

LESSONS LEARNED 2003

**SUCCESSSES AND CHALLENGES
FROM AAR ROLL-UPS**



**For: Wildland Fire Lessons Learned Center
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LESSONS LEARNED RELATED TO THE PLANNING FUNCTION

The Planning Function on All Risk Incidents

Overview: The Space Shuttle Columbia Recovery Effort brought together a mix of agencies that normally do not work together. According to the respondents, working under the Incident Command System and unified command, various local, state and federal agencies, including the National Aeronautic and Space Administration (NASA), The environmental Protection Agency (EPA), the USDA Forest Service, the Texas Forest Service (TFS) and the Federal Emergency Management Agency (FEMA) were able to integrate information and develop an effective Incident action plan and mapping product. Respondents reported that they learned from the following successes and challenges in three key areas, including incident meteorological services, obtaining overhead resources and knowing resource status.

Incident Meteorological (IMET) Services at the ICP

Background: On the recovery mission, one incident management team IMT felt that having Incident Meteorological (IMET) services at the ICP provided real time monitoring and mitigation of weather related safety hazards. When thunderstorms approached, the IMET was able to give timely warning. This was key to pilot and personnel safety.

Obtaining Overhead Resources on an All Risk Incident

Background: Obtaining overhead personnel in all functions proved extremely difficult and could have had a significant impact on incident operations. Working through the delegating agency, which was the TFS, the IMT was able to get authority to name request critical positions needed.

Knowing Resource Status

Background: The Resource Ordering Status system (ROSS) provided valuable information for building the Operational Planning Worksheet (ICS 215) for future operational periods. However, they also report that it would have helped to identify at check-in whether contract crews were national or regional. Providing a field to indicate the last operational period for all resources that could be queried and edited would also be helpful.

Lessons Learned:

- ☼ Incident Meteorological (IMET) services at the ICP can provide real time monitoring and mitigation of weather related safety hazards.

- ☼ Working through the host agency to name request resources can provide a means of working around critical resource shortages.

- ☀ ROSS provides valuable information for building the ICS 215 for future operational periods. However, identifying contract crews at check-in as either national or regional and providing a field to indicate last operational period for all resources would facilitate planning section work.

Resource Ordering and Status System (ROSS): A Work in Progress

Overview: IMTs reported numerous challenges associated with the Resource Ordering and Status System (ROSS).

Name Requests

Background: Many times during the 2003 season, IMTs resorted to name requests to obtain critical resources, and IMTs found ROSS related issues that interfered with name requests particularly troubling. According to one IMT, the process required for name requesting is very cumbersome. There are simply too many screens to go through to get a name request processed.

This IMT and others expressed frustration that ROSS would not allow name requesting of aviation support personnel who were frequently in critically short supply. Unless circumvented by name ordering through state or local government, the inability to name request hurt incident aviation operations. IMTs reported having critical aviation personnel orders open for days, and aviation contractors were frustrated when they were not able to fly because the IMT had insufficient managers available.

Line and Camp Overhead/Mid-Level Supervision

Background: IMTs report that suppression resources were arriving while mid-level supervision orders (for both line and camp) remained unfilled, which is not cost effective.

One IMT reports overcoming this challenge by delaying orders for additional line resources until mid-level supervision (line and support) were confirmed with estimated times of arrival. The IMT also worked with the dispatch system to pair crew/engine module orders with Strike Team Leader and Task Force Leader orders. This IMT also used national contract engine resources in strike team/task force configurations with contractor Strike Team Leaders or Task Force Leaders.

Line Resource Orders

Background: One IMT reports that resources arrived at the ICP with no Overhead (O) numbers or Crew (C) numbers. Both Area Command and Expanded Dispatch assigned these resources to the incident, but at times O and

C numbers were not assigned for days afterwards. The IMT assigned fictitious numbers so that check-in could be accomplished and time could be posted, allowing the resources to fight the fire. The IMT reconciled databases at a later date.

IMTs report that ROSS does not allow for easy transfer of resources from one fire to another. In one situation, when lightning storms swept their area, the IMT inherited many new fires and several new fire complexes. The IMT reassigned and loaned resources from one fire to another as needed to avoid getting tied-up with ROSS, and the associated problems and delays of ordering new resources. This approach caused some complication, both internally and with expanded dispatch, but the fires were fought and valuable time was not lost. The IMT resolved all the issues at a later date, and databases were updated.

Teams also reported that they overcame their ROSS related problems at the local level by tracking resources the old fashioned way on resource order forms and cardstock.

Lesson Learned: The Resource Ordering and Status System (ROSS) hampered IMTs, and teams are experimenting with numerous means for circumventing ROSS, including name requests through state and local government agencies, returning to pre-ROSS cardstock resource ordering and tracking systems, and synchronized approaches to ordering line resources and overhead. None of these approaches are desirable as long-term solutions, and issues related to ROSS need to be resolved systematically.

The Interface Between IMT and Expanded Dispatch

Background: Several teams reported that, out of necessity, they worked very closely with the expanded dispatch of the host agency to overcome a variety of problems. Some respondents report overcoming ROSS related issues by working very closely with the host agency's expanded dispatch. Others reported that they needed to overcome problems they had with the expanded dispatch. In some cases, the local expanded dispatch was lacking and led to numerous instances of duplicate requests for information and delayed information management for alerts, fire behavior, and weather and safety updates.

Lessons Learned: Some IMTs overcame problems with expanded dispatch by assigning IMT personnel directly to the expanded dispatch. One IMT assigned a Logistics Section Chief to expanded dispatch and another to the ICP. Others overcame expanded dispatch related problems by conducting conference calls once or twice a day.

Incident Status Summary (ICS Form 209) Program Not User Friendly

Background/Lesson Learned: IMTs report that the ICS Form 209 program is not user friendly and is hard to navigate. One IMT reported that, with the present 209 entry process, there is a potential for data to be lost during input. This team addressed this issue by creating an MS Word document containing the standard 209 text. The document was printed out, edited by the IC, and then block copied into appropriate sections of the ICS 209 form. The word document was saved for later reference.

Sand Tables: Planning and Information Tool

Background: Taking a cue from the military, one team used a sand table as a planning tool. The sand table provides an excellent tool for tactical discussions with the operations function; tactical and strategic discussions with the entire team and/or agency administrators; and facilitating discussions with local landowners, residents and local officials.

Lesson Learned: A sand table can provide an excellent tool, not only for its intended purpose of strategic and tactical discussion, but also to facilitate discussions with local landowners, residents and local government officials.

Planning for Contingencies

Background: One team reported that they established back-up plans for each operational period in case fire behavior required them to abandon their original plan.

Lesson Learned: Teams should establish contingency plans. This is related to institutionalizing the concept of error resiliency, and to using contingency planning and the establishing trigger points as part of that concept.

Infrared Interpretation at the Incident

Background: One IMT reported that they had a fixed wing infrared (IR) pod and an IR interpreter assigned to their incident. This proved to be a great concept, allowing for a group review of the flight data, with an interpreter present who was dedicated to the IMT.

An IMT reported that they had success using the palm IR from an aircraft and providing maps of hot spot locations to line resources prior to the operational period.

Lesson Learned: Taking advantage of available IR resources can enhance both planning and operations. The IMT can participate in group review of IR

flight data enhanced with an IR interpreter participating and use IR resources to provide maps to line resources for the operational period.

Preventing Archeological Damage/Tracking Areas Cleared for Operations

Background: When operating in areas of cultural and archeological sensitivity, IMTs are faced not only with an important resource protection issue, but also one with serious social and political implications.

One IMT reported their experience in which they needed to prevent damage from fire suppression activities to one of the most archeological sensitive sites in the nation. This IMT ordered a large number of line-qualified archeologists to their incident. One or two archeologists were assigned to every crew on the line. The archeologists surveyed the area prior to the crew going to work, located line locations and flagged them. The IMT decided to use retardant and bucket drops to establish line in extremely sensitive or inaccessible areas to minimize damage in canyons where fire became a safety issue. The retardant and bucket drops worked in the fuel types involved on this incident. The IMT also selected a strategy that allowed the fire to run into a previously burned area, which worked to stop the forward spread of the fire.

Another fire was located in an area that permitted dozer line construction as part of the perimeter containment of the fire. However, the area had not been completely surveyed for archeological sites. The IMT completed archeological surveys on this incident with the help of para-archeologists. However, controversy erupted over whether the team was implementing their approved strategy without adequate consultation and compliance that assured that areas had been approved before the dozers began their work. The IMT established a system by which the para-archeologists assigned to the fire documented, on their Crew Time Report (CTR,) what division they were working on daily, providing the IMT with an easy method of tracking and answering questions about clearance. This IMT recommends that all assigned archeologists define their daily assignment on a CTR, to avoid confusion and conflict over implementing approved strategy vs. complying with requirements for archeological surveys.

Another IMT reported a different approach. This IMT assigned their archaeologists to the Situation Unit, which provided necessary oversight of daily work assignments and facilitated information transfer and necessary documentation.

Lessons Learned:

- ☀ In areas of substantial archeological or cultural resource sensitivity, assign archeologists or para-archeologists directly to crews and other resources on the line to survey areas, locate line, and guide the actions on the ground.

- ☀ Consider alternative tactics in areas of archeological or cultural resource sensitivity to minimize damage.
- ☀ IMTs operating on incidents with cultural or archeological resource issues would be wise to establish a system for assuring which operational areas have been surveyed and cleared for fire operations.
- ☀ When archeologists or other cultural resource specialists are necessary, assign them to the Situation Unit to provide oversight of daily work assignments and facilitate information transfer and documentation.

Preventing the Spread of Noxious Weeds

Background: One IMT reported that they worked for a hosting agency that expressed strong concern over the spread of noxious weeds and suggested that the IMT set up numerous wash stations for equipment to curb the spread of noxious weeds from one area to another. The IMT accommodated this request by setting up two different wash stations for equipment.

Lessons Learned:

- ☀ The IMT is there to meet the host agency's needs, and those needs may require actions that are unusual to the IMT. Remain flexible and responsive.
- ☀ Wash stations for equipment can help prevent the spread of noxious weeds.

Heli-Mulching on Rehabilitation

Background: One IMT reported that they used helicopters to aerially apply 1,300 tons of weed-free straw to severely burned areas, totaling 500 acres, located in a municipal watershed. The operation went very efficiently, using two and three aircraft over a period of seven days. The IMT used two locations to load nets for helicopter hookup. Turnaround time ranged from two to six minutes, with approximately one minute necessary to load nets. Approximately 1,400 loads were delivered, requiring approximately 2,800 hooking actions under hovering aircraft. Three particular challenges (contracting, hotspots and straw) were encountered and overcome.

Contracting

Since the project was not an "emergency" for procurement purposes, normal contracting regulations applied. Consequently, the IMT had to plan and prepare for seven days before beginning the heli-mulching operation. This was significantly slower than if they had access to emergency equipment rental agreements (EERA), but was significantly faster than normal contracting actions.

Hotspots

Straw was applied to vast areas well inside the fire perimeter, including areas that had not been mopped up and had received no significant precipitation. As expected, hot spots surfaced, and though helicopter pilots directed ground crews to visible smokes, some straw did ignite resulting in the loss of approximately five to ten acres. Helicopter bucket work and precipitation after the operations were completed minimized this problem.

Straw

Straw was not immediately available in the local area to meet the need. The IMT requested certified weed-free, dry straw in 3'x 4'x 8' or 4'x 4'x 8' bales, approximately 1 ton each, with a chop (cut length) of 6" to 10" long. Loaded semi-trucks could haul approximately 25 tons. Due to travel time, contractors had difficulty making daily deliveries of 100 tons. The helicopters could fly between 200 and 300 tons daily, and the IMT had not anticipated the delay in delivery of straw. An alternate source was located to speed delivery, otherwise the IMT would have had to ground the aircraft due to lack of straw.

Lessons Learned:

- ☀ Helicopters can be effectively used to spread straw and other erosion control materials using a safe, well managed, production oriented cargo operation.
- ☀ Treating fire suppression rehabilitation as part of the emergency would enable the use of emergency equipment rental agreements (EERA), significantly speeding accomplishment of the activity over normal contracting actions.
- ☀ Straw applied well inside the fire perimeter, in areas that have not been mopped up may ignite and result in the loss of the straw. Helicopter bucket work and precipitation after the operation can minimize the problem.
- ☀ IMTs need to assure adequate sources and delivery times prior to commencing production operations that are dependent on certain materials.

Geographic Information Systems (GIS) Support

Background: Several IMTs recommend having a GIS Technical Specialist dedicated to the team. One IMT included a GIS Technical Specialist in their initial order. Having this position with the IMT from the outset of the assignment, along with strong local GIS support, helped the Situation Unit respond quickly to mapping requests. An IMT working on the Space Shuttle Columbia Recovery

Effort also found that personnel with GIS skills were a key component of the Situation Unit's capability to support the complex mapping process required by this incident. IMTs feel that the GIS Technical Specialist position will likely become a more important, permanent resource to teams.

On the other hand, an IMT on the recovery effort found that the absence of onsite GIS presented them with a challenge, and that map acreage was being estimated using manual dot grid techniques from the beginning of the incident. This method led to an inflated count of cumulative acres searched and an underestimation of acres remaining to be searched. The acquisition of GIS capability at the ICP enabled the team to resolve the error and successfully plan for and obtain adequate resources to complete assigned search grids. This IMT agrees that on-site GIS support should be ordered early.

On a complex of fires, the IMT found that the data layers for the different fires on the complex were not compatible. Consequently, it took the IMT about three days to get the maps of the complex back to the standard. This situation reaffirms the need to move toward standardized software, products, and filing systems. This IMT mentioned the following additional points:

- The previous team had not used commercial mapping systems.
- The IMT was not able to get a plotter on site, but the district was quite generous in giving support.
- Having a second GIS technician helped meet the 2:1 work/rest ratio.
- A team trailer to haul their own plotter would be best.

Lessons Learned:

- ☀ GIS capability is quickly becoming an expectation for Incident Management Teams, and personnel with GIS skills can be a key component of the Situation Unit's capability to support the mapping requirements of an incident, particularly complex incidents. GIS Technical Specialists may become a permanent resource to teams, a standard part of a team's initial order, or at least an early consideration in ordering.
- ☀ There is a need to use standardized, commercial software, products and filing systems.

I-SUITE: Requires Training and Experience

Background: I-Suite is now a national program allowing easy transition between IMTs. For example, one IMT found that changes to I-Suite allowed them to track multiple "P-Codes," avoiding confusion when the IMT inherited numerous new fires. However, the I-SUITE program presented challenges throughout the season. Many of the problems stemmed from a lack of

experience, and a lack of understanding of how the program works and how each of the individual programs relates to the other.

One IMT found that the IAP module presented a challenge from the beginning, a challenge they say they overcame with pure persistence, by training people to contribute their parts of the IAP in a timely manner; and by having a lap top computer available to team members to contribute their part. This IMT was not staffing a night operational period, which allowed the IMT time to get the quirks identified and documented.

An IMT, assigned to the Space Shuttle recovery effort, found that providing training to people involved with data input and output on the incident helped to alleviate some of the ISUITE related problems. This team believes that having qualified Status Check-In personnel assigned to the IMT would also help mitigate the problem. ISUITE check-in recorders learned fast, but should have been exposed to the program before reporting to an incident. Most entry errors were due to lack of formal training and operating procedures that differed by region.

Lessons Learned:

- ☼ I-Suite is developing as a national program; allowing easy transition between IMTs. However, the I-SUITE program presents challenges, most of which stem from a lack of training and experience.

- ☼ Qualified, properly trained and experienced Status Check-In Recorders and a single standard operating procedure would facilitate continuing implementation of the ISUITE program.

Evacuation Planning: Planning and Presenting Management Actions

Background: On a fire, two communities had been warned of the potential for evacuation. The IMT, along with the county sheriff's office staff, quickly established "management action lines" for both the "requested evacuation" and "ordered evacuation" stages. This information was presented efficiently and effectively at information meetings held during following evenings.

Lesson Learned: Proactive evacuation planning involving local government officials and supported by effective public outreach and information is essential when a fire threatens structures or communities.

Structure Protection Planning: Using a Technical Specialist

Background: One IMT reports that they put their structure protection plan together quickly. Then, once they received a small amount of rain, they took time to put together something better, which they found to be a challenge.

Lesson Learned: This IMT brought in a Technical Specialist to complete the structure protection plan, and found that using a Technical Specialist to handle specialized projects, such as a structure protection plan, is a good way to accomplish the work.

Round Trip Airline Tickets

Background: An IMT assigned to the Space Shuttle Columbia Recovery Effort found that some resources came to the incident with round trip tickets. While a round trip ticket is less expensive to the sending agency, it is rare that the original return date can be met. Consequently, additional expenses and additional work for dispatchers, both at the home unit and at the receiving unit, and for the Planning and Operations Sections of the IMT result when tickets must be changed. This IMT points out that most resources “forget” to mention at check-in that they have this type of ticket, complicating matters at demobilization time. Unfortunately, the IMT reports that they were not able to overcome the issue properly, as the resources were not forthcoming with information in a timely manner and because demobilization was rushed by a need to push it up by one day.

Lesson Learned: Some resources will arrive at the incident with round trip airline tickets, which can complicate demobilization and incur costs and work for the incident. Determine the nature of the resource’s airline arrangements at check in.

Australia: The Lack of Current Maps

Background/ Lesson Learned: On the Australian assignment, the lack of current maps of the incident presented a continual challenge. The fire was two million acres and, according to the U.S. personnel, the intelligence gathering was behind the power curve. Getting current maps on a daily basis was impossible. The U.S. team used an area map, drew in updates from the daily briefings, and then used scouts to check out specific areas to fine tune the maps that they were provided.
