

CORO lehmann lovegrass Rx

NATIONAL PARK SERVICE
U.S. DEPARTMENT OF INTERIOR



Table of Contents

Signature Page	3
Element 1: Agency Administrator Pre-Ignition Approval Checklist	4
Element 2: Prescribed Fire Go/No Go Checklist	5
Element 3: Complexity Analysis Summary	6
Element 4: Description of Prescribed Fire Area	7
Element 5: Goals and Objectives	8
Element 6: Funding	8
Element 7: Prescription	8
Element 8: Scheduling	9
Element 9: Pre-Burn Considerations	9
Element 10: Briefing	10
Element 11: Organization and Equipment	11
Element 12: Communications	22
Element 13: Public and Personnel Safety, Medical	22
Element 14: Test Fire	17
Element 15: Ignition Plan	17
Element 16: Holding Plan	18
Element 17: Contingency Plan	19
Element 18: Wildfire Conversion	21
Element 19: Smoke Management and Air Quality	22
Element 20: Monitoring	22
Element 21: Post-Burn Activities	23

Appendices

TABLE of CONTENTS	24
A. Maps:	
A1. Vicinity Map	25
A2. Project Map	26
B. Technical Review Checklist	27
C. Complexity Analysis	28
D. Job Hazard Analysis	43
E. Fire Behavior Modeling	45
F. Structure Protection Plan	49
G. NEPA Documentation	50
H. Arizona Department of Environmental Quality Air Quality Forms	55
I. Research Prospectus	

PRESCRIBED FIRE PLAN (July 2008 version)

ADMINISTRATIVE UNIT(S): CORONADO NATIONAL MEMORIAL

PRESCRIBED FIRE NAME: CORO lehmann lovegrass Research Rx

PREPARED BY: Kevin Parrish, RXB2, Current

DATE: 27 March 2009

Name & Qualification & Currency

TECHNICAL REVIEW BY: _____

DATE: _____

Name & Qualification & Currency

COMPLEXITY RATING: Moderate

MINIMUM RXB REQUIREMENT: RXB2

APPROVED BY: _____

DATE: _____

Agency Administrator

ELEMENT 1: AGENCY ADMINISTRATOR GO/NO-GO PRE-IGNITION APPROVAL CHECKLIST

Instructions: The Agency Administrator's GO/NO-GO Pre-Ignition Approval is the intermediate planning review process (i.e. between the Prescribed Fire Complexity Rating System Guide and Go/No-Go Checklist) that should be completed before a prescribed fire can be implemented. The Agency Administrator's Go/No-Go Pre-Ignition Approval evaluates whether compliance requirements, Prescribed Fire Plan elements, and internal and external notifications have been or will be completed and expresses the Agency Administrator's intent to implement the Prescribed Fire Plan. If ignition of the prescribed fire is not initiated prior to expiration date determined by the Agency Administrator, a new approval will be required.

YES	NO	KEY ELEMENT QUESTIONS
		Is the Prescribed Fire Plan up to date? <i>Hints: amendments, seasonality.</i>
		Will all compliance requirements be completed? <i>Hints: cultural, threatened and endangered species, smoke management, NEPA.</i>
		Is risk management in place and the residual risk acceptable? <i>Hints: Prescribed Fire Complexity Rating Guide completed with rational and mitigation measures identified and documented?</i>
		Will all elements of the Prescribed Fire Plan be met? <i>Hints: Preparation work, mitigation, weather, organization, prescription, contingency resources</i>
		Will all internal and external notifications and media releases be completed? <i>Hints: Preparedness level restrictions</i>
		Will key agency staff be fully briefed and understand prescribed fire implementation?
		Are there any other extenuating circumstances that would preclude the successful implementation of the plan?
		Have you determined if and when you are to be notified that contingency actions are being taken? Will this be communicated to the Burn Boss?
		Other:

Recommended by: _____ Date: _____
FMO/Prescribed Fire Burn Boss

Approved by: _____ Date: _____
Agency Administrator

Approval expires (date): _____

ELEMENT 2: PRESCRIBED FIRE GO/NO-GO CHECKLIST

A. Has the burn unit experienced unusual drought conditions or does it contain above normal fuel loadings which were not considered in the prescription development? If <u>NO</u> proceed with checklist below, if <u>YES</u> go to item B.	YES	NO
B. Has the prescribed fire plan been reviewed and an amendment and technical review been completed; or has it been determined that no amendment is necessary? If <u>YES to any</u> , proceed with checklist below, if <u>NO</u> , STOP.		

YES	NO	QUESTIONS
		Are ALL pre-burn prescription parameters met?
		Are ALL smoke management specifications met?
		Has ALL required current and projected fire weather forecast been obtained and are they favorable?
		Are ALL planned operations personnel and equipment on-site, available, and operational?
		Has the availability of ALL contingency resources been checked and are they available?
		Have ALL personnel been briefed on the project objectives, their assignment, safety hazards, escape routes, and safety zones?
		Have all the pre-burn considerations identified in the Prescribed Fire Plan been completed or addressed?
		Have ALL the required notifications been made?
		Are ALL permits and clearances obtained?
		In your opinion, can the burn be carried out according to the Prescribed Fire Plan and will it meet the planned objective?

If all the questions were answered "YES" proceed with a test fire. Document the current conditions, location, and results

Burn Boss

Date

ELEMENT 3 COMPLEXITY ANALYSIS SUMMARY

PRESCRIBED FIRE NAME			
ELEMENT	RISK	POTENTIAL CONSEQUENCE	TECHNICAL DIFFICULTY
1. Potential for escape	M	M	H
2. The number and dependence of activities	L	M	L
3. Off-site Values	M	M	L
4 On-Site Values	L	L	L
5. Fire Behavior	M	M	L
6. Management organization	M	L	L
7. Public and political interest	L	M	L
8. Fire Treatment objectives	L	L	L
9 Constraints	L	L	M
10 Safety	L	L	L
11. Ignition procedures/ methods	L	M	L
12. Interagency coordination	L	L	L
13. Project logistics	L	L	L
14 Smoke management	L	L	L

COMPLEXITY RATING SUMMARY	
	OVERALL RATING
RISK	LOW
CONSEQUENCES	LOW
TECHNICAL DIFFICULTY	LOW
SUMMARY COMPLEXITY DETERMINATION	LOW
RATIONALE: While there is a moderate risk for spots and/or slop-overs, adequate resources mitigate this risk. Majority of the element ratings are "LOW". Overall rating thus will be low; RXB2 recommended.	

ELEMENT 4: DESCRIPTION OF PRESCRIBED FIRE AREA

A. Physical Description

1. Location: Cochise County in southern Arizona.
Coronado National Memorial, 31° 20.61' by 110° 14.190'
2. Size: Approx 35 acres
3. Topography: Flat; Elevation from 4982' to 5103'.
4. Project Boundary: Unit is in the shape of a triangle consisting of East Forest Lane on the north of the unit and on the west of the unit and a mow line approx 30' wide on the east. No MMA is established for this project due to the private in-holdings (residences) in close proximity to the unit.

B. Vegetation/Fuels Description:

1. On-site fuels data: Consists of a near monoculture of lehmann lovegrass (*Eragrostis lehmanniana*). A few oaks and agaves are scattered throughout the project area.
2. Adjacent fuels data: Essentially the same to the south and east. Similar to the west for approx. ¼ mile with a few more oaks near a wash, then transitioning to oak woodland as the slope increases rapidly beyond the ¼ mile mark. To the north the fuels transition more rapidly to an oak woodland.

C. Description of Unique Features:

The only unique feature in this unit is the presence of agave. Agave in and of themselves are not unique but they are forage for listed bats in the general area. There is an abundance of agave and no measures will be taken to protect the forage on this unit.

ELEMENT 5: OBJECTIVES

SUMMARY: lehmann Lovegrass (*Eragrostis lehmanniana*) is an exotic African grass that has invaded large portions of southern Arizona. This prescribed fire project is part of an experiment to study several effects on lehmann lovegrass. The fire portion of this project is only one element in this study as herbicide, timing and re-seeding may all be used in this experiment. This plan will only cover the prescribed fire portion of the project. For all other factors see the associated lehmann lovegrass study in the appendix.

A. Objectives:

1. Resource objectives: Study associated effects of fire, herbicide, re-seeding and timing of fire on lehmann lovegrass to determine if there is a combination that may allow native grasses to out-compete the lehmann lovegrass that has invaded the project area (as well as a much larger area in southern Arizona).

2. Prescribed fire objectives: Consume up to 100% of the lehmann lovegrass within the unit. Adhere to any study protocols. Oaks and Agaves are not a substantial element within the unit and are not considered a factor in this project.

ELEMENT 6: FUNDING:

A. Cost: Preparation $\approx$ \$1,000. Implementation $\approx$ \$5,000.

B. Funding source: NPS fuels.

ELEMENT 7: PRESCRIPTION

A. Environmental Prescription:

Wind Speed < 6mph at eye level.

NOTE: This is an in-season burn scheduled for the hottest/driest time of the year. Rh's are expected to be in the low single digits and temps in the upper 90's or 100's.

B. Fire Behavior Prescription:

No restrictions on fire behavior that the wind speed prescription will not mitigate.

ELEMENT 8: SCHEDULING

A. Ignition Time Frames/Season(s):

Before the monsoons have kicked in; mid to late June or early July.

B. Projected Duration:

One day for preparation; One day for implementation; One more day of monitoring for residual heat and smoke MAY be necessary.

C. Constraints:

- National or Regional Preparedness Levels may necessitate approval from SWCC or NICC.
- Resource availability
- Other fires within SEZ.

ELEMENT 9: PRE-BURN CONSIDERATIONS AND WEATHER

A. Considerations:

1. On Site: Resource availability
2. Off Site: National and Regional Preparedness Levels; SEZ fire activity.

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

Obtain a burn permit from AZDEQ every day of active burning and obtain a Spot Weather Forecast every day of active burning. Additional SPOTS may be requested if the original SPOT does not match conditions on the unit or if conditions change significantly during the burn.

C. Notifications:

Tucson Dispatch
Sierra Vista Ranger District
Palominas Fire Department
Coronado Memorial standard press release if the Superintendent wishes.

ELEMENT 10: BRIEFING

Briefing Checklist:

- ☐ Burn Organization
- ☐ Burn Objectives
- ☐ Description of Prescribed Fire Area
- ☐ Expected Weather & Fire Behavior
- ☐ Communications
- ☐ Ignition plan
- ☐ Holding Plan
- ☐ Contingency Plan
- ☐ Wildfire Conversion
- ☐ Safety and Medical Plan
- ☐ Aerial Ignition Briefing (if Required)

ELEMENT 11: ORGANIZATION AND EQUIPMENT

A. Positions: RXB2, FIRB, SRB for holding boss (ENGB preferred, or STEN or higher, ICT4 is also a good fit), ICT4 not committed to other duties (in case of a conversion), FEMO.

B. Equipment: 2 Type 6 engines; 1 Type 3 or 4 engine REQUIRED. Water Tender not required but advised. Water Tender located at Palominas is less than 10 mins. Travel time. Approx. 1400' 1.5" hose and four 1.5" gated wyes required on scene and in place around the two clusters of structures. If available the hose lay may include up to sixteen 1.5" sprinklers divided among the 2 clusters.

NOTE: **2 UTV's with tanks and pumps may replace one Type 6 engine.**
 1-10 person crew may replace one Type 6 engine.
 1 type 6 engine and 1 Type 3 or 4 engine are REQUIRED at a
 minimum regardless of replacements! Only 1 Type 6 engine may be
 substituted for.

C. Supplies: Couple of drip torches.

ELEMENT 12: COMMUNICATION

A. Radio Frequencies

1. Command Frequency(s):
Coronado Fire Repeater-Mule Rx 168.150 Tx 172.275 Tone 103.5
2. Tactical Frequency(s):
NIFC TAC 1 Rx/Tx 168.050
3. Air Operations Frequency(s):
SEZ Air to Ground Rx/Tx 171.475

NOTE: Any/all radio frequencies may be changed and/or reassigned by Tucson Dispatch at any time. If this occurs all personnel will be notified via the chain of command from the Burn Boss down of the changes and confirmation should be relayed back up the chain of command to the Burn Boss.

B. Telephone Numbers:

Coronado National Memorial Superintendent (Kym Hall)	O: 520.366.5515
Coronado National Forest, Sierra Vista Ranger District	O: 520.378.0311
Tucson Dispatch	O: 520.388.8470 F: 520.388.8476

ELEMENT 13: PUBLIC AND PERSONNEL SAFETY, MEDICAL

- A. Safety Hazards:** Footing, critters, smoke, undocumented aliens.
- B. Measures Taken to Reduce the Hazards:** Adequate briefing, limited exposure.
- C. Emergency Medical Procedures:** Isolate the incident, determine the severity of the injury and treat at the lowest level that is safe to do so. Notify the Burn Boss. If the injuries are severe the injury will be treated as an incident within an incident. All operations will cease if/when safe to do so until the medical incident is resolved. In the event that ground transportation is needed either on-site personnel will transport the injured person to the appropriate medical facilities, most likely Sierra Vista Community Hospital, or an ambulance will be ordered through Tucson dispatch or 911. If air transportation is needed a Landing Zone (LZ) will be identified and air transport ordered through Tucson Dispatch.

In the event of any serious injuries the Park's Superintendent will be notified as soon as possible and prudent.

- D. Emergency Evacuation Methods:** There are only two directions to enter CORO. Montezuma Canyon Road enters and exits the park to the east and to the west. The western path is a dirt road, rough and slow. The preferred and recommended entrance/exit is to the east which is paved and leads to Sierra Vista. In the event the park needs to be evacuated the procedures outlined in CORO's evacuation plan will be used for all personnel except for fire personnel assigned to the prescribed fire.
- E. Emergency facilities:** All driving directions begin at the intersection of AZ-83/East Montezuma Canyon Road and East Forest Lane.

SEE FOLLOWING FOR HOSPITAL LOCATIONS/MAPS/DIRECTIONS

Sierra Vista Community Hospital-No Burn Unit

300 El Camino Real

Sierra Vista, AZ 85635

520.458.4641

Helipad: 31° 33.111' by 110° 16.285'

18.5 mi – about 42 mins

AZ-83/E Montezuma Canyon Rd

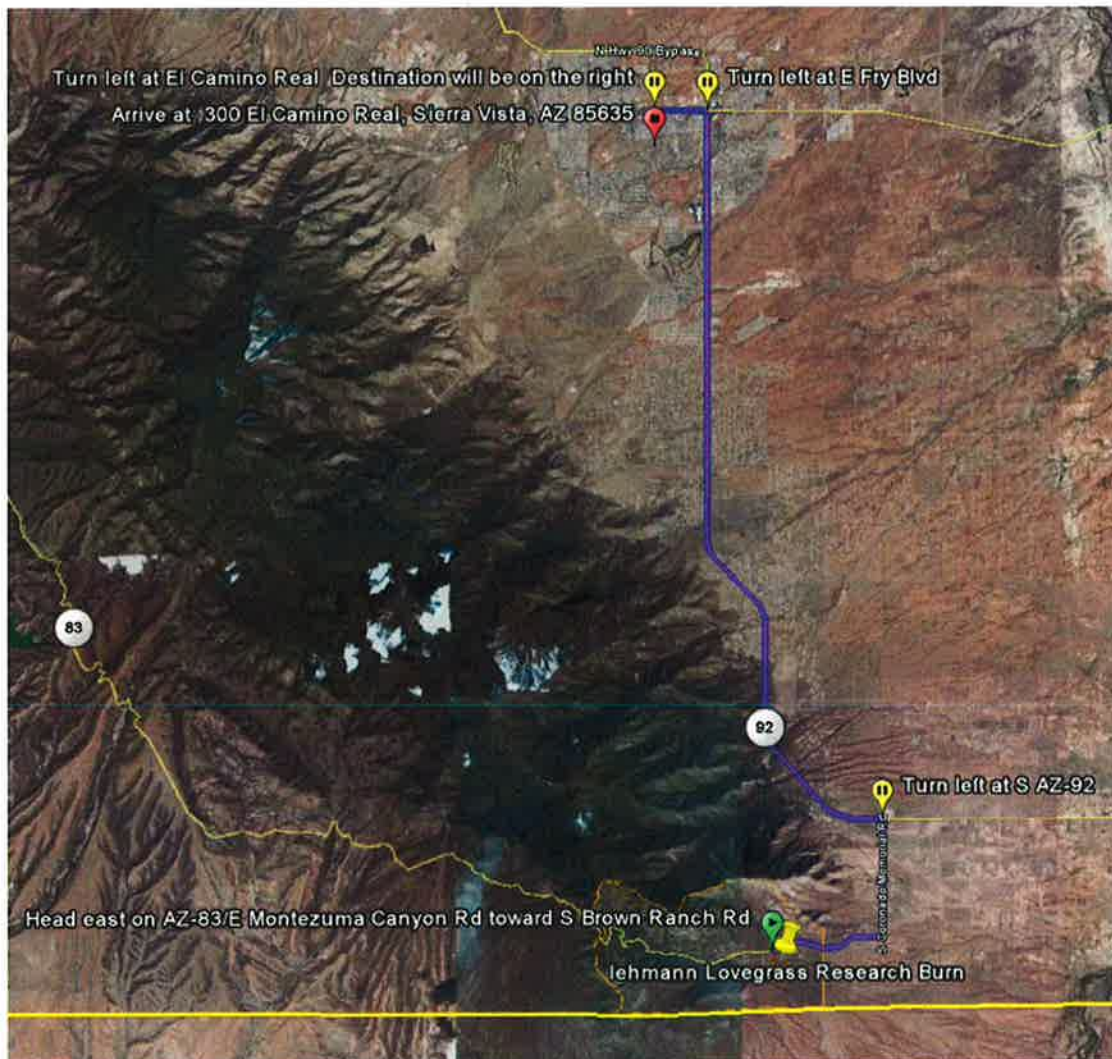
Head east on AZ-83/E Montezuma Canyon Rd toward S Brown Ranch Rd 4.0 miles

Turn left at S AZ-92 13.6 miles

Turn left at E Fry Blvd 0.6 miles

Turn left at Calle Portal 0.2 miles

Turn right at E Dove Dr Destination will be on the right



Close up map of Sierra Vista Community Hospital

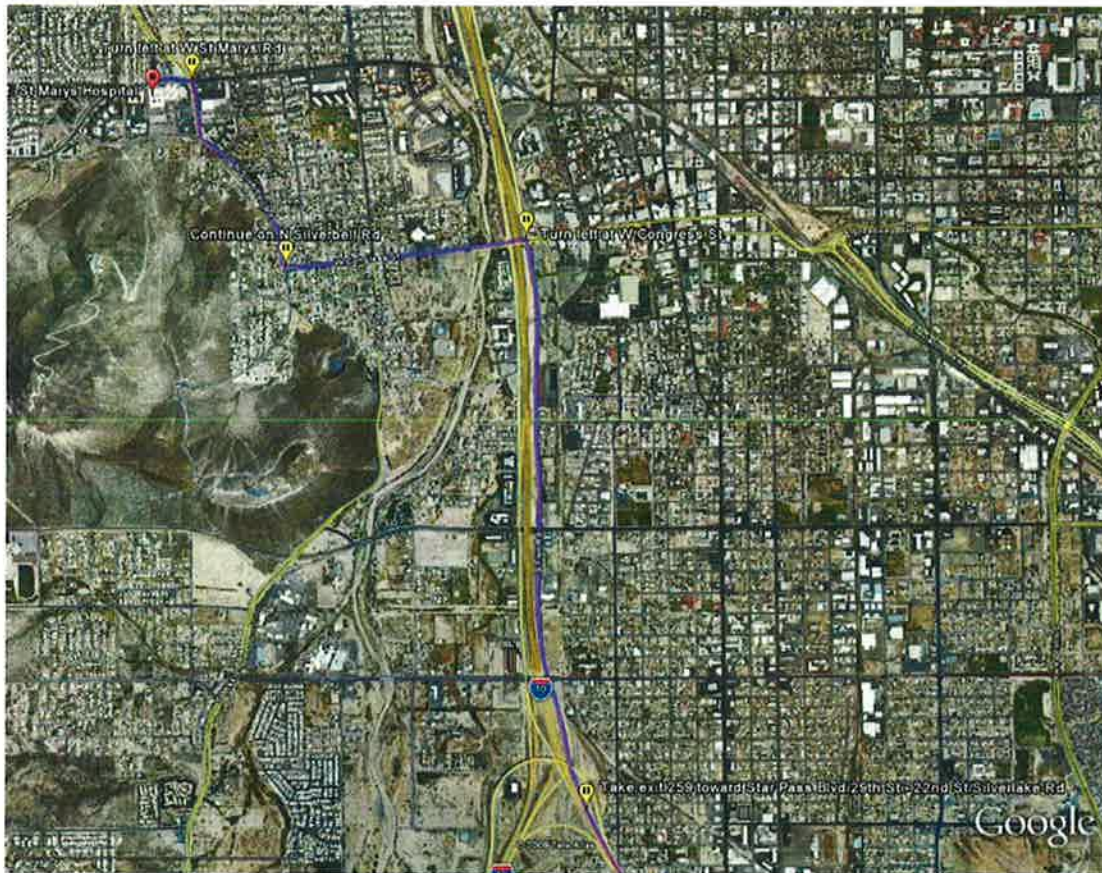


St. Mary's in Tucson-Burn Unit
1601 W. St. Mary's Rd.
Tucson, AZ 85635
Commercial 1.520.872.3000
ER 1.520.872-4901
Helipad 32° 13.692 by 110° 59.996
Driving directions to St Mary's Hospital
(520) 872-3000
95.1 mi – about 2 hours 13 mins

Head east on AZ-83/E Montezuma Canyon Rd toward S Brown Ranch Rd 4.0 miles
Turn left at S AZ-92 13.6 miles
Continue straight onto E AZ-90 31.9 miles
Turn left to merge onto I-10 W 42.0 miles
Take exit 259 toward Star Pass Blvd/29th St - 22nd St/Silverlake Rd 0.4 miles
Continue straight onto S Fwy Rd (signs for Star Pass Blvd/22nd St) 1.6 miles
Turn left at W Congress St 0.8 miles
Slight right to stay on W Congress St 203 feet
Continue on N Silverbell Rd 0.7 miles
Turn left at W St Mary's Rd Destination will be on the left 344 feet



Close up map of St. Mary's Hospital



ELEMENT 14 TEST FIRE

- A. **Planned location:** The downwind corner of the unit will be where the test fire is conducted.
EXA: With SW prevailing winds the test fire would be at the NE corner.

B. Test Fire Documentation:

1. Weather conditions On-Site:

DB _____ WB _____ Rh _____

WS _____ WD _____ CC _____

2. Test Fire Results:

ELEMENT 15: IGNITION PLAN

- A. **Firing Methods (including Techniques, Sequences and Patterns):** Two teams of 2-3 lighters each will begin at the downwind corner of the unit. Each team will travel in opposite directions conducting strip firing along the perimeter of the unit. Care will be taken to insure the holding forces can adequately cover the area that is actively burning and to insure that the two teams are keeping pace with each other as to insure there will not be a head fire inadvertently sent towards the other ignition team. The teams will continue around their perspective corners and a head fire will be allowed to burn the remainder of the unit. The two teams will coordinate so that they will meet at a pre-determined location. Visibility and communications of this unit are very good as to allow excellent coordination efforts easily.

- B. **Devices:** Four to six drip torches

- C. **Ignition Staffing:** Two teams of 2 or 3 igniters each.

ELEMENT 16: HOLDING PLAN

A. General Procedures for Holding: Holding forces will follow the ignition teams as they proceed around the unit. No single side should be left un-staffed at any time unless there is a significant threat to life or property or the project has been converted to a wildfire. Holding forces will patrol behind them periodically in search of spot fires or slop-overs throughout the duration of the project. If a hand crew is assigned the Holding Boss may opt to split the crew into 2 or 3 squads and dispatch them as he or she sees fit. If there are more than the minimum amount of engines available, the hose lay and/or sprinkler system around the structures will remain charged and attached to an engine, most likely the medium (Type 3 or 4) engine.

B. Critical Holding Points and Actions:

1-Structures are threatened.

Burn Boss will be notified IMMEDIATELY. Ignition procedures will cease when safe to do so. Holding Boss will reassign as many resources as possible to mitigate any threat to the structures. If the hose lay was not charged and it is determined that charging the hose lay is the best course of action the Holding Boss will determine which engine should charge the hose lay (preferably the medium engine).

2-fire is outside the project area and may cross East Montezuma Canyon Road to the North, enter Mexico to the South, leave the park boundary in any direction (primarily South or East) or the fire is approaching the hill to the West.

Burn Boss will be notified IMMEDIATELY. Ignition procedures will cease when safe to do so. Holding Boss will determine course of action. Public and firefighter safety is the primary concern. Limiting acreage is desirable.

C. Minimum Organization or Capabilities Needed: RXB2, FIRB, SRB for holding boss (ENGB preferred, or STEN or higher, ICT4 is also a good fit), ICT4 not committed to other duties (in case of a conversion), FEMO.

2 Type 6 engines and 1 Type 3 or 4 engine REQUIRED. Water Tender not required but advised. Water Tender located at Palominas is less than 10 mins. drive time. Approx. 1400' 1.5" hose and four 1.5" gated wyes required on scene and in place around the two clusters of structures. If available the hose lay may include up to sixteen 1.5" sprinklers divided among the 2 clusters.

NOTE: 2 UTV's with tanks and pumps may replace one Type 6 engine.

1-10 person crew may replace one Type 6 engine.

1 type 6 engine and 1 Type 3 or 4 engine are REQUIRED at a minimum regardless of replacements! Only 1 Type 6 engine may be substituted for.

ELEMENT 17: CONTINGENCY PLAN

A. Management Action Points:

- 1) Burn exceeds or is threatening to exceed boundaries of the project area and may not be contained within the current burning period.
- 2) Burn exceeds or is threatening to exceed the capabilities of current holding resources assigned to the prescribed fire.
- 3) Spot or slop over threatening residential areas and/or outbuildings.
- 4) Extreme change or miss-forecast in weather leading to high wind events and/or fire behavior that exceeds the capabilities of on-site personnel.
- 5) Prescriptive parameters and/or project objectives are not being met or are outside of acceptable range.

B. Actions Needed:

If the Burn Boss determines that one or more of the management action points are threatened or exceeded, all ignitions will cease (unless ignitions will assist in bringing the burn back into prescription) until the burn is brought back into prescription when it is safe to do so.

- 1) If the burn exceeds or is threatening to exceed boundaries of the project area and may not be contained within the current burning period then the burn boss should notify Tucson Dispatch of additional needs. The Burn Boss should also consider conversion if contingency actions will not bring the burn back into prescription with the current burn period.
- 2) If the burn is threatening or has exceeded the capabilities of current resources then the burn boss should notify Tucson Dispatch of additional needs. The Burn Boss should also consider conversion if contingency actions will not bring the burn back into prescription with the current burn period.
- 3) If the burn has exceeded project boundaries and is threatening residential areas then the burn boss should notify Tucson Dispatch of additional needs. The burn boss must also ensure that law enforcement has been notified to assist with evacuations if necessary.
- 4) If extreme change in fire behavior or miss-forecast in weather occurs the burn boss should notify Tucson Dispatch requesting an update on weather.
- 5) If prescriptive parameters and/or project objective are not being met the burn boss should cease ignitions and go into a holding pattern unless ignitions will assist in bringing the burn back into prescription.

Ignitions personnel may be made available to the Holding Boss until the burn is brought back into prescription.

Wildfire conversion (Element 18). 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 prior to the end of the burning period, then the prescribed fire will be converted to a wildfire.

C. Additional Resources and Maximum Response Time(s):

- Tucson Dispatch will identify contingency resources available after the morning line-up. Tucson Dispatch will then notify the burn boss of contingency resources available and response times.
- All contingency resources should be ordered through Tucson Dispatch.
- If wildfire conversion looks eminent then the burn boss should order an ICT 3 (if not already on-site) through Tucson Dispatch.

ELEMENT 18: WILDFIRE CONVERSION

A. Wildfire Declared By: RXB2 is the only person who may convert the prescribed fire to a wildfire.

B. IC Assignment:

- Protect life and property.
- Make use of natural and man-made barriers
- Minimize acreage
- Keep the fire out of Mexico
- Keep the fire south of E. Montezuma Canyon Road if at all possible
- Keep the fire east of the wash at the base of Coronado Peak

C. Notifications:

- Coronado National Memorial Superintendent
- Tucson Dispatch
- NPS Inter-Mountain Regional Office
- SAGU FMO

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

- Direct attack using engines is the most likely solution to controlling the fire. Burning out from roads may be conducted IF time allows.
- Other resources will be ordered from Tucson dispatch. If structures are threatened then an ICT3 will be ordered if one is not available from personnel assigned to the project.
- Resources may include additional engines and/or hand crews as well as aerial resources including helicopters and/or fixed wing resources. Retardant may be used if necessary.
- Drainage at the eastern base of Coronado Peak, approx. 700' west of the unit.
- Roadway on the west side of the unit extends to the Mexican border and then runs along the International boundary to the east.
- East Montezuma Canyon Road runs the length of the Memorial east to west approx. 600' north of the unit.
- Roadway running north to south from E. Montezuma Canyon road to the International Border just east of the Memorial's boundary.
- Other roads to the east of the Memorial could aid in suppression activities.

ELEMENT 19: SMOKE MANAGEMENT AND AIR QUALITY

- A. Compliance:** AZ-DEQ Burn Plan will be filed and smoke permits will be obtained from AZ-DEQ.
- B. Permits to be Obtained:** Burn Permit via AZ-DEQ
- C. Smoke Sensitive Receptors:** Local residences.
- D. Potential Impacted Areas:** Local residences.
- E. Mitigation Strategies and Techniques to Reduce Smoke Impacts:** Small acreage should not produce smoke for a long period of time; burning under fair or better ventilation category will disperse smoke quickly.

ELEMENT 20: MONITORING

- A. Fuels Information Required and Procedures:** Fine dead fuel moisture will be calculated by the person assigned to monitor the weather and smoke. These reading are not required for the fire prescription but may be useful in the other portions of this project.
- B. Weather Monitoring (Forecasted and Observed) Required and Procedures:** A SPOT weather forecast will be obtained every day of active burning. On-site weather will be taken every hour or as deemed necessary by the burn boss.
- C. Fire Behavior Monitoring Required and Procedures:** Flame lengths and rates of spread will be monitored to insure that the project is within prescription.
- D. Monitoring Required To Ensure That Prescribed Fire Plan Objectives Are Met:** Little monitoring is required, the objective is to consume as much of the lehmann lovegrass as possible, an easily achievable objective given the nature of the fuel.
- E. Smoke Dispersal Monitoring Required and Procedures:** Smoke column will be recorded by the person assigned weather duties for volume, color, direction of dispersion, etc...

ELEMENT 21: POST-BURN ACTIVITIES

Post-Burn Activities That Must Be Completed:

There are no post-burn activities that must be completed by fire personnel for this project. Other functions/treatments/etc... may be conducted and fire staff will assist but the responsible party are the resource managers for the monument.

APPENDICES

A.	Maps: Vicinity and Project	
A1.	Vicinity Map	25
A2.	Project Map	26
B.	Technical Review Checklist	27
C.	Complexity Analysis	28
D.	Agency Specific Job Hazard Analysis	43
E.	Fire Behavior Modeling Documentation or Empirical Documentation	45
	(Unless it is included in the fire behavior narrative in Element 7; Prescription)	
F.	Structure Protection Plan	49
G.	NEPA Documentation	50
H.	AZDEQ Air Quality Forms	55
I.	Research Prospectus	

A1. Vicinity Map:



A2. Project Map:



B: TECHNICAL REVIEWER CHECKLIST

PREScribed FIRE PLAN ELEMENTS:	S /U	COMMENTS
1. Signature page		
2. GO/NO-GO Checklists		
3. Complexity Analysis Summary		
4. Description of the Prescribed Fire Area		
5. Objectives		
6. Funding		
7. Prescription		
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 Conversion		
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		
Appendix E: Fire Prediction Modeling Runs or Empirical Evidence		
Other		

S = Satisfactory

U = Unsatisfactory

Recommended for Approval: _____ Not Recommended for Approval: _____

Technical Reviewer

Qualification and currency (Y/N)

Date

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

C: COMPLEXITY ANALYSIS

Prescribed Fire Complexity Rating System Guide Worksheet

Instructions: This worksheet is designed to be used with the Prescribed Fire Complexity Rating descriptors on Page 6.

Project Name: CORO lehmann lovegrass Research Rx

Number: SAGU 002-09

Complexity elements:

1. Potential for Escape

Risk	Rationale
Preliminary Rating: <i>Low Moderate High</i>	Potential for spot fires/slop-over exists with the possibility of multiple spot fires at the same time. Given the small size of the unit multiple spot fires would be in close proximity to each other and most likely be addressed as one spot fire. Rates of spread would be moderate to high given the light flashy fuels (grass) but not extreme if the prescription limits wind speed. Probability of ignition will likely be high, 80% - 100%. There are more than 1 critical holding areas (keep fire away from the private residences/structures directly adjacent to the unit; keep the fire South of E. Montezuma Canyon Road; keep the fire North of the International Border; keep the fire on the park prevent the fire from spreading west onto the hill that is close by).
Final Rating: <i>Low Moderate High</i>	No change.
Potential Consequences	Rationale
Preliminary Rating: <i>Low Moderate High</i>	An escape, while resulting in little resource value, could impact private residences in the immediate vicinity. Potential for an escape to move off of the park and onto non-federal lands exists to the east approx. 0.6 miles and across international borders (Mexico) less than 0.5 miles to the south.
Final Rating: <i>Low Moderate High</i>	No change.
Technical Difficulty	Rationale
Preliminary Rating: <i>Low Moderate High</i>	Holding operations may be held at the Single Resource Boss level. The potential exists for different resources to be used however the unit is small, communication should be very good and the SRB should be adequate for the task. The immediate surrounding area is easily accessible and weather conditions are normal for the area and season.
Final Rating: <i>Low Moderate High</i>	No change.

2. The Number and Dependency of Activities

Risk	Rationale
Preliminary Rating: Low Moderate High	Activities are generally independent of each other.
Final Rating: Low Moderate High	No change.
Potential Consequences	Rationale
Preliminary Rating: Low Moderate High	Coordination issues could result in the increase of the risk for escape. Some delay may be incurred but should not risk the completion of the project.
Final Rating: Low Moderate High	No change.
Technical Difficulty	Rationale
Preliminary Rating: Low Moderate High	Minimum difficulty in coordination activities. Communications should be very good and little effort in coordination the activities is needed.
Final Rating: Low Moderate High	No change.

3. Off-Site Values

Risk	Rationale
Preliminary Rating: <i>Low Moderate High</i>	There are private residences adjacent to the project. Border Patrol has a surveillance tower in close proximity to the unit. Additionally there are several private structures within a 2 mile distance to the east of the park as well as park structures to the west. The international border lies to the south but there are no Mexican structures in the area. It is not anticipated that any visitor use will be impacted.
Final Rating: <i>Low Moderate High</i>	No change.
Potential Consequences	Rationale
Preliminary Rating: <i>Low Moderate High</i>	The vegetation surrounding the project is primarily a monoculture of non-native grass, lehmann lovegrass. As such little more resource damage can occur.
Final Rating: <i>Low Moderate High</i>	No change.
Technical Difficulty	Rationale
Preliminary Rating: <i>Low Moderate High</i>	Protection of off-site resources requires no special management beyond that of keeping the fire within the unit.
Final Rating: <i>Low Moderate High</i>	No change.

4. On-Site Values

Risk	Rationale
Preliminary Rating: Low Moderate High	None within the project area. There are private residences/structures directly adjacent to the project.
Final Rating: Low Moderate High	No change.
Potential Consequences	Rationale
Preliminary Rating: Low Moderate High	Very low for within the project area.
Final Rating: Low Moderate High	No change.
Technical Difficulty	Rationale
Preliminary Rating: Low Moderate High	No special skills or operating procedures are needed.
Final Rating: Low Moderate High	No change.

5. Fire Behavior

Risk	Rationale
Preliminary Rating: <i>Low Moderate High</i>	Fuels are uniform; fuel loading is moderate to high (approx. 1-1.5 tons/acre). Terrain is mostly flat and expected fire behavior is not anticipated to vary much. Fire is a two-dimensional surface fire.
Final Rating: <i>Low Moderate High</i>	No change.
Potential Consequences	Rationale
Preliminary Rating: <i>Low Moderate High</i>	Fire behavior outside the project area is expected to be the same as within the unit. The only exception to this is if the fire spreads a ways west or north, there is an elevation gain and the fuels transition from primarily grass to primarily oak brush with the distinct possibility of torching occurring. Further to the West and North slope becomes more of a factor as there is a considerable increase in elevation with no holding features available.
Final Rating: <i>Low Moderate High</i>	No change.
Technical Difficulty	Rationale
Preliminary Rating: <i>Low Moderate High</i>	Standard fire safety precautions are adequate for firefighter safety. The number of spot fires should not exceed on-site resource ability to contain the. Direct attack (with engines) should be sufficient to control any spot-fires. No on-site fire behavior calculations will be needed.
Final Rating: <i>Low Moderate High</i>	No change.

6. Management Organization

Risk	Rationale
Preliminary Rating: <i>Low Moderate High</i>	Most of the prescribed fire positions may be staffed for this project. A single person may hold more than one position however this will be avoided if possible. Two levels of supervision will be needed.
Final Rating: <i>Low Moderate High</i>	No change.
Potential Consequences	Rationale
Preliminary Rating: <i>Low Moderate High</i>	Problems with supervision or communication are not anticipated.
Final Rating: <i>Low Moderate High</i>	No change.
Technical Difficulty	Rationale
Preliminary Rating: <i>Low Moderate High</i>	All primary team members are available from local units and have worked together in the past. Filling positions is not anticipated to be a problem. No special supervision is needed.
Final Rating: <i>Low Moderate High</i>	No change.

7. Public and Political Interest

Risk	Rationale
Preliminary Rating: Low Moderate High	The project is small in size and should not be visible from any towns in the area. There are a number of residents near the project but there has not been any level of interest. A FIO may be assigned to the project but will not be required.
Final Rating: Low Moderate High	No change.

Potential Consequences	Rationale
Preliminary Rating: Low Moderate High	Unexpected or adverse events MAY attract media, public and perhaps political attention depending on the events that occurred. A dedicated FIO may be necessary to coordinate media releases, etc...
Final Rating: Low Moderate High	No change.
Technical Difficulty	Rationale
Preliminary Rating: Low Moderate High	Requires no special or dedicated FIO/PIO. Routine news releases from the park should be sufficient. No special notifications beyond the park's normal public information list should be necessary.
Final Rating: Low Moderate High	No change.

8. Fire Treatment Objectives

Risk	Rationale
Preliminary Rating: Low Moderate High	The objectives are easily achievable, necessary fire behavior is easy to create and manage.
Final Rating: Low Moderate High	No change.
Potential Consequences	Rationale
Preliminary Rating: Low Moderate High	Other opportunities to implement the project will present themselves. There are no other management activities that are dependent of this project. Failure to meet objectives would have few or no adverse impacts on natural resources.
Final Rating: Low Moderate High	No change.
Technical Difficulty	Rationale
Preliminary Rating: Low Moderate High	Measures to achieve the objectives are easy to complete and there are few of no restrictions on techniques. Very limited pre-burn monitoring is needed.
Final Rating: Low Moderate High	No change.

9. Constraints

Risk	Rationale
Preliminary Rating: Low Moderate High	There are no constraints concerning access, firelines, tactics, etc... There may be limited access to water sources that may need to be mitigated by having a tender on scene.
Final Rating: Low Moderate High	No change.
Potential Consequences	Rationale
Preliminary Rating: Low Moderate High	Project may be implemented whenever the project is in prescription and resources are available.
Final Rating: Low Moderate High	No change.
Technical Difficulty	Rationale
Preliminary Rating: Low Moderate High	Constraints, especially resource availability, may moderately increase the difficulty in completing this project.
Final Rating: Low Moderate High	No change.

10. Safety

Risk	Rationale
Preliminary Rating: Low Moderate High	Safety issues are readily identifiable and mitigated. Potential hazards are typical for the area and will be discussed in morning briefings. The only non-typical safety concern is the possible presence of undocumented aliens. Activities are considered high frequency/low risk. Escape routes and safety zones exist and are readily identifiable. Project duration should be short; there should be no fatigue issues or excessive smoke exposure.
Final Rating: Low Moderate High	No change.
Potential Consequences	Rationale
Preliminary Rating: Low Moderate High	Some potential exists for serious accidents/injuries to firefighters due to the nature of light flashy fuels. Most firefighters on the project are familiar with the specific fuel type and work in this particular fuel type often. Use of full PPE will be enforced, including neck shrouds.
Final Rating: Low Moderate High	Safety concerns can be mitigated by reminding firefighters of the risk of light flashy fuels.
Technical Difficulty	Rationale
Preliminary Rating: Low Moderate High	Safety concerns can easily be mitigated by through briefings and by implementing LCES. Standard safety briefing with the addition of UDA's and international border issues should be sufficient, all pretty standard protocol for the area.
Final Rating: Low Moderate High	No change.

11. Ignition Procedures/Methods

Risk	Rationale
Preliminary Rating: Low Moderate High	Firing sequence and timing are not critical to meet project objectives however some coordination between the Firing Boss and the Holding Boss needs to occur to insure that the ignition forces do not out pace the holding forces. Additionally there are some minor coordination that needs to take place between the Firing Boss and the 2 ignition teams. The entire project area is readily visible to the Firing Boss, Holding Boss and Burn Boss.
Final Rating: Low Moderate High	No change.
Potential Consequences	Rationale
Preliminary Rating: Low Moderate High	The pace of ignitions must be coordinated between the FIRB and the Holding Boss to insure that the holding forces are not out paced by the ignition forces. Objectives are easy to meet and there is little risk of adverse fire effects to the resource.
Final Rating: Low Moderate High	No change.
Technical Difficulty	Rationale
Preliminary Rating: Low Moderate High	There are no special firing equipment needs, patterns to be used are straight forward and the ignition team is small. Communication is expected to be good. There are no safety concerns other than the pace of ignition.
Final Rating: Low Moderate High	No change.

12. Interagency Coordination

Risk	Rationale
Preliminary Rating: Low Moderate High	The project lies entirely on NPS lands. There are some inter-agency coordination that needs to take place as the USFS will be assisting to complete this project, however involved parties have worked with each other in the past and there are no foreseen problems or challenges for this project.
Final Rating: Low Moderate High	No change.
Potential Consequences	Rationale
Preliminary Rating: Low Moderate High	Inter-agency coordination may delay this project if resource availability are constrained however this type of delay is expected to be short-term (1 or 2 days).
Final Rating: Low Moderate High	No change.
Technical Difficulty	Rationale
Preliminary Rating: Low Moderate High	There are no funds being transferred between agencies, no agreements are needed, no communication difficulties exist. Coordination and timing require a short-term delay.
Final Rating: Low Moderate High	No change.

13. Project Logistics

Risk	Rationale
Preliminary Rating: Low Moderate High	The project requires minimal logistical support and there are no logistics personnel assigned. All supplies and equipment are readily available; duration is expected to be 1 day with an additional day of monitoring.
Final Rating: Low Moderate High	No change.
Potential Consequences	Rationale
Preliminary Rating: Low Moderate High	Any potential logistical issues will not delay implementation of the project.
Final Rating: Low Moderate High	No change.
Technical Difficulty	Rationale
Preliminary Rating: Low Moderate High	No special logistical issues, all supervisors can handle their own logistics.
Final Rating: Low Moderate High	No change.

14. Smoke Management

Risk	Rationale
Preliminary Rating: <i>Low Moderate High</i>	Smoke issues are generally easy to mitigate. Project will produce a moderate amount of smoke for a short duration and should disperse readily as there are no barriers to prevent smoke dispersal. Few residents are in the area.
Final Rating: <i>Low Moderate High</i>	No change.
Potential Consequences	Rationale
Preliminary Rating: <i>Low Moderate High</i>	Little to no impacts are expected to roads or to park visitation. Some residents may be affected. Firefighter exposure to smoke should be limited and of short duration.
Final Rating: <i>Low Moderate High</i>	No change.
Technical Difficulty	Rationale
Preliminary Rating: <i>Low Moderate High</i>	No operational procedures for smoke management are required. There are no anticipated limitations on wind direction.
Final Rating: <i>Low Moderate High</i>	No change.

COMPLEXITY RATING SUMMARY

RISK	OVERALL RATING, PRELIMINARY:	LOW
	OVERALL RATING, FINAL:	<u>LOW</u>
POTENTIAL CONSEQUENCES	OVERALL RATING, PRELIMINARY:	LOW
	OVERALL RATING, FINAL:	<u>LOW</u>
TECHNICAL DIFFICULTY	OVERALL RATING, PRELIMINARY:	LOW
	OVERALL RATING, FINAL:	<u>LOW</u>

SUMMARY COMPLEXITY RATING FINAL: LOW-RXB2 RECOMMENDED

RATIONALE: While the overall complexity rating for this project is low a RXB2 is recommended due to the potential risk of escape and the possibility of structures to be threatened in the event of an escape.

Prepared by: _____ Date: _____

Approved by: _____ Date: _____
(Agency Administrator)

D: AGENCY SPECIFIC JOB HAZARD ANALYSIS

ZION RX FIRE MODULE

	NATIONAL PARK SERVICE <i>PRESCRIBED FIRE MODULE</i> JOB HAZARD ANALYSIS	
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<u>JOB/ACTIVITY TITLE:</u> PRESCRIBED BURNING	<u>DATE:</u> 4/16/98
<u>APPROVED BY:</u>	<u>TITLE:</u>
A. SEQUENCE OF BASIC JOB STEPS	
B. POTENTIAL ACCIDENTS OR HAZARDS	
C. RECOMMENDED SAFE JOB PROCEDURES AND PPE	

Standards for Survival and *LCES* are safe job procedures that will be implemented at all times, in all aspects of RX burning.

- 1a. Qualifications
 - b. unqualified personnel
 - c. •Personnel will have the correct certifications for the position held.
 - Trainee assignments will be under the direction of appropriately certified individuals.

- 2a. Personal protective equipment
 - b. fire, smoke, snags, rough terrain, injury
 - c. •All personnel will wear necessary PPE including (but not limited to): hardhat, nomex, safety glasses, leather gloves, leather boots, fire shelter and a headlamp.

- 3a. Communication
 - b. accidents, spotting, extreme fire behavior
 - c. •All personnel will have or be in direct contact with someone who has a radio.
 - Assignments and instructions must all be clear.
 - A working radio, correct frequencies and extra batteries.

- 4a. Ignition
 - b. extreme fire behavior, loss of communication, injury, entrapment
 - c. •Follow instructions of the ignition boss.
 - Awareness and communications between all lighting personnel re: individuals' location and fire behavior.
 - Scout safe routes in and out of difficult terrain
 - All PPE

- 5a. Aerial ignition
 - b. extreme fire behavior, improper firing patterns
 - c. • Correct radio frequencies for communication with firing operations, air operations and lookouts.

- 6a. Holding
 - b. spotting, snags, smoke, loss of communication, entrapment
 - c. •Follow instructions of the holding boss.

- Remain in communications with coworkers and supervisors at all times.
- Know escape routes and safety zones
- Stay hydrated, rotate out of smoke as needed.
- All PPE

7a. Long work shifts

b. fatigue, mental and physical stresses

- c. •All personnel will drink water, eat food and take appropriate breaks.
- Personnel will take advantage of PT to be fit to work .

8a. Providing for medical emergencies

b. medical emergencies, accidents

- c. •Identify EMT's within the crew and in nearby forces.
- First aid kits will be carried in the field by designated crew members.

E: FIRE BEHAVIOR MODELING DOCUMENTATION OR EMPIRICAL DOCUMENTATION



BehavePlus 3.0.2

Thu, Apr 23, 2009 at 15:28:42

Page 1

Modules: SURFACE, CONTAIN, IGNITE

Description CORO lehmann lovegrass Rx
Fuel/Vegetation, Surface/Understory

Fuel Model 2

Fuel Moisture

1-h Moisture % 1

10-h Moisture % 2

100-h Moisture % 3

Live Herbaceous Moisture % 60

Live Woody Moisture %

Weather

Midflame Wind Speed (upslope) mi/h 6

Air Temperature oF 100

Fuel Shading from the Sun % 5

Terrain

Slope Steepness % 0

Fire

Fire Size at Report ac 0.1

Suppression

Suppression Tactic Head

Line Construction Offset ch 0.1

Resource Line Production Rate ch/h 180

Resource Arrival Time h 0.1

Resource Duration h 10

Run Option Notes

Calculations are only for the direction of maximum spread [SURFACE].

Fireline intensity, flame length, and spread distance are always
for the direction of the spread calculations [SURFACE].

Wind is blowing upslope [SURFACE].

Suppression input is for a single resource [CONTAIN];
multiple values can be entered for any input variable.

Output Variables

Surface Rate of Spread (maximum) (ch/h) [SURFACE]

(continued on next page)

Input Worksheet (continued)

Flame Length (ft) [SURFACE]
Time from Report (h) [CONTAIN]
Contain Status [CONTAIN]
Contained Area (ac) [CONTAIN]
Fireline Constructed (ch) [CONTAIN]
Probability of Ignition from a Firebrand (%) [IGNITE]

Notes

CORO lehmann lovegrass Rx

Surface Rate of Spread (maximum)	89.2 ch/h
Flame Length	11.3 ft
Time from Report	0.3 h
Contain Status	Contained
Contained Area	8.4 ac
Fireline Constructed	36.5 ch
Probability of Ignition from a Firebrand	100 %

Discrete Variable Codes Used CORO lehmann lovegrass Rx

Fuel Model

2 Timber with grass and understory (S)

Suppression Tactic

Head Head Attack

F: STRUCTURE PROTECTION PLAN

Majority of the structures have roadways encircling them

Mowing along the roadways will be done; approx. 12' on each side of the roadways where possible to improve the holding line and reduce fire behavior near the roadways. This will allow engine crews a better chance of holding the roadways. Mowing will most likely will be done at the same time as the mow-line for the east boundary of the unit is done. In areas where there are no roadways, there will be a mow-line approx. 36' wide. Sprinklers will be set in place, equipment needs as follows

- 1400' 1.5" hose

- Two 1.5" gated wyes

- 16 1.5" sprinklers

There are 2 clusters of buildings in close proximity to the unit; each cluster will need approx. half of the equipment listed above. The sprinklers will be charged and let to run for a few minutes before the test fire to pre-soak the fuels around the structures. Just prior to the test fire the engine will be refilled and will not re-attach to the hose lay so that they are mobile. In the advent of fire crossing control lines and threatening either or both clusters of buildings, the holding boss and/or the RXB2 will make a determination of the best method of protection for the buildings. Tactics may include re-attaching to the hose lays and engaging the sprinklers, conducting a pump and roll direct attack or any combination thereof.

G: NEPA DOCUMENTATION

**H. ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY FORMS**

SEE FOLLOWING

Prescribed Burn Plan Form			Contact Name/Number:	Kevin Parrish 520.733.5132
Unit Information				
Burn Name:	CORO Lehman lovegrass Research Rx	County:	Cochise	Acres in burn unit
Burn Number:	SAGU 002-09	Burn Lat/Long	1. 31° 20.61' 2. 110° 14.190'	Acres Daily
Agency:	NPS	Predominant Fire Regime Condition Class (FRCC):	(1-3)	2
Township: (one per block)		Primary Smoke Management Number: (1-11)		10
Range: (one per block)		Elevation: (ft) Provide average elevation.		5000'
Sections: (multiple)		Unit Lined by: 1) Natural Barriers 2) Blackline 3) Wetline/Fuelline 4) Trails/Roads 5) None		3,4
Smoke Management				
Wind Direction: Provide a single direction or a range of directions				
Representative Weather Station: Provide name first, then number.				
Emission Reduction Techniques: Provide numbers from table below.				
1. Pre-burn Fuel Removal				
2. Mechanical Processing				
3. Ungulates				
4. Burn More Frequently				
5. Aerial/Mass Ignition				
6. Rapid Mop-up				
7. Windrow Burning				
8. Air Curtain Incinerators				
9. Burn Before Open UP				
10. Backing Fire				
11. Maintain Fire Line Intensity				
12. Isolating Fuel				
13. Concentrating Fuel				
14. Chemical Treatment				
15. Mosaic/Adapted Burning				
16. Moist Litter and Duff				
17. Burn before large activity fields cure				
18. High moisture in large fuels				
19. Under-burning before litterfall				
20. Piles				
Burn Information				
Primary Burn Type (only 1): 1) Broadcast (Natural), 2) Broadcast (Activity Managed), 3) Piles	1	Wind Direction: Provide a single direction or a range of directions	ANY	
Burn Purpose: 1) Hazard Reduction, 2) Range Improvement, 3) Wildlife, 4) Ecology, 5) Research, 6) WUI	5	Representative Weather Station: Provide name first, then number.	EMPIRE RAWS 021205	
Fire Technique: 1) Heading, 2) Backing, 3) Piles/Jackpot	1	Emission Reduction Techniques: Provide numbers from table below.	9, 11	
Ignition Method: 1) Aerial, 2) Hand, 3) Machine	2	1. Pre-burn Fuel Removal	4. Burn More Frequently	
Average Slope: (%)	5	2. Mechanical Processing	8. Air Curtain Incinerators	
Aspect(s): Provide Predominant Aspect(s). (N, NNE, NE, etc.)	S	3. Ungulates	12. Isolating Fuel	
Temperature: (°F) Provide minimum and maximum values.	30-110	4. Burn More Frequently	16. Moist Litter and Duff	
Relative Humidity: (%) Provide min and max values.	0-90	5. Aerial/Mass Ignition	20. Piles	
Mid-flame Wind Speed: (mph) Provide min and max values.	0-6	6. Rapid Mop-up		
Plume Sensitivity Areas within 15 Miles: Sierra Vista, Hereford				
Diurnal Drainage Sensitive Areas within 15 Miles: Hereford				
Fuels Information				
Broadcast Burning				
Primary Fuel Type: (Select only one type)	1) Ponderosa, 2) Ponderosa/Grass, 3) Juniper, 4) Mixed Conifer, 5) Grass, 6) Shrub/Brush (Chap., Oak, Sage) 7) Mixed Conifer/Shrub/Brush	5	Number of Piles per Acre: Provide the average number of piles per acre.	
Primary NFDRS Fuel Model: (A-U) Select only one fuel model.	F		Tons of Piles per Acre: Provide the average fuel loading per acre.	
Harvest Date (if applicable): mm/yy	N/A		Soil in Piles: (%)	
Primary Duff Type: 1) Black (Litter Type), 2) Red (Rotten Log Type)	1		Primary Species: (>50%) 1) Ponderosa Pine 2) Douglas Fir 3) Cottonwood 4) Aspen 5) Rotten 6) Other	
Sound and Rotten (Woody Fuels Only - Do not include piles)	Rotten (Woody Fuels Only - Do not include piles)		Primary Species: (%) 1) Ponderosa Pine, 2) Douglas Fir, 3) Cottonwood 4) Aspen 5) Rotten 6) Other	
0.0-2.5 in. Fuels (T/A):	>3.0 in. Fuels (T/A):		Secondary Species: (%) 1) Ponderosa Pine, 2) Douglas Fir, 3) Cottonwood 4) Aspen 5) Rotten 6) Other	
0.25-1.0 in. Fuels (T/A):	OTHER (Do not include these fuels in any other category)		Quality: 1) Clean 2) Dirty 3) Real Dirty	
1.01-3.0 in. Fuels (T/A):	Stump 20+ in. Fuels (T/A):		Dimensions (ft) Provide the average width and height of round piles, as well as the length if elongated.	
Sound (Woody Fuels Only - Do not include piles)	Shrub/Brush Fuels (T/A):		Packing Ratio: 1) Ponderosa Pine <10 inches 2) Short needle conifer >10 inches	
3.01-9.0 in. Fuels (T/A):	Grass/Herb Fuels (T/A):	1.6	Submit burn plan forms at least 14 days before planned ignition.	
9.01-20 in. Fuels (T/A):	Average Litter Depth (T/A):			
>20.0 in. Fuels (T/A):	Average Duff Depth (T/A):			

2009

Annual Prescribed Burn and Non-Burning Alternative Registration

(Ref. R18-2-1503)

UPDATED 09/2015

Contact Person Information:

Agency: NPS-Saguaro
Name: Kevin Parrish

Address: 3693 S. Old Spanish Trail
Tucson AZ 85730

Phone: 520-733-5132

Date (MM/DD/YY): 12/4/08

Smoke Management Techniques	
1. Ignition before 3:00 PM	2. Reducing Fuel Production
5. Ignition before new fuels appear	6. Increased Combustion Efficiency
1. Pre-Burn Fuel Removal	2. Mechanical Processing
5. Aerial / Mass Ignition	6. Rapid Mop-Up
9. Burn Before Green Up	10. Backing Fire
13. Concentrating Fuels	14. Chemical Treatment
17. Burn before large activity fuels cure	18. High moisture in large fuels
Emission Reduction Techniques	
3. Ungulates	4. Burn More Frequently
7. Windrow Burning	8. Air Curtain Incinerators
11. Maintain fire line intensity	12. Isolating Fuels
15. Mosaic / Jackpot Burning	16. Moist Litter and Duff
19. Under-burn before litter-fall	20. Piles
	21. Other

*NBA= Non-Burning Alternative, SMT= Smoke Management Technique, ERT= Emission Reduction Technique, WFT= Wildland Fire Use.

Burn Plan #	Project Name	SMU #	Primary Fuel Type	Max Daily Acres	Total Acres for year	ERT	% ERT Acres	SMT	Projected Season	General Location	Status New/Current/Complete	NBA y/n?	WFT y/n?
SAGU 001-09	Coronado Memorial HQ Rx	9	2	15	15	9,20	100	1,5,7	Fall/Winter	Coronado National Memorial-South of Sierra Vista	New	No	No
SAGU 002-09	Coronado Memorial lehmann lovegrass study Rx	9	2	30	30	9	100	1,3,4,5,7	Spring/Summer/Fall	Coronado National Memorial-South of Sierra Vista	New	No	No
SAGU 003-09	Saguaro Saddle Rx	9	9	750	2500	5,11	80	7	Spring/Summer/Fall	Saguaro National Park-East of Tucson	New	No	No
SAGU 004-09	Saguaro N. Slope Rx	9		750	2500	5,11	80	7	Spring/Summer/Fall	Saguaro National Park-East of Tucson	New	No	No
SAGU 005-09	Tuzigoot Piles Rx	5	piles	20	20	9,20	100	1,7	Winter/Spring	Tuzigoot National Monument-N. of Cottonwood	New	No	No
SAGU 006-09	Tuzigoot Tavashi Marsh	5	3	120	120	5,9	100	1,5,7	Winter/Spring	Tuzigoot National Monument-N. of Cottonwood	New	No	No
SAGU 007-09	Tumacacori Piles Rx	9	piles	230	230	9,20	100	1,7	Fall/Winter/Spring	Tumacacori National Historical Park-South of Tubac	New	No	No

Updated 12/3/02		Today's Date: (MM/DD/YY) / /2009 Ignition Date: (MM/DD/YY) / /2009						
Daily Burn Form <i>Submit burn forms by 2:00 p.m. the day before the planned ignition date. Submit one daily burn form per burn for each planned ignition date.</i>								
BURN NAME:		CORO lehmann lovegrass Research Rx						
BURN NUMBER:		SAGU 002-09						
ACRES TO BE TREATED:		35						
BURN LOCATION: (TTRRSS or SS-SS)		31° 2.681' / 110° 14.179'						
SMOKE MANAGEMENT UNIT NUMBER: (1-11)		10						
ARE THE ACRES REQUESTED THIS DATE LINED? (Natural, Blackline, Wetline / Fireline, Trail / Roads) <i>If acres are not lined, maximum area that could burn is _____</i>		Yes ☒ No ☐						
MULTIPLE OR CONSECUTIVE DAY BURN?		Yes ☐ No ☒						
EXPECTED DAYTIME PLUME BEHAVIOR: Small burn, small volume of smoke expected, should clear out readily.								
EXPECTED DIURNAL SMOKE BEHAVIOR: None.								
EXPECTED IMPACT ON SENSITIVE AREA(S): None.								
COMMENTS: (Description of fuel conditions, fuel consumption, or smoke transport from previous day, etc.)								
Contact Name:		Contact Number:						
Kevin Parrish		C: 520.400.2723 O: 520.733.5131						
Arizona Interagency Smoke Management Use Only <table border="1"> <tr> <td>REVIEWED BY:</td> <td>COMMENTS:</td> <td>ACRES:</td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </table>			REVIEWED BY:	COMMENTS:	ACRES:			
REVIEWED BY:	COMMENTS:	ACRES:						

I. RESEARCH PROSPECTUS