

Communication and Coordination on the Burn:

- Crew members will carry handheld radios on the burn.
- Engines will be equipped with mobile radios.
- Radio communication will be on Channel 1 (Refuge Repeater A)
- Plain text will be used at all times.
- Burn boss will brief crew and coordinate all activities.
- If some crew members do not have radios, they will be paired with a member who does.

COMMUNICATIONS PLAN

FIRE COMMUNICATIONS CHANNELS AND FREQUENCIES FOR MINGO NWR					
Channel	Name	Rx Frequency	Code	TX Frequency	Code
1	Refuge Car/Car Repeater A	164.625		163.150	
2	Repeater D	164.625		163.150	1A
3	Gipsy	151.190		159.345	5A
4	Mutual Aid	155.475		155.475	
5	Civil Defense	155.145		155.145	
6	Stoddard County	155.190		159.030	2B

Medical Plan

Medical Emergency Procedures
<p>Brief Description: In case of injury needing immediate medical attention, the burn boss or designated fire crew member will contact County Dispatch Office (911) for dispatching of nearest ambulance. The nature of injury will need to be conveyed from burn site through dispatchers to ambulance crew to insure proper response. If the nature of the injury requires medi-vac to trauma or burn center request air ambulance from St. Louis through dispatchers. Allow ambulance crew to coordinate communications with air ambulance.</p>
Ambulances

Name Stoddard County Wappapello	Address	Phone Number 624-8951 222-8250	Paramedics	
			Yes	No
			X	

Air Ambulances			
Name	Address	Phone Number	
AIR-EVAC	Poplar Bluff	1-800-247-3822	

Hospitals			
Name	Location	Phone Number	Travel Time (Air/Ground)
	Helipad		
Three Rivers	Poplar Bluff	573-727-2566	15min/40min
St. Francis Medical Center	Cape Girardeau	573-331-3000	25 min/60/min

Nearest Burn Center			
St. Louis Burn Center 35 minutes by air			
Supplies on Board			

<u>Item</u>	<u>Location</u>	<u>Person Responsible</u>
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Medical Emergencies

In the event that a medical emergency beyond the capability of the people on site occurs, 911 or calling County dispatch needs to be initiated, identifying the extent of injuries, location, access and contact person on site. This can be done through the Refuge office dispatcher. First aid will be administered on site, and the Burn Boss will determine if the burn operation can safely continue without jeopardizing the well being of the injured party or the safety of the remaining firefighters.

IV. IGNITION, BURNING AND CONTROL

Scheduling: Approx. Date(s) Planned or Proposed Actual
 Jan. 15 – Apr.15
 Oct.15 - Dec.15

Time of Day 0900-1800

Acceptable Range

FBPS Fuel Model 3	Low Fire Behavior	High Fire Behavior	Actual
Temperature	30	90	
Relative Humidity	65	25	
Wind Speed (20' forecast)	2	18	
Wind Speed (mid-flame)	2	14	
Wind Direction	All		
Cloud Cover (%)	100	0	
ENVIRONMENTAL CONDITIONS			
Soil Moisture	N/A	N/A	
1 hr. Fuel Moisture	15	5	
10 hr. FM	N/A	N/A	
100 hr. FM	N/A	N/A	
Woody Live Fuel Moisture	N/A	N/A	
Herb. Live Fuel Moisture	N/A	N/A	
Litter/Duff Moisture	N/A	N/A	
FIRE BEHAVIOR			
Type of Fire (H,B,F)	BACKING	HEAD	
Rate of Spread	25	482	
Fireline Intensity	283	6926	
Flame Length	6	26.3	

Cumulative effects of weather and drought on fire behavior:

- Prolonged drought will cause drying of larger fuels and possibly litter, duff, and soil layers which do not normally burn. The fuel models do not account for these fuels burning. With a drought situation, you can expect higher flame lengths, highly increased fireline intensity, resistance to control efforts, prolonged smoldering of large logs and duff layers, difficult mop-up, and lingering smoke problems.
- Wet areas that you were counting on as a barrier may be much lower than necessary to conduct a safe burn. Water sources may be dried up.
- Drought will have much less effect on grasses (FBPS fuel model 1 and 3) since fuels are composed mostly of 1-hour fuels which will be more affected by temperature and relative humidity than prolonged drought.
- Spring burning often has wet woody fuels from winter precipitation. If winter precipitation has been below average for the area, consider postponing burning for the season or until after a rain.
- If drought conditions are severe enough you may have to postpone the burn, use additional resources for holding, burn under the low fire behavior conditions within the prescription, and monitor fire behavior more closely.

Where to get information on cumulative drought conditions

- Monitor whether precipitation is below normal at your station (But be careful - precipitation can be above normal for the year, but BELOW normal for the last 4 or 5 months, leading to abnormally dry conditions)
- Nearby automated weather stations will probably calculate fuel moistures and NFDRS (National Fire Danger Rating System) indices which indicate what the burning conditions are for a general area.
- The nearest fire dispatch may have current conditions including what the live fuel moistures are doing
- The ERC (Energy Release Component) is a good indicator of when burning conditions are getting severe. Many refuges use the Burning Index - another NFDRS output, but it fluctuates more rapidly than the ERC (not as good for long-term trends)
- Internet - Keetch-Byram drought index, departure from average greenness, Palmer Drought Index are sources that can be accessed for information on regional conditions, sometimes down to county level. This data can be found at the Wildland Fire Assessment System (WFAS) on the Internet
- NRCS may have soil moisture data.
- Some states issue range fire indices daily. Consult with the National Weather Service. These are sometimes available on the Internet.

If you are in drought conditions you may have to do something to mitigate the effects

- Postpone burn
- Have additional holding forces on hand
- Have additional water sources available

- Burn under less severe conditions
- Spend greater effort on mop-up
- Monitor the fire more often to make sure it's out
- IF NOTHING ELSE: make a note that you should consult with your Zone FMO if the nearest weather station is showing below normal precipitation.

Ignition Technique and Sequence: Ignition will be carried out using hand-held drip torch(es). A backing fire will be used to establish blacklines on the downwind side(s) along the firebreak. Ignition sequence will depend on wind direction, working into the wind whenever possible. The actual firing pattern will be decided the day of the burn by the burn boss based on personnel and equipment availability, weather, and fuel conditions.

Test Fire: A test fire will be conducted in the downwind corner of the burn unit. The burn boss will observe the test fire to ensure wind direction and burning conditions are within predicted and required parameters. However, the use of a single test fire at one moment is not sufficient. During all times of active ignition the prescribed fire will be monitored, and will be terminated if objectives and safety requirements are not being met. If conditions are not within these parameters the test fire will be extinguished and burn postponed until conditions allow for continuation. The downwind perimeter will be ignited allowing the fire to back/flank into the wind. A control line of at least a minimum of 100 feet will be established before teams continue with ignition along flanks. Unit will be completed by lighting a head fire on upwind perimeter of unit.

Ignition Teams: Two ignition teams will be used. Both teams will be made up of a driptorch operator, and one person on an ATV w/sprayer, spot checking along the line. Both teams will ignite and hold as they proceed. A **minimum** of 100' of blackline will be established before the teams continue up the east and west flanks. Due to the small size of the unit, the burn boss should have visual contact with both ignition teams at all times. An engine with slip-on unit will be on stand-by on the western boundary. A minimum of 5 personnel (Burn Boss + 4) are required for safe completion of the burn. However, if more personnel are available the day of the burn, they will serve as additional holding resources.

Prescribed Fire Organization (Following is the minimum list of qualified positions and equipment to safely accomplish this burn. If additional personnel and/or equipment are available they may be used to fill various positions at the discretion of the burn boss):

Positions/Equipment	Quantity
RXB3	1

FFT2	4
Equipment	
Floto-pump, Mini Mark, other portable pump (with required hose and fittings)	1(staged)
Type VI Engine	1(staged)
ATV w/ 40gal. sprayer Polaris Sportsman w/ 50gal. sprayer	Must have at least one

Other: Minimum crew size required will be 5 (Burn Boss + 4) for this burn unit. More people will be utilized as holding resources for the prescribed burn, if available.

Prescription monitoring:

- The Burn Boss or a designated fire crew member will take and record on-site weather observations prior to and periodically (as needed) throughout the ignition. These observations along with the spot weather forecast will be used to determine if conditions are within prescription to ignite and continue firing operations.

Holding and Control:

Critical Control Problems: No critical control problems are foreseen. All boundaries are adjacent to bottomland hardwood with moist ground litter and some standing water. Ignition will occur in conjunction with a wetline using the ATV(s) with sprayers. The wetline will be within the mowed line. A pumper unit will be available to assist holding on the line if necessary.

Water Refill Points: The ATV(s) will be able to refill from the Engine stationed on the west levee. The engine will be able to refill using the floto-pump located at Battle Shell Lake (South west of the unit) or at Ditch 10 (East of the Unit).

Contingency Plan for Escaped Fire:

- In the event of a slopover, the Burn Boss will be notified immediately and will decide if it is necessary to continue or cease ignition.
- The slopover will be declared an escaped fire if it can not be contained within an hour with on-site resources or if structures are threatened regardless of the containment time.
- If the slop-over has been considered an escaped/wildfire, the most qualified fire crew member will then assume the role of the Incident Commander. The IC will determine the most

appropriate suppression strategy to contain and control the fire. Direct attack is the preferred method of control and will be used unless otherwise directed by the IC.

- It shall be covered in the briefing the current qualifications and red-card status of the entire fire crew on-site.
- Available holding forces will perform initial attack.
- If additional resources are needed to contain the escape, outside resources can be ordered directly through Puxico or Wappapello VFDs (See contact list for #s).
- If direct attack is not possible, providing protection to life and private dwellings will be the first priority. Indirect attack will be implemented with the use of the contingency map provided. **(See Contingency Map)**

Contingency Plan for Escaped Fire (Are there crews standing by to initial attack or will people doing other jobs be called upon to do initial attack, who must be called in case of an escape, what radio frequencies will be used, etc.)

1. If the fire escapes to the north, direct attack will be used. If this should fail, there are no distinct anchor points within $\frac{3}{4}$ mile of the unit. The best option would be to tie the Auto Tour Route into Ditch 10 (approximately $\frac{3}{4}$ - 1 mile north of the unit). The fuel type north of the unit is wet bottomland hardwood, and would not likely carry fire. However, if needed, a short handline from the Auto Tour Route to Ditch 7 which connects into ditch 10, would be sufficient to hold a burnout operation.
2. If the fire escapes to the west, direct attack will be utilized. If this should fail, the Auto Tour Route (runs on the southern boundary of the unit, and then turns to the north about $\frac{1}{2}$ mile west of the unit) can be used as an anchor point for a burnout operation.
3. If the fire escapes to the south, again direct attack will be used. If this fails, the Auto Tour Route can serve as a contingency, to establish an anchor point. If the fire crosses the road, the next potential holding point is an east/west short grass levee approximately 100 yards south of the Auto Tour Route. The vegetation surrounding the levee is representative of Fuel Model 3.
4. If the fire escapes to the east, direct attack tactics will be used. If this should fail the fire crew will fall back and burn out along Ditch 10, which runs north to south, approximately $\frac{1}{2}$ mile to the east.

If fire escapes the following actions will be taken:

- A. If fire burns outside the specified perimeter limits, and cannot be quickly contained by on-site resources, the fire will then become a wildfire.
- B. All prescribed firing operations will cease.
- C. Available holding forces will perform initial attack.
- D. The burn boss or highest wildfire qualified individual on site will assume the duties of Incident Commander until relieved.
- E. Safety and protection of private property will be the highest priorities.

F. If in the opinion of the burn boss, on-site resources cannot contain the fire, the county dispatch will be contacted.

Contingency resources will be requested via radio or cell phone from **(Wayne or Stoddard County)Dispatch**. Fire resources are available from the Puxico Fire Department, approximately 3 miles from the burn unit. **Communication between the VFD and refuge personnel will be critical. Refuge personnel will provide the VFD's with refuge radios to provide adequate communication!**

Resources at risk:

In the event the escaped fire has the potential to threaten private individuals, structures, livestock, or other non government property, the county dispatch office will be notified with a request for law enforcement to contact home owners and assist with possible evacuation, road closures, and to request structure protection with Volunteer Fire Department structural fire equipment. County dispatch will also be notified should assistance be needed with traffic control and road closings due to hazardous smoke conditions.

Mop Up and Patrol:

All fires will be mopped up and patrolled to mitigate the threat of smoke and/or escape problems. In all cases, each burn will be patrolled a **minimum** of once immediately prior to abandoning for the evening. The unit will be mopped up no less than 100 feet off of the control line. This may be increased if strong winds are forecasted after completion of the prescribed burn at the burn boss' discretion. The unit will be ground checked the next day and additional days if necessary.

V. SMOKE MANAGEMENT

Permits required:

- No Permit Required.

Distance and Direction from Smoke Sensitive areas

Refuge Wilderness Area	Adjacent on the west, north, and east sides
Town of Puxico	East approximately 2-3 miles
Hwy 51	East approximately 3 miles
Hwy T	Southwest approximately 1 mile

Necessary Transport Wind Direction, Speed and Mixing Height:

Transport Wind Speed: minimum 5 mph.

Wind Direction: All directions

Mixing Height: minimum 500 feet.

Test fires will indicate if smoke dispersal and wind direction objectives are being met. Smoke dispersal information will be obtained from the National Weather Service Office as a part of the spot weather forecast.

Visibility Hazards (roads,airports, etc.):

Same as SSA's listed above. Heavy smoke may occur along the perimeter of the burn unit which could directly impact fire crew members.

Actions to Reduce Visibility Hazard(s):

- All burning parameters as specified in this plan will be followed. Planned wind and atmospheric conditions will allow smoke to rise and disperse. The burn will not be conducted with a wind direction which will put smoke directly into the occupied farmsteads that are immediately adjacent to the burn unless the occupant has given permission to do so. Smoke dispersal conditions which allow smoke to lift over farmsteads and roads are acceptable. Smoke management contingency plans will be initiated immediately if needed.
- Mop-up will begin as needed when firing is completed. If needed, mop-up will continue after the burn until all smoke visibility hazards are removed as determined by the burn boss.
- Visibility hazards will be discussed during the pre-burn briefing. Fire engines on the firelines should travel slowly with headlights on at all times. Communication between engine operators and fire line personnel will be maintained for the duration of the burn, and all line personnel will be made aware of equipment movements.
- For all units, use traffic control personnel where necessary and "smoke ahead" signs on any roads where smoke may be a visibility hazard.

Smoke Management Contingency Plan:

If changes in weather conditions or other factors occur that cause imminent smoke problems, the following plan will be initiated:

- 1) All attempts will be made to reduce smoke emissions from the burn as quickly as possible. This may include immediate shut down of the burn and suppression of any area of the unit still on fire. Mopup will also be initiated in order to eliminate as much smoke production as possible.
- 2) If additional resources are needed to extinguish the burn and eliminate further smoke production, they will be called in through the refuge dispatch system and may include fire departments, personnel from other refuges, or other state and federal agencies in the area.
- 3) Smoke signs following DOT requirements should be placed prior to the burn on roads that may be impacted by smoke, traffic control should be initiated by a burn crew member with communications

with a traffic controller and the burn boss. The county sheriff or other law enforcement personnel may be called to assist with local traffic control, including temporary closure of area roads if deemed necessary.

4) If it appears that smoke from the burn will impact local communities or other smoke sensitive locations, all efforts will be made to identify the potential problem areas and inform the public so that local actions to reduce impacts such as closing up buildings and moving sensitive individuals away from the impacted area can occur.

5) The burn boss will remain on site until the smoke problems are resolved or until relieved by an individual appointed by the line officer.

Personnel involved in traffic monitoring and control should wear high-visibility safety vest and should use a vehicle with emergency warning lights when available.

Residual Smoke Problems:

- Residual smoke will be limited due to the short residency time of grass fuel models. Where holdover smoke may be a concern, rapid and complete mop-up will be completed. Attempts will be made to complete the burn prior to sunset to prevent as much residual smoke as possible.

Particulate emissions in Tons/Acre and how calculated: N/A

VI. FUNDING AND PERSONNEL

RX Project Cost Estimate: (Budget Estimate. A matrix which provides an estimate and will capture the actual expenses will be used. Capture all costs associated with the project relate to FIREBASE.)

Category	Phase				Total
	Crew Size	Regular hours	Avg. wage		
Burn Crew	5	40	20.00	0	800.00
Administration	1	10	19.00	0	190.00
Site Prep.	1	3	19.00	0	57.00
Travel/ Per Diem	n/a	n/a	n/a	n/a	

Equipment (Admin., Site prep, Ignition & Control)				0	525.00
TOTAL				0	1572.00

Estimated Cost Per Acre ____
9263 Funds Requested 1572.00 ____
Other Funds Requested 0.00 ____

VII. BURN DAY ACTIVITIES

Crew Briefing Points:

A thorough briefing emphasizing all hazards, escape routes, and any special considerations relative to the burn will be discussed on site prior to ignition. All crew members will have maps of the unit. This will include a drive around review with all crew. The Go-No-Go checklist will be completed prior to the burn.

Prescribed Burn Briefing Outline attached.

- Park all vehicles in a safe area, pointed away from fire. Leave keys in the ignition and close all windows.
- Provide for plenty of drinking water, juices or other non-caffeinated drinks. Rotate ignition crews when necessary.
- Limit exposure of personnel to smoke and CO exposure, rotate personnel.
- Always keep track of personnel working next to you, and make your whereabouts known when you change positions.
- Give clear and concise instructions, and make sure they are understood.
- Wear proper PPE and keep shirt sleeves down.
- Avoid spilling fuel on PPE. Fill torches and fuel containers ONLY on the ground. Label and date all fuel containers.
- Communicate any changes in weather or other significant events to burn boss immediately.
- Make sure everyone is on the correct radio channel.

Personnel Escape Plan:

- Safety zones for this unit will include; black, grazing fields, areas of no or light fuel, open water, and roadways.
- Escape routes will include; black, areas with no fuel or light fuel, roadways and open water.
- It will be the responsibility of every individual that they have escape routes and safety zones picked out at all times.

Special Safety Requirements:

- ATV operators will have agency determined 'ATV Operators Course'.

Rehabilitation Needs:-None anticipated