

SUPERIOR/CHIPPEWA NATIONAL FOREST PRESCRIBED FIRE PLAN ELEMENT 1: SIGNATURES

ADMINISTRATIVE UNIT NAMES:

Ranger District: Kawishiwi

NEPA: Pearl

PRESCRIBED FIRE NAME: Serpent

Prescribed Fire Unit (Ignition Unit): Serpent West and Serpent East

COMPLEXITY RATING: Moderate

MINIMUM BURN BOSS QUALIFICATION: RXB2

PREPARED BY:

Name (print): Jon Knapper

Qualification/Currency: RXB2 Qualified

Signature: _____ Date: _____

TECHNICAL REVIEW BY:

Name (print): Jeb Backe

Qualification/Currency: RXB2 Qualified

Signature: _____ Date: _____

RECOMMENDED BY ZONE FMO/AFMO:

Name (print): Tom Roach Qualification/Currency: RXB2 Qualified

Signature: _____ Date: 4/27/2021

APPROVED BY AGENCY ADMINISTRATOR:

Name (print): _____

Signature: _____ Date: _____

AGENCY ADMINISTRATOR IGNITION AUTHORIZATION (Prescribed Fire Plan, Element 2A)

Instructions: The Agency Administrator Ignition Authorization must be completed before a prescribed fire can be implemented. If ignition of the prescribed fire is not initiated prior to expiration date determined by the agency administrator, a new authorization will be required.

Prior to signature the agency administrator should discuss the following key items with the fire management officer (FMO) or burn boss. Attach any additional instructions or discussion documentation (optional) to this document.

Key Discussion Items

A.	Has anything changed since the Prescribed Fire Plan was approved or revalidated? <i>Such as drought or other climate indicators of increased risk, insect activity, new subdivisions/structures, smoke requirements, Complexity Analysis Rating.</i>
B.	Have compliance requirements and pre-burn considerations been completed? <i>Such as preparation work, NEPA mitigation requirements, cultural, threatened and endangered species, smoke permits, state burn permits/authorizations.</i>
C.	Can all of the elements and conditions specified in Prescribed Fire Plan be met? <i>Such as weather, scheduling, smoke management conditions, suitable prescription window, correct season, staffing and organization, safety considerations, etc.</i>
D.	Are processes in place to ensure all internal and external notifications and media releases will be completed?
E.	Have key agency staffs been fully briefed about the implementation of this prescribed fire?
F.	Are there circumstances that could affect the successful implementation of the plan? <i>Such as preparedness level restrictions, resource availability, other prescribed fire or wildfire activity</i>
G.	Have you communicated your expectations to the Burn Boss and FMO regarding if and when you are to be notified that contingency actions are being taken?
H.	Have you communicated your expectations to the Burn Boss and FMO regarding decisions to declare the prescribed fire a wildfire?

Implementation Recommended by:

FMO or Prescribed Fire Burn Boss Signature: _____ Date: _____

I am authorizing ignition of this prescribed fire between the dates of _____ and _____. It is my expectation that the project will be implemented within this time frame and as discussed and documented and attached to this plan. If the conditions we discussed change during this time frame, it is my expectation you will brief me on the circumstances and an updated authorization will be negotiated if necessary.

Additional Instructions or Discussion Documentation attached (Optional): Yes No

Ignition Authorized by:

Agency Administrator Signature and Title: _____ Date: _____



PRESCRIBED FIRE GO/NO-GO CHECKLIST

(Prescribed Fire Plan, Element 2B)

* Preliminary Questions	Circle YES or
A. Have conditions in or adjacent to the ignition unit changed, (for example: drought conditions or fuel loadings), which were not considered in the prescription development? If NO proceed with the Go/NO-GO Checklist below, if YES go to item B.	YES NO
B. Has the prescribed fire plan been reviewed and an amendment been approved; or has it been determined that no amendment is necessary? If YES , proceed with checklist below. If NO , STOP: Implementation is not allowed. An amendment is needed.	YES NO

GO/NO-GO Checklist	Circle YES or
* Have ALL permits and clearances been obtained?	YES NO
* Have ALL the required notifications been made?	YES NO
* Have ALL the pre-burn considerations and preparation work identified in the prescribed fire plan been completed or addressed and checked?	YES NO
* Are ALL the Participating Agreements with other agencies or landowners current?	YES NO
* Have ALL required current and projected fire weather forecast been obtained and are they favorable?	YES NO
* Are ALL prescription parameters met?	YES NO
* Are ALL smoke management specifications met?	YES NO
* Are ALL planned operations personnel and equipment on-site, available and operational?	YES NO
* Has the availability of contingency resources applicable to today's implementation been checked and are they available?	YES NO
* Have ALL personnel been briefed on the project objectives, their assignment, safety hazards, escape routes, and safety zones?	YES NO
*Have you checked ERC rating and it is below Extreme, if rating is above Extreme has the county been notified?	YES NO

If all the questions were answered "**YES**" proceed with a test fire. Document the current conditions, location and results. If any questions were answered "**NO**", DO NOT proceed with the test fire: Implementation is not allowed.

After evaluating the test fire, in your judgment can the prescribed fire be carried out according to the prescribed fire plan and will it meet the planned objective? **Circle: YES or NO**

Burn Boss Signature: _____ Date: _____

ELEMENT 3: COMPLEXITY ANALYSIS SUMMARY

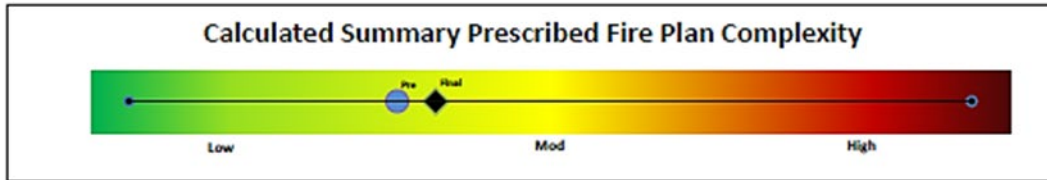


NWCG Prescribed Fire Summary and Final Complexity Worksheet, PMS 424-1

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

Serpent		Quantity	Significance
Values	On-Site	Nominal	Low
	Off-Site	Few	Low
	Public/Political Interest	Nominal	Low

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



Final Complexity Determination	Final Complexity Determination Rationale
Mod	A Moderate final complexity rating has been determined for this burn and it will require a RXB2. This determination was made due to the size of the organization required along with potential duration of the burn. While in general potential for escape is low there are areas of concern that will need to be addressed. In order to meet objectives and have a positive impact on the stands weather and fire behavior will be important factors. This burn is less complex than many other type 2 burns based on its location and surrounding fuels however it is still a moderate complexity burn.

Signatures for complexity analysis can be found in appendix C

ELEMENT 4: DESCRIPTION OF PRESCRIBED FIRE AREA

A. PHYSICAL DESCRIPTION		
General Description: The Serpent Prescribed Fire project area is approximately 18 miles east of Babbitt and located South of FR 377 (Tomahawk Road) This burn is comprised of both the Serpent and Robin Creek Timber Sales.		
1. Location:		
Lat/Long: Serpent East N47° 44.250' W91° 32.358' Serpent West N47° 44.210' W91° 33.578'		Legal Description: T61N R10W Sec. 25 & 26
County: Lake	State: MN	Quad: Slate Lake East
2. Size: acres, ownership and/or unit		
Total Acres: 257 Acres		USFS Acres: 257 Acres Other Acreages: N/A
Ignition Unit Description (if applicable): Serpent West 175 Acres Serpent East 82Acres		
3. Topography: elevation range, slope range, aspect, unique features		
Elevation: 1580	Slope: overall less than 10% some areas of steeper slopes	
Aspect: N/A	Unique Topographic or Geographic Features: Snake River runs adjacent to the burn	
4. Project Area (as defined by NEPA) See Appendix A: Maps		
<p>The project area is comprised of multiple stands and treatments types: Serpent West Consists of some or all of Perl Units 854, 855, 856, 857, and 858 for a total of 175 acres. Serpent East Consists of some or all of Peal Units 705, 706, and 709 for a total of 82 acres.</p>		
B. VEGETATION/FUELS DESCRIPTION		
1. On-Site Fuels Data: Activity/Natural- Include percentages of fuel model or vegetation type		
<p>These burn units consist of red pine under burns along with areas of black spruce, jack pine and aspen clear cuts.</p>		

Serpent West has two different red pine stands that were thinned in 2018 along with three black spruce clear cut units harvested at the same time. There is minimal slash within the red pine units due to the type of harvest, however, there is a significant hazel understory within these units. These areas are modeled as a C-5 Red and White pine fuel model. The black spruce clear cuts have some slash pockets within them, but it is not consistent throughout the unit. While the slash is expected to burn, the remainder of these units are not expected to be conducive to fire spread under normal conditions. These areas are modeled as C-1 Spruce/Lichen Woodland. The landing areas of both the red pine and black spruce have significant slash loading. While these areas are generally less than an acre each, they will be modeled as S1 jack or lodge pole pine slash and modeling is expected to over predict fire behavior for these areas.

C-5 Red and White Pine



C-1 Spruce / Lichen Woodland



S-1 Jack or Lodge pole Pine Slash



Serpent East consists of a red pine stand that was thinned in 2018 along with a jack pine clear cut and aspen clear cut. The red pine stand is similar to serpent west, however, it does have more balsam in the understory. Rates of spread should be similar to fuel model C-5 Red and White pine, however, it may not accurately account for torching in the balsam fir. The upland slash for both the Jack pine and aspen units is fairly sparse and has aspen regen already covering a significant portion of the unit. This area is modeled as M-1 / M-2 Boreal Mixed Wood 25% conifer. The aspen regen within this unit will have the greatest effect on fire behavior within these areas and will make burning this area difficult after leaf out.

C-5 Red and White pine



M-1 / M-2 Boreal Mixed Wood, 25% conifer





2. Adjacent Fuels Data: Identify conditions (fuels, slope, and aspect) in and adjacent to boundaries especially those that may be at risk if fire moves outside of the project area or ignition unit.

<p>North: North of the Tomahawk Road is generally M-1/M-2 boreal mixed wood 25% conifer with a large area of black spruce swamp represented as C1 Spruce Lichen woodland.</p>	<p>South: South of the unit varies from east to west. Starting along the south east boundary of Serpent East, this area is dominated by a mature jack pine stand and is represented by the C-3 Fuel model. As you move west, the next area is generally aspen with some balsam intermixed. This is represented by M1 / M2 boreal mixed wood 25% conifer. Directly south of the Serpent West unit is a combination of both pine plantation and black spruce and are represented by C-6 conifer plantation and C-1 Spruce Lichen woodland respectively.</p>
<p>West: This area consists of both a wet drainage and both standing and harvested black spruce. This area is represented by C-1 Spruce Lichen woodland.</p>	<p>East: This area consists an aspen clear cut and standing and harvested black spruce. These areas are represented as an M1 / M2 boreal mixed wood 25% conifer and C-1 spruce lichen woodland.</p>

C. DESCRIPTION OF VALUES AND UNIQUE FEATURES: List and discuss special features, natural resources, values, hazards, issues and constraints including those identified in NEPA decisions. Also refer to the on-site, off-site and public/political interest values identified in the complexity analysis. Examples: water, riparian/wetlands, wildlife, heritage, vegetation, soils, recreation/resources, regulations, values at risk, WUI, historical/cultural sites, threatened and endangered species or habitat etc.

The timber south of serpent east may be under contract or cut at the time of the burn, once cut reevaluate adjacent fuels. This burn utilizes natural features where possible for the control lines because of that there are multiple different stands being treated within the same burn unit.

D. MAPS – ATTACHED IN APPENDIX A

1. Vicinity (Required)
2. Project (Required)
Serpent Project Map / Serpent West Project Map / Serpent East Project Map
3. Contingency/Values (Required)

ELEMENT 5: OBJECTIVES


A. OBJECTIVES: specific, measurable, attainable, realistic, and time sensitive	
1. RESOURCE OBJECTIVES	2. PRESCRIBED FIRE OBJECTIVES
<p>Long term objective: Maintain or improve the desired amount and age classes of conifers and aspen in the Jack pine Black Spruce LE.</p> <p>Short term objective: Reduce understory vegetation competition and ladder fuels, prepare exposed mineral soil seedbed, slash reduction and enhance structural diversity.</p>	<p>Utilize fire intensity class 2 to top kill brush and balsam within the red pine portions of the unit.</p> <p>Reduce Slash by 25 percent within the clear cut portions of the units.</p> <p>On Average scorch heights should be limited to ≤ 8 feet with mortality of $\leq 5\%$ of mature red pine</p>
B. CONSTRAINTS	
<p>Burning in the hardwood clear cut portions of Serpent East will need to be burnt prior to green up due to aspen regeneration within the burn.</p>	

ELEMENT 6: FUNDING:

PRESCRIBED FIRE PHASE	COST	FUNDING SOURCE
Planning	\$1000	TBD
Site Prep, Line Construction	\$1500	TBD
Implementation	\$7000	TBD
Mop-up/patrol	\$1000	TBD
Air Operations (optional)		
Total of Estimated Costs:	\$10,500	TBD

ELEMENT 7: PRESCRIPTION

Burn parameters apply to the time period during ignition of the burn unit. If weather conditions change, and prescription parameters are being exceeded, the prescribed fire burn boss must evaluate fire controllability and whether fire effects will meet objectives. The prescribed fire burn boss must take action to ensure objectives are being met or take appropriate actions to maintain control of or secure the fire.

A1. PRESCRIPTION NARRATIVE- Description of Fire Behavior Needed to Meet Objectives		
<p>The following prescription parameters are identified in order to accomplish the objectives for the project. The low indicates minimum fire behavior and the high indicates the most intense fire behavior. Mesowest Fire Behavior Prediction tool was utilized for modeling fire behavior both inside and outside of the ignition unit. The intent of the prescription is to maintain an average of fire intensity class 2 (Between 1 and 4 foot flame lengths) within the red pine portions of the unit and a fire intensity class 3 (Between 4 and 8 foot flame lengths) in the slash portions of the unit. The contingency resources are identified within the burn plan based on the fire behavior outputs and the off-site values at risk.</p>		
B1. PRESCRIPTION PARAMETERS- Environmental Parameters		
	Low End	High End
Wind Direction	Any	Any
Smoke Dispersion Index	FAIR or Better	
Wind Speed MPH (Eye Level) Sheltered	2 MPH	7 MPH
Wind Speed MPH (Eye Level) Unsheltered	3 MPH	12 MPH
Fine Fuel Moisture Code (FFMC)*	84*	92*
Buildup Index (BUI)	20	54
Initial Spread Index (ISI)	4	10
<p>*FFMC is a for reference optimal conditions. Prescription parameters are based on ISI and BUI as explained in the empirical evidence.</p> <p>Smoke Dispersion Index: in accordance to the Minnesota Smoke Management Plan (4/21).</p> <p>Wind Speed MPH (Eye Level): is an on-site prescription factor measured at eye-level.</p> <p>Initial Spread Index: is an on-site measurement that incorporates the FFMC and effective wind speed. To calculate on site, use the charts available in the “Field Guide for CFFDRS Fire Behavior Prediction (FBP) System”. These charts are also included in the Superior National Forest’s “Prescribed Fire Organizer”.</p> <div style="display: flex; align-items: flex-start;"> <div style="flex: 1;">  </div> <div style="flex: 2; padding-left: 10px;"> <p>** On a 10% slope, increase the 10m winds by +2 when using these charts when calculating effective ISI.</p> <p>If internet service is available, you may use the CFFDRS Fire Behavior Prediction Calculator found online by scanning the QR code found in this section with a mobile device.</p> </div> </div> <p>Buildup Index: will be referenced from a representative RAWS or other representative location prior to ignition. The Isabella RAWS is located approximately 12 miles to the south east. The BUI will be the contributing factor in meeting resource objectives of slash consumption.</p>		

Fire Weather Index: Is not a prescription parameter but is an indicator of fire activity outside of the burn unit and will need to be monitored for the purposes of contingency resources. Below is a graph showing the ISI and BUI values that are within prescription. It is not recommended to burn when both ISI and BUI values are on the high end. (ISI 10 and BUI 50 or greater)

FWI		Build Up Index (BUI)													
		1	5	10	15	20	25	30	35	40	45	50	55	60	65
Initial Spread Index (ISI)	1	0.30	0.40	0.60	0.80	0.90	1.20	1.60	2.00	2.30	2.60	2.80	3.10	3.30	3.60
	2	0.50	0.90	1.70	2.50	3.10	3.70	4.20	4.70	5.20	5.60	6.00	6.40	6.80	7.20
	3	0.80	1.90	3.10	4.00	4.90	5.60	6.30	7.00	7.60	8.20	8.70	9.20	9.70	10.20
	4	1.30	2.90	4.30	5.50	6.50	7.40	8.20	9.00	9.70	10.40	11.10	11.70	12.30	12.90
	5	2.00	3.80	5.40	6.80	7.90	9.00	10.00	10.90	11.70	12.50	13.30	14.00	14.70	15.40
	6	2.60	4.60	6.50	8.00	9.30	10.50	11.60	12.60	13.50	14.40	15.30	16.10	16.90	17.60
	7	3.20	5.40	7.40	9.10	10.60	11.90	13.10	14.20	15.20	16.20	17.20	18.00	18.90	19.70
	8	3.70	6.20	8.40	10.20	11.80	13.20	14.50	15.70	16.90	17.90	18.90	19.90	20.80	21.70
	9	4.20	6.90	9.30	11.20	12.90	14.50	15.90	17.20	18.40	19.50	20.60	21.70	22.70	23.60
	10	4.70	7.60	10.10	12.20	14.10	15.70	17.20	18.60	19.90	21.10	22.20	23.30	24.40	25.40
	11	5.20	8.20	11.00	13.20	15.10	16.90	18.40	19.90	21.30	22.60	23.80	25.00	26.10	27.10
	12	5.70	8.90	11.80	14.10	16.20	18.00	19.70	21.20	22.60	24.00	25.30	26.50	27.70	28.80

B2. FIRE MODELING OR EMPIRICAL DOCUMENTATION

Empirical Evidence Description: Expect fire behavior within the burn unit to average 4ft. flame lengths with potentially up to 8 flame length on the higher end of the prescription for areas with over story. Areas of slash will see higher flame lengths ranging from 10 to 28 feet these areas have no overstory and should have higher intensity in order to reduce slash. Expect the rates of spread to average from less than 1 ch/hour, with potentially up to 43 ch/hour on the higher end of the prescription.

For the low end: For the following runs, the FFMC was set at 84 with a 10m wind speed of 8 mph to get the ISI of 4 and a BUI of 20. You may burn below an FFMC of 84 as long as there was an increase of wind speed. For example, if you have an FFMC of 82 with a 13 mph wind, the output would show an ISI of 4.1.

For the high end: For the following runs, the FFMC was set at 92 with a 10m wind at 7mph to get an ISI of 10 and a BUI of 54. You may exceed an FFMC of 92 as long as your winds are decreased. For instance, you could have an FFMC of 94 with 10m winds of 3 mph, and the output would show an ISI of 9.6. It is not recommended to burn above an FFMC of 94.

Spotting distance: the table for spotting distance can be found in Appendix E- Fire Behavior Modeling

	Ignition Unit Fuels		Adjacent/Outside Fuels	
	Low End	High End	Low End	High End
Fuel Model: C5 Red and White pine				
Flame Lengths (Feet)	0.48 Ft	5.04 Ft		
Rate of spread (Chains Per Hour)	0.32 Ch/Hr	5.72 Ch/Hr		
Spotting Distance	0.3 Mi	0.3 Mi		
Fuel Model: C1 Spruce Lichen				
Flame Lengths (Feet)	1.27 Ft	7.64 Ft	1.27 Ft	7.64 Ft
Rate of spread (Chains Per Hour)	0.3 Ch/Hr	9.57 Ch/Hr	0.3 Ch/Hr	9.57 Ch/Hr

Spotting Distance	0.3 Mi	0.3 Mi	0.3 Mi	0.3 Mi
Fuel Model: S1 Jack pine Slash				
Flame Lengths (Feet)	10.61 Ft	27.96 Ft		
Rate of spread (Chains Per Hour)	9.33 Ch/Hr	43.04 Ch/Hr		
Spotting Distance	0.3 Mi	0.3 Mi		
Fuel Model: M1 Boreal Mixed Leafless 25% Conifer				
Flame Lengths (Feet)	2.81 Ft	8.46 Ft	2.81 Ft	8.46 Ft
Rate of spread (Chains Per Hour)	3.07 Ch/Hr	15.77 Ch/Hr	3.07 Ch/Hr	15.77 Ch/Hr
Spotting Distance	0.3 Mi	0.3 Mi	0.3 Mi	0.3 Mi
Fuel Model: M2 Boreal Mixed Green 25% Conifer				
Flame Lengths (Feet)	2.45 Ft	7.27 Ft	2.45 Ft	7.27 Ft
Rate of spread (Chains Per Hour)	2.27 Ch/Hr	11.34 Ch/Hr	2.27 Ch/Hr	11.34 Ch/Hr
Spotting Distance	0.3 Mi	0.3 Mi	0.3 Mi	0.3 Mi
Fuel Model: C3 Mature Jack or Lodgepole Pine				
Flame Lengths (Feet)			1.13 Ft	8.88 Ft
Rate of spread (Chains Per Hour)			0.89 Ch/Hr	14.81 Ch/Hr
Spotting Distance			0.3 Mi	0.3 Mi
Fuel Model: C6 Conifer Plantation				
Flame Lengths (Feet)			1.06 Ft	7.79 Ft
Rate of spread (Chains Per Hour)			1.28 Ch/Hr	14.71 Ch/Hr
Spotting Distance			0.3 Mi	0.3 Mi

ELEMENT 8: SCHEDULING

A. IMPLEMENTATION SCHEDULE: Ignition Time Frames/Seasons	
Burn may be completed any time it is within prescription and objectives can be met. Generally, pre green up condition would be required to carry fire in many areas of the burn.	
B. PROJECT DURATION	
Ignition Phase: one to two operational periods	Patrol / Mop-Up Phase: 5 to 7 days depending on weather post burn
C. CONSTRAINTS	
<p>The Prescribed Burn Approval Act of 2016 prohibits the Secretary of Agriculture, acting through the Chief of the U.S. department of Agriculture’s Forest Service, from authorizing a prescribed burn on National Forest System (NFS) lands if, for the county or contiguous county in which the land to be treated is located, the National Fire Danger Rating System (NFDRS) is indicating an extreme fire danger level. This law requires communication and coordination with State and local fire officials when extreme burning conditions are present, but does not suggest or imply that approval or concurrence from any other entity is needed in order to proceed with a project.</p> <p>At national preparedness levels 4 or 5, prescribed fire can be implemented when the action is approved by the agency at the regional office level. This approval must be based on an assessment of risk, impacts of the proposed actions on area resources and activities.</p> <p>Other:</p>	

ELEMENT 9: PRE-BURN CONSIDERATIONS and WEATHER

A. CONSIDERATIONS	
1. ON-SITE TASKS TO BE COMPLETED	TIME FRAME
Construct mechanical and hand line	Prior to ignition
Place prescribed burn signs	Day of burn
Check natural control lines for adequate moisture	Prior to Ignition
Determine if pump site east of Serpent East is adequate.	At least 1 Day before planned ignition
2. OFF-SITE TASKS TO BE COMPLETED	TIME FRAME
Complete small NEPA to include stands not covered under the Pearl record of decision	Prior to implementation
Notifications as stated in appendix K	Prior to ignition (additional information in Appendix K)
B. METHOD AND FREQUENCY FOR OBTAINING WEATHER FORECASTS AND SMOKE FORECASTS	
<p>Spot weather forecasts are required prior to ignition on all ignition days. The burn boss is required to obtain a spot forecast any days the fire is actively spreading to determine holding, mop up or patrol staffing needs. A smoke management forecast should be obtained when residual smoke has potential to impact smoke-sensitive areas. A copy of the forecasts will be included in the project file.</p>	
C. NOTIFICATIONS	
<p>The list of organizations, news media, and individuals who are to be notified prior to ignition, is available in the burn plan appendices. Attempts or actual notifications (or both) will be documented with date and method and placed in the project file.</p>	

ELEMENT 10: BRIEFING CHECKLIST

I. Burn Organization and Assignments

- A. Organizational Chart/Personnel Assignments
- B. Equipment Assignments
- C. Other Resources

II. Prescribed Fire Objectives and Prescription

III. Description of Burn Area

- A. Review Map of Burn/Topographical Features/Acreage
- B. Values at Risk (**Life First!**)
- C. Problem Areas
- D. Fuel Type (Both Inside and Outside the Burn Unit)
- E. Roads/Access
- F. Water Sources
- G. Natural/Manmade Barriers

IV. Expected Weather and Fire Behavior

- A. Wind Direction and Speed
- B. Relative Humidity
- C. Temperature
- D. Fuel Moisture
- E. Atmospheric Stability
- F. Predicted Changes

V. Communications

- A. Procedures
- B. Frequencies/Channels
 - 1. Burn Crew
 - 2. Dispatch
 - 3. Cooperators
 - 4. Others

VI. Ignition Sequence

- A. Test Burn
- B. Ignition Equipment
- C. Pattern and Sequence of Firing
- D. Fire Behavior Prescription

VII. Holding Plan

VIII. Contingency Plan

- A. Slop Over vs. Escape
- B. Assignments/Organizational Chart
- C. Wildfire Declaration
- D. Strategy
- E. Tactics
- F. Incident within an incident IC

IX. Safety and Medical Plan

- A. Inspect Personal Protective Equipment
- B. Lookouts, Escape Routes and Safety Zones
- C. Hazards (Footing, Natural, Manmade, Smoke [visibility], etc.)
- D. Potential Problems
- E. Other (ATV JHA, Medical Plan, First Aid Kits, Medical Issues, Questions, Clear on Assignment, refusal, etc.)
- F. Emergency Evacuation Plan

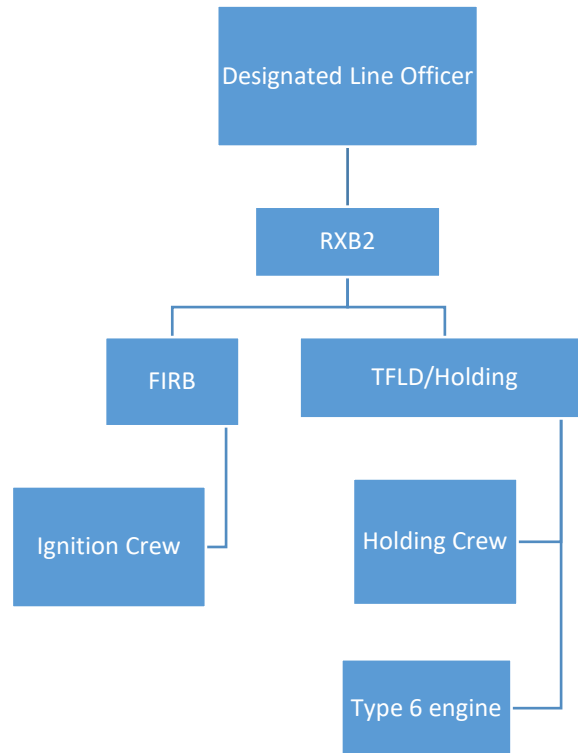
*The prescribed fire burn boss or designee will ensure all personnel receive a briefing prior to assignment.

ELEMENT 11: ORGANIZATION AND EQUIPMENT

A. ORGANIZATION	
1. Burn Day	
Position	Number
Overhead Personnel	
RXB2	1
Firing Personnel	
FIRB	1
FFT1	1
FFT2	4
Holding Personnel	
TFLD or ICT4	1
ENGB	1
Additional Single Resource Boss	1*(only if burning both ignition units)
FFT1	2
FFT2	7 or 10* (only if burning both ignition units)
Total Personnel:	18 or 22* (only if burning both ignition units)
18 is the required number per ignition unit during the ignition phase of the burn. Both units may be burned in the same operational period as long as mop up personnel remain on the unit post ignition. Additional equipment is at the burn boss's discretion based on expected fire behavior and expected mop up needs.	
2. Mop Up	
Position	Number
Single resource boss	1
FFT2	2
B. EQUIPMENT -engines(type), dozers, excavators, water tenders, track vehicles, UTV/ATV's (with/without water capability, watercraft etc.	
Type	Number
Type 6 engine	1
UTV with water capability	1
Water Tender	1* (required if Serpent East water source is not adequate)

BURN DAY-MINIMUM ORGANIZATION REQUIRED

Documentation of the organization will be completed



C. SUPPLIES-ATTACHED IN APPENDICES			
Type	Serpent West	Serpent East	Combined
Drip Torches	12	12	12
Drip Torch Fuel	50 Gallons	30 Gallons	80 Gallons
Weather Kit	1	1	1
Backpack Pumps	4	4	4
Hand Tools	Appropriate for resources on scene		
Chainsaw w/kit	2	2	2
1 ½” Hose	7600’	6600’	14,200
1” Hose	3800’	3300’	7100
1” Nozzles	38	33	71
1 ½”-1” Reducers	38	33	71
Gated Wyes	38	33	71
Portable Pumps (specify high pressure/high volume)	2 High Pressure	2 High Pressure	4 High Pressure
Drop Tanks	1	2	3
Signs (specify type)	2 prescribed burn signs		
Fuel	20 gallons pump fuel	20 gallons pump fuel	40 gallons pump fuel
High Volume pump is recommended if water tender is required for Serpent East			

ELEMENT 12: COMMUNICATION

A. NARROW BAND VHF RADIO FREQUENCIES					
1. Tactical Frequencies					
Channel Name	RX Freq	TX Freq	Tone	Zone	Assignment
SUF TAC1	169.1250	169.1250	0	WZ/EZ	Primary Tactical
R9- FIRE	166.5625	166.5625	0	WZ/EZ	Secondary Tactical
2. Air Operations Frequencies					
Channel Name	RX Freq	TX Freq	Tone	Zone	Assignment
A/G 19	168.1250	168.1250	0	WZ/EZ	Primary Air To Ground
A/G 72	167.9500	169.150	0	WZ	Secondary Air To Ground
AIRGUARD	168.6250	168.6250	TX- 110.9	WZ/EZ	Emergency Air
3. Repeater Frequencies (highlight needed frequencies or delete those not needed)					
Channel Name	RX Freq	TX Freq	Tone	Zone	Assignment
West Fernberg	170.525	164.1375	100.0	WZ	Primary Command
Weber	170.525	164.1375	141.3	WZ	Secondary Command
4. Forest Simplex					
Channel Name	RX Freq	TX Freq	Tone	Zone	Assignment
West Direct	170.5250	170.5250	0	WZ	
B. PHONE NUMBERS (delete if not applicable or if numbers are included in the notification list)					
Name			Phone Number		
MNCC Operations			(218) 327-4175		
Agency Administrator			TBD		
West Zone Duty Officer			(218) 365-2041		
Cellular Phone Service on Site?			Yes Ok with AT&T		No

ELEMENT 13: PUBLIC AND PERSONNEL SAFETY, MEDICAL

A. SAFETY HAZARDS

Site Specific Safety Hazards:

1. Walking through the unit and along dozer line. (uneven terrain)
2. Smoke exposure/inhalation to firefighters.
3. ATV/UTV use on uneven surfaces (dozer line) and trail systems.
4. Traffic concerns on the Tomahawk road FR 377

Job Hazard Analysis (JHA's) are included in the burn plan appendices. The pertinent JHA's will be reviewed with all prescribed fire personnel prior to ignition during briefing.

B. MEASURES TAKEN TO REDUCE THE HAZARDS

Prescribed burn signs will be placed on the Tomahawk Road and the use of emergency lighting will reduce risk of traffic accidents. Due to the use of natural control lines, less personnel will be required on the line in order to hold the burn and reduce exposure. The use of mechanical line construction where natural lines are not feasible will allow for less personnel required for holding.

C. INCIDENT WITHIN AN INCIDENT, INCLUDING EMERGENCY MEDICAL PROCEDURES

- During the pre-burn briefing the Burn Boss will identify any medically qualified firefighters and potential incident commander(s) (IC) to manage an **Incident within an Incident (IWI)** should it occur, and the Burn Boss will remain with the prescribed fire.
- The IWI IC will manage the IWI and coordinate needs.
- All medical emergencies will be communicated to Dispatch.
- All medical emergencies will use the Medical Incident Report (IRPG).
- In case(s) of a medical emergency, the IWI IC will coordinate emergency operations according to the medical plan.
- If a medical emergency is beyond the capability of onsite staff.
 1. IWI IC may call 911 to get appropriate medical resources responding and follow up with dispatch afterwards.
 2. IWI IC may utilize Dispatch to get appropriate medical resources responding.
- The burn boss will determine if the prescribed burn can safely continue, considering the safety of the injured person and other firefighters.

D. EMERGENCY EVACUATION METHODS

Ground Transport:

- Transport the patient using an on-site vehicle from the burn unit to the appropriate emergency facility shown on the emergency medical plan.
- Transport the patient using an on-site vehicle from the burn unit to meet an ambulance at the nearest location that will accommodate an ambulance. The burn boss or designee will coordinate with dispatch on this location to help facilitate the appropriate site.

Air Transport:

- Transport the patient to nearest helispot to be evacuated by helicopter as shown on the emergency medical plan.

E. EMERGENCY FACILITIES

See specific medical plan in appendices

ELEMENT 14: TEST FIRE

A. PLANNED LOCATION	
<p>The test fire should be ignited in a representative location and results must be documented. The test fire should be ignited in an area that can be easily controlled. The purpose of the test fire is to verify that the prescribed fire behavior characteristics will meet management objectives and to verify predicted smoke dispersion. On multiple-day projects, evaluation of current active fire behavior, in lieu of a test fire, may provide a comparative basis for continuing and must be documented.</p>	
B. TEST FIRE DOCUMENTATION	
<p>Any form of documentation is acceptable for the test fire results. For example, unit log, incident organizer, or any other method as long as the results are documented and kept in the project file. The following must be documented:</p>	
1. WEATHER CONDITIONS ONSITE	2. TEST FIRE RESULTS
C. COMMENTS	

ELEMENT 15: IGNITION PLAN

A. FIRING METHOD, TECHNIQUES, SEQUENCES		
<p>The firing methods that will be used for the ignition unit will vary depending on resource objectives, site conditions, weather parameters and ignition devices. Depending on project complexity, the burn boss or firing boss will monitor fire behavior and adjust accordingly to meet burn objectives. For low complexity projects the burn boss will oversee firing methods and techniques. For moderate and high complexity projects the firing boss will oversee firing methods and techniques. Additional firing bosses may be added based on project complexity.</p> <p>A combination of strip, spot, backing, center, and head firing may be used. The timing and location will be adjusted to compensate for fuel arrangement, loading, condition of fuels, resource constraints and variations in wind direction.</p>		
B. DEVICES		
<p>Due to the size of the burn units it is expected to be hand ignition. Any hand held firing device can be used as long as personnel are trained and qualified to use them. The list of devices could include but not limited to drip torches, fuses, pyroshot, very pistol, and hand throw incendiary devices.</p>		
C. MINIMUM IGNITION STAFFING		
POSITION	MINIMUM ICS QUALIFICATION	NUMBER NEEDED
Firing Boss	FIRB	1
Squad boss	FFT1	1
Firing crew	FFT2	4
D. SPECIAL CONSIDERATIONS		
<p>Due to the use of natural boundaries, firing should be limited to upland areas that are conducive to fire spread and only in jackpots of slash in the lowland areas.</p>		

ELEMENT 16: HOLDING PLAN

A. GENERAL PROCEDURES FOR HOLDING
<p>Utilize natural boundaries, mechanical line, and saw line to hold fire within the unit. Utilize water handling equipment and hose lays where necessary to catch or contain spots outside of the unit and flare ups along the perimeter in order to reduce spotting potential.</p>
B. CRITICAL HOLDING POINTS AND MITIGATION ACTIONS

The south line of Serpent East is a critical holding point as this timber is scheduled for harvest and may be under contract at the time of ignition.

C. MINIMUM ORGANIZATION OR CAPABILITIES NEEDED

POSITION	MINIMUM ICS QUALIFICATION	#
Holding Boss	TFLD or ICT4	1
Engine Boss	ENGB	1
Squad Boss	FFT1	2
Holding Crew	FFT2	7

D. MOP UP PROCEDURES

The intent of mop-up is to minimize the likelihood of the fire escaping the containment lines once the burn is left unattended. The Burn Boss is responsible for implementation including mop-up and patrol until the responsibility is formally passed to another qualified designee or local fire management organization. The burn boss will establish standards based on but not limited to:

- Observed and forecasted fire behavior
- Residual heat
- Weather conditions
- Changes in fuel types
- Values at risk

If mop up is needed beyond the ignition day, the burn boss will contact the duty officer or prescribed fire manager with a resource request, as soon as feasible. Resource needs for mop up will be determined by the burn boss.

E. PATROL PROCEDURES

A forecasted CFFDRS Fire Weather Index of 5 will be the general guidance used to trigger patrols. The burn boss or organization responsible for the burn may order additional patrols, or cancel patrols based on weather forecasts, observed/predicted fire behavior, or previously completed patrol results. Patrol methods and frequencies will be determined by the individual or organization responsible for the burn.

F. LEAVING THE FIRE UNATTENDED

Due to the variability of fuels, weather, unit size and values at risk, no standard protocol for leaving a burn unattended can apply to all scenarios. Therefore, on any active day of ignition, the burn boss will document the rationale for leaving the burn unattended.

ELEMENT 17: CONTINGENCY PLAN

A. MANAGEMENT ACTION POINTS OR LIMITS:

Management Action Point Element #1	Management Action Point Narrative
Designator and Description:	M.A.P. 1
Condition:	Fire spots or spreads into the timber south of Serpent East
Management Intent:	Suppress fire as soon as practical in order to minimize impacts to timber harvest

Management Action Point Element #1	Management Action Point Narrative
Recommended Action(s) to Consider:	If timber is currently under contract contact district Sale Administrator or line officer to determine impacts to timber harvest.
Recommended Resources:	Utilize holding resources and consider contingency resources if fire spread cannot be readily contained.
Time Frame:	Immediate
Actions Needed:	Suppress fire and contact SA if timber is affected.
Responsibility:	Burn Boss

Management Action Point Element #2	Management Action Point Narrative
Designator and Description:	M.A.P. 2
Condition:	Fire spots North of the Tomahawk Road from Serpent West
Management Intent:	Minimize impacts of either fire or suppression efforts
Recommended Action(s) to Consider:	If spot fires across the Tomahawk Road are not readily accessible due to abundant moisture, consider minimum impact suppression tactics as fuels are not conducive to fire spread and may even self-extinguish without action.
Recommended Resources:	Holding resources on scene and consider contingency resources
Time Frame:	As needed
Actions Needed:	Assess and address spots for least impact to resource
Responsibility:	Burn Boss

Management Action Point Element #3	Management Action Point Narrative
Designator and Description:	M.A.P. 3
Condition:	Fire spots or spreads outside of burn unit
Management Intent:	Minimize impacts of either fire or suppression efforts
Recommended Action(s) to Consider:	Suppress spots with minimal impact to resources
Recommended Resources:	Holding resources on scene and consider contingency resources
Time Frame:	As needed
Actions Needed:	Assess and address spots for least impact to resource
Responsibility:	Burn Boss

B. MINIMUM CONTINGENCY RESOURCES AND MAXIMUM RESPONSE TIME(S):

- **The numbers and types of resources needed for contingency will be based on the FWI indices forecasted for the burn day based on a representative RAWS station.**
-Descriptors below FWI values are literature taken from the MN CFFDRS Fire Weather Index Field Guide (page 11).



FWI	Build Up Index (BUI)													
	1	5	10	15	20	25	30	35	40	45	50	55	60	65
1	0.30	0.40	0.60	0.80	0.90	1.20	1.60	2.00	2.30	2.60	2.80	3.10	3.30	3.60
2	0.50	0.60	1.00	1.50	1.80	2.70	4.20	6.00	7.50	9.00	10.00	11.00	12.00	13.00
3	0.80	1.20	2.10	3.00	4.00	6.00	9.00	13.00	18.00	24.00	30.00	36.00	42.00	48.00
4	1.30	2.00	3.50	5.00	7.00	10.00	15.00	22.00	32.00	45.00	60.00	78.00	100.00	130.00
5	2.00	3.00	5.40	8.00	11.00	16.00	24.00	36.00	54.00	81.00	120.00	180.00	270.00	400.00
6	3.00	4.50	8.10	12.00	17.00	25.00	37.00	55.00	82.00	123.00	184.00	276.00	414.00	612.00
7	4.50	6.75	12.15	18.00	26.00	39.00	58.00	87.00	130.00	195.00	292.00	438.00	657.00	985.00
8	6.75	10.12	18.22	27.00	39.00	58.00	87.00	130.00	195.00	292.00	438.00	657.00	985.00	1477.00
9	10.12	15.18	27.33	40.50	59.00	87.00	130.00	195.00	292.00	438.00	657.00	985.00	1477.00	2215.00
10	15.18	22.77	40.99	60.75	89.00	130.00	195.00	292.00	438.00	657.00	985.00	1477.00	2215.00	3322.00
11	22.77	34.16	61.48	91.12	130.00	195.00	292.00	438.00	657.00	985.00	1477.00	2215.00	3322.00	5000.00
12	34.16	51.24	92.22	136.68	200.00	292.00	438.00	657.00	985.00	1477.00	2215.00	3322.00	5000.00	7500.00

For FWI values: 0.0-14.9 (low and moderate)

- Smoldering fire (low)
- Creeping fire- Direct attack with hand tools (moderate)

Resource Type	Number	Response Time
T7 engine (or greater) with 2 personnel (ENGB + FFT2 minimum quals)	1 engine (with 2 personnel)	2 hour response
Water Delivery Aircraft	1 (Any)	Operational shift

For FWI values: 15.0-21.9 (high)

- Torching, spotting, intermittent crowning- Dozers, pumps, aircraft effective (high)

Resource Type	Number	Response Time
T7 engine (or greater) with 2 personnel (ENGB + FFT2 minimum quals)	1 engine (with 2 personnel)	On-site
T7 engine (or greater) with 2 personnel (ENGB + FFT2 minimum quals)	1 engine (with 2 personnel)	2 hour response
Water Delivery Aircraft	1 (Any)	

For FWI values 22.0 and above (very high)

- Active crowning is possible- Dozers, pumps, aircraft needed (very high)
- *the highest prescription parameters max out at (FWI=23.3)*

Resource Type	Number	Response Time
T7 engine (or greater) with 2 personnel (ENGB + FFT2 minimum quals)	2 engine (with 2 personnel each)	On-Site
6 person module (2 trucks) (ICT5 + FFT1 + FAL2 + 3-FFT2 minimum quals)	1 (with 6 personnel)	
*Water Tender (with 2 operators)	1 (with 2 personnel)	
Task Force Leader to manage contingency resources (TFLD minimum quals)	1	
Water Delivery Aircraft	1 (Type II helicopter or greater)	1 hour response
Dozer or Excavator or Tracked Vehicle equipped with portable pump unit	1	4 hour
Heavy Equipment Boss (HEQB) *needed for Dozer or Excavator, but not the tracked vehicle.	1	

*Additional water tender not required for contingency if part of the burn organization See element 11

ELEMENT 18: WILDFIRE DECLARATION

A. WILDFIRE DECLARED BY

A prescribed fire, or a portion of a prescribed fire, must be declared a wildfire by the burn boss, zone FMO, and agency administrator with the authority to do so, when either or both of the following criteria are met:

- Prescription parameters are exceeded and holding, and contingency actions cannot secure the fire by the end of the next burning period, or,
- The fire has spread outside the project area or is likely to do so, and the associated contingency actions have failed or are likely to fail and the fire cannot be contained by the end of the next burning period.

A prescribed fire can be declared a wildfire for reasons other than those identified above, if events cannot be mitigated as determined by the burn boss, zone FMO, and agency administrator.

B. IC ASSIGNMENT

If the incident is declared a wildfire, the Burn Boss will assume the role of Incident Commander or transfer command of the incident to a qualified Incident Commander. If a transfer of command is required, the Burn Boss will assume the role of the IC until the IC transition takes place. If other ICS organizational positions need to be filled prior to the IC transition, the burn boss will order them.

C. NOTIFICATIONS

- The Burn Boss will notify Dispatch.
- The Agency Administrator will report to the Forest Supervisor within 4 hours.
- The Forest Supervisor will report to the Regional Forester within 12 hours.

If necessary the county sheriff will be notified that an emergency evacuation of local residences may be needed. The sheriff will oversee all evacuation procedures.

ELEMENT 19: SMOKE MANAGEMENT AND AIR QUALITY

<p>A. COMPLIANCE</p>
<p>This prescribed burn will be conducted when the Dispersion Index is "Fair" or better as stated in the Minnesota Smoke Management Plan.</p>
<p>B. PERMITS TO BE OBTAINED</p>
<p>Obtaining a permit in the State of Minnesota is not required at this time.</p>
<p>C. SMOKE SENSITIVE AREAS/RECEPTORS</p>
<p>There are no known smoke sensitive receptors in the area.</p>
<p>D. POTENTIAL IMPACTED AREAS</p>
<p>There are potential visibility impacts to highway 1 with north or easterly winds, and while the burn is within five miles of the Boundary Waters Canoe Area Wilderness the smoke impact in this area should be minimal and short in duration.</p>
<p>E. MITIGATIONS, STRATEGIES, and TECHNIQUES TO REDUCE SMOKE IMPACTS</p>
<p>To minimize smoke impacts from all scenarios consider the following:</p> <ul style="list-style-type: none"> • Burn Bosses will monitor the Minnesota Pollution Control Agency's Air Quality Index (AQI) forecast for fine particles (PM_{2.5}) for the Duluth, Ely, Fond du Lac, Grand Portage, Virginia, and Cass Lake stations. <ul style="list-style-type: none"> ○ Forecasts are posted at: https://www.pca.state.mn.us/air/current-air-quality ○ Forecast of Red, Purple, or Maroon 151+ will suspend burning until the AQI improves within the airshed. ○ Forecast of Orange 101-150 will trigger discussion with Approving Line Officer and Forest Service Air Specialist on whether to proceed with planned burning or suspend burning until the AQI improves within the airshed. <p>Folks can sign up for AQI alerts via their emails and also get the app for their phones at https://www.pca.state.mn.us/air/current-air-quality . This will give notify them of all alerts within the state when they are issued.</p> <ul style="list-style-type: none"> • As much as possible, limit the wind direction to directions that take the smoke away from sensitive receptors. • Keep the majority of active burning in the middle of the day to help avoid the evening when the atmosphere quickly becomes stable - which can hold the smoke along the ground. • Keep up the intensity of lighting, once started, to help keep the column in the air. • Burn only under days with good sunlight (greater than 4 hours of sunlight) and a mixing height above 2500 feet. • Smoke warning signs will be placed in areas where heavy smoke is expected to affect driving visibility.

MINNESOTA SMOKE MANAGEMENT PLAN			
General Fuel Category	Daily Fire Size (acres)*	Dispersion Index Category	Minimum distance to downwind sensitive areas (miles)
Primarily grass fuels (see Grass or Leaf Litter below for larger acreage)	< 50	Poor	0.25
	<50	Fair or Better	No Limitation
Single large or Scattered small piles	NA NA	Poor Fair or Better	0.25 No Limitation
Grass or leaf litter	<50	Poor	0.25
	<50	Fair or Better	No Limitation
	50 – 150	Poor	No burning
	50 – 150	Fair or Better	No Limitation
	150 – 500	Poor	No Burning
	150 – 500	Fair	0.25
	150 – 500	Good or Better	No Limitation
	500 +	Poor	No Burning
	500 +	Fair	0.75
	500 +	Good	0.50
	500 +	Excellent	0.25
Timber, slash, or piled fuels	<50	Poor	No Burning (See Above exception for pile(s))
	<50	Fair	0.50
	<50	Good or Better	No Limitation
	50 – 150	Poor	No Burning
	50 – 150	Fair	0.50
	50 – 150	Good or Better	No Limitation
	150 – 500	Poor	No Burning
	150 – 500	Fair	0.75
	150 – 500	Good	0.50
	150 – 500	Excellent	0.25
	500 +	Poor	No Burning
	500 +	Fair	1.0
	500 +	Good	0.75
500 +	Excellent	0.50	

ELEMENT 20: MONITORING

The minimum required items to be monitored by the burn boss or designee are listed below. Results can be documented in any method including but not limited to: ICS 214 Unit Log, incident organizer or directly on this burn plan.

A. FUELS INFORMATION
<ul style="list-style-type: none"> -Fine Fuel Moisture Code -Buildup Index -Initial Spread Index
B. WEATHER
<ul style="list-style-type: none"> -Relative Humidity -Eye Level Wind Speed -Temperature -Precipitation
C. FIRE BEHAVIOR
<ul style="list-style-type: none"> -Flame Lengths -Rates of Spread
D. BURN PLAN OBJECTIVES
<p>Are Objectives Being Met? Yes/No</p>
E. SMOKE MONITORING
<ul style="list-style-type: none"> -Smoke Dispersion Index -Smoke Impacts

ELEMENT 21: POST-BURN ACTIVITIES

POST-BURN ACTIVITIES THAT MUST BE COMPLETED

- Report accomplished acres to Dispatch
- Ensure Burn Day documentation is completed, filed in the appropriate place
- Notification of burn being declared out to dispatch

Responsibilities delegated:

- The Burn Boss will update the Agency Administrator and local fire management with the current status of the prescribed burn unit.

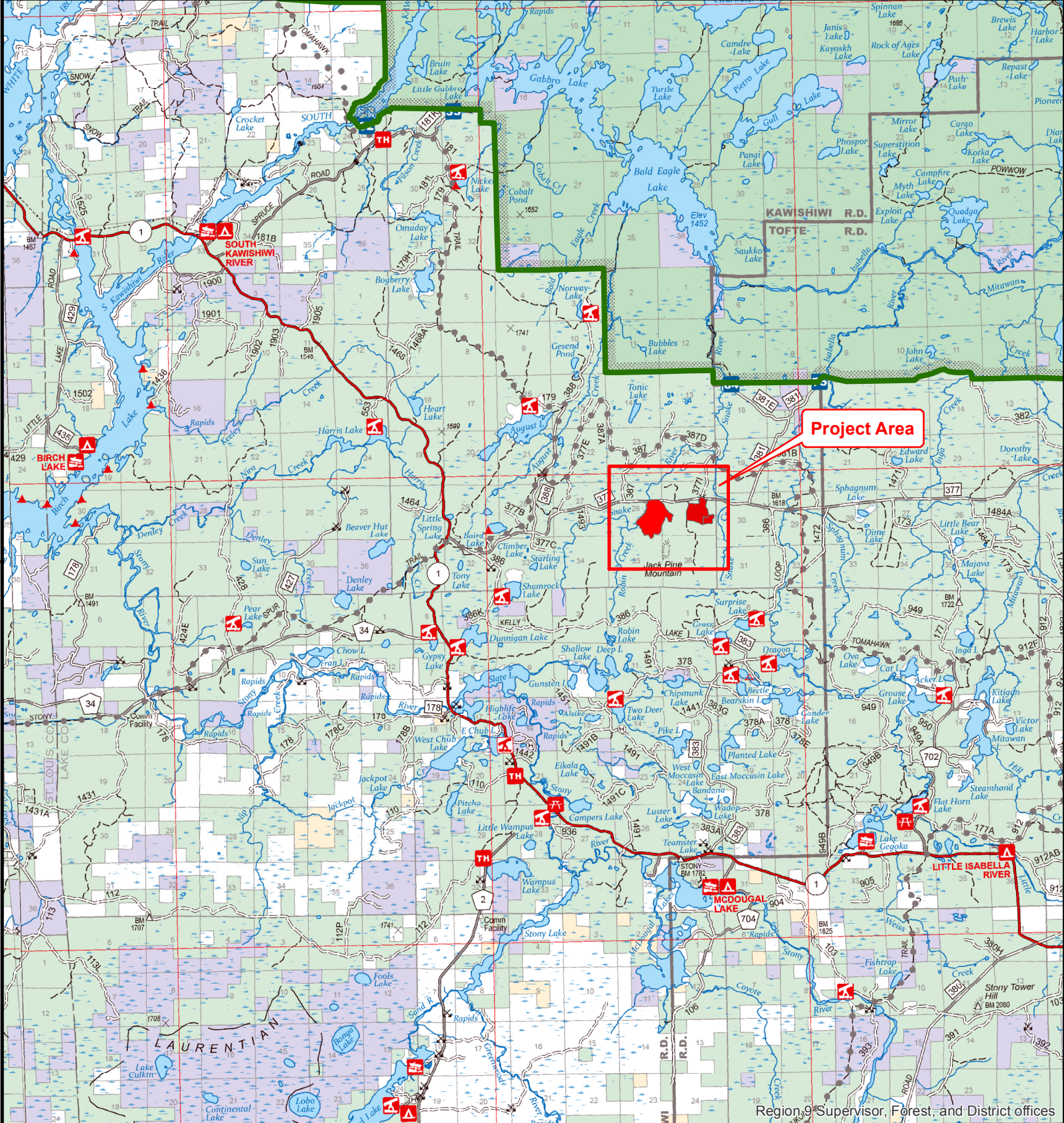
APPENDICES

- A: Maps
- B: Technical Reviewer Checklist
- C: Complexity Analysis
- D: Job Hazard Analysis
- E: Fire Behavior Modeling
- F. Smoke Modeling
- G. Burn Day Documentation
- H: Monitoring Forms
- I. Medical Plan
- J. Dispatch Burn Day Forms
- K. Notifications
- L. Burn Plan Prep and Supply List
- M. Silvicultural RX and Supporting Documentation


SERPENT BURN MEDICAL PLAN

MEDICAL PLAN	1. Incident Name Serpent RX	2. Date Prepared 12/3/19	3. Time Prepared	4. Operational Period	
5. Incident Medical Aid Station					
Medical Aid Stations	Location			Paramedics Yes No	
EMT's/1 st Responders	Identified at Briefing			X	
6. Transportation					
A. Ambulance Services					
Name	Address	Phone	Paramedics Yes No		
Babbitt Ambulance	Babbitt, MN (St Louis County)	(911)		X	
North Memorial Air Ambulance	Eveleth, MN	(911)	X		
Lifeflight Air Ambulance	Hibbing, MN	(911)	X		
B. Incident Ambulances					
Name	Location			Paramedics Yes No	
FS Vehicles	On site			X	
7. Hospitals					
Name	Address	Travel Time Air Ground	Phone	Helipad Yes No	Burn Center Yes No
Bloomenson Community Hospital	Ely, MN	10 min 30 min	218-365-3271	X	X
Essentia Health	Virginia, MN	15 min 90 min	218-741-3340	X	X
Miller Dwan Burn Center	502 E 2 nd Ave Duluth, MN	25 min 120 min	218-786-2815	X	X
8. Medical Emergency Procedures					
UTILIZE THE MEDICAL INCIDENT REPORT					
Helispots: 47° 43.503'N 91° 37.408'W, This is a gravel pit west of the burn unit that has been used in the past as a helispot. Because it is an active gravel pit it may not be suitable at the time of the burn and will need to be checked prior to burn. An alternate Emergency landing zone would be on Hwy 1 at the intersection of Hwy 1 and FR 377.					
Directions to Burn Unit: 2300 Tomahawk Road Isabella. Lake County From Babbitt go east on Co Road 34 (New Tomahawk Rd) to Hwy 1. Turn left on Hwy 1 go North approximately 2 miles to FR 377 (Tomahawk Rd.) Turn Right on FR 377 go East on the Tomahawk road approximately 5 miles to the burn unit.					
Prepared by Jon Knapper			10. Reviewed by		

SERPENT BURN VICINITY MAP




Region 9 Supervisor, Forest, and District offices



Kawishiwi Ranger District
 Superior National Forest
 NAD 83 UTM Zone 15N
 Date Created 01/02/2020
 By J Knapper

Vicinity Map

Project Name- Serpent Rx
 Burn Type- Under Burn / Broadcast
 Size- 300 acres
 Legal- T61N R10W Sec.25 and 26
 Lat/Long- N47 44.305 W91 33.210



0 4 Miles

