Decision Example- Salt Springs Fire

Background:

The Wildland Fire Management Research, Development and Application (WFM RD&A) program has been working to provide good decision examples either through real incidents found within the WFDSS Production environment or incidents developed in the WFDSS Training environment. The Salt Springs Incident is a Type 3 fire developed in WFDSS Training to demonstrate the thought process of an emerging incident that transitioned to an extended attack while being managed by a Type 3 organization. The purpose of this training document is to compare and contrast the initial Decision with a second more complete and informed Decision. Reviewing incident example Decisions preseason will assist managers in preparing more thorough decisions during the fire season.

The document is set up so key points can easily be reviewed, additional information is available for readers when interested or as needed. Information provided in this document is not to indicate that this is the only way to do business but it provides an example of how to use the system and products to better support and validate a decision.

In 2014 the WFM RD&A reviewed 23 fires to look at WFDSS Incident Objectives and how they were being written on incidents per guidance from Tom Harbour, USFS Fire Director. This project identified disparity in how users were writing WFDSS Incident Objectives and Incident Requirements and how they tied to the Course of Action and Rationale in the decision. It also illustrated the disparity between decisions and the Delegation of Authority/Leader's Intent and the in-briefing package. The briefing paper and documentation developed as a result of the review can be viewed at here http://www.wfmrda.nwcg.gov/reference_&_guidance.php. Information from this learning experience have been applied to the Salt Springs incident described within this document. There is an additional fire scenario based on an incident in 2013 that has been put together for sharing lessons learned as well. The Gold Pan Fire document can be found on the WFM RD&A reference and guidance page.

Again, there are many ways to support and write a decision, this is an example for a Type 3 fire created as an incident starting March 7, 2013 on the National Forests in Florida within the Training system in WFDSS. There is an initial Decision when the fire was just emerging and a second Decision that was developed with more thought and integration of the tools and assessments available.

Considerations:

- This decision was completed in WFDSS Training with the actual fire scenario set in 2013 therefore the WFDSS filter must be set to 2013 to find the Salt Springs fire.
- Because this is a training fire created in 2015, several pieces of information will show dates in 2015. These items include, fire weather, ERC graphs, the Published Decision, and others. This fire was simulated March 7th, 2013.
- Land and Resource Management Plan (LRMP) direction found in Strategic Objectives and Management Requirements reflect what the local unit has loaded to WFDSS Training and may not reflect actual LRMP direction.
- Short Term Fire Behavior analyses were created using historic weather for March of 2013.

Several important elements of the WFDSS process and completing a decision are reviewed. The topics listed below (Table 1) are linked to that area of the document for ease in navigating to the information.

Table 1 WFDSS Elements and Key Points from the Salt Springs Fire

WFDSS element	Key points
Publishing a Decision	Updated as needed
Planning Area	Redrawn as planning efforts grew and growth projections indicated
Relative Risk Assessment	Reviewed and updated routinely
Organization Assessment	Reviewed and updated routinely
Incident Objectives and Requirements	Communicates LRMP direction at the incident level
Course of Action	Conveyed leader's intent for strategy on fire
Cost	Total incident cost, reviewed and updated as needed
Decision Rationale	Conveyed leader's intent and documented risk decision dialogue

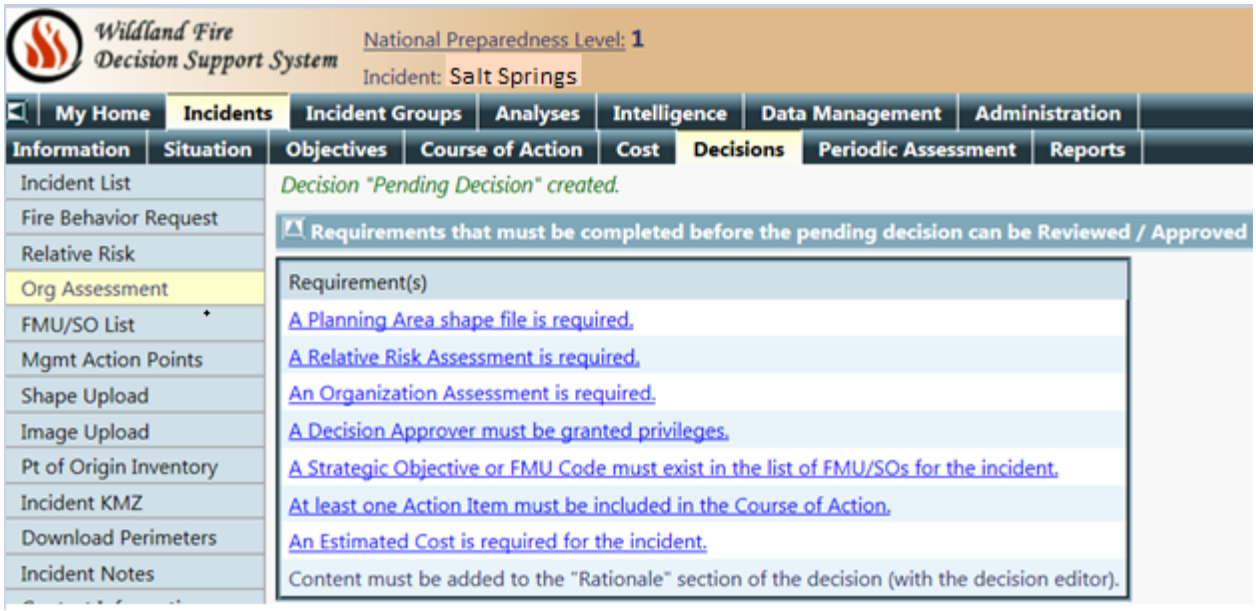


Figure 1 The Decision tab and required elements for a decision to be reviewed and or approved.

Publishing a Decision:

- During the life of this incident there were two decisions published. The checklist in Figure 1 shows the requirements needed in order to publish a decision and was utilized in both Decisions.
- The first decision had a moderate Relative Risk Assessment and was a simple decision documenting that the fire was meeting the Strategic Objectives of the LRMP and identified a Course of Action to ensure success while managing the fire.

- The second decision provided additional information to support the decision and assessments being completed. WFDSS spatial maps and tools were used to inform the decisions.
- To view the decisions, locate the Salt Springs 2013 incident on the Florida National Forests within WFDSS Training: From the Incidents tab, type 'Salt Springs' under Incident Name and set the Incident Year to 2013 - select *Find Incidents*. From the Decisions tab, select which decision you want to view by selecting the radio button to the left of the date of which it was published. Select either *View Decision* to view the decision within WFDSS or *PDF* to view the decision as a stand-alone PDF document (Figure 2)
- Line Officers utilized the Periodic Assessment to document key information and decisions made on the fire. These can be viewed in WFDSS utilizing the Incident History List in the left hand menu and clicking the *Show Details* button at the top.

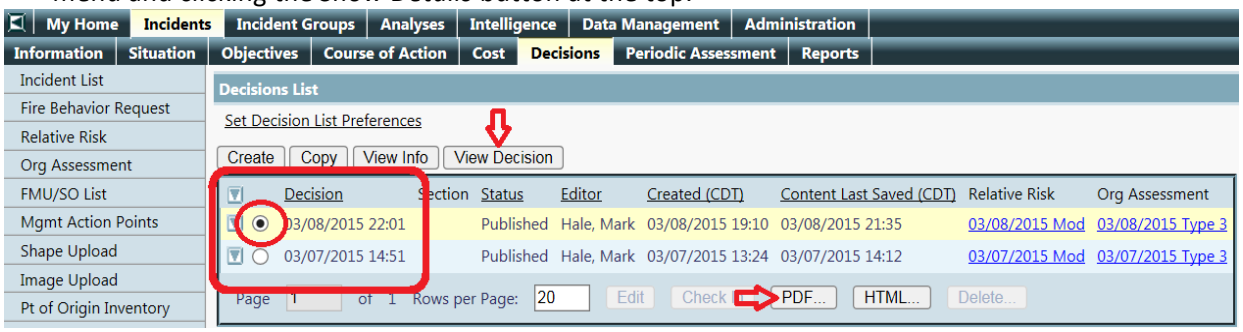


Figure 2 The Decision tab in WFDSS for the 2013 Salt Springs Fire and how to view one of the two decisions.

Planning Area:

Planning Areas need to be large enough to include:

- The physical reality of where the fire could burn during the life of the current decision - even if you don't want it to burn there.
- Values of concern (structures, roads, power supply, smoke impacts etc.).
- Fire behavior modeling outputs. To get the most representative analysis the entire results need to fit in the Planning Area box.
- Where actions are planned e.g., firelines, evacuation points, protection points.
- Contingency plans.
- Management Action Points (M.A.P.s).

There should be a link between areas of concern within the Planning Area boundary, and how they are identified and described within the Relative Risk Assessment. A few tips when developing a Planning Area include:

- When drawing the Planning Area Boundary consider, if time allows, running fire behavior analysis and using those results to help with the boundary development.
- Consider turning on the different infrastructure layers, ownership boundaries, sensitive issues etc. within the Situation Map to help identify areas of concern that should be included within the Planning Area Boundary.

Initial Decision – 3/7:

In the initial decision the Planning Area was drawn as a square box. If a box is the chosen method consider whether the fire behavior analysis and the values of concern fit within the Planning Area as drawn. Based on the Short Term Fire Behavior (STFB) analysis, the predictions did indicate that it was well within the Planning Area for the next two burning periods (Figure 3). The values can be reviewed by viewing Spatial Inventory (Figure 4) for the Planning Area and then looking at them spatially in the Situation Map.

It should be noted that given the identified values of concern and competition for resources identified in the Relative Risk Assessment, it could be argued that the Planning Area was too small if resources weren't available to contain it within two burn periods.

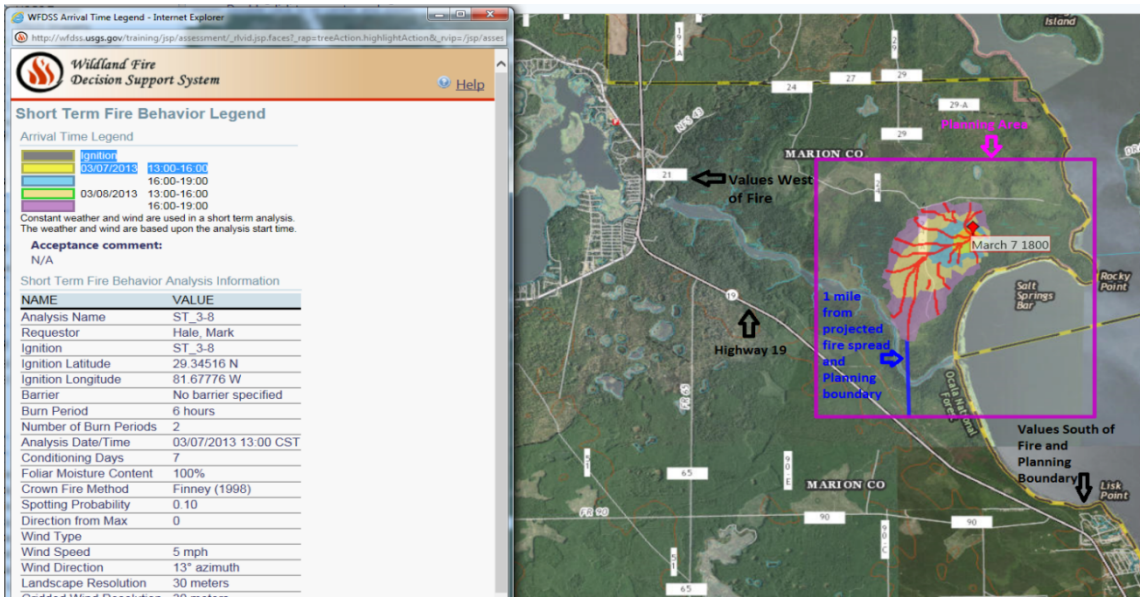
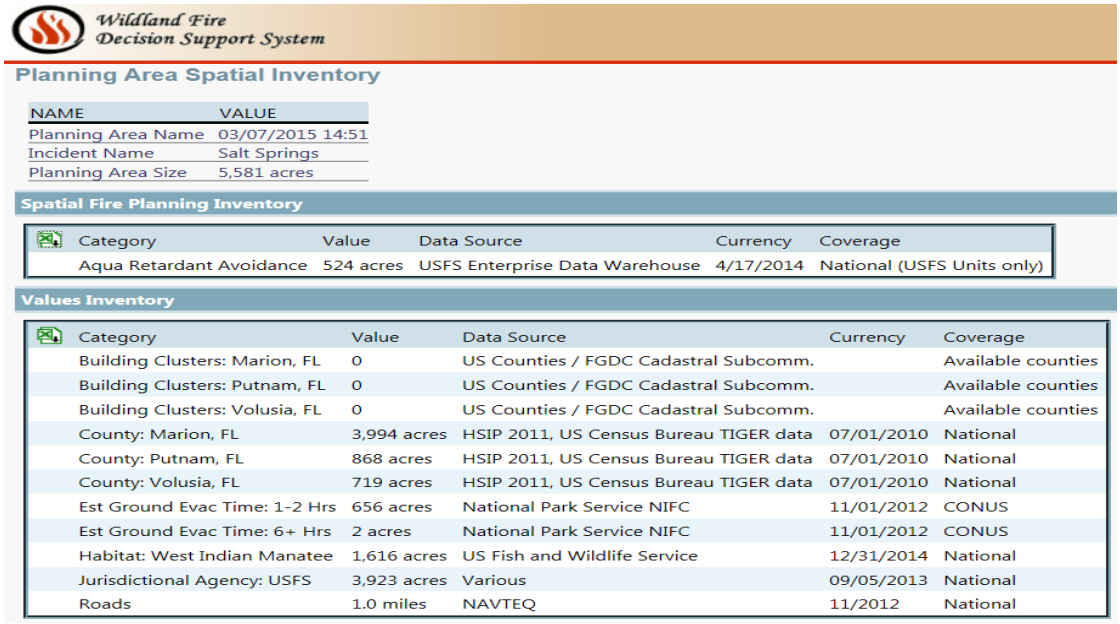


Figure 3 Short Term Fire Behavior analysis for the Salt Springs fire and identified values of concerns.


Wildland Fire
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Planning Area Spatial Inventory

NAME	VALUE
Planning Area Name	03/07/2015 14:51
Incident Name	Salt Springs
Planning Area Size	5,581 acres

Spatial Fire Planning Inventory

Category	Value	Data Source	Currency	Coverage
Aqua Retardant Avoidance	524 acres	USFS Enterprise Data Warehouse	4/17/2014	National (USFS Units only)

Values Inventory

Category	Value	Data Source	Currency	Coverage
Building Clusters: Marion, FL	0	US Counties / FGDC Cadastral Subcomm.		Available counties
Building Clusters: Putnam, FL	0	US Counties / FGDC Cadastral Subcomm.		Available counties
Building Clusters: Volusia, FL	0	US Counties / FGDC Cadastral Subcomm.		Available counties
County: Marion, FL	3,994 acres	HSIP 2011, US Census Bureau TIGER data	07/01/2010	National
County: Putnam, FL	868 acres	HSIP 2011, US Census Bureau TIGER data	07/01/2010	National
County: Volusia, FL	719 acres	HSIP 2011, US Census Bureau TIGER data	07/01/2010	National
Est Ground Evac Time: 1-2 Hrs	656 acres	National Park Service NIFC	11/01/2012	CONUS
Est Ground Evac Time: 6+ Hrs	2 acres	National Park Service NIFC	11/01/2012	CONUS
Habitat: West Indian Manatee	1,616 acres	US Fish and Wildlife Service	12/31/2014	National
Jurisdictional Agency: USFS	3,923 acres	Various	09/05/2013	National
Roads	1.0 miles	NAVTEQ	11/2012	National

Figure 4 Spatial Inventory and Values Inventory for the initial decision.

Second Decision – 3/8:

The second Planning Area was drawn after the determination was made that old prescribed fires and roads would be utilized as containment boundaries. There were also values identified in the initial Relative Risk Assessment that were not included within the initial Planning Area. The second Planning Area considers the expected fire behavior and potential competition for resources which may limit containment in two days. This larger Planning Area not only provided features to build containment line off of (roads) but ensured that all actions being taken on the fire would be included in the risk assessment process. Again, the Spatial Inventory can be reviewed based on the new Planning Area and visually assessed on the Situation Map by turning on the various layers identified. The Values Inventory below, Figure 5, shows that the information described within the decision and Relative Risk Assessment are now within the Planning Area.

Figure 5 indicates that more values of concern are listed given the larger Planning Area while Figure 6 shows the original Planning Area in blue and the expanded Planning Area in Purple. The expanded Planning Area now contains values of concern and anticipates continued fire growth if the fire is not contained within two burning periods.

Wildland Fire
Decision Support System

Planning Area Spatial Inventory

NAME	VALUE
Planning Area Name	03/08/2015 22:01
Incident Name	Salt Springs
Planning Area Size	36,070 acres

Spatial Fire Planning Inventory

Category	Value	Data Source	Currency	Coverage
Aqua Retardant Avoidance	2,848 acres	USFS Enterprise Data Warehouse	4/17/2014	National (USFS Units only)

Values Inventory

Category	Value	Data Source	Currency	Coverage
Building Clusters: Lake, FL	16	US Counties / FGDC Cadastral Subcomm.		Available counties
Building Clusters: Marion, FL	591	US Counties / FGDC Cadastral Subcomm.		Available counties
Building Clusters: Putnam, FL	0	US Counties / FGDC Cadastral Subcomm.		Available counties
Building Clusters: Volusia, FL	0	US Counties / FGDC Cadastral Subcomm.		Available counties
Campgrounds	3	BLM (FAMS) and USFS INFRA	02/03/2015	National (BLM and USFS only)
Communication Towers	5	FCC	06/14/2012	National
County: Lake, FL	441 acres	HSIP 2011, US Census Bureau TIGER data	07/01/2010	National
County: Marion, FL	30,511 acres	HSIP 2011, US Census Bureau TIGER data	07/01/2010	National
County: Putnam, FL	4,912 acres	HSIP 2011, US Census Bureau TIGER data	07/01/2010	National
County: Volusia, FL	205 acres	HSIP 2011, US Census Bureau TIGER data	07/01/2010	National
Est Ground Evac Time: 1-2 Hrs	2,439 acres	National Park Service NIFC	11/01/2012	CONUS
Est Ground Evac Time: 6+ Hrs	5 acres	National Park Service NIFC	11/01/2012	CONUS
Habitat: West Indian Manatee	694 acres	US Fish and Wildlife Service	12/31/2014	National
Jurisdictional Agency: USFS	34,058 acres	Various	09/05/2013	National
Natl Scenic Trails	11.2 miles	NPS, USFWS, USFS	05/04/2012	National
Roads	16.3 miles	NAVTEQ	11/2012	National
Wilderness: Juniper Prairie Wilderness	67 acres	Various	04/15/2014	National

Figure 5 The Values Inventory for the second decision.

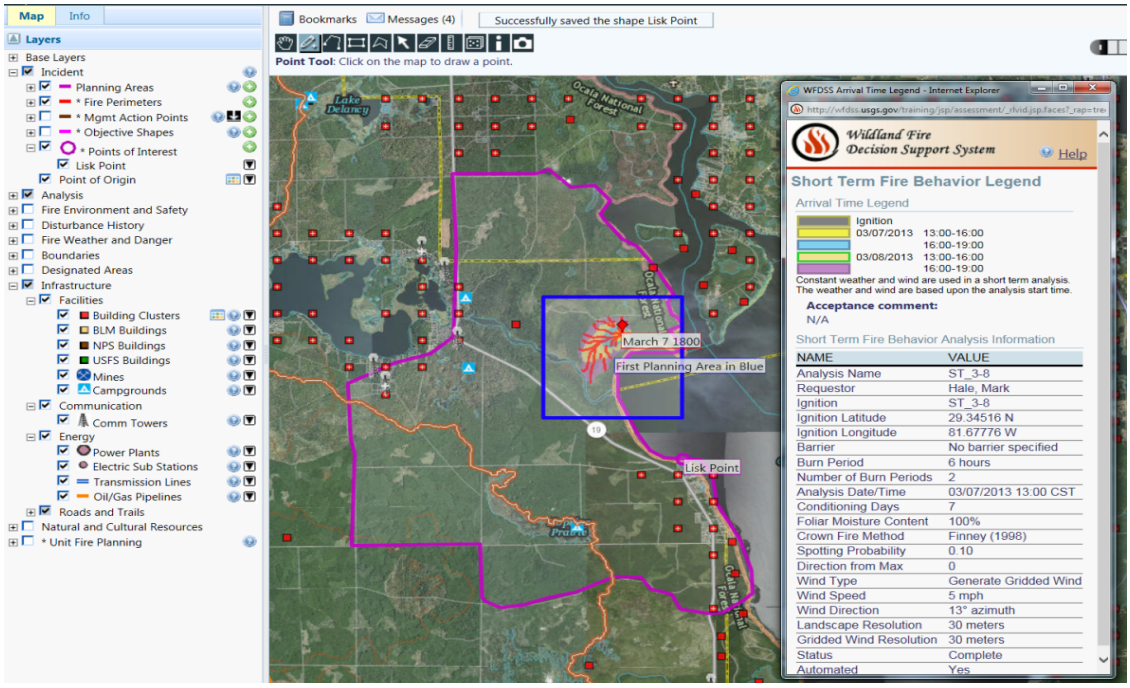

Figure 6 The original Planning Area (blue) and the expanded Planning Area (purple).

Relative Risk Assessment:

The Relative Risk Assessment (RRA) is comprised of three elements – Values, Hazards and Probability. This qualitative assessment provides the Agency Administrator with a quick but comprehensive

assessment of the relative risk of the fire. It is required before publishing a decision for an incident and helps fire managers evaluate firefighter safety concerns, assess risk, and is part of identifying the appropriate incident management organization for a fire. Its purpose is to assist in planning for, assessing, and managing the incident. Note that both decisions have a "moderate" Relative Risk rating, despite the level of detail supporting their analysis.

Initial Decision – 3/7:

The level of detail was simple and to the point, the overall assessment indicated there were other fires being managed at the time of the incident. This level of assessment is to be expected on an initial decision although improvements can be made with initially documenting as much information as is known.

Second Decision - 3/8:

The RRA was revised to include better information as it was received and observations made. The new information helped support the qualitative process to assist the Agency Administrator in making an informed decision. Within the Relative Risk Assessment notes there is information regarding areas of concern, potential impacts to inholdings, fire growth potential, resource shortage information, Short Term Fire Behavior analysis information, observed fire behavior and fire danger indices.

Figure 7 depicts the Short Term Fire Behavior flame lengths that can be anticipated based on model inputs. Fire Behavior modeling such as this can be used to inform the Hazard portion of the Relative Risk Assessment.

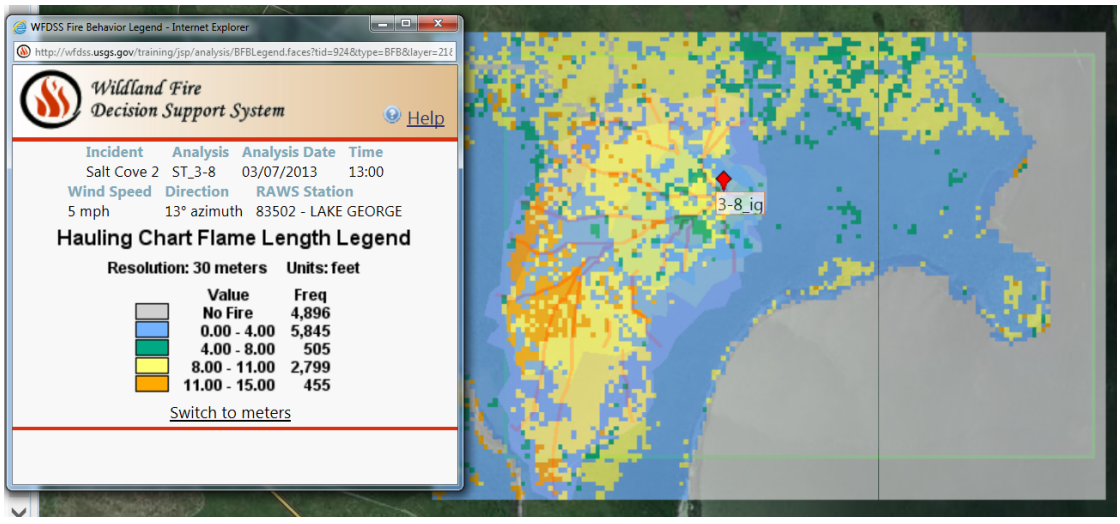

Figure 7 Short Term Fire Behavior Flame Length with legend.

Organization Assessment:

The Organization Assessment (OA) is used to evaluate which types of resources are needed based on the Relative Risk Assessment, implementation difficulty, and socio/political concerns. The Relative Risk Assessment must be completed before the Organization Assessment can be done. The OA guides Agency Administrators in determining the management organization needed, both in escalating and moderating situations (i.e., the process can be completed at any time) and is used for all incident types.

Initial Decision – 3/7:

The Organizational Assessment in the initial decision had good supporting information outlining why the Implementation Difficulty and Social/Political Concerns were completed, but the overall assessments notes were generic. There was some information included within the implementation difficulty that discussed safety issues, terrain and fuel concerns. There was also a general statement within the Socio/Political concerns with regard to smoke impacts and area of concern. However, most of these areas were outside the Planning Area drawn for this decision.

Second Decision - 3/8:

The overall assessment was much better and articulated some of the concerns and justifications supporting the management by a Type 3 team. There was more information with regard to fire behavior, duration, seasonality and smoke impacts downwind of the fire. Also the areas of concern (socio political) were included within the updated Planning Area, which helped provide a clear picture for the team managing the fire.

Incident Objectives and Incident Requirements:

WFDSS Incident Objectives and Incident Requirements are fundamental to successfully managing a wildfire. They set the purpose for actions, intended outcomes, and sideboards for the incident. Effective Incident Objectives and Incident Requirements will communicate leader's intent and assist the IMT in understanding the priorities of the incident. When writing WFDSS Incident Objectives and Incident Requirements *what, where, when*, and *why* should be addressed in the statements. The '*how*' can be negotiated with the team managing the incident to ensure the risks incurred are commensurate with the agency administrator's priorities.

Initial Decision – 3/7:

The WFDSS Incident Objectives and Incident Requirement were generic, they were cut and pasted from the Strategic Objectives and Management Requirements as outlined the in the LRMP.

- Incident Objective: To minimize smoke hazards to paved roads and smoke sensitive areas such as airports, schools, hospitals and retirement or care homes, limit all fires to the least amount of acreage possible when within 0.5 miles of these concerns.
- Incident Objective: Suppress the fire at the smallest size possible.
- Incident Requirement: Consider firefighter safety and values at risk while suppressing the fire and selecting actions to be taken.

Second Decision – 3/8:

The revised WFDSS Incident Objectives and Incident Requirement are better defined with regard to firefighter risk, control line location, and identified receptors at risk to smoke.

- Incident Objective: Prevent potential impacts to Highway 19 and protect structure near Lisk Point to the south, and Salt Springs Campground and structures to the west.
- Incident Objective: Suppress the fire at the smallest size possible utilizing roads and old prescribed fires where feasible to limit firefighter exposure.
- Incident Requirement: Limit duration and severity of smoke hazards to Highway 19 and residences south of the fire near Lisk Point, and residences to the west of the fire near Salt Springs Campground by limiting smoke production from main fire or firing operations to the least amount possible when within 0.5 mile of these areas.

Course of Action:

A Course of Action (COA) can be defined as, "An overall plan" that describes the selected strategies and management actions intended to meet WFDSS Incident Objectives and Incident Requirements. The COA helps explain the Agency Administrator's (leader) intent for the incident by identifying the strategic (not tactical) direction for managing the fire. The COA provides the IMT with guidelines on how to achieve the WFDSS Incident Objectives and comply with WFDSS Incident Requirements, yet allow the IMT tactical flexibility to meet Incident Objectives. The Relative Risk Assessment and the COA are linked in that the RRA identifies the values at risk or potential benefits while the COA is the plan to control the risk or enhance the benefits to those values.

Initial Decision – 3/7:

In the initial decision the COA is very generic, simply "Suppress the fire at the smallest size possible." This was also indicated by the slider bar with the comments section describing that the fire would be suppressed due to the number of fires being managed within the area and the potential impacts to values south of the fire area.

Second Decision – 3/8:

The second decision added information regarding expectations by the Agency Administrator for limiting firefighter exposure and setting the highest priority. The actions described complimented what the Relative Risk Assessment identified as areas of concern. The slider bar still indicated "Full Suppression" with the same notes.

Cost:

The Estimated Final Cost is a required component for any decision and represents the overall cost for the incident. If the cost is too low, it will not represent the costs or it may force a new decision to be published if exceeded (DOI agencies use costs to determine approval authority). It is important to use the tools to develop cost estimates and to understand the tools (Stratified Cost Index, Spreadsheets, etc.).

Initial Decision – 3/7:

In the initial decision an estimate of $10,000 dollars was a first "best guess" at cost based on limited information.

Second Decision – 3/8:

With better information, including the knowledge of limited resources, projected fire size and predicted weather conditions, the cost for the second decision was increased. The estimated projected fire size for the STFB analysis was 872 acres in the absence of suppression. A Stratified Cost Index (SCI) was created indicating a high percentage of fires near the projected size, at a cost around $40 per acre. This cost per acre multiplied by the expected acres resulted in a cost of $34,880 dollars but to provide for a buffer in producing the estimate it was increased to an estimated cost of $50,000 dollars.

Decision Rationale:

The Rationale portion of a decision is developed by the Agency Administrator (Decision Approver), or by an Incident Editor that can effectively communicate the Agency Administrator's intent. Rationale accomplishes two things:

- Documents why a specific Course of Action was chosen, and
- Records the risk decision dialog that has occurred among Agency Administrators and incident managers.

Initial Decision – 3/7:

In the initial Decision the Rationale narrative states, "*After review of the forecasted weather, the local resource demands, the Relative Risk Assessment and the overall situation, it is my decision to continue to manage the Salt Springs Fire with the Type III organization currently in place to suppress this fire. As conditions change or fire activity increases this decision will be revised.*" This does not specify what action was chosen nor does it identify a specific risk analysis that was completed to establish a Course of Action.

Second Decision – 3/8:

The second decision Rationale clearly states the agency administrator's decision; "*My decision is to suppress the fire. The LRMP direction also indicates that most fires should be limited in size. Given the current competition for resources and the potential impact to values the fire will be suppressed. There is a high probability of success if control lines are built using recently treated areas and roadways*." The cooperators involved, values of concern, Relative Risk Assessment, current fire situation, and indicators of a new decision are addressed and are linked to those sections of the decision document. Additionally actions considered but rejected are discussed to emphasize the deliberative risk process used in making the decision.

Decision Documents for Salt Springs:

Appendix A: Salt Springs Decision 03/07/2013

Salt Springs Incident Decision Published 03/07/15 at 14:51

Appendix B: Salt Springs Decision 03/08/2013

Salt Springs Incident Decision Published 03/08/15 at 22:01