



United States Department of the Interior



BUREAU OF LAND MANAGEMENT

Utah State Office

P.O. Box 45155

Salt Lake City, UT 84145-0155

<http://www.blm.gov>

IN REPLY REFER TO:
(UT-936)
9210

September 30, 2004

Instruction Memorandum No. UT-2004-092

Expires: 9/30/05

To: Field Office Managers
Fire Management Officers

From: State Director

Subject: Review of the Meadow Prescribed Fire

As you may know, on Sept. 9th the Meadow Prescribed Fire escaped, burning 524 acres, only two of which were on public lands within the burn unit. As a follow up to this event, we conducted a review to make certain that we understood everything that happened, identify and take any needed corrective actions, and ensure lessons learned. A copy of that review can be found at www.ut.blm.gov/Fire. I encourage you to take a good look at it; we will be implementing all of its recommendations. My thanks for the thorough work of the review team members.

I want to take this opportunity to share some of my thoughts with you. The bad news is we had an escaped fire; the good news is no one was hurt and the damage done, while substantial, was relatively minor in the world of fire possibilities. We are committed to fulfilling our responsibility to mitigate the impacts. To me, the most important thing is that we learn from this -- to do everything we absolutely can to reduce the chances of it happening again. We will have failed only if we don't learn our lessons and make appropriate adjustments.

I recognize that there are inherent risks in all aspects of our fire program. Again, as managers, we need to do everything we can to minimize them. I also realize that those of you in the fire program take on huge responsibilities. I want you to know that we support you. And that we support the individuals involved in this event. The review found no negligence; however it did identify some weaknesses and areas for improvement. Again, the key here is learning lessons from this event and making any needed changes or adjustments. We are all in this together.

I ask you to review the report. We'll discuss it at the Fall Fire Review and we will take action.



**United States Department of Interior
Bureau of Land Management
Utah State Office**

Meadow Escaped Prescribed Fire Review

Fillmore Field Office

September 2004



Meadow Escaped Prescribed Fire Review Report

The following report is provided to the Utah State Director for the purpose of presenting the results of a review of the factors leading to the escape of the Meadow Prescribed Burn which occurred within the Fillmore Field Office jurisdiction on 9 September 2004. It should be clearly understood that the review has a significant role in the identification of actions and information which may be converted into “lessons learned” for future prescribed fire activities.

The review highlights a number of findings, recommendations, and lessons learned. Some of these have State and National application. We hope the lessons to be learned from the Meadow fire will minimize the chance of future escapes.

The Team appreciates the hospitality of the Fillmore Office and the Interagency cooperation. BLM and Forest Service personnel were very open and forthcoming with information to help in the review.

The Escape Prescribed Fire Review Team consisted of:

Team lead Glenn Carpenter – Salt Lake Field Office Manager,
J. Bradley Washa – Utah State Office Fuels Specialist,
Brook Chadwick – Salt Lake Field Office Fuels Specialist,
Dale Jablonski – Utah Division of Forestry, Fire, and State Lands,
Steve Jackson – Salt Lake Field Office (editor).

Several people were interviewed during the review. Their names and positions during the prescribed fire are:

Justin Johnson -- Prescribed Fire Burn boss 2
Spencer Koyle – Ignition Specialist
Jay Beckstrand – Holding Specialist
Sherry Hirst – Field Office Manager
Tom Suwyn – Zone Fire Management Officer
Wende Wilding – Fire Education and Mitigation Specialist
Russ Ivie – Fire Effects Monitor (FEMO)
Rick Higginbotham – Interagency Fire Management Officer
Ed Delgado – Eastern Great Basin Fire Weather Program Manager

The report is prepared in the following order:

Background	3
Fire Chronology	6
Findings	7
Summary	19
Exhibits	

Background

Objectives

The EA for the burn identified the proposed action's intention to reduce hazardous fuels by reducing fuel height and fuel loads. The Meadow treatment was one of several projects proposed by the Fillmore Ranger District of the Fishlake National Forest and the Fillmore Field Office of the BLM. Treatments were anticipated to begin in 2003 and be completed by 2008 (Exhibit 1).

The Field Office prepared the burn plan to accomplish a combination of resource and fuels objectives. It was intended that 40-80% of the vegetation be cut and/or burned in each unit and that fire would be applied using hand ignition while taking advantage of terrain and vegetation density to burn 40-80% of the area. The treatment unit is typical of sagebrush areas adjacent to pinyon/juniper uplands in the Great Basin. A successful burn was conducted on a portion of the treatment area during the spring. The total treatment area was 500 acres. The September burn was intended to treat 200 acres of BLM (Exhibits 2-5).

Results Of The Burn effort are best expressed in the description from the Field Office:

The office experienced an escape on the Meadow Burn Thursday, 9 September 2004 at ~1600. The test burn experienced a mid-flame wind of 20+ mph resulting out of thunderstorm activity in area and was being shut down when a spot fire resulted out of increased winds. The burn was primarily in cheat grass and sage, having the pinyon-juniper component thinned in the fall of 2002. Final fire size was 524 acres of which only two acres were within the burn unit. The fire burned onto state and private land. I-15 was closed for ~15 minutes. There was a spot fire in the freeway median. A power line was impacted with six poles burned resulting in power loss to Fillmore for a short time. Meadow and Kanosh also lost power. Some power was out for about 12 hours. By 1900 the fire was lined and contained at 2400.

Management Oversight

There is a long term record of management involvement in the fuels program since initiation of the Pahvant Interagency Fuels Reduction Project environmental assessment. Its Finding of No Significant Impact was signed by Rex Rowley in August 2003. The current Field Office Manager, Sherry Hirst, and the Acting Zone FMO, Justin Johnson reviewed the Go/No Go checklist before traveling to the September 2004 portion of the project. There was, in addition to the change of field office managers, a change of Zone FMOs. During the same time, for both positions, there were various "actings" in those positions during the period from completion of the EA to the September 2004 burn.

Sherry Hirst, the current Fillmore Field Office Manager is commended for her level of interest and knowledge of the fire program. Her interest is a significant contrast to her predecessor and represents a level of involvement that is likely to cause adjustments to things such as delegations of authority and program oversight. Sherry acknowledges she had management responsibility for the burn.

Weather Synopsis

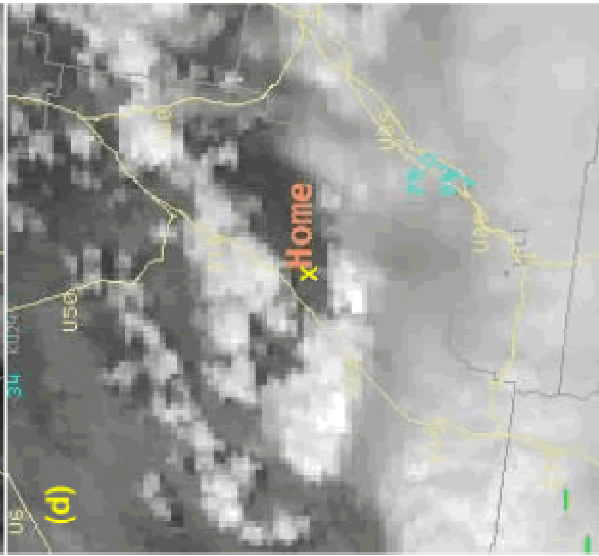
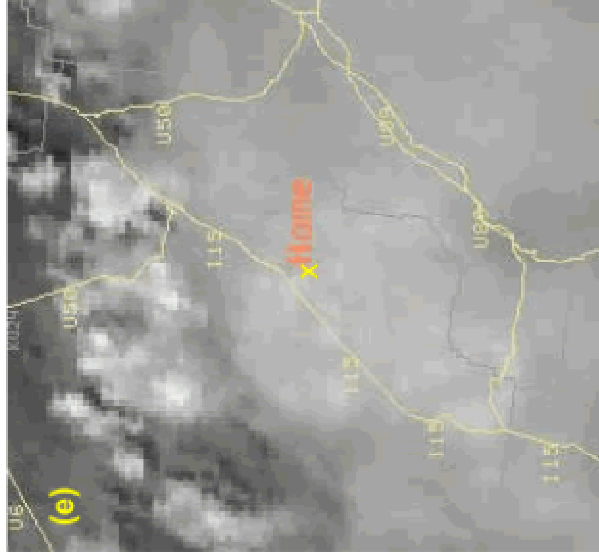
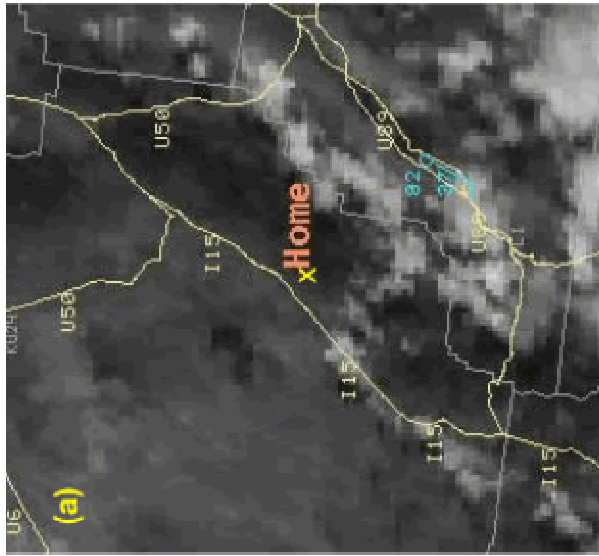
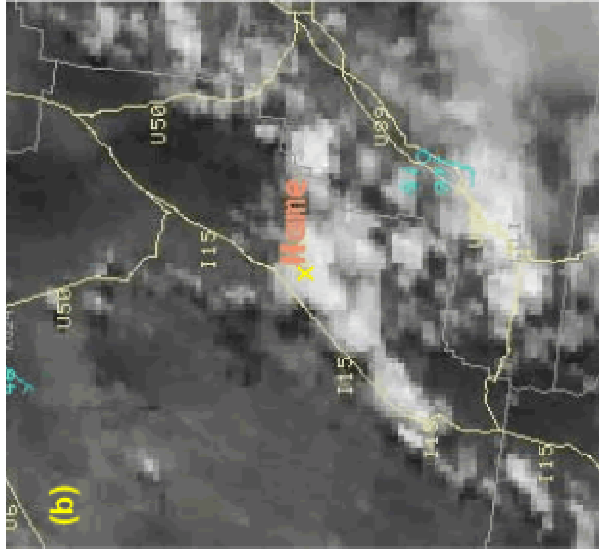
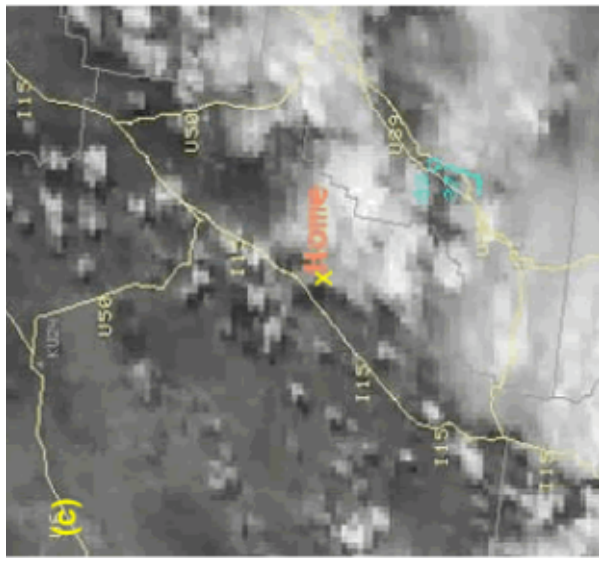
The Review Team recognized the significant impact of the local weather influence on the escape. It requested Ed Delgado, Eastern Great Basin Fire Weather Program Manager, to review available information and provide it to the team. The following is his synopsis:

The large-scale weather pattern on 9 September was typical of late summer in the Great Basin. A broad ridge of high pressure was over the southwest with the axis of the ridge approximately over New Mexico. This placed southern Utah in a west southwest flow. Mid-level moisture moving around the ridge into Arizona and Utah and a weak mid-level disturbance over southern Nevada coupled to produce scattered convection across the southern Great Basin by midday.

Visible satellite imagery from 1800 UTC (1200 MDT, Figure 1a) shows convection beginning on the ridgeline east and southeast of the project site (marked by "X" and "Home" on images). Over the next 3 hours (Figures 1b-1d) thunderstorm activity increases, moves across the site, and rebuilds all around the area. By 2200 UTC (Figure 1e) a convective cirrus shield overspreads the area making visual identification of individual storms is difficult.

Radar imagery (Figures 2a-2f) from 2100 UTC to 2330 UTC shows convection building around the area for the entire period. The storms were moving from southwest to northeast. The air mass was relatively dry so little, if any, precipitation was reaching the ground. Given the areal coverage and movement of the storms, outflow winds would be erratic. Radar imagery from 0000 UTC with local observations overlaid shows the erratic nature of the wind field in the area. Note (in Figure 3) the east southeast wind associated with the dying convection just north of the site at the Black Cedar RAWS.

It is highly likely that the southeast to east wind experienced on the fire was the result of thunderstorm outflow. Southeast to east wind would be a downslope flow, which is not likely to occur at midday, given the synoptic pattern in place, unless convective outflows were overpowering the general wind pattern.



Fire Chronology

- December 2002 – Pahvant Interagency Fuels Reduction Project selected as a Presidential Health Forest Initiative Pilot Project.
- 13 February 2003 – Scoping letter on Pahvant Interagency Fuels Reduction Project sent to interested publics.
- 20 August 2003 – FONSI on Pahvant Interagency Fuels Reduction Project released.
- 20 April 2004 – Meadow Prescribed Burn Plan competed by Justin Johnson.
- 21 April 2004 - Meadow Prescribed Burn Plan reviewed by zone FMO W.A. Burdick.
- 26 April 2004 – Technical Review of Meadow Prescribed Burn Plan competed by State Fire Operations Specialist Tom Suwyn.
- 26 April 2004 - Meadow Prescribed Burn Plan approved by Field Office Manager Sherry Hirst.
- 27 April 2004 – Ignition on 275 acres of phase one of the Meadow Prescribed Burn occurred. Areas near test fire were attempted to be ignited, but would not carry fire outside of heavy fuels.
- 3 May 2004 – Continued with ignition on phase one with an additional 105 acres.
- 6 May 2004 – Initial attack resources respond to Meadow Prescribed Burn area. Fire investigator ordered due to suspicious circumstances at origin of ignition. Determined to not be holdover from the prescribed fire.
- 8 September 2004 – Spot weather forecast requested for Meadow Prescribed Burn.
- 9 September 2004 – Times taken from Justin Johnson's (Prescribed Fire Burn Boss) Unit Log:
- 1500 – Briefing for all resources
 - 1545 – Ignite test burn on northeast corner of unit (Exhibit 5)
 - 1550 – Two engines released to respond to lightning strike south of Kanosh
 - 1600 -- Decision to shut down. Suppression initiated on test fire
 - 1602 – Spot noticed north of test fire. Notification of burn personnel
 - 1607 – Dispatch notified of spot fire
 - 1610 – Suppression on spot which has grown to about 30 acres
 - 1625 – Called the fire an escape. Dispatch advised of need for more resources. Fillmore Field Office Manager notified
 - 1700 – Dozer ordered. Fire making big push to the west (Exhibit 6)
 - 1730 – Air tanker ordered and Sheriff's dispatch notified of smoke impacting Interstate 15
 - 1745 – Fire reaches freeway and spotted to median, freeway shut down (Exhibit 7)
 - 1800 – Median fire out, freeway reopened, fire active on south flank
 - 1815 – Engines making progress on south end, county grader working toward engines
 - 1845 – Engines and grader tie together. Field Office Manager and Tom Suwyn on scene, fire circled
 - 1915 – Air tanker drop, GPS mission ordered
 - 1930 – Line all the way around, mop up; UP&L on site, AAR scheduled for 2100
 - 2000 – Updated dispatch, plans for the night and next day
 - 2100 – AAR (attached)
 - 2145 – Released all the VFDs
 - 2200 – Talked to Brad about review
 - 2250 – Let dispatch know about review
 - 2400 – Fire contained
- 10 September--1900 Escape controlled
- 14 September--1300 Escape declared out
- 14 September-- Review team mobilized

Findings

1. The Prescribed Fire Plan

Finding - The 'Minimum Workforce and Equipment Needs to Conduct Burn (Desired Prescription Range)' worksheet in the Utah BLM Prescribed Fire Plan template is lacking in quantifiable analysis of on-site resources. No means are available to document the fireline building rates for on-site resources or the expected rate of perimeter increase during initial escape. Therefore, the plan is unable to analyze the ability of on-site resources to contain any spot fires or slopovers encountered during the course of the burn. Additional guidance is not listed in the BLM Prescribed Fire Management Handbook (9214).

Recommendation - The Utah State Office – BLM provide each Field Office/Service Center, the means to analyze the ability of on-site resources to contain spot fires or slopovers and the guidance on procedure for the documentation of the analysis in future burn plans. The "Minimum Workforce and Equipment Needs to Conduct Burn" worksheet should be completed for various prescription ranges.

Finding - With the increase in the cheat grass the fuel profile had changed over that in the burn plan. The prescribed burn plan only identifies grass in two locations within the plan. This change should have been documented. Under the Go-No-Go Checklist the question of "has the unit experienced unusual drought conditions or contain above normal fuel loading which were not considered in the prescription and development." This should have been answered as yes, with mitigating actions identified.

Recommendation - Changes in the fuels profile that occurred since the development of the plan need to be documented and appropriate mitigation measures identified.

Finding – Based on the prescribed burn plan, the fire should have been declared an escape when fire left Bureau of Land Management Lands and went onto Utah Division of Wildlife Resources (DWR) Land. Under the Decision section of the Escaped Fire Plan, it states "An escape will be declared if on site holding forces cannot contain the fire to 100 acres or less outside the MMA or on private or state lands not under agreement." Since there was no agreement in place with either the State of Utah or private land owners, the fire should have been declared an escape when the spot fire first occurred on DWR lands.

Recommendation – This finding did not contribute to the escape of the prescribed fire. Efforts should be taken in cases where non-BLM Land is adjacent to a burn unit to allow, at a minimum, spot fires on the non-BLM Land.

Finding – In the Escaped Fire Plan, a section is located to identify additional forces. These additional forces should be identified as part of the burn planning process. The "availability" and "confirmation of availability" should be completed on the day of the burn. This confirmation was done by the prescribed fire burn boss prior to the burn, but resources were not listed as part of the plan.

Recommendation – Additional resources need to be identified as part of the burn planning process prior to implementation.

Finding – The Smoke Management section only identifies “a paved highway is located to the West of the project area.” It is unclear if this paved highway is Interstate 15 or the frontage road adjacent to Interstate 15. The burn plan should identify sensitive resources or areas in the vicinity, including communities.

Recommendation – The Burn Plan Template should be adjusted to provide for identification of smoke sensitive resources or areas. The template should also identify contingency measures and contact being made to the Utah Smoke Coordinator in the event that the identified smoke sensitive resource or area is impacted by smoke.

2. Qualifications

Finding - The Fillmore Field Office Manager approved the Meadow Prescribed Fire Plan on April 26, 2004, and as of that date had not attended Fire Management Leadership. The BLM Prescribed Fire Management Handbook (9214) states that Fire Management Leadership is mandatory training for Agency Administrators approving Prescribed Fire Plans. Additionally, a detailed briefing from the State Fire Management Officer regarding the roles and responsibilities relating to the prescribed fire program with emphasis on the Prescribed Fire Plan approval process is required. At a minimum, the manager will receive a copy of the *Prescribed Fire Handbook*, H-9214-1, and will review the appropriate sections with the State Fire Management Officer.

Recommendation - The Fillmore Field Office Manager attend a local or national level the Fire Management Leadership course at her earliest convenience. Until that time, the Associate Field Office Manager (Glen Nebeker) for Fillmore, who has attended the training, approve Prescribed Fire Plans and Wildfire Situation Analyses. Additionally, the State Fire Management Officer is to meet with the Fillmore Field Office Manager to provide the above identified briefing.

Finding - Documentation of the qualifications and recent experience for the Prescribed Fire Burn Boss, Ignitions Specialist, Holding Specialist, and Fire Effects Monitor were provided. The documents include red cards, the front cover and signature pages of the position taskbooks for the positions held on the burn, and Employee Wildland/Prescribed Fire Experience Record Sheets for the past two years. The documents that were produced show that the Prescribed Fire Burn Boss, Ignitions Specialist, Holding Specialist, and Fire Effects Monitor are all qualified for the positions held on the Meadow Prescribed Fire.

Master Records from the Incident Qualification and Certification System (IQCS) for each individual were obtained. IQCS validated the above finding with the Prescribed Fire Burn Boss performing as a RXB2, four time, the Ignition Specialist performing as a RXI2, four time, and the Holding Specialist Function performing as a ICT3, three times. No IQCS records on the Field Office Manager could be found in the system.

Recommendation – There are limited records on Agency Administrators with fire management responsibilities within the Incident Qualification and Certification System. The BLM uses IQCS to track fire qualifications, training and experience. BLM Manual Section 9215, Fire Training and Qualifications, establishes State Office and Field Office responsibilities for maintaining qualifications, training and experience records. All records of fire qualifications, training and experience will be entered into the IQCS. Agency Administrators should update and provide training records to be entered into IQCS.

3. Implementation

Finding - No lookout or resources identified to observe downwind area for potential spots. There was conflicting understanding if the FEMO position was in also in a lookout role. The FEMO was not in position to see or take action on the spot fire. It is a standard practice to place resources downwind of an ignition operation to detect and suppress any spot fires. At the time of the spot, all resources were dedicated to suppressing the test fire. Engine resources were not identified to hold in “the green” due to fence lines without gates preventing full coverage of the north flank.

Recommendation – It can not be determined if the above finding contributed to the escape due to the rapid rates of spread from the spot fire. In future burns, lookouts and resources should be assigned in a holding function on the downwind side of the burn to detect and suppress spot fires. In critical holding areas, these areas could be pretreated with water/foam.

Finding - Two engines were pulled from prescribed burn for initial attack. Prior to igniting the test fire, two engines were released from the burn for a new initial attack near Kanosh. Engines which may be used for initial attack were identified during the briefing. Different engines than those identified were sent to the new start. This deviation was due to private land ownership and desire to send the Utah State Fire Warden (3A704) and BLM engine (627) that was not directly involved with the test fire. This loss of resources resulted in a production rate reduction of 14 chains/hour in fuel model 2. This reduction in resources still maintained the minimum workforce and resources set in the prescribed burn plan.

Recommendation – It can not be determined if the above finding contributed to the escape due to the rapid rates of spread from the spot fire. While this reduction in resources may have not impacted the initial suppression of the spot fire, it is felt that such resources would have helped in reducing the overall size of the escape. If resources are pulled away from the burn, careful consideration needs to be made that resources kept on site maintain prescribed holding capabilities or that the ignition is stopped and the burn is suppressed until resource levels can be brought back to a level meeting the prescribed fire holding needs.

Finding – Unit logs were completed by individuals in overhead positions, but the majority of these logs were completed post escape. The prescribed fire burn plan states “Upon an escape, all overhead personnel will begin a Unit Log to document all actions taken.” This action resulted in missing data and inaccurate timelines.

Recommendation – Unit logs recording significant events during burn operation should be standard operating procedures for the Burn Boss and specialist positions.

Finding - A water tender was on scene during the prescribed fire. However, due to inaccessibility, it was unable to be located close to the test fire creating extended transportation times for engines requiring refill of water during the escape. This contributed to the final size of the escape.

Recommendation - The use of portable water tanks strategically located closer to burn units is advisable for future prescribed fires. The use of portable tanks *and* water tenders increases the total volume of water available and reduces the turn around time for refilling engines. The use of the portable tanks will also provide the opportunity for helicopter bucket work, if needed, and increase the capability of resources to hold the prescribed fire and/or contain spot fires and slop-overs that may occur.

Finding – The use of several fire terms were not used in the proper context in the burn plan including “Haines Index” and “moisture of extinction.” (The Haines Index was developed by Don Haines in 1988.) The Lower Atmosphere Stability Index, or Haines Index, for fire weather is used to indicate the potential for wildfire growth by measuring the stability and dryness of the air over a fire. It is calculated by combining the stability and moisture content of the lower atmosphere into a number that correlates well with large fire growth. The stability term is determined by the temperature difference between two atmospheric layers; the moisture term is determined by the temperature and dew point difference. This index has been shown to be correlated with large fire growth on initiating and existing fires where surface winds do not dominate fire behavior. The Hanes Index is not intended to be used as identified in the smoke management plan to determine ignition rates and levels of combustion as the burn plan indicated.

In the mop up and patrol plan there is discussion about the moisture of extinction being used as indices to declare the prescribed fire out. In fire behavior terminology, dead fuel moisture of extinction is defined as the fine dead fuel (0.6 to 2.5 cm diameter) moisture content at which fires will no longer spread. Thus, the fire may not be out, but rather the spread of the fire is checked.

Recommendation - This finding did not contribute to the escape of the prescribed fire. This finding provides the need from an awareness of correct fire behavior terminology.

Finding – The burn plan did not provide a geographical burn area description. Such description should be found in the Burn Area Description section of the burn plan. With this finding there is no indication of two separate units or compartments that occur within this burn plan. A map as part of the burn plan project folder was the only location that this could be found. This finding is similar to other projects throughout Utah.

Recommendation – Burn plans need to provide a text description of the geographical area of the burn. This finding should be addressed in the Utah BLM Prescribed Fire Plan Template.

4. Fire Behavior

Cheat grass fuel loading was not anticipated to be a major influence of increased fire behavior by the burn organization.

Finding - From interviews, personnel involved acknowledged the relative dearth of a cheat grass component during earlier spring burning attempts. During on site reconnaissance for the fall, a dense crop of cheat grass (though short in height) was noticed. It was felt by personnel on the burn that this would be an advantage to aid as a carrier of the fire. Similar conditions (increase in cheat grass fuel loading, though short in height) were reported to be present on the Mona prescribed fire last fall. That fire was reported to have of similar problems with spotting and the need to take suppression action was reported.

No change in fuel modeling was done to determine the possible fire behavior implications as it was felt that the site still met Fuel Model 6 (dormant shrub/brush is the primary carrier of the fire) criteria as opposed to a different model such as Fuel Model 2 which has a greater grass (grass is considered to be the primary carrier of the fire) and reduced shrub component. Note: Fuel models identified here are from the Fire Behavior Prediction System.

Analysis of fire behavior calculations for similar fuel moistures and wind speeds for both Fuel Model 2 and 6 indicate relative similarities in spread rates and flame lengths.

An additional consideration on which the magnitude likely was not properly considered was the greater potential for spot fires to become successfully established in the more receptive, finer fuels of cheat grass. Though relatively short in height, the density of the cheat grass coverage was significant. Personnel on the incident did mention that low fuel moistures were identified as a head's up during the briefing.

Once the test fire was ignited, personnel seemed to develop "tunnel vision" watching the progress of the test fire. Apparently no personnel were assigned to watch for possible spot fires down wind. It is also unclear as to whether personnel were knowledgeable on the potential spotting distance, or probability of ignition. Spotting potential prior to the ignition of the project was a significant concern (70-80%) with possible long range spotting distance of (.1 mile/ 500 feet) to (.2 miles / 1100 feet) to consider.

Incident personnel may not have taken these conditions into account during the decisions on placement of holding resources and assignment/location of lookouts. All holding resources were located just adjacent to the test fire on either existing roads or dozer lines. The Burn Boss did ask one of the project personnel to look for a gate through the fence just prior to the ignition of the test fire. None was found after a short search and the decision to reposition holding resources was not made.

Recommendations – It is not anticipated that extensive remedial training on fire behavior would be of great benefit. It is expected that the benefit of practical experience and this review will result in a significant contribution to "lessons learned" by participants in the fire and this review. In the future, the selection of the location of the test burn should include the consideration of the need for unhindered access. Other solutions, such as (A) having bolt cutters at the ready, or (B) taking the time to place holding resources in place (provided it would jeopardize their safety due to lack of escape routes or location of safety zones) prior to ignition of a test fire or project.

Some holding resources should be specifically assigned to watch for spots outside the test fire. Should an escape occur, LCES and other safety precautions should be immediately implemented.

Finding - Thunderstorm activity and related winds were likely a major contributing factor to the escape. Personnel may have failed to recognize the possible impact of thunderstorm cells and associated potential for gusty and erratic winds prior to ignition of the test fire.

Sky weather was overcast, with some apparent virga (from pictures at the test fire). The height and nature of the cloud base over the project site could likely not be seen by incident personnel.

Once the test fire was ignited, windspeed started to dramatically increase and the Burn Boss appropriately ordered the test burn immediately suppressed. Unfortunately, due to the high winds (20-23.9 mph mid flame/eye level winds) a spot fire ignited and extremely high rates of spread driven by said winds resulted in the fire crossing outside of the project site.

Terminology: Lightning Activity Level (LAL) ranges from 1-6 with 2-5 indicating an increased chance of thunderstorm activity and wetting rains. LAL of 6 calls for dry lightning. The spot weather forecast requested during the afternoon of 9/8 called for a LAL activity level in the afternoon of 2 (few building cumulus with isolated thunderstorms 15% chance little or no rainfall expected.)

The spot weather forecast on 9/9 from 11:50 called for an increase in LAL from 1 (little or no activity) to 4 (thunderstorm common but do not obscure the sky, 25-54% chance) This increase would have indicated a greater chance of thunderstorm development near the project site and increased chance of gusty and erratic winds, or microburst winds due to thunder cell activity.

It is possible that the forecasted increase in LAL activity on the spot weather forecasts from 2 on 9/8 to 4 for the afternoon of the burn may not have been noticed. The implication of a LAL of 4 is that it indicates a greater chance of increased thunderstorm activity and associated greater chance of gusty and erratic winds which could possibly impact the project.

Personnel on the burn all reported seeing the thunderstorm to the south, which produced lightning. The project site was overcast. Pictures of the test burn seem to show virga (rainfall which evaporates prior to hitting the ground, but also a source indicator of increased winds from the downdraft activity)

The project site is located west of a significant drainage, Meadow Creek Canyon. It is likely that down draft winds were funneled and enhanced through this canyon and were a cause of the southeasterly and easterly winds (Exhibit 8).

Examination of the nearby RAWS sites (Black Cedar approx 5 miles to the northeast) and Horse Hollow (23 miles to the southwest) show a shift in wind direction during the time period in question. Both sites show a decrease in temperature and increase in relative humidity during this same time period. This would be consistent with the

passage of a thunderstorm through the area. The Black Cedar site shows a more pronounced shift in wind direction, but not a dramatic increase in wind speed. This is likely due to a more sheltered location not in the path of any type of significant drainage such as Meadow Creek Canyon.

Horse Hollow RAWS observations

Time	Temp	RH	Wind Direction	Wind speed
1400	84	15	226 SW	7
1500	77	19	208 SSW	14
1600	66	41	194 S	17
1700	68	35	147 SE	7
1800	73	27	170 SSE	8
1900	72	27	179 S	11
2000	68	36	202 SSW	12

Black Cedar RAWS observations

Time	Temp	RH	Wind Direction	Wind speed
1400	83	15	50 NE	4
1500	87	12	229 SSW	7
1600	69	29	121 SE	6
1700	64	40	132 SSE	9
1800	72	23	110 E	9
1900	70	23	100 E	5
2000	69	25	103 E	7

Recommendation - Fire personnel in overhead positions (Squad Boss, Single Resource Boss and above), as part of the seasonal refresher courses should be familiarized with LAL levels and be coached to compare forecasted LAL levels to actual conditions. This will develop a greater sensitivity to changing LALs and would result in better correlation opportunities for both NWS personnel and local fire personnel.

Prescription parameters

Findings - In reviewing the Behave Plus runs, under Desired Intensity, 20-foot wind speeds ranging from 12 to 20 miles per hour were used. The calculated effective wind speed for these values (effective wind speed is the combination of slope and mid flame wind speed) ranged from 4.9 miles per hour to 8 miles per hour. Mid flame wind speeds, which are generally associated with “eye level winds” and thus more easily measurable, are not listed in the Behave Plus data runs.

In the burn plan, under the Desired Intensity Range, mid flame wind speed ranges are listed as from 5 to 12 mph. These wind speeds are different and higher at the upper range than the identified “effective wind speeds” upon which the fire behavior calculations were based.

Under Desired Intensity, in the Behave Plus runs, the Rate of Spread range is listed between 39 and 75 chains per hour for the 20 foot wind speeds listed (12,14,16,18,20).

The flame lengths range is listed between 5 and 9 feet. The allowable flame lengths listed under desired intensity in the burn plan is higher than the calculated range from 6 to 12 feet.

Calculated fire behavior predictions for September 9th, using the forecasted weather conditions from the spot weather yielded the following:

Forecast temperatures: 88-92

Forecast minimum RH 10-14

20 foot winds SW @ 8-15 with possible gusts to 20-25

Haines Index = 6 or high

Sky weather partly cloudy 35-45%

LAL 1 until noon, increasing to 4

Assumptions: fire behavior calculations were done for both shaded and unshaded fuels.

Forecasted sky weather called for partly cloudy 35-45%, most personnel indicated that sky weather was overcast. Hence the runs for both shaded and unshaded fuel scenarios.

1 hour fine fuel moisture of 4% for unshaded based on Behave calculations

Using a shaded fuel condition (cloud or canopy cover greater than 50%) also yielded 1-hour fine fuel moisture of 4%.

Mid flame wind speeds used, 3-13 mph

Fuel Model	2	6
Rate of Spread	18-228 chains per hour	21-168 chains per hour
Flame length	5 – 15 feet	5 – 13 feet
Probability of Ignition	70%	70%

In the burn plan, a wind adjustment factor of (.4) was used. The majority of the project site on September 9 was over open, exposed, terrain. The relative lack of prior on site weather observations preceding the burn (1 observation at 14:15 on 9/8) gave no opportunity for correlation of eye level winds to 20 foot winds and potential need for adjustment of the wind adjustment factor based on said comparison of actual observations compared to measured 20 wind speeds at nearby RAWS stations.

In many similar open exposed terrain areas, a wind adjustment factor of (.7) has been used with better correlation/comparison of nearby RAWS stations. This higher wind adjustment factor will result in a higher mid flame wind speed and resulting fire behavior predictions are also greater.

Using the initial attack production assumptions from the Incident Response Pocket Guide (PMS #461, NFES #1077), once the predicted mid flame winds exceeded 7 mph, the capabilities of the on site holding resources would have been exceeded.

The importance of having good correlation between on site winds and 20-foot winds can be demonstrated in this instance. Using a wind adjustment factor of (.4) the 7 foot mid flame wind speed would not be reached until the 20 foot winds were approximately 17 mph. Using a greater wind adjustment factor of (.7) shows

that the allowable 20 foot wind speed would only have been 10 mph before holding resource capability would have been exceeded.

The attached spreadsheet (Appendix 1) displays a comparison of forecasted and hypothetical 20-foot wind speeds with various wind adjustment factors. Also included is a reference to the Beaufort Scale for estimating 20-foot wind speeds. The Beaufort scale provides a means of estimating 20-foot wind speed based on observations of nearby objects. These comparisons are noteworthy when high wind speeds are evaluated during the probable passage of a thunder cell or from microburst winds associated with cell passage.

In the burn plan, "Any" wind direction was acceptable under all scenarios. The close proximity of the communities of Meadow and Fillmore, the closer proximity of both a major interstate (I-15) and the paved frontage road would seem to call the choice of using wind of "Any" direction questionable, particularly at some of the identified scenario's High Intensity, largely because of the potential for smoke to be a concern for the Interstate and communities.

Review of the Behave Plus runs under High Fire Intensity show that 20 foot wind speeds of 20, 30, up to 40 miles per hour were used. This gave predicted Rates of Spread; given temperature in the low to mid 90's from *84 chains per hour 91 degrees with a 20 mile per hour, 20 foot wind speed = (1 mile/hour) to as high as 209 chains per hour 95 degrees with a 40 mile per hour 20 foot wind speed (2.6 miles per hour). Potential spotting distance ranged from .2 miles (~1100 feet) to .4 miles (~2200 feet) with a Probability of ignition for all wind speed/temperature combinations of 91%*

It does not appear there any intention to burn during this type of a high fire intensity scenario. During interviews, the question was raised as to whether burning could be continued if high winds such as those which caused the escape presented themselves. The overwhelming answer was no.

If there had been an intention to burn during such high winds there would not have been enough holding resources available for the upper end of the predicted rates of spread.

Such potential intensity was not questioned during the technical review, the line officer's review, or during the go/no go review.

Recommendations - Better pre burn weather observation information should be a necessity. The more on site weather observations the NWS forecast personnel have, the more accurate the forecast will be. In the absence of portable RAWS stations, less costly weather collection, other than personnel, are available for as little as \$600. These types of equipment can collect weather data similar in most aspects to that collected by RAWS equipment for up to 45 days powered by a combination of solar power and batteries.

Closer scrutiny and comparison of predicted fire behavior to actual fire behavior is strongly recommended. Not all fuels are uniform, nor do they burn under uniform weather, slope or other conditions. By documenting information such as rates of spread, flame length etc on prescribed burns and wildfires, local personnel should have a more accurate and documented knowledge of what to expect.

Better documentation of weather is needed. The FEMO did a good job of documenting temperature, RH, and wind direction and speed. One critical weather component, which was not recorded, but mentioned by the FEMO during the interview, was sky weather. No information as to cloud cover or proximity of thunder cell activity was recorded by any personnel other than some brief mention of thunderstorms south of the burn site.

5. Awareness/Understanding Prescribed Fire Policy

Finding - Go-No-Go was not signed by a line officer. Guidance is confusing both at the State and National level as to line officer involvement in signing the Go-No-Go Checklist. Direction for Field Office Manager involvement in completing the Go-No-Go Checklist is provided in the Interagency Standards for Fire and Fire Aviation Operations 2004. Under the BLM Program Organization & Responsibilities Chapter under Management Performance Requirements for Fire Operations, the State Director/Associate, District/Resource Area Manager, and the Field Manager are to “complete the go/no-go checklist for prescribed fires.” IM No. OF&A 2000-136 (Exhibit 9) identified that the national requirement of prior to ignition, on the day of the burn, the Field Manager and Burn Boss, or Burn Coordinator will certify that they have reviewed the burn objectives and they have reviewed and are in agreement on the complexity analysis. In addition, the GO/NO-Go checklist must have been completed...” This OF&A IM expired and State Offices and Field Offices were directed to develop their own guidance related to prescribed fire plan review and approval and Field Manager involvement/approval prior to ignition. The Utah State Office developed direction in Utah State Office Instruction Memorandum UT 2003-059. Its subject was Utah Policy for Oversight of Prescribed Fires on BLM Lands in Utah and Supplemental Program Guidance for the 2823 and 2824 Programs (Exhibit 10).

Recommendation - Develop statewide guidance for Go-No-Go procedures. This finding should be addressed in the Utah BLM Prescribed Fire Plan Template. Follow-up should also occur at the national level to clarify the Interagency Standards for Fire and Fire Aviation Operations 2004.

Finding - Technical review was completed by two people. Per IM UT 2003-059 it is Utah BLM policy that the State Fuels Specialist will complete a technical review and determination of technical adequacy of all prescribed burn plans prior to approval by Field Office Managers. At the time this prescribed burn plan was prepared, the State Fuels Specialist position was vacant and the State Operations Specialist was assigned the duties of reviewing plans. The State Operations Specialist and Fillmore Zone Fire Management Officer both reviewed the plan for its technical merits. Both individuals were qualified at the Prescribed Fire Burn Boss – Type 1.

Recommendation – This finding did not contribute to the escape of the prescribed fire. One individual should be completing the Technical Review. Any number of people can complete reviews of the burn plan.

Other Findings NOT Contributing to the Escape Prescribed Fire

Finding – A staff member from the Utah State Office repeatedly attempted to talk to supervisory suppression personnel following the escape with requests for information to be used in a media release. This was disruptive during the time of active suppression of the escape.

Recommendation - Develop protocol which will reinforce understanding of the need to avoid interfering with individuals involved with suppression operations. Inclusion of the Field Office Manager in the determination of information to be released to the media should help insure there is no future recurrence.

Finding - There has been confusion between the Richfield and Fillmore offices regarding who should notify the State Director of such events. There was similar confusion regarding burn plan signature. One manager felt it needed to only be signed by the Field Office Manager in whose jurisdiction the burn was planned.

Recommendation - Revisit current guidance regarding roles and responsibilities of respective Field Office Managers where fire management and suppression services are provided by a support center. Current guidance (Exhibit 11) is that there be two signatures, one by the Field Office Manager having management responsibility for the resources, the other by the Support Center manager recognizing a commitment to provide staff support as identified in the burn plan.

Finding - Management positions in field offices are accompanied by a delegation of authority. That authority is primarily associated with the position. Within the fire organization, delegations of authority are normally associated with the qualifications held by an individual and the position to which that individual is assigned. Three delegations of authority have been prepared for individuals within the Richfield fire organization. They are for:

1. Richard Higginbotham, Fire Management Officer, Richfield, signed by Aden Seidlitz, Richfield Field Office Manager, and Sherry Hirst, Fillmore Field Office Manager, dated May 1, 2004,
2. Walter Burdick, Zone Fire Management Officer for the Fillmore Field Office, signed by Sherry Hirst, dated May 1, 2004, and
3. Duty Officer delegations including the west zone Tom Suwyn, and alternates Kevin Greenhalgh, Justin Johnson, and Linda Chappell, signed by Mary Erickson and Aden Seidlitz, dated June 28, 2004.

These show that there is inconsistency in how delegations of authority have been provided.

Recommendation - Revisit current guidance regarding roles and responsibilities of respective Field Office Managers where fire management and suppression delegations of authority are provided. Provide clarification of when and what type of delegations of authority are required from offices receiving fire management assistance from Support Centers.

6. Prevention of Future Escapes

Finding - It has been stated by experienced fire managers, including members of the review team, that it is highly likely that most if not all qualified and experienced prescribed fire managers will be involved in an escaped fire during their career. Recognition of this fact is significant but does not relieve fire or line managers of their responsibilities to avoid prescribed fire escapes. Consideration and adoption of recommendations found in this review will significantly assist in improving the process or burn plan development and implementation as well as reducing the likelihood of escaped prescribed fire.

Recommendation - Adopt all recommendations found in this review. Place special emphasis on plan preparation and review. Line managers and burn bosses should be appropriately conservative in their decisions to conduct prescribed fires. Local fire experience and knowledge of weather conditions not necessarily identified in Spot Weather forecasts should be considered before ignition.

Meadow Escaped Prescribed Burn Review Conclusion

Fire is one of the most powerful tools land managers have in managing wildland ecosystems as it closely mimics natural processes while meeting many desirable resource management objectives in maintaining healthy ecosystems. Prescribed burning is used in the restoration of ecological processes on the landscape and the reduction of hazardous fuels build-up.

Information considered in making a decision on whether to implement a prescribed burn includes using fire behavior models and spot weather forecasts. Many limitations and assumptions go into the models and forecasts while at the same time fire occurs within a dynamic environment. Combining these elements with the professional expertise, the line officer determines a recommended course of action. The combination of model limitations, unexpected weather events, and the dynamics of fire behavior, at times results in escaped prescribed fires.

As a result of the Meadow Escaped Prescribed Fire, a review team was formed to look at factors that contributed to the escape along with other policy and programmatic findings. As part of this team's work, two findings were identified that directly contributed to the escape of the prescribed fire:

- Thunderstorm activity and related winds were a major contributor to the escape. Wind gusts of 23.9 mph (mid-flame wind speed) were associated with the collapse of thunderstorms to the south of the burn area and impacted fire spread direction and behavior. These high winds were a major factor in the development of the spot fire north of the burn unit and resultant inability of on site resources to easily suppress the initial spot fire.
- An increase in the cheatgrass fuel loading occurred between the time when the prescribed burn plan was developed, the spring burn, and the escaped fire in September. While rates of spread associated with the increase in cheatgrass were factored into the burning, the ability of the cheatgrass to serve as a receptor to fire brands and resultant spotting was not considered to the degree necessary.

The review team found no negligence on the part of all individuals involved with the Meadow Prescribed Burn and associated escape. The Prescribed Fire Burn Boss was within his delegation of authority, part of the prescribed burn plan, and his scope of duties. The review team found a number of non-contributing factors related to the fire program, burn plan, and operations that need to be brought to the attention of the fire managers and agency administrators. Recommendations on corrective actions related to the non-contributing factors were made within this report.

APPENDIX

Line production assumptions:

Taken from Incident Response Pocket Guide 2002 edition, page 75 "Line Production Rates for Initial Attack Engine Crews in Chains per Crew per Hour."

Fuel Model	2 person crew	3 person crew	4 person crew
2	7	15	21
6	6	12	16

Holding resources on day of RX burn/escape

Initially: 3 Type 4 engines assume staffing of 4 per engine

3 Type 6 engines assume staffing of 2 per engine

Total initial production capability:

Fuel Model 2 = $(21 \times 3) + (7 \times 3) = 84$ chains per hour

Fuel Model 6 = $(16 \times 3) + (6 \times 3) = 66$ chains per hour

Following loss of engines for Initial Attack:

Fuel Model 2 = $(21 \times 3) + (7 \times 1) = 68$ chains per hour

Fuel Model 6 = $(16 \times 3) + (6 \times 1) = 54$ chains per hour

DISPATCH

1 -- FUEL MODEL ----- 6.-- DORMANT BRUSH, HARDWOOD SLASH
2 -- DEAD FUEL MOISTURE ----- 6. %
3 -- LIVE FUEL MOISTURE ----- 85. %
4 -- 20-FOOT WINDSPEED (UPSLOPE) --- 31. MI/H
5 -- WIND ADJUSTMENT FACTOR ----- .7
6 -- SLOPE ----- 0. %
7 -- ELAPSED TIME FROM IGNITION
 TO ATTACK ----- .1 HR **1/10 of an hour = 6 minutes**
8 -- LINE BUILDING RATE ----- 54.0 CH/H

Note: the resultant mid flame wind speed (31 20 foot winds X .7 wind adjustment factor for exposed, flat terrain) = 21.7 miles per hour. This is less than what was reported measured at eye level by Brad Washa at the time of escape but represents the average of measured, forecasted, and estimated wind speeds from the spot weather forecast, and incident participants.

DISPATCH KEYWORD?

ENTER INPUT,LIST,CHANGE,RUN,QUIT,
TERSE,WORDY,PAUSE,NOPAUSE,LOG,NOLOG,
ENGLISH,METRIC,PERCENT,DEGREES,
COMMENT,KEY,HELP,STATUS
RUN

(VERSION 4.4)

FORWARD RATE OF SPREAD ----- **205. CHAINS/HR**
HEAT PER UNIT AREA ----- 473. BTU/SQFT
FIRELINE INTENSITY ----- 1780. BTU/FT/S

FLAME LENGTH ----- 14.1 FEET

AREA AT TIME OF ATTACK ----- 5.7 ACRES

PERIMETER AT TIME OF ATTACK ----- 43. CHAINS

THESE PREDICTIONS INDICATE THAT CONTROL EFFORTS AT THE HEAD OF THE FIRE WILL BE INEFFECTIVE. CROWNING, SPOTTING, AND MAJOR FIRE RUNS ARE PROBABLE.

THE 'CONTAINMENT' PREDICTIONS DO NOT APPLY.

Meadow RX burn

comparison of forecasted and hypothetical 20 wind speeds and mid flame wind speeds by wind reduction factors

Prepared by Dale Jablonski FBAN

20 FT windspeed	Mid Flame wind speeds based on wind adjustment factors			
	.4 WAF	.5 WAF	.6 WAD	.7 WAF
5	2.00	2.50	3.00	3.50
10	4.00	5.00	6.00	7.00
15	6.00	7.50	9.00	10.50
20	8.00	10.00	12.00	14.00
25	10.00	12.50	15.00	17.50
30	12.00	15.00	18.00	21.00
35	14.00	17.50	21.00	24.50
40	16.00	20.00	24.00	28.00
45	18.00	22.50	27.00	31.50
50	20.00	25.00	30.00	35.00
55	22.00	27.50	33.00	38.50
60	24.00	30.00	36.00	42.00

forecasted wind speeds from spot weather forecast

damage would likely have been reported communities.

Beaufort Scale for Estimating 20 foot

windspeed

windspeed

mph

Nomenclature:

very light, smoke rises almost vertically

<3

Light, wind felt distinctly on face, loose scraps of paper move

4-7

Gentle breeze, tops of trees in dense stands sway, wind extends small flag

8-12

Moderate breeze trees of pole size in open sway violently, dust in raised on road

13-18

19-24

Fresh inconvenience is felt in walking

against wind

25-31

Strong progress impeded when walking against wind, light damage to buildings

32-38

Moderate gale very difficult to walk into wind, significant structural damage possible

Pahvant Interagency Fuels Reduction Project
Meadow Treatment Unit

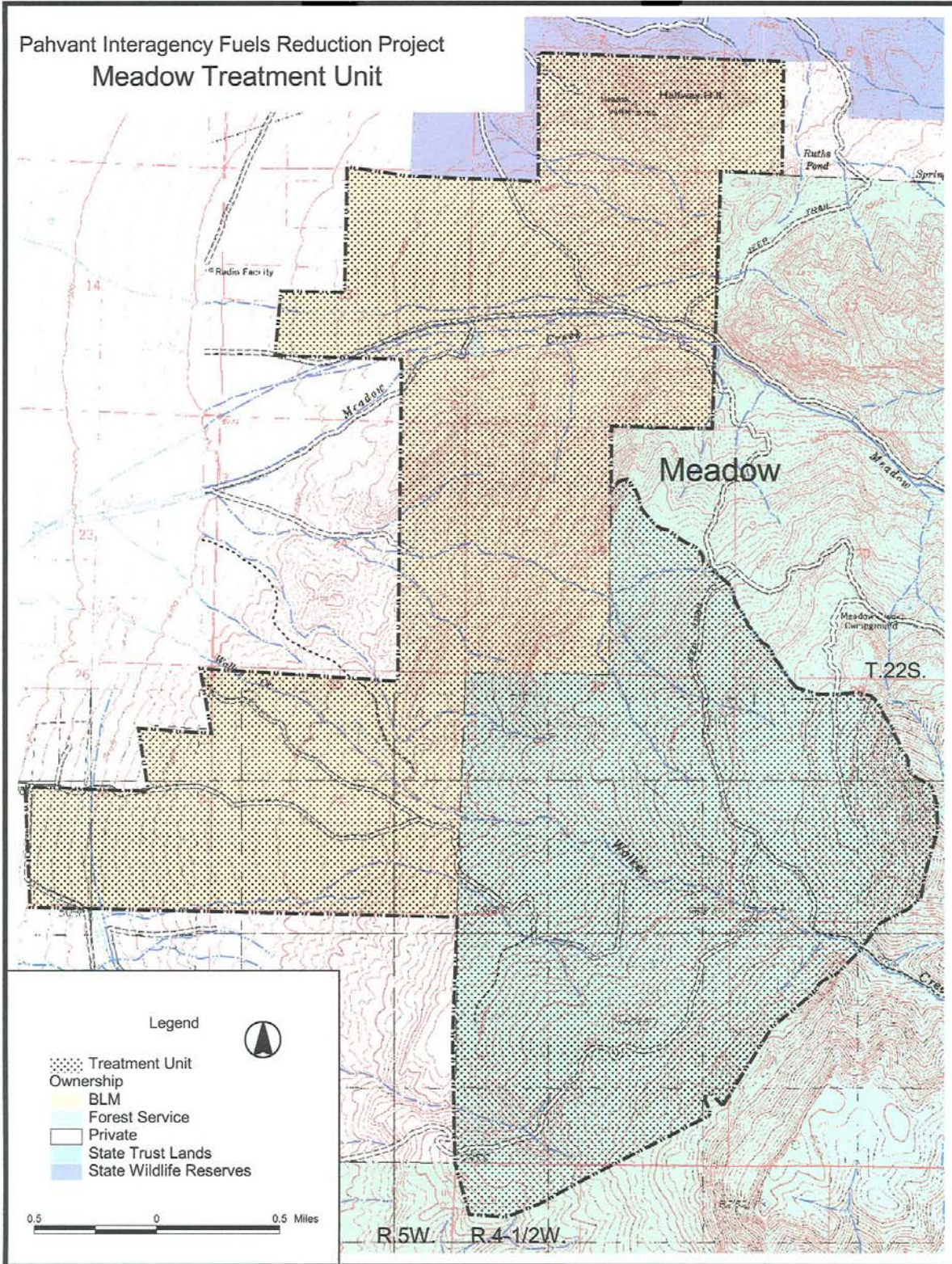
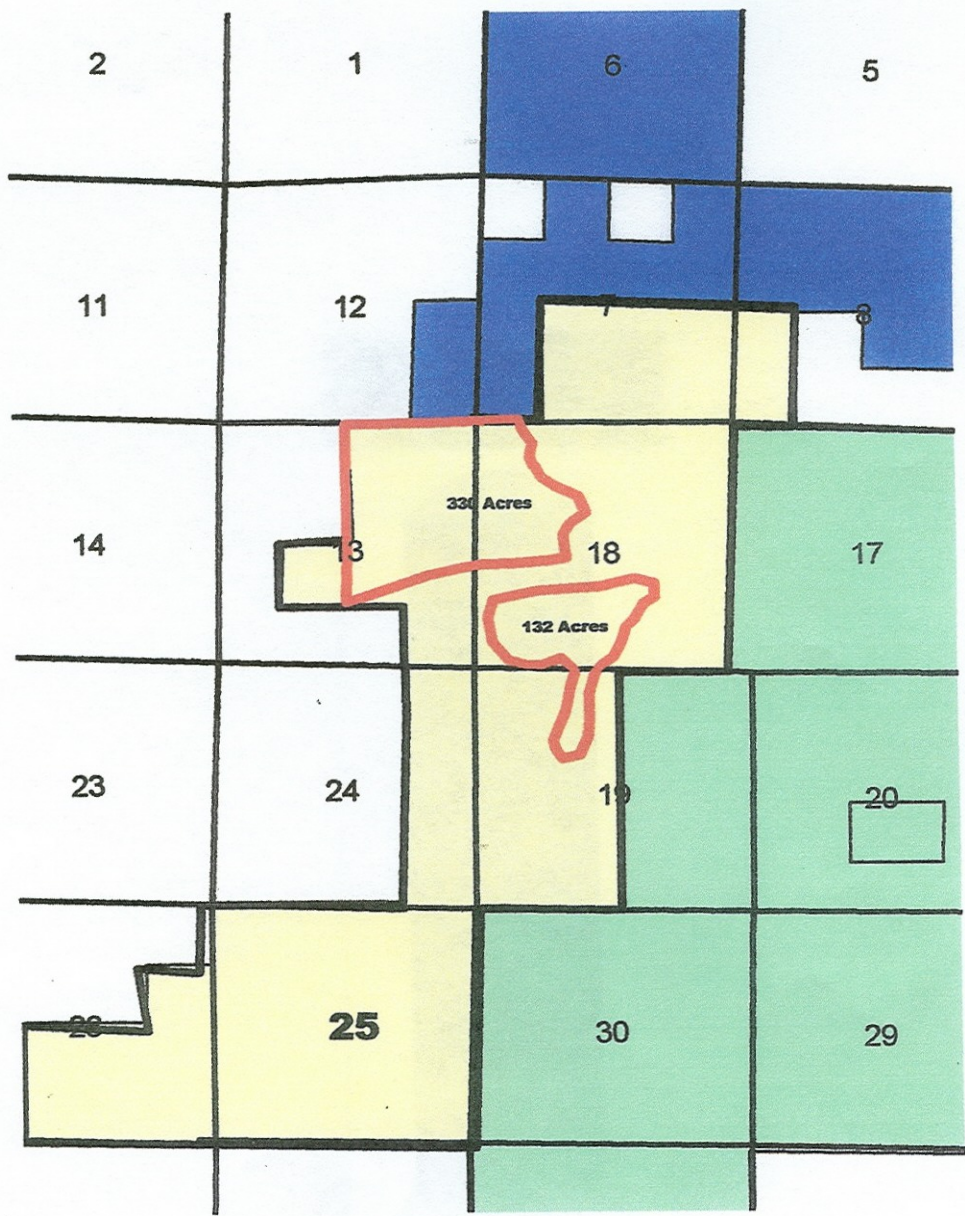


Exhibit 1

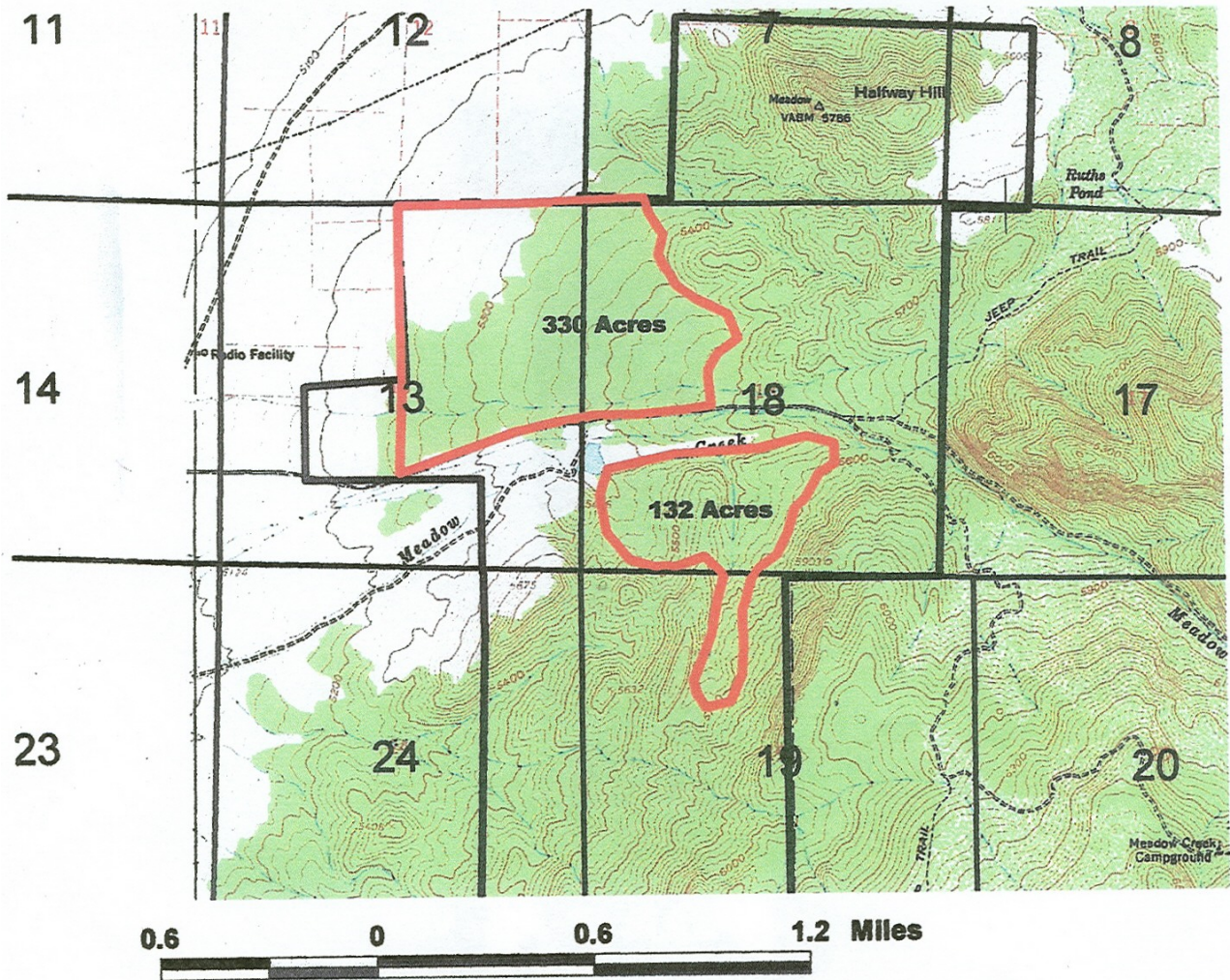


Meadow Burn Area

- 2004_Burn_Proposal
- Owner2.shp
- Forest Service
- BLM
- Private
- State Wildlife Reserves

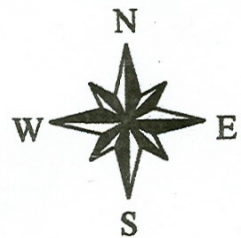


2004 Meadow Burn Proposal



 2004_Burn_Proposal
 BLM MPA

T. 22 South
R. 05 West



2004 Fall Meadow Burn

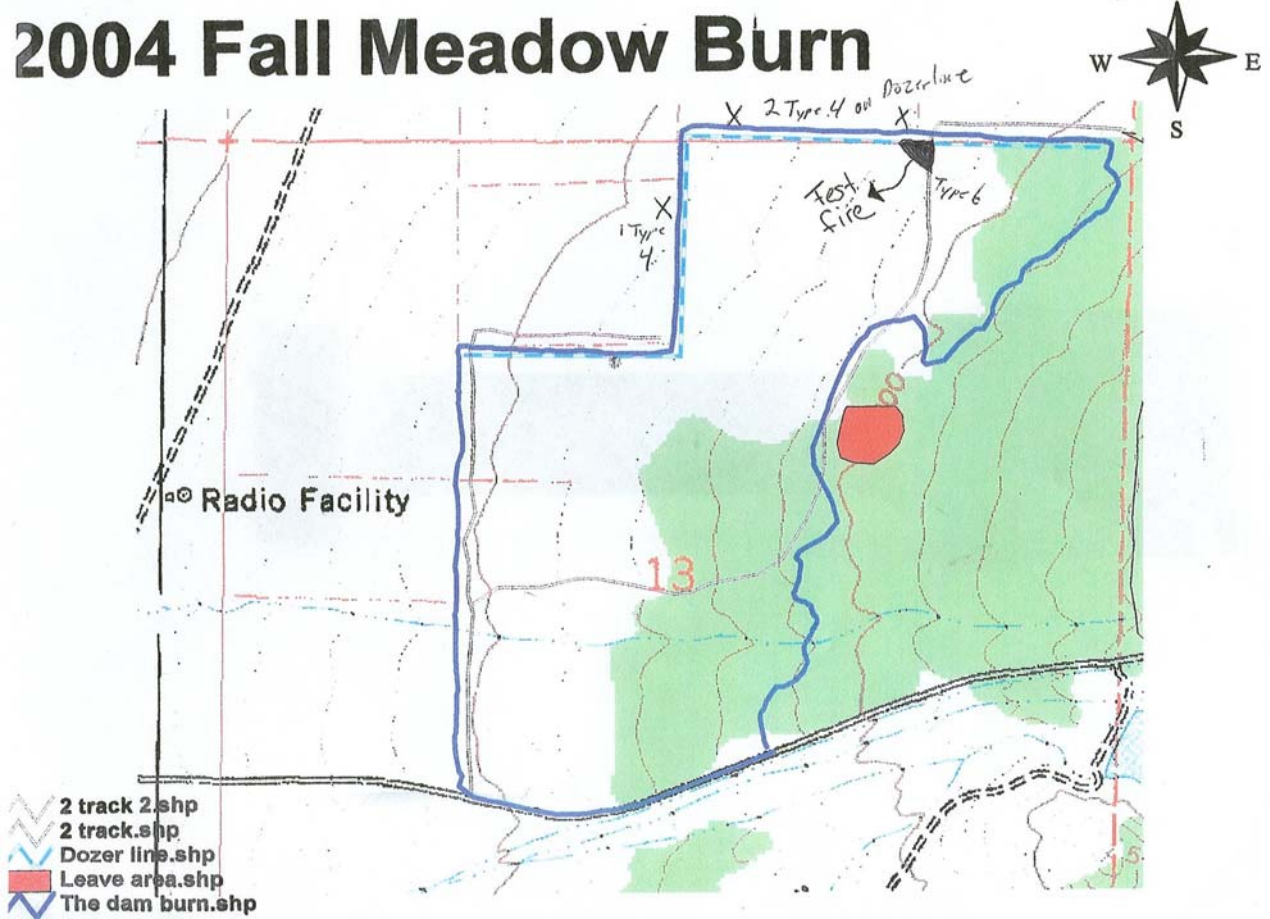


Exhibit 4



Exhibit 5

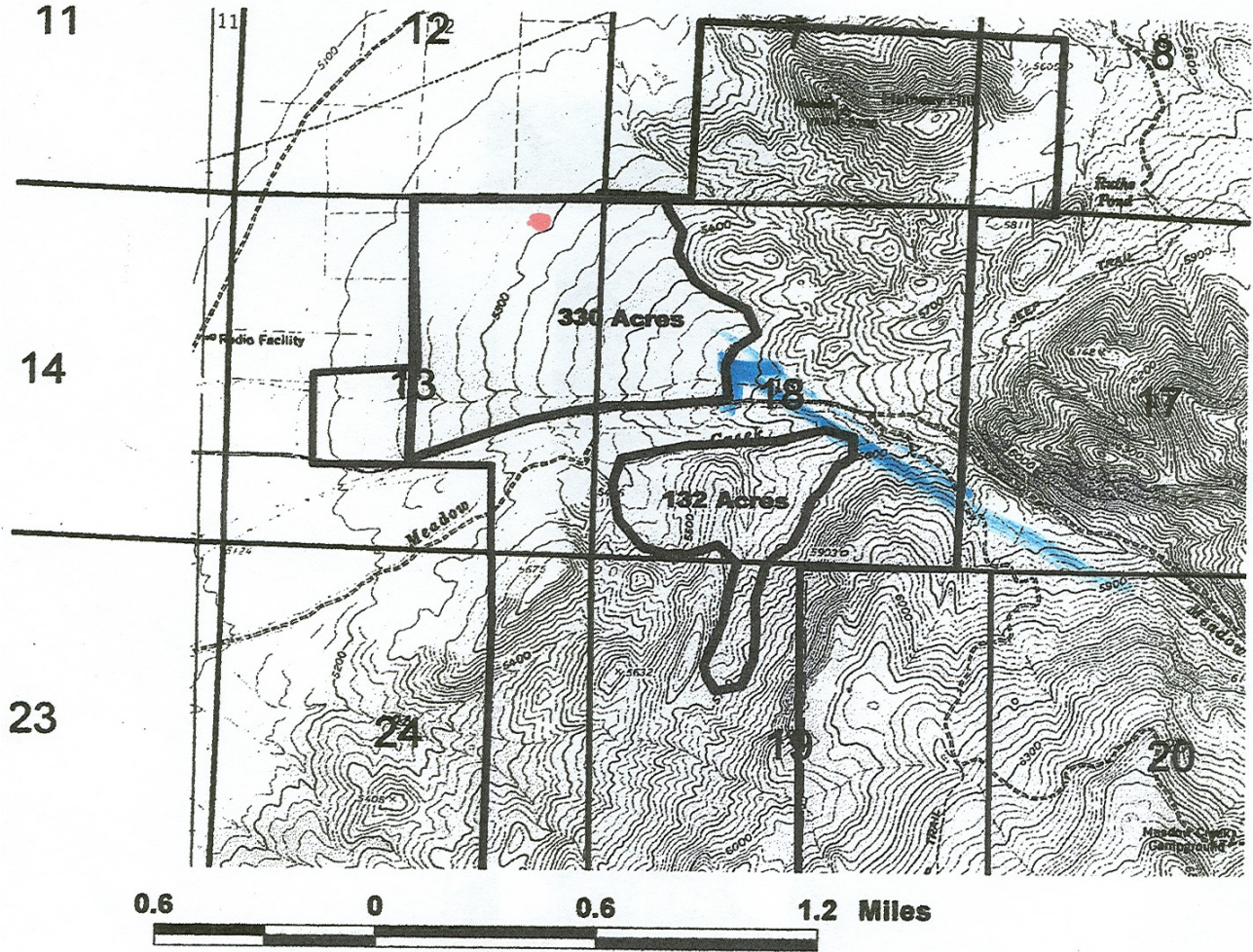


Exhibit 6



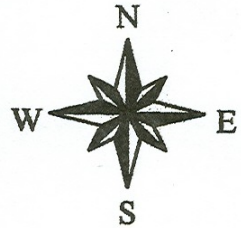
Exhibit 7

2004 Meadow Burn Proposal



 2004_Burn_Proposal
 BLM MMA

T. 22 South
R. 05 West



EMS TRANSMISSION 06/12/2000
Instruction Memorandum No. 2000-136
Expires: 09/30/2001

To: State Directors

From: Director

Subject: Interim Prescribed Fire Guidelines

Program Area: Prescribed Fire

Purpose: In light of the announcement by Secretary Babbitt lifting the moratorium on prescribed burning effective June 12, 2000, the Department of the Interior Fire Directors have met and discussed additional guidelines for implementing prescribed fires for the remainder of this calendar year. The one area that appears common to the disaster that recently occurred in Los Alamos and in other escaped prescribed fires the BLM has experienced, including the Lowden Fire last year which destroyed 23 homes, is in the decisionmaking process. We firmly believe our policies are sound and our procedures, when professionally implemented, do allow for prescribed fire in a safe and effective manner. A comprehensive review of our procedures will be undertaken prior to the 2001 fire season but in the interim I have decided to implement the following guidelines effective immediately.

Policy/Action:

1. All burn plans are to be reviewed at the State Office.
2. Prior to ignition, on the day of the burn, the Field Manager and the Burn Boss or Burn Coordinator will certify that they have reviewed the burn objectives and that they have reviewed and are in agreement on the complexity analysis. In addition the "Go-No-Go" check list must have been completed, with specific attention directed at fuel loadings and conditions. This certification will be included in the project file.

Timeframe: This Instruction Memorandum (IM) is effective upon receipt.

Budget Impact: There are no budget implications from this IM.

Background: The recent Cerro Grande fire in New Mexico resulted in catastrophic losses to the city of Los Alamos. This IM is to provide additional guidelines for the BLM prescribed fire program.

Manual/Handbook Sections Affected: This will supplement the guidelines currently in the 9214 manual.

Coordination: Any exceptions to these guidelines must be approved by the Director, Office of Fire and Aviation.

Contact: If you have any questions concerning these guidelines, please contact Ron Dunton, Acting Deputy Director, Office of Fire and Aviation at 208-387-5511.

Again, I wish to reiterate my support for our prescribed fire program. We have successfully used prescribed fire as a valuable resource management tool and will continue to use it. We must, however, take every precaution to ensure our plans are sound and are implemented accordingly.

Signed by:
Tom Fry
Director

Authenticated by:
Robert M. Williams
Directives, Records
& Internet Group, WO540

Exhibit 9



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Utah State Office
P.O. Box 45155
Salt Lake City, UT 84145-0155
www.ut.blm.gov

IN REPLY REFER TO:
9210
(UT-936) P

May 14, 2003

Instruction Memorandum No. UT 2003-059

Expires: 09/30/2004

To: Field Office Manager, Fire Management Officers, and Fuels Management Specialists

From: State Director

Subject: Utah Policy for Oversight of Prescribed Fires on BLM Lands in Utah and Supplemental Program Guidance for the 2823 and 2824 Programs

This Instruction Memorandum will establish minimum standards regarding the Fuels Management program for all Field Offices in Utah. The following procedures are in addition to the interim program direction for the BLM's Fuels Management Program contained in WO IM #OF&A 2000-020, which establishes minimum program standards for the BLM. This policy will remain in effect until revised, amended, or rescinded.

The State Fuels Management Specialist will complete a technical review and determination of technical adequacy of all prescribed burn plans prior to approval by Field Office Managers. All prescribed burn plans which are planned for spring implementation must be submitted to the State Fire Management Officer (SFMO) requesting a technical review by no later than January 15th each year. Plans, which will be implemented in the fall, must be submitted for review by no later than March 15th. When plans are submitted for technical review in accordance with the established dates, Field Offices should plan on a minimum of 21 working days from the date the plan is received in the State Office until the Field Office Manager approves it. Those plans which require corrections or additions will be returned to the appropriated Field Office Manager with written direction outlining the necessary changes within 10 working days of receipt. Plans that are not submitted in a timely manner or are not in conformance with BLM minimum standards may require additional review time with subsequent corrections and resubmission for additional technical review. Plans submitted for review must include all elements and attachments required in the interim program direction (WO IM #OF&A 2000-20).

Field Office Managers (FOM) and Fire Management Officers (FMO) will personally complete a preliminary review of each plan and the Complexity analysis to ensure compliance with National and State Standards prior to forwarding to the State Office, with a cover letter signed by the Field Office Manager requesting the technical review. The FMOs must sign the signature page indicating that they have completed the above preliminary review prior to forwarding to the State Office for the technical review. The FOM must sign and approve the Complexity analysis summary prior to submitting the plan for technical review.

The primary prescribed burn plan preparer must be currently qualified at the complexity level of the plan being prepared in accordance with IM #OF& A 2000-20 page 33 item 4, Prescribed fire qualifications summary.

The State Fuels Management Specialist will be notified prior to ignition, on the day of the burn by the burn boss, that the prescribed fire plan will be implemented and the approximate time of ignition.

District Fire Management Officers will be present on site at all prescribed fires on the first day of ignition. A go/no check list will be completed and a spot weather forecast will be requested and included in the project file each day, until the prescribed fire is declared out.

During periods when the National or Eastern Great Basin areas are in preparedness levels four or five, the SFMO must approve all prescribed fires prior to ignition.

The State Fire Management Officer, prior to obligation of funds, must approve any seed purchases proposed for the 2824 program in writing. Requests to use 2824 funds to purchase seed must include a detailed project proposal and justification which outlines how and why seeding is necessary to protect the Wildland Urban Interface and must be identified in the Community mitigation plan. Purchase of seed with 2823 funds is **not authorized**.

Any questions regarding this policy should be directed to Sheldon Wimmer (801) 539-4091 or John Shive (435) 259-2113.

Signed by:
Sheldon Wimmer
Acting State Director

Authenticated by:
Rosie Geren
Records Manager

cc: FA-630
John C. Shive UT-936
Jolie Pollet UT-936
Susan Marzec UT-936



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Utah State Office
P.O. Box 45155
Salt Lake City, UT 84145-0155
www.ut.blm.gov

IN REPLY REFER TO:

9210
(UT-930)P

June 26, 2003

Information Bulletin No. UT 2003-055

To: AFOs

From: State Director

Subject: Fire Roles and Responsibilities of Support Center and Field Office Managers

This information Bulletin serves to transmit supplemental guidance for the "Interagency Standards for Fire and Fire Aviation Operations 2003" handbook (BLM Handbook 9212-1-). This direction supplements Chapter 2, Program Roles and Performance Standards, Fire Management Staff Performance requirements for Fire Operations. This guidance is for the Utah, Bureau of Land Management organization.

The relationship between Support Center and non-support center Field Office Managers has caused some confusion regarding roles since Utah BLM went to a two-tier organization. Questions exist over what responsibilities Support Center Field Managers retain versus the responsibilities of non-support center Field Managers. The fire management organizations in Utah have retained the original five-district configuration. These fire districts provide aviation and fire management resources to the former Area offices. The Support Center Managers, with co-located Fire Management Officers, (FMOs) continue to have responsibility for providing aviation and fire management support, including fire suppression, hazardous and wildland urban interface fuels reduction efforts and other fire management related activities. Some support centers have emergency stabilization and rehabilitation (ESR) efforts assigned to the fire organization as does the State Office.

While many of the listed functions are shared responsibilities among field managers, two basic principles apply. First, each field manager has primary and direct responsibility for any fire management activity within his/her field office area. This responsibility may be delegated in accordance with Bureau policy and procedures from one Field Office Manager to another.

Second, the Support Center Field Office Manager and Fire Management Officer whose fire organization (Cedar City, Moab, Richfield, Salt Lake, and Vernal) has lead responsibility for fire personnel, facilities, equipment and budget. This includes safety, preparedness and ensuring support to the offices within their support service region. This lead responsibility is depicted by asterisk (*) on the attached table.

Incidents that cross Field Office boundaries and /or involve multiple agencies and jurisdictions may also cause some confusion regarding leadership and responsibilities. To ensure clarity of delegation and associated expectations, delegations of authority will be in writing. The following guidance should be followed when preparing the necessary documentation.

- All Field Office Managers (FOMs) are responsible for resource protection and management associated with fire management activities within their respective areas.
- All FOMs are considered the “Agency Administrator” for incidents that occur within their jurisdiction.
- FOMs should be actively involved in fire management activities that occur within their Field Office boundaries.
- For simplicity, when working with interagency cooperators, FOMs may designate a single Agency Administrator and delegate their authority to the identified Agency Administrator. If the Agency Administrator is not the Support Center Manager, she or he, will sign a joint WFSAs with the Support Center Manager.
- When an incident crosses a Field Office boundary, FOMs may delegate their authority to an adjacent manager for fire suppression and resource protection.
- In all cases of delegation of authority between FOMs, documentation will be completed on BLM Form 1203-2.
- The 1203-2 will document the special resource considerations that will be incorporated into the Wildland Fire Situation Analysis (WFSAs) and the management direction that will be followed in suppression activities to protect them.
- The initial WFSAs will be signed by all FOMs (the Support Center FOM and the affected FOM(s)). After the first document, the authority can be delegated to the appropriate manager, known then as the Agency Administrator.
- The Agency Administrator, to whom authority has been delegated, will insure that all affected FOMs, interagency partners, and the State Director are kept fully informed about the fire incident.

- Fire trespass investigations and collections are the responsibility of the FOM in whose area the incident occurred. The State Fire Management Officer (SFMO) will coordinate the trespass process with the State Office Special Agent in Charge (SAC) and the U.S. Attorneys Office. Collection authority can be delegated for fire trespass collections between support centers and field offices.
- Aviation plans, fire management plans and prescribed burn plans will be co signed by the offices involved with the support center. Administrative actions determined to be more appropriately centralized should be delegated to the support center FOMS. Special circumstances, like initial attack zones, which make delegation more logical, can be delegated. Example: Cedar City (north zone) does initial in Deep Creek, not St. George (south zone).
- Due to the method of fire management planning (IIAA) and funding for suppression, hazardous fuel reduction, and fire management within the wildland urban interface, support centers will have the responsibility for reporting units through the fire management officers (FMO).
- On an annual basis, the FOMs will sign delegations of authority for FMOs in the support centers. One delegation of authority will be prepared and signed jointly by all FOMs associated with the respective support center.
- Trained resource advisors will be assigned to each incident and work closely with the unit FOM and the delegated Agency Administrator to ensure that they implement the WFSAs following the 1203-2 delegations.

Strict adherence to safe fire fighting practices and standards is mandatory. If you have questions on these items please contact Sheldon Wimmer, State Fire Management Officer, or Kate Kitchell, Deputy State Director, at the Utah State Office.

Signed by:
Sally Wisely
State Director

Authenticated by:
Rose Geren
Records Manager

Attachment
As Stated

Management Performance Requirements for Fire Operations

<u>PERFORMANCE REQUIRED</u>	<i>SUPPORT SERVICE CENTER MANGER (Richfield, Cedar City, Moab)</i>	<i>FIELD MANAGER (Fillmore, Kanab, Grand Staircase- Escalante, St. George, Price, Monticello)</i>	<i>FIELD MANAGER (Salt Lake, Vernal)</i>
1. Take necessary and prudent actions to ensure firefighter and public safety.	T	T	T
2. Ensure sufficient qualified fire and non-fire personnel are available to support fire operations at a level commensurate with the local and national fire situations.	T		T
3. Ensure Fire Management Officers (FMOs) are fully qualified.	T*		T
4. Provide a written delegation of Authority to FMOs that provides an adequate level of operational authority. Include Multi-Agency Coordinating (MAC) Group authority, as appropriate.	T*	T	T
5. Identify resource management objectives to maintain a current fire management plan (FMP) that identifies an accurate and defensible Normal Year Readiness of funding and personnel.	T	T	T
6. Develop protection and use standards and constraints that are in compliance with agency fire policies.	T	T	T
7. Ensure use of fire funds is in compliance with Department and Agency policies.	T	/	T
8. Management teams will meet once a year to review fire and aviation policies, roles, responsibilities, and delegations of authority. Specifically address oversight and management controls, critical safety issues, and high risk situations such as team transfers of command, periods of multiple fire activity, and Red Flag Warnings.	T	T	T
10. Ensure timely follow-up actions to program reviews, fire preparedness reviews, fire and fire aviation safety reviews, fire critiques, and post-season reviews.	T		T
11. Ensure fire and fire aviation preparedness reviews	T		T

are conducted in all unit offices each year. Personally participate in at least one review annually.			
12. Ensure an approved burn plan is followed for each prescribed fire project, including follow-up monitoring and documentation to ensure Management objectives are met.	T	T	T
13. Meet annually with major cooperators and review interagency agreements to ensure their continued effectiveness and efficiency (may be delegated by State/Regional Level).	T		T
14. Ensure that a Wildland Fire Situation Analysis (WFSA) is completed and approved on all fires that escape initial attack.	T	T	T
15. Ensure reviews are conducted on all fires that require a WFSA. Personally attend reviews on Type 1 and Type 2 fires. (State/Regional Director/Regional Forester may delegate)	T	T	T
16. Ensure that a Wildland Fire Implementation Plan (WFIP) is completed and implemented for all fires managed for resource benefits.	T	T	T
17. Provide management oversight by personally visiting wildland and prescribed fires each year.	T	T	T
18. Provide incident management objectives, written delegations of authority, and agency administrator briefings to incident management teams.	T	T	T
19. Monitor the fire situation and provide oversight during periods of critical fire activity/situations of high risk.	T		T
20. Evaluate the need for resource advisors for all fires, and assign as appropriate.	T	T	T
22. Attend Fire Management Leadership Course.	T	T	T
23. Ensure appropriate investigations are conducted for incidents, entrapments, and serious accidents.	T	T	T
24. For all unplanned human- caused fires where liability can be determined, ensure trespass actions are	T	T	T

initiated to recover cost of suppression activities, land rehabilitation, and damages to the resource and improvements.			
25. Certify Wildland Fire Implementation Plan or Wildland Fire Situation Analysis on a daily basis.	T	T	T
26. Complete go/no-go checklist for prescribed fire.	T	T	T
27. Ensure there is adequate direction in fire management plans to identify fire danger awareness with escalating fire potential.	T		T
28. Ensure compliance with National and State/Regional Office policy and direction for prescribed fire activities and ensure that periodic reviews and inspections of the prescribed fire program are completed.	T		T
29. Approve Prescribed Fire Plans. Authority may be delegated to the agency administrators (not specific offices) as provided under specific direction.	T	T	T
30. Review Prescribed Fire Plans and recommend or approve the plans depending upon the delegated authority. Ensure that the Prescribed Fire Plan has been reviewed and recommended by a qualified technical reviewer who was not involved in the plan preparation.	T	T	T

* Lead responsibility as line manager/supervisor over fire management, suppression, fuels, prevention, education, wildland urban interface, personnel, budget, facilities equipment, etc

Exhibit 11



**United States Department of the Interior
Bureau of Land Management
Richfield Field Office
150 East 900 North
Richfield, Utah 84701**



May 1, 2004

MEMORANDUM

To: Utah State Fire Management Officer

From: Richfield Field Office Manager

Subject: 9200 Delegation of Authority

Richard Higginbotham, Fire Management Officer for the Richfield and Fillmore Field Offices, is delegated authority to act on my behalf for the following duties and actions:

1. **Represent the Richfield and Fillmore Field Offices of the BLM in the Central Utah Multi-agency Coordinating Group in setting priorities and allocating resources for fire emergencies.**
2. **Coordinate all prescribed fire activities in the Richfield and Fillmore Field Offices, suspending all prescribed fire when conditions warrant.**
3. **Ensure that only fully-qualified personnel are used in wildland fire operations.**
4. **Coordinate, preposition, send and order fire and aviation resources in response to current and anticipated zone fire conditions.**
5. **Oversee and coordinate the Richfield Interagency Dispatch Center on behalf of the BLM.**
6. **Request and oversee distribution of Severity funding for Field Office Fire and Aviation.**
7. **Approve Fire Program requests for overtime, hazard pay, and other premium pay.**
8. **Ensure all incidents are managed in a safe and cost-effective manner.**
9. **Coordinate and provide all fire and prevention information needs to inform internal and external costumers with necessary information.**
10. **Coordinate all fire funding accounts with the Budget Officer to assure Field Office Fiscal guidelines are adhered to and targets are met.**

12. Approve Red Cards in accordance with State Office guidance.
13. Authorized to hire Emergency Firefighters in accordance with the Department of the Interior Pay Plan for Emergency Workers.

Allen L. Ludlow
Richfield Field Manager

5/11/04
Date

Shirley West
Fillmore Field Manager

5/14/04
Date

Exhibit 12



United States Department of the Interior
Bureau of Land Management
Fillmore Field Office
35 East 500 North
Fillmore, Utah 84631



May 1, 2004

MEMORANDUM


To: Utah State Fire Management Officer

From: Fillmore Field Office Manager

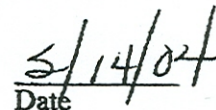
Subject: 9200 Delegation of Authority

Walter Burdick Jr., Zone Fire Management Officer for the Fillmore Field Offices, is delegated authority to act on my behalf for the following duties and actions:

1. Represent the Fillmore Field Office of the BLM in the Central Utah Multi-agency Coordinating Group in setting priorities and allocating resources for fire emergencies.
2. Coordinate all prescribed fire activities in the Fillmore Field Office, suspending all prescribed fire when conditions warrant.
3. Ensure that only fully-qualified personnel are used in wildland fire operations.
4. Coordinate, preposition, send and order fire and aviation resources in response to current and anticipated zone fire conditions.
5. Approve Fire Program requests for overtime, hazard pay, and other premium pay.
6. Ensure all incidents are managed in a safe and cost-effective manner.
7. Coordinate and provide all fire and prevention information needs to inform internal and external costumers with necessary information.
8. Authorized to hire Emergency Firefighters in accordance with the Department of the Interior Pay Plan for Emergency Workers.



Fillmore Field Manager



Date



BUREAU OF LAND MANAGEMENT
RICHFIELD FIELD OFFICE
150 East 900 North
Richfield, UT 84701



FISHLAKE NATIONAL FOREST
115 East 900 North
Richfield, UT 84701

MEMORANDUM

June 28, 2004

To: Zone Duty Officers and Alternates
From: Richfield Field Office Manager and Fishlake National Forest Supervisor
Subject: Duty Officer Delegation

This correspondence provides delegation of authority to the following individuals to act as duty officers at the zone level for the Central Utah Interagency Fire Organization.

East Zone – Gayle Sorenson
West Zone – Tom Suwyn

Alternates – Kevin Greenhalgh, Justin Johnson, Linda Chappell

The Zone Duty Officer is responsible for implementing the interagency fire management program as outlined in the Central Utah Fire Management Plan. The specific responsibilities include:

- Setting priorities for wildland fire responses for the zone.
- Informing and recommending actions to the appropriate line officer.
- Monitoring fire management fatigue by monitoring work/rest guidelines.
- Monitoring overall fire conditions and requesting additional assistance for the zone.
- Monitoring all hazardous fuels projects to assure they are completed safely.
- Assisting line officers in the completion of Wildland Fire Situation Analysis (WFSA) and Wildland Fire Implementation Plans (WFIP).
- Monitoring the area duty officers in the Zone and assessing performance and level of fatigue.
- Monitoring fires that are in the transition phase to ensure plans are complete and incident command system is clear and functioning.
- Monitoring incidents to ensure that the incident complexity matches the IC qualifications.
- Monitoring fire management operations to ensure the 10 Standard Orders and 18 Situations that shout watch-out are followed.
- Assessing after action reviews for trends and implement corrective actions.

/S/ *Mary C. Erickson*
MARY C. ERICKSON
Forest Supervisor

/S/ *Aden Seidlitz*
ADEN L. SEIDLITZ
Richfield Field Manager