



Audubon NWR Complex Prescribed Burn Plan For Ketterling WPA



US Fish & Wildlife Service Region 6

North Dakota Fire Zone

Audubon NWR Complex

February 20, 2020



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(OPTIONAL)

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Element 1: Signature Page

PRESCRIBED FIRE PLAN


ADMINISTRATIVE UNIT NAME(S): Audubon NWR Complex

PRESCRIBED FIRE NAME:

Prescribed Fire Unit (Ignition Unit): Ketterling WPA

PREPARED BY:

Name (print): Calvin Moldenhauer Qualification/Currency: RXB2

Signature:  Date: 4/16/2020

TECHNICAL REVIEW BY: *See Appendix B: Technical Reviewer Checklist*

Name (print): Terry Williams Qualification/Currency: RXB2/Yes

Signature:  Date: 3/17/20

COMPLEXITY RATING: Moderate

MINIMUM BURN BOSS QUALIFICATION: RXB2

APPROVED BY:

Name – US FWS Agency Administrator (print): _____

Signature – Agency Administrator: _____ Date: _____

Element 2A: Agency Administrator Ignition Authorization

See IAP for Individual Unit

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

See IAP for Individual Unit

Element 3: Complexity Analysis Summary

See Appendix: C Complexity Analysis for complete Complexity Analysis.

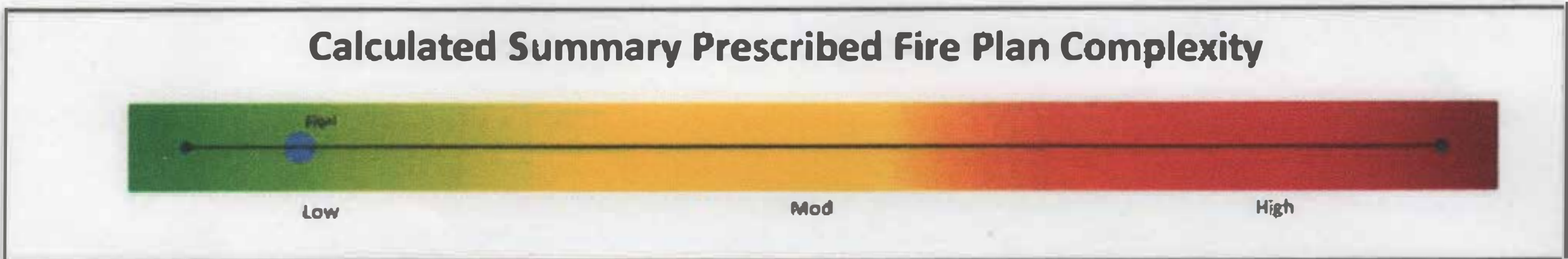


NWCG Prescribed Fire Summary and Final Complexity Worksheet, PMS 424-1

This worksheet is supplemental to the *Prescribed Fire Complexity Rating System Guide, PMS 424*. It is designed to enable effective risk management. The *Interagency Prescribed Fire Planning and Implementation Procedures Guide, PMS 484*, provides further explanation. This becomes Element 3 of the Prescribed Fire Plan.

Ketterling 2020		Quantity	Significance
Values	On-Site	Numerous	Low
	Off-Site	Few	Mod
	Public/Political Interest	Numerous	Low

Element	Preliminary Risk	Post-Plan Risk	Technical Difficulty	Calculated Rating
Safety	Low	Low	Low	Low
Fire Behavior	Low	Low	Low	Low
Resistance to Containment	Mod	Mod	Low	Mod
Ignition Procedures and Methods	Low	Low	Mod	Mod
Prescribed Fire Duration	Low	Low	Low	Low
Smoke Management	Mod	Low	Low	Low
Number and Dependence of Activities	Low	Low	Low	Low
Management Organization	Low	Low	Low	Low
Treatment/Resource Objectives	Low	Low	Low	Low
Constraints	Low	Low	Low	Low
Project Logistics	Low	Low	Low	Low



Final Complexity Determination	Final Complexity Determination Rationale
Mod	The final burn unit is rated as moderate complexity. Most elements of the plan rated as low or moderate ratings. Ignition sequences will be simple and supervision of forces can easily be handled by a competent single resource boss qualified as an RXB2. If the prescribed fire plan is followed there should be no problems in completing this project. These unit is well within the capabilities of a RXB2.

Signatures	Rx Burn Plan Preparer's Name: <u>Cela M. Williams</u> Date: <u>5/5/2020</u> Preparer
	Technical Reviewer's Name: <u>Terry Williams</u> x <u>TJW</u> Date: <u>3/17/20</u> Technical Reviewer
	Agency Administrator's Name: _____ x _____ Date: _____ Agency Administrator

Element 4: Description of Prescribed Fire Area

A. Physical Description:

See IAP (ICS 204) for Individual Units for specific description of each unit.

Ketterling WPA is located in NE McLean County. The burn unit is located south of Butte, ND. Travel 12.75 miles south on Hwy 33, turn east onto two track road for .25 mile. This will take you to the northwest corner of the WPA. The area surrounding the unit private land on north, east, west, and south sides.

Fire behavior is fuel model 1, which is excellent descriptor for the fuels within the unit.

Burn Unit	Burn Acres	Latitude NAD 83 Zone 13	Longitude NAD 83 Zone 13	Township	Range	Section(s)	Quad	Elevation Min-Max (Feet)
Ketterling	136	47.6714	-100.7042	148N	79W	2	Alkali Lake	1980-2000

B. Vegetation/Fuels Description:

- 1. On-site fuels data:** The Flora of the burn unit consist of native vegetation mixed with species, and a mixture of western snowberry, silverberry, aspen, hawthorn, and Juneberry. The unit has a small amount of brush and trees mainly consisting of aspen, western snowberry, and hawthorn in the unit. Fire behavior fuel model 1 is a good descriptor for the fuels across the burn unit. A combination of grazing and burning has proven to improve the health of the native grasslands and reduce the occurrence of low-shrub communities.

The unit is currently in a FRCC 2.

- 2. Adjacent fuels data:**

Fuels surrounding WPA include pasture, hayfields, native grass and crop fields. Fire behavior outside any particular unit will likely be similar to that within the unit. Each unit and surrounding fuels will need to be evaluated individually by the burn boss as conditions will change throughout the life of this plan. Private pasture – upland vegetation with intermixed wetland vegetation (FM 1)

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

Native Grass (FM1)	Tame (FM1)	DNC (FM1)	Cropland (FM1)	Brush (FM2)	Woodlands (FM8)	Wetlands (5-10% FM3)	Other
61	0	61	0.00	0	.2	14	0.00

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

A fence is located along the entire boundary of the unit. The main access to the unit is through the gate in the northwest corner of the unit. Burn unit has a lot of wetland and drainages throughout the unit.

D. Maps - Attachments in Appendix A

1. Vicinity (Required)
2. Project/Ignition Unit(s) (Required)
3. Contingency (R6 FWS): Included Not Included
4. Ignition Sequence (R6 FWS): Included Not Included
5. Smoke Trajectory (R6 FWS): Included Not Included+
6. Topo: Included Not Included

Element 5: Objectives

A. Resource objectives:

See IAP(ICS 202) See Individual Units

B. Prescribed fire objectives:

See IAP(ICS 202) See Individual Units

Element 6: Funding

A. Cost:

Agency Administrator and FMO will coordinate any/all costs associated to the burn prior to ignition, including - not limited to, travel, OT, fuel and mechanical repairs.

B. Funding source:

Agency Administrator and FMO will coordinate any/all funding sources associated with completion of the plan prior to ignition.

Element 7: Prescription

A. Prescription Narrative:

1. Describe how fire behavior will meet objectives:
Prescribed fire is a management tool to mimic natural wildfires that developed the prairie as it is today. Fire will remove the litter and allow native warm season grasses & forbs to grow in areas heavily dominated by exotic invaders. FM's 1 & 3 are light and flashy fuels primarily wind driven. Table below listed Fire behavior parameters to be use for the prescribed burned. Values will vary with lower end found on the backing and flanking fires and high end on the head fires. The fire behavior outside the unit will be similar to what is in the burn unit.

B. Prescription Parameters:

1. **Environmental or fire behavior (or both)** Example of prescription is below

ACCEPTABLE PRESCRIPTION RANGE		
A. Environmental Prescription	<i>LOW (fire behavior)</i>	<i>HIGH (fire behavior)</i>
Temperature	40	99
Relative Humidity	70	20
Wind Speed, 20' forecast (mi/h)	4	20
Wind Speed, mid-flame (mi/h)	3*	14*
Cloud Cover (%)	0	100
Wind Vectors	Acceptable	Preferred
Transport Winds	Any	Any
Surface Winds	W,nw	W
Environmental Conditions	LOW	HIGH
Soil Moisture	N/A	N/A
1 hr. Fuel Moisture	10	4
10 hr. Fuel Moisture	N/A	N/A
100 hr. Fuel Moisture	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
B. Fire Behavior Prescription		
Type of fire (H,B, F)	H,F,B	H,F,B
Rate of Spread (ch/h)	H-35,F-5,B-2	H-275,F-17,B-9
Fireline Intensity (btu/ft/s)	H-37,F-5,B-3	H-484,F-30,B-15
Flame Length (ft)	H-2,F-1,B-1	H-8,F-2,B-2
NFDRS Fuel Model = <u>L</u> FBPS Fuel Model = <u>1</u>		

* midflame winds are based on a 0.7 conversion figure rather than 0.4

The fire behavior shown in the table above generally reflects what would be expected when fuels are in a cured state. Fire behavior will usually be lower under similar conditions when fuels contain a percentage of green-up.

Behave runs for Fuel Model 1, 3, 6 and 8 can be found in Appendix.

The burn boss is responsible for correctly interpreting fire behavior predictions.

2. Fire Modeling or empirical documentation (or both)

See Appendix E: Fire Behavior Modeling Documentation or Empirical Documentation for Behavior Plus Runs and NRCS Potential for Damage by Fire Map.

Element 8: Scheduling

A. Implementation Schedule:

1. Ignition Time Frames or Season(s) (or both) Ignition may be conducted any day from January 1-December 31 provided the Audubon Refuge Manager (or Acting) is aware of any planned ignitions. Ignition of the unit will generally be completed within one operational period during daylight hours. Ignition of the unit may start after 0800 and will be typically completed at least one hour prior to sunset.

B. Projected Duration:

Only on rare occasions will ignition take place on any one unit for more than one day, and will usually be the result of ignition operations from a previous operational period halted due to prescription parameters, weather or smoke concerns. Although prescribed burns within the project area may be burned over several years, it is expected that no individual unit will require more than one operational period for ignition. Mop-up and/or patrol activities may occur for several days after ignition of some units.

C. Constraints:

Burning may only be conducted during preparedness level 4 or 5 with approval from the National office provided approval included feedback from the Geographic Area MAC group (see Interagency Standards for Fire and Aviation Operations, NFES 2724, Chapter 18). Controlled burning will not be conducted during Red Flag Warning Days or when the Rangeland Fire Danger Index is in the Extreme category.

Element 9: Pre-burn Considerations and Weather

A. Considerations:

1. On-site

In general, a minimum 14-foot wide fuel break will be mowed around the burn unit. If conditions warrant, the line will be raked (i.e. significant fuel loading on or near the established firebreak). Fire breaks through brush and aspen patches that will carry fire, will be 20-30 feet wide. Brush and trees removed from the fire line will be dispersed a minimum of 50 feet from the control line. Tie-ins to existing fuel breaks will have the vegetation cut 5 feet wide and/or a portable pumps or sprinkler systems set up and tested the morning of the burn.

Section 7 consultations were completed for the Audubon WMD as part of CCP process for North Dakota Wetland Management Districts CCP (2008). The CCP states that management actions within the CCP should not adversely affect Threatened and Endangered Species or their habitats. These Section 7 Intra-Service consultations are an appendix to the CCP and are on file at the Refuge. The agency administrators are responsible for determining the need for additional consultation on an annual basis: 1) whether any new ESA listings or designations of critical habitat have occurred for species in the vicinity; 2) whether any new T&E surveys have revealed species locations in or near proposed projects; and 3) whether the projects conducted the previous year had the intended effects on T&E species and habitat. Prescribed burning in areas where threatened and endangered species exist will not be conducted if the prescribed fire will be detrimental to the species or any adverse impacts cannot be mitigated.

This plan complies with NEPA requirements. The plan covers prescribed burning in depth and is tiered off of the 1994 EA entitled "Management of Upland Habitats on Lostwood National Wildlife Refuge" A copy

of the “Compatibility Determination” and the “Finding of No Significant Impact” can be found in the Refuge files and Appendix C of the Audubon National Wildlife Refuge CCP.

Annual approval to conduct prescribed burning will be obtained from the North Dakota Department of Health prior to any ignition operations. A copy of this approval will be kept on file by the Fire Management Specialist at Des Lacs Office and at Audubon Office.

2. Off-site

The Burn Boss may elect to have a portable pump set up and primed at a location convenient for engines to refill. Location of any refill site may vary depending upon season and condition of wetlands. Potential water fill locations for re-fill sites may be found on the unit maps. Additional locations may exist depending on annual moisture and climate conditions.

Smoke warning signs may be placed on roadways when needed. Signs will be placed at least ½ mile of either side of the potentially impacted area. Smoke Signs will meet DOT specifications.

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

See IAP

Prior to start of any ignition operations a spot weather and smoke dispersal forecast will be obtained from the National Weather Service in Bismarck, North Dakota. The burn boss is responsible for ensuring the spot weather forecast is requested and current for the operational period. The spot weather forecast will be requested for the burn site from the National Weather Service in Bismarck, ND using the internet links provided at <http://www.crh.noaa.gov/bis/fire.htm> or by phone at 701-250-4494 (fax 4450). The spot weather request will include weather observations from on-site or from the nearest remote weather station. On site weather will be monitored and evaluated against the prescription parameters as well as the spot weather forecast to determine whether or not to proceed with the test fire and ignition of the unit. The same spot weather forecast may be used for additional units within the same general area if deemed appropriate by the burn boss in consultation with the NWS. Additional weather information may also be gathered from other internet sources that may be linked from the North Dakota Dispatch center homepage at: <http://ndc.fws.gov>.

The Energy Release Component (ERC) will be used to monitor drought conditions for all units. Drought indices will be monitored utilizing information from weather stations, outputs from NFDRS/Fire Family Plus, National Weather Service products located at <http://fire.boi.noaa.gov/>, and local knowledge.

For ignition operations for the unit will following thresholds and breakpoints have been established to help ensure the safety and effectiveness of operations? The Energy Release Component (ERC) will be used as an indicator for fire management decisions. The following table will be used as a decision aid in determining prescribed burning and daily operation restrictions.

ERC (FM L)	ERC (FM R)	Actions to be taken
<3	<16	Operations normal.
3 - 4	16-18	Mowed lines will be a minimum of 15ft wide and will be evaluated by the burn boss

		and zone fire staff to determine if lines should be widened.
4 – 6	19-20	In addition to above the control line will be patrolled and checked on foot for hotspots along the perimeter. A minimum of 1 ATV and 1 FFT2 will be added to minimum staffing requirements identified in the burn plan.
>6	>20	The Project Leader, Refuge Manager, and District FMO will meet to discuss the possible impacts associated from initiating any prescribed burn operations as they relate to resource objectives, risks, and consequences of drought conditions. A minimum of 1 type 6 engine and 2 FFT2 will be added to minimum staffing requirements identified in the plan.

Additional websites including the Drought Monitor <http://www.drought.unl.edu/dm/monitor.html> and Palmer Drought Maps http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/regional_monitoring/palmer.gif may be monitored to better determine the extent of current drought conditions.

C. Notifications:

See Appendix A. Maps for Notification Map and See IAP for list of contacts

At a minimum Contingency Resources, the North Dakota Dispatch Center, North Dakota State Radio, the Sheridan County Sheriff Department, McLean County Sherriff Department and the local fire department with jurisdiction are contacted prior to any ignition operations. If contingency resources become unavailable, the person making the pre-burn notifications will notify the Burn Boss. Adjacent landowners and local residences will be notified on day of the burn.

Contact List for Allen WPA Prescribed Burn

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Administrative Unit (Project Area): Audubon NWR Complex

Ignition Units: Ketterling WPA

Contact #	Dispatch Cell #	Burn Boss Cell #	Alternate Cell#	Fax- DLR 701-385-3214
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Burn Name Ketterling WPA **Acres** 459

Description from nearest Town: Ketterling WPA is located in NE McLean County. The burn unit is located south of Butte, ND. Travel 12.75 miles south on Hwy 33, turn east unto two track trail for .25 mile. You will be at the northwest corner of the unit.

Dispatcher: _____ **Date:** _____ **Start Time:** _____ **Completion Time:** _____

Name	Phone #	Time	Spoke To	Comment
ND State Radio	1-800-472-2121			
ND Dispatch Center	701-989-7330			
Fire Department/ Ambulance	Dispatched #			
Butte FD Chief Rick Tischaefer	911 701-884-2707			
Sheriff=s Dept.	Dispatched #			
Sheridan County Dispatch	701-363-2200			
McLean County Dispatch	701- 462-8103			
Residents				
Linus Bauer	701-626-7281			
Gary Presser	701-447-2485			
Todd Ketterling	701-447-2202			
Thomas Volochenko	701-626-7315			
Rodger Ketterling	701-447-2626			
Duane Helm	701-447-2292			

Dispatcher making Contacts: _____

Element 10: Briefing

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

See IAP

All assigned personnel will be briefed at the beginning of each operational period to ensure personnel safety considerations (including the JHA), and prescribed fire objectives and operations are clearly defined and understood. The prescribed fire Burn Boss will ensure that any new personnel arriving on site will receive a briefing prior to assignment.

Element 11: Organization and Equipment

A. Positions:

At a minimum, a Burn Boss Type II will be assigned to every prescribed fire. The minimum staffing and equipment needed to burn each unit is clearly outlined in the organizational chart for the unit. Burn boss will determine if additional positions are required based on current weather, fire danger, fuel conditions and experience of crew. The burn boss should appropriately document any change in the recommended minimum equipment and staffing. *See IAP (ICS 204).*

	<u>Burn Boss-RXB2 (ATV/UTV)</u>	<u>West Wind</u>
<u>Crew 1</u>		<u>Crew 2</u>
<u>Ignition Crew 1</u> FFT2		<u>Ignition Crew 2</u> FFT2
<u>Holding Crew 1</u> ENGB FFT2 Type 6 wetline		<u>Holding Crew 2</u> FFT1 FFT2 Type 6 Wetliner
<u>Holding Crew 1</u> FFT1 UTV	<u>Holding Crew 1</u> FFT2 Type 6 engine	<u>Holding Crew 2</u> FFT1 UTV

- Dry years an extra type 6 engine maybe added with ENGB and FFT2.

B. Equipment:

Type 6 Wetliner can be substituted with a standard Type 6 Engine and additional FFT2. *See IAP (ICS 204).*

C. Supplies:

Drip torches, torch fuel, hand tools & portable pump - equipment is readily available on engines.

Element 12: Communication

Burn Boss will identify radio frequencies and communication procedures *See IAP.*

A. Radio Frequencies:

Primary radio communications during the burn will be conducted on an approved radio frequency identified during the pre-burn briefing. The main channel used for prescribed burning is RX Fire. The frequency will be requested each year from the National Interagency Coordination Center prior to spring burning season. The frequency will be used throughout the year.

Command frequency(ies):

Rx Fire channel is the main radio frequency to be used during burning operations. If dispatcher is needed to be contacted it will be through cell phone.

1. Tactical frequency(ies):

The RX fire channel will generally be used as the tactical channel for burn units.

2. Air operations frequency(ies):

If an air to ground frequency is needed for initial attack operations on an escaped fire 170.000 (TX and RX) will be used. The Burn Boss will be responsible for coordinating communications at the burn site. The air to ground frequency will need to be confirmed in the spring as the current frequency.

All radios will be checked to ensure proper transmission and receive prior to start of ignition operations. At a minimum the Burn Boss, igniter(s) and engine bosses will have radios. Any personnel that will be operating independently will also have a radio. If any non-local resources are to be used they will either be issued local radios or have proper frequencies programmed into their radio(s). The Burn Boss will have a cellular phone available to them as an alternate means of communication with the dispatcher.

In the event of an escaped fire and conversion to a wildfire, when local VFD resources are requested radio communications will be switched to the North Dakota Fire frequency to facilitate communication with non-federal resources. The Burn Boss will also be requested to notify State Radio Dispatch and inform them of the situation.

If enough digital compatible radios are unavailable for use during any operational period an alternate VHF high band frequency may be requested for use from the Communications Duty Officer at the National Interagency Coordination Center. The Communications Duty Officer may be reached at (208) 387-5644.

**Communication Plan for ND Fire Zone Prescribed Burn Plan
for programming Bendix King Radio**

Channel	Name	Rx	Rx Tone	Tx	Tx Tone	Dig or An
1	State Fire 1	154.93500		151.46000		Digital
2	State Fire 2	154.69500		159.22500		Digital
3	Vlaw31	155.47500		155.47500	156.7	Analog N
4	VFIRE23	154.29500		154.29500	156.7	Analog N
5	FWS Fire	168.35000		168.35000		Analog N
6	Ward Minot	155.62500		158.97000	192.8	Analog W
7	Ward Berthold	151.01000		159.09000	192.8	Analog W
8	Minot Rural	154.23500		154.23500	110.9	Analog N
9	State 1- TA	151.46000	314	0.00000	000	Digital
10	State 2- TA	159.22500	314	0.00000	000	Digital

3E8 = 1000 40B=1035 Note: 3E8 and 40B are to be use in place of 1000 and 1035 tones for racial radios.

B. Telephone Numbers:

Project Leader- Todd Frerichs (701) 460-0576 (work cell)
 Audubon NWR Office (701) 442-5474
 North Dakota Dispatch Center (701) 989-7330
 North Dakota State Radio (800) 328-9921
 Sheridan County Dispatch (701) 363-2200
 McLean County Dispatch (701) 462-8103

Other pertinent telephone numbers refer to the table in element 9 with the contact sheet that contains the telephone numbers of all the contact to be made the day of the prescribed fire.

Element 13: Public and Personnel Safety, Medical

A. Safety Hazards:

See IAP (ICS 202), Appendix D: Job Hazard Analysis for additional safety hazards and mitigation.

B. Mitigation: Measures Taken to Reduce the Hazards:

All crew members will wear proper PPE and adhere to the Ten Standard Fire Orders at all times. All crew members will be briefed on LCES, potential Watch Out Situations, hazards and mitigation measures prior to ignition. Caution signs will be placed on the road to warn public. *See Appendix D: Job Hazard Analysis for mitigation of safety hazards.*

C. Emergency Medical Procedures:

On scene personnel will follow the IAP (ICS 206) Medical Plan. Further guidance on emergency procedures can be found in the Incident Response Pocket Guide (NFES 1077) and Chapter 1 on the Fireline Handbook (NFES 0065).

In the event of a medical emergency for any reason the nearest emergency response crew will be notified immediately by 911 via cell phone or State Radio. After notification of 911 services the District Dispatcher will be notified and will be available to assist with informational relay. If cell phone reception is not available the Dispatcher will be notified via radio and requested to relay emergency response request. In addition to 911 notifications the following procedures will be followed:

- a. Stabilize patient following standard first aid procedures.
- b. Secure the area until trained medical personnel arrive.

D. Emergency Evacuation Methods:

See IAP (ICS 206) Medical Plan.

Emergency response personnel will transport injured person(s) to the nearest medical facility. If necessary, a life flight helicopter can requested through the Dispatcher. Following is the medical plan for the Audubon NWR prescribed burn project.

E. Emergency Facilities:

See IAP (ICS 206) Medical Plan

MEDICAL PLAN

Medical Emergency Procedures					
<p>Brief Description: All medical emergencies will go through State Radio using 911 or by contacting Dispatch at 1-800-472-2121. State Radio will dispatch appropriate ambulance service by the location given. Ambulance service on scene will determine where to transport to, if air ambulance is needed and/or if burn center needs to be contacted. Be prepared to provide distance and direction to nearest town.</p>					
Ambulances					
Name	Address	Phone Number	Radio	Paramedics	
				Yes	No
McClusky Rural	McClusky	911			
Harvey Rural	Harvey	911			X
Trinity Medical	Minot	701-857-5260			X
Sanford Health St. Alexius	Bismarck	701-323-6000			
		701-530-7000			
Air Ambulance-North Star Criticair-service provided through Trinity Hospital					
Name	Address	Phone Number	Paramedics		
			Yes	No	
Trinity Hospital Trauma Center (dispatch)	Minot	911 857-5260			
NorthStar Criticair-Trinity	Minot	911 857-5000	yes		
		1-800-223-1596			
Hospitals					
Name	Location	Phone Number	Travel Time (Air/Ground)	Helipad?	
Trinity Hospital	Minot	701-857-5000	25 min air/50 min ground	Yes	
St. Alexius Medical Center	Bismarck	701-530-7000	30 min air/ 1hr ground	Yes	
Medcenter One	Bismarck	701-323-6000	30 min air/ 1 hr. ground	Yes	
Nearest Burn Center					
Name	Location	Phone Number	Travel Time (Air/Ground)	Helipad?	
St. Paul Ramsey	St. Paul, MN	1-800-922-2876	2hrs 30min from Minot	Yes	
Univ. of Utah, Burn Center	Salt Lake City, UT	1-800-824-2073	2hr 15min	Yes	
Fixed wing transport arranged from either Bismarck ND, St Paul MN, or Glasgow MT					
Supplies to the Field					
Item			Person Responsible		
1.First Aid Kit 2.Personal first aid kit			1. Each Engine - Engine Operator 2. Each individual		

Element 14: Test Fire

A. Planned Location:

A test fire will be ignited in a representative fuel type, in an area that can be easily controlled prior to the start of ignition operations. This area will generally be on the downwind side of the unit and adjacent to an established control line or natural barrier. Analysis of the initial ignitions may provide adequate test fire results.

B. Test Fire Documentation:

1. Weather conditions on site - Current weather conditions will be documented in Element 20: On-Site WX & Fire Behavior Obs. Table.
2. Test fire results - Burn Boss will verify that the prescribed fire behavior characteristics will meet management objectives and smoke dispersion is favorable before ignition may continue as planned. If test fire results are unfavorable, the test fire will be extinguished and the prescribed fire will not continue until conditions are favorable. Test fire results will be documented in Element 20: Unit Log Table.

Element 15: Ignition Plan

A. Firing Methods:

1. Techniques –

Ground Ignition Techniques

Ignition will mostly be accomplished with hand-held drip torches, lighting backing, flanking, and head fires, and working from the downwind side with backing fires, flanking side perimeters perpendicular to the wind, and running head fires into the unit once all other perimeters and corners have adequate black and sound fire lines have been established. Large contiguous units during late spring and early summer may require interior ignition in the form of head strip or spot firing, facilitating expeditious firing of the unit, due to the presence of increased green fuel components. Unburned interior islands may be reignited following securing of the unit perimeter. Smaller unburned interior islands will be left to mimic a natural mosaic pattern for the benefit of wildlife.

Interior Ignition Techniques

Interior ignition may be used to speed up completion of the unit. The ignition will generally be done on foot using hand held drip torches. The igniter should be FFT1, with knowledge of fire behavior in the fuel type they will be igniting. The igniter will ignite on the downwind side of the unit and stay perpendicular to the wind, ignite across the bottom side of the burn. See the ignition maps for possible routes for interior ignition. The interior igniter will have 1 hand held drip torch and minimum of 4 fusees when crossing the interior of the unit. Igniter may also have a contour map and aerial photo map to help guide them across the unit. The interior igniter will be bringing fire across the unit and creating a safety zone behind them. If a conditions change and the interior igniter needs a safety zone, they just step across the flames into the black and wait for the flame front to pass before they leave the area. A flare pistol may be used to ignite further into the interior of any unburned fuel. Ignition personnel will remain in radio contact with Burn Boss, Ignition Specialist and / or lookout at all times. Interior ignition may occur when all downwind control lines are secure and under discretion of the burn boss. The Interior Igniter will have a radio and extra battery to communicate with the Burn Boss or Ignition Specialist. The route for the interior ignition may be marked with flagging or a GPS unit prior to burning.

2. Sequences

Exact ignition sequences to be used will be determined and approved by the Burn Boss prior to ignition of the unit. Local factors may influence on-site weather conditions, therefore the ignition sequence will not be determined until all resources arrive on site at which time the planned ignition sequence will be provided during the operational briefing.

Sequence for West Wind:

IT1: Test fire at Point E

IT1: E => D => C as IT2: E => F

IT1: C => B => A as IT2: F => G => H

IT1: A => I as IT2: H => I

3. Patterns

Working towards the upwind side, a backing fire along the downwind side, followed by flanking fires with interior chevron or strip fires would be typical patterns for a unit of this size to manage fire behavior and smoke. A solid strip head fire would be used on the upwind side to complete the burn.

B. Devices:

Drip torches, ATV drip torch, fusees and flare pistols. ATV ignitions will be performed in accordance with National and Regional Fish and Wildlife Service guidelines with a properly qualified operator.

C. Minimum Ignition Staffing:

Ignition staffing typically requires 1-3 personnel coordinated by the Burn Boss or assigned personnel on their side of the unit. Interior ignitions will be coordinated through the Burn Boss.

Element 16: Holding Plan

A. General Procedures for Holding:

The burn boss may elect to have a portable pump set up at a convenient location for engines to fill. Locations of re-fill sites will vary depending upon the season of the burn and water levels in nearby wetlands.

Wet-lines will be established immediately prior to any ignition along established control lines, unless a natural or manmade control line provides a barrier to fire spread such as a gravel road, disked fire break or harvested crop field that has been worked. At least one holding resource such as an engine, ATV, or firefighter will follow up each ignition to monitor for creeping or spotting of fire outside of control lines. Additional resources, typically an ATV, will continually patrol all lines of the unit extinguishing all smokes within 10 ft. of the line or until otherwise directed by the burn boss.

After ignition is completed, crews will immediately begin mop-up actions. Burn boss will establish mop-up standards based on adjacent fuels and expected weather conditions. At a minimum, control lines adjacent to readily available fuels will be cold-trailed and extinguished a minimum of 50 ft. in from the edge. The burn boss will decide whether or not a unit needs subsequent monitoring based on current and expected weather. This unit will be completed within one operational period. Fuel types and burning conditions outlined within this plan will generally not support fire activity overnight.

B. Critical Holding Points and Actions:

Critical holding areas will typically be the mowed fire break lines, especially downwind lines. A type 6 engine or ATV/UTV will be assigned to these lines for constant patrol until line is secure to ensure there is no possibility of fire creeping outside the unit. Timing and speed of ignition will depend on ability of holding resources and good communications between the two.

See IAP (ICS 204) for detailed Critical Holding Points and Actions.

C. Minimum Organization or Capabilities Needed:

Minimum organization for the unit is found in the Element 11 sections. Based on Behave outputs (appendix E) and empirical evidence, the minimum number of fire personnel and engines should be able to adequately contain the fire within the prescribed perimeter under moderate burning conditions. If implementing the burn at the high end of the prescription the burn boss should consider additional staff and equipment as deemed necessary based on the environmental conditions and anticipated fire behavior. Ignition crew may be used as needed for holding as they complete their ignition operation. *See IAP (ICS 204).*

Element 17: Contingency Plan

Management Action Points or Limits:

Management Action Point - Documentation Element	Management Action Point Narrative
Designator and Description:	State Slough Contingence Plan
Condition:	<p>Trigger Points</p> <p>Project objectives are not being met: This situation will usually be a result of inadequate burning conditions. If it appears that project objectives are not being met the Burn Boss will immediately evaluate current environmental and fire behavior conditions and determine if they are within prescription</p> <p>Prescription Parameters: One or more environmental or fire behavior prescription parameters are exceeded due to unexpected changes in weather or other factors.</p> <p>Smoke Impacts: Changes in weather, burning conditions or other factors occur that cause imminent smoke problems such as poor visibility on public roadways, significant smoke impacts to general public, residences or communities, or smoke that has significant negative impacts to firefighters.</p> <p>Minimum Implementation Organization: Implementation organization fall below what the minimum is required for any individual unit due to illness, injury, or other factor</p> <p>Unit Boundary: The fire exceeds unit boundaries as defined on unit maps.</p> <p>Contingency Resources: Contingency resources as identified in the plan are not available prior to start of ignition operations. Identified Contingency resources become unavailable after commencement of ignition operations.</p>

Administrative Unit (Project Area): Audubon NWR Complex

Ignition Units: Ketterling WPA

Management Action Point - Documentation Element	Management Action Point Narrative
Management Intent:	<ul style="list-style-type: none">* Accomplish the objective of the burn in safe matter.* Maintaining the prescribed fire within the boundaries of the burn unit.* Prescribed fire is not to have adverse effects to the surround land owns.* Prevent adverse effects to public in relation to Smoke Impacts.

<p>Recommended Action(s) to Consider:</p>	<p>Actions Needed The following is a list of actions respond when a given trigger point is met.</p> <p>Project objectives are not being met: If current conditions are within prescription parameters the Burn Boss will evaluate expected environmental conditions for later in the operational period. If environmental conditions are expected to improve the Burn Boss may elect to temporarily suspend further ignition operations and hold resources until conditions improve or cancel any further ignition operations for the operational period and begin with control and mop-up of unit. If environmental conditions are not expected to improve ignition operations will be cancelled and control and mop-up of unit will begin immediately.</p> <p>Prescription Parameters: All resources will work at keeping active fire contained within the unit boundaries. The Burn Boss will continue to direct resources as long as active fire remains within unit. If environmental and/or fire behavior conditions are expected to fall back within acceptable parameters the Burn Boss may elect to continue with ignition operations later in the operational period when prescription parameters can be met. If environmental and/or fire behavior conditions are not expected to fall back within acceptable parameters resources will work at control and mop-up of unit and no further ignition operations will commence unless necessary for control of the unit.</p> <p>Smoke Impacts: If changes in weather conditions or other factors occur that cause imminent smoke problems, the following plan will be initiated:</p> <ol style="list-style-type: none"> 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 of the unit still on fire. Mop-up 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 requested through the refuge dispatch system and may include local fire departments, personnel from other refuges or other state and federal agencies in the area. 3) Smoke signs will be placed on impacted roads, traffic control will be initiated and 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. Locations and assignments of any traffic control personnel will be determined by the Burn Boss and law enforcement personnel immediately prior to say assignment. Weather variables that may exist during any potential smoke problem make it impossible to predict the best location for traffic control measures. 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 smoke sensitive individuals away from the impacted areas can occur. 5) The burn boss will remain on the site until the smoke problems are resolved or until relieved by an individual appointed by the line officer.
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	<p>Minimum Implementation Organization: The Burn Boss will temporarily halt ignition operations and evaluate the potential for successful completion of the burn with the current organization. The Burn Boss will at least consider current and expected fire behavior and weather, condition of downwind control lines, adjacent fuels, experience level of current organization, and capability of onsite equipment. If the Burn Boss feels that the burn can continue successfully and without issue he/she may elect to continue all operations. If it is determined that the burn may not continue without potential problems then operations will shift to control and mop-up of the unit. At no time may ignition operations continue if organization or equipment falls below 80% of minimum requirements.</p> <p>Unit Boundary: Minor escapes if readily controlled by on site holding resources will be extinguished and ignition activities may resume. If the escape is significant holding forces will take immediate action and ignition crews will remain in place, or put out ignited fire and assist with escape depending upon Burn Boss's instructions. If fire burns onto adjacent private lands the Burn Boss will contact the Dispatcher and request contingency forces as identified in individual unit sections of this plan.</p> <p>Contingency Resources: If contingency resources as identified in the individual unit sections of this plan are not available ignition operations may not commence. If identified Contingency resources become unavailable after commencement of ignition operations actions will be taken to secure the unit until alternate contingency resources can be identified and their availability confirmed.</p>
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Management Action Point - Documentation Element	Management Action Point Narrative
<p>Recommended Action(s) to Consider: continue</p>	<p>Minimum Implementation Organization: The Burn Boss will temporarily halt ignition operations and evaluate the potential for successful completion of the burn with the current organization. The Burn Boss will at least consider current and expected fire behavior and weather, condition of downwind control lines, adjacent fuels, experience level of current organization, and capability of onsite equipment. If the Burn Boss feels that the burn can continue successfully and without issue he/she may elect to continue all operations. If it is determined that the burn may not continue without potential problems then operations will shift to control and mop-up of the unit. At no time may ignition operations continue if organization or equipment falls below 80% of minimum requirements.</p> <p>Unit Boundary: Minor escapes if readily controlled by on site holding resources will be extinguished and ignition activities may resume. If the escape is significant holding forces will take immediate action and ignition crews will remain in place, or put out ignited fire and assist with escape depending upon Burn Boss's instructions. If fire burns onto adjacent private lands the Burn Boss will contact the Dispatcher and request contingency forces as identified in this plan.</p> <p>Contingency Resources: If contingency resources as identified in this plan are not available ignition operations may not commence. If identified Contingency resources become unavailable after commencement of ignition operations actions will be taken to secure the unit until alternate contingency resources can be identified and their availability confirmed.</p>
<p>Recommended Resources:</p>	<p>Additional resources (Engines, ATVs and Personnel) may be available locally at Des Lacs NWR or Upper Souris NWR. Availability will be determined prior to ignition of the unit. The response time from any of these locations will be less than 1.3 hour. In the event of an emergency, additional resources may be requested from local VFDs. Two wildland capable engines, (equivalent to type 7 or larger) with at least two firefighters per engine will be the minimum resources requested. The response time for these resources will also be within ½ hour of dispatch.</p> <p>Availability of contingency resources will be confirmed through contact with dispatch center(s) responsible for each agency or fire department and documented in the dispatch log or the contact sheet. For this plan it will be assumed that if a local fire department is not currently involved in suppression efforts that at least two engines will be available with a total of five or more personnel and can be on scene in ½ hour or less. The maximum acceptable response time for any contingency resource is one hour.</p> <p>If contingency actions are successful in bringing the project back within prescription/boundaries then the burn may continue if deemed appropriate by the Burn Boss.</p>
<p>Time Frame:</p>	<p>*1-1.3 hour for other refuge staff to arrive on scene</p> <p>*15 minutes after escape is found and the fire is not contain or structures are threatened.</p> <p>*Fire is longer than 12 hours and not contain a type 3 IC is requested.</p>

Management Action Point - Documentation Element	Management Action Point Narrative
Describe the consequences of not taking the recommended action(s) (Optional):	<p>*Delay in calling VFD's could result in the loss of private structures.</p> <p>*Increase risk of the main prescribed fire escaping while resources are dealing with the escape.</p> <p>*By waiting too long, containment resources will have longer response time to respond to fire and fire could grow beyond what containment resources could handle in one burn period.</p>
Responsibility:	Burn Boss responsibility to declare the fire a wildfire and notify the proper officials of the incident.
Date Each Action is Initiated (Optional):	

Element 18: Wildfire Declaration

A. Wildfire Declared By:

The Burn Boss is responsible for determining if an escape has become a wildfire. An escaped fire will be declared a wildfire if:

1. If a sloop over, spot fire, or multiple spot fires occur and it is immediately obvious that the fire will not be able to be controlled with on-site resources.
2. If lives are threatened, private property, resources, or other structures are threatened, regardless of pre-determined time frames for control determination.
3. If a sloop-over or multiple sloop-overs occur on private lands outside the burn unit greater than 1 acre in size.
4. If a sloop over/spot fire or multiple sloop overs/spot fires occur in areas outside the burn unit on U.S. Fish and Wildlife Service Lands and are not able to be contained within 30 minutes with an appropriate management response from on-site resources.

B. IC Assignment:

The Incident Commander will be determined during the operational briefing. The Incident Commander will be at least ICT4 qualified. The Burn Boss will assume the duties of Incident Commander unless an alternate or trainee is identified during the operational briefing. IC will announce wildfire declaration over radio and instruct all resources to convert over to State Fire channel for communications.

C. Notifications:

Upon declaration of a wildfire the Burn Boss, or someone designated by the Burn Boss, will notify State Radio and request additional resources as needed. The Burn Boss or designated individual will also contact the North Dakota Dispatch Center and the Audubon Project Manager.

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

Priorities in the event of a wildfire are:

1. Protection of public and fire personnel life safety.
2. Protection of privately owned primary residences.
3. Protection of private property and lands.
4. Minimize any damage to natural resources.

Potential secondary control lines, initial attack actions, and opportunities to aid fire suppression are listed below:

South – Flank the fire south and east into gravel road or Wetland.

North – Direct attack; try to flank the fire into wetland or road to the west.

West – Flank the fire south and east into a wetland or road.

East – Flank the fire south and west into wetland or road.

It is unlikely that an escaped prescribed fire will require suppression efforts in excess of 24 hours. Opportunities to aid in fire suppression exist throughout the Refuge. At the time of any given burn, the adjacent unit is likely to have been grazed, burned or hayed within the past three years. Adjacent lands are typically grazed, farmed or hayed as well. Direct attack will be the preferred method of suppression. If necessary, the IC may utilize trails to conduct a burnout. Potential secondary control lines can be found on each of the contingency map. If extended attack is necessary all resource orders will be placed through the North Dakota Dispatch Center. If containment operations are expected to extend into the next operational (burning) period a fully qualified Type 3 Incident Commander (ICT3) will be requested.

Element 19: Smoke Management and Air Quality

A. Compliance:

All burning will be done in compliance within guidelines established by the North Dakota Department of Health. No burning will be done on days when smoke dispersal is forecasted to be poor for the entire day.

B. Permits to be Obtained:

A permit to conduct open burning is required from the North Dakota State Department of Health, Environmental Health Section. The appropriate permit will be requested from the state, and required conditions adhered to. The request will be made prior to the prescribed fire season. The permit will be on file at the Des Lacs Office and a copy will be at Audubon Office.

C. Smoke-Sensitive Receptors:

See IAP (ICS 204) and Appendix A. Maps for location of smoke sensitive areas/receptors. See Appendix F. Smoke Management Plan for SASEM Runs.

The Simple Approach Smoke Estimation Model (SASEM) generally predicts no exceedance of air quality standards in light fuels with the prescribed environmental parameters. For reference, sample SASEM outputs are attached to this plan in Appendix E. Transport winds must be at least 9 mph with a mixing height of at least 1640 feet AGL. Acceptable and preferred surface wind directions can be found in the IAP.

Adjacent roads may have short term visibility issues. Fire crew or additional traffic control personnel will control any traffic until visibility clears up. Burn boss will coordinate ignition and utilize favorable combination of prescription parameters to minimize any impact to residence.

D. Mitigation Strategies and Techniques to Reduce Smoke Impacts:

Burns will be conducted within acceptable prescription parameters including wind speed and direction, dispersion and atmospheric stability. Burning will not be conducted when an inversion is in place and is not predicted to break by early afternoon. Burns will be conducted as quickly as possible, while adhering to unit objectives and safety guidelines. This burning technique typically produces a convective column that will move smoke off the ground and into the atmosphere where it is dispersed by transport winds further limiting smoke concerns in the area. Fire crew personnel will be rotated out of heavy impact areas as needed. Mop-up will be conducted by Holding and Ignition personnel immediately after ignition operations are concluded. Mop-up will continue until all smokes are extinguished or until the possibility of escape or smoke management problems are eliminated.

Element 20: Monitoring

A. Fuels Information Required and Procedures:

One hour fuels are the sole carriers of fire throughout the project area. One hour fuel moistures may be calculated to predict conditions based on weather observations and forecasts with the use of tables such as those found in Appendix B of the NWCG Fireline Handbook. *See Element 7: Prescription, B. Prescription Parameters.*

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

Environmental prescription parameters including temperature, relative humidity, and winds will be monitored prior to initiating any burn. Weather conditions will continue to be monitored throughout the burn as often as deemed necessary by the Burn Boss. Weather observations will typically be taken on site with a standard belt weather kit or a kestrel. The day's observations can be compared to those taken by the remote automated weather stations in the area. Unit Log (ICS 214) with On-Site WX & Fire Behavior Observations is located in the IAP.

C. Fire Behavior Monitoring Required and Procedures:

Fire behavior will be monitored visually by the Burn Boss or other designee. Observations will typically focus on flame lengths. Unit Log (ICS 214) with On-Site WX & Fire Behavior Observations is located in the IAP.

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

First order fire effects will be monitored and documented in the On-Site WX & Fire Behavior Obs. to determine results of the burn. This monitoring will predominately involve ocular observations to determine if fuels are being consumed in a manner that meets objectives in section 5 of this plan. Long term monitoring will not be possible on all units but representative plots may be established on random units to determine long term fire effects. Long term monitoring will be the responsibility of the refuge biologist. Unit Log (ICS 214) with On-Site WX & Fire Behavior Observations is located in the IAP.

E. Smoke Dispersal Monitoring Required and Procedures:

Smoke dispersal will be monitored by the Bun Boss or other person designated to do so. Smoke dispersal will be evaluated to determine its impacts on nearby roadways, residences and general public. Unit Log (ICS 214) with On-Site WX & Fire Behavior Observations is located in the IAP.

Element 21: Post-burn Activities

A. Post-Burn Activities that must be completed:

Mop-up will be conducted by Holding and Ignition personnel immediately after ignition operations are concluded. Mop-up will continue until all smokes are extinguished or until the possibility of escape or smoke management problems are eliminated. A minimum 100 foot wide perimeter will be used for mop-up standards with further evaluation by the Burn Boss upon completion. Burning materials within this area will be extinguished with water and hand tools. Traffic control operations will conclude as soon as mop-up is completed and all smoke concerns to roadways have been eliminated. Caution Smoke signs may be left overnight if Burn Boss deems necessary.

No rehabilitation to the burn unit should be necessary. Soft soils may become significantly rutted due to equipment travel. Fence posts and wire may also need repairs. Any equipment rehabilitation needs will be addressed during the AAR and completed on scene if possible.

An After Action Review (AAR) should be conducted after every operational period. This may not be possible until the next day. Guidelines for an effective AAR can be found in the Incident Response Pocket Guide.

The Burn Boss will be responsible for immediately notifying local dispatch of fire status and briefing agency administrator as soon as practical. Burn boss will monitor and declare the fire out 24 hours after last smoke is sighted. Burn boss may select a crewmember to monitor and declare fire out if burn boss is absent.

Prescribed Fire Plan Appendices

Appendix A: Maps:

- Vicinity,
- Project,
- Contingency,
- Ignition Sequence,
- Smoke Trajectory,
- Topo,
- NRCS Web Soil Survey, &
- Notifications Map

Appendix B: Technical Reviewer Checklist

Appendix C: Complexity Analysis

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

Appendix E: Fire Behavior Modeling Documentation or Empirical Documentation

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

REFUGES

ENVIRONMENTAL CHECKLIST

Proposed action: Prescribed Burning Audubon NWR Complex

Submitted by: Calvin Moldenhauer Fire Management Specialist

Field Station or Office: Audubon Wetland District

ACTIONS	EFFECTS SHORT TERM	EFFECTS LONG TERM	EFFECTS QUANTIFIED
Wetlands	YES	YES	SEE REVERSE
Uplands	YES	YES	SEE REVERSE
T & E Species	NO	NO	SEE REVERSE
Other Wildlife	YES	YES	SEE REVERSE
Cultural Resources	NO	NO	SEE REVERSE
Historical Resources	NO	NO	SEE REVERSE
Water Quality	YES	NO	SEE REVERSE
Water Quantity	NO	NO	SEE REVERSE
Air Quality	YES	NO	SEE REVERSE
Social	NO	NO	SEE REVERSE
Economic	NO	NO	SEE REVERSE
Cumulative	NO	NO	SEE REVERSE
Controversial	NO	NO	SEE REVERSE

* Quantify the effects

NEPA COMPLIANCE DECISION

Action categorically excluded from NEPA as provided by 516 DM 8.5 B. (4). No further NEPA documentation will therefore be made.

Start environmental assessment (EA)

Approved By: _____
Project Leader

_____ Date

See Fish and Wildlife Service NEPA Reference Handbook, Checklists for Preparing Environmental Documents, Checklist for Refuges NEPA Compliance for this form.