

# WEST ZONE PRESCRIBED FIRE PLAN



USDA-Forest Service  
Huron-Manistee National Forest  
Manistee Ranger Station  
1170 Nursery Road, Wellston MI 49689



**PRESCRIBED FIRE NAME:** FEDERAL PARK

Prescribed Fire Units (Ignition Units): Units 1-5

**PREPARED BY:**

Name (print): Christopher Loomis Qualification/Currency: RXB2

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**TECHNICAL REVIEW BY:**

Name (print): James Atkins Qualification/Currency: RXB1\yes

Signature: \_\_\_\_\_ Date: 02/28/2022

**COMPLEXITY RATING:** Moderate

**MINIMUM BURN BOSS QUALIFICATION:** RXB2

**APPROVED BY:**

Name – Agency Administrator (print): Jacob S. Lubera

Signature – Agency Administrator: \_\_\_\_\_ Date: 2/23/2022

Associated NEPA document: 2020 Federal Park EA signed on 9/2/2020.

**Agency Administrator Review Record**

**REVIEWED BY:**

Name – Agency Administrator (print): \_\_\_\_\_

Signature – Agency Administrator: \_\_\_\_\_ Date: \_\_\_\_\_

**REVIEWED BY:**

Name – Agency Administrator (print): \_\_\_\_\_

Signature – Agency Administrator: \_\_\_\_\_ Date: \_\_\_\_\_

**REVIEWED BY:**

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**REVIEWED BY:**

Name – Agency Administrator (print): \_\_\_\_\_

Signature – Agency Administrator: \_\_\_\_\_ Date: \_\_\_\_\_

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# 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?<br><br><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?<br><br><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?<br><br><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?<br><br><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 GO/NO-GO CHECKLIST (Prescribed Fire Plan, Element 2B)

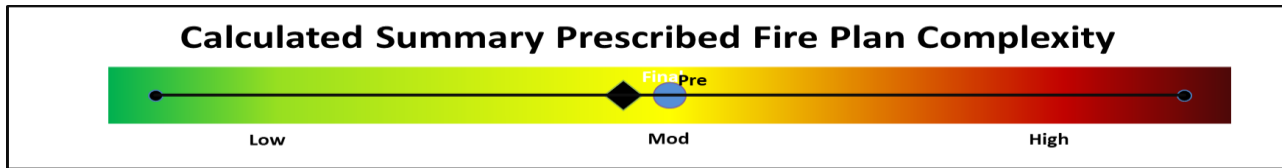
| Preliminary Questions   | Circle YES or NO |
|---|------------------|
| A. Have conditions in or adjacent to the ignition unit changed, (for example: drought conditions or fuel loadings), which were not considered in the prescription development?<br>If <b>NO</b> proceed with the Go/NO-GO Checklist below, if <b>YES</b> 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?<br>If <b>YES</b> , proceed with checklist below.<br>If <b>NO</b> , STOP: Implementation is not allowed. An amendment is needed. | YES NO           |
| GO/NO-GO Checklist  | Circle YES or NO |
| 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           |
| 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           |
| If all the questions were answered " <b>YES</b> " proceed with a test fire. Document the current conditions, location and results. If any questions were answered " <b>NO</b> ", 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? <b>Circle: YES or NO</b>  |                  |

Burn Boss Signature: \_\_\_\_\_ Date: \_\_\_\_\_

### Element 3: Complexity Analysis Summary

| Type the Prescribed |                           | Quantity | Significance |
|---------------------|---------------------------|----------|--------------|
| Values              | On-Site                   | Few      | Mod          |
|                     | Off-Site                  | Multiple | Mod          |
|                     | Public/Political Interest | Multiple | Mod          |

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



| Final Complexity Determination | Final Complexity Determination Rationale  |
|--------------------------------|---|
| <b>Mod</b>                     | <p>This project rates as a moderate complexity due the proximity of the project to private land and residences (e.g. smoke concerns, off-site values and public/political interest) as well as constraints and coordination required to meet project objectives. The burn blocks are directly adjacent to the Nordhouse Dunes Wilderness Area which is a Class 2 airshed as well as the Lake Michigan Recreation Area. Both of these sites have a high degree of public interest and recreational based activity. Prescribed fire and smoke on burn days will create curiosity with the local residents and forest users. This will create some political and social impacts to the overall project but there have been previous burns in the area and have been readily accepted by the public. Mitigation measures include contacting and informing the adjacent land owners. In terms of constraints there is a degree of sensitivity related to wildlife and plant species in the project area. The burn plan allows for blocks one thru five to be burned separately if necessary in order account for and mitigate these constraints. Additionally, a higher than average degree of coordination and communications will be needed to safely conduct ignition operations This higher level of coordination and communication is driven by the size of the unit as well as the possibility of aerial ignition. Both the safety risks and escaped fire risks are mitigated by low fuel loading arrangements and generally low intensity fire behavior. The technical complexity of holding operations is straightforward and within normal parameters and the burn units are easily accessible for ignition and holding resources. The fire behavior needed to meet the objectives is easily created and environmental parameters are set for controllability by holding resources. In conclusion, a moderate complexity rating is befitting of the Fed Park plan when considering all factors relevant to project.</p> |

| Signatures | Rx Burn Plan Preparer's Name | Preparer's Signature             | Date |
|------------|------------------------------|----------------------------------|------|
|            | Technical Reviewer's Name    | Technical Reviewer's Signature   | Date |
|            | Agency Administrator's Name  | Agency Administrator's Signature | Date |

**Element 4: Description of Prescribed Fire Area**

**Physical Description:**

| Unit                            | Comp                               | Stand   | Acres | Twp | Range       | Sect             | Latitude     | Longitude    | Topo | Elev | Co. & State |
|---------------------------------|------------------------------------|---|-------|-----|-------------|------------------|--------------|--------------|------|------|-------------|
| 1                               | 349                                | 13-16<br>24-25<br>39<br>45-49<br>52-53<br>55                            | 376   | 21N | 17W         | 7                | 44 ° 08.890' | 86 ° 23.233' | 0-5% | 608  | Mason, MI   |
| 2                               | 356                                | 1-8<br>11<br>25-26<br>85  | 334   | 21N | 18W         | 13,<br>24        | 44 ° 07.485' | 86 ° 24.273' | 0-5% | 612  | Mason, MI   |
| 3                               | 353<br>354                         | 37<br>39<br>43<br>45-48<br>55-57<br>61-67                               | 673   | 20N | 17W,<br>18W | 30,<br>31,<br>36 | 44° 06.192'  | 86° 23.660'  | 0-5% | 609  | Mason, MI   |
| 4                               | 354                                | 08<br>10<br>12-13<br>15-16<br>23-25<br>27-40<br>60                      | 894   | 20N | 17W<br>18W  | 36,<br>31,<br>32 | 44° 05.455'  | 86° 23.597'  | 0-5% | 610  | Mason, MI   |
| 5                               | 353<br><br><br><br><br><br><br>354 | 18-19<br>21<br>26-36<br>38<br>41-42<br>48-50<br>53-54<br>57-59<br>22-23 | 645   | 20N | 17W         | 20,<br>29,<br>32 | 44° 06.478'  | 86° 22.362'  | 0-5% | 610  | Mason, MI   |
| <b>Total Acres in Burn Plan</b> |                                    |   | 2922  |     |             |                  |              |              |      |      |             |

**Project/Unit Boundaries:** View Maps in Appendix A for Reference

| Unit | Project Boundary   |
|------|--|
| 1    | <p>The adjacent property consists mostly of US Forest Service except for the North end of the block which has private property adjacent to the burn. The majority of the control lines consist of roads. County Road 1 is the west control line. Forest Road 8955 serves as the south and east control line. The north control line is Forest Road 5786. County Road 2 bisects block one from west to east and could be used as a holding feature if the burn block is determined to have an active eagle nest and needs to be reduced in size to mitigate this concern. The northwest corner of the block between County Road 1 and FR5786 would need be dozer line/hand line. <b>All control lines will be inspected, signed, and if needed, cleared of any necessary fuels prior to ignition.</b></p> |
| 2    | <p>The entire burn block is on USFS land. The adjacent property consists mostly of US Forest Service except for a small piece of private property in the northwest corner. The control lines will me a mix of dozer line and roads. Cooper Creek road serves as the north control line. Forest Road 5356 and Forest Road 5757 are located on the southeast corner of the block. The remaining control lines will be a mix of dozer and hand line. <b>All control lines will be inspected, signed, and if needed, cleared of any necessary fuels prior to ignition.</b></p>   |
| 3-5  | <p>The adjacent property ownership consists mostly of U.S Forest Service except for the southeast corner which has private property adjacent to the burn. There is also private property a ¼ mile north of the project area. The majority of the control lines consist of roads. Nurnberg Rd. is the south boundary of the unit. The west control line will be Forest Service Road 5356 (Green Road), and the north control line will be Forest Service Road 5629 (West Forest Trail Road). The east control line will be Forest Service Road 5212 (Morton Road). <b>All control lines will be inspected, signed, and if needed, cleared of any necessary fuels prior to ignition.</b></p>   |

**Vegetation/Fuels Description:**

| Fuel Model Descriptions |   |
|-------------------------|---|
| GR2                     | Low load, dry climate grass – represents carex sedge grass                  |
| TL6                     | Moderate load, broad leaf litter – represents oak litter                    |
| TL8                     | Moderate load long needle litter – represents red pine and jack pine litter |

**Note:** For day-of behave runs calculate the run using the “two fuel models, 2-dimensional expected spread” using the appropriate percentages of TL8 with GR2 and TL6 with GR2 Utilize the tables below to determine current live fuel moisture conditions in GR2 for the day-of behave run.

| Guidelines for Estimating Live Fuel Moisture Content in GR2 |  |
|---|--|
| 300%  | Fresh foliage, annuals developing, early in growing cycle                          |
| 200%  | Maturing foliage, still developing with full turgor                                |
| 100%  | Mature foliage, new growth complete and comparable to older perennial foliage      |
| 50%   | Entering dormancy, coloration starting, some leaves may have dropped from the stem |
| 30%   | Completely cured, treat as dead fuel   |



| Fuel Load Transfer for Dynamic Fuel Models (use for estimating LFM % in GR2) |                            |                      |
|--|----------------------------|----------------------|
| Live Herbaceous FM   | Fuel Load Transfer Portion | Curing               |
| 120%   | 0%                         | Uncured              |
| 98%  | 25%                        | One-quarter cured    |
| 90%  | 33.3%                      | One-third cured      |
| 75%  | 50%                        | One-half cured       |
| 60%  | 66.7%                      | Two-thirds cured     |
| 53%  | 75%                        | Three-quarters cured |
| 30%  | 100%                       | Fully cured          |

Note: The above tables describing “guidelines for estimating live fuel moisture content” and “fuel load transfer for dynamic fuel models” were taken directly from BehavePlus 5.0.5 and Behave 6 under the “Live Herbaceous Moisture” tab in the input guide.

| Unit | Fuel models by percent                         | Loading Tons/acre             | Adjacent Fuels   |
|------|--|-------------------------------|--|
| 1    | TL6/GR2 70/30 for 65%<br>TL8/GR2 75/25 for 35% | TL6 1-2<br>GR2 1-2<br>TL8 1-2 | The adjacent vegetation and fuels to the north, south, east, and west are consistent with what will be found in the Project Area and will experience similar rates of spread. (See <b>Behave Runs for Adjacent Fuels Models located in Appendix E</b> ). |
| 2    | TL6/GR2 70/30 for 65%<br>TL8/GR2 75/25 for 35% | TL6 1-2<br>GR2 1-2<br>TL8 1-2 | The adjacent vegetation and fuels to the north, south, east, and west are consistent with what will be found in the Project Area and will experience similar rates of spread. (See <b>Behave Runs for Adjacent Fuels Models located in Appendix E</b> ). |
| 3-5  | TL6/GR2 50/50 for 65%<br>TL8/GR2 70/30 for 35% | TL6 2-3<br>GR2 1-2<br>TL8 2-3 | The adjacent vegetation and fuels to the north, south, east, and west are consistent with what will be found in the Project Area and will experience similar rates of spread. (See <b>Behave Runs for Adjacent Fuels Models located in Appendix E</b> ). |

**Description of Unique Features, Natural Resources, Values (By Burn Unit):**

**Fire (Units 1-5):** Several entries may be needed to accomplish the total fuel reduction objectives of the area. Fed Park Units 1 and 2 will be first time entries; Units 3, 4 and 5 have been burned twice within the past 6 years. Ladder fuels and fuel loadings have been increasing throughout the project Area. This area experiences a large amount of recreational use both on federal ownership and the adjacent private land. Fires that have occurred in the Project Area have been suppressed, altering the ecological processes. Cultural resource and biological surveys were completed and mitigations have been applied as a result of these surveys. If any previously unknown sites or species are identified during the course of the project, appropriate mitigation measures to protect them will be implemented. Note: There are several wildland interface communities within the vicinity of the project area that are listed in the Federal Register as communities that are at high risk from wildfire. They are the following: Grant Twp., Free Soil Twp., and Manistee, and Stronach.

## Wildlife:

### *Piping Plover (Units 1 thru 5)*

Prescribed burns in areas adjacent to Piping Plover habitat will be limited to conditions when smoke will not drift into critical habitat (Lake Michigan shoreline) from April 1 to July 1, or whenever piping plovers are present. Accordingly, burning operations will not be conducted with any East wind component.

### *Northern Goshawk and Red Shouldered Hawk (Units 1-5)*

Prescribed fire will not be permitted within the 660-foot Primary Nesting Area during the breeding period of the Northern Goshawk and Red Shouldered Hawk from March 1<sup>st</sup> - July 31<sup>st</sup>. Any nesting area will be pre-identified by the district wildlife staff prior to implementation of the burn. The fire program will coordinate with wildlife staff to confirm that all burn blocks are free from any nesting area prior to the implementation of the burn.

### *Bald Eagle (Unit 1)*

Fire staff will coordinate with the district wildlife biologist to determine the presence of any active eagle nests and if any specific burn mitigations are necessary. Currently, there is one known bald eagle nest known to exist within the project boundary adjacent to proposed action areas. **Prescribed burning during the nesting season (February 1 – July 15) would not be conducted when weather conditions would carry smoke into an active bald eagle nest area.** The known nesting site is located just west of the 5785 road. Nesting sites will be checked for active eagle activity prior to any prescribed fire operations. **If it is determined that a nest is occupied prior to ignitions, the unit could be reduced in size. The northernmost end of the unit could be excluded using County Road 2 that bisects the unit. Under this scenario County Road 2 would become the northern holding feature. The unit could then be burned with a primary West wind in order to minimize smoke impacts on the occupied nest site.**

### *RFSS Turtles (Unit 3)*

Prescribed fire in burn block 3 will not be conducted between May 25 and June 25 to protect nesting RFSS turtles.

**Botany (Units 1-5):** No adverse impacts to botany or RFSS plant species have been identified in the burn area. Fire program will consult with botany program prior to implementation of the burn to confirm that all planned surveys have been completed.

**Archeology (Units 1-5):** Cultural resource surveys were completed and there are a total of six sites within burn units one thru five. Fire is permitted to enter into any of these sites. Protection of all properties from impacts can be achieved by adherence to the following mitigation measures.

- **Block 1** - No cultural resources present. No mitigation measures needed.
- **Block 2** – Site # 09040300069 and Site # 09040300270 are within the boundary. Neither site is eligible to National Register of Historic Places, as such no mitigation measures are required.
- **Block 3** – Site # 09040300381 (Historic) and Site # 09040300418 (Prehistoric Ceramics) are within the boundary. Avoid construction of plow, dozer, and hand lines or safety zones within 30 meters of the site boundaries.
- **Block 4** – Site # 09040300101 (Historic Depressions) and Site # 09040300102 (Prehistoric Ceramics) are within the boundary. Avoid construction of plow, dozer, and hand lines or safety zones within 30 meters of the site boundaries.
- **Block 5** – No cultural resources present. No mitigation measures needed.

If heritage resource sites are found during project implementation, a heritage resource professional will be consulted and appropriate protection measures will be provided. Fire staff will verify with archeology staff prior to the burn to ensure all known sites are identified in the field.

**Recreation (Units 1-5):** Prior to the burn, fire staff will coordinate with both recreation and public affairs staff to ensure that the public is notified of scheduled activities and closures are posted. Additionally, notification signs will be posted at the Nurnberg Trailhead and at the entrance to the Lake Michigan Recreation Area. Due to the extensive dispersed recreational camping in and around the project area the burn boss will ensure that the project area has been inspected for forest users and visitors prior to ignition operations. Lake Michigan Recreation Area is ½ a mile northwest of the burn unit. The Nordhouse Dunes Wilderness Area is located adjacent to the burn unit on the west side of the project area. The town of Ludington, is located 9 miles to the southwest of block 4. The town of Manistee is located 8 miles to the north of block 1. US-31 is located 6 miles to the east, and US-10 is ten miles south of the burn unit. If forest users are encountered they will be asked to leave the area and informed when it is safe for them to return. Forest Service Roads will remain open and monitored closely to ensure driving visibility remains adequate for safe travel. If conditions deteriorate to the point that safety is compromised the Forest Service Roads will be closed and reopened when it is safe to do so.

**Timber (Units 1-5):** No cutting of oak trees between April 15<sup>th</sup> and July 15<sup>th</sup> to reduce the impacts of oak wilt in the burn area. Timber harvest is planned for burn blocks 1 and 2. The fire program will coordinate with the timber staff prior to any prescribed fire implementation to ensure timber harvest timelines are met. No additional impacts or constraints related to timber have been identified.

**Oil and Gas (Unit 4):** There is one inactive gas well head on the western edge of Unit 4. All burn personnel will be informed of its location. The well pad is cleared of all vegetation therefore there is no risk of damage to the well head from fire. The Lat/Long of the gas well is: **44°5.475' N, 86°24.308' W**

**Adjacent Land Ownerships (Units 1-5):** No impact to private lands is anticipated with this project. Adjacent land owners will be informed the day of the planned project implementation of the Forest Service's intent to conduct the Fed Park Burn. This will be documented in the Informational Contact Listed. A news release will appear in the Ludington Daily News and the Manistee News Advocate prior to the burn. Hamlin Lake association will also be contacted and notified of the project. The Nordhouse Dunes Wilderness Area is directly adjacent to the western boundary of unit 4 and 5. **Note: Any suppression actions taken on the wilderness side of Forest Service Road 5256 (Green Rd.) will have to adhere to 30.5 (Wilderness Fire Management Standards and Guidelines).** Copies of the Wilderness Fire Management Standards and Guidelines can be found in the burn plan (Appendix F).

**Other/Misc (Units 1-5): *Low Level Flights over the Wilderness:*** There will be no low-level flights over the Nordhouse Dunes Wilderness.

**Note: Maps Attached in Appendix A**

1. Vicinity (Required)
2. Project/Ignition Unit(s) (Required)

## Element 5: Objectives

The primary purpose of the burn is the reduction of accumulated forest fuels to lower the risk of catastrophic wildfires and reduce potential wildfire intensity for firefighter and public safety. This treatment will aid in reducing the possibility of a high intensity wildfire by disrupting the continuity of fuels in pine-dominated stands and reducing the overall fuel loading in the project area. Additionally, the treatment will reintroduce fire and the resulting effects to support a resilient fire adaptive ecosystem. The treatment will reduce the threat of intense wildfire by reducing canopy closure of stands, ladder fuels, and the amount of cured and active fuel loading reducing the probability of wildfires. The burn will remove pockets of down fuel and brush and continue the pruning process on the pine thus reducing the likelihood of a surface fire progressing into the canopy causing a crown fire. The burn could also create small canopy gaps less than 1 acre in size, reducing the overall canopy closure of the project area making a sustained crown fire less likely. By reintroducing fire into the ecosystem all treated stands will benefit from improved soil fertility from the recycling of nutrients as a result of the burning process, improving plant growth, and fruiting capabilities.

### A. Resource objectives:

1. Support the growth of warm season grasses across the units where possible.
2. Reintroduce fire in a fire dependent ecosystem.
3. Implement prescribed fire to maintain openings and uplands.
4. Improve public safety and protect private property by reducing the potential of a wildfire to spread from NFS lands onto adjacent private property and from private property to public lands.

### B. Prescribed fire objectives:

1. Ensure Firefighter and public safety during project implementation.
2. Prevent Rx fire from areas not permitted to be burned.
3. First Order Fire Effect: Consume 50% or more of the one hour fuels across the unit.
4. First order Fire Effect: Reduce ten hour fuels by 25% or more across the unit.
5. First Order Fire Effect: Reduce ladder fuels by 40% or greater to minimize potential of catastrophic wildfire.
6. Second Order Fire Effect: Minimize tree mortality in pine stands to 15% or less.
7. Minimize the impact of smoke to the Federal Park area, Nordhouse Dunes, Highway 31, Mason County Airport and adjacent residents.

## Element 6: Funding

A. **Cost:** \$15 to \$125 per acre

B. **Funding Source:** NFHF04/KV/NFWF

## Element 7: Prescription

### A. Prescription Narrative:

Acceptable fire behavior will be created through the combination of various fuel and weather conditions. The prescription parameters allow for the widest window to create the fire intensities as dictated in the Federal Park NEPA document. The combination of fuels and weather conditions should not exceed the desired/acceptable intensity range. The intensities generated should be all that is needed to achieve the objectives. The environmental prescription has been developed from the Behave Plus Version 6 Fire Modeling System. A wide range of temperature and relative humidity are allowed but the emphasis is placed on actual expected fire behavior on day of ignitions. Any combination of weather and fuels parameters that results in an acceptable fire behavior range will be considered within prescription. The prescription parameters are established to allow flexibility with burning conditions. It is important to take into consideration different combinations of all the parameters and how they contribute to the intended fire effects. For example, combinations of high wind speeds, high fuel moisture, and high humidity may provide for accomplishment of objectives. The intent of the “day-of” behave run is to help the burn boss, duty officer and agency administrator weigh these factors to make an assessment of each day’s current fuel, weather and fire behavior conditions and potential as they relate to the prescribed fire objectives.

### B. Prescription Parameters:

#### 1. Environmental

| Prescription                   | Acceptable Range |
|--------------------------------|------------------|
| Relative Humidity %            | 75% - 30%        |
| Wind Speed (20 foot) MPH       | 0 - 20 mph       |
| Eye Level Winds                | 0 – 10 mph       |
| Temperature (Dry Bulb %)       | 35° - 85°        |
| Dead Fuel Moisture % 1hr fuels | 12 – 6           |
| 10hr fuels                     | 16 - 8           |
| 100hr fuels                    | N/A              |
| 1000hr fuels                   | N/A              |
| Probability of Ignition        | 17% - 56%        |
| Ventilation Index              | See table below  |
| Wind Direction                 | See table below  |

#### Dispersion Category (Poor, Fair, etc), Ventilation Index (Number), and Permitted Wind Directions Table. Reference State of MI SMP.

| Burn Unit | Poor 0-130 | Fair 131-299 | Good 300-599   | Excellent 600+    |
|-----------|------------|--------------|----------------|-------------------|
| 1         | OUT        | OUT          | SE, S, SW, W * | SE, S, SW, W, NW* |
| 2         | OUT        | OUT          | SE, S, SW, W   | SE, S, SW, W, NW  |
| 3         | OUT        | OUT          | SE, S, SW, W   | SE, S, SW, W, NW  |
| 4         | OUT        | OUT          | SE, S, SW, W   | SE, S, SW, W, NW  |
| 5         | OUT        | OUT          | SE, S, SW, W   | SE, S, SW, W, NW  |

Note: There is a known eagle nest located in block one. If the nest is active at the time of implementation the eagle nest could be excluded from the block and the unit could be burned with a west wind. See Element 4D for additional information. Also if combining multiple units, reference MI SMP section 4.3 Smoke Management and Dispersion to verify ventilation Index is still in prescription.

## C. Fire Behavior

| Fuel Model                        | Acceptable Fire Behavior Ranges |           |
|-----------------------------------|---------------------------------|-----------|
|                                   | TL6 & GR2                       | TL8 & GR2 |
| Flame Length (ft)                 | .3 – 5.6                        | .3 – 5.6  |
| Probability of Ignition           | 17 – 56%                        | 17 - 56%  |
| Forward Spread Rate (chains/hour) | .4 – 33.2                       | .6 – 20.7 |
| Fire Line Intensities (btu)       | 4 – 243                         | 7 – 243   |

If the 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. For each day of ignition, a Behave run will be calculated using current/forecasted live and/or dead fuel conditions and the spot weather forecast. The fire behavior outputs should fall within the above ranges to be within prescription. Reference Element 11 to determine the appropriate burn staffing level generated from the Behave “day-of” fire behavior outputs.

## Element 8: Scheduling

### A. Implementation Schedule:

When implementing prescribed fires at national preparedness levels 4 and 5, see National Interagency Mobilization Guide for additional requirements.

Ignition Time Frames or Season(s) (or both)

Project may take place during any season in which the prescription parameters and project constraints are met. Project constraints specifically limit the use of **any** prescribed fire between April 1<sup>st</sup> – July 1<sup>st</sup>. Additional constraints may be in order pending any active bird nesting areas (i.e. bald eagle, northern goshawk or red shouldered hawk) within the project boundary.

### B. Projected Duration:

Duration will vary depending on fuel & weather conditions when burning takes place. Generally 1-2 shifts of ignition per unit followed up by several days of monitoring/patrolling.

## Element 9: Pre-burn Considerations and Weather

### A. Considerations:

#### 1. On-site

| <b>TASK</b>   | <b>WHEN</b>         | <b>RESPONSIBILITY</b><br>(may be delegated) |
|---|---------------------|---|
| Brief adjacent private landowners of project, objectives and timelines.   | Prior to ignition   | Burn Boss                                   |
| Identify, prepare, flag and verify all holding lines and features.  | Prior to ignition   | Burn Boss / Holding boss                    |
| Establish fuels monitoring plots.   | Prior to ignition   | Fuels Tech                                  |
| Identify and coordinate road closures and area closures   | Prior to ignition   | Burn Boss / Holding Boss                    |
| Record onsite weather, submit spot weather request.   | Day before the burn | FEMO  |
| Establish water fill / draft site for engines and UTVs.   | Day of the burn     | Holding Boss                                |
| Verify adequate burn mix and firing devices on site   | Day of the burn     | Firing Boss                                 |
| Place smoke / RX ahead signs at pre-determined locations including Nurnberg trailhead and Lake Michigan Recreation Area | Day of the burn     | Holding Boss                                |
| Operational Briefing  | Day of the Burn     | Burn Boss                                   |

#### 2. Off-site

Notifications should be made to both the Mason/Oceana 911 Dispatch, Manistee County Dispatch and the DNR. Spot weather forecast request from Grand Rapids National Weather Service (NWS). Adjacent private landowners contacted and documented who was notified. All Employee email sent to notify agency personnel of Prescribed burn. Press releases to the local media will be distributed in advance of fire implementation.

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

Weather will be monitored using a belt weather kit or kestrel on the units prior to ignition and throughout the burn; at an interval to be determined by the Burn Boss. Spot weather can either be requested by the Burn Boss through Cadillac Dispatch or input directly into the Nation Weather Service web site (<http://spot.nws.noaa.gov/cgi-bin/spot/spotmon?site=apx>). For burn units 100 acres or larger a Hysplit run will be requested with the spot forecast request.

## C. Additional Considerations:

Prescribed fires on National Forest System (NFS) lands require additional approval at the Regional Forester level if the National Fire Danger Rating System (NFDRS) is indicating an extreme fire danger level

## D. Notifications:

Notifications should include those that are relevant for the unit(s) being burned. "Day-of" notifications may be completed in advance of, but no later than the day of the burn.

| Who  | When       | Phone Number and/or e-mail  | Responsibility | Relevant Units | Date |
|--|------------|---|----------------|----------------|------|
| Cadillac Dispatch                              | Day-prior  | (231)775-8732<br>sm.fs.midc@usda.gov  | Duty Officer   | All            |      |
| NOTAM-D  | Day-of     | Via MIDC  | MIDC           | All            |      |
| MI DNR<br>Roscommon D.O.                       | Day-of     | Via MIDC Text/call  | MIDC           | All            |      |
| HMF Forest-wide e-mail                         | Day-of     | pdl_r9_huron_manistee_all_employees@usda.gov  | Burn boss/DO   | All            |      |
| Adjacent Land Owners                           | Day-of     | Personal Contact/Rx Brochure  | Burn Boss      | All            |      |
| American Land and Leisure (LMRA concessioner)  | Day-of     | 231-723-4930  | Burn Boss      | All            |      |
| Jack Bowden<br>Mecosta Osceola<br>911 Director | Day-of     | 231-388-0138  | Burn Boss      | All            |      |
| Mason County<br>Emergency Manager              | Day-of     | Liz Reimink (231) 690-8201<br>Email: <a href="mailto:lreimink@masoncounty.net">lreimink@masoncounty.net</a> | Burn Boss      | All            |      |
| Mason / Oceana 911                             | Day-of     | (231)-869-5858  | MIDC           | All            |      |
| Manistee County<br>Central Dispatch            | Day-of     | (231)723-6241   | MIDC           | All            |      |
| Grant Twp Fire<br>Dept.                        | Day-of     | Chief Ron Melchert (231)510-5537  | MIDC           | All            |      |
| Freesoil Meade Fire<br>Dept.                   | Day-of     | Chief Vince Williams (231)510-2922  | MIDC           | All            |      |
| Ludington Daily<br>News                        | Pre-Season | (231)845-5181<br>Press Release  | Forest PIO     | All            |      |
| Manistee News<br>Advocate                      | Pre-Season | (231)723-3592<br>Press Release  | Forest PIO     | All            |      |
| Mason County Press                             | Pre-Season | (231)757-3202<br>Press Release  | Forest PIO     | All            |      |



## Element 10: Briefing

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

| Briefing Checklist |   |
|--------------------|---|
|                    | Description of Burn area - orient everyone on the map       |
|                    | Burn Organization and Assignments                           |
|                    | Expected Weather and Fire Behavior                          |
|                    | Burn Objectives & Prescription                              |
|                    | Contingency Plan/Assignments                                |
|                    | Wildfire Conversion & Escape Organization                   |
|                    | Incident w/in Incident/Medical Plan – Identify on-site EMTs |
|                    | Hazards & Tailgate/Safety Discussion (all sign)             |
|                    | Lookouts, Communications, Escape Routes & Safety Zones      |
|                    | Smoke Mgt – Sign Locations, Smoke Contingency Plan          |
|                    | Ignition Plan & Aerial ignition briefing (if used)          |
|                    | Holding Plan & Water Sources                                |
|                    | Questions/Comments?   |
|                    | Go / No Go & Division/Firing/Holding Break-outs             |

## Element 11: Organization and Equipment

**A. Positions and Equipment-** The minimum of total burn personnel does not include line officer & contingency resources. These minimums may be supplemented with additional resources at any time during project implementation.

### B. Ground Ignition Organization for Single Unit Implementation Units

| Fire Behavior Range   |        | Burn Staffing Level 1 – 8 People (Minimum) |                         |
|---|--------|--|-------------------------|
| ROS   | .4-6.0 | RXB2                                       | 1                       |
| FL  | .3-2.0 | Firing or Holding Boss                     | 1                       |
| POI   | 17-40  | Engine (any type) ENGB +1                  | 2 Engines (4 personnel) |
| FLI   | 4-100  | FFT2 / RXCM                                | 2                       |
| If ROS or POI is above level 1 range limit move to staffing level 2 |        |  |                         |

| Fire Behavior Range  |         | Burn Staffing Level 2 – 10 People (Minimum) |                         |
|--|---------|---|-------------------------|
| ROS  | 6.1- 20 | RXB2  | 1                       |
| FL   | 2.1-3.5 | Firing or Holding Boss                      | 1                       |
| POI  | 41-50   | Engine (any type) ENGB+1                    | 2 Engines (4 personnel) |
| FLI  | 101-200 | Type 3 Dozer DZIA +1                        | 1 Dozer (2 people)      |
| If ROS or POI is above level 2range limit move to staffing level 3 |         | FFT2/RXCM                                   | 2                       |

| Fire Behavior Range  |             | Burn Staffing Level 3 – 12 People (Minimum) |                       |
|--|-------------|---|-----------------------|
| ROS  | 20.1 – 33.2 | RXB2  | 1                     |
| FL   | 3.6-5.6     | Firing Boss                                 | 1                     |
| POI  | 51-56       | Holding Boss                                | 1                     |
| FLI  | 201-243     | Engine (any type) ENGB+1                    | 2 Engines 4 personnel |
| If max is forecasted for all parameters burn is in prescription at staffing level 3. |             | Type 3 Dozer DZIA +1                        | 1 Dozer (2 people)    |
|  |             | FFT2/RXCM                                   | 3                     |

NOTE: For contingency resources see element 17.

SUPPLIES: At a minimum 2 road signs, 6 drip torches, 25 gallons of drip torch mix and other items as assigned by the burn boss.

**C. Aerial Ignition Organization for Units 1-5 Burned in any Configuration (all staffing levels)**

| 14 People (Minimum)             |                          |
|---------------------------------|--------------------------|
| RXB2                            | 1                        |
| Helicopter pilot                | 1                        |
| Helicopter Manager              | 1                        |
| Aerial ignition device operator | 1                        |
| FIRB – For Aviation             | 1                        |
| TFLD                            | 2                        |
| Information officer             | optional                 |
| Road Guard                      | from existing resources  |
| Weather observer                | from existing resources  |
| Engine any type, ENGB +1        | 2 Engines<br>4 Personnel |
| Type 3/2 Dozer                  | 1 Dozer, 1 Operator      |
| FFT2/RXCM                       | 2                        |

NOTE: 14 Personnel total minimum required not including Line Officer and contingency resource(s). For contingency resources see element 17.

SUPPLIES: At a minimum 4 road signs, 6 drip torches, 15 gallons of drip torch mix and other items as assigned by the burn boss.

## Element 12: Communication

### A. Radio Frequencies:

Identify and assign command, tactical and air operations frequencies as needed.

| Ch      | Label         | Rec Freq   | Rec CG | Tx Freq  | TxCG   | BK CG | (Use on Channel 2 Only)    |       |            |
|---------|---------------|--|--------|----------|--------|-------|----------------------------|-------|------------|
| 1       | ADMIN W DIR   | 169.925  |        | 169.925  | 110.9  | 110.9 | 1                          | 110.9 | Newaygo    |
| 2       | REPEATER      | 169.925  |        | 164.1375 | UTXG 2 |       | 2                          |       |            |
| 3       | TAC 1         | 169.125  |        | 169.125  |        | 131.8 | 3                          | 131.8 | Caberfae   |
| 4       | TAC 2 R9      | 166.5625   |        | 166.5625 |        |       | 4                          |       |            |
| 5       | NIFC TAC 2    | 168.200  |        | 168.200  |        | 146.2 | 5                          | 146.2 | Udell      |
| 6       | A/G 22 WEST   | 168.400  |        | 168.400  |        |       | 6                          |       |            |
| 7       | A/G 47 EAST   | 167.725  |        | 167.725  |        | 167.9 | 7                          | 167.9 | Hart       |
| 8       | A/G 03 MI     | 166.6125   |        | 166.6125 |        |       | 8                          |       |            |
| 9       | FLIGHT FOLLOW | 168.650  |        | 168.650  | 110.9  | 110.9 | 9                          |       |            |
| 10      | V FIRE 23     | 154.295  |        | 154.295  |        |       | 10                         |       |            |
| 11      | LK FIRE       | 154.430  |        | 158.955  | 118.8  | 118.8 |                            |       |            |
| 12      | LK GROUND     | 154.265  |        | 154.265  |        |       | FOR ADMIN (Channel 1 Only) |       |            |
| 13      | MAN FIRE      | 154.445  |        | 153.770  | 131.8  | 131.8 | 1                          | 110.9 | Admin West |
| 14      | WEX FIRE      | 159.270  |        | 159.270  | 179.9  | 179.9 | 6                          | 156.7 | Admin East |
| 15      | NEW SOUTH     | 154.385  | 107.2  | 153.770  | 82.5   | 82.5  | "0" on keypad clears codes |       |            |
| 16      | AIRGUARD      | 168.625  |        | 168.625  | 110.9  | 110.9 | 16                         |       |            |
| 800 MHZ |               | 83USFSAD alternate command, 83USFT1 alternate/long range tac |        |          |        |       |                            |       |            |

### B. Telephone Numbers:

| PERSONNEL NAME:                                 | PHONE NUMBER:     |
|---|-------------------|
| Huron/Manistee Forest Dispatch                  | 231-775-8732      |
| Zone FMO Ben Wagner                             | 231-342-8004 cell |
| Baldwin District AFMO Kevin Sherretz            | 231-357-0112 cell |
| Cadillac Manistee AFMO Vacant                   | Vacant            |
| Manistee District Ranger Scott Peedle           | 231-388-0119 cell |
| District Ranger Baldwin/White Cloud Jake Lubera | 540-817-9444 cell |

## **Element 13: Public and Personnel Safety, Medical**

### **A. Safety Hazards:**

- Aviation resources
- Road traffic
- Smoke Exposure
- Smoke impacts to surrounding roads/receptors
- Public users in high traffic recreation area.

### **B. Mitigation: Measures Taken to Reduce the Hazards:**

Safety items associated with the aviation resources will be addressed in the PASP.

When applicable the necessary road and trail closures and re-routes identified in the “Description of Unique Features” on page 10 of this plan will be implemented. Fire vehicles will utilize flashing lights for safety.

All safety/hazard items will be addressed through the JHA and tailgate safety session prior to ignition.

### **C. Emergency Medical Procedures:**

#### **1. Burn Boss/ Incident within the incident IC (IWIIC)**

- In a medical emergency the Burn Boss/IWIIC will first contact 911. If unable to contact 911 directly the Burn Boss/IWII will then contact the MIDC.
- The Burn Boss/IWIIC is responsible for coordination of evacuation.
- The Burn Boss/IWIIC will provide the information documented in the Medical Incident Report found within the IRPG.

#### **2. EMT or First Responder**

- Is responsible for patient evaluation and treatment.
- Will coordinate with the IWIIC in organizing evacuation plans and necessary medical resources.
- Will keep the Burn Boss/IWIIC informed on patient condition.

#### **3. Cadillac Dispatch**

- Dispatch will request ordered or requested resources and transportation needs.
- Dispatch will announce a Medical Emergency and request all other radio traffic to be cleared.
- Dispatch will flight follow with emergency aircraft.
- Dispatch will notify the applicable prescribed fire agency administrator and designated line officer.

#### **4. Ranger District**

- Assist in providing local resources as requested by dispatch.
- Coordinate with Dispatch as requested.

### **D. Emergency Evacuation Methods:** See IRPG Medical Incident Report

## E. Emergency Facilities:

| Hospitals/Air Ambulance (Air Ambulance in * <b>BOLD</b> ) |  |             |        |                       |          |    |             |          |
|---|--|-------------|--------|-----------------------|----------|----|-------------|----------|
| Name  | Address  | Travel Time |        | Phone                 | Helipad  |    | Burn Center |          |
|   |  | Air         | Ground |                       | Yes      | No | Yes         | No       |
| Ludington Spectrum  | One Atkinson Drive Ludington                                   |             |        | 231 843 2591          | x        |    |             | x        |
| Munson Cadillac   | 400 Hobart Street Cadillac                                     |             |        | 231 876 7200          | x        |    |             | x        |
| Big Rapids<br>Spectrum Health                             | 605 Oak Street Big Rapids                                      |             |        | 231-796-8691          | x        |    |             | x        |
| Munson Manistee   | 1465 East Parkdale Ave, Manistee                               |             |        | 231-398-1000          | x        |    |             | x        |
| Gerber Memorial<br>Spectrum                               | 212 S. Sullivan Ave, Fremont                                   |             |        | 231-924-3300          | x        |    |             | x        |
| Reed City Spectrum<br>Health                              | 300 N. Patterson Rd. Reed City                                 |             |        | 231-832-3271          | x        |    |             | x        |
| Mercy Lakeshore<br>Shelby                                 | 72 South State Street<br>Shelby, MI                            |             |        | 231-861-3045          | x        |    |             | x        |
| Mercy Health<br>Hackley Muskegon                          | 1700 Clinton St. Muskegon                                      |             |        | 231-726-3511          | x        |    |             | x        |
| Mercy Muskegon  | 1500 E. Sherman Blvd Muskegon                                  |             |        | 231-672-2000          | x        |    |             | x        |
| Traverse City<br>Munson                                   | 1105 Sixth St. Traverse City                                   |             |        | 231-935-5000          | <b>X</b> |    |             | <b>x</b> |
| <b>*Aeromed TC</b>  | <b>Fixed/Rotary Wing</b>                                       |             |        | <b>1-800-862-0921</b> |          |    |             |          |
| *Spectrum Health<br>Grand Rapids                          | Butterworth Hospital<br>100 MI St N.E. Grand Rapids            |             |        | 866 989 7999          | <b>X</b> |    | <b>X</b>    |          |
| <b>*Aeromed GR</b>  | <b>Aeromed Rotary Wing</b>                                     |             |        | <b>1-800-862-0921</b> |          |    |             |          |
| <b>*Survival Flight</b>                                   | <b>UM - Fixed or Rotary Wing</b>                               |             |        | <b>1-800-822-2233</b> |          |    |             |          |
| UM Burn Center  | 1500 E. Medical Center Dr.<br>1C-421-UH<br>Ann Arbor, MI 48109 |             |        | (734) 936-9690        | X        |    | X           |          |

## Element 14: Test Fire

### A. Planned Location:

A test fire will be ignited in a representative location within the prescribed fire area to test key fire behavior characteristics prescribed to meet management objectives.

### B. Test Fire Documentation:

Test fire documentation will be located in the prescribed fire incident organizer and kept in the project folder under burn history.

## **Element 15: Ignition Plan**

### **A. Firing Methods: Techniques, Sequences and Patterns**

Use of control line on the perimeter of the unit to establish a black-line/backing fire on the downwind side. Unit will be ignited perpendicular to the wind; the pattern width will be dependent upon the observed fire behavior. If increased flame lengths are needed, strip width will be increased and vice versa for decreased flame lengths. Ignition techniques may also include; flank/chevron, back, dot, jack pot or other patterns/techniques the burn boss considers appropriate. The intent is to prevent the fire from making runs out of the unit while maintaining appropriate fire behavior to safely achieve objectives. For aerial ignition units, a blackline will be established by hand ignition on the downwind side. After the burn boss has determined the blackline is adequate, the helicopter/UAS drone will be utilized to fire the unit in the same fashion as described above. When using aerial ignition in close proximity to the Nordhouse Dunes Wilderness Area, firing patterns that prevent aerial resources from needing to fly over the wilderness boundary will be employed.

**B. Devices:** Drip torches, fusees, flare guns, aerial ignition devices and UAS systems. Additional firing mechanisms may be utilized as new technology is developed and instituted.

### **C. Minimum Ignition Staffing:**

The burn boss is ultimately responsible for determining appropriate ignition staffing based on factors such as but not limited to personnel experience level, fire behavior, fuel characteristics, weather and topography. Ignition/holding will be supervised by single resource bosses from existing resources identified in element 11 – Organization & Equipment. Close coordination will be required between holding/firing resources in order to ensure that ignition does not outpace holding.

## **Element 16: Holding Plan**

### **A. General Procedures for Holding:**

Control lines that are in place consist of plow lines, blade lines, roads, and natural barriers. Holding objectives are: keep fire inside project area, quickly identify problem areas and take necessary action to prevent escapes. Equipment and personnel placement will be determined at ignition time and during operations based on existing conditions at the site. In the event of a slop-over or spot fires, lighters may be used to assist in the containment of the slop over or spot fires. All spot fires or slop-overs will be controlled and mopped-up before ignitions can resume. All personnel will receive a thorough briefing on control, resource, and safety objectives prior to any firing.

The holding resources will be directed by a burn boss/ holding boss. Holding crew will be equipped with tools and or bladder bags. Holders will be directed to area of test burn “keeping their eyes in the green” for spots. Once the test fire is completed holders will spread out along the downwind flank while a black line is established. The holding and ignition boss will set the operational tempo so as not to exceed the HMF West Zone Prescribed Fire Plan Template 10/15/19

holding resources capabilities. When the ignition crew starts the firing pattern; holders will follow the ignition sequence at the holding boss's discretion until entire unit is completely fired while giving the opportunity for holding resources to move out of the smoke and into fresh air as needed. At this point once the fire activity has diminished the holding boss will notify the burn boss that all control lines are secure. The burn boss will then initiate a mop up plan.

### **B. Critical Holding Points and Actions:**

Control lines that lie adjacent to private property and The Nordhouse Dunes Wilderness Area are critical holding points. The Nordhouse Dunes Wilderness Area lies adjacent to blocks three and four. All critical holding points will be identified on the project map prior to ignition during the operational briefing. The units within this plan are permitted to be burned with wind from various directions. Therefore critical holding points may change relative to prevailing wind pattern and wind direction.

### **C. Organization or Capabilities Needed:**

Refer to organization chart in element 11 within this plan.

#### **1. MOP UP PLAN:**

The mop up objectives are that all snags, stumps, fuel jackpots, and other fuels that threaten the control line and/or pose smoke generation problems will be suppressed with particular emphasis of those within 50' feet of the control line. Mop-up will be concentrated on the sides of the unit that border smoke sensitive areas, to limit smoke related impacts on private residences, public facilities, and road systems. The Burn Boss can release all resources when mop-up and leaving the burn unstaffed standards are achieved. If the burn unit is staffed above the minimum required organization the additional resource(s) can be released at the burn boss and duty officer's discretion.

#### **2. LEAVING THE BURN UNSTAFFED:**

The burn unit must meet the following criteria in order to be un-staffed and placed in patrol status prior to being declared out. These conditions apply to the burn which is left un-staffed at night, as well as if left un-staffed for multiple days prior to being declared out. Fire weather and fire behavior for un-staffed period would ensure that:

1. Burn is anticipated to remain within the boundaries of the burn unit. Control lines are all secure with no threat of escape.
2. Smoke production is anticipated to remain within planned and permitted parameters.
3. Smoke impacts to adjacent roads are not anticipated to be hazardous to motorists.
4. Current weather observations and forecasts do not present a significant change in conditions that could compromise the burn by leaving it un-staffed.

**NOTE:** Prior to making the decision to leave the prescribed fire unstaffed, the Burn Boss must ensure that the conditions listed above exist on the burn project/unit.

### 3. PATROL PLAN:

The prescribed burn will be patrolled daily or as determined by the burn boss/duty officer. A patrol is defined as a firefighter walking/driving the entire perimeter once in a 24-hour period. Patrol frequency may need to increase during periods of high to extreme fire danger. The burn boss/duty officer will complete a daily review of the upcoming weather forecasts and expected fire behavior. Thermal imagery may be used during the patrol phase to identify hot spots or other problem areas. Until the prescribed fire is declared out, the Burn Boss, Duty Officer or Prescribed Fire Manager must continue to monitor weather conditions and adhere to the requirements set forth in Mop-up and Patrol Table of this Burn Plan for project area resource needs. The following table is to be used to determine the number of patrols and patrol frequency:

| <b>Fire Danger</b> | <b>Patrol Frequency</b> |
|--------------------|-------------------------|
| Low                | 1 Patrol/Day            |
| Moderate           | 1 Patrol/Day            |
| High               | 1 Patrol/Day            |
| Very High          | 2 Patrols/Day           |
| Extreme            | Burn Staffed            |

**NOTE:** If precipitation occurs and/or the burn is absent of visible smoke for 72 hours the Burn Boss/Duty Officer has the discretion to determine patrol plan requirements or if a patrol is necessary prior to declaring the prescribed fire out. When fire danger is extreme the number and type of resources staffing the burn will be determined at the burn boss, duty officer and agency administrator's discretion.

### 4. PRESCRIBED FIRE DECLARED OUT:

The burn boss or duty officer will inform dispatch when the burn is declared out.

#### **Element 17: Contingency Plan**

Contingency resources are required during ignition, active burning, and mop-up of the prescribed burn, but not during patrol. Contingency forces are defined as supplemental resources to the personnel and equipment specifically identified in ignition and holding organization on the prescribed burn. For example, holding resources assigned to the prescribed burn are not to be considered part of the contingency resources. The Agency Administrator, Burn Boss and Duty Officer need to discuss the rationale in identifying the same contingency resource for multiple prescribed fire projects. Decision to share contingency resources will be documented on the ignition authorization.



## A. Trigger Points

The Burn Boss should request contingency resources when fire behavior or smoke impacts are likely to exceed the project objectives and cannot be mitigated within the existing burn period by the current resources on the site.

If additional trigger points are necessary they will be identified by Burn Boss during briefing the day of project implementation.

## B. Actions Needed

- 1) Order contingency resources when the actions needed are beyond the capabilities of on-site resources as determined by the Burn Boss.
- 2) Burn Boss/Dispatch will notify the applicable agency administrator of contingency resource status at the agency administrator's discretion.
- 3) Burn Boss will notify dispatch when contingency resources are no longer necessary.

**NOTE:** If spot fires and slop-overs can be controlled with available resources, the entire project may continue to be managed as a prescribed fire.

## C. Minimum Contingency Resources and Maximum Response times

| Contingency Level | Burn Staffing Level | Contingency Resources                   | Response Time |
|-------------------|---------------------|---|---------------|
| 1                 | 1                   | Squad or 1 Engine or 1 Dozer/skidgine   | 2 Hours       |
| 2                 | 2                   | 1 Engine or 1 Dozer/skidgine, or Module | 2 hours       |
| 3                 | 3                   | 1 Engine or 1 Dozer/skidgine or Module  | 1 Hour        |

Note: Squad is defined as a minimum of 1 FFT1 & 2 FFT2s.

## Element 18: Wildfire Declaration

A prescribed fire, or a portion or segment of a prescribed fire, must be declared a wildfire by those identified in the plan 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 duty officer and agency administrator.

**A. Wildfire Declared By:**

A wildfire declaration will be made by the Agency Administrator after consultation with the Burn Boss. This communication will occur when the contingency actions have failed, or are likely to fail, and cannot be mitigated. Then the burn boss and zone duty officer will proceed with the following notifications.

**B. Notifications:**

1. Dispatch
2. Zone FMO or Duty Officer (will assist with the rest of the contacts.
3. District Line Officer
4. Forest FMO or Forest Duty Officer
5. Forest Supervisor within 4 hours
6. Regional Forester within 12 hours

**NOTE:** When a wildfire declaration is made the Michigan Interagency Dispatch Center will be notified by the burn boss and the IC of the wildfire will be identified.

**C. IC Assignment:**

A qualified Incident Commander will be identified during the operational briefing that occurs prior to ignition of the unit. The resources that will assist during the initial attack of the newly declared incident will also be identified prior to ignition. In the event that additional personnel/agencies are called to assist with suppression, unified command may be established to manage suppression activities.

**Element 19: Smoke Management and Air Quality****A. Compliance:**

To meet compliance of the Michigan Smoke Management Plan a fair dispersion category will be required. The burn will be conducted when atmospheric and vegetative conditions will minimize the amount of smoke produced and its impacts on people. The ventilation index will be one of the key components monitored to reach the appropriate dispersion category for the burn unit size (See Appendices H). Great care will be taken to minimize this temporary inconvenience. For both safety and legal reasons, certain groups should be notified before a burn to prevent unnecessary concerns and danger. See Element 9: Pre-burn Considerations and Weather for notifications.

**B. Permits to be Obtained:**

No permits are required.

### C. Smoke-Sensitive Receptors:

| Unit | Receptor  | Distance & Direction from Unit  |
|------|---|---|
| 1    | Seasonal Homes<br>Wilderness/Recreation Areas<br>Towns<br>Roads<br>Airports | <p>There is private property directly adjacent to the unit to the north and northwest. Lake Michigan Recreation Area day use site and the LMRA campground loops are approximately 2.5 miles to the southwest. Nordhouse Dunes Wilderness Area is located 2 miles to the south. Hamlin Lake residences are approximately 4 miles to the south. The town of Ludington is 13 miles to the southwest. Manistee is 8 miles to the north. US-31 is 6 miles to the east and US-10 is 10 miles to the south. Manistee-Blacker airport is 12 miles to the northeast. Mason County Airport is 13 miles to the southwest.</p>  |
| 2    | Seasonal Homes<br>Wilderness/Recreation Areas<br>Towns<br>Roads<br>Airports | <p>Private property meets the unit boundary on the northwest side of the unit. Private property is also within a ¼ mile to the northeast. Lake Michigan Recreation Area day use site is within ¼ mile to the southwest and the LMRA campground loops are located within ½ mile to the southwest. The Nordhouse Dunes Wilderness Area is located ¾ of a mile to the south. Hamlin Lake residences are approximately 3 miles to the south. The town of Ludington is 12 miles to the southwest. Manistee is 9 miles to the north. US-31 is 6 miles to the east and US-10 is 10 miles to the south. Manistee-Blacker airport is 13 miles to the northeast. Mason County Airport is 12 miles to the southwest.</p> |
| 3-5  | Seasonal Homes<br>Wilderness/Recreation Areas<br>Towns<br>Roads<br>Airports | <p>Burn Block 5 has private property directly adjacent to the east. Burn block 4 has numerous parcels of private land ¼ mile to the south. Nordhouse Dunes Wilderness Area lies adjacent to blocks 3 and 4. Lake Michigan Recreation Area day use site and the LMRA campground loops are approximately 1.5 miles to the northwest of Block 3. Hamlin Lake residences are within 1 mile to the south. The town of Ludington is 9 miles to the southwest. Manistee is 12 miles to the north. US-31 is 6 miles to the east and US-10 is 10 miles to the south. Manistee-Blacker Airport is 16 miles to the northeast. Mason County Airport is 9 miles to the southwest.</p>                                      |

**D. Potential Impacted Areas:**

Nordhouse Dunes Wilderness Area is a Class 2 airshed adjacent to the burn area.

**E. Mitigation Strategies and Techniques to Reduce Smoke Impacts:**

Higher ventilation, dispersion, and transport/mixing wind values can reduce impacts to smoke sensitive areas that lay downwind of the project site/s. The lighting patterns can be modified to reduce impact of smoke on firefighters and roads when necessary. The lighting will be completed as early in the day as possible; without compromising personnel safety or the burn objectives. Significant smokes in the unit will be mopped up after ignition to further reduce residual smoke impacts.

Contingency plan for adverse smoke impact: If weather or smoke dispersion conditions threaten to impact the above smoke sensitive targets, the burn boss will initiate an appropriate response which may include the following:

1. Increase patrol vehicles in affected area(s).
2. Signs will be placed on roads impacted by smoke. Smoke signs will be placed on sides of roads, well in advance of the reduced visibility zone or impacted area, for oncoming traffic (both directions of travel).
3. Maintain communication with the weather observer and NWS.
4. Local law enforcement will be notified if the need for law enforcement personnel is needed for traffic control.

**Element 20: Monitoring**

Fuels, weather, smoke and fire behavior will be monitored by the burn boss and/or his/her designee and documented in the west zone prescribed fire incident organizer. The intent of the organizer is to allow the burn boss to track the correlation between fuels, weather, fire behavior and smoke output as the burn progresses. The organizer will be attached to the project record under the burn history.

**A. Fuels Information Required and Procedures:**

At a minimum FDFM will be recorded on site and documented in the organizer.

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

Weather will be monitored using a belt weather kit or kestrel on the units prior to ignition and throughout the burn; at an interval to be determined by the Burn Boss. Spot weather can either be requested by the Burn Boss through Huron\Manistee forest dispatch or input directly into the national weather service web site

(<http://spot.nws.noaa.gov/cgi-bin/spot/spotmon?site=apx>).

A copy of the spot weather forecast will be saved in the burn plan folder.

### **C. Fire Behavior Monitoring Required and Procedures:**

Fire behavior will be monitored by the burn boss or designee to ensure it falls within prescription requirements. If fire behavior exceeds or fails to meet objectives burn boss may consider options such as but not limited to: Slowing, ceasing or altering firing techniques. Fire behavior will be documented in the west zone prescribed fire incident organizer.

### **D. Monitoring Required to Ensure that Prescribed Fire Plan Objectives are met:**

The post burn monitoring may be documented in the burn IAP or other post burn documentation.

### **E. Smoke Dispersal Monitoring Required and Procedures:**

Smoke will be monitored with on-site visual observation in regards to lifting and dispersion. Burn Boss/duty officer will designate someone the day after the burn to monitor burn unit for any residual smoke issues and burn status. Smoke monitoring will be documented in the organizer. Burn boss has the option of checking the daily air quality index at [www.airnow.gov](http://www.airnow.gov) and providing an AQI forecast printout for the project folder but this is optional monitoring and not required.

## **Element 21: Post-burn Activities**

A. Post-Burn Activities that must be Completed: A post burn report in the incident organizer may be completed by either the burn boss or designee.

## **Prescribed Fire Plan Appendix**

**Appendix A: Maps: Vicinity, Project or Ignition Units (or both), Optional: Significant or Sensitive Features, Fuels or Fuel Model, Smoke Impact Areas**

**Appendix B: Technical Reviewer Checklist**

**Appendix C: Complexity Analysis and Supporting NEPA documentation**

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

**Appendix E: Fire Behavior Modeling Documentation or Empirical Documentation**

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

### Appendix B: Technical Reviewer Checklist

Fill out this checklist based on the guidance provided in the Technical Review section in the *Interagency Prescribed Fire Planning and Implementation Procedures Guide*, PMS 484. Rate each element in the following table with an “S” for Satisfactory or “U” for Unsatisfactory. Use Comment field as needed to support the element rating.

| PRESCRIBED FIRE PLAN ELEMENTS   | RATING | COMMENTS |
|---|--------|----------|
| 1. Signature page   | S      |          |
| 2. A. Agency Administrator Ignition Authorization, PMS 485                    | S      |          |
| 2. B. Prescribed Fire GO/NO-GO Checklist, PMS 486                             | S      |          |
| 3. Complexity Analysis Summary  | S      |          |
| 4. Description of Prescribed Fire Area  | S      |          |
| 5. Objectives   | S      |          |
| 6. Funding  | S      |          |
| 7. Prescription: Prescription Narrative and Prescription Parameters           | S      |          |
| 8. Scheduling   | S      |          |
| 9. Pre-Burn Considerations and Weather  | S      |          |
| 10. Briefing  | S      |          |
| 11. Organization and Equipment  | S      |          |
| 12. Communication   | S      |          |
| 13. Public and Personnel Safety, Medical                                      | S      |          |
| 14. Test Fire   | S      |          |
| 15. Ignition Plan   | S      |          |
| 16. Holding Plan  | S      |          |
| 17. Contingency Plan  | S      |          |
| 18. Wildfire Declaration  | S      |          |
| 19. Smoke Management and Air Quality  | S      |          |
| 20. Monitoring  | S      |          |
| 21. Post-Burn Activities  | S      |          |
| Appendix A: Maps  | S      |          |
| Appendix C: Complexity Analysis   | S      |          |
| Appendix D: Agency-Specific Job Hazard Analysis or Risk Assessment            | S      |          |
| Appendix E: Fire Behavior Modeling Documentation or Empirical Documentation   | S      |          |
| Appendix F: Smoke Management Plan and Smoke Modeling Documentation (Optional) | S      |          |
| Other   |        |          |

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

**Recommendation for approval is not granted.** Prescribed fire plan should be re-submitted for technical review subject to the completion of all requirements listed in the comments section, or on the Prescribed Fire Plan.

Technical Reviewer Signature: \_\_\_\_\_

Technical Reviewer Qualification and Currency:   RXB1\yes  

Date Signed:   02.28.2022