

PRESCRIBED BURN PLAN

State: New Mexico

District: Socorro

Site/Location: South Half McKinney Flat pasture, White Water FMA.

Date: April 2003

Fire planner(s):

Name: Sam Smith

Title: Conservation Manager

Signature

Date

Name: Charles Curtin

Title: Director, ALP

Signature

Date

Reviewed by:

Name:

Title:

Signature

Date

Reviewed by:

Name:

Title:

Signature

Date

Reviewed by:

Name:

Title:

Signature

Date

Fire Manager:

Name:

Title:

Signature

Date

1. LOCATION: White Water FMA

District: Socorro
Site: McKinney flat, Gray Ranch
Burn unit: South Half (SE and SW research blocks)
Map Location (T34S, R18W, Sec. 8,9,10,14 - 23):
Unit area: Approximately 5,220 acres
County/State: Hidalgo/New Mexico
Ownership: Animas Foundation

2. SOURCES OF EMERGENCY ASSISTANCE (LOCATION & PHONE #):

Fire: Animas Volunteer Fire Department: 505 548-2585
New Mexico State Forestry: 505-835-9359
Gila dispatch: 800-538-1644, 505-538-5371, 505-538-5372
Animas Foundation office: 505-548-2622
Rodeo Fire and Rescue: (505) 557-2212
CONAFOR Sonora, Mexico 011-52-6622-1208-60
011-52-6622-1352-73
Agua Pieta 011-52-6633-3105-26

Law Enforcement:

Hidalgo county Sheriff Dept.- 911 or 1-800-727-2736
U.S. Border Patrol – Daytime - 1-505-542-3221
After hours - 1-800-727-0736

Medical: Hidalgo County Ambulance – 911

Emergency Evacuation Air Care: 1-800-642-7828
Critical Air: 1-800-570-3883

In the event of an injury there are several options for medical attention. A paramedic could be called in from Playas or Animas to meet on the road or to come out to the site. There is also a medical clinic in Lordsburg just over an hours drive from the burn unit location. The nearest hospital is in Silver City and takes over two hours to reach by driving. An ambulance from Playas or Animas would be used to transport any injured persons to the hospital. In the event of serious injury one of the life flight helicopter services will be used. The helicopter would pick-up the injured at the Culberson camp house (coordinates = Lat. N 31° 22.936' Long W 108° 37.833' or T34S, R18W, Sec.1).

Attorney:

Nearest phone to unit: The nearest phone to unit is located at the Culberson camp. The other option is to radio to the Animas Foundation office or base camp and ask them to make the call for assistance.

3. PERMITS AND OFFICIAL NOTIFICATION:

Burn permit/Notification required? **Yes/No**
 Source(s): Environment Department, Silver City, New Mexico
 (505)-388-1934 fax (505)-388-3258

Air quality permit/notification required? **Yes/No**
 Source(s): Environment Department, Silver City, New Mexico

Other notifications required?
 Source(s): New Mexico State Forestry (505)-835-9359

4. NEIGHBOR NOTIFICATIONS:

Name	Address	Phone
Animas Fire Dept.		505-548-2585
Hurts Ranch		505-436-2580
Lard camp Gray Ranch		505-436-2584
Timberlake camp, Gray Ranch		505-436-2490
Culberson Camp		505-436-2675
Gila Dispatch		505-538-5371 505-538-5372 800-538-1644
New Mexico State Forestry		505-835-9359
Ranch South of White Water Mnts. Mexico		?

5. UNIT DESCRIPTION:

Vegetation Types	Fuel models	% of unit area	% Slope	Aspect
Grassland	#1	85%		E-SE
Isolated pockets	#3	15%		SE

Fire unit narrative description (include description of surrounding fuels):

The burn unit is located on the south half of McKinney flat. The unit has good road on three sides and a lightly traveled road along a portion of the south side along the U.S. – Mexico border. The burn unit is bounded by the pass road on the north, white water road on the east, the U.S.-Mexico border on the south, and a ranch road on the west. The unit is mostly fuel model 1 with pockets of heavier fuels found throughout especially in and along White Water Creek that runs east west through the middle of the unit. The terrain is flat with a S-SE exposure with the exception of small rolling and somewhat rocky hills at the western side of the unit. The average elevation is 5150 feet above sea level. The surrounding fuels are much the same as the unit itself (short-grass with pockets of heavier fuel loads). The Pasture to the north has been grazed creating a good fuel break. The pasture to the east is also heavily grazed creating a good fuel break. The area to the west has good grass and heavier fuels such and oak and chaparral, however winds should be from the W-SW and a well traveled two track road will aid in keeping fire from moving in that direction. South of the unit is Mexico with good grass and continued flat terrain. Highway 2 in Mexico is approximately two miles south of the border fence. Crews will be able to enter Mexico if an escape occurs across the border in order to control the fire. Within the unit are two research exclusion areas that require protection from fire.

The areas measures x 1 kilometer, a black-line will need to be established around the perimeters of the exclusion areas. This operation will be conducted before the main burn.

Because of the size of the burn unit 1-2 days of preparation work will be necessary before the main ignition can take place. All the preparation work will be conducted as a separate operation several days in advance of the main burn. This operation includes black-lining the fire exclusion areas and establishing black-lines along the U.S. – Mexico border. In addition a black-line will be established on along the fence-line at the north side of the pastures.

Due to the size of the burn area it may be desirable to burn the area as two separate units rather than one big unit. The area would be split into the northern and southern units. The northern unit would have good road on three sides and a black-line along the northern fence-line that is parallel to graded dirt road. The southern unit will require more black-line work to establish a perimeter on the southern flank along the U.S.- Mexico border.

The northern unit would be the first to be burned because of the road system surrounding it. This would create a good barrier for burning the southern unit. For the southern unit, black-line would be established from the Whitewater road along the U.S.- Mexico border and up to the road that makes the southern boundary of the northern unit.

Maps attached:

Location map:	Yes/No	Appendix A
Burn Unit map:	Yes/No	Appendix B
Fuels map:	Yes/No	
Burn unit map with ignition pattern, hazards, etc:	Yes/No	Appendix B

Aerial photograph:	Yes/No
Smoke screening map:	Yes/No Appendix C
Contingency/secondary control lines	Yes/No Appendix A
Other: Animas Foundation and TNC agreement	Yes/No Appendix D

6. PRESCRIBED BURN JUSTIFICATION:

Type of burn (ecological management, hazard reduction, training, or research):
 Research burn.

Burn unit management goals.

1. Safety first.
2. Cause minimal disturbance to land due to burn activities.
3. To replicate a natural ignition and burn pattern for research purposes.

Specific burn objectives:

Specific objective is to burn a majority of the area within the burn unit, with the exception of the 1 km x 0.5 km fire exclusion area that will be black-lined to prevent fire from entering.

7. FUEL AND WEATHER PRESCRIPTION (give acceptable ranges)

Required Parameters	Max	Min	Preferred
Wind direction(s)	Any		S-SW
Effective wind speed	15	3	8
1-hour fuel moisture	8	2	3
10-hour fuel moisture	n/a	n/a	n/a
100- hour fuel moisture	n/a		
Live fuel moisture	N/A		
Atmospheric mixing height (ft)	none	5500	6500-9000
Other (e.g. KBDI, Live/dead ratio)	N/A		
Soil moisture %	N/A		

Guidance Parameters	Max	Min	Preferred
Air Temperature (*F)	95	45	75-85
Relative Humidity (%)	45	10	15-20
Days since rain	180	1	10
20 ft. wind speed (mph)	20	5	10-15

List any combination of parameters that you will exclude from your burn window (e.g. high wind speeds with low 1-hour fuel moisture).

Light variable winds with very dry conditions are a greater problem than consistent, higher winds (8-12 mph).

Other comments:

8. PREDICTED FIRE BEHAVIOR (From BEHAVE or attach BEHAVE outputs:

Use inputs from #7; include predictions for fuels surrounding burn unit).

Use this information as a guide to the potential range of behavior from a free-burning fire, and for contingency planning.

	Fuel model #1	Fuel Model #3	Fuel model
Max Headfire flamelength	12.7 feet	42.2 feet	
Min Headfire flamelength	1.9 feet	9.1 feet	
Max HF rate of spread	568 ch/hr	1078 ch/hr	
Min HF rate of spread	15 ch/hr	59 ch/hr	
Max backfire flame length	N/A		
Min backfire flame length	N/A		
Max BF Rate of spread	N/A		
Min BF rate of spread	N/A		
Max scorch height	N/A		

9. FIRE BEHAVIOR NARRATIVE (Describe desired fire behavior. How will you manipulate fire behavior to meet management and control objectives?)

We will start with slow moving backing fire on the downwind side of the unit burning small stripes at first then widening them to create a 100-foot wide blackline. Once the downwind perimeter is secure head and flanking fires will be used to achieve the desired objectives. It may be necessary to enter interior of the unit to ignite unburned areas if fire does not spread well due to light fuels or no wind. This operation would be conducted after fire has settled when igniters can work from the black.

10. SMOKE MANAGEMENT PLAN:

Smoke screening procedures completed? Yes/No

List downwind/down-drainage smoke sensitive areas (give distance):

Other than a few ranch houses there are no smoke sensitive areas within 25 miles. The amount of smoke anticipated from the burn unit should disperse before reaching any highly populated areas.

List other smoke sensitive areas:

The few Ranch houses in the area will be notified prior to ignition as well as local Fire Departments and Gila Dispatch. The distance from the burn unit to the nearest house is great enough to prevent any serious smoke issues.

Map of smoke sensitive areas attached. Yes/No

Describe desirable smoke behavior and smoke management actions:

The grass fuel model will burn rapidly and smoke should be minimal. With proper wind conditions smoke should disperse quickly within 2500 feet of ground. The duration and size of the burn should not create enough smoke to reach highly populated areas that are at least 50 miles away.

11. CREW ORGANIZATION

Qualified fire leader(s): Sam Smith from Grassland Management for the Gray Ranch. Other qualified personal from the BLM will be on scene.

Crew Number 12 to 16

Organization chart attached? No

Fitness & experience requirements Red card qualified and annual pack test.

12. EQUIPMENT

Required items:

Available

Pumper on site

Yes/No

Radios

Yes/No

Protective clothing

Yes/No

First aid kit

Yes/No

Weather kit

Yes/No

Fire shelters

Yes/No

Justification(s) for Exemptions:

Equipment list	Number	Source
Type 6 engine	At least 4 engines	Animas Foundation Arid Lands Project BLM
ATV w/ 14 gal. Sprayer		
6 drip torches		
10 swatters		
6 pack sprayers		
Various hand tools		
Water tender 2000 gal.		

13. BURN DURATION

Time (indicate minutes, hours, days) for:

Baseline preparation: 12 -16 hrs.

Spreading fire: 6-8 hours,

Mop-up: 8-10 hours

Total duration: 26-34 hours/completed in 2-3 days.

14. MANAGING THE BURN (Describe each of the following):

Firebreak preparations:

The burn unit has well used dirt roads on the west, north, and east sides. The south side of the unit has a lightly traveled road along a portion of the boundary parallel with the U.S.- Mexico border and will require establishment of a fuel break. Black-lining a stretch of just over three miles at a distance from the border fence will be done a day or two before the main burn. We will establish black-lines using engines and ATV's creating wet lines to control the flames. A water tender will also be on site to supply water to the engines.

Fuel breaks in the form of black lines will also be established around the 2 fire exclusion areas that are within the burn unit. Engines and ATV's will be used to create wet-lines to control the flames. A fuel break will also be established along the fence-line on the north side of the pasture. A mower will likely be used ahead of time to create safe lines to black-line.

Firebreak/black-line preparation parameters:

Air temperature (*F)	Max	Min	Preferred
Relative humidity (%)	50	10	15-20
20 ft wind speed (mph)	12	0	2-5
Wind direction			Any
Mid-flame wind speed	10	0	2
Days since rain			
Air temp *F	95	55	75-80

Firing techniques and ignition pattern:

The burn will be ignited using hand held drip torches and possibly a terra torch mounted on an ATV. Starting on the downwind side of burn unit, probably the NE or SE

corner, two ignition and holding crews will begin with a test burn, if test burn shows good fire behavior crews will consider test burn the start of main burn. Backing fire will be used to widen the perimeter of unit as the two ignition crews move in opposite directions, (west and south) widening the line while they move. It may be necessary to have two igniters on each crew so that we move at a steady pace. Once the downwind perimeter is secure crews will ignite head and flanking fires along the roads on the south and west sides of the unit eventually meeting at the opposite corner from where they started. Ignition along the west and south sides of the unit may take more time to complete than the north and east sides. The fuels are heavier and the hills adjacent to the road may create wind problems. Ignition should start in the early morning hours to take advantage of the calm conditions and higher humidity.

It may be necessary for one of the ignition crews to ignite around the edges of the fire exclusion area just prior to reaching them. This will widen the line sufficiently to prevent fire from entering the exclusion area. Once the perimeter of the unit is secure it may be necessary to conduct interior ignitions. This will be done along the road that crosses the middle of the unit. Crews may also ignite additional areas using the black as safety zones to reach unburned areas that require ignition.

Crew communication:

Each crewmember will have a radio programmed with the proper frequencies and will be able to contact any of the other crewmembers at any time. If the crews become so spread out that terrain creates communication problems a person will be used to relay messages, there are several hills in the area that would work well as a relay point.

Fire behavior and weather monitoring:

A spot weather forecast will be obtained within a few hours of ignition. Weather conditions will be monitored at least once every hour on site during burning. A test burn will be conducted if fire behavior and weather conditions are within prescription the main burn will be started.

Holding:

There will be at least four engines on site during the burn. There will be one engine with each ignition crew and at least one on standby. Three ATV's, one with a 14-gallon sprayer, will also be on site and used to patrol the perimeter during the burn. A water tender will be on site to provide water for the engines and ATV's. Two holding crews will be assigned to monitor and patrol as ignition progresses. Once ignition crews complete ignition of the perimeter they will join in with the holding crews to monitor and mop-up.

Fire sensitive areas.

The exclusion areas that will be black-lined are the only sensitive areas within the burn unit. Since two blocks are within the burn unit there will be two exclusion areas that will require black lining. This will be done during the black-lining operation conducted several days in advance of the main burn.

Contingencies (include safety zones, escape routes, secondary control lines, escape response procedures):

SAFETY ZONES & ESCAPE ROUTES: Safety zones and escape routes will be included in briefing at beginning of burn, they will include the roads, black areas and areas of bare ground found throughout the unit. All crew members will be working with "one foot in the black" which will create good escape routes.

SECONDARY CONTROL LINES: If fire gets out of unit ignition will stop and personal will assume suppression positions that will be assigned before ignition begins. Because of fuel type direct attack will be possible by hand and with engine and ATV. Local Volunteer Fire Departments including Animas, Playas and Cotton City and New Mexico State Forestry will be notified if any problems occur. The primary control lines include the pass road and White Water road (see appendix A, contingency/secondary control lines). A larger secondary allowable burn area will be used in the event an escape becomes too large to suppress. We will fall back to these roads if direct attack is ineffective and begin a burnout operation.

In the event that fire escapes and goes into Mexico the following procedure will be followed. The Mexico landowner and the Mexican officials in charge of wildland fires (CONAFOR) will be notified. There are several numbers that can be called and someone fluent in Spanish will be needed to make the call. The people to contact at CONAFOR are: Marcos Camau at 011-52-6622-1208-60, or Rodrigo Contreras at 011-52-6622-1352-73. Another number to try in Agua Prieta is 011-52-6633-3105-26. New Mexico State Forestry and the Gila zone will also be contacted and assistance will be requested. The U.S. Border Patrol will be notified of the dates of operations. In the event that fire escapes into Mexico we can cross the border without the presence of Border Patrol in order to control escape fires.

ESCAPE RESPONSE: If escape occurs holding crews will begin suppression efforts immediately. If control of escape is not possible the burn boss/fire leader will be notified. Ignition will be stopped and all personal will begin suppression efforts. Some of the crew will watch the burn area while suppression efforts are under way. If immediate containment is not possible additional support will be called in (see page 2 for emergency numbers). If fire gets too large crews will fall back to secondary lines and begin burnout if need be and if conditions are favorable.

Potential hazards to crew:

Fire is primary hazard; other hazards include equipment, tools, snakes, Africanized Bees/poisonous insects, barbwire fences. Since the burn unit is adjacent to the U.S.-Mexico International Border the possibility of encountering illegal immigrants exists. The best policy is to ignore them and vacate the area if they are not in danger from the fire, then notify overhead of situation. The U.S. Border Patrol will be notified if any illegal traffic is encountered.

Mop-up:

Mop-up will be started immediately after and also during the burn. All material that poses a threat for escape will be moved, eliminated or extinguished as burning progresses. When burning is complete perimeter will be patrolled and all hot spots extinguished 25-50 feet in from perimeter. An inspection will be done the following morning, and continue until all smokes and signs of fire are out.

Public relations:

Animas Foundation will handle any public relations needs as they arise. Due to the remote location of the burn very little PR should be needed.

Follow up assignments:

Return to the site with the Researchers and review the project to provide details important to the project.

15. DOCUMENTATION

A report will be written following the burn that details the accounts of the operation. Follow-up reports will be written as needed. Photographs should be taken of the unit before, during and after the burn treatment.

Exemptions or modifications of burn requirements and guidelines:

Justification(s) for exemptions or modifications:

16. LEGAL CONSIDERATIONS

Describe the ownership/management responsibility of this site: The private property on which this burn is to take place is owned by the Animas Foundation.

Release/waivers required?	Yes/No
Release/waivers attached?	Yes/No

PRE-BURN CHECKLIST AND CREW BRIEFING

Location:

Burn unit:

Date:

A. PRIOR TO CREW BRIEFING

- Fire unit is as described in plan.
- Required firebreaks complete.
- Permits obtained. Give permit #s.
- Official and neighbor notifications complete.
- Required equipment is on-site and functioning.
- Planned ignition and containment methods are appropriate.
- List of emergency phone numbers are in each vehicle.
- Planned contingencies and mop-up are appropriate.

B. CREW BRIEFING

- Each crewmember has a burn unit map.
- Fire unit size and boundaries discussed.
- Fire unit hazards discussed.
- Purpose of burn.
- Anticipated fire and smoke behavior.
- Review of equipment and troubleshooting.
- Check crew qualifications.
- Review organization of crew and assignments
- Review methods of ignition, holding, mop-up, and communications.
- Review contact with public: traffic concerns.
- Location of vehicles, keys and nearest phone.
- Location of back-up equipment, supplies, and water.
- Review all contingencies including escape routes.
- Review mop-up procedures.
- Answer questions from crew.
- Give crewmembers opportunity to decline participation.

C. PRIOR TO IGNITION

- Weather and fuel conditions are within prescription.
- Weather forecast, obtained within two hours of ignition, says prescribed weather will hold for two hours past expected duration of burn.
- Crew members have required protective clothing.
- Crewmembers have matches.
- Conduct test burn.

D. BEFORE LEAVING BURN UNIT

- Mop-up completed.
- Next morning inspection arranged.
- Notifications of completed burn (if required).

E. NOTE ANY MODIFICATIONS TO RX

Fire leader:

Date: