide you with another set of skills that will allow you to become a valuable asset within the wildland fire community. Intelligence is a different side of the Dispatch / Coordination System. It is our hope that you walk away from this course with a new respect for how information and intelligence moves through the system, and the need for being accurate and timely in providing information to those who make tactical and strategic decisions.



PRE-WORK PACKAGE

Over the past several INTS training classes, students have stated in their written course evaluations that several of the units in the introductory portion of the course should be removed and made into a pre-work package. As any good cadre would do, we listened to our students and developed this pre-work package. By doing this we will be able to concentrate more on specifics of Intelligence and the INTS position during the course.

In general, this pre-work package is designed to provide you with basic background information to better prepare you to work as an INTS. There are **SIX** sections to the basic knowledge requirements to work as an INTS. The pre-work package will cover **FOUR** of these, while **TWO** (Maps and WIMS/NFDRS) will be covered in the first section of the course.

1. National / Geographic Area Coordination System / Local Dispatch System
2. Evolution of the Intelligence System
3. Incident, Incident Command System, And Resource Classifications
4. Fire Operations Terminology And Concepts

Upon arrival at the INTS course, you will be given a closed-book evaluation test on the material covered in this pre-work. The score will factor in with all other tests and evaluations during the course to give you a final grade. At the end of the pre-work package you will find an example Pre-work test. If you spend the time to read through and complete the test, you should have no problem with the test given to you upon arrival.

Best of luck.

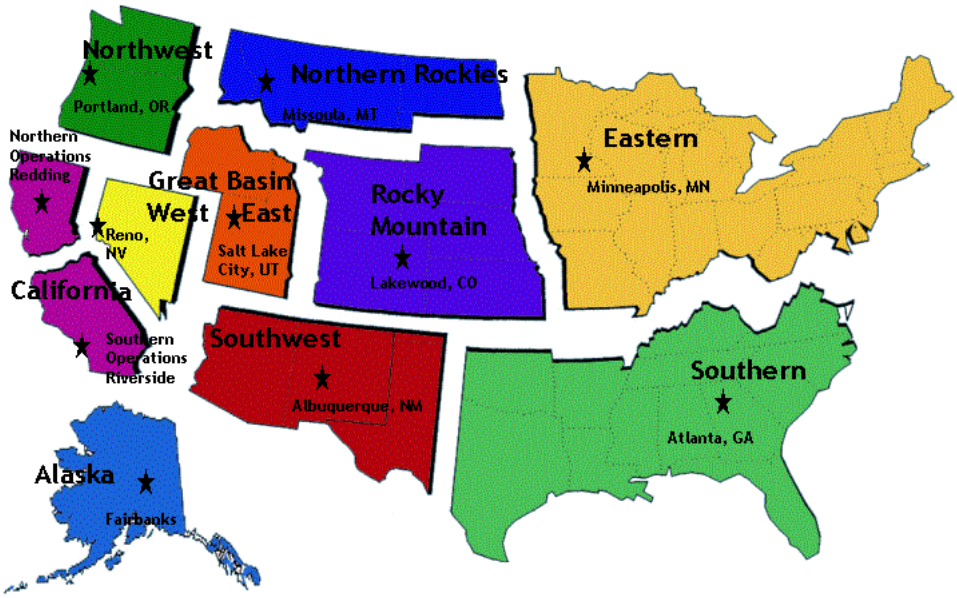
INTS Cadre

I. NATIONAL / GEOGRAPHIC AREA COORDINATION / LOCAL DISPATCH SYSTEM

There are 11 Geographic Areas throughout the U. S. and Alaska. Each Geographic Area is responsible for wildland fire and all-risk operations within the Area, as it relates to the Federal and State Agencies and Units.

II. The Dispatch / Coordination System

There are three primary levels of the Dispatch / Coordination System. They are (1) National Coordination Center (NICC), (2) Geographic Area Coordination Centers (GACC), and (3) Local Dispatch Center (Unit or Interagency).



A. National Coordination Center (NICC)

The National Interagency Coordination Center (NICC), located in Boise, ID, coordinates resource movements and prioritization of incidents among the 11 geographic areas, and internationally if necessary. NICC is considered the top level of the 3-Tier Dispatch / Coordination system.

B. Geographic Area Coordination Centers

There are 11 Geographic Area Coordination Centers (GACCs) located throughout the U. S. and Alaska. Each Center is responsible for coordinating the mobilization of resources into and out of their geographic areas. They are also the focal points for internal and external requests for resources not filled at the local level.

C. Local or Interagency Dispatch Center

The local or Interagency Dispatch Center is generally located in a Federal or State facility. Each center is responsible for initial and extended attack dispatching for wildland fire or other all-risk incidents.

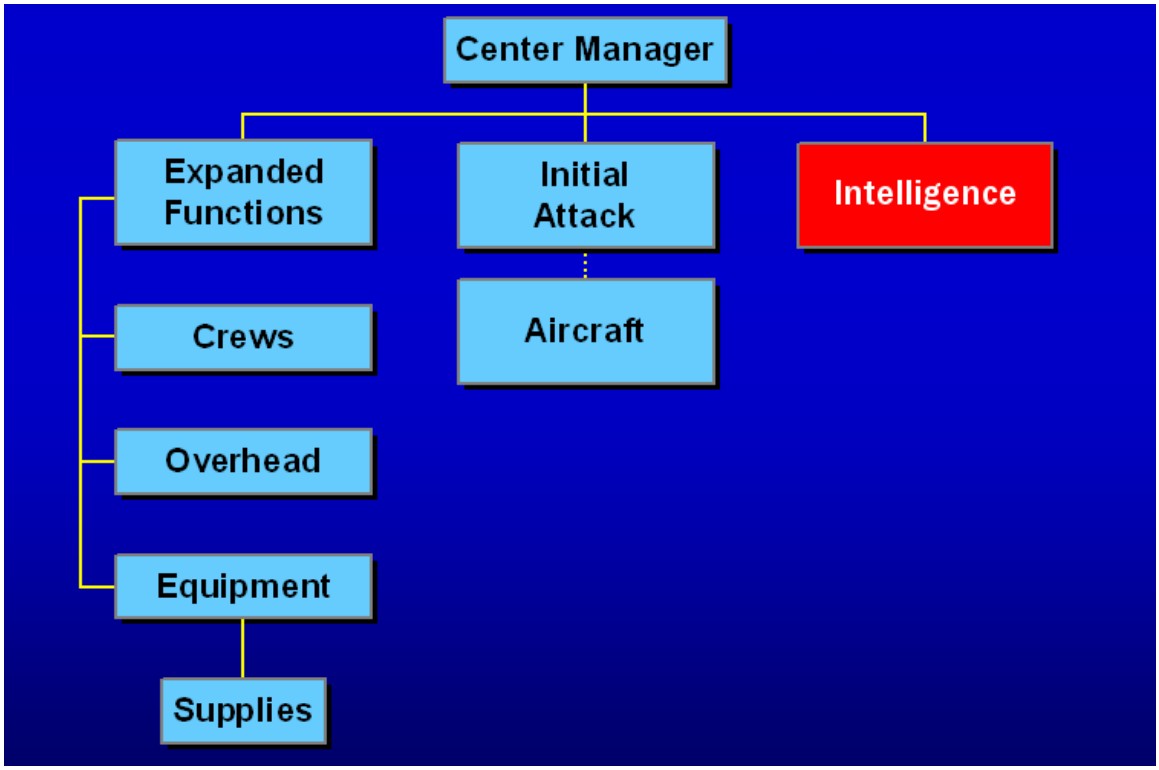
III. Organization and Function

A. Local Dispatch

In general, the local Unit or Interagency Dispatch Center is organized primarily as an "initial attack" center. However, when additional support is needed for incident(s) that can no longer be managed by the "initial attack" center, the dispatch organization is split into two separate functions (1) expanded dispatch and (2) initial attack dispatch.

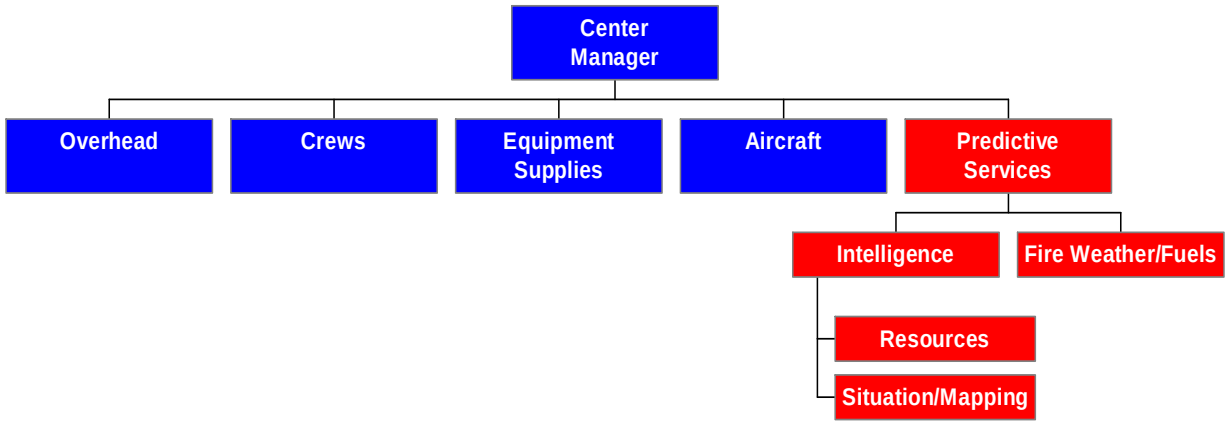
An "Expanded Dispatch" is designed to support incidents that have moved out of the initial attack phase (i.e. large incident(s)), while the existing "Initial Attack Dispatch" continues to handle and support new fires. Once an "Expanded Dispatch" is established, it is broken down into Crews, Overhead (Personnel), Equipment, and Supplies.

Two functions remain in the Initial Attack office, Aircraft and Intelligence. Aircraft continues to fill the tactical aircraft needs of new fires (i.e. airtanker use, etc) and to coordinate with Expanded Dispatch to support logistical support needs (i.e. transport of personnel, crews, supplies, etc.). We'll discuss what Intelligence does here shortly.



B. Geographic Area Coordination Center (GACC) and National Coordination Center

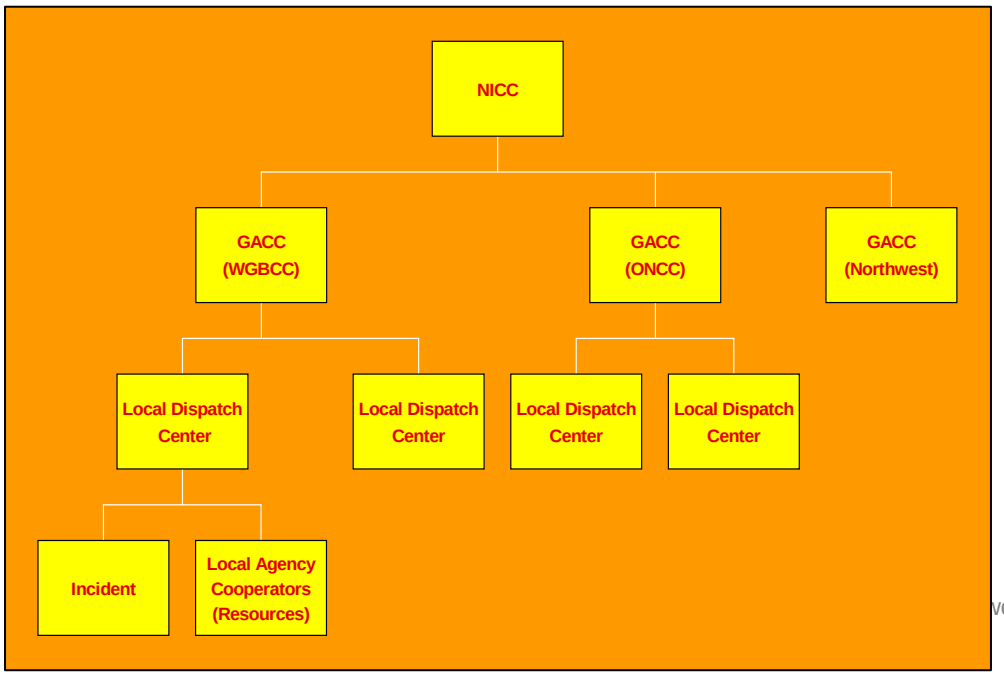
The same "Expanded Dispatch" functional areas plus aircraft at the local center are also present at the geographic area and national levels of the Dispatch/Coordination system. What separates the GACC from the local center is Predictive Services. Predictive Services is the decision support function of the GACC and NICC, which encompasses the areas of Intelligence, Weather, and Fuels. The Intelligence Section at the GACC produces a number of Intelligence related products and works collaboratively with the other members of the Predictive Services Unit on various fire weather/fire danger reports.



IV. The Dispatch/Coordination System Hierarchy

Information on an incident and requests for resources to support it both move through the local dispatch center to the appropriate GACC. From there, the resource requests can be sent to other dispatch centers within the geographic area, to neighboring GACCs (with existing agreements), or to NICC.

Similarly, information on the incident is shared at the various levels of the organization. It becomes



less detailed as it travels upward, presenting a broader view of the situation.

I. EVOLUTION OF THE INTELLIGENCE SYSTEM

WHAT IS INTELLIGENCE IN THE WILDLAND FIRE COMMUNITY?

Webster's definition of intelligence is: "**The capacity to acquire and apply knowledge; news or information**".

Intelligence within the wildland fire community is the "collection, analysis, prediction, and dissemination of wildland fire and/or other types of internal information or data with the goal of aiding managers in the decision-making process." Many corporations and government entities have some function of Intelligence built into their organization, whether it is titled as Intelligence or not. The most familiar organization we in the fire community relate Intelligence to is military Intelligence. Military Intelligence is the gathering, analysis, and dissemination of information pertaining to an enemy or possible enemy. If we truly want to look at Intelligence in this light, then fire is our enemy and we want to know as much about it, and what has or will happen as an incident evolves.

WHAT IS THE DIFFERENCE BETWEEN INCIDENT INTELLIGENCE AND INCIDENT INFORMATION?

The words "intelligence" and "information" are often used interchangeably. Incident Intelligence specifically refers to wildland fire or incident specific activities, where the information and/or data collected is used for strategic planning and decision-making. Specific information or products developed and disseminated to all levels of the dispatch system and to fire management officers is generally utilized in the operational and logistical decision making process. Examples of products produced by an Intelligence section may include local/geographic area/national situation reports, weather forecasts, fire behavior/danger/potential forecasts, etc. The primary audience for Intelligence related products and service is the decision-maker, that is, the individual fire manager and/or those managers (i.e. MAC Group) that make tactical or strategic decisions pertaining to the allocation of resources or other incident management objectives.

Incident information is the gathering of generalized information pertaining to an incident or incidents that is formatted in a manner to keep the public abreast and informed about an incident (i.e. fire size, fire restrictions, road closures, etc). Incident news releases can be a valuable source of information dealing with the "human interest" side of the incident (evacuations, closures, social/economic impacts, etc). The primary audience for fire information is the external audience (i.e. general public, news media, and political entities). Incident information is not generally used for tactical or strategic planning, although there are times where some information is learned that is beneficial to the decision-maker.

WHY IS INTELLIGENCE IMPORTANT?

- **Firefighter Safety** – awareness of dangerous/critical fuel & weather conditions

- **Support of Operational Decisions** – prepositioning resources in anticipation of increased activity
- **MAC Decisions** – priority setting for incidents, decisions on where to best utilize limited resources
- **Severity Funding** – acquiring equipment and/or personnel during highened periods.

HOW DID INCIDENT INTELLIGENCE IN WILDLAND FIRE EVOLVE?

In reality, the wildland fire community has always been gathering Intelligence, in some form or fashion, for a long period of time. For example, when RAWS and manual weather stations, and NFDRS were introduced in the 1960's, the intent was to seek out Intelligence on weather and fuel conditions. This, in turn, would provide us with a much better picture on what we could expect should activity begin to occur.

As far as the title "Intelligence" is concerned, it is believed to have begun in 1981. It is during this year that a unit was created and called "Situations" at the National Fire Center, where statistical fire information was gathered. That same year, a "Situations" unit was created at the Alaska Coordination Center.

In 1984, the name "Situations" was changed to "Intelligence". This is also the year that a standardized situation report was developed and the morning report (now known as the Incident Management Situation Report, IMSR) was initiated.

Through the 80's and into the 90's, the need for a formalized method for gathering and disseminating Intelligence information became crucial to the wildland fire community. Thus, the position of Geographic Area Intelligence Officer became a formalized position within some Geographic Areas. By 1993, every Geographic Area had an Intelligence Officer or Intelligence Coordinator, and the group met for the first Intelligence Coordinators meeting. These meetings became an annual event beginning in 1996.

Responding to concerns about changes in the National Weather Service (NWS) pertaining to fire weather products and interactions with the wildland fire community, each Geographic Area Coordination Center (GACC) hired meteorologists in 2000. The new meteorologists were hired to oversee liaison with the NWS and develop products that would enhance the communities attempt to stay on top of fire weather and fire danger. By 2002, several GACCs combined the Intelligence Section and the Fire Weather Program into a single unit called the Predictive Services Unit (PSU). Once combined, the Intelligence Section has become an integral component in this scheme by providing fuel and resource allocation data for Fire Weather / Fire Danger products produced by the section.

WHAT IS THE FUTURE OF INTELLIGENCE IN WILDLAND FIRE?

As stated, Intelligence Units were initially created for the purpose of statistical fire information gathering and reporting what has happened or is happening on an incident (i.e., "How many fires occurred for how many acres and on whose land?") Over the past five years or so, the direction of Intelligence has been attempting to change its function as not simply a statistical information gatherer, but to be a provider of data to managers about what to expect in the future, such as weather and fuel conditions, anticipated

resource shortages, commitment of resources to prescribed burning operations, and other events that may have a significant impact on the ability to appropriately manage wildland fire incidents.

More and more, products produced by Intelligence Specialists will move more toward decision support services, that is, products that relate the impact of resource shortages on wildland fire. Presently, GACC Intelligence Coordinators are working with others in the Predictive Services Unit to produce products which will make fire managers aware of expected future conditions, and deciding on the best allocation of critical wildland fire resources.

As you can tell, the importance of good Intelligence, whether on an Area-wide or local level, is becoming more and more valuable to the decision-maker. Traditional products and services will continue to be produced, but over time as the level of knowledge and skills of those working in the Intelligence field increases, Intelligence will become a major player in the predictive services model.

II. INCIDENT, ICS AND RESOURCE CLASSIFICATIONS

A. KINDS OF INCIDENTS

Wildland Fire
There are several different kinds of wildland fire incidents. The most common are:

- **Wildland Fire**: Any nonstructural fire, other than prescribed fire that occurs in an area in which development is essentially non-existent or widely scattered.
- **Wildland Fire Use**: The management of naturally ignited wildland fire to accomplish specific pre-stated resource management objectives in predefined geographic areas outlined in Fire Management Plans.
- **Prescribed Fire**: Any fire ignited by management actions under certain, predetermined conditions to meet specific objective related to hazardous fuels or habitat improvement. A written, approved prescribed fire plan must exist, and NEPA requirements must be met prior to ignition.

Ignition Sources or Cause --There are generally only two causes of fire incidents. The first would be **lightning**, which is also considered a natural ignition. The second cause of fire incidents is **human**.

All-Risk
Any incident, natural or human-caused, that warrants action to save lives and to protect property, public health and safety and minimize disruption of governmental, social and economic activities. It includes planned events that require extensive planning and operational control that is beyond routine and procedural models. Some examples of these incidents are:

- Hurricanes
- Floods
- Earthquake
- Hazardous materials
- Multi-casualty

B. THE INCIDENT COMMAND SYSTEM

The Incident Command System (ICS) is a result of an obvious need for a more effective approach to managing rapidly moving wildfires in the 1970's. In 1980, ICS became the backbone of a wider-based system for all Federal agencies with wildland fire management responsibilities. It is now widely used throughout the nation by fire agencies and is increasingly utilized for law enforcement, other public-safety applications, and for emergency and event management.

The Incident Command System is used to manage an emergency incident or a non-emergency event. It can be used equally well for both small and large situations.

The system has considerable internal flexibility. It can grow or shrink to meet differing needs. This makes it a very cost-effective and efficient management system. The system can be applied to a wide

variety of emergency and non-emergency situations. Listed below are some examples of the kinds of incidents and events that utilize ICS:

- Wildland fires
- Multi-casualty incidents
- Search and rescue missions
- Pest eradication programs
- Oil spill response and recovery incidents
- Planned events; e.g., celebrations, parades, concerts

THE ICS ORGANIZATION

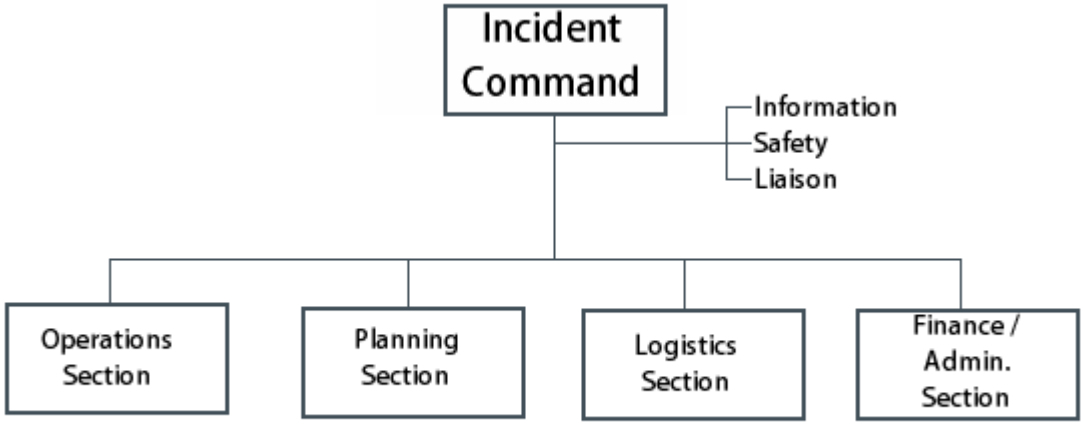
Every incident or event has certain major management activities or actions that must be performed. Even if the event is very small, and only one or two people are involved, these activities will still always apply to some degree.

The organization of the ICS is built around five major management activities. These are:

- Command
- Operations
- Planning
- Logistics
- Finance/Administration

These five major management activities are the foundation upon which the ICS organization develops. They apply whether you are handling a routine emergency, organizing for a major event, or managing a major response to a disaster.

On small incidents, these major activities may all be managed by one person, the Incident Commander. However, large incidents usually require that they be set up as separate sections within the organization as shown below:



PRIMARY ICS MANAGEMENT FUNCTIONS

Command
The Incident Commander is responsible for all incident or event activity. Although other functions may be left unfilled, there will always be an Incident Commander.

Operations
The Operations Section is responsible for directing the tactical actions to meet incident objectives.

Logistics
The Logistics Section is responsible for providing adequate services and support to meet all incident or event needs.

Planning
The Planning Section is responsible for the collection, evaluation, and display of incident information, maintaining status of resources, and preparing the Incident Action Plan and incident-related documentation.

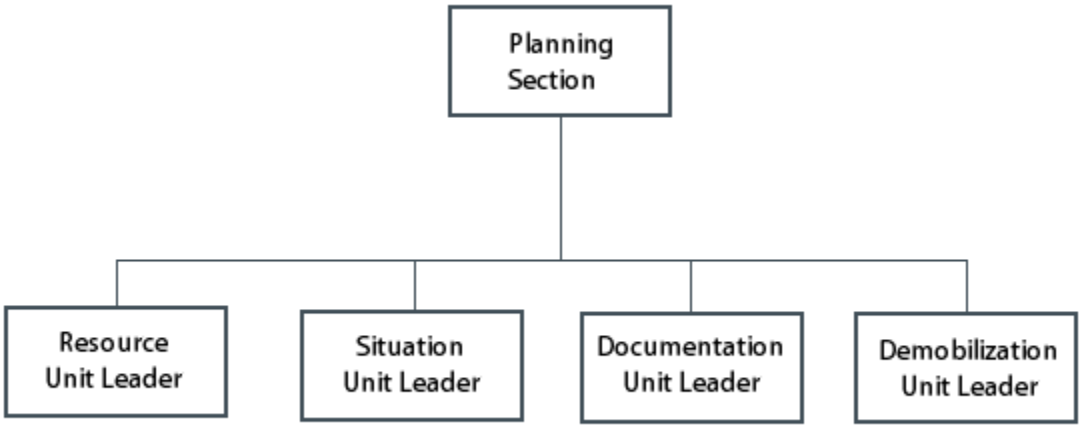
Finance/Administration
The Finance/Administration Section is responsible for keeping track of incident related costs, personnel and equipment records, and administering procurement contracts associated with the incident or event.

PRIMARY SECTIONS THAT INTELLIGENCE WORKS WITH
There are two primary sections within the ICS System that the Intelligence function maintains continuous communication. These are the Information Officer and the Planning Section.

Information
The Information Officer is part of the Command Staff and reports directly to the Incident Commander. This person is the point of contact for the media, or other organizations seeking information directly from the incident or event. Although several agencies may assign personnel to an incident or event as Information Officers, there will only be one primary Incident Information Officer. They are responsible for developing and releasing information about the incident to the news media, to incident personnel, and to other appropriate agencies and organizations.

Planning Section
The Planning Section collects, evaluates, processes, and disseminates information for use at the incident. Dissemination of this information can be in the form of the Incident Action Plan, formal briefings, or through maps and status board displays.

There are four primary units within the Planning Section that can be activated as necessary. The Planning Section Chief will determine the need to activate a unit. If a unit is not activated, then the responsibility for that unit's duties will remain with the Planning Section Chief.



There are two units within the Planning Section that Intelligence works directly with. These would be the Resource Unit and the Situation Unit.

The **Resource Unit** is responsible for maintaining the status of all assigned resources, primary and support, at an incident.

The **Situation Unit** is responsible for the collection, processing, and organizing of all incident information. They may prepare future projections of incident growth, maps, and other Intelligence information. The Situation Unit Leader is responsible for completing the ICS 209.

C. INCIDENT ORGANIZATION AND COMPLEXITY

There are many factors that determine incident complexity: size, location, threat to life and property, political sensitivity, organizational complexity, jurisdictional boundaries, values to be protected, fuel type, topography, agency policy, etc.

Incident complexity is identified by **Types 1 thru 5**. For example, a Type 5 incident is characterized by relatively few resources, is of short duration and has few complicating factors. A Type 1 incident on the other hand, has large numbers of resources and many complicating factors.

An Incident Complexity Analysis which can be found in the Interagency Standards for Fire and Fire Aviation Operations is utilized by agency administrators and/or fire managers to identify and mitigate certain complexity or safety issues by selecting a different strategy, tactic, or higher qualification of incident management personnel to safely and effectively manage the incident. Basically this tool is utilized in making the determination on what type of organization will be needed to manage the incident.

Type 5 Incident

- Resources required typically vary from two to six firefighters.
- The incident is generally contained within the first burning period and often within a few hours after resources arrive on scene.

Type 4 Incident

- Command staff and general staff functions are not activated.
- Resources vary from a single module to several resources, a task force, or strike team.
- The incident is usually limited to one operational period in the control phase.
- The agency administrator will have briefings, and ensure that WFSAs and delegation of authority are updated.
- No written incident action plan (IAP) is required. However, a documented operational briefing will be completed for all incoming resources.
- Role of the agency administrator:
    - Operations plans which include objectives and priorities.

Type 3 Incident

- Some or all of the command and general staff positions may be activated, usually at the division/group supervisor and/or unit leader level.
- Type 3 teams (or incident command organization) manage initial attack fires with a significant number of resources, an extended attack fire until containment/control is achieved, or an escaped fire until a Type 1 or 2 team assumes command. (Some units may have a predetermined type 3 incident management team formally designated)
- The command staff is normally comprised of the incident commander and a safety officer, plus two general staff positions.

Type 2 Incident

- Most or all of the command and general staff positions are filled.
- The incident extends into multiple operational periods.
- A written action plan is required for each operational period.
- Many of the functional units are needed and staffed
- The agency administrator will have briefings, and ensure that WFSAs and delegation of authority are updated.
- Operations personnel normally do not exceed 200 per operational period and total incident personnel do not exceed 500 (guidelines only).
- Divisions are usually established to geographically facilitate work assignments; a qualified division/group supervisor is not required on divisions established for reasons other than span-of-control or other complexity factors.
- Role of agency administrator:
    - Incident Complexity Analysis
    - WFSA
    - Agency administrator briefings
    - Written delegation of authority

Type 1 Incident

- All command and general staff positions are activated.
- Operations personnel often exceed 500 per operational period and total personnel will usually exceed 1000 (guidelines only).
- Divisions are established requiring division supervisor qualified personnel.

- May require the establishment of branches
- The agency administrator will have briefings, and ensure that WFSAs and delegation of authority are updated.
- At this stage, interface with the team takes more of the agency administrator's time.
- Use of resource advisors at the incident base is recommended.
- High impact on the local office occurs, requiring additional staff for office administrative and support functions.

The following table lists the various kinds of incidents (not all inclusive):

Kinds of Incidents
• Wildfire
• Prescribed fire
• Wildland Fire Use
• Search and Rescue
• Hurricane
• Earthquake
• Hazardous Materials Spill

The following table lists the types of incidents:

Types of Incidents
• 1
• 2
• 3
• 4
• 5

D. THE FIVE CATAGORIES OF RESOURCES

Resources can be described as both **kind** and **type**.

Resource Kinds
The **kind** of resource describes what the resource is, such as a helicopter, engine, dozer, tractor plow, etc. The kind of resource utilized can be as broad as necessary to suit the incident application.

Overhead
Personnel resources are requested as a single entity or single resource unit. A description of each position can be found in the National Wildland Coordination Group's Fireline Handbook, the Wildfire Qualification Subsystem Guide, or the National Interagency Mobilization Guide. Examples of overhead resources: Individual members on a team (Incident Management Teams, Buying Teams, Interagency Fire Use Management Teams, etc.), Smokejumpers, Technical specialist positions, etc.

Crews
A crew is a number of individuals that have been organized and trained principally for operational assignments. Standard hand crew size is 20 personnel maximum and 18 personnel minimum. A standard camp crew size consists of 10 personnel.

Equipment
Equipment is defined as engines, crew and school buses, bulldozers, support and service units such as caterers, showers, porta-potties, and infrared sensors.

Supply
Supplies are identified as materials or goods not defined in any other resource category. This includes all but is not limited to NFES items, mobile cache vans, telecommunications equipment, ATMUs, REMS, RAWS, etc.

Aircraft
There are tactical and logistical aircraft.

- Tactical - Airplanes and helicopters used in mission flights for direct fire suppression and incident operations.
- Logistical - Fixed-wing aircraft used to transport personnel/cargo to an incident.

THE VARIOUS LEVELS OF QUALIFICATIONS OF RESOURCE TYPES
The **type** of resource describes a **performance capability** for that kind of resource. For example, in the NWCG Fireline Handbook, a Type 1 helicopter will carry up to 16 persons. A Type 3 helicopter will carry up to five persons.

Resources are usually typed by a number, with 1 being the highest capability or capacity; 2 the next highest, etc. However, that high capacity does not necessarily mean that it is the right resource for the job to be done.

For example, a Type 1 fire engine which has the greatest pumping capacity, may not, because of terrain considerations, be able to access the area where the resource is needed.

The specific capability of the resource must always be clearly spelled out in the type descriptions.

There are three distinct advantages to typing resources:

1. In planning - Knowing the specific capabilities of the various kinds of resources helps planners decide the type and quantity of resource best suited to perform activities required by the Incident Action Plan.

2. In ordering - Ordering resources by type saves time, minimizes error, gives a clear indication of exactly what is needed, and reduces nonessential communications between the incident and the off-site order point.

3. In monitoring resource use - An awareness of the type of resource assigned enables the manager to monitor for under-or-over-capability, and make changes accordingly. Careful monitoring of resource performance can lead to the use of smaller or less costly resources, which can result in increased work performance and reduced cost.

III. FIRE OPERATIONS TERMINOLOGY AND CONCEPTS

There are literally hundreds of different terms and concepts used in wildland fire suppression, ranging from action plan to zone weather forecast. Since time does not exist for us to go through each and every one, it is our intent in this pre-work to introduce you to those primary terms relative to fire operations and fire behavior that are most often used by Intelligence Support personnel.

Working in the Intelligence Support position, there will be times when you need to make contact with an Incident Commander, Planning Section Chief, Situation Unit Leader, or, if working in a Geographic Area Coordination Center (GACC), an Initial Attack Dispatcher at a Dispatch Center to obtain the latest Intelligence for an incident. When this occurs, you will want to be able to ask specific questions, such as "What kind of fire behavior are you seeing on the ground?" "Is the fire up in the crowns," or "Will you be going with direct or indirect attack on the southwest portion of the fire?" More importantly, you will want to better understand the response. Such as, "we're working the south flank with retardant drops," "a scratch line has been placed near the origin," or "our live fuel moisture has dropped to 65 in Ponderosa pine."

No matter what your level of knowledge is in wildland fire suppression, in order to be a well-rounded in the Intelligence Support role, you must be prepared to converse and translate the information you receive into reports and briefings. This will enhance your ability to provide better Intelligence to the local MAC Group, Center Manger, Unit FMO, Geographic Area Coordination Center, or National Coordination Center.

The material in this unit is broken into two sections.

1. Suppression Operations Tactical Terms
2. Fire Behavior Terms

All of the terms introduced can be found in:

- Fireline Handbook
- S-130 (Basic Firefighter)
- S-190 (Introduction to Fire Behavior)
- Wildland Fire Terminology Handbook

A. WHEN WILL YOU BE USING THESE TERMS AND CONCEPTS IN YOUR DUTIES AS INTELLIGENCE SUPPORT?

As an Intelligence Support person, you will be using the terms in many, if not all, of the following products or communications:

- Completion of the **Incident Status Summary (ICS-209).** Although you are not fully responsible for completion of this form, you may be entering the data on behalf of an Incident Commander.
    - On the ICS-209 Form, there are several blocks which discuss fuel types, fuel moisture, fire behavior, direction of the fire spread, etc. The terms are used to paint the picture on

what exactly is happening on a specific large incident. You will be learning more about the ICS-209 during the actual INTS course.

- Obtaining information on the current **situation.** There will be a number of times in which you will need to talk to field personnel to obtain this information. In addition, you will often times enter the data in the Remarks section of the Sit Report program.

- Providing various **briefings.**

    - **Oral**: Standing before an individual or group providing information.

        - There is nothing worse than giving an oral briefing to a group of incoming firefighters when you're not comfortable with the subject matter. In your briefing, you want to be able to tell the firefighters what type of fire behavior to expect, etc.

    - **Written**: Tasked with completion of report or document.

        - At almost all Dispatch Centers, GACC's, and NICC, an Incident Management Report, Morning Report, or Shared Resources Report is required and distributed. Many of these terms are used in producing these reports.

    - Working at the GACC or NICC, you may be tasked with working with the Predictive Services Group to produce **Fire Weather / Fire Danger Outlooks**.

B. SUPPRESSION OPERATIONS AND TACTICAL TERMS

Each time an initial attack crew arrives at a fire, the designated Incident Commander immediately sizes-up the fire and establishes an attack strategy and initial objectives. When an Incident Management Team is assigned to a fire, they are given a delegation of authority by the host agency. The Incident Commander immediately institutes his/her strategy and objectives. Part of his/her operational strategy is to decide on the proper tactics which will be used.

The following are only a few of the tactical terms you will hear and use.

PARTS OF A FIRE

Head

This is the most rapidly spreading portion of the fire's perimeter, usually to the leeward or upslope.

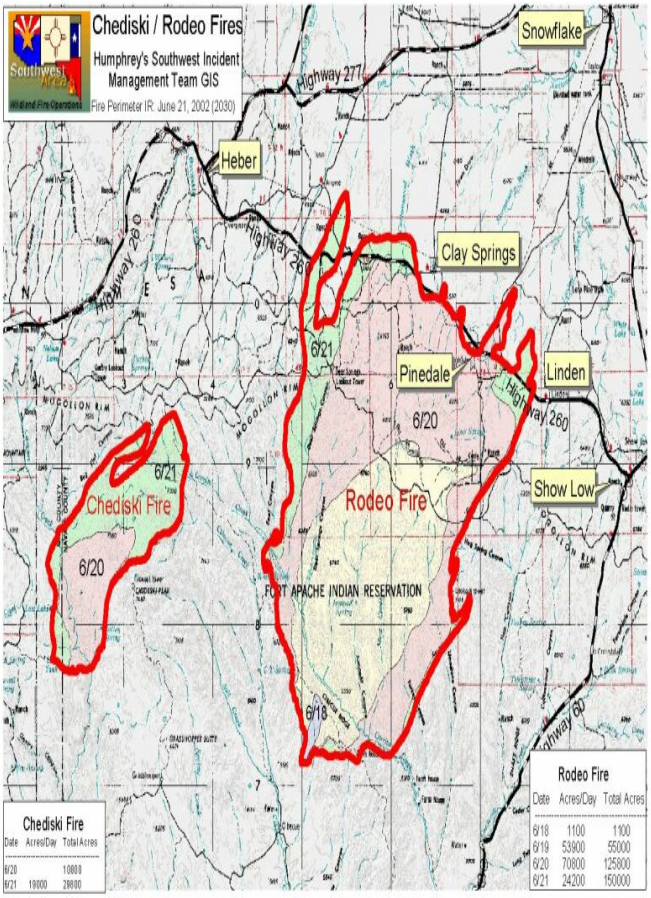
Example: If the wind is coming out of the southwest, it generally means the fire is moving to the northeast. Thus, the northeast portion of the fire is probably the location of the head of the fire.

Flank

The parts of a fire's perimeter that are roughly parallel to the main direction of the spread.

Example: If the fire head is moving in a northeast direction, the flanks of the fire will, generally speaking, be on the northwest and southeast perimeters of the fire.

Anchor Point
An advantageous location or point, usually a barrier to fire spread, from which to start constructing fireline. It is used to minimize the chance of being flanked by the fire while the line is being constructed.



Example: If a fire starts along a roadside and moves off in a specified direction, an anchor point is established at the road location if there is reasonable expectation that the fire will not be spreading at this point. It is here where the initial fireline can be constructed.

Perimeter
The outer edge or boundary of a fire.

Fingers
The long narrow extensions of a fire projecting from the main body.

ATTACK STRATEGIES
As was mentioned earlier, each incident commander establishes his or her strategy for suppressing a fire. By strategy, we are talking about the general plan or direction selected to accomplish the incident objectives.

Two specific strategies you will need to be familiar with are:

Direct

This is considered to be an aggressive suppression strategy. In general, it is any treatment applied directly to burning fuel such as wetting, smothering, or chemically quenching a fire or by physically separating the burning from the unburned fuel.

What is one consideration the IC must make if going direct? SAFETY OF THE FIREFIGHTER. Direct attack often means placing firefighters right up to the fires edge. It is a tactical method successfully used to quickly bring the fire under containment.

Indirect

This is also an aggressive suppression action. However, the control line is generally located a considerable distance away from the fire's edge. This type of attack is often used on fast-spreading or high-intensity fires. Utilizing natural or constructed firebreaks or fuelbreaks and favorable breaks in the topography, the intervening fuel is usually backfired. Occasionally the main fire is allowed to burn to the line, depending on conditions.

LINE TERMINOLOGY

Constructing fireline is essential in reducing or stopping a fire from spreading. The objective in line construction is to remove or reduce the flammable materials (fuels) that allow the fire to build up in intensity or continue to spread.

Terms you will need to know include:

Control Line
An inclusive term for all constructed or natural fire barriers and treated fire edge used to control a fire.

Scratch Line
An unfinished preliminary control line hastily established or constructed as an emergency measure to check or slow the spread of a fire.

Retardant Line
A suppression agent linearly spread over an area of a fire in order to slow the spread and allow ground firefighting personnel to follow-up with an intense control line.

Backing Fire
Where fire is spreading across the ground, but flames are leaning "back" into the fire area.

Backfire
A backfire is a tactic used by firefighters to set down fire along the inner edge of a fireline to consume the fuel in the **path of a wildfire** and/or change the direction of force of the fire's convection column.

Burning Out
Setting fire inside a control line to consume fuel between the edge of the fire and the control line. It is generally used to burn out areas (such as unburned islands of vegetation) not considered within the main path of the fire.

Cold Trail

A method of controlling a partly dead fire edge by carefully inspecting and feeling with the hand for heat to detect any fire, digging out every live spot, and trenching any live edge.

Mop-up

Extinguishing or removing burning material near control lines, felling snags, and trenching logs to prevent rolling after an area has burned, to make a fire safe, or to reduce residual smoke.

The mop-up stage can be one of the most dangerous portions of a fire. During mop-up, we have a tendency to let our guard down. If we do this, inevitably, a nearby tree will torch or an open grass area will catch fire from fire spreading through the ground.

TACTICAL TERMS USED IN REPORTING

These terms can be confusing since they have both tactical and reporting meanings. They may represent the status of a particular fire for reporting purposes, but can also represent a management strategy for tactical purposes.

Confine

This management strategy includes the use of natural topographic features, fuel, and weather factors, and has a combination of direct and indirect actions on the fire perimeter.

More recently, this is being referred to as an appropriate management response.

Contain

Completion of a fireline around a wildland fire and any associated spot fires, which can be reasonably expected to stop the fire's spread.

Control
Completion of a fireline around a wildland fire and any spot fires therein, which has a higher expectation to stop a fire's spread. Includes any interior islands to be saved, burning out any unburned area adjacent to the fire side of the control lines, and cooling down of all hot spots that are immediate threats to the fireline until the line can be reasonably expected to hold under the foreseeable conditions.

C. FIRE BEHAVIOR TERMS

Fire behavior consists of the manner in which a fire reacts to the variables of fuel, weather, and topography (a.k.a., The Big 3).

MAJOR FUEL GROUPS

There are four primary categories in which wildland fuels are classified within in the Fire Behavior Prediction System (FBPS) and the National Fire Danger Rating System (NFDRS).

Grass
Fine, very porous, and continuous herbaceous fuels, either cured or nearly cured. Can produce high rates of spread, depending on the density, continuity of fuel, and wind.

Brush
Small woody material with live foliage. Fuel considerations would be chamise, chaparral, manzanita, oak brush, low pocosin, Alaskan spruce taiga, and shrub tundra. Can produce intense burning, depending on fuel moisture, ambient temperature, direct sunlight, wind, etc.

Timber
Moderate to tall woody with a central trunk and live foliage. Timber areas include stands of Ponderosa pine, Douglas fir, Jack pine, western

hemlock, oak, birch, aspen, etc. If fire gets up in the crown, can produce intense runs if pushed by strong winds and/or live fuel moistures are very low.

Slash

Down and dead timber spread over an open area or within a closed canopy of trees. Can produce high intensity fires with short and long range spotting due to firebrands being transported.

It would be convenient if all wildland fires fell only within the four major fuel groups. However, this is hardly ever the case. An ignition can start in any of these fuel groups, but can spread into others. In addition, the different fuel groups are often intermixed or overlap with each other. For example, within an open grass field, you may find a number of shrub areas or small trees, etc. Just remember that when you speak about fire activity and you are discussing fuel groups, you may want to indicate that the fire is within a predominant fuel group (i.e. grass, timber, etc).

FUEL COMPONENTS/TYPES OF FIRES

There are three classifications for types of fires, (1) ground, (2) surface, and (3) aerial. All are based on fuel availability.

Ground Fuels/Fire

A fire that occurs under the ground surface, generally working its way through root systems, deep duff, and rotten and buried logs.

Surface Fuels/Fire

Fire that burns loose debris on the surface, including dead branches, leaves, grass, small dead wood, and low vegetation.

Aerial Fuels/Fire

Fires in these fuels consist of all green and dead materials located in the upper forest canopy including tree branches, crowns, snags, moss, and high brush.

If a fire advances from top to top of trees or shrubs more or less independent of a surface fire, it is referred to as a **crown fire**.

FUEL MOISTURE

Fuel moisture is defined as the amount of water in a fuel, expressed as a percent of the weight of that fuel after it has been dried out in an oven.

Generally speaking, when fuel moisture is high, fires can ignite, but burn poorly. When fuel moisture is low, fires can easily ignite, and spread and burn more rapidly.

Understanding this concept will go far in helping you to better understand the effect of fire on live and dead fuels.

There are two primary types of fuel moistures.

- LIVE FUEL MOISTURE
- DEAD FUEL MOISTURE

LIVE FUEL MOISTURE

Live fuel moisture refers to the amount of moisture within living vegetation. Values for fuel moisture can range from 30 to 300+ percent. Critical levels for live fuels occur, depending on vegetation, when they get down to the 50-90% range.

Two types of fuels make up measurements for live fuel - herbaceous and woody.

Herbaceous: Herbaceous fuels consist primarily of grasses. They are delineated into Annuals and Perennials. Annuals grow from new seeds each year. They produce a large amount of dead fuels for fire potential. Perennials sprout from their base and cure out later than annuals. This is highly important in assessing fire potential.

Woody: Woody fuels primarily fall within the category of brush and timber. They are delineated into conifers and deciduous. Conifers are cone shaped, evergreen trees with needle foliage. Deciduous trees have leaves & twigs.

- Fuel moisture is located in the **foliage with new shoots and stems**
- Fuel moisture generally **decreases** through the fire season when there is a lack of moisture in the soil.

DEAD FUEL MOISTURE

Dead fuels consist of those forest products that have broken off from live trees and shrubs, and lie on the forest floor. This dead and down material can play an important role in fire spread.

Dead fuels are broken down into **four size classes** and the **time** necessary for a fuel particle to lose approximately 63 percent of the difference between its initial moisture content (i.e. initial oven-dry weight) and its equilibrium moisture content (i.e. the point at which a fuel will not ignite):

Fuel Size	Timelag
(1) <.25	1-hour
(2) .25-1 inch	10-hour
(3) 1-3 inches	100-hour
(4) 3-8 inches	1000-hour

The more common measure of dead fuel moisture is **to weigh 10-hour fuel sticks**.

These sticks will produce a fuel moisture range from 1 to 30+ percent. More than anything, temperature, humidity, and precipitation play the most critical role in determining dead fuel moisture levels.

From a fire spread perspective, fine fuels (1-hour & 10-hour fuels) react **rapidly** to humidity and precipitation, and reach saturation point quicker. Large dead fuels (i.e. 1000-hour fuels) react more **slowly** to humidity and precipitation, and reach saturation point more slowly. One of the primary reasons is much of the rain that lands on large fuels runs off.

1000-hour fuels are good indicators of **drought.**

D. TACTICAL FIRE BEHAVIOR TERMS

When an Incident Command Team is assigned to a fire, the team brings with them a qualified Fire Behavior Analyst (FBAN). The Analyst uses various tools at their disposal to assess, determine, and project the reaction of wildland fire to fuel, weather, and topography. These tools make-up what is referred to as the Fire Behavior Prediction System (FBPS).

The FBPS is a site-specific system (i.e. on a fire, not in an office setting) designed to produce various calculations and predictions. Calculations are based on **13** fuel models (FM), or representations of fuel that **predominately carries fire**. Fuel models are delineated into the four fuel groups we've previously learned about: grass, brush, timber, and slash.

Grass

- FM1 - Western annual grasses
- FM2 - Open Ponderosa Pine stand with grass understory, scattered sage
- FM3 - Tall grasses (3+ feet), (ie. prairie grasses)

Brush

FM 4 - Chaparral, Manzanita, Pocosin, southern Rough
FM 5 - Low shrub fields within timber stands
FM 6 - Pinyon-Juniper with sagebrush, southern hardwood shrub, low pocosin, gamble oak
FM 7 - Understory rough, Palmetto, slash pine

Timber

FM 8 - Surface litter fuels
FM 9 – Fall litter leaves, loose hardwood litter, long-needle forest floor litter in ponderosa pine
FM 10 – Heavy dead-down ground fuels in canopied forest

Slash

FM 11 – Light logging residue, open dead-down
FM 12 – Medium, open dead-down, clearcut area
FM 13 – Heavy, open dead-down, clearcut area

After carefully analyzing data, the FBAN will provide incident management various calculations including:

Rate of Spread
The distance a fire will spread over a given time period. (i.e. 5 chains per hour)
(one chain = 66 feet)

Fireline Intensity
How hot a fire is burning based on fuels and fuel load.

Flame Lengths
The distance from the ground to the tip of a flame. (i.e. 100 foot flame lengths)

Fire Size
The amount of area the fire covers and total distance around the perimeter of a fire.

Estimate control resources
Firefighting resources needed to bring a fire or a portion of a fire under control.

All of the terms and many of the calculations used by the FBAN pass through the Intelligence system. They are often used in conversation and briefings, as well as on the ICS-209, Situation Report, and other products.

E. CONCLUSION OF TERMINOLOGY AND CONCEPTS

These are only a handful of terms actually used in wildland fire suppression. There are many more that you will learn as you work within the fire environment. Working in the Intelligence Support position, you will hear, see, and use most, if not all, of the terms you've just read about. Often times, it is the big picture the Intelligence Group has to be aware of. Knowing this, a basic understanding of tactical terms and fire behavior terms will help you to converse and convey to an audience what is actually happening on fires within your jurisdiction.

SAMPLE PREWORK TEST

1. List four important reasons why Intelligence is important.

   (firefighter safety, severity funding, operational decision support, MAC decisions)

2. The Incident Command System is not cost effective and efficient.

   (True or False)

3. List the 2 primary functions within the ICS organization that you are most likely to have contact with when performing your duties as an Intelligence Support Specialist (INTS).

   (Information & Plans)

4. List the 5 main categories of resources.

   (aircraft, overhead, equipment, supplies, crews)

5. In a discussion with a local FMO, she states that the 10-hr fuel moisture has dropped from 15% to 8% over the past 7-day period. Does this mean that fire spread potential will increase or decrease?

   (increase)

6. How is flame length measured?

   (from base at ground to tip (diagonally) at head of fire)