

To: State Director Arizona

From: Director OF&A

Subject: Review of Escaped Prescribed Fire EB-3

Attached is the final report on the EB-3 escaped prescribed fire. The escaped prescribed fire review that was conducted on April 25th & 26th by the OF&A.

The prescribed fire program at the Arizona Strip Field Office is basically healthy and has an aggressive fuels management workload. All of the staff that were interviewed have a positive attitude and the desire to develop a safe and effective program.

The review found causal factors directly relating to the escape and other findings related to the overall prescribed fire program at the Arizona Strip Field Office. The escape occurred 13 days after initial ignition and can be attributed to failure to adjust operational procedures (holding and mop up) to reflect the changing weather conditions. While the review team made recommendations related to specific findings any actions relating to accountability are left to the discretion of the SD.

The Arizona Strip Field Office in conjunction with the State Office Fire Management Staff should develop an action plan to address the findings in the report. When the action plan is complete, a copy of the action plan should be forwarded to the Director OF&A.

The review team greatly appreciates the support and assistance of the State Office and Field Office management teams and staff. Any questions should be directed to Al Carriere at (208) 387-5168.

Subject: Escaped Prescribed Fire Review, Experimental Block Three (EB-3), April 13, 2000
Arizona Strip Field Office, St George, UT

Date: April 25 & 26, 2000

Review Team: Al Carriere, Prescribed Fire Specialist, National Office of Fire & Aviation.
John Glenn, State Fire Management Officer, Wyoming State Office.
Pam McAlpin, State Fire Use Specialist, Arizona State Office.

Participants:

On 4/14/00 the Arizona State Office notified the National Office of Fire & Aviation of an escaped prescribed fire in the Mt. Logan area. As additional information was received it became evident that the fire suppression and damage cost would exceed \$100,000 and would require a national level review. Since the preliminary information did not indicate interagency or private land involvement, or significant policy violations it was decided to use a minimum review team

The objectives of the prescribed fire review are:

- To prevent future escapes from occurring.

- To establish accountability.

- To determine if the prescribed fire plan was adequate.

- To determine if the prescription, actions, and procedures set forth on the prescribed fire plan were followed.

- To determine if overall policy, guidance, and procedures relating to prescribed fire operations are adequate.

- To determine the level of awareness and understanding of procedures and guidance of the personnel involved.

Background: A three acre subunit of Experimental Block 3 (EB3) was ignited and burned on March 31, 2000. This three acre subunit was designed to test forest restoration methods potentially applicable in wilderness.

Ignition occurred between 14:00 and 17:30 MST on March 31. The upper needle cast was dry and consumed, but the duff layer was wet and did not. Fine fuels (0_3 inches diameter) were reduced by 60_70% and duff/litter by 30_50%. Larger logs were not consumed.

The unit was checked every day between March 31, 2000 and the escape on April 13, 2000. During the first week, the burn unit was checked each day by an engine crew and the second week by either an engine or a person on foot. Conditions continued to warm and dry during this entire period. Smoke was observed in the unit several times, but since part of the purpose was to allow the fire to burn out on it's own to mimic wilderness fire management, only minimal mop up efforts were made. Burning

continued in the Mount Trumbull Ecosystem Restoration Research area from April 1-6. Burning was suspended on April 6 when conditions became too dry.

On Wednesday, April 12, the engine crew patrolling the Mt. Trumbull prescribed burns noticed smoke and open flame in EB3. The unit was considered to not be at risk of an escape. On Thursday, April 13, a single person checked the unit at about 12:30 PM while out at Mt. Trumbull on other business. The individual reported smoke in the unit but did not believe it posed a significant threat. At approximately 19:00 on April 13, the FMO reported significant smoke from the Mt. Trumbull area and notified the Field Office of the smoke.

The fire burned 197 acres outside of the burn unit and damaged the Mt. Logan radio repeater and a seismic recorder.

Causal Effects which directly contributed to the EB-3 escape:

Finding:

Long term weather data indicates the area is in extended drought condition, with higher than normal fire danger indexes. On April 6, 2000 the Fire Management Officer recognized a drying trend and stopped additional prescribed fire ignition operations. However, mop-up and patrol operations were not changed for existing units.

Because this prescribed fire project was a research related project only minimal mop up standards were identified in the plan. In interviews conducted with the Burn Boss and Fire Management Staff and in the review of the Prescribed Fire Plan, no Weather parameters (short-term or long-term) were identified at which more aggressive mop-up and patrol operations would commence.

Recommendation:

Identify threshold parameters (both short term and long term) as an operational procedure, at which mop-up standards would be changed to a more intensive category.

Finding:

During the period of April 10-13, 2000 fire management oversight for the Mount Trumbull area appears to have been lacking. The unit Field Office Manager, FMO and FCO were out of town, the burn boss was in the office but was occupied with other work. The unit fuels specialist was not operationally involved in the project and had been out of town until the day of the escape. The general Fire Weather forecast for April 13, 2000; called for temperatures in the mid-70's, RH's in the teens and SW winds 20-30 mph with gusts to 40 mph. No one reacted to the potentially adverse weather forecast.

Recommendation:

Establish a clear process to define who is responsible for Rx fire operations after the initial burn day until the fire is declared out. Establish a clear process to define who is responsible for prescribed fire operations and for the fire program in the absence of the FMO and FCO.

Finding:

General and spot Wx forecasts often are not accurate for the Mt. Trumbull area, this results in a lack of confidence in Wx information by the fire management staff and project burn bosses. The Field Office has been working with the National Wx Service in an attempt to improve weather forecasts.

Recommendation:

This issue needs to be addressed at multiple levels. The Field Office should continue to work with the local forecasters, the Arizona State Office Fire Management staff should assist with this process on a statewide level. The pending transfer of forecast responsibilities from the NWS in Phoenix AZ to the NWS in Las Vegas NV should be used as an opportunity to improve the forecast for the Arizona Strip Field Office

Findings not directly contributing to the escape:

Finding:

The review team could find no evidence that the Go/No Go and briefing, check lists were completed or signed by the Burn Boss prior to ignition as required by BLM manual section H-9214-1. The Burn Boss indicated that these were completed orally prior to ignition however copies of the documents were not present in the project file.

Note: This is a policy violation.

Recommendation:

- Insist that all Burn Bosses complete all documentation and that the documentation is placed in the project file.

Finding:

- Based on the spot Wx forecast for 3/31/00 (ridge-top winds predicted at 60 mph) at least one item on the checklist would have been answered "no" for the prescriptive parameters. This would have precluded ignition on 3/31/00.

Recommendation:

If the Burn Boss deviates from the Prescribed Fire Plan (especially the Go/No Go checklist) the decision should be documented and approved by the FMO and/or the Field Office Manager. Establish a operational procedure where any deviation from the Prescribed Fire Plan is and approved by the FMO and/or the Field Office Manager.

Finding:

This sub-unit of EB-3 was not specifically identified within the Prescribed Fire Plan or within the legal description of the main unit. It was not identified on any of the maps. Technically no Prescribed Fire Plan existed for the subunit of EB-3.

Note: This is a policy violation.

Recommendation:

Insure that all burn units and sub-units are identified in the Prescribed Fire Plan and associated maps.
All additions or changes should be approved by the Field Office Manager.

Finding:

The Resource Objectives (NEPA) need to be developed to incorporate a range of parameters. i.e. 50-70% reduction in duff. As written, the NEPA document contains specific resource goals rather than a range of obtainable objectives. Examples of current NEPA goals include "eliminate the potential for crown fire" and "retain 100% of all snags." These are not realistic objectives.

Recommendations:

Establish an acceptable range for resource objectives within the NEPA documents that can be transferred directly into the Prescribed Fire Plan.

Finding:

The existing work force appears to be inadequate for implementation and short term post burn contingency operations. The existing workforce is inadequate to ignite multiple units in a short period of time and maintain an adequate contingency force.

Recommendation:

Insure that an adequate work force is available. Establish a career seasonal fuels crew leader (and assistant?) position at the Arizona Strip Field Office. Review options for detail opportunities, EFF authority opportunities, and additional seasonal positions.



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Arizona Strip Field Office
345 E. Riverside Drive
St. George, Utah 84790
Phone (801)688-3200 • Fax (801)688-3268

IN REPLY REFER TO:
9214 (934)

August 16, 2000

Memorandum

To: State Director
From: Field Manager, Arizona Strip
Subject: Action Plan for the EB-3 Escaped Prescribed Fire

The final report on the EB-3 escaped prescribed fire, directed the Arizona Strip Field Office to develop an action plan to address the findings in the report. The Arizona Strip Field Office has developed a "Prescribed Fire Planning and Operations Guide", which addresses the findings and recommendations contained in the final report. Also attached, is a listing of the recommendations contained in the final report and the reference in the "Prescribed Fire Planning and Operations Guide" where the recommendation is addressed.

Attachment

- 1 - Action Plan EB-3 Escaped Prescribed Fire
(1 page)
- 2 - Prescribed Fire Planning and Operations Guide final draft
(22 pages)

Action Plan

EB-3 Escaped Prescribed Fire

The action plan for the EB-3 escaped prescribed fire has been incorporated into a "Prescribed Fire Planning and Operations Guide", prepared for the Arizona Strip Field Office and South Zone Interagency Fire Center. The recommendations from the EB-3 national review are listed below, with the corrective action following, and the location in the "Prescribed Fire Planning and Operations Guide" where that recommendation is addressed.

- ★ **National Review Recommendation:** Identify threshold parameter (both short and long term) as an operational procedure, at which mop-up standards would be changed to a more intensive category.

Corrective Action: Active patrolling after ignition ceases, either for the day or when the project is completed, is essential. Patrolling after ignition ceases for the day should occur for a minimum of 2 hours. Patrolling after ignition ceases on the project, should occur each afternoon until the burn is declared out. Patrolling should be more intensive if spotting occurred regularly during ignition or if high winds are forecast during the period until the burn is declared out.

Any of the prescribed burns may require a trigger point at which to move to a more intensive mop-up category. Forecasted warm-hot and dry conditions, frontal passage expected, and ERC of greater than 40 particularly for timber fuel models, or some combination of these 3 factors indicate the need for more intensive mop-up, specifically if smoke is still present in the unit a week after ignition was completed. The process for who makes the decision for more intensive mop-up should be made by the Burn Boss and/or Fuels Specialist, in consultation with the FMO, and/or FCO, and/or Field Manager. (See page 21, paragraphs 7 and 9.)

- ★ **National Review Recommendation: Oversight;** establish a clear process to define who is responsible for Rx fire operations after the initial burn day until the fire is declared out. Establish a clear process to define who is responsible for prescribed fire operations and for the fire program in the absence of the FMO/FCO.

Corrective Action: The FMO is responsible for the fire program. The FCO and then the Fuels Specialist are the backups, should the FMO be unavailable. A designated WAE fire staff position will assume responsibility for the fire program if the FCO and Fuels Specialist are unavailable.

The Fuels Specialist is responsible for prescribed burning operations. In the absence of the Fuels Specialist, the FCO or FMO will assume responsibility for prescribed burning operations. Should the FCO or FMO be unavailable, a designated WAE fire staff position will assume responsibility for the prescribed burning operations.

The Burn Boss is responsible for individual prescribed burns from the day of ignition until the fire is declared out. Should the Burn Boss become unavailable, then the Fuels Specialist will be notified and assume responsibility for the prescribed burn. The FCO and FMO will provide backup, in the event the Fuels Specialist is not available. Should the FCO or FMO be unavailable, a designated WAE fire staff position will assume responsibility for the prescribed burn. (See page 14, Oversight section, paragraphs 1 thru 3.)

- ★ **National Review Recommendation:** This issue needs to be addressed at multiple levels. The field Office should continue to work with the local forecasters, the Arizona State Office Fire Management staff should assist with this process on a statewide level. The pending transfer of forecast responsibilities from the NWS in Phoenix, AZ to the NWS in Las Vegas, NV should be used as an opportunity to improve the forecast for the Arizona Strip Field Office.

Corrective Action: In order to improve spot weather forecasts for the Arizona Strip, feedback on the spot forecast should be provided each day to the fire weather forecaster. On multi-day projects, the feedback can be included as part of the spot forecast request package. The feedback process can include, but not be limited to; fax, telephone calls to the forecaster, and ideally, on site visits from the forecaster with meteorological equipment. In addition, the Arizona Strip BLM will visit the National Weather Service Las Vegas office to initiate cooperation and demonstrate a determination to improve forecast information. (See page 15, Weather section, paragraph 5)

- ★ **National Review Recommendation:** Insist that the Burn Boss completes all documentation and that the documentation is placed in the project file, including signed and complete copy of the burn plan.

Corrective Action: Signed copies of the Go/No Go decision chart and preburn briefing checklist for each day of ignition operations. (See page 17, Final Burn Plan Documentation Package.)

- ★ **National Review Recommendation:** If the Burn Boss deviates from the Prescribed Fire Plan (especially the Go/No Go checklist) the decision should be documented and approved by the FMO and/or the Field Manager. Establish an operational procedure where any deviation from the Prescribed Fire Plan is approved by the FMO and/or the Field Manager.

Corrective Action: Prescribed fire prescription; the prescription should contain the key parameters needed to achieve desired results. Any changes to prescriptive parameters must be approved by the same level of authority required for plan approval. The primary part of the prescription is the fire behavior, including live fuel moistures, that will achieve the burn objectives. The secondary part of the prescription is the weather guidelines, which may deviate in minor amounts, if the designed and desired fire behavior is still occurring.

Any deviation from the Prescribed Fire Plan by the Burn Boss, must be approved by the FMO and the Field Manager, or approved acting Field Manager prior to ignition.

If the spot weather forecast indicates adverse conditions, the GO/NO-GO decision chart must be answered in the negative and the prescribed burn project stopped. Additional weather readings can be taken and submitted to the National Weather Service to request additional spot weather forecasts. The prescribed burn project may not proceed until the spot weather forecast indicates favorable conditions, and the GO/NO-GO decision chart is answered in the affirmative. (See page 2, item 5d; page 3, last paragraph; and page 15, paragraph 2.)

- ★ **National Review Recommendation:** Insure that all burn units and sub-units are identified in the Prescribed Fire Plan and associated maps. All additions or changes should be approved by the Field Manager, and require a technical review.

Corrective Action: All burn units and sub-units must be identified in the Prescribed Fire Plan and associated maps. (See page 3, last sentence of the second to the last paragraph; and page 4, paragraph 3.)

- ★ **National Review Recommendation:** Establish an acceptable range for resource objectives within the NEPA documents that can be transferred directly into the Prescribed Fire Plan.

Corrective Action: An acceptable range for resource objectives needs to be established within the NEPA documents (i.e. reduce duff depth by 60 - 80%), that can then be transferred directly into the Prescribed Fire Plan. (See page 4, paragraph 3.)

- ★ **National Review Recommendation:** Insure that an adequate work force is available. Establish a career seasonal fuels crew leader (and possibly an assistant) position at the Arizona Strip Field Office. Review options for detail opportunities, EFF authority opportunities, and additional seasonal positions.

Corrective Action: The Arizona Strip Field Office will immediately pursue the establishment of a career seasonal fuels crew leader, and an assistant fuels crew leader.