

A publication of the
**National Wildfire
Coordinating Group**



NWCG Prescribed Fire Plan Template

PMS 484-1

MARCH 2018

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The *NWCG Prescribed Fire Plan Template* is supplemental to the *Interagency Prescribed Fire Planning and Implementation Guide*, PMS 484. The plan is the site-specific legal implementation document that provides the agency administrator the information needed to approve the prescribed fire plan and the prescribed fire burn boss the information needed to implement the prescribed fire plan.

The *Interagency Prescribed Fire Planning and Implementation Procedures Guide*, PMS 484, establishes national interagency standards for the planning and implementation of prescribed fire. The guide is available at: <https://www.nwcg.gov/publications/484>.

The National Wildfire Coordinating Group (NWCG) provides national leadership to enable interoperable wildland fire operations among federal, state, tribal, territorial, and local partners. NWCG operations standards are interagency by design; they are developed with the intent of universal adoption by the member agencies. However, the decision to adopt and utilize them is made independently by the individual member agencies and communicated through their respective directives systems.

Prescribed Fire Name: Gallinas Watershed RX

Ignition Unit Name: Multiple Ignition Units

Element 1: Signature Page

PRESCRIBED FIRE PLAN

ADMINISTRATIVE UNIT NAME(S): Santa Fe National Forest, Pecos/Las Vegas Ranger District

PRESCRIBED FIRE NAME:

Prescribed Fire Unit (Ignition Unit): Gallinas Watershed RX

PREPARED BY:

Name (print): (b) (6), (b) (7)(F) Qualification/Currency: RXB2

Signature: _____ Date: _____

TECHNICAL REVIEW BY:

Name (print): _____ Qualification/Currency: _____

Signature: _____ Date: _____

COMPLEXITY RATING: Moderate

MINIMUM BURN BOSS QUALIFICATION: RXB2

APPROVED BY:

Name – Agency Administrator (print): _____

Signature – Agency Administrator: _____ Date: _____

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Element 2A: Agency Administrator Ignition Authorization

Instructions: The Agency Administrator Ignition Authorization must be completed before a prescribed fire can be implemented. If ignition of the prescribed fire is not initiated prior to expiration date determined by the agency administrator, a new authorization will be required.

Prior to signature the agency administrator should discuss the following key items with the fire management officer (FMO) or burn boss. Attach any additional instructions or discussion documentation (optional) to this document.

Key Discussion Items

A. Has anything changed since the Prescribed Fire Plan was approved or revalidated? <i>Such as drought or other climate indicators of increased risk, insect activity, new subdivisions/structures, smoke requirements, Complexity Analysis Rating.</i>
B. Have compliance requirements and pre-burn considerations been completed? <i>Such as preparation work, NEPA mitigation requirements, cultural, threatened and endangered species, smoke permits, state burn permits/authorizations.</i>
C. Can all of the elements and conditions specified in Prescribed Fire Plan be met? <i>Such as weather, scheduling, smoke management conditions, suitable prescription window, correct season, staffing and organization, safety considerations, etc.</i>
D. Are processes in place to ensure all internal and external notifications and media releases will be completed?
E. Have key agency staffs been fully briefed about the implementation of this prescribed fire?
F. Are there circumstances that could affect the successful implementation of the plan? <i>Such as preparedness level restrictions, resource availability, other prescribed fire or wildfire activity</i>
G. Have you communicated your expectations to the Burn Boss and FMO regarding if and when you are to be notified that contingency actions are being taken?
H. Have you communicated your expectations to the Burn Boss and FMO regarding decisions to declare the prescribed fire a wildfire?

Implementation Recommended by:

FMO or Prescribed Fire Burn Boss Signature: _____ Date: _____

I am authorizing ignition of this prescribed fire between the dates of _____ and _____. It is my expectation that the project will be implemented within this time frame and as discussed and documented and attached to this plan. If the conditions we discussed change during this time frame, it is my expectation you will brief me on the circumstances and an updated authorization will be negotiated if necessary.

Additional Instructions or Discussion Documentation attached (Optional): Yes No

Ignition Authorized by:

Agency Administrator Signature and Title: _____ Date: _____

Prescribed Fire Name: Gallinas Watershed RX

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Element 2B: Prescribed Fire Go/No-Go Checklist

Preliminary Questions	Circle YES or NO
A. Have conditions in or adjacent to the ignition unit changed, (for example: drought conditions or fuel loadings), which were not considered in the prescription development? If NO proceed with the Go/NO-GO Checklist below, if YES go to item B.	YES NO
B. Has the prescribed fire plan been reviewed and an amendment been approved; or has it been determined that no amendment is necessary? If YES , proceed with checklist below. If NO , STOP: Implementation is not allowed. An amendment is needed.	YES NO
GO/NO-GO Checklist	Circle YES or NO
Have ALL permits and clearances been obtained?	YES NO
Have ALL the required notifications been made?	YES NO
Have ALL the pre-burn considerations and preparation work identified in the prescribed fire plan been completed or addressed and checked?	YES NO
Have ALL required current and projected fire weather forecast been obtained and are they favorable?	YES NO
Are ALL prescription parameters met?	YES NO
Are ALL smoke management specifications met?	YES NO
Are ALL planned operations personnel and equipment on-site, available and operational?	YES NO
Has the availability of contingency resources applicable to today's implementation been checked and are they available?	YES NO
Have ALL personnel been briefed on the project objectives, their assignment, safety hazards, escape routes, and safety zones?	YES NO

If all the questions were answered "**YES**" proceed with a test fire. Document the current conditions, location and results. If any questions were answered "**NO**", DO NOT proceed with the test fire: Implementation is not allowed.

After evaluating the test fire, in your judgment can the prescribed fire be carried out according to the prescribed fire plan and will it meet the planned objective? **Circle: YES or NO**

Burn Boss Signature: _____ Date: _____

5. Ignition units:

Smaller ignition units have been broken out to aid in reduction of smoke impacts. Units may be broken down further into smaller units at burn boss's discretion. For maintenance burning units may be combined at the burn boss's discretion.

Ignition Units	Township	Range	Sections	Acres
Elk Mountain	18N	13E	14, 15, 22, 23, 25-27	1640
Burro Canyon	17N 17N 18N 18N	13E 14E 13E 14E	1 5-8 25, 26, 36 30, 31	1678
Young	17N 18N	14E 14E	5 29-32	1447
Gallinas Canyon	17N 17N 18N	13E 14E 13E	1, 2, 12 6, 7 26, 27, 34-36	1358
Valle de la Piedra	17N 18N	13E 13E	1-3, 10, 11 34, 35	1030
Calf Canyon	17N 17N	13E 14E	1, 11-14 7, 8, 18	2063
El Cielo	17N 18N	14E 14E	3-5, 8-10 32-34	1941
Wright	17N	14E	7-9, 16-18	581
Gallinas West	17N	14E	9, 10, 15, 16, 21, 22, 27, 28	1131
Gallinas East	17N	14E	13-15, 22-24	1128
Porvenir	17N	14E	1-3, 9-15	1894
Las Dispensas	17N 17N 18N	14E 15E 15E	1, 12, 13 5-7 31, 32	1273

Please see Appendix A: Gallinas Unit Map

B. Vegetation/Fuels Description:**1. On-site fuels data:**

There are three predominate vegetation types within the project area: Dry mixed conifer in the lower and mid-slope elevations, wet mixed conifer in the higher elevations and wet drainages, and ponderosa pine on the east side of the project area and south facing slopes at lower elevations. Some grassland and scrub oak woodland is found interspersed throughout the project area.

Dry Mixed Conifer: The most predominate vegetation type (33%) within the project area is dry mixed conifer which is made up primarily of douglas fir, white fire and ponderosa pine with some limber pine at the mid elevations. This vegetation type will be represented by fuel model 10 for estimating fire behavior. The thinned units within the dry mixed conifer will be represented by fuel model 11 due to the activity slash still in place.

Wet Mixed Conifer: At the higher elevations and the northwest corner of the project area the predominate vegetation is made up of engleman spruce, douglas fir, white fir, limber pine, subalpine fir, and aspen. Because of

the compact nature of the short needle litter and the closed canopy Fuel Model 8 will be used to represent this vegetation type.

Ponderosa Pine: The eastern portion of the project area is primarily ponderosa pine. Most of the ponderosa pine stands were thinned with some residual activity slash on the ground at approximately 10 tons/acre or less. This vegetation type will be represented by fuel model 9.

Thinning occurred over approximately 6000 acres of the project area, with about 1100 acres still slated to be treated. Approximately 3000 acres of this was in Ponderosa Pine, while the majority was done within dry mixed conifer about 3330 acres. In all treated units the overstory was thinned and ladder fuels were reduced, however; a considerable amount of activity fuel still exists in some units as much as 20 tons per acre. Further blowdown within the project area has added to the available fuel on the ground. Within more recent treatment units mechanical/hand piles exist. Piles can be burned with continuous snow coverage across the entire unit under a programmatic pile burn plan, or with the cooler, wetter Pile/Jackpot prescription under this burn plan, only with continuous control lines around the entire unit.

2. Adjacent fuels data:

Adjacent fuels are represented by the following fuel models. To the north and west in the higher elevation the fuels are represented by fuel model 8. To the south and east the fuels are a mix of ponderosa pine represented by fuel model 9 and dry mixed conifer represented by fuel model 10.

3. Percent of vegetative type and fuels model(s):

Dry Mixed Conifer, Fuel Model 10: 33%

Wet Mixed Conifer, Fuel Model 8: 31%

Ponderosa Pine, Fuel Model 9: 21%

Dry Mixed Conifer with activity slash, Fuel Model 11: 15%

Fuel Model 8

The average fuel loading for fuel model 8 is as follows:*

Total Fuel Load, < 3-inch dead and live, tons/acre	5.0
Dead Fuel Load, 1/4- inch, tons/acre	1.5
Live Fuel Load, Foliage, tons/acre	0
Fuel bed depth, feet	0.2

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Fuel Model 9

The average fuel loading for fuel model 9 is as follows:*

Total Fuel Load, < 3-inch dead and live, tons/acre	3.5
Dead Fuel Load, 1/4- inch, tons/acre	2.9
Live Fuel Load, Foliage, tons/acre	0
Fuel bed depth, feet	0.2

Fuel Model 10

The average fuel loading for fuel model 10 is as follows:*

Total Fuel Load, < 3-inch dead and live, tons/acre	12.0
Dead Fuel Load, 1/4- inch, tons/acre	3.0
Live Fuel Load, Foliage, tons/acre	2.0
Fuel bed depth, feet	1.0

Fuel Model 11

The average fuel loading for fuel model 10 is as follows:*

Total Fuel Load, < 3-inch dead and live, tons/acre	11.5
Dead Fuel Load, 1/4- inch, tons/acre	1.5
Live Fuel Load, Foliage, tons/acre	0
Fuel bed depth, feet	1.0

*Average fuel loading for fuel models taken from NWCG, NFES 1574 Aids to Determining Fuel Models for Estimating Fire Behavior.

C. Description of Unique Features, Natural Resources, Values:

Wildland Urban Interface—There are numerous private inholdings, summer homes, power lines, and developed campsites throughout the project area. These will be prepped accordingly, private land owners will be notified prior to implementation, and notifications posted accordingly. If burning adjacent to private land the Las Vegas State Forest Fire Management Officer will be notified and sent a map of the unit prior to implementation.

Cultural--The burn plan area contains numerous archaeological sites both historic, and prehistoric. The area has been surveyed, and all fuels mitigations will be in place for cultural sites that will allow fire. Some sites must have fire excluded from them, and these will be identified, prepared, and excluded prior to ignitions. The district archeologist or an available archeologist will be consulted and notified prior to burning.

Wildlife--There are numerous wildlife concerns within the burn plan area that will require different mitigation measures to allow Rx fire. There are MSO PAC's and critical habitat present. There are Northern Goshawk PFA's present. Examples of mitigations include: seasonal restrictions, low intensity fire, indirect firing and/or fire exclusion etc. The District Biologist will be consulted prior to ignitions to ensure nothing is over looked.

Range-- The fire area also contains numerous range improvements including but not limited to stock tanks, corrals, and fences. The burn boss will work with range personnel to identify and prep these improvements as needed prior to implementation. Also, certain firing techniques may be used to limit damage to these resources.

D. Maps--Attach in Appendix A

1. Vicinity (Required)
2. Project/Ignition Unit(s) (Required): Ignitions units may be broken into smaller units at the burn boss's discretion prior to implementation and maps added to the burn plan. Ignition units may be combined to create larger units for maintenance burning at the burn boss's discretion and maps added to the burn plan.
3. Values (Optional): Included Not Included
4. Significant or Sensitive Features (Optional): Included Not Included
5. Fuels or Fuel Model(s)(Optional): Included Not Included
6. Smoke Impact Area (Optional): Included Not Included

Element 5: Objectives

A. Resource Objectives:

- a. Reduce potential for large-scale, high intensity crown fires.
- b. Restore soil and hydrological conditions.
- c. Reduce risk to life, property, and natural resources.
- d. Restore fire-adapted ecosystem.
- e. Reduce mortality in mature trees (>12" dbh) to $\leq 20\%$

B. Prescribed Fire Objectives:

- a. Provide for firefighter and public safety.
- b. Protection of on-site and off-site values.
- c. Minimize the impacts of smoke to the surrounding communities by following all New Mexico Environmental Department Air Quality Bureau NMED ABQ smoke regulations.
- d. Reduce risk of high-severity fire by reducing surface fuel loading and reducing ladder fuels.
- e. Reduce fuel loading within the burn unit by 60% with a tolerable deviation of 30-80%.
- f. Promote the growth of ground vegetation.
- g. Limit organic layer duff reduction by broadcast burning when subsurface moisture is present.

- h. Keep overstory tree mortality (trees > 12" DBH) less than 20%.

Element 6: Funding

A. Cost: 60-80/dollars per acre

B. Funding Source: NFHF10 or partnership dollars

Element 7: Prescription

A. Prescription Narrative:

1. Describe how fire behavior will meet objectives

The prescription parameters for this burn plan have been developed to give the Burn Boss the most amount of flexibility as possible to choose conditions for implementation to meet the prescribed fire objectives. The burn boss should consider on-site fuels data as well as forecasted conditions in reference to the empirical modeling that has been attached in this plan to determine whether it is reasonably expected to meet objectives.

Using a joint prescription of both Broadcast and Jackpot/Pile burning affords the Burn Boss the opportunity to reduce fuel loadings in a variety of weather conditions, over multiple seasons, while ensuring an appropriate level of care is taken to minimize post burn erosion effects and ensure overall over story health. Pile and jackpot burning will reduce activity fuel loading prior to broadcast burning. This will decrease future fire intensity, thus lowering the risk of escaped fire in a broadcast burn, decreasing the risk to life, property and natural resources.

Jackpot/Pile burning will be done with the presence of moisture and is intended to burn piles or remaining activity fuels, however, **under this burn plan continuous control lines must be present around the entire unit prior to implementation.** Burning piles with no containment lines must be done under a programmatic pile burn plan with continuous snow coverage.

B. Prescription Parameters:

1. **Environmental or fire behavior (or both)**

The BehavePlus 5.0.5 model was used to determine prescription parameters. Fuel Models 8, 9, 10, and 11 were run to reflect the high and low end of the prescription. BehavePlus outputs for the highest rate of spread of either Fuel Model 9 or 10 will be used to determine resource needs by using production rates outlined in the Wildland Fire Incident Management Field Guide.

Broadcast and Jackpot RX Fuel Models 8, 9, 10, and 11	Jackpot/Pile RX		Broadcast RX	
	Low Fire Intensity	High Fire Intensity	Low Fire Intensity	High Fire Intensity
Temperature (Fahrenheit)	NA	65	30	80
Relative Humidity (%)	NA	12	60	12
Mid-Flame Wind Speed (mph)*	0	8 (7.5 rounded to 8 sustained for ≥ 20 min.) *	0	8 (7.5 rounded to 8 sustained for ≥ 20 min.) *
20 ft. Wind Speed (mph)*	0	25	0	25
1-hr Fuel Moisture (%)	NA	10	12	5
10-hr Fuel Moisture (%)	NA	12	13	6
100-hr Fuel Moisture (%)	NA	15	14	7
1000-hr Fuel Moisture (%)	NA	10	NA	15
Live herbaceous moisture (%)	NA	150	300	50
Live woody moisture (%)	NA	100	150	75
Slope (%)	0	50	0	50
Wind Direction	Any	Any	Any	Any
Smoke Dispersion Index	NMED ABQ Regulations	NMED ABQ Regulations	NMED ABQ Regulations	NMED ABQ Regulations

*Wind Adjustment Factor of .3 was used for partially sheltered fuels

2. Fire Modeling or empirical documentation (or both)

The following outputs were generated by the BehavePlus 5.0.5 model given the above prescription parameters. The outputs were calculated for Fuel Models 8, 9, 10 and 11 as these are the fuel models within the project area expected to carry fire. Adjacent fuel models 8, 9, and 10 are accounted for with the following model runs.

The BehavePlus model will over predict fire behavior due to the assumptions made by this model. Those assumptions include: continuous fuel bed across the landscape, represents only fire behavior at the flaming front, and models a continuous alignment of all environmental parameters.

The high rates of spread in Fuel Model 10 would be experienced under a head firing, with high fuel loading and when slope and/or wind are in alignment. The firing patterns of backing and flanking would be used primarily on

the Gallinas Project to achieve objectives. Head firing would only be used where sufficient black lining has occurred to prevent escape or where fuels transition limits the potential for long duration head runs. The Behave outputs give an idea of fire potential in adjacent fuels outside of burn units, should a spot occur and become established.

Fuel Model 8	Low Fire Intensity	High Fire Intensity	
		Pile/Jackpot	Broadcast
Rate of Spread (chains/hour)	0.2	3.1	4.8
Flame Length (feet)	0.3	1.3	1.7
Heat/Unit Area (BTU/ft ²)	160	164	199
Fireline Intensity (BTU/ft/s)	0	9	17
Spotting Distance (miles)	0.0	.4	.4
Scorch Height (feet)	0	1	1

Fuel Model 9	Low Fire Intensity	High Fire Intensity	
		Pile/Jackpot	Broadcast
Rate of Spread (chains/hour)	0.6	15.7	21.9
Flame Length (feet)	0.8	3.7	4.6
Heat/Unit Area (BTU/ft ²)	323	330	390
Fireline Intensity (BTU/ft/s)	4	95	157
Spotting Distance (miles)	0.0	.4	.4
Scorch Height (feet)	1	7	16

Fuel Model 10	Low Fire Intensity	High Fire Intensity	
		Pile/Jackpot	Broadcast
Rate of Spread (chains/hour)	0.5	15.7	22.8
Flame Length (feet)	1.3	6.5	8.4
Heat/Unit Area (BTU/ft ²)	1095	1156	1369
Fireline Intensity (BTU/ft/s)	10	332	572
Spotting Distance (miles)	0.0	.4	.4
Scorch Height (feet)	3	28	55

Fuel Model 11	Low Fire Intensity	High Fire Intensity	
		Pile/Jackpot	Broadcast
Rate of Spread (chains/hour)	0.3	9.1	12.7
Flame Length (feet)	0.7	3.9	4.9
Heat/Unit Area (BTU/ft ²)	513	658	781
Fireline Intensity (BTU/ft/s)	3	109	182
Spotting Distance (miles)	0.0	.4	.4
Scorch Height (feet)	1	8	19

The above charts show modeling outputs for the surface fuels surrounding piles/jackpots of fuels. This is the modeled fire behavior if fire were to move away from the piled material under the specified environmental conditions for “Pile/Jackpot Burning,” and begins moving as a surface fire. The spreading behavior is the concern under this plan, not the pile fire behavior itself. The charts above list high fire intensity for the driest conditions where piles/jackpots can be burned. Some potentially creeping surface fire is expected here. Continuous containment lines will be present around the entire unit prior to implementation.

Additional inputs into the BEHAVE PLUS model

Downwind Canopy Height (ft)	50
Torching Tree Height	50
Spot Tree Species	PSEMEN
Diameter at Breast Height	12
Fuel Shading from Sun (%)	50
Ridge to Valley Elevation Difference (ft)	800
Ridge to Valley Horizontal Difference (miles)	0.5
Spotting Source Location	Mid-Slope Windward side
Slope	50%(High) 0%(Low)
Number of Torching Trees	1

Element 8: Scheduling

A. Implementation Schedule:

1. Ignition Time Frames or Season(s) (or both)

This project can be implemented any time of year, given prescription parameters are met.

The typical time of year for broadcast burning is spring (March-May) and fall (September-November).

B. Projected Duration:

Pile burning duration is estimated to be between 3-7 days, assuming 50 -100 acres completed per day. Broadcast burning duration will depend on the amount of black lining that will be needed, the size of the burn blocks, and the method used to burn the block. If the block is burned by ground forces, (3-7 days, 50 – 200 acres per day). If the blocks are burned with aerial ignition, (1 – 5 days, up to approximately 2000 acres).

C. Constraints:

Helicopter availability may be a constraint. The Agency Administrator or Ignition Auth may be a constraint. National planning level of 4 or greater may be a constraint. Ventilation regarding smoke may be a constraint. Resource availability may be a constraint. Other constraints may include burning during restricted seasons regarding wildlife.

Element 9: Pre-burn Considerations and Weather

A. Considerations:

1. On-site

Prior to implementation, all lines and holding features will need to be prepared to include the removal of hazardous trees, clearing fire lines to mineral soil, and moving heavy fuels from the fire line. The Burn Boss should coordinate with District Archaeology staff to ensure all heritage sites have been identified and prepped. This may consist of wetting the site down, constructing hand line, or adjusting ignition pattern. Also, the Burn Boss will coordinate with the District Biologist to assure all wildlife concerns have been mitigated. The supervisor's office requires two to three days of notification prior to any burning. If possible, overhead for the project to include the burn boss, firing boss, and holding boss, should visit the site to evaluate fuel conditions, adjacent fuels, holding features, topography, test fire site, drop point locations, and identify any areas of concern. A smoke monitoring instrument may be required to be located near the site prior to any burning. Personnel will collect fuel samples within 2 weeks prior to any burning, monitor the current Forest ERC, and compile copies of any maps and briefing packages needed for field use. During burning, weather observations will be taken hourly, at minimum, and documented on the "Fire Weather Observations" sheet from the Interagency Fire Use Module Handbook.

2. Off-site

Complete all necessary NMED AQB registration well in advance. Ensure the smoke sensitive individuals on the call list have been notified. Public notification will be made a reasonable time before burning, see attached notification plan. Post appropriate signage such as "Smoke Ahead," "Prescribed Burn Ahead," or signage of similar wording used along roadways and/or private residences. If burning adjacent to private land the Las Vegas State Forest Fire Management Officer will be notified and sent a map of the unit prior to implementation (See Element 12 Telephone Numbers). The private land owners will be notified as well.

B. Method and Frequency for Obtaining Weather and Smoke Management Forecast(s):

Fuel conditions may be monitored at least one week prior to ignitions. This should include a sample of dead 1 hour, 10 hour, 100 hour, and 1000 hour fuel as well as live fuel moistures of ponderosa pine, and douglas fir taken from the burn site or a site that best represents fuels in the unit.

Spot Weather Forecasts will be requested and obtained from the National Weather Service for each day of ignitions, and any other work day deemed necessary by the burn boss. This will require weather observations to be obtained on site or from the nearest RAWS station. Excluding test fire, no ignitions will occur until a spot weather forecast is

received. Additionally, weather observations will be taken and recorded hourly on site during all days of ignition. Spot weather forecasts and daily weather observations will be collected and kept in the project folder. This responsibility falls on the burn boss or their delegate. In addition, spot weather forecasts will be read over the radio each day of operations and all personnel will be briefed on weather forecasts. Each day of ignitions, the burn boss will also evaluate the spot forecast to determine that the ventilation category for the day is within parameters defined by this plan.

C. Notifications:

The Santa Fe NF public affairs staff will be notified at least 2 weeks prior to implementation so that a press release can be made. Contacts of local residents and businesses, fire departments and smoke sensitive individuals will be made prior to ignition. The project will be registered with New Mexico's Air Quality Bureau at least two weeks prior to ignitions. Notification of implementation with Smoke Management personnel will take place no later than 1000 am the day prior to start of ignitions and daily notification will occur if there is any cancellation of the planned ignitions. If burning adjacent to private land the Las Vegas State Forest Fire Management Officer will be notified and sent a map of the unit prior to implementation (See Element 12 Telephone Numbers). The private land owners will be notified as well.

Element 10: Briefing

A. Briefing Checklist; including, but not limited to: (additional items may be added)

An operational briefing will be conducted daily with all resources on the burn to include the following information as well as applicable JHA's, hazards, unique features, assignments, tactics and other considerations. Also, a sign-in sheet will be completed daily with all personnel to ensure accountability. All personnel must attend briefings, or they will not be allowed to participate in any burning.

- Burn organization and assignments
- Prescribed Fire objectives and prescription
- Description of prescribed fire project area
 - Special considerations and sensitive features
- Expected weather and fire behavior
- Communications
- Ignition plan
- Holding plan
- Contingency plan and assignments
- Wildfire declaration
- Smoke management and monitoring
- Safety and medical plan
- Aerial ignition briefing (if aerial ignition devices will be used)

Element 11: Organization and Equipment

A. Positions:

Minimum Required Personnel:

Broadcast RX Organization	Pile/Jackpot RX Organization
Agency Administrator	
Prescribed Fire Burn Boss Type 2 (1)	
Firing Boss (1)	
Holding Boss (1) Single Resource Boss	
2 Type 6 Engines (3 Personnel/Engine)	1 Type 6 Engine (3 Personnel/Engine)
FEMO/FOBS (1) not required	(3) Additional RX Crewmembers
(8) Additional RX Crewmembers	
Total Personnel: (18)	Total Personnel: (9)

The Pile/Jackpot Burn Organization requires a minimum of 9 personnel on site. The Broadcast Burn Organization requires a minimum of 18 personnel on site. The required number of personnel was determined by line production rates in the Wildland Fire Incident Management Field Guide. Fuel Model 10 indicated the highest rate of spread in adjacent fuels (22.8 Chains/hour). Production rates of required on-scene resources totals 35 Chains/hour, a production rate above the modeled surface rates of spread. The BehavePlus 5.0.5 was used to model the high end of the environmental prescription. Rate of spread under the Pile/Jackpot prescription was 15.7 chains/hour. For both Broadcast Burn and Pile/Jackpot Burn continuous control lines must be present around the entire unit prior to implementation.

Prescription	Resources	Production Rate in Fuel Model 10*
Broadcast RX High End	2 Engines (3 person/engine)	24 Chains per hour
	11 additional RX personnel	11 Chains per hour
	Total: 17 personnel**	Total: 35 Chains per hour**
Pile/Jackpot RX High End	1 Engine (3 person)	12 Chains per hour
	5 RX personnel	5 Chains per hour
	Total: 8 personnel**	Total: 17 Chains per hour**

*Production rates taken from the Wildland Fire Incident Management Field Guide

**Burn Boss not included in line production capabilities

Aerial Ignitions- Helicopter Manager, aerial firing boss, two helicopter crewmembers, and helicopter pilot. Helitack are not part of the above required burn organization.

Pre-operational test fire: RXB2 (1), FIRB (1), Single Resource Holding Boss (1), Type 6 Engine (2), Type 6 Engine (2). A total of 7 persons will be required with proper qualifications for a pre-operational test fire.

Important Note: A pre-operational test fire can be defined as a test fire that takes place 1-3 days prior to full project implementation and is not greater than ½ acre in size.

B. Equipment:

- Firing equipment to include: drip torches, fuel, and any other approved ignition devices
- Personal Protective Equipment
- Hand tools, adequate 2-way radios, belt weather kits
- Smoke signs
- ATV's or UTV's may be utilized
- Type 3 Helicopter with Plastic Sphere Dispenser (if aerial ignitions are used)

C. Supplies:

- Additional supplies ordered by the Burn Boss as necessary

Element 12: Communication

A. Radio Frequencies:

Communications in the area can be difficult in the deep drainages, depending on location. A human repeater will most often be used to communicate and relay information with Santa Fe Zone Dispatch and the Pecos/Las Vegas Ranger District. The high ridges that define the north, south, and west boundaries and the high ridges that dissect the project area all work well for placement of a human repeater. Cell phone coverage is also usually good on these ridge locations. Command frequencies are listed in order of best use. Communications will be established via radio with dispatch prior to the test fire.

1. Command frequency(ies):

Command Frequency(s):	CH: 1	(b) (7)(F), (b) (7)(E) [Redacted]
	CH: 2	(b) (7)(F), (b) (7)(E) [Redacted]

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Ignition Unit Name: Multiple Ignition Units

2. Tactical frequency(ies):

Tactical Frequency(s):	(b) (7)(E), (b) (7)(F)	
Tactical Frequency(s):	(b) (7)(E), (b) (7)(F)	

3. Air operations frequency(ies):

Air Operations Frequency(s):	(b) (7)(E), (b) (7)(F)	

SANTA FE NF				9/19/2016	
G	CH	RX	TX	USE	ZONE
(b) (7)(E), (b) (7)(F)				SANTA FE WEST	(b) (7)(E) (b) (7)(F)
				SANTA FE WEST RPT	
				SANTA FE EAST	
				SANTA FE EAST RPT	
				SANTA FE FIRE TAC	
				CARSON NF	
				TRAVEL	
				NATIONAL COMMON	
				R3 TAC 1	
				R3 TAC 2	
				R3 TAC 3	
				AIR - GND 51 PRI	
				AIR - GND 62 SEC	
				STATE FORESTRY	
				STATE FIRE	
				AIR GUARD	

TX PICK TONES			
#	FREQ	WEST	EAST
(b) (7)(E), (b) (7)(F)		WOLFDRAW	CAPULIN
		DEADMAN	
		EUREKA	
		CERRO PELADO	
		TESUQUE WEST	TESUQUE EAST
			BARILLAS
		CUBA MESA	LAS VEGAS
		ENCINO	
		VIRGIN MESA	ELK MTN

ON PROJECT FIRES, CLONE TO GROUP 15 (# 15 ENT)
To change tones, turn off scan and priority temporarily, then
press tone number. KNG radios press TCG, tone number,
ENT.

B. Telephone Numbers:

Santa Fe N.F. Dispatch	505-438-5600
Santa Fe 24-hour number	505-438-5600
Pecos/Las Vegas R.D.	505-757-6121
District Ranger	505-757-6121
District FMO	505-629-3507
District AFMO	505-757-6121
Santa Fe NF Fire Staff	505-438-5630
Forest AFMO	505-438-5631
New Mexico Air Quality Bureau	505-476-4300
(b) (6), (b) (7)(F) State Las Vegas State Forest FMO	O 505-425-7472, C (b) (6), (b) (7)(F)

A complete list of district numbers will be included in the briefing package

Element 13: Public and Personnel Safety, Medical

A. Safety Hazards:

Safety hazards that exist on this project include but are not limited to: driving, footing, terrain, communications, weather, ATV/UTV use, snags, wildlife, complacency, smoke, aircraft and associated use, and fire behavior. This list does not include all hazards that may be present. Job Hazard Analysis' will be completed prior to implementation, covering all known hazards, and presented to all personnel prior to ignitions. Any additional hazards that are found during implementation will be addressed by the burn boss. Actions will be taken to mitigate these hazards, and the burn boss may cease ignitions if necessary.

B. Mitigation: Measures Taken to Reduce the Hazards:

Mitigation measures will be in place to reduce the risk of hazards. These measures are listed in the complexity analysis, the Project Aviation Safety Plan and/or in the JHA. These measures will be in place prior to implementation and will be discussed during briefings. To aid in providing for the safety of the public and when necessary, signage shall be placed along roadways in which smoke has the potential to impact. In addition to posting signs, an updated press release will be sent out 1-2 weeks prior to implementation in order to advise smoke sensitive patients of activities to follow and allow ample time for these individuals to make necessary arrangements. Public news releases will be posted throughout the area and the local fire dept. will also be notified prior to ignitions.

C. Emergency Medical Procedures:

Emergency procedures will be coordinated with Santa Fe Dispatch utilizing the Medical Incident Report ICS 206 see Appendix H. The burn boss will be notified immediately, and for serious injuries ignition operations will cease as soon as safely possible. The burn boss can designate an incident within an incident commander (qualified at the single resource level) to coordinate the medical incident.

D. Emergency Evacuation Methods:

Minor injuries may be treated with first aid on scene. All injuries will be reported to the burn boss, and the highest qualified medical provider on site will aid the injured person. Should it be determined that transport to a higher level of care is needed, the burn boss (or designated medical IC) will coordinate this transport with Santa Fe Dispatch and the local unit. Medical personnel and qualifications will be identified at operational briefings. Heli spot locations will be identified prior to burn implementation and relayed to personnel in briefings.

E. Emergency Facilities:

Alta Vista Hospital in Las Vegas is approximately 20 miles to the southwest or 90 minutes by ground transportation. St. Vincent Hospital in Santa Fe is approximately 30 miles southwest of the project area or 2 hours by ground. Presbyterian of Santa Fe is approximately 40 miles south of the project area. UNM hospital in Albuquerque is approximately 90 miles south of the project area. See Appendix E: ICS206 Medical Plan for more details.

A medical plan (ICS 206) for each new project area will be included in the briefing packet and covered in the daily safety briefing prior to burning.

Element 14: Test Fire

A. Planned Location:

A test fire will be supervised by the burn boss and the results documented. The test fire must be conducted in an area of the unit that is representative of the entire burn unit. It must also be controllable, meaning it must be conducted in a way and location that is easily suppressed if objectives are not being met or are being exceeded. A test fire is required on the first day of ignitions prior to implementation; however, on subsequent days of ignition, fire behavior from previous days may be observed in lieu of a test fire as determined by the burn boss.

B. Test Fire Documentation:

1. Weather conditions on site: Spot weather forecast and weather readings for operational periods will be documented and saved in the burn plan folder.
2. Test fire results will be recorded and will include observations of smoke dispersal and direction, rate of spread, flame length, and scorch height. These recorded observations will be saved in the project folder.

Element 15: Ignition Plan

A. Firing Methods:

1. Techniques, sequences and patterns

Overall discretion of the firing techniques, sequences, and patterns will be given to the Firing Boss and Burn boss and will ultimately be determined by the weather and fuel conditions, and the results of the test fire. Ignitions will be conducted by hand firing and/or aerial ignition. Black-lining is a common technique for ground firing to establish anchor points and strengthen containment lines. Backing, flanking and head firing techniques can all be utilized to achieve objectives. Careful communication and coordination will be necessary between holding and firing groups to ensure successful implementation. An additional firing boss overseeing another firing group may be utilized if determined by the Burn Boss.

B. Devices:

Hand ignition devices to include drip torches, fusees, approved flare pistols, and other approved ignition devices. Aerial firing devices to include a Type 3 helicopter (appropriately staffed) with a Plastic Sphere Device may also be used.

C. Minimum Ignition Staffing:

Staffing for ignition groups will be determined by the burn boss and firing boss, and individuals will be assigned at the pre-operational briefing.

Ignition Plan – Aerial

A. Organization:

The aerial ignition organization will consist of a minimum of the following aviation personnel: Helicopter manager, aerial firing boss, two helicopter crewmembers, and the helicopter pilot.

B. Aviation Operations:

Each prescribed burn day there is a briefing to include all the aerial ignition organization. The earlier briefing given by the Burn Boss is reviewed, which is typically attended by the above personnel. The topics covered are: unit to be burned, planned ground and aerial ignition patterns, weather, ground personnel, logistical concerns, ground hazards, aerial hazards, any special areas of concern, location of closest heli-spots and dip sites, and other topics covered as needed. Prior to any aerial ignition operations, a daily PSD Aerial Ignition Preplanning Checklist is read, approved, and signed by the Helicopter Manager, Aerial Firing Boss, PSD Operator, and Pilot.

After the briefings, PSD machine testing and installation, the Burn Boss through Dispatch notifies the Heli-base when the aircraft is needed. Upon arrival over the prescribed burn unit, contact with the designated ground resource is established. The unit is reconnoitered to allow for unit boundaries and familiarization as well as any special needs completed prior to beginning aerial ignition (flying trails, roads, or miscellaneous activities). Aerial ignition is then begun. Coordination between the aerial firing boss and the ground resources (ignition and holding) is continual during the prescribed burn. After completion of aerial ignition, the aircraft typically reconnoiters the unit again to provide information to the Burn Boss, as well as special needs reviewed. When in an area with down-wind urban interface areas, the smoke column is flown out to view impacted roads/areas. When operations are completed and the aircraft is released from the prescribed burn, local flight following is terminated and contact with Dispatch re-established when flying back to the Heli-base.

Element 16: Holding Plan

A. General Procedures for Holding:

Holding forces will be supervised by the holding boss (qualified as Single Resource Boss or higher). Holding procedures will generally be to follow ignition teams and ensure that fire stays within the unit by monitoring fire behavior. As ignitions progress, holding forces will continue along the lines. Patrols will periodically check lines that were previously ignited at intervals determined by the holding boss. Any spot fires or sloop-overs are to be suppressed by holding forces and their location and size communicated to the holding boss. Prompt communications between the holding boss and firing boss will be necessary to determine if the pace of firing operations can be adequately handled by the holding forces. The holding boss will also monitor smoke impacts to holding forces throughout the day and rotate holders to clean air as necessary.

B. Critical Holding Points and Actions:

There are numerous summer homes along Gallinas Canyon and numerous private inholdings throughout the project area. The eastern side of the project bounds private land. To the north is the Pecos Wilderness. These areas will need to be adequately prepped prior to implementation to assure containment of the prescribed fire. Units that bound any of these holding points will need to be patrolled 3-5 days following ignitions. If burning adjacent to private land the Las Vegas State Forest Fire Management Officer will be notified and sent a map of the unit prior to implementation (See Element 12 Telephone Numbers). The private land owners will be notified as well. If any spot fires spread onto private land dispatch will be notified immediately to alert the Las Vegas State Forest FMO. The Burn Boss will also notify the Forest Duty Officer of fire on private land. Any fire on private land will be documented. This could result in the prescribed burn being declared a wildfire.

C. Minimum Organization or Capabilities Needed:

There will also be a minimum of 18 people for broadcast burning, or 9 people for pile/jackpot burning assigned to the prescribed burn during implementation, however; the burn boss can elect to have more personnel. Please see Element 11 for organizational structure and equipment needs. Following the operation period, the burn boss will determine patrol frequency, staffing needs and any needed mop-up after ignitions are complete.

Element 17: Contingency Plan

Management Action Points or Limits:

Management action points may be identified by the Burn Boss and communicated to all personnel in the pre-operational briefing. These should relate directly to the environmental conditions outlined in the prescription and may include wind speed and direction, relative humidity, temperature, fine dead fuel moisture and probability of ignition, frequency of torching and spot fires, or smoke impacts to a sensitive area. Ultimate discretion for establishing management action points will rest with the Burn Boss. Strong consideration should be given to smoke impacts to roadways or communities, or spot fires or sloop overs outside the project area, particularly on the north and east side and the private inholdings.

Management Action Point– Documentation Element	Management Action Point Narrative
Designator and Description:	Prescription Parameters
Condition:	Burn prescription parameters are reached or exceeded on low or high end.
Management Intent:	Burn under environmental conditions that fall with the outlined burn prescription parameters in this plan.
Recommended Action(s) to Consider:	Monitor weather conditions prior to and during operations. If any prescription limit is exceeded on the high end, ignition will stop if safe to do so, and all personnel will go into holding. Line construction and mop-up may be necessary to check the progression of fire or limit smoke from smoldering.
Recommended Resources:	Burn Bosses discretion based on fire activity. Burn boss may want to order more resources for monitoring and holding to prevent the potential for escaped fire. These resources may include but are not limited to the contingency resources.
Time Frame:	Weather observations taken every hour, if close to 12% rh or winds 8 mph sustained for 20 minutes weather will be taken every half hour.
Describe the consequences of not taking the recommended action(s) (Optional):	Prescribed fire and/or resource objectives not being met. Increased fire behavior, spot fire, or escaped fire.
Responsibility:	Burn Boss, Firing Boss, Holding Boss

Management Action Point– Documentation Element	Management Action Point Narrative
Designator and Description:	High Intensity Fire Behavior
Condition:	Fire is bumping containment lines harder than expected. Getting slop-overs or spot fires outside of ignition unit.
Management Intent:	Meet resource and prescribed fire objectives. Keep fire within unit boundaries.
Recommended Action(s) to Consider:	Adjust ignition patterns and techniques to limit heat next to the line. Slow or cease ignitions to ensure holding personnel can keep up. If personnel are getting more slop-overs and spots than they can keep up with, ignitions will cease if it is safe to do so, and personnel will go into a holding action. Attempt will be made to stop the fires spread. Burn boss will consider ordering additional resources. Under the direction of the burn boss, the holding boss will assume operational control of all resources on scene and take appropriate action. If Burn Boss determines contingency actions have failed, are likely to fail and/or the fire is outside the project boundary and these conditions cannot be mitigated in one burning period the Line Officer should declare the burn a wildfire.
Recommended Resources:	Burn Bosses discretion based on fire activity. Burn boss may want to order more resources for monitoring and holding to prevent the potential for escaped fire. These resources may include but are not limited to the contingency resources.
Time Frame:	On-site holding resources response: 10-15 minutes. Contingency resources response: 4 hours, see 17C.
Describe the consequences of not taking the recommended action(s) (Optional):	Prescribed fire and/or resource objectives not being met. Increased fire behavior, spot fire, or escaped fire.
Responsibility:	Burn Boss, Firing Boss, Holding Boss

Management Action Point– Documentation Element	Management Action Point Narrative
Designator and Description:	Smoke
Condition:	Smoke impacting smoke sensitive receptors
Management Intent:	Improve the air index.
Recommended Action(s) to Consider:	Follow all NMED Air Quality Bureau smoke regulations. Burn with lower fuel moistures. Use of strip head firing methods. Finish ignition operations early if possible to minimize residual smoke impacts. Posting of smoke signs.
Recommended Resources:	On-site available holding and ignitions personnel, smoke monitoring personnel, and PIO to the surrounding community. Make contact with any known smoke sensitive people.
Time Frame:	On-site holding and ignition resources response: 10-15 minutes.
Responsibility:	Burn Boss, Firing Boss, Holding Boss

Management Action Point– Documentation Element	Management Action Point Narrative
Designator and Description:	Private lands adjacent to the project area.
Condition:	Fire spread to private land is likely.
Management Intent:	Keep fire within the Gallinas Watershed Project boundary
Recommended Action(s) to Consider:	Cease ignitions if safe to do so and all personnel will go into holding operations. Under the direction of the burn boss the holding boss will assume operational control of all resources on scene and take appropriate action. If any fire spreads on to private land dispatch will be notified by the Burn Boss immediately to alert the Las Vegas State Fire Management Officer. All fire on private land will be well documented. Burn boss will order additional resources including but not limited to contingency resources, see 17C. Burn Boss will also contact the Forest Duty Officer. If burn boss determines contingency actions have failed, are likely to fail and/or the fire is outside the project boundary and these conditions cannot be mitigated in one burning period the Line Officer should declare the burn a wildfire.
Recommended Resources:	Burn Boss will determine resource needs upon escape, based on fire behavior. These resources may include but are not limited to the contingency resources. If fire spread to adjacent lands is likely aviation resources should be ordered.
Time Frame:	On-site holding resources response: 10-15 minutes. Contingency resources response: 4 hours, see 17C.
Describe the consequences of not taking the recommended action(s) (Optional):	Fire spreads onto private land.
Responsibility:	Burn Boss, Firing Boss, Holding Boss

B. Actions Needed:

- 1.) Contingency actions for going out of prescription on the low end:
(**Low End:** minimum conditions for burning; i.e. high RH, low temperature, high fuel moisture, etc.)

Ignitions will stop at a time and place where it is safe to do so if objectives are not being met and the project is outside of prescription on the low end. Line construction and mop-up may be necessary to limit smoke production and spread of the fire.

- 2.) Contingency actions for going out of prescription on the high end:
(High End: Maximum conditions for burning; i.e. low RH, high temperature, low fuel moisture, etc.)

The burn boss will monitor fire behavior and weather conditions prior to and throughout the operation to ensure prescription parameters are being met. If conditions change and the project goes out of prescription on the high end, ignitions will stop, and all members of the ignition crew will become holders. Line construction and mop-up may be necessary to check the spread of fire and hold in place. The burn boss may contact Dispatch to order more resources for monitoring and holding in order to mitigate the potential for an escaped fire. These resources may include but are not limited to the contingency resources identified for the project.

C. Minimum Contingency Resources and Maximum Response Time(s):

If prescription parameters are exceeded or anticipated to be exceeded, the following contingency resources will be used to help keep the fire in-check until it is back in prescription. This must be accomplished within the next burning period (FSM 5140.31) in order to avoid conversion to “wildfire”.

Minimum contingency resources:

	Resources	Production Rate in Fuel Model 10*
Contingency (Broadcast Burn)	2 Engines (3 personnel) or resources with equal production rates.	24 Chains per hour
	4 Additional personnel	4 Chains per hour
	Total: 10 personnel	Total: 28 Chains per hour

	Resources	Production Rate in Fuel Model 10*
Contingency (Pile/Jackpot Burn)	1 Engine (3 Persons) or resources with equal production rates.	12 Chains per hour
	2 Additional Personnel	2 Chains per hour
	Total: 5 personnel	Total: 14 Chains per hour

*Production rates taken from the Wildland Fire Incident Management Field Guide.

Maximum response time for these minimum contingency resources will be 4 hours to the project site. Resource needs were determined by using local fire knowledge and calculating a contain run for a spot fire using the BehavePlus 5.0.5 model. Dispatch will be contacted prior to implementation to ensure that contingency resources are available.

The same contingency resource can be identified for multiple prescribed fire projects. When specific contingency resources are identified for more than one prescribed fire, the local fire management organization(s) must evaluate and document adequacy of all contingency resources within the area. This evaluation must consider:

- Local, current, and predicted fire danger
- Local and regional wildland fire activities.

Once a contingency resource is committed to a specific wildland fire action (wildfire or prescribed fire), it can no longer be considered a contingency resource for another prescribed fire project and a suitable replacement contingency resource must be identified or the ignition halted. The Agency Administrator will determine if and when they are to be notified that contingency actions are being taken. If the contingency actions are successful at bringing the project back within the scope of the Prescribed Fire Plan, the project may continue. If contingency actions are not successful by the end of the next burning period, then the prescribed fire will be converted to a wildfire.

Element 18: Wildfire Declaration

A. Wildfire Declared By:

It is the responsibility of the Line Officer to declare a Wildfire based upon recommendation made by the burn boss. This determination will only be made if contingency actions have been implemented and have failed or are likely to fail and cannot be mitigated within the following burn period by a combination of on-site and contingency resources. Contingency resources will be ordered through Santa Fe Dispatch. The burn boss can utilize contingency resources at any stage to assist with operations and are not strictly held to being utilized only if the high end is exceeded.

The designated burn boss can make the recommendation of wildfire conversion to the agency administrator when he/she determines that one or more of the following conditions or events have occurred, or is likely to occur, and cannot be mitigated within the next burning period by utilizing the mitigation/holding or contingency actions identified in the burn plan:

1. The prescribed fire leaves the approved burn project boundaries.
2. The fire behavior exceeds limits described in the prescribed fire plan.
3. The fire effects are unacceptable.

After wildfire declaration, Managers will use a decision support process to guide and document wildfire management decisions. The process will provide situational assessment, analyze hazards and risk, define implementation actions, and document decisions and rationale for those decisions.

B. IC Assignment:

In the event that a wildfire is declared, the burn boss will assume duties as IC or request an appropriate level IC onsite or through dispatch. The burn team and contingency resources will assume roles under a Type 4 incident organization. If the complexity of the wildfire warrants, a request for a higher organization will be made by the IC through Santa Fe Dispatch. **It is also important to note that if a prescribed fire is converted to a wildfire; all personnel on the fire line must be pack-tested at the arduous level as this is not required for prescribed fire.**

C. Notifications:

If a wildfire is declared, notification will immediately be made to Dispatch.

D. Extended Attack Actions and Opportunities to Aid in Fire Suppression (Optional):

If extended attack is necessary, logistical support needs will be coordinated through dispatch by the IC.

Remember: Prescribed burning activities require only a moderate level WCT; in the event of a conversion to a wildfire, any fire line personnel without an arduous WCT rating shall be released from the incident.

Element 19: Smoke Management and Air Quality

A. Compliance:

-Under the regulations set by the New Mexico Air Quality Bureau (AQB), this project falls within the Smoke Management Program II (SMP II) category as stated in New Mexico Smoke Management Guidance Document – May 2005. Under a SMP II, there is an increase of requirements needed prior to implementation which includes registration, notification, tracking, monitoring, and other considerations (alternatives to burning, actions to minimize emissions, and evaluation of smoke dispersion).

-Under the requirements of SMP II, ignitions can only be completed when the ventilation category is good or better without a waiver. A statewide waiver is available to burn under poor or fair ventilation categories with restrictions on timing and acres treated daily.

-Additional public notification may be required due to the proximity of the project to private property with dwellings. Public notification of implementation is required between, no earlier than 30 days prior to two days prior to any ignitions.

-Registration with AQB is required no later than two weeks prior to any planned ignitions. Within the registration, documentation is needed to address considerations of alternatives to burning, project characteristics, and actions to minimize emissions.

-Notification with AQB is required no later than by 10:00 a.m. of the prior business day to the planned day of ignition. If the ignition is postponed and/or cancelled after notification is completed, cancellation is required to be completed by 10:00 a.m. the following day.

- The Pecos Wilderness a Class I Airshed bounds with the Gallinas Watershed Project just to the north.

B. Permits to be Obtained:

The project will be registered with NM Air Quality Bureau at least 2 weeks prior to implementation. Notification will then be given to AQB by 1000 am the day prior to ignition.

C. Smoke-Sensitive Receptors:

- Gallinas Corridor and Community of Gallinas
- City of Las Vegas
- Interstate 25
- State Highway 65
- Pecos Wilderness (Class I airshed)
- Surrounding residences and communities

D. Potential Impacted Areas:

- Gallinas
- City of Las Vegas
- Interstate 25
- Rociada
- Mora
- Sapello

Any impacted areas will be documented in a unit log (ICS-214). Photos will be taken if possible, and kept in the Burn Plan file folder. Any of the smoke sensitive areas described in section C may potentially be areas impacted by smoke.

E. Mitigation Strategies and Techniques to Reduce Smoke Impacts:

A FEMO, FOBS, or other person will be assigned to monitor smoke, which may be a collateral duty. They will pay particular attention to volume of smoke generated, lifting and transport of smoke and will keep the burn boss apprised of smoke conditions. The burn boss has several strategies and techniques that may be used to mitigate smoke impacts. These may include any of the following:

- Try limiting time of burning window (If possible, burning should be started between 9 or 10am and ending ignitions at 3 pm, or ending ignitions 3 hours before sunset)
- Burning when there is high moisture in non-targeted fuels and litter and duff is moist.
- Burning small blocks or acres.
- Mass ignition (aerial ignition) to create convection column.
- Taking a one day break following impact of any nuisance smoke in a community as determined by smoke monitor, district personnel, or forest personnel.
- Slowing down, or taking breaks in ignitions to regulate smoke production.
- Mop up or avoid burning heavy fuels that will produce residual smoke.
-

Element 20: Monitoring

A. Fuels Information Required and Procedures:

Fuels information may be gathered in the days and weeks prior to ignition and could consist of samples of 1 hour, 10 hour, 100 hour and 1000 hour as well as live fuel moistures. During ignition operation, the fine dead fuel moisture will be calculated using the IRPG or Fireline Handbook appendix B and based on observed weather condition.

B. Weather Monitoring (Forecasted and Observed) Required and Procedures:

Weather forecasts should be monitored for at least a week prior to planned implementation by the Burn Boss to ensure a favorable window might be met. A spot weather forecast will be requested prior to starting ignitions and a new forecast requested for each day of ignitions. Additionally, weather observations will be taken hourly on site, broadcast via radio to all personnel, and recorded for inclusion in the project folder. Observations on site will include dry bulb temperature, wet bulb temperature, dew point, relative humidity, wind speed and direction, sky condition/cloud cover, fine dead fuel moisture and probability of ignition. On site weather observations should be submitted to the National Weather Service as feedback to the Spot Weather Forecast.

C. Fire Behavior Monitoring Required and Procedures:

Fire behavior conditions will be evaluated first during the test-fire and then during ignition. Data being collected and monitored may include flame length, consumption, rate of spread, scorch height, etc. Fire behavior during the burn will be monitored continuously by the RXB2, FIRB, and Holders, to ensure the prescribed burn is within prescription and objectives are being met. Ideally fire behavior monitoring will be completed by a Fire Effects Monitor (FEMO), but a FEMO is not required. All observations will be included in project folder.

D. Monitoring Required to Ensure that Prescribed Fire Plan Objectives are Met:

Document burn day conditions, fire behavior, smoke dispersal, first order fire effects, and cost per acre of treatment, Specify the weather information (forecast and observed) required during all phases of the project, and if spot weather and smoke dispersal forecasts need to be requested. In addition to short term monitoring to document the immediate results of burn, longer term monitoring may be necessary to determine if objectives were met.

E. Smoke Dispersal Monitoring Required and Procedures:

Continuous visual monitoring of the smoke plume direction and dispersal may be conducted off-site from an adequate vantage point. Communication link between the smoke monitor and RXB2 will remain constant throughout implementation. Typically, a FEMO will be assigned to smoke monitoring, however if none are available, then a person will be assigned this task.

Prescribed Fire Name: Gallinas Watershed RX

Ignition Unit Name: Multiple Ignition Units

Element 21: Post-burn Activities

A. Post-Burn Activities that must be Completed:

Post-Burn activities will include an After-Action Review at the conclusion of each operational period. Additionally, once ignitions are complete, the burn will be monitored and patrolled in subsequent days to ensure that all holding features are secure. This activity will be coordinated between the Burn Boss and District FMO. Until the prescribed fire is declared out a qualified Burn Boss type 2 will be assigned to the burn. Any transfers of the burn between Burn Bosses will be documented in Wildcad by Santa Fe Dispatch. The area will also be checked for any snags or new hazards created by the burn that will be mitigated by patrol and holding forces. Any signs or other equipment used will be taken down and stored appropriately.

Prescribed Fire Name: Gallinas Watershed RX

Ignition Unit Name: Multiple Ignition Units

Prescribed Fire Plan Appendices

Appendix A: Maps: Vicinity, Project or Ignition Units (or both), Optional: Significant or Sensitive Features, Fuels or Fuel Model, Smoke Impact Areas

Appendix B: Technical Reviewer Checklist

Appendix C: Complexity Analysis

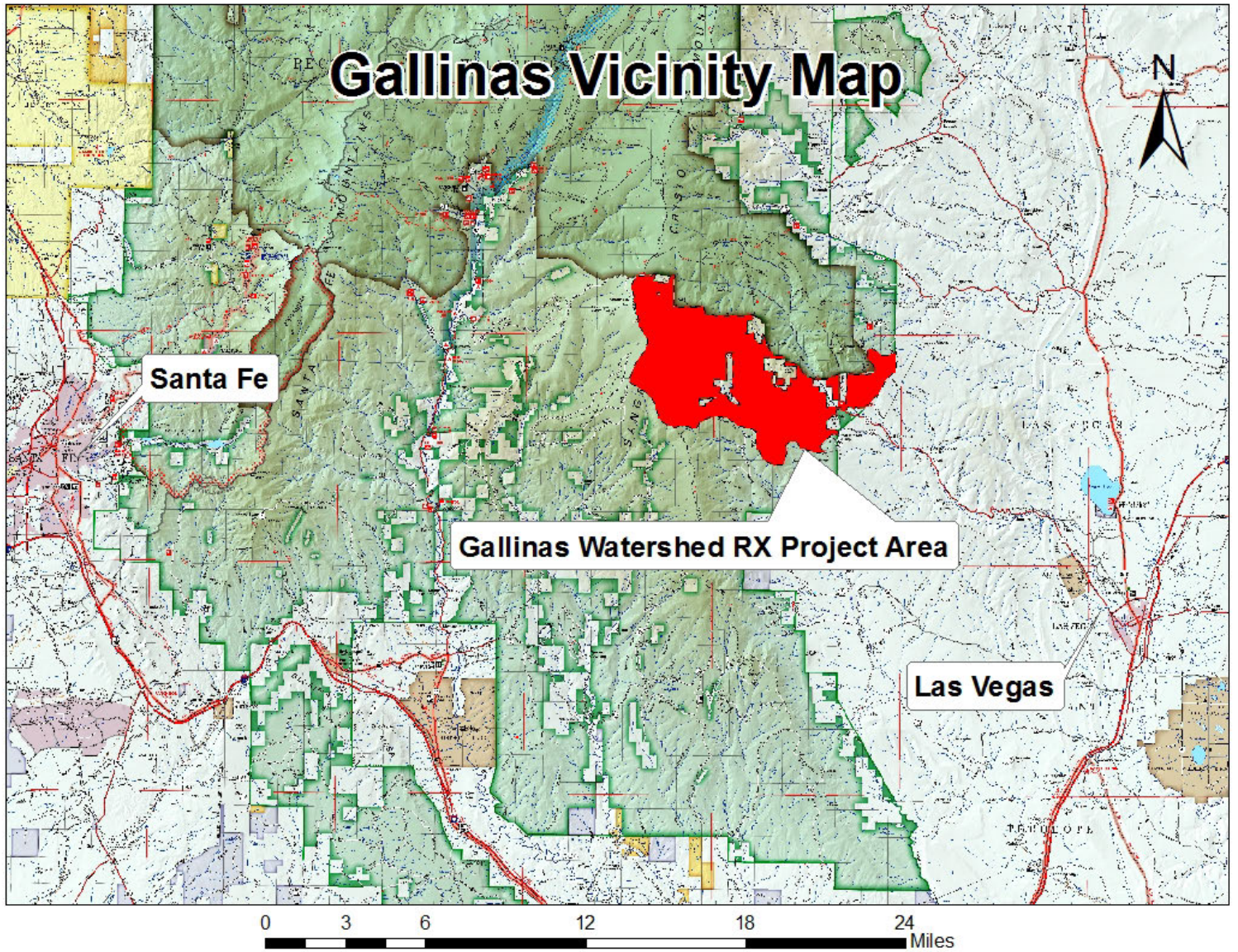
Appendix D: Agency-Specific Job Hazard Analysis or Risk Assessment

Appendix E: ICS206 Medical Plan

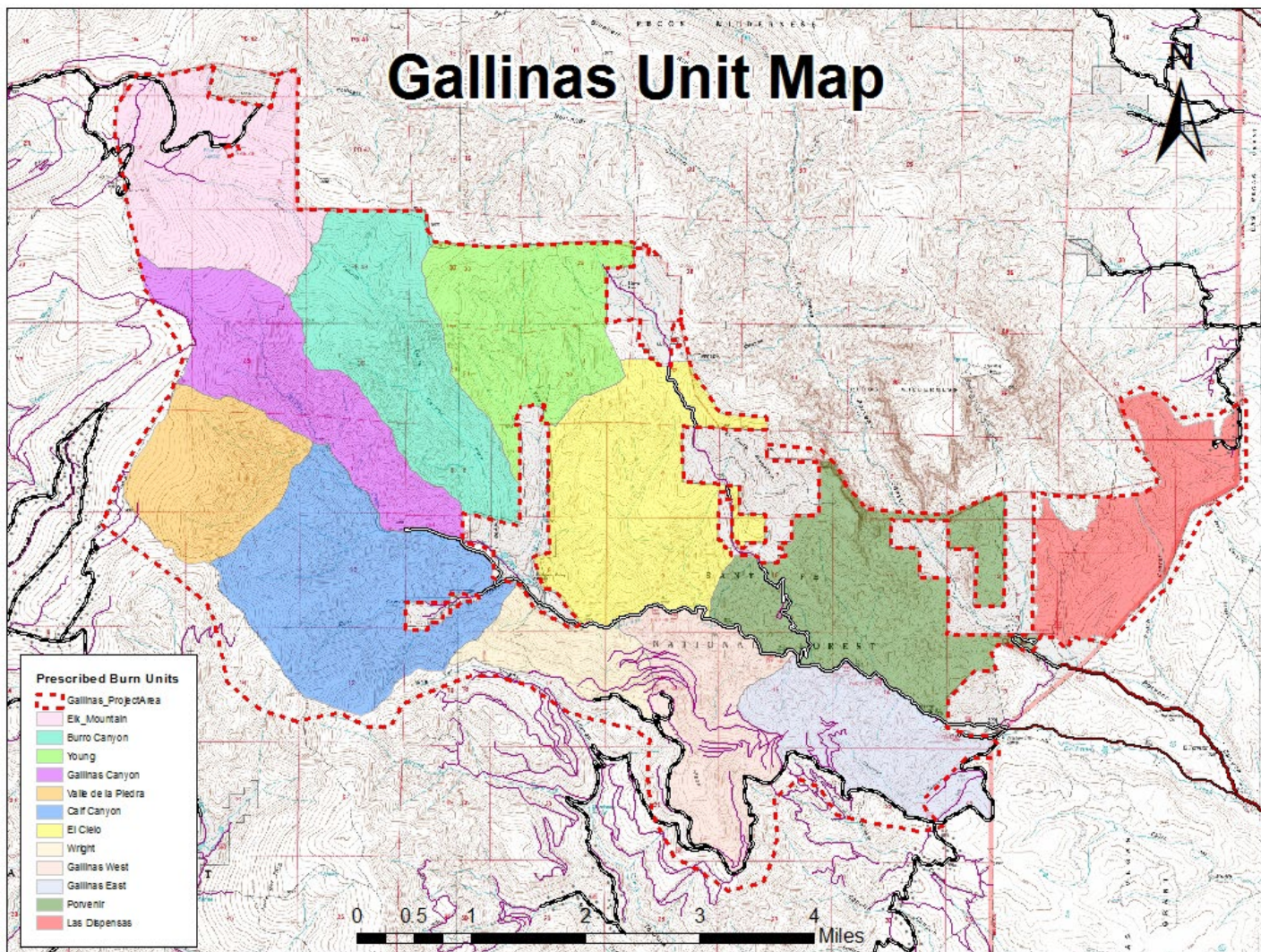
Appendix F: Fire Behavior Modeling Documentation or Empirical Documentation

Appendix G: Smoke Management Plan and Smoke Modeling Documentation (Optional)

Appendix A: Vicinity Map



Appendix A: Project (Ignition Units) Maps



Prescribed Fire Name: Gallinas Watershed RX

Ignition Unit Name: Multiple Ignition Units

Appendix A: Smoke Impact Areas: (Optional) Maps

Prescribed Fire Name: Gallinas Watershed RX

Ignition Unit Name: Multiple Ignition Units

Appendix B: Technical Reviewer Checklist

Fill out this checklist based on the guidance provided in the Technical Review section in the *Interagency Prescribed Fire Planning and Implementation Procedures Guide*, PMS 484. Rate each element in the following table with an “S” for Satisfactory or “U” for Unsatisfactory. Use Comment field as needed to support the element rating.

PRESCRIBED FIRE PLAN ELEMENTS	RATING	COMMENTS
1. Signature Page		
2. A. Agency Administrator Ignition Authorization		
2. B. Prescribed Fire GO/NO-GO Checklist		
3. Complexity Analysis Summary		
4. Description of Prescribed Fire Area		
5. Objectives		
6. Funding		
7. Prescription: Prescription Narrative and Prescription Parameters		
8. Scheduling		
9. Pre-Burn Considerations and Weather		
10. Briefing		
11. Organization and Equipment		
12. Communication		
13. Public and Personnel Safety, Medical		
14. Test Fire		
15. Ignition Plan		
16. Holding Plan		
17. Contingency Plan		
18. Wildfire Declaration		
19. Smoke Management and Air Quality		
20. Monitoring		
21. Post-Burn Activities		
Appendix A: Maps		
Appendix C: Complexity Analysis		
Appendix D: Agency-Specific Job Hazard Analysis or Risk Assessment		
Appendix E: Fire Behavior Modeling Documentation or Empirical Documentation		
Appendix F: Smoke Management Plan and Smoke Modeling Documentation (Optional)		
Other		

Approval is recommended subject to the completion of all requirements listed in the comments section, or on the Prescribed Fire Plan.

Recommendation for approval is not granted. Prescribed Fire Plan should be re-submitted for technical review subject to the completion of all requirements listed in the comments section, or on the Prescribed Fire Plan.

Technical Reviewer Signature: _____

Qualification and Currency: _____

Date Signed: _____

Prescribed Fire Name: Gallinas Watershed RX

Ignition Unit Name: Multiple Ignition Units

Appendix C: Complexity Analysis

Please refer to Element 3: Complexity Analysis Summary in the *Interagency Prescribed Fire Planning and Implementation Procedures Guide*, PMS 484, and the procedures in the *Prescribed Fire Complexity Analysis Rating System Guide*, PMS 424, to fill out this appendix.

Appendix D: Agency-Specific Job Hazard Analysis or Risk Assessment

U.S. Department of Agriculture Forest Service		1. WORK PROJECT/ACTIVITY Gallinas Rx	2. LOCATION Pecos/Las Vegas RD	3. UNIT Santa Fe NF
JOB HAZARD ANALYSIS (JHA) References-FSH 6709.11 and -12 (Instructions on Reverse)		4. NAME OF ANALYST (b) (6), (b) (7)(F)	5. JOB TITLE Engine Capt.	6. DATE PREPARED 10/15/2018
7. TASKS/PROCEDURES		8. HAZARDS	9. ABATEMENT ACTIONS <i>Engineering Controls * Substitution * Administrative Controls * PPE</i>	
Driving to and from site.		Hazardous road conditions and driving errors. Other Motorist	Drivers review safety code on driving, drive with lights on and defensively, enforce usage of safety belts, keep current drivers license. Utilize guide while backing and or check area where you plan on turning around/backing up	
Walking on Burn site.		Footing, lightning	Safety and first aid review on project site. Make sure footing is secure. If there are any injuries contact burn boss and EMT.	
Urban Interface		Public interference Public Road	Notify Rx. Boss Rx. Boss will notify Santa Fe Dispatch for assistance from LEO or PIO. Post signs of Rx. In Progress or utilizing/posting traffic guards	
Handling burn fuel (gas and diesel).		Spills, contact with skin/eyes, burns.	Wear protective equipment such as gloves, hardhat, eye protection and Nomex Clothing. Refrain from smoking while fueling or handling fuel.	
Ignition Operations		Fuel spills on body, smoke inhalation, burns.	Wear Nomex clothing, protective gloves, hardhat,. Stay out of direct smoke when possible.	
Holding operations		Intense heat, driving, other personnel on road.	Drive defensively, back off when to intense, maintain good communications with supervisor and other workers.	
LCES		No lookouts, communications, escape routes and safety zones.	Maintain communications with everyone including supervisor, make sure you are aware of escape routes and safety zones and let everyone else know and post lookouts.	
(b) (6), (b) (7)(F)			11. TITLE District Ranger	12. DATE 11/13/18

(over)

Appendix E: ICS 206 Medical Plan

MEDICAL PLAN											
1. Incident Name Gallinas Rx			2. Date Prepared 11/13/18		3. Time Prepared N/A		4. Operational Period Day				
5. Incident Medical Aid Station											
Medical Aid Stations				Location				Paramedics			
								Yes	No		
10 Person 1st Aid Kits				On engines					X		
									X		
6. Transportation											
A. Ambulance Services											
Name			Address			Phone		Paramedics			
								Yes	No		
Life Flight			NM Life Guard Air Transport University Hospital, Albuquerque			800-MED-LIFT (800-633-5438)		X	<input type="checkbox"/>		
Rocky Mountain EMS			1901 N Grand Las Vegas, NM			(505) 891-1918 or 911		X	<input type="checkbox"/>		
								<input type="checkbox"/>	<input type="checkbox"/>		
								<input type="checkbox"/>	<input type="checkbox"/>		
								<input type="checkbox"/>	<input type="checkbox"/>		
B. Incident Ambulances											
Name			Location				Paramedics				
							Yes No				
							<input type="checkbox"/> <input type="checkbox"/>				
							<input type="checkbox"/> <input type="checkbox"/>				
							<input type="checkbox"/> <input type="checkbox"/>				
7. Hospitals											
Name		Address		Travel Time		Phone		Helipad		Burn Center	
				Air Grnd				Yes No		Yes No	
Alta Vista		104 Legion Dr. Las Vegas, NM		1.5 hr							
St. Vincent Hospital		455 St. Michaels Dr. Santa Fe, NM		35 min 2 hr		505.983.3361		x		x	
UNM Hospital		2211 Lomas Blvd. NE Albuquerque, NM		1 hr 3 hr		505.272.2411		x		x	
UNM Sandoval Regional		3001 Broadmoor Blvd NE, Rio Rancho, NM		55 min 2.5 hr		505-994-7000		x		x	
8. Medical Emergency Procedures											
<ul style="list-style-type: none"> - Contact Burn Boss and provide 1st Aid - Utilizing the 9-line in your IRPG relay the seriousness of the injury to the burn boss - Burn Boss will contact Santa Fe Dispatch as needed and arrange response and medical transport - Burn Boss will keep agency administrator informed <p>**Fixed or Rotor wing – most effective when provided GPS coordinates. St. Vincent Hospital Latitude –35° 39.568’N Longitude –105° 56.735’W UNM Hospital – Latitude –35° 04.956’N Longitude –106° 36.965’W *Call UNM Lifeguard Dispatch to notify of incoming aircraft with ETA (505-272-3116). They will send security to secure field and have ambulance standing by (when using CWN or agency ship).</p>											
9. Prepared by						10. Reviewed by					
(b) (6), (b) (7)(F)											

MEDICAL PLAN (ICS 206 WF)

Controlled Unclassified Information//Basic

Medical Incident Report					
FOR A NON-EMERGENCY INCIDENT, WORK THROUGH CHAIN OF COMMAND TO REPORT AND TRANSPORT INJURED PERSONNEL AS NECESSARY.					
FOR A MEDICAL EMERGENCY: IDENTIFY ON SCENE INCIDENT COMMANDER BY NAME AND POSITION AND ANNOUNCE "MEDICAL EMERGENCY" TO INITIATE RESPONSE FROM IMT COMMUNICATIONS/DISPATCH.					
Use the following items to communicate situation to communications/dispatch.					
1. CONTACT COMMUNICATIONS / DISPATCH (Verify correct frequency prior to starting report) <i>Ex: "Communications, Div. Alpha. Stand-by for Emergency Traffic."</i>					
2. INCIDENT STATUS: Provide incident summary (including number of patients) and command structure. <i>Ex: "Communications, I have a Red priority patient, unconscious, struck by a falling tree. Requesting air ambulance to Forest Road 1 at (Lat./Long.) This will be the Trout Meadow Medical, IC is TFLD Jones. EMT Smith is providing medical care."</i>					
Severity of Emergency / Transport Priority	<input type="checkbox"/> RED / PRIORITY 1 Life or limb threatening injury or illness. Evacuation need is IMMEDIATE <i>Ex: Unconscious, difficulty breathing, bleeding severely, 2^o - 3^o burns more than 4 palm sizes, heat stroke, disoriented.</i> <input type="checkbox"/> YELLOW / PRIORITY 2 Serious injury or illness. Evacuation may be DELAYED if necessary. <i>Ex: Significant trauma, unable to walk, 2^o - 3^o burns not more than 1-3 palm sizes.</i> <input type="checkbox"/> GREEN / PRIORITY 3 Minor injury or illness. Non-Emergency transport <i>Ex: Sprains, strains, minor heat-related illness.</i>				
Nature of Injury or Illness & Mechanism of Injury	Brief Summary of Injury or Illness <i>(Ex: Unconscious, Struck by Falling Tree)</i>				
Transport Request	Air Ambulance / Short Haul/Hoist Ground Ambulance / Other				
Patient Location	Descriptive Location & Lat. / Long. (WGS84)				
Incident Name	Geographic Name + "Medical" <i>(Ex: Trout Meadow Medical)</i>				
On-Scene Incident Commander	Name of on-scene IC of Incident within an Incident <i>(Ex: TFLD Jones)</i>				
Patient Care	Name of Care Provider <i>(Ex: EMT Smith)</i>				
3. INITIAL PATIENT ASSESSMENT: Complete this section for each patient as applicable (start with the most severe patient)					
Patient Assessment: See IRPG page 106					
Treatment:					
4. TRANSPORT PLAN:					
Evacuation Location (if different): (Descriptive Location (drop point, intersection, etc.) or Lat. / Long.) Patient's ETA to Evacuation Location:					
Helispot / Extraction Site Size and Hazards:					
5. ADDITIONAL RESOURCES / EQUIPMENT NEEDS:					
<i>Example: Paramedic/EMT, Crews, Immobilization Devices, AED, Oxygen, Trauma Bag, IV/Fluid(s), Splints, Rope rescue, Wheeled litter, HAZMAT, Extrication</i>					
6. COMMUNICATIONS: Identify State Air/Ground EMS Frequencies and Hospital Contacts as applicable					
Function	Channel Name/Number	Receive (RX)	Tone/NAC *	Transmit (TX)	Tone/NAC *
COMMAND					
AIR-TO-GRND					
TACTICAL					
7. CONTINGENCY: Considerations: If primary options fail, what actions can be implemented in conjunction with primary evacuation method? Be thinking ahead.					
8. ADDITIONAL INFORMATION: Updates/Changes, etc.					
REMEMBER: Confirm ETA's of resources ordered. Act according to your level of training. Be Alert. Keep Calm. Think Clearly. Act Decisively.					

Appendix F: Fire Behavior Modeling Documentation or Empirical Documentation

BehavePlus 5.0.5 (Build 307)

Gallinas_RX_High_End
 Mon, Dec 16, 2019 at 13:04:16

Input Worksheet

Inputs: SURFACE, SPOT, SCORCH, IGNITE

Input Variables	Units	Input Value(s)
Fuel/Vegetation, Surface/Understory		
Fuel Model		8, 9, 10, 11
Fuel/Vegetation, Overstory		
Downwind Canopy Height	ft	50
Torching Tree Height	ft	50
Spot Tree Species		PSEMEN
D.B.H.	in	12
Fuel Moisture		
1-h Moisture	%	5
10-h Moisture	%	6
100-h Moisture	%	7
Live Herbaceous Moisture	%	50
Live Woody Moisture	%	75
Weather		
20-ft Wind Speed (upslope)	mi/h	25
Wind Adjustment Factor		.3
Air Temperature	oF	80
Fuel Shading from the Sun	%	50
Terrain		
Slope Steepness	%	50
Ridge-to-Valley Elevation Difference	ft	800
Ridge-to-Valley Horizontal Distance	mi	.5

Spotting Source Location

MW

Fire

Number of Torching Trees

1

Results

Fuel Model	ROS (max)	Heat per Unit Area	Fireline Intensity	Flame Length	Midflame Wind Speed	Torch Tree Spot Dist	Scorch Height	Firebrand Ignition
	ch/h	Btu/ft ²	Btu/ft/s	ft	mi/h	mi	ft	%
8	4.8	199	17	1.7	7.5	0.4	1	63
9	21.9	390	157	4.6	7.5	0.4	16	63
10	22.8	1369	572	8.4	7.5	0.4	55	63
11	12.7	781	182	4.9	7.5	0.4	19	63

BehavePlus 5.0.5 (Build 307)

Gallinas_Pile_Burn_High_End

Sat, Nov 23, 2019 at 09:19:03

Input Worksheet

Inputs: SURFACE, SPOT, SCORCH, IGNITE

Input Variables	Units	Input Value(s)
-----------------	-------	----------------

Fuel/Vegetation, Surface/Understory

Fuel Model		8, 9, 10, 11
------------	--	--------------

Fuel/Vegetation, Overstory

Downwind Canopy Height	ft	50
------------------------	----	----

Torching Tree Height	ft	50
----------------------	----	----

Spot Tree Species		PSEMEN
-------------------	--	--------

D.B.H.	in	12
--------	----	----

Fuel Moisture

1-h Moisture	%	10
--------------	---	----

10-h Moisture	%	12
---------------	---	----

100-h Moisture	%	15
----------------	---	----

Live Herbaceous Moisture	%	150
--------------------------	---	-----

Live Woody Moisture	%	100
---------------------	---	-----

Weather

20-ft Wind Speed (upslope)	mi/h	25
----------------------------	------	----

Wind Adjustment Factor		.3
------------------------	--	----

Air Temperature	oF	65
-----------------	----	----

Fuel Shading from the Sun	%	50
---------------------------	---	----

Terrain

Slope Steepness	%	50
-----------------	---	----

Ridge-to-Valley Elevation Difference	ft	800
--------------------------------------	----	-----

Ridge-to-Valley Horizontal Distance	mi	.5
-------------------------------------	----	----

Spotting Source Location		MW
--------------------------	--	----

Fire

Number of Torching Trees

1

Results

Fuel Model	ROS (max)	Heat per Unit Area	Fireline Intensity	Flame Length	Midflame Wind Speed	Torch Tree Spot Dist	Scorch Height	Firebrand Ignition
	ch/h	Btu/ft ²	Btu/ft/s	ft	mi/h	mi	ft	%
8	3.1	164	9	1.3	7.5	0.4	1	28
9	15.7	330	95	3.7	7.5	0.4	7	28
10	15.7	1156	332	6.5	7.5	0.4	27	28
11	9.1	658	109	3.9	7.5	0.4	9	28

Prescribed Fire Name: Gallinas Watershed RX

Ignition Unit Name: Multiple Ignition Units

Appendix G: Smoke Management Plan and Smoke Modeling Documentation

(OPTIONAL)

Refer to the *NWCG Smoke Management Guide for Prescribed Fire*, PMS 420-2, and Appendix A. Basic Smoke Management Practices in the *Interagency Prescribed Fire Planning and Implementation Procedures Guide*, PMS 484, to fill out this appendix.

The *NWCG Prescribed Fire Plan Template* is developed and maintained by the Fire Use Subcommittee (FUS), under the direction of the Fuels Management Committee (FMC), an entity of the National Wildfire Coordinating Group (NWCG).

Previous editions: 2014.

While they may still contain current or useful information, previous editions are obsolete. The user of this information is responsible for confirming that they have the most up-to-date version. NWCG is the sole source for the publication.

This publication is available electronically at: <https://www.nwcg.gov/publications/484-1>.

Comments or questions regarding the plan should be directed to the appropriate agency representative on the FUS. The roster is available at: <https://www.nwcg.gov/committees/fire-use-subcommittee/roster>.

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