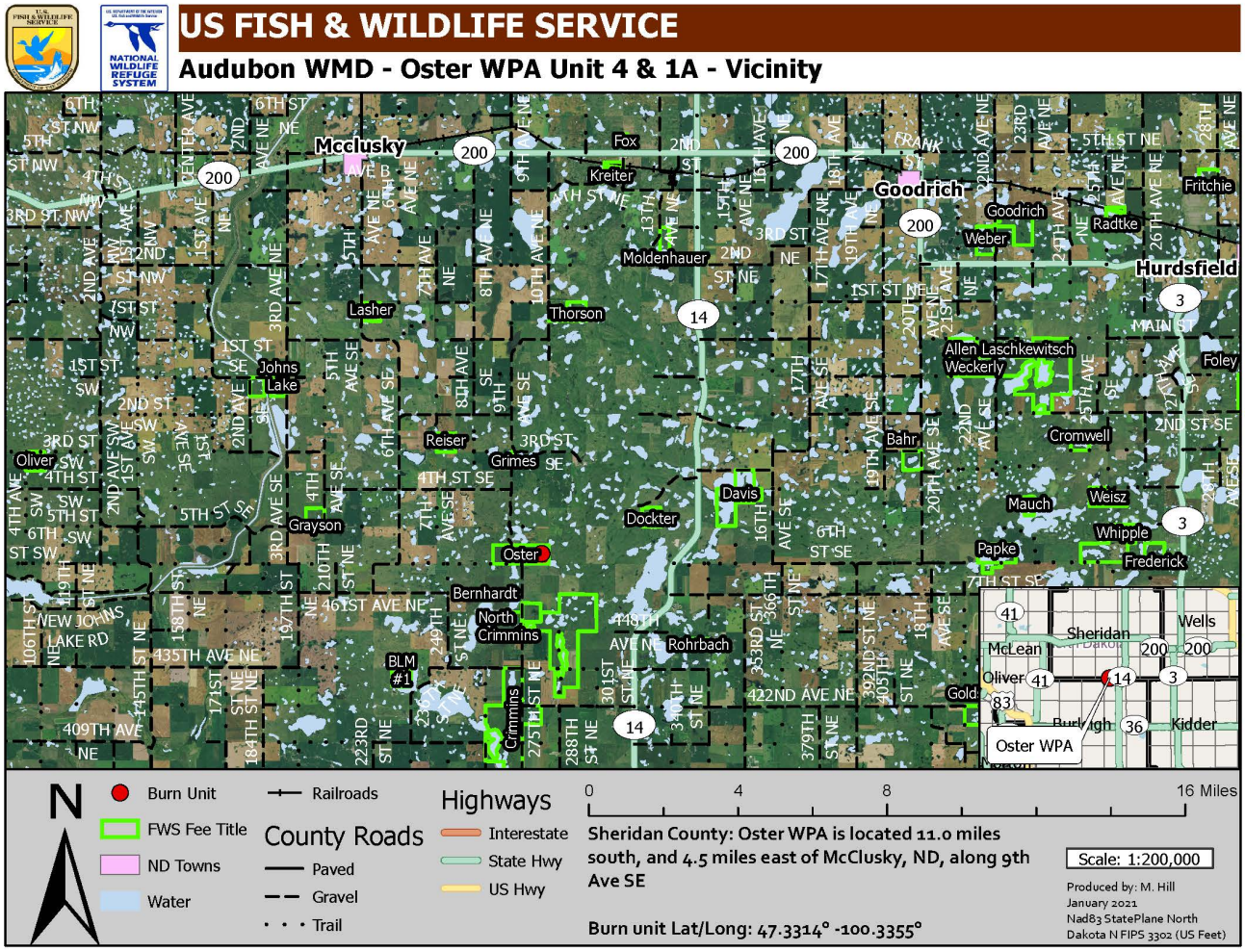
Oster WPA

Unit 4 & 1A

Prescribed Burn Plan



DOI Unified Region 5

North Dakota Fire Zone

Audubon WMD

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ELEMENT 1: SIGNATURE PAGE

PRESCRIBED FIRE PLAN

ADMINISTRATIVE UNIT NAME(S): Audubon WMD – Sheridan County

PRESCRIBED FIRE NAME:
Prescribed Fire Unit (Ignition Unit): Oster WPA Units 4 & 1A

PREPARED BY:
Name (print): Michael J. Hill Qualification/Currency: RXB2/2023

Signature: _____ Date: 13 February 2021

TECHNICAL REVIEW BY: *See Appendix B: Technical Reviewer Checklist*
Name (print): Jeff Dion Qualification/Currency: RXB2/2024

Signature: _____ Date: 2/26/2021

COMPLEXITY RATING: Moderate

MINIMUM BURN BOSS QUALIFICATION: RXB2

APPROVED BY:
Name – Agency Administrator (print): Todd Frerichs, Project Leader

Signature – Agency Administrator: TODD FRERICHS Digitally signed by TODD FRERICHS Date: 2021.03.05 11:35:16 -06'00' Date:

ELEMENT 2A: AGENCY ADMINISTRATOR IGNITION AUTHORIZATION

See IAP

ELEMENT 2B: PRESCRIBED FIRE GO/NO-GO CHECKLIST

See IAP

Administrative Unit Name: Audubon WMD – Sheridan County

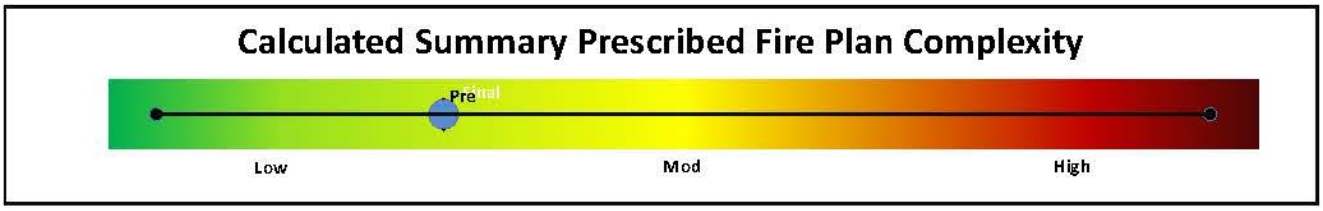
Prescribed Fire Name: Oster WPA Unit 4 & 1A

ELEMENT 3: COMPLEXITY ANALYSIS SUMMARY

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

Audubon WMD	Oster WPA	Quantity	Significance
Values	On-Site	Nominal	Low
	Off-Site	Few	Mod
	Public/Political Interest	Nominal	Mod

Element	Preliminary Risk	Post-Plan Risk	Technical Difficulty	Calculated Rating
Safety	Low	Low	Low	Low
Fire Behavior	Mod	Mod	Mod	Mod
Containment	Mod	Mod	Mod	Mod
and Methods	Mod	Mod	Mod	Mod
Duration	Low	Low	Low	Low
Smoke Management	Mod	Mod	Mod	Mod
Dependence of	Low	Low	Low	Low
Organization	Mod	Mod	Mod	Mod
Objectives	Low	Low	Low	Low
Constraints	Mod	Mod	Mod	Mod
Project Logistics	Low	Low	Low	Low



Final Complexity Determination	Final Complexity Determination Rationale
Mod	*A moderate rating is recommended. An RXB2 will be utilized to oversee, coordinate, and supervise burn operations. This unit is made up of grass with little or no aerial fuels present, objectives are easily obtainable, safety requirements are easily met, and minimal logistic needs are present. Two ignition teams will be utilized and will require close cooridination during firing operations. There is a moderate risk of escape which would in all cases affect private land. The higher level of coordination and communication required to conduct the burn adds to the risk of escape. The burn organization will be adequately staffed with highly qualified individuals that are aware of the difficulties regarding technical difficulty, and those resources shall be adequately briefed on the technical nature of this project. All prep work will be completed prior to implementation of the burn. This will minimize the potential for escape. This unit in particular is surrounded by a heavy loading of grass fuel models on all four sides, two of which are private property. Relatively remote access and rolling topography on this unit will add to the complexity of this unit.*

Signatures	Michael J Hill Rx Burn Plan Preparer's Name	Preparer's Signature	13 February, 2021 Date
	Jeff Dion Technical Reviewer's Name	JEFFREY DION Digitally signed by JEFFREY DION Date: 2021.02.26 10:51:40 -06'00' Technical Reviewer's Signature	Date
	Todd Frerichs Agency Administrator's Name	TODD FRERICHS Digitally signed by TODD FRERICHS Date: 2021.03.05 11:35:40 -06'00' Signature	Date

ELEMENT 4: DESCRIPTION OF THE PRESCRIBED FIRE AREA

A. Physical Description:

Burn Unit	**Audubon WMD – Sheridan County, Oster WPA Unit 4 & 1A**		
Legal Description:	T145N R76 S34	**Latitude**	47.3314°
Township	Whittaker Township	**Longitude**	-100.3355°
County	Sheridan	NAD 83 (Decimal Degree)	
Burnable Acres	119		

Topography: The topography of the unit is flat with elevations ranging from 1930 – 1945 feet.

Project Boundary: The burn unit is clearly marked at all corners.

B. Vegetation/Fuels Description:

1. The unit primarily consists of Fuel Model 1 upland sites with mixed grass prairie containing smooth brome, blue grass and little bluestem and Fuel Model 3 Tall Grass Prairie sites (Big Bluestem and Switchgrass) and the emergent vegetation around the peripheral edges of wetlands (cattails, bull rush, reed canary).

Fuel Model	Acres	%
FBFM1	114.8	94.7
FBFM3	6.2	5.1
FBFM5	0.2	0.2

2. Adjacent Fuels Data: Fuels outside of the burn unit are similar, but with less fuel loading (due to farming/grazing), will be a mixture of FM1/3, upland vegetation. A summary of the total acres, and representative percentage of each fuel model within 1 mile of the burn unit perimeter is detailed in the table below:

Fuel Model	Acres	%
FBFM1	2555.7	82.1
FBFM3	178.8	5.7
FBFM5	1.3	0.0
FBFM8	1.3	0.0
Urban	39.1	1.3
Agriculture	88.3	2.8
Water	247.5	8.0
Barren	0.2	0.0

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

There are no T&E or cultural resource concerns on this unit. Values at risk will include boundary fences along the burn perimeter that will need active protection, as well as interior fence within the unit. Additionally, there is a well/windmill in the NE corner of the unit that will need active protection.

Any threatened or endangered species potentially affected by the prescribed burn will be addressed by a Section 7 consultation. Section 7 will be completed by Audubon NWR staff. Cultural Resource Compliance will be submitted by fire staff and be on file.

D. Maps - Attach 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

ELEMENT 5: OBJECTIVES

A. Resource objectives:

See IAP(ICS 202)

B. Prescribed fire objectives:

See IAP(ICS 202)

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 used as 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. Fire behavior parameters are listed in the IAP. Values will vary with lower end found on the backing and flanking fires and high end on the head fires. Similar fire behavior will be found outside of the unit.

B. Prescription Parameters:

1. Environmental or fire behavior (or both)

   See IAP

2. Fire Modeling or empirical documentation (or both):

   See Appendix E: Fire Behavior Modeling Documentation or Empirical Documentation for Behave Plus Runs.

C. Predicted Fire Behavior Outside Project Boundary

- Predicted fire behavior outside the unit is expected to be less than the unit being burned.

ELEMENT 8: SCHEDULING

A. Implementation Schedule:

Implementation schedule is determined by the agency administrator and is not limited to any day of the year provided that the prescription parameters are met, and the Agency Administrator Ignition Authorization has been signed approving such actions. Ignition may be implemented any time of the day provided all attempts are made to extinguish smoke before nighttime conditions fall out of prescription.

B. Projected Duration:

Project will take one operational period to complete during normal working hours. This does not include site prep which will be completed prior to ignition date. Mop-up and/or patrol activities may occur on the following day(s).

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 may 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: A mowed fire break (14' min.) will be established along areas of the burn unit that do not have natural barriers. Sprinkler lines or wet-lines may be substituted for mowed fire breaks where practical or where terrain does not lend itself to mowing (too steep, rocky areas, etc…). Pre-established black lines at least 10 feet wide may also be substituted for mowed fire breaks. Black lines may be established around values at risk including, but not limited to, power pole locations and wood sign locations. See Appendix A. Maps for locations of mowed fire breaks and further details of physical site preparations as well as any features within the burn unit that may need protection.

   Section 7 consultations were completed for the Audubon WMD as part of CCP process for Audubon Wetland Management District (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.

   Cultural resources are scattered throughout the Complex as the area was heavily used by Native Americans but is a relatively un-researched archeological area. Cultural resource records are maintained at Audubon Headquarters. Archeological clearance for prescribed burning will be obtained from the regional archeologist. All restrictions and recommendations will be adhered to.

2. Off-site

   None.

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

See IAP

C. Notifications:

See Appendix A. Maps for Notification Map and contacts.

ELEMENT 10: BRIEFING

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

See IAP

ELEMENT 11: ORGANIZATION AND EQUIPMENT

A. Positions:

Burn boss will determine if additional positions are required based on current weather, fire danger, fuel conditions and experience of crew. *See IAP (ICS 204).*

B. Equipment:

Type 6 Wetliner can be substituted with a standard Type 6 Engine and additional FFT2. A Type 4 Engine may be substituted for either a Type 6 Engine or a Type 6 Wetliner. *See IAP (ICS 204).*

C. Supplies:

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

ELEMENT 12: COMMUNICATIONS

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

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 of the Wildland Fire Incident Management Field Guide. (PMS 210).

D. Emergency Evacuation Methods:

See IAP (ICS 206) Medical Plan.

E. Emergency Facilities:

See IAP (ICS 206) Medical Plan.

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 – Strip and Spot fires to ignite backing, flanking, and head fires utilizing hand-held firing devices by personnel on foot or ATV mounted firing devices.
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.
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. *See Appendix A. Maps for locations of potential refill sites.*

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

tilled. 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. The ignition and primary holding phases of 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:

Ignition crew may be used as needed for holding as they complete their ignition operation. *See IAP (ICS 204).*

ELEMENT 17: CONTINGENCY PLAN

A. Management Action Points or Limits:

1. Project objectives are not being met:
This situation is typically the 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.

2. Prescription Parameters:
One or more environmental or fire behavior prescription parameters are exceeded due to unexpected changes in weather or other factors.

3. Smoke Impacts:
Changes in weather, burning conditions or other factors occur that cause imminent smoke problems such as poor visibility on public roadways, significant impacts to the general public, residences or communities, or smoke that may have significant negative impacts to firefighters on the line.

4. Minimum Implementation Organization:
Implementation organization falls below minimum requirements due to injury, illness or any other factor.

5. Unit Boundary:
The fire exceeds the unit boundaries as defined on unit maps within this plan.

6. Contingency Resources:
Contingency resources as identified in this plan are not available prior to the start of ignition operations, or identified contingency resources become unavailable after ignition operations have commenced.

B. Actions Needed: In the event where any one or more of the above circumstances has been met, the burn boss will activate the contingency plan, and the following actions shall take place:

1. 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 the unit. If environmental conditions are not expected to improve ignition operations will be cancelled and control and mop-up of the unit will begin immediately.

2. 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 the 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 deemed necessary for control of the unit by the Burn Boss.

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

a. 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 portion of the unit still on fire. Mop-up will also be initiated in an attempt to reduce smoke production to the furthest possible extent.
b. If additional resources are required to extinguish the burn and eliminate further smoke production, they will be requested through State Radio and may include local fire departments, personnel from other refuges or other state and federal agencies in the area.
c. 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 in through State Radio 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 assignment. Weather variables may exist during any potential smoke problem that would prevent one from predicting the best location for traffic control measures prior to the event itself.
d. 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.
e. The burn boss will remain on scene until smoke problems are resolved or until relieved by an individual appointed by the line officer.

4. 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. At a minimum, the Burn Boss will consider current and expected fire behavior and weather, condition of downwind control lines, adjacent fuels, experience level of current organization, and capability of on-site equipment. If the Burn Boss feels that the burn can continue safely and successfully, he/she may elect to continue with operations. If a determination is made that problems may arise with continuation, then operations on the unit will shift to control and mop-up. At no time may ignition operations continue if organization or equipment levels fall below 80% of the minimum requirements.

5. Unit boundaries:
Minor escapes if readily controlled by on-site resources will be extinguished and ignition activities may resume. If a significant escape occurs and has significant spread potential, holding forces will take immediate suppression actions while ignition crews will hold up and perform holding duties on the current prescribed fire. The controlled burn may be extinguished, and all resources moved to suppression responsibilities at the discretion of the Burn Boss. If fire burns onto adjacent private lands and the Burn Boss determines the fire will not be contained with on-site resources, the Burn Boss will contact State Radio and request contingency resources. At this time the Burn Boss, or highest qualified individual on scene, will assume the duties of incident commander.

6. 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 the Burn Boss may choose to secure the unit until alternate contingency resources can be identified and their availability confirmed or may choose to finish ignition operations if that is the prudent decision to be made.

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

Two wildland capable engines (equivalent to a Type 7 or larger) with a staff of two will be the minimum required available contingency resource. If the incident commander determines that structures are threatened as a result of the escaped fire, a minimum order of one structure engine with crew per threatened structure will be ordered. It can generally be assumed that if a local fire department is not currently involved in any suppression efforts that at least two engines with a minimum of two personnel can be ordered and on scene within 30 minutes.

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 slop 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 slop-over or multiple slop-overs occur on private lands outside the burn unit greater than 1 acre in size.
4. If a slop over/spot fire or multiple slop 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 Agency Administrator.

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

Extended attack is very unlikely in this project area due to the nature of the fuels involved. 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 Environmental Quality. 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 Environmental Quality, Division of Air Quality. 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.

C. Smoke-Sensitive Receptors:

See See IAP (ICS 204) and Appendix A. Maps for location of smoke sensitive areas/receptors.

D. Potential Impacted Areas:

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.

E. Mitigation Strategies and Techniques to Reduce Smoke Impacts:

Burns will be conducted within acceptable prescription parameters including wind speed and direction. Burning will not be conducted when an inversion is in place and is not predicted to break by mid-day. 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. *Se 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 Element 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. Remaining burning materials within this area will be extinguished with and hand tools, equipment, and water (if determined appropriate by the burn boss). 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 cited. Burn boss may select a crew member to monitor and declare fire out if burn boss is absent.

PRESCRIBED FIRE PLAN APENDICIES

Appendix A: Maps: Vicinity, Project/Ignition Units, Contingency, Ignition Sequence, Smoke Trajectory

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

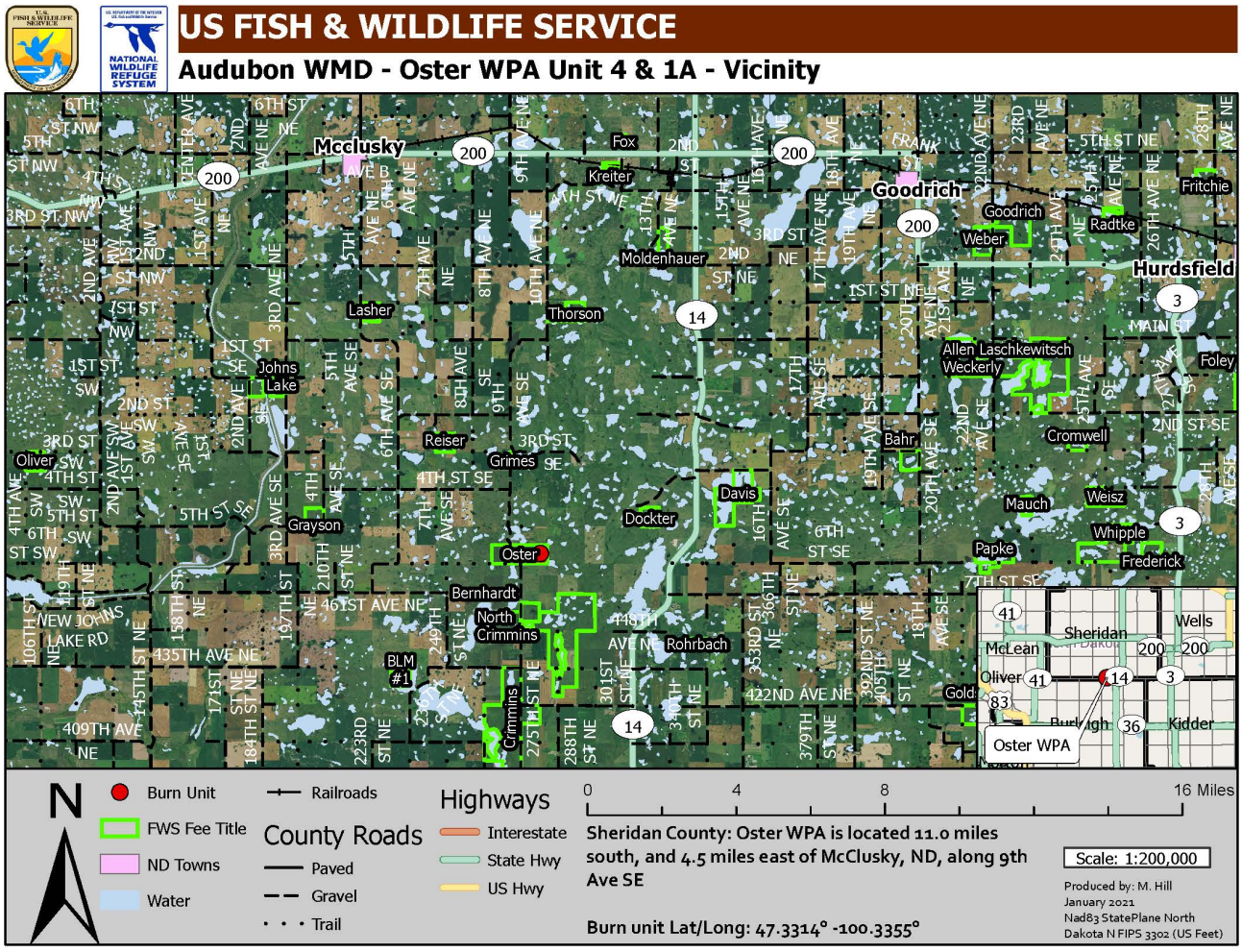
Appendix F: Clearances and Permits/NEPA

Appendix G: Incident Action Plan

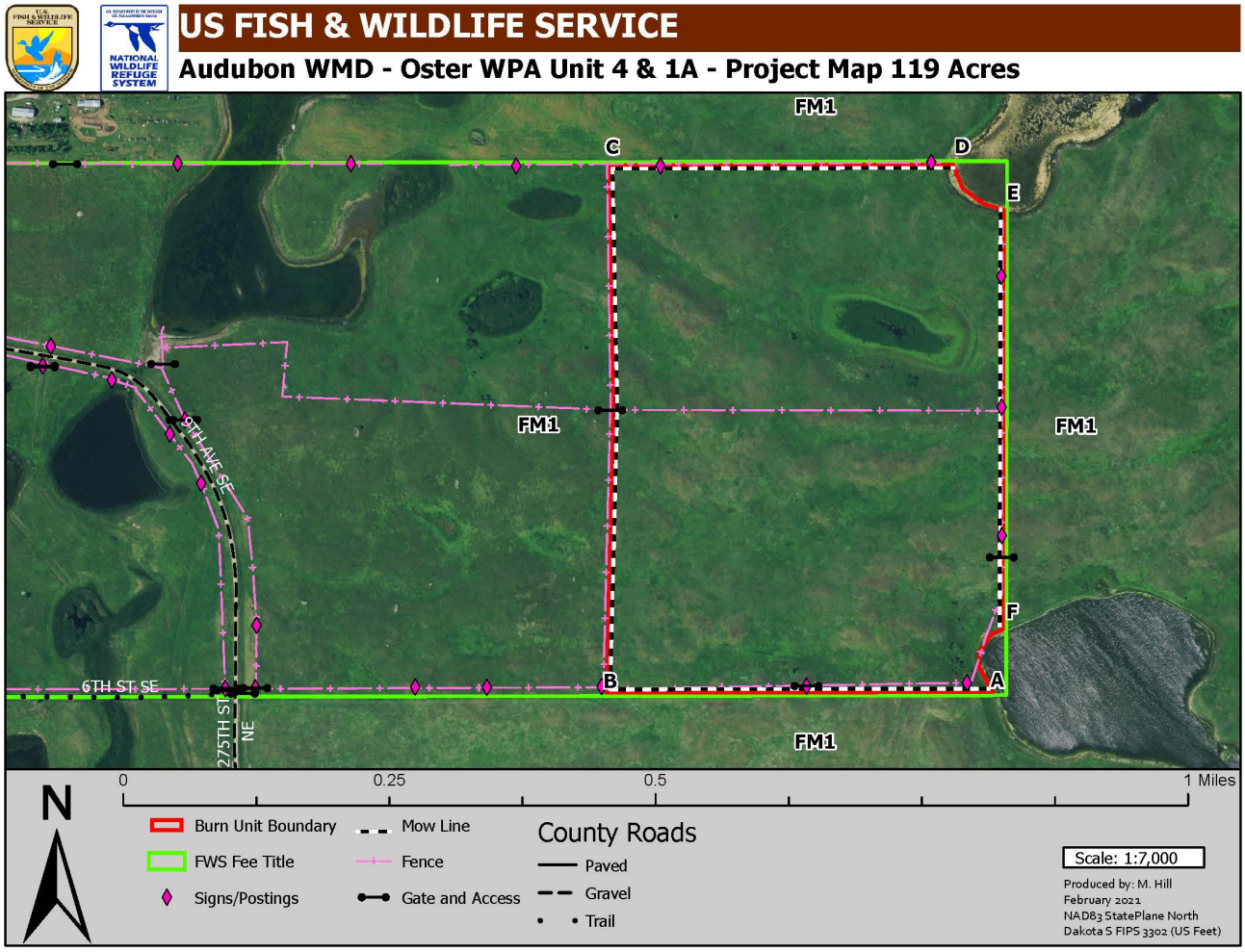
Administrative Unit Name: Audubon WMD – Sheridan County

Prescribed Fire Name: Oster WPA Unit 4 & 1A

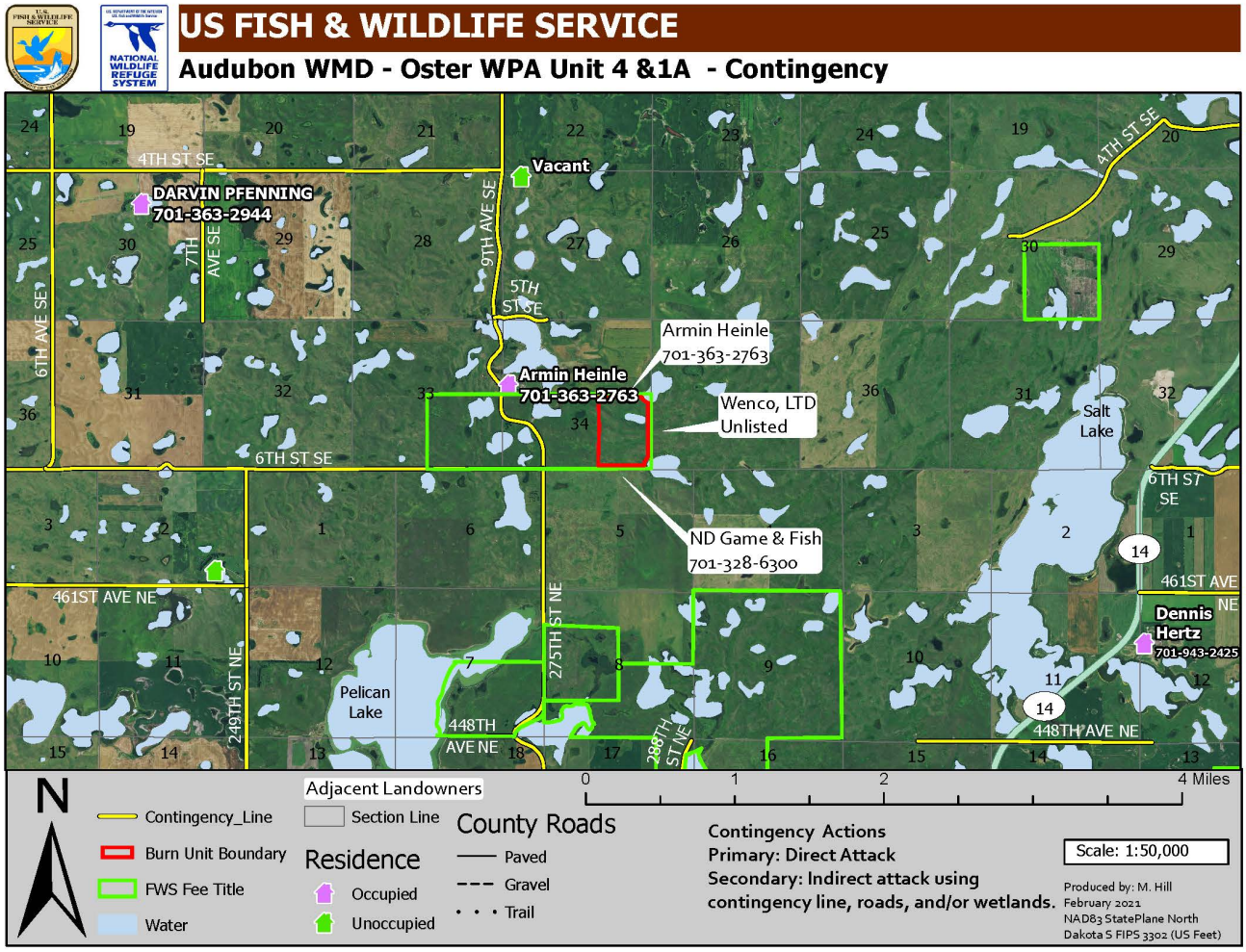
APPENDIX A: VICINITY MAP



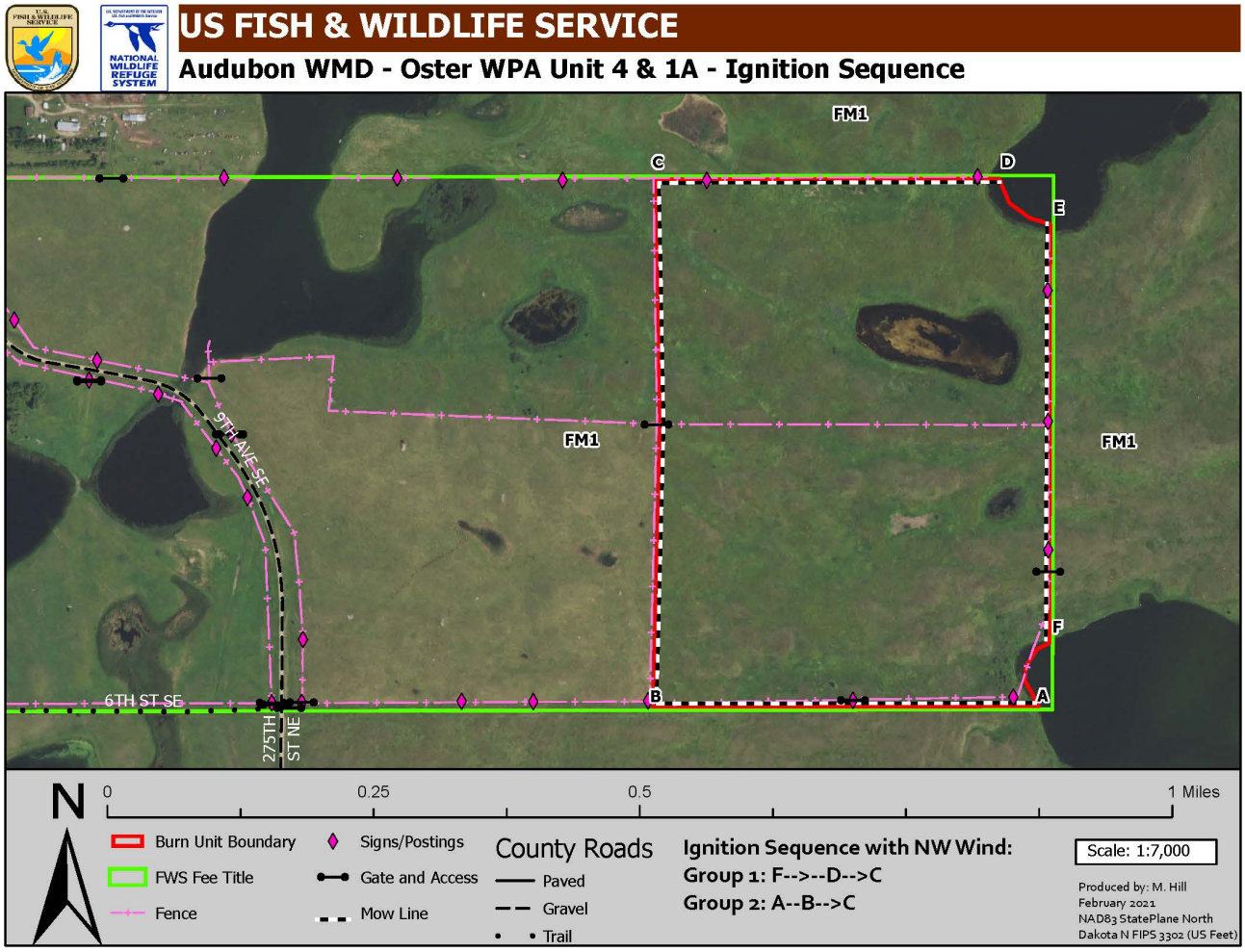
APPENDIX A: PROJECT (IGNITION UNITS) MAP



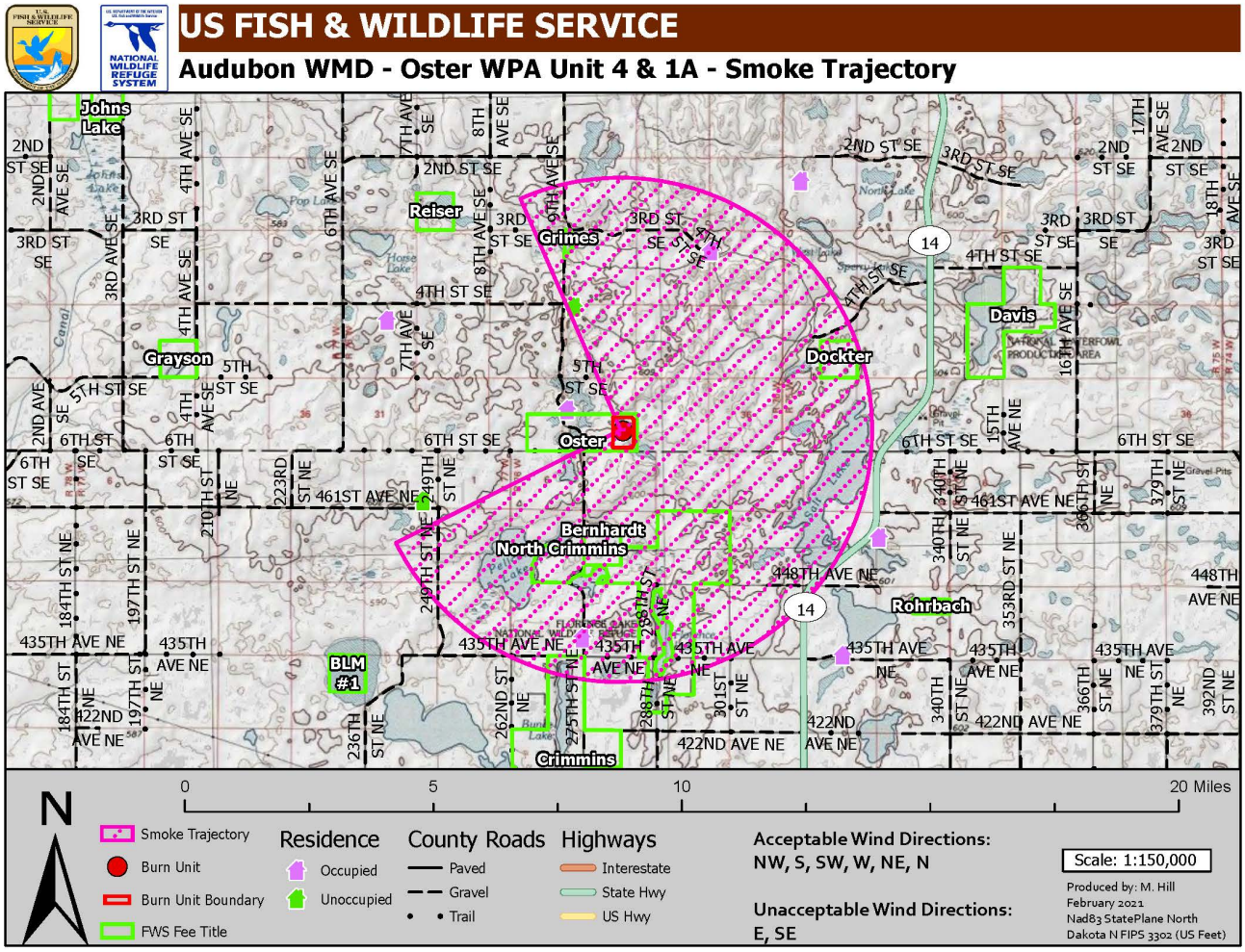
APPENDIX A: CONTINGENCY MAP



APPENDIX A: IGNITION SEQUENCE MAP



APPENDIX A: SMOKE TRAJECTORY MAP



Administrative Unit Name: Audubon WMD – Sheridan County

Prescribed Fire Name: Oster WPA Unit 4 & 1A

APPENDIX B: TECHNICAL REVIEWER CHECKLIST

APPENDIX B. TECHNICAL REVIEWER CHECKLIST - USFWS R6

Administrative Unit	Project Name	Unit Name	Burn Dates		Valid Through	Reviewed By
			From	To		
Audubon NWR/WMD	Oster WPA		1-Jan	31-Dec	2026	Jeff Dion

	Prescribed Fire Elements		S / U	Comments
1	**Signature Page**		S	
2	**GO/NO-GO Checklists**		S	
3	**Complexity Analysis Summary**		S	
4	**Description of the Prescribed Fire Area Must Include:**			
	A.	Physical Description:		
		* Location	S	
		* Size	S	
		* Topography	S	
		* Project Boundary	S	
	B.	Vegetation / Fuels Description:		
		* Describe the structural and composition of the vegetation type(s) and fuel characteristics	S	
		* Describe the percent of the unit composed of each vegetative type and the corresponding fuel model(s).	S	
		* Identify conditions (fuels, slope, aspect) in or adjacent to boundaries that may be a potential threat for escaped fire	S	
		* Identify any abiotic conditions like airshed, climate, soils, etc. as appropriate.	S	
	C.	Description of Unique Features and Resources:		
		* Plan adequately addresses T&E species concerns both within burn unit and adjacent	S	
		* Plan adequately addresses Archeological, Cultural, or Historical issues both within burn unit and adjacent	S	
	D.	Maps (all maps to include: Title; Name of Preparer(s); Date; North Arrow; Scale; & Legend) (Appendix A)		
		* Vicinity Map	S	
		* Project Map	S	
		* Contingency Planning Map (FWS R6 Required)	S	
		* Ignition Sequence Map (FWS R6 Required)	S	
		* Smoke Trajectory Map (FWS R6 Required)	S	
		** Optional Maps		

Administrative Unit Name: Audubon WMD – Sheridan County

Prescribed Fire Name: Oster WPA Unit 4 & 1A

5	**Goals & Objectives**		S	
6	**Funding**		S	
7	**Prescription Must Include:**			
	A.	Acceptable ranges of fire behavior and environmental conditions	S	
	B.	Fire Behavior Discussion	S	
	C.	Predicted Fire Behavior Outside Project Boundary	S	
	D.	Modeled	S	
8	**Scheduling**			
9	**Pre-Burn Considerations Must Include:**			
	A.	Site Preparation	S	
	B.	Spot Weather Forecast	S	
	C.	Required Permits	S	
	D.	Pre-Burn Contact List	S	
10	**Briefing**			
11	**Organization & Equipment Must Include:**			
	A.	Positions, Minimum Qualifications, Equipment, Supplies	S	
	B.	Organization Chart(s) Included	S	
12	**Communication**			
13	**Public / Personnel Safety & Medical Procedures Must Include:**			
	A.	PPE	S	
	B.	Safety Hazards / Mitigation	S	
	C.	Emergency Medical Plan Included	S	
	D.	Job Hazard Analysis (JHA) Attached (Appendix D)	S	
14	**Test Fire**		S	
15	**Ignititon Plan Must Include:**			
	A.	Ignition Plan(s) Description	S	
	B.	Ignition Sequencing Map(s) Attached (FWS R6 required)	S	

Administrative Unit Name: Audubon WMD – Sheridan County

Prescribed Fire Name: Oster WPA Unit 4 & 1A

16	**Holding Plan Must Include:**			
	A.	Critical Control Holding Points Identified	S	
	B.	Resources	S	
	C.	Water Resupply	S	
	D.	Mop-up Standards in Quantifiable tems (FWS R6 required)	S	
	E.	Quantifiable Patrol Standards Identified (FWS R6 required)	S	
17	**Contingency Plan Must Include:**			
	A.	Trigger Points Established	S	
	B.	Identification of additional resources & response time(s)	S	
	C.	Verify / Document Availability	S	
	D.	Procedures to be followed. (FWS R6 Required)	S	
18	**Wildfire Conversion Must Include:**			
	A.	Who has authority to declare a wildfire	S	
	B.	Actions to be taken	S	
	C.	Communications	S	
19	**Smoke Management & Air Quality Must Include:**			
	A.	Permit Requirements	S	
	B.	Sensitive Receptors Identified	S	
		* Smoke Trajectory Map (FWS R6 Required)	S	
	C.	Modeling Outputs Included (if required)	N/A	
	D.	Traffic Control Addressed (FWS R6 Required)	S	
20	**Monitoring Must Include:**			
	A.	Minimum specify weather, fire behavior & fuels info	S	
	B.	Identifies monitoring procedures inc. who and when	S	
21	**Post-burn Activities Must Include:**			
	A.	Rehabilitation Standards are Established	S	
	B.	Criteria to declare burn out and by whom	S	

	Appendices			
	A.	**Maps:**	S	
	B.	**Technical Reviewer Checklist**	S	
	C.	**Complexity Analysis**	S	
	D.	**Job Hazard Analysis**	S	
	E.	**Fire Behavior Modeling Documentation**	S	

S = Satisfactory
U = Unsatisfactory

Recommended For Approval

Not Recommended For Approval

Technical Reviewer	RXB2/2024 Qualifications & Currency (Y/N)	2/26/2021 Date

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

Administrative Unit Name: Audubon WMD – Sheridan County

Prescribed Fire Name: Oster WPA Unit 4 & 1A

APPENDIX C: COMPLEXITY ANALYSIS

Audubon WMD Oster WPA		Quantity	Significance	Values Description: Describe the identified off-site, on-site, and political values
Values	On-Site	Nominal	Low	*Fences (wooden posts, H-braces, & gates), and boundary signs are the on-site values.*
	Off-Site	Few	Mod	*Directly adjacent to the burn unit s is private property. This private property includes upland/grassland, as well as ag/crop field(s).*
	Public/Political Interest	Nominal	Mod	*The prescribed fire will be visible to the public and will generate a monderate amount of pubilic interest. This burn unit is remotely located. The nearest town is 15 miles away by road. There are, however there are 2 residences within 2 miles of the burn unit.*

Element	Preliminary Risk	Risk Rating Descriptors	Agency Administrator/ Preparer Discussion Completed
Safety	**Low**	• Safety issues and hazards are easily identifiable, addressed in briefings, and managed. • Minimal organization produces little exposure of personnel to hazards. • Adverse impacts to public health and safety are unlikely. • Activities are high frequency/low risk. • Fatigue and exposure to hazards are limited. • Standard safety briefings and attention to Lookouts, Communications, Escape Routes, and Safety Zones (LCES) are sufficient. *Safety issues are easily identifiable and mitigated. The burn will be consistent with numberous other burns around the district and present no special safety concerns. Safety concerns will be addressed in pre-burn briefings. Any unit specific safety issues (ie. powerlines, wet spots, abandoned well etc..) will be highlighted during these briefings. A Job Hazard Analysis will be attached to the plan as well, outlining common hazards and mitigating steps.*	**Yes**
Fire Behavior	**Mod**	• Fuels vary within the unit, both in loading and arrangement. • Fire behavior may present control challenges that are easily mitigated. • Medium fuel loadings with some high concentrations are present. • Variable terrain features may significantly affect fire behavior and present moderate ignition and control problems. • Local winds and burning conditions may vary enough to cause shifts in fire behavior that briefly exceed modeled fire behavior and threaten controllability. • Periodic torching can be expected either as isolated points or in limited areas. • Probability of ignition outside of the unit is low and any spotting is expected to be short-range. *Fuels vary moderately within the unit, both in loading and arrangement. Medium loading with some concentrated areas of high fuel loading are both present within the unit. Two primary fuel models (FM 1 & 3) are represented. Light flashy fuels respond quickly to wind changes in speed and direction.*	**Yes**
Resistance to Containment	**Mod**	• Potential for multiple wildfire mechanisms such as spot fires or slopovers that can propagate at moderate rates of spread but can be held by prompt holding actions. • Some fuel concentrations or ladder fuels exist near critical holding points. • Expected fire intensities in the primary fuel type create little potential to challenge standard fire lines. • The probability of ignition in fuels outside of control lines is low to moderate. • Some dependency on natural fuel breaks to hold the prescribed fire. • Local drought and or fire indices are expected to be moderate to high. *Potential for escape is moderate due to the amount of mow lines with a moderate amount of fuel loading adjacent to the planned unit. Natural fuel breaks on the South and East side of the unit will be used to hold the burn.*	**Yes**
Ignition Procedures and Methods	**Mod**	• Multiple firing sequences patterns and timing must be coordinated to meet project objectives and reduce the risk of an unexpected or adverse event. • Specific fire intensities or ROS are somewhat critical for meeting resource objectives but are readily attained by placing local skill sets in firing boss positions. *Two ignition groups will typically be used on the prescribed burns within the Zone. Firing sequence and timing is critical to maintain safe burn conditions and to meet the objectives. The entire project will not be visibile to the FIRB/Burn Boss. Coordination and communication will be vital throughout ignitions to ensure a safe and effective burn.*	**Yes**
Prescribed Fire Duration	**Low**	• Ignition operations should be accomplished within one operational period. • Burn unit is small in size and residual burning is not expected after primary burn out of the unit. • Decrease in seasonal severity is expected. • Short time frame does not require special logistical support. • Mop-up is minimal or none is anticipated/planned. *Ignition will be completed within one operational period. Minimal mop-up due to grass fuel model.*	**Yes**
Smoke Management	**Mod**	• Noticeable smoke will be produced creating at least some public concern. • Short-term health or safety concerns related to smoke exposure may occur if actual weather deviates from forecasted. • Nearby communities are highly conscious of smoke from wildland fire. • Some possibility for a NAAQS exceedance violation. • The prescription or ignition portions of the plan need to consider smoke management. *Potential impacts include a few neighboring farmhouses and nearby roads. Any impacts would be minimal and temporary because of the one hour fuels being burned.*	**Yes**
Number and Dependence of Activities	**Low**	• Activities are mostly independent from each other. • Coordination of activities is simple and straightforward. • The project does not involve another land management agency or jurisdiction. *Burn day activities are generally independent of one another. A single landowner (FWS Fee Title lands) owns the entire burn unit. A low to moderate level of coordination between resources may be necessary. In some instances, multiple burn units may be ignited in one day, making dependency on other resources more vital, however, these units will be simpler in overall complexity, therefore keeping the rating low.*	**Yes**
Management Organization	**Mod**	• Two levels of supervision are needed (i.e. Burn Boss, Ignition Specialist, and/or Holding Specialist, plus lighters and holders). • Special skills or supervision required for one function (RXB2 is suggested). *Multiple levels of supervision will be needed to achieve the objectives. Some team members may need to come from outside the local area (ND Zone) because the number of qualified personnel from the local unit is limited.*	**Yes**
Treatment/ Resource Objectives	**Low**	• Few if any issues are present that hamper meeting treatment resource objectives. • Few or no adverse impacts are expected if resource objectives are not met. • No critical holding points. *The reduction of grass litter is easily achieved using a level of fire behavior that is easily achieved, managed and monitored.*	**Yes**
Constraints	**Mod**	• Constraints exist with some constraints imposing limits on implementing the prescribed fire or achieving objectives. *No constraints related to access, water sources, specific tactics, or equipment and aircraft use exist. Sping burn scheduling may conflict because other agencies and Refuges may also be burning in the sping, typing up needed personnel. Mow line and landowner contacts should be in place before burn season starts. Weather and scheduling conflicts are the most common limiting constraint on any of the units that ar planned to be burned. Some scheduling conflicts can be avoided with pre-season planning and use of additional resources.*	**Yes**
Project Logistics	**Low**	• Minimal logistical support is needed to safely meet prescribed fire objectives. • No special equipment, support or communications needs are required. *The burn will have no adverse project logistics. All travel is within a one day drive of the home unit. Project duration will be less than two days.*	**Yes**

Element	Preliminary Risk	Post-Plan Risk	Risk Rating Description	Elements and Actions in the Prescribed Fire Plan that Address Risk Mitigation
Safety	Low	Low	• Safety issues and hazards are easily identifiable, addressed in briefings, and managed • Minimal organization produces little exposure of personnel to hazards • Adverse impacts to public health and safety are unlikely • Activities are high frequency/low risk • Fatigue and exposure to hazards are limited • Standard safety briefings and attention to Lookouts, Communications, Escape Routes, and Safety Zones (LCES) are sufficient *Most safety issues are easily mitigated through a thorough briefing such as footing, hydration, driving on sloped terrain, etc. There could be some adverse impact to public health and safety associated with smoke impacts and visibility. There is an increased risk to the safety of personnel involved with interior ignition.*	IAP Front Cover: Briefing Checklist IAP ICS 202: Safety Hazards Appendix D: Job Hazard Analysis Element 13: Public & Personnel Safety, Medical
Fire Behavior	Mod	Mod	• Fuels vary within the unit, both in loading and arrangement • Fire behavior may present unusual challenges that are easily mitigated • Medium fuel loadings with some high concentrations are present • Variable terrain features may significantly affect fire behavior and present moderate mitigation and control problems • Local winds and burning conditions may vary enough to cause shifts in fire behavior that briefly exceed modeled fire behavior and decrease controllability • Periodic torching can be expected either as isolated pockets or in limited areas • Probability of ignition outside of the unit is low and any spotting is expected to be short range *The majority of the vegetation located within the project area is best characterized as FM1. Terrain within the project area can be characterized as mostly flat with some slope towards the water bodies. Care must be taken with these light flashy fuels as they produce high fire behavior and react quickly to changes in the environment. Fire behavior outside the project area would typically be similar or less than that experienced within the project area. Unpredicted weather changes can increase fire behavior to the point that it may exceed the holding capabilities of on site resources.*	Element 7: Prescription IAP: Prescription Parameters IAP: Page 10 Element 9: Pre-burn Considerations and Weather Appendix E: Fire behavior modeling documentation
Resistance to Containment	Mod	Mod	• Potential for multiple wildfire occurrences such as spot fires or slopovers that can propagate at moderate rates of spread but can be held by prompt holding actions • Some fuel concentrations or ladder fuels exist near critical holding points • Expected fire intensities in the primary fuel types can include potential to challenge standard fire lines • The probability of ignition in fuels outside of control lines is low to moderate • Some dependency on natural fuel breaks to hold the prescribed fire • Local drought and/or fire indices are expected to be moderate to *Resistance to containment within the project area is moderate. Units within the project area have long mowed control lines that require constant patrol. Spotting potential is low in most units due to the fuel type, but fire that does escape outside control lines has the potential to grow quickly due to the fine flashy fuels associated with the majority of the unit. Individual units are typically surrounded by a variety of land uses, typically cropland, hayland, pasture, CRP and DNC which can all support significant fire spread under the environmental parameters controlled burns are typically implemented under.*	Element 7: Prescription Element 9: Pre-burn considerations and weather Element 14: Test fire Element 15: Ignition plan Element 16: Holding plan IAP: Prescription Parameters
Ignition Procedures and Methods	Mod	Mod	• Multiple firing sequences, patterns and timing must be coordinated to meet project objectives and reduce the risk of an unexpected or adverse event • Specific fire intensities or ROS are somewhat critical for meeting resource objectives but are readily attained by placing local skill sets in firing boss positions *Firing sequence and timing are critical to the units within the project area may require multiple ignition teams to implement. Firing sequence must be coordinated in order to provide adequate safety for all personnel involved in the project implementation. A carefully planned ignition sequence will be utilized and discussed among firing personnel during a break out briefing immediately after the pre-burn briefing if there is any confusion as to sequence or responsibilities.*	Element 15: Ignition Plan
Prescribed Fire Duration	Low	Low	• Ignition operations should be accomplished within one operational period • Burn unit is small to size and residual burning is not expected after primary burn out of the unit • Duration is seasonal severity expected • Short time frame does not require special logistical support • Mop-up is minimal or none is anticipated/planned *On the rare occasion, ignition may take place on a single unit for more than one operational period. Typically, this would be the result of ignition operations from a previous operational period being halted due to smoke concerns or working outside of identified prescription parameters. Most of the time, ignition, holding, and most mop-up occurs during one operational shift. Mop-up and/or patrol activities may occur for several days after ignition of some units.*	Element 8: Scheduling Element 16: Holding Plan
Smoke Management	Mod	Mod	• Noticeable smoke will be produced creating at least some public concern • Short-term health or safety concerns related to smoke exposure may occur if actual weather deviates from forecasted • Nearby communities are highly conscious of smoke from wildland fire • Some possibility for a NAAQS exceedance violation • The prescription or ignition portions of the plan need to consider smoke management *Some potential exists for reduction of visibility due to smoke impacting sensitive receptors, primarily area roadways. These units will be burned with a wind direction and atmospheric stability parameters identified in the plan to help mitigate the impacts of smoke on any sensitive targets such as private residences or local roadways. Smoke signs may be carried to individual units and set up on roadways that could potentially be impacted by smoke. All vehicles traveling in and around each individual unit will turn on their headlights and overheads, if so equipped.*	Element 19: Smoke Management Appendix A: Maps (Smoke Trajectory) Element 8A1: Implementation Schedule Element 14B2: Test Fire documentation Element 15A3: Patterns Element 17A3: Smoke Impacts Element 17B3: Smoke Impacts Element 20E: Smoke dispersal Monitoring required and procedures Element 21A: Post burn activities that must be completed
Number and Dependence of Activities	Low	Low	• Activities are mostly independent from each other • Coordination of activities is simple and straightforward • The project does not involve another land management agency or jurisdiction *Communications are vital as well as firefighters fully understanding their assignments and roles on burn day. This will be discussed during the pre-burn briefing. Coordination of resources will need to be addressed in the operational briefing so all resources understand the sequence of activities and how they relate to meeting the objectives.*	Element 15: Ignition Plan Element 16: Holding Plan
Management Organization	Mod	Mod	• Two levels of supervision are needed (i.e. Burn Boss, Ignition Specialist, and/or Holding Specialist, plus lighters and holders) • Special skills or supervision required for one function (RXB2 is suggested) *This burn unit will require two ignition/holding teams, therefore requiring multiple levels of supervision. Challenges related to supervision and coordination is expected to be moderate and will be addressed during the operational briefing, with the opportunity for anyone to ask a question. Radio communications between supervisors/crew members will be adequate.*	Element 11: Organization and Equipment IAP: ICS 204 IAP: ICS 207
Treatment/ Resource Objectives	Low	Low	• Few if any issues are present that hamper meeting treatment/ resource objectives • Few or no adverse impacts are expected if resource objectives are not met • No critical holding points *Objectives are relatively easy to achieve, timing is the primary concern as an incorrectly timed burn may negatively affect native flora and fauna.*	Element 5: Objectives IAP: ICS 202 Element 7A1: Describe how fire behavior will meet objectives Element 14B2: Test fire results Element 17A1: Project objectives are not being met
Constraints	Mod	Mod	• Constraints exist with some constraints impacting how to implement the prescribed fire or achieving objectives *There are no constraints related to access, water sources, or equipment use for this project area. However, there are some constraints such as the state of cropland adjacent to unit boundaries and the number of personnel required to safely implement a burn. Minimum personnel required to implement any unit within the project area currently exceeds the number of fire personnel on staff at the local unit. Staff will be utilized from other units to meet required number of staff for the burn.*	Element 8: Constraints
Project Logistics	Low	Low	• Minimal logistical support is needed to safely meet prescribed fire objectives • No special equipment, support or communications needs are required *Minimal logistical support will be needed for this project. Supplies are readily available from the station fire cache and no special transportation or storage needs exist. Ignition and active holding will be completed in one day. The primary potential logistical problem that may affect ignition completion is the possibility of equipment breakdown.*	Element 11: Organization and Equipment Element 16: Holding Plan

Element	Post-Plan Risk	Technical Difficulty	Rating Descriptors
Safety	Low	Low	• No special actions are required to mitigate potential minor accidents or injuries identified in the risk assessment/Job Hazard Analysis (JHA). • Safety concerns can be easily mitigated through LCES. • No preparation work or special project design features are required. *Standard safety issues can and will be addressed in the JHA, operational briefing, and breakout briefings. LCES is easily identifyable. No additional safety plans are needed outside of the JHA. LCES and standard risk mitigation procedures, which is addressed in the operational briefing.*
Fire Behavior	Mod	Mod	• Some special provisions for safety are needed to protect personnel. • Fire behavior variations are minimal and do not require multiple fuel models to account for the fire behavior. • At least one barrier or containment opportunity exists. • Fire behavior is such that holding resources may need to use indirect tactics to control some spot fires and slopovers. • Occasional on-site fire behavior assessments or calculations may be needed and can be performed as a collateral duty. • Emission Reduction Techniques (ERTs) and Smoke Management Techniques (SMTs) require a close adherence to the prescription in the Rx plan. *Burning in light, flashy fuels always has the challenge of being able to respond in a timely manner to spot fires, slop overs or unforseen circumstances. That being said, fire behavior in this fuel model is one of the most consistent in the fire behavior models with real world on-the-ground observations. There is a high degree of confidence in the modeling outputs, and basing a organization based on the fire behavior outputs of those models. Holding resouces will be adeuately briefed on the challenges, barriers, pinch points, or areas of special holding concern.*
Resistance to Containment	Mod	Mod	• Several types of resources are involved in the holding operation. • Some portions of the burn unit and project area are not easily accessible to the holding resources. • Expected fire behavior outside the unit may require developing indirect attack options. • Areas outside of the project area have specific suppression action constraints or are on other jurisdictional lands that may limit containment efforts. • Some site prep is required. • Expected fire behavior outside of the unit requires moderate contingency planning. *The primary holding resources to be used for this operation will be engines and UTV with water spraying cabilities. UTV's and engines will be able to work in conjunction to compliment each other. In unforseen weather/fire behavior conditions, indirect methods may be required to contain either the planned ignition unit, or an escaped fire. Fuels outside the unit on private property vary in loading, and arrangement. It is difficult to predict exactly what the condition of the adjacent fuels on private land will be (they may be grazed or hayed, or they may not), therefore we base our organization on the highest rates of spread or most extreme fire behavior .*
Ignition Procedures and Methods	Mod	Mod	• The need for multiple firing devices, sequences, techniques, or patterns has been identified. • Firing procedures are somewhat complex in at least some portions of the project area and a single Firing Boss (FIRB) is used. • Two different types of ignition devices are planned. • The ignition pattern requires direct control of the lighters to achieve project objectives and manage safety concerns. • Communications may require the use of a command (repeater) and at least two tactical frequencies will be used. • The project area is large but can be observed from high points and terrain and/or distance does not contribute to sequence and timing problems. *A variety of ignition devices may be used to ignite the unit. Particular interest in safety and personnel welfare is given extra attention to any ignition operation on the interior of the burn unit, where easily accessible escape routes and safety zones are further (longer) away. Communications are relatively simple, where a single tactical channel can be used for both the ignition and holding operations.*
Prescribed Fire Duration	Low	Low	• Ignition and mop-up operations are usually completed in 1 to 2 operational periods. • Mop-up and patrol is typical with minimal resource and equipment needs. • Standard press release is sufficient for public notification. *Ignition and active holding will likely take one operational shift. Monitoring of the burn unit, however may take a few days after ignition, but it will only require one person to check the burn unit in order to adequately monitor the unit. Public notification is managed by contacting the adjacent private landowners, as well as any residences within one mile of the burn unit. Beyond that, not public notification is made. Communication is established with the local/county dispatch to help field any interest from the public.*
Smoke Management	Mod	Mod	• ERTs and SMTs require skilled application of the prescribed fire prescription. • Some considerations are needed in the prescription or ignition portions of the plan to employ ERTs, and SMTs. • Wind parameters are constrained but easy to achieve. • Sensitive receptors exist. • Burn window/opportunities are reduced by the required weather/dispersion conditions. • Normal coordination with air quality officials is required. • Some mitigation measures or additional smoke modeling may be needed to address potential concerns with smoke impacts. • Specific smoke monitoring may be required to determine smoke plume heights and directions. • Rotating project personnel out of dense smoke may be necessary but easy to accomplish. • Daily smoke management forecasts are adequate. *Common ERT's and SMT's of avoiding downwind receptors, and burning on days with a dispersal rate (ventilation rate) of greater than 13,000 is required. A minimial amouth of coordination is needed with the regulatory air quality agency in ND (pre-season approval, and post-season reporting). Wind direction is constrained to 6 allowable directions.*
Number and Dependence of Activities	Low	Low	• Minimal difficulty in coordinating the required activities. • Holding and lighting are loosely dependent on each other. • Coordination problems or communication failures or issues will not affect the completion of the project. • No to very few pre-burn considerations are required. *Light, flashy fuels can dry very quickly, even when applying a wet-line as the primary holding technique along the perimeter. The holding crew sets the pace of ignition, and communicates that up and down the chain of command.*
Management Organization	Mod	Mod	• At least one primary team member may need to come from outside of the local unit and may not be familiar with local factors. • The numbers of qualified personnel available on the local unit are limited. • Special skills or supervision required for one function (RXB2 suggested). • Some pre-burn preparation work may require special organizational planning and/or coordination. • Protection of resource values requires extra considerations when developing certain elements of the prescribed fire plan. *It is likely that someone within the burn organization will be from out of the area, due to other priorities in the Zone prioritizing resources throughout the state. This unit does require some pre-burn prep work. Minimal resources are needed to mop-up and patrol.*
Treatment/ Resource Objectives	Low	Low	• There are few resource objectives to meet. • Measures to achieve the objectives are easy to complete and there are few or no restrictions on techniques. • There are few or no restrictions on techniques and prescription parameters. • Basic monitoring of fire behavior and weather is needed to determine if prescribed fire objectives are being met. • Many other opportunities will exist to meet objectives in a given year. • Pre-burn site preparation is not required to meet resource objectives. *Fire behavior monitoring, and monitoring the success of achieving the objectives can be done as a collateral duty of many of the personnel within the organization. The prescription parameters are relatively wide to accommodate for a range of environmental conditions in which the objectives are achievable. Pre-burn site prep is required, but it is done the previous fall.*
Constraints	Mod	Mod	• Some constraints are not easily accommodated and increase the difficulty of completing the project or achieving objectives. • Some prescribed fire parameters are dependent upon marginal environmental conditions. *Minimal constraints exist, and those that are a factor are easily mitigated.*
Project Logistics	Low	Low	• No specific logistic function is required and the local unit will handle their own support needs. • Project is nearby and easily accessible. • Local cache can supply the needs of the prescribed fire. *All resources within the burn organization will assist with the logistical needs on burn day. This will alleviate the need for a designated person to coordinate and execute logistical requirements.*

Administrative Unit Name: Audubon WMD – Sheridan County

Prescribed Fire Name: Oster WPA Unit 4 & 1A

APPENDIX D: AGENCY-SPECIFIC JOB HAZARD ANALYSIS OR RISK ASSESMENT

JOB HAZARD ASSESSMENT (JHA) **Activity: Prescribed Fire & Fire Suppression** (Certification of Hazard Assessment – 29 CFR 1910.133)	**STATION: Audubon WMD** **DATE PREPARED: February 2016** **PREPARED BY: Jason Wagner** **CERTIFIED BY:**

PERSONAL PROTECTIVE EQUIPMENT REQUIRED: ☑ **Hearing - ANSI approved hearing protection (85 decibels and higher)** ☑ **Eyes/Face – Approved safety glasses/goggles, neck shroud** ☑ **Foot – ANSI approved 8" leather boots with lug soles** ☑ **Hand – leather gloves** ☑ **Head – ANSI approved hard hat w/chin strap, DOT approved helmet** ☑ **Leg – Nomex pants** ☑ **Body/Other – Nomex pants/shirt, fire shelter, insect repellant**	**QUALIFICATIONS, EXPERIENCE, OR TRAINING REQUIRED:** ☑ **Basic Firefighter Training (S-130, S-190, L-180, I-100)** ☑ **FFT2 (minimum)** ☑ **Annual Refresher** ☑ **Work Capacity Test (Pack Test)**

BASIC JOB STEPS	HAZARDS	SAFE JOB PROCEDURE
Break work down to basic elements (such as remove, lift, carry, stop, start, apply, return, squeeze, weld, saw, walk, hold, grind, place, etc.). Describe what is done, not how it is done.	**For each job step, state what accident could occur and/or what hazard is present. To determine this, ask yourself: Can the person fall; overexert; be exposed to burns, fumes, rays, gas, etc.; hit against; be struck by; in contact with; be caught in, on, or between?**	**State how each element of work should be performed to prevent the accident or avoid the hazard. What should the person do or not do? Be specific. What precautions should be taken? Ask yourself: What can I do to eliminate, modify, guard, identify, or protect against the potential hazard or accident, including such things as how the worker stands, holds, uses, carries, dresses, etc.?**
General Prescribed Fire and Fire Suppression	**Serious Injury or Death - apply to all hazards**	**Adhere to the STANDARD FIRE ORDERS, WATCH OUT SITUATIONS and LCES**
	Entrapment	• Observe STANDARD FIRE ORDERS, WATCH OUT SITUATIONS, AND LCES. • Maintain Situational Awareness (SA) • Annual entrapment avoidance & fire shelter deployment training.
	Snags, falling trees, debris rolling downhill	• Post lookouts. • Fall hazardous trees and snags or flag and direct traffic around hazardous trees. • Alert crews about rolling debris.
	Burns Radiant Heat	• Use standard PPE. (Sleeves down, gloves on, safety glasses on, neck shrouds down) • Wear and maintain fire shelter properly • Watch for burned-out stump holes

Administrative Unit Name: Audubon WMD – Sheridan County

Prescribed Fire Name: Oster WPA Unit 4 & 1A

BASIC JOB STEPS	HAZARDS	SAFE JOB PROCEDURE
General Prescribed Fire and Fire Suppression ***(continued)***		• Flag or otherwise identify hazardous areas • Work at a suitable distance from fire. • No patches or decals are allowed on nomex, fire shirts, or tee-shirts.
	Poor visibility due to smoke or darkness	• Refer to STANDARD FIRE ORDERS • Use headlamp • Keep 10-foot spacing between people • Reduce rate of travel – slow down • Scout terrain during daylight or acquire a good map & talk with someone familiar with the area. • Consider fire spread potential, values at risk versus safety.
	Inhalation (dust, smoke, carbon monoxide)	• Use bandana and safety glasses/goggles • Avoidance to prolonged exposure; work upwind • Training on CO and smoke hazards • Rotate personnel out of smoke as often as possible.
	Fatigue	• Limit shifts to 12 hours (when possible) • Set a reasonable work pace • Allow adequate rest breaks while on the fireline • Provide showers and comfortable eating areas • Supply adequate nutrition and water • Provide quite, shaded sleeping areas away from noise and dust. Sign & rope off sleeping areas • Locate rest and recuperation sites away from running fire, falling trees & snags, rolling rocks, moving vehicles, heliports, helispots, etc. • Alert personnel to local elements • Standard First Aid Training • Comply with established Work/Rest Guidelines (2:1 work/rest ratio, 1 day off in 14 days worked, 2 days off in 21 days worked)
	Snakes & Insects	• Insects • –use standard PPE • –fasten pant cuffs to boot top • –repellents • –inspect body & clothing twice daily; pay special attention to crevices and creases • Snakes • –leave them alone • –keep alert
	Poisonous Plants	• Use standard PPE

Administrative Unit Name: Audubon WMD – Sheridan County

Prescribed Fire Name: Oster WPA Unit 4 & 1A

BASIC JOB STEPS	HAZARDS	SAFE JOB PROCEDURE
General Prescribed Fire and Fire Suppression ***(continued)***		• Change clothing that come in contact with poisonous plants • Wash exposed skin • Avoid smoke of burning poisonous plants • Learn to identify poisonous plants
	Heat-related Illnesses: heat cramps heat exhaustion heat stroke	• Reduce fatigue (#1-6) • During period of continued extreme temperatures (90º +) crew members must be monitored closely for signs of "heat syndrome" – heat cramps, exhaustion and stroke. • Acclimatize crewmembers to hot weather activity gradually • Set a moderate work pace and gradually slow down as temperatures increase. Schedule the hardest work during the cooler morning & evening hours • Keep plenty of water available & encourage crewmembers to drink it. Monitor canteens to ensure that crewmembers are getting their needed liquids. Thirst alone will not make a person drink enough water. Do not allow water for drinking to run out before you order more • Crew members may want to eat less. High protein and other foods increase metabolic heat production and water loss • Have table salt readily available during meals, but *do not* issue salt tablets • Prevent sunburn • Encourage crewmembers to keep their hardhats on in the sun. Hats provide a very effective air conditioning system • Encourage crew members to bathe or wash thoroughly each day to keep their pores & hair clean. Dirty, clogged skin and matted hair slow down heat dissipation • As the temperature increases, give crewmembers frequent rest period of at least 15 minutes. Encourage them to relax in cool locations if at all possible • No synthetic clothing should be worn. T-shirts and other under garments should be 100% cotton
General Prescribed Fire and Fire Suppression ***(continued)***	Lightning & Thunderstorms	During Storms: • Stay out of dry creek beds • Put down all tools • If in open country, sit or lie down • Avoid grouping together • Do not handle flammable materials in open containers • Stay in your vehicle (unless it is metal-tracked). Take shelter in vehicles if possible • When there is no shelter, avoid high objects such as lone trees. If only isolated trees are nearby, the best protection is to crouch in the open, keeping a distance of twice the height of the tree. Keep

BASIC JOB STEPS	HAZARDS	SAFE JOB PROCEDURE
	Lightning & Thunderstorms *(continued)*	away from wire fences, telephone line, and electrically conductive elevated objects • Avoid tops of ridges, hilltops, wide-open spaces, outcrops of rocks and sheds or shelters in exposed locations • Get away from horses and stock • Turn off generators & electrical equipment
Pump Operation (portable pump)	Slips and falls	• Use extra caution working in wet areas
	Noise	• Use PPE
	Broken hoses	• Shut down and replace broken hoses
	Flying debris	• Use PPE • Avoid excessive nozzle pressure and keep nozzles a safe distance from the ground
	Lifting strains	• Lift with two people • Use proper lifting techniques
	Burns	• Use PPE • Use extra caution around muffler and exhaust pipe
Hand Tool (Use & Maintenance)	Cuts, Punctures, Blisters, Slivers	• Check handles and tool heads for tightness and condition • Use PPE • Carry tool on downhill side • Use tool guard when tool is not in use • Never throw tools • When not being used, place tool on ground in plain sight • Take a comfortable stance with feet spread and well anchored • Check for overhead hazards • Maintain a 10-foot distance between personnel • Identify tools needing repair • Training (S-130) • File must have handle and guard • Sharpen away from cutting edge
Firing Operations	Burns	• Use PPE • Avoid spills • Change clothing that has had fuels spilled on it • Proper training on firing operations (S-234)
	Explosions	• Use proper fuel mixture • Use safety cans for transporting fuel • Proper grounding of larger containers
	Fumes/Inhalation	• Mix fuels in adequately ventilated areas

Administrative Unit Name: Audubon WMD – Sheridan County

Prescribed Fire Name: Oster WPA Unit 4 & 1A

BASIC JOB STEPS	HAZARDS	SAFE JOB PROCEDURE
Traffic Control	Passing vehicles Serious Injury or Death	• Use headlights and overheads (if equipped) at all times. • Post traffic controllers on roads as needed. • Wear high visibility vests or clothing. • Place warning signs on road.
Mop-up & Water Application	Burns	• Use PPE
	Sprains	• Avoid stepping in holes or depressions • Warn crew of such dangers
	Flying debris	• Use PPE (especially, goggles) • Avoid excessive nozzle pressure and keep nozzles a safe distance from the ground • Use fog stream
	Carbon Monoxide concentrations of smoldering fuels	• Limit work shifts in concentrations of smoldering fuels • Take breaks and camp in areas which minimize exposure to Carbon Monoxide
	Snags	• Flag hazardous trees • Use lookouts • Work in pairs
	Lackadaisical attitude	• Be alert • Keep the lookup, look down, look around attitude at all times
Hazardous Materials	Spills & Leaks	• Approach cautiously from upwind • Secure the scene • Identify the hazards • Assess the situation • Obtain help • Respond in an appropriate manner • Avoid touching material or inhalation of fumes, smoke and vapors.
Retardant Use	Impact from falling retardant and/or flying debris	• Wear PPE • Move out of drop area • Stay clear of large old trees/snags and loose rocks/debris
	Slips & falls	• Retardant is slick when wet . . . walk & drive slowly and carefully through these areas
Fire Shelter Deployment	Shelter in poor condition	• Check shelter periodically for rips, tears and date
	Not knowing proper deployment procedures	• Annual Entrapment Avoidance and Shelter Deployment Training • Practice
	Deployment in dense fuels	• Clear area • Deploy in light fuels

BASIC JOB STEPS	HAZARDS	SAFE JOB PROCEDURE
Fire Shelter Deployment ***(continued)***		• Scout a safety zone
	Hesitation and timely deployment	• Follow crew leader orders • Drop all equipment and run to safety zone
	Lungs and airway threatened	• Face down in dirt • Hold shelter down with gloved hands and feet
	Bad positioning in shelter	• Feet toward on-coming fire • Hold shelter down with gloved hands and feet • Get rid of line gear because of flammable material inside
	Exiting shelter prematurely	• Communicate with crew • Wait until supervisor lets you know it is safe to come out
	No gloves	• Keep gloves on • Have a spare pair readily available
Urban Interface Fire Suppression	**STRUCTURAL *WATCH-OUT* SITUATIONS** • Wooden construction, shake roofs • Poor access, narrow one-way roads • Inadequate water supply • Natural fuels 30 feet or closer to structures • Extreme fire behavior • Strong winds(25 mph plus) • Evacuation of public = panic • Structures located in chimneys, box or narrow canyons, on slopes 30% or more in continuous, flashy fuel types • Bridge load limits	• Keep at least 100 gallons of water reserve in engine tank for your protection. Never pass up an available water source when tank is less than full • Have a dedicated protective line for your crew and engine • Park engine in safe area, with front toward escape route. Do not block escape routes. Back into driveways, or narrow access roads • Use 1½ inche lines when possible • Post lookouts as needed • Do not park in saddles or chimneys • Do not enter a burning structure • Observe and do not exceed bridge load limits • Utilize law enforcement authorities to conduct evacuations and maintain traffic control • Keep headlights and warning light on for increased visibility
Working Around Fire Vehicles	Serious Injury or Death	• Make visual or radio contact with operator before approaching vehicle. • When working with or around, obtain briefing from operator on vehicle safety. • Maintain visual with vehicle operator at all times. • Avoid resting or leaving equipment around unattended vehicles. • Avoid areas of frequent travel by fire vehicles. • Personnel will not ride outside cab of moving vehicle • Parked vehicle must have emergency brake set and wheels chocked.
Working Around ORUV/ATVs	Serious Injury or Death	• Make visual or radio contact with operator before approaching ORUV/ATVs.

Administrative Unit Name: Audubon WMD – Sheridan County

Prescribed Fire Name: Oster WPA Unit 4 & 1A

BASIC JOB STEPS	HAZARDS	SAFE JOB PROCEDURE
		• When working with or around, obtain briefing from operator on ORUV/ATVs safety. • Avoid resting or leaving equipment around unattended ORUV/ATVs • Avoid areas of frequent travel by ORUV/ATVs. • Personnel will not ride outside cab of ORUV or as a passenger on an ATV. • Parked vehicle must have emergency brake set and wheels chocked.
Working Around Chain Saw Operations	Serious Injury or Death Cuts (lacerations) Eye and ear damage Falling or Rolling Debris	• Use PPE • Maintain safe distance from Chainsaw operations. Avoid working downhill from operations. • Make visual or radio contact with sawyers prior to entering work area. • Never approach sawyer while operating saw.
Working Around Power Lines	Electrocution	• Downed conductor on vehicle: do not leave vehicle until power company arrives • Do not operate heavy equipment under power lines • Do not use rights-of-way as a jump or cargo drop spot • Do not drive with long antennas under power lines • Do not fuel vehicles under power lines • Do not stand near power lines during retardant drops • Do not park under power lines • Do not apply straight stream to power line
Working Around Heavy Equipment Operations Dozer /Maintainer/Tractor	Falling or Rolling Debris Serious Injury or Death	• Do not work downhill of equipment • Do not work within 100 feet of heavy equipment • Make visual or radio contact with operator before approaching equipment. Never approach moving heavy equipment. • Obtain briefing from operator on Equipment safety and assignment.

Administrative Unit Name: Audubon WMD – Sheridan County

Prescribed Fire Name: Oster WPA Unit 4 & 1A

APPENDIX E: FIRE BEHAVIOR MODELING DOCUMENTATION OR EMPIRICAL DOCUMENTATION

Fire Behavior Runs (Fuel Models 1 and 3)

FUEL MODEL ----- 1 -- SHORT GRASS, 1 FT (30 CM)
1-HR FUEL MOISTURE, % -- 5.0 7.0 9.0 11.0 13.0
MIDFLAME WIND SPEED, MI/H 2.0 4.0 6.0 8.0 10.0 12.0 14.0
TERRAIN SLOPE, % ------- .0
DIRECTION OF WIND VECTOR .0
***DIRECTION OF SPREAD ---- .0 (DIRECTION OF MAX SPREAD)* HEAD FIRE**

RATE OF SPREAD, CH/H (V4.4) **HEAD FIRE FM1**

1-HR MOIS (%)	MIDFLAME WIND, MI/H 2.0	4.0	6.0	8.0	10.0	12.0	14.0
5.0	19.	64.	143.	255.	297.*	297.*	297.*
7.0	17.	57.	127.	228.	242.*	242.*	242.*
9.0	13.	45.	101.	136.*	136.*	136.*	136.*
11.0	6.	13.*	13.*	13.*	13.*	13.*	13.*
13.0	0.	0.	0.	0.	0.	0.	0.

* MEANS YOU HIT THE WIND LIMIT.

FIRELINE INTENSITY, BTU/FT/S HEAD FIRE FM1

1-HR MOIS (%)	MIDFLAME WIND, MI/H 2.0	4.0	6.0	8.0	10.0	12.0	14.0
5.0	32.	109.	242.	433.	504.*	504.*	504.*
7.0	27.	93.	206.	369.	392.*	392.*	392.*
9.0	18.	62.	138.	186.*	186.*	186.*	186.*
11.0	4.	9.*	9.*	9.*	9.*	9.*	9.*
13.0	0.	0.	0.	0.	0.	0.	0.

* MEANS YOU HIT THE WIND LIMIT.

FLAME LENGTH, FT HEAD FIRE FM1

1-HR MOIS (%)	MIDFLAME WIND, MI/H 2.0	4.0	6.0	8.0	10.0	12.0	14.0
5.0	2.2	3.9	5.6	7.3	7.9*	7.9*	7.9*
7.0	2.0	3.6	5.2	6.8	7.0*	7.0*	7.0*
9.0	1.7	3.0	4.3	5.0*	5.0*	5.0*	5.0*
11.0	.8	1.2*	1.2*	1.2*	1.2*	1.2*	1.2*
13.0	.0	.0	.0	.0	.0	.0	.0

* MEANS YOU HIT THE WIND LIMIT.

Administrative Unit Name: Audubon WMD – Sheridan County

Prescribed Fire Name: Oster WPA Unit 4 & 1A

FUEL MODEL ---- 1 -- SHORT GRASS, 1 FT (30 CM)
1-HR FUEL MOISTURE, % -- 5.0 7.0 9.0 11.0 13.0
MIDFLAME WIND SPEED, MI/H 2.0 4.0 6.0 8.0 10.0 12.0 14.0
TERRAIN SLOPE, % ------- .0
DIRECTION OF WIND VECTOR .0
***DIRECTION OF SPREAD ---- 90 DEGREES CLOCKWISE FROM THE WIND VECTOR* FLANKING FIRE**

RATE OF SPREAD, CH/H (V4.4) **FLANKING FIRE FM1**

1-HR MOIS (%)	MIDFLAME WIND, MI/H 2.0	4.0	6.0	8.0	10.0	12.0	14.0
5.0	5.	9.	12.	15.	15.	15.	15.
7.0	4.	8.	11.	13.	13.	13.	13.
9.0	3.	6.	8.	9.	9.	9.	9.
11.0	1.	2.	2.	2.	2.	2.	2.
13.0	0.	0.	0.	0.	0.	0.	0.

FIRELINE INTENSITY, BTU/FT/S **FLANKING FIRE FM1**

1-HR MOIS (%)	MIDFLAME WIND, MI/H 2.0	4.0	6.0	8.0	10.0	12.0	14.0
5.0	8.	15.	20.	25.	26.	26.	26.
7.0	7.	12.	17.	21.	22.	22.	22.
9.0	5.	8.	11.	13.	13.	13.	13.
11.0	1.	1.	1.	1.	1.	1.	1.
13.0	0.	0.	0.	0.	0.	0.	0.

FLAME LENGTH, FT **FLANKING FIRE FM1**

1-HR MOIS (%)	MIDFLAME WIND, MI/H 2.0	4.0	6.0	8.0	10.0	12.0	14.0
5.0	1.2	1.5	1.8	2.0	2.0	2.0	2.0
7.0	1.1	1.4	1.7	1.8	1.8	1.8	1.8
9.0	.9	1.2	1.4	1.5	1.5	1.5	1.5
11.0	.4	.5	.5	.5	.5	.5	.5
13.0	.0	.0	.0	.0	.0	.0	.0

Administrative Unit Name: Audubon WMD – Sheridan County

Prescribed Fire Name: Oster WPA Unit 4 & 1A

FUEL MODEL ------- 1 -- SHORT GRASS, 1 FT (30 CM)
1-HR FUEL MOISTURE, % -- 5.0 7.0 9.0 11.0 13.0
MIDFLAME WIND SPEED, MI/H 2.0 4.0 6.0 8.0 10.0 12.0 14.0
TERRAIN SLOPE, % ------- .0
DIRECTION OF WIND VECTOR .0
***DIRECTION OF SPREAD ---- 180.0 DEGREES CLOCKWISE FROM THE WIND VECTOR* BACKING FIRE**

RATE OF SPREAD, CH/H (V4.4) **BACKING FIREFM1**

1-HR MOIS (%)	MIDFLAME WIND, MI/H 2.0	4.0	6.0	8.0	10.0	12.0	14.0
5.0	3.	5.	6.	8.	8.	8.	8.
7.0	2.	4.	6.	7.	7.	7.	7.
9.0	2.	3.	4.	5.	5.	5.	5.
11.0	1.	1.	1.	1.	1.	1.	1.
13.0	0.	0.	0.	0.	0.	0.	0.

FIRELINE INTENSITY, BTU/FT/S BACKING FIRE FM1

1-HR MOIS (%)	MIDFLAME WIND, MI/H 2.0	4.0	6.0	8.0	10.0	12.0	14.0
5.0	5.	8.	11.	13.	13.	13.	13.
7.0	4.	7.	9.	11.	11.	11.	11.
9.0	3.	4.	6.	7.	7.	7.	7.
11.0	1.	1.	1.	1.	1.	1.	1.
13.0	0.	0.	0.	0.	0.	0.	0.

FLAME LENGTH, FT BACKING FIREFM1

1-HR MOIS (%)	MIDFLAME WIND, MI/H 2.0	4.0	6.0	8.0	10.0	12.0	14.0
5.0	.9	1.2	1.3	1.5	1.5	1.5	1.5
7.0	.8	1.1	1.2	1.3	1.4	1.4	1.4
9.0	.7	.9	1.0	1.1	1.1	1.1	1.1
11.0	.3	.4	.4	. 4	.4	. 4	.4
13.0	.0	.0	.0	.0	.0	.0	.0

FUEL MODEL ---------- 3 -- TALL GRASS, 2.5 FT (75 CM)
1-HR FUEL MOISTURE, % -- 5.0 7.0 9.0 11.0 13.0
MIDFLAME WIND SPEED, MI/H 2.0 4.0 6.0 8.0 10.0 12.0 14.0
TERRAIN SLOPE, % ------- .0
DIRECTION OF WIND VECTOR .0
***DIRECTION OF SPREAD ---- .0 (DIRECTION OF MAX SPREAD)* HEAD FIRE**

RATE OF SPREAD, CH/H (V4.4) **HEAD FIRE FM3**

1-HR MOIS (%)	MIDFLAME WIND, MI/H 2.0	4.0	6.0	8.0	10.0	12.0	14.0
5.0	42.	97.	162.	234.	312.	395.	482.
7.0	36.	82.	137.	198.	264.	335.	409.
9.0	32.	73.	122.	176.	234.	296.	362.
11.0	29.	67.	111.	161.	214.	271.	331.
13.0	27.	62.	103.	149.	198.	251.	306.

FIRELINE INTENSITY, BTU/FT/S HEAD FIRE FM3

1-HR MOIS (%)	MIDFLAME WIND, MI/H 2.0	4.0	6.0	8.0	10.0	12.0	14.0
5.0	606.	1398.	2329.	3363.	4481.	5672.	6926.
7.0	466.	1076.	1792.	2588.	3449.	4365.	5330.
9.0	390.	901.	1500.	2167.	2887.	3655.	4463.
11.0	347.	800.	1333.	1925.	2565.	3247.	3965.
13.0	316.	728.	1213.	1752.	2334.	2955.	3608.

FLAME LENGTH, FT HEAD FIRE FM3

1-HR MOIS (%)	MIDFLAME WIND, MI/H 2.0	4.0	6.0	8.0	10.0	12.0	14.0
5.0	8.6	12.6	15.9	18.9	21.5	24.0	26.3
7.0	7.6	11.2	14.1	16.7	19.1	21.3	23.3
9.0	7.0	10.3	13.0	15.4	17.6	19.6	21.5
11.0	6.6	9.7	12.3	14.6	16.6	18.6	20.3
13.0	6.3	9.3	11.8	14.0	15.9	17.8	19.5

FUEL MODEL ---------- 3 -- TALL GRASS, 2.5 FT (75 CM)
1-HR FUEL MOISTURE, % -- 5.0 7.0 9.0 11.0 13.0
MIDFLAME WIND SPEED, MI/H 2.0 4.0 6.0 8.0 10.0 12.0 14.0
TERRAIN SLOPE, % ------- .0
DIRECTION OF WIND VECTOR .0
***DIRECTION OF SPREAD -- 90.0 DEGREES CLOCKWISE FROM THE WIND VECTOR* FLANKING FIRE**

RATE OF SPREAD, CH/H (V4.4) **FLANKING FIRE FM3**

1-HR MOIS (%)	MIDFLAME WIND, MI/H 2.0	4.0	6.0	8.0	10.0	12.0	14.0
5.0	11.	13.	14.	13.	13.	13.	12.
7.0	9.	11.	11.	11.	11.	11.	10.
9.0	8.	10.	10.	10.	10.	9.	9.
11.0	7.	9.	9.	9.	9.	9.	8.
13.0	7.	8.	9.	9.	8.	8.	8.

FIRELINE INTENSITY, BTU/FT/S FLANKING FIRE FM3

1-HR MOIS (%)	MIDFLAME WIND, MI/H 2.0	4.0	6.0	8.0	10.0	12.0	14.0
5.0	154.	187.	194.	192.	187.	180.	173.
7.0	119.	144.	150.	148.	144.	139.	133.
9.0	99.	121.	125.	124.	120.	116.	112.
11.0	88.	107.	111.	110.	107.	103.	99.
13.0	80.	98.	101.	100.	97.	94.	90.

FLAME LENGTH, FT FLANKING FIRE FM3

1-HR MOIS (%)	MIDFLAME WIND, MI/H 2.0	4.0	6.0	8.0	10.0	12.0	14.0
5.0	4.6	5.0	5.1	5.1	5.0	4.9	4.8
7.0	4.0	4.4	4.5	4.5	4.4	4.3	4.3
9.0	3.7	4.1	4.2	4.1	4.1	4.0	3.9
11.0	3.5	3.9	3.9	3.9	3.9	3.8	3.7
13.0	3.4	3.7	3.8	3.7	3.7	3.6	3.6

Administrative Unit Name: Audubon WMD – Sheridan County

Prescribed Fire Name: Oster WPA Unit 4 & 1A

FUEL MODEL ---------- 3 -- TALL GRASS, 2.5 FT (75 CM)
1-HR FUEL MOISTURE, % -- 5.0 7.0 9.0 11.0 13.0
MIDFLAME WIND SPEED, MI/H 2.0 4.0 6.0 8.0 10.0 12.0 14.0
TERRAIN SLOPE, % ------- .0
DIRECTION OF WIND VECTOR .0 BACKING FIRE
DIRECTION OF SPREAD --180 DEGREES CLOCKWISE FROM THE WIND VECTOR

RATE OF SPREAD, CH/H (V4.4) **BACKING FIRE FM3**

1-HR MOIS (%)	MIDFLAME WIND, MI/H 2.0	4.0	6.0	8.0	10.0	12.0	14.0
5.0	6.	7.	7.	7.	7.	6.	6.
7.0	5.	6.	6.	6.	6.	5.	5.
9.0	5.	5.	5.	5.	5.	5.	5.
11.0	4.	5.	5.	5.	5.	4.	4.
13.0	4.	4.	4.	4.	4.	4.	4.

FIRELINE INTENSITY, BTU/FT/S **BACKING FIRE FM3**

1-HR MOIS (%)	MIDFLAME WIND, MI/H 2.0	4.0	6.0	8.0	10.0	12.0	14.0
5.0	88.	100.	101.	99.	95.	92.	88.
7.0	68.	77.	78.	76.	73.	70.	67.
9.0	57.	65.	65.	64.	61.	59.	56.
11.0	51.	57.	58.	57.	55.	52.	50.
13.0	46.	52.	53.	52.	50.	48.	46.

FLAME LENGTH, FT **BACKING FIRE FM3**

1-HR MOIS (%)	MIDFLAME WIND, MI/H 2.0	4.0	6.0	8.0	10.0	12.0	14.0
5.0	3.5	3.7	3.8	3.7	3.7	3.6	3.5
7.0	3.1	3.3	3.3	3.3	3.2	3.2	3.1
9.0	2.9	3.1	3.1	3.0	3.0	2.9	2.9
11.0	2.7	2.9	2.9	2.9	2.8	2.8	2.7
13.0	2.6	2.8	2.8	2.8	2.7	2.7	2.6

Administrative Unit Name: Audubon WMD – Sheridan County

Prescribed Fire Name: Oster WPA Unit 4 & 1A

APPENDIX F: CLEARANCES AND PERMITS/NEPA

U.S. Department of the Interior
U.S. FISH AND WILDLIFE SERVICE

ENVIRONMENTAL ACTION STATEMENT

Within the spirit and intent of the Council on Environmental Quality's regulations for implementing the National Environmental Policy Act (NEPA; 40 CFR 1500-1508), and other statutes, rulings, orders, and policies to ensure environmental factors are weighted equally when compared to other factors in the decision making process, I have established the following administrative record and have determined that the proposed action of prescribed fire .

- X is a categorical exclusion as provided by 516 DM 8.5 and/or [43 CFR 46.210] (see attached documentation).
- ___ is found not to have significant environmental effects as determined by the attached Finding of No Significant Impact and Environmental Assessment.
- ___ is found to have special environmental conditions as described in the attached environmental assessment. The attached Finding of No Significant Impact will not be final nor any actions taken pending a 30-day period for public review [40 CFR 1501.4(e)(2)].
- ___ is found to have significant effects and, therefore, a notice of intent will be published in the Federal Register to prepare an environmental impact statement before the project is considered further.
- ___ is denied because of environmental damage, Service policy, or mandate.
- ___ is an emergency situation. Only those actions necessary to control the immediate impacts of the emergency will be taken [40 CFR 46.150] (see attached documentation). Other related actions remain subject to NEPA review.

Other Supporting Document(s) (list):

TODD FRERICHS

Digitally signed by TODD FRERICHS
Date: 2021.03.05 11:36:11 -06'00'

Agency Administrator **Date**

Administrative Unit Name: Audubon WMD – Sheridan County

Prescribed Fire Name: Oster WPA Unit 4 & 1A

U.S. Department of the Interior
U.S. FISH AND WILDLIFE SERVICE
Wildland Fire Management

ENVIRONMENTAL ACTION STATEMENT
For Documenting Project NEPA Compliance and/or Categorical Exclusion (CE) Use

Within the spirit and intent of the Council on Environmental Quality's regulations for implementing the National Environmental Policy Act (NEPA; 40 CFR 1500-1508), and other statutes, rulings, orders, and policies to ensure environmental factors are weighted equally when compared to other factors in the decision making process, I have established the following administrative record and have determined that the proposed action is Categorically Excluded (CE) from EA or EIS documentation requirements consistent with [40 CFR 1508.4]; [43 CFR 46.150]; [43 CFR 46.210]; [43 CFR 46.215]; 516 DM 2.3A; 516 DM 2.8; and 516 DM 8.5.

Treatment Information				
Treatment Name: Audubon WMD – Oster WPA Unit 4 & 1A		Treatment Location: 47.3314° -100.3355°		
NFPORS Project # (if applicable)	Planned Start Date:	Planned Completion Date:	Estimated Duration:	Estimated Costs $
Project Coordinator:	Phone No:			
	E-Mail:			

Categorical Exclusion(s) (CE) for this treatment: *(check all that apply)*

516 DM 8.5	**X**	Note: 516 DM 8.5 are Service specific CEs;
43 CFR 46.210		Note: 43 CFR 46.210 are DOI specific CEs and includes Hazardous Fuel Reduction and Burned Area Rehab;
43 CFR 46.150		Note: 43 CFR 46.150 addresses Emergency Responses (such as Emergency Stabilization).

1. Proposed Action and Alternatives:

a.) Briefly describe the proposed action and any alternatives explored.

b.) Describe and/or list pertinent facts, such as land description, statutory citations (i.e. applicable laws that require you to do this action), to tie this action to the ground.

c.) Briefly discuss why the proposed action was selected and/or why other alternatives were not selected.

Administrative Unit Name: Audubon WMD – Sheridan County

Prescribed Fire Name: Oster WPA Unit 4 & 1A

2. Management Plan Conformance

a.) State that the proposed action is consistent with land and/or resource management plans and cite the area of the plan(s) that this will address.

b). Describe how the proposed action was designed in conformance with FWS standards and specific desired conditions.

c). Insert findings for other applicable laws or new ruling approved since the signing of the land management plan. Document no impact to current management plans.

3. Compliance with the National Environmental Policy Act

This is for all Programmatic NEPA and CEs, including the Service's CEs and DOI Hazardous Fuels Reduction (HFR) or Burned Area Rehabilitation (BAR), and Emergency Stablization (ES) CE use:

a). Quote the specific NEPA documents (EA, EIS, or other NEPA utilized), and/or Categorical Exclusion(s) that are being used for the action.

b). Explain why the action fits the NEPA documents and/or CE(s) selected.

c). State that the action does not present any Extraordinary Circumstances (see checklist below).

d). If extraordinary circumstances do (or appear to) exist relative to the action, discuss circumstances and explain why the action is still categorically excluded.

If 43 CFR 46.210 (k) [Hazardous Fuels Reduction] or 43 CFR 46.210 (l) [Burned Area Rehabilitation] used: *State that the Proposed Action is categorically excluded from futher documentation under NEPA in accordance with 43 CFR 46.210 (k) or (l), or both.*

If 43 CFR 46.150 used for Emergency Stabilization (ES):

a). State that the Proposed Action is an emergency action not having significant environmental impacts in accordance with 43 CFR 46.150 and 516 DM 2.8. and insert any reasons.

b). Insert any pertinent situations that were brought up during the design of the activities to explain why there is no potential for significant impacts.

c). State that the emergency stabilization action is appropriate in this situation because there are no significant impacts and that the action is funded as an emergency stabilization project under the [Incident Name].

Administrative Unit Name: Audubon WMD – Sheridan County

Prescribed Fire Name: Oster WPA Unit 4 & 1A

4. Permits/Approvals

Discuss any permits/approvals needed before the proposed action can be implemented.

5. Public Involvement/Interagency Coordination:

a.) List the public, other agencies, and/or States or Tribes that have been involved with the proposed action.

b.) Describe the extent of their participation.

6. Supporting Documents

Collect supporting documents for the determination. Include relevant office file material and put together a document list to include the key references.

Administrative Unit Name: Audubon WMD – Sheridan County

Prescribed Fire Name: Oster WPA Unit 4 & 1A

Extraordinary Circumstances (43 CFR 46.215)

Any action that is normally categorically excluded must be evaluated to determine whether it meets any of the extraordinary circumstances in section 46.215; if it does, further analysis and environmental documents must be prepared for the action. [43 CFR 46.205 (c)(1)].

Below are the Extraordinary Circumstances from [43 CFR 46.215].

Check Yes or No for each item.

Yes ____	No X	1.	The proposed action will have significant adverse effects on public health.
Yes ____	No X	2.	The proposed action will have significant impacts on such natural resources and unique geographic characteristics as historic or cultural resources; park, recreation or refuge lands; wilderness areas; wild or scenic rivers; national natural landmarks; sole or principal drinking water aquifers; prime farmlands; wetlands (EO 11990); floodplains (EO 11988); national monuments; migratory birds; and other ecologically significant or critical areas.
Yes ____	No X	3.	The proposed action will have highly controversial environmental effects or involve unresolved conflicts concerning alternative uses of available resources [NEPA section 102(2)(E)].
Yes ____	No X	4.	The proposed action will have highly uncertain and potentially significant environmental effects or involve unique or unknown environmental risks.
Yes ____	No X	5.	The proposed action will establish a precedent for future action or represent a decision in principle about future actions with potentially significant environmental effects.
Yes ____	No X	6.	The proposed action will have a direct relationship to other actions with individually insignificant but cumulatively significant environmental effects.
Yes ____	No X	7.	The proposed action will have significant impacts on properties listed, or eligible for listing, on the National Register of Historic Places as determined by the bureau.
Yes ____	No X	8.	The proposed action will have significant impacts on species listed, or proposed to be listed, on the List of Endangered or Threatened Species or have significant impacts on designated Critical Habitat for these species.
Yes ____	No X	9.	The proposed action will violate a Federal law, or a State, local, or tribal law or requirement imposed for the protection of the environment.
Yes ____	No X	10.	The proposed action will have a disproportionately high and adverse effect on low income or minority populations (EO 12898).
Yes ____	No X	11.	The proposed action will limit access to and ceremonial use of Indian sacred sites on Federal lands by Indian religious practitioners or significantly adversely affect the physical integrity of such sacred sites (EO 13007).
Yes ____	No X	12.	The proposed action will contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area or actions that may promote the introduction, growth, or expansion of the range of such species (Federal Noxious Weed Control Act and EO 13112).

Administrative Unit Name: Audubon WMD – Sheridan County

Prescribed Fire Name: Oster WPA Unit 4 & 1A

NORTH Dakota | Environmental Quality
Be Legendary.

January 12, 2021

Mr. Mike Hill
US Fish & Wildlife Service
12000 – 353rd Street SE
Moffit, ND 58560

Re: Approval to Open Burn

Dear Mr. Hill:

This Department has reviewed your request to conduct prescribed burning for the purpose of wildlife habitat improvement. You are granted approval to conduct prescribed burning as outlined in your application, received by the Department on January 11, 2021 during the period January 1, 2021 to December 31, 2021.

Please note that the form for the 2021 Prescribed Burning Summary is available online at https://deq.nd.gov/forms/aq/openburning/SFN60924.pdf. The requested burn unit information (unit name, location, acres, burn date, estimated loading) listed on the summary should be gathered during each prescribed burn and will be submitted to this Department at the end of the approved burn period.

This approval is issued under the authority of the North Dakota Air Pollution Control Rules (Chapter 33.1-15-04, North Dakota Administrative Code). A list of specific conditions to be met in the conduct of open burning activities is enclosed. *Please note that this approval does not supersede State or local burn bans*. For information regarding county burn bans, contact your county Emergency Management office or county sheriff.

This approval to conduct open burning does not exempt or excuse you from the consequences, damages, or injuries which may result therefrom. Additionally, this approval shall in no way permit or authorize the maintenance of a nuisance or a danger to public health or safety.

If you have any questions, please contact me at (701)328-5153 or email ektrythall@nd.gov.

Sincerely,

Elizabeth Trythall
Environmental Scientist
Division of Air Quality

ET:saj
Enc:

918 East Divide Avenue | Bismarck ND 58501-1947 | Fax 701-328-5200 | deq.nd.gov

Director's Office 701-328-5150
Division of Air Quality 701-328-5188
Division of Municipal Facilities 701-328-5211
Division of Waste Management 701-328-5166
Division of Water Quality 701-328-5210
Division of Chemistry 701-328-6140 2635 East Main Ave Bismarck ND 58501

Conditions/Restrictions Applicable to All Open Burning

Types and Condition of Materials

1. Oil, rubber, and other materials which produce unreasonable amounts of air contaminants shall not be burned.

2. The material must be clean and dry enough to burn cleanly.

Burn Procedure

3. No public nuisance shall be created or maintained

4. The burning must not be conducted upwind of or in proximity to an occupied building such that the ambient air of such occupied building may be adversely affected by the air contaminants being emitted.

5. The burning may be conducted only when meteorological conditions favor smoke dispersion and air mixing. Burning shall not take place when stagnant air or an inversion exists.

6. The burning must be conducted in such a manner to ensure that the fire will not spread to any material not approved for burning.

7. When burning is in progress, winds must be blowing away from any nearby city and away from any airport or landing strip within one mile of the burn location.

8. When the burning is conducted near any highway or public road, it must not be allowed to create a traffic hazard.

9. The burning may not be conducted in such proximity of any Class I area that the visibility of such area is adversely impacted, as defined in Chapter 33.1-15-19 of the North Dakota Air Pollution Control Rules.

Supervision and Notification

10. The local/appropriate fire department must be notified prior to burning.

11. Burning activities must be attended and supervised at all times burning is in progress.

12. Burning is prohibited if the fire index is in the "extreme" category as issued by the National Weather Service. Notification to this Department is required prior to starting the burn if the fire index is in the "very high" category.

13. If State or local fire officials determine conditions to be unsafe for open burning, such burning must cease until conditions are deemed to be safe by such officials.

APPENDIX G: INCIDENT ACTION PLAN (IAP)

The IAP is attached to this plan as a separate file to maintain formatting consistencies. See separate file or hard copy of this plan to view the IAP.