

Pile Burning

November 7, 2024

C'AWAK ?QIN
FORESTRY

Tsawak-QIN Forestry pile burning



C'AWAK ?QIN
FORESTRY




Overview

- ❖ Burn Plan
- ❖ Open Burning Smoke Control Regulation(OBSCR)
- ❖ West Coast Fuel-Smoke Management plan
- ❖ Pile Burning
- ❖ Planting
- ❖ Indicator 4.1.1: Net Carbon Uptake

❖ Burn Plan

- ❖ Required to conduct open burning in BC – includes a burn registration number for each area.
- ❖ Includes map of planned burn areas
- ❖ 3 year term – new areas added annually
- ❖ Plan covers:
 - ❖ Objectives
 - ❖ Reduction of Fire Hazard
 - ❖ Create plantable spots
 - ❖ Desired Fire Effects
 - ❖ Values at Risk
 - ❖ Prescribed Fire Burn Operations
 - ❖ Patrol Plan
 - ❖ Prescribed Fire Burn Plan
 - ❖ Go No-Go Checklist
 - ❖ Pile Burning: Block Information
 - ❖ Pile Burning: Monitoring Information
 - ❖ Fire Weather Guidelines



APPENDIX 1: PRESCRIBED FIRE BURN PLAN

Schedule 12 – GO NO-GO CHECKLIST (mandatory)

Schedule 12 – Ignition Checklist and Documentation

| | | |
|--|---------------------------|---------------------------|
| Outblocks Covered in this Checklist: | | Date: |
| | | |
| Nearest Weather Station: | Fire Weather Today (Noon) | Previous Day Fire Weather |
| Cameron <input type="checkbox"/> Summit 1<500m <input type="checkbox"/> | FFMC: | FFMC: |
| Great Central Lake <input type="checkbox"/> Summit 1>500m <input type="checkbox"/> | DC: | DC: |
| North Fork/Rosander <input type="checkbox"/> Walbran <input type="checkbox"/> | Wind Speed: | |
| | RH: | |
| | Rain 24Hrs: | |

| | |
|-------------------------|----------------------------|
| Venting Forecast Today: | Venting Forecast Next Day: |
| | |

| | |
|---|--|
| Forecast Weather 72 hours (Impact on Fire Weather Indices): | |
| | |

| Go No-Go Checklist (Must be completed prior to Ignition) | | | |
|--|-----|----|-----|
| Are the blocks listed above listed in Approved Burn Plan? | Yes | No | |
| Are Fire Weather Indices and Wind Speed within allowable Specifications? | Yes | No | |
| Are all smoke management requirements met? Venting + Wind Direction? | Yes | No | |
| Have other Burn Plan Signatories been informed to ensure airshed limitations are not exceeded? | Yes | No | N/A |
| Have appropriate agencies and neighbours been notified? | Yes | No | N/A |
| Are all personnel adequately trained and briefed on burn plan? | Yes | No | |
| Have all personnel been briefed on safety plan? Including 1st aid, marshaling location, known hazards, communications + escape routes. | Yes | No | |
| Are control resources listed in burn plan available and prepared to respond? | Yes | No | |
| Are the resources listed in the burn plan adequate for the control of escapes? Consider the proximity of the values at risk. | Yes | No | |
| Has a test burn been conducted to assess potential for escape and smoke management. | Yes | No | N/A |
| Can the burn be conducted according to the plan and meet the plan objectives without undo risk to adjacent values? | Yes | No | |
| Do the supervisors and crew understand their roles if control becomes necessary? | Yes | No | |
| Have Crew Working signs been posted? | Yes | No | N/A |

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|--------|
| Notes: |
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| |

Form Completed By: _____ Signed: _____

APPENDIX 1: PRESCRIBED FIRE BURN PLAN



Schedule 12 – Pile Burning: Block Information

DATE: _____ FORM COMPLETED BY: _____

BURNING CREW: _____

| | |
|--|--|
| Ignition Start Time: | |
| End Time: | |
| Ignition Methods: | |
| Any spotting outside piles? | |
| Number of piles burned (must locate on map): | |
| Number of photos taken: | |
| Ease of ignition (easy, mod, hard): | |
| Time to 99% consumption avg. pile: | |

OBSERVED WEATHER AT TIME OF IGNITION:

| | |
|----------------------|--|
| Wind Speed: | |
| Wind Direction: | |
| Temperature: | |
| Precipitation: | |
| Observed Visibility: | |

ADJACENT VALUES (Consequences of Escape):

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AIR QUALITY IMPACTS TO POPULATED AREAS:

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NOTES:

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Schedule 15 – Fire Weather – Guidelines for Burning

Purpose: to provide burning supervisors with guidelines to aid in determining if and when to initiate prescribed burning. These guidelines are applicable for pile and windrow burning only. In no case may burning be conducted if the maximum value of any of the indices in the table below are exceeded.

Allowable Fire Weather Indices Substantial rainfall must be imminent or occurring before exceeding the recommended FFMC and DC

| Allowable Site Conditions | Cedar < 20%, Slope < 40%, Duff < 15 cm, Wind < 20 km | | Wind < 20 km | |
|---------------------------|--|-------------|-----------------------|-------------|
| | < 1 km to Urban Areas | | > 1 km to Urban Areas | |
| | Max | Recommended | Max | Recommended |
| FWI | | | | |
| FFMC | 60 | 30-50 | 75 | 40-60 |
| DC | 250 | 180-220 | 450 | 220-260 |

| Allowable Site Conditions | Cedar > 20%, Slope > 40%, Duff > 15 cm, Wind 20 to 40 km/hr | | Wind 20 to 40 km/hr | |
|---------------------------|---|-------------|-----------------------|-------------|
| | < 1 km to Urban Areas | | > 1 km to Urban Areas | |
| | Max | Recommended | Max | Recommended |
| FWI | | | | |
| FFMC | 45 | 25-40 | 65 | 35-50 |
| DC | 220 | 160-200 | 300 | 180-220 |

Open Burning Smoke Control Regulation (OBSCR)

https://www2.gov.bc.ca/assets/gov/environment/air-land-water/air/factsheets/all_burners_factsheet.pdf

Provincial Regulation under the Environmental Management Act.

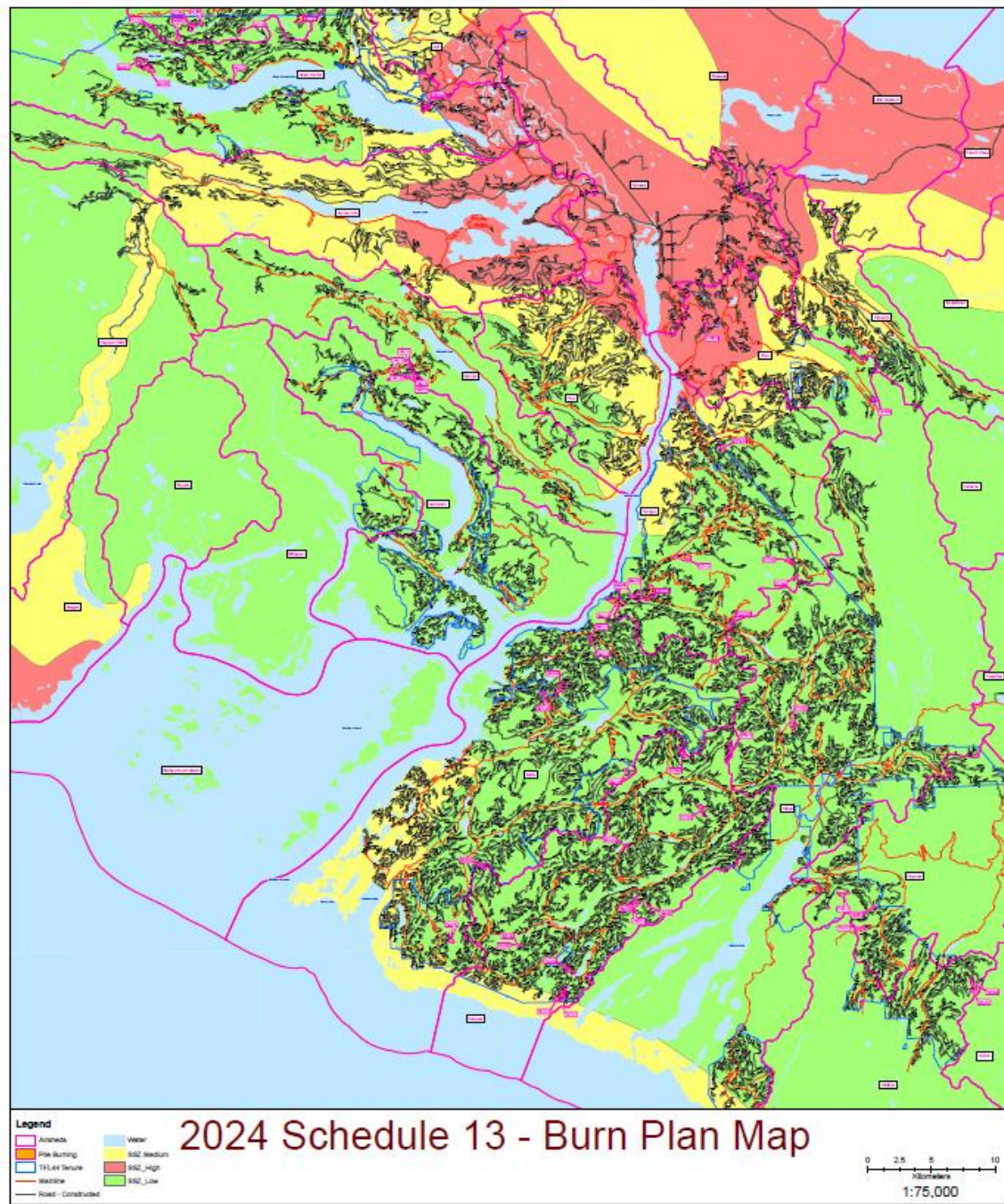
Defines venting requirements for open burning.

Venting is how quickly the smoke mixes with the upper atmosphere.



- ❖ West Coast Fuel-Smoke Management plan
- ❖ Designed to standardize best practices in regards to smoke management for the west coast
- ❖ Maximize opportunities to abate fire hazards while managing smoke emissions
- ❖ Venting Matrix
 - ❖ Best management Practices allow some flexibility in the Low sensitivity zones based on:
 - ❖ Proximity to populations of people
 - ❖ Elevation of burn area

| SMOKE SENSITIVITY ZONE | MANAGEMENT | VENTING ¹ | | ATMOSPHERE CONDITION | IGNITION TIMING ² | DURATION OF BURN ² | MAXIMUM DAILY PILES PER ARES ³ | PILE CONSTRUCTION | FUEL CONDITION |
|------------------------|-----------------------|----------------------|-------------------|--|------------------------------|---------------------------------|---|--|---|
| | | DAY 1 | DAY 2+ | | | | | | |
| HIGH | OBSCR 1 day burn | GOOD | N/A | OBSCR - Part 2. S14(a)(b) & 15(a)(b) | 1 hour after sunrise | Burn ends 2 hours before sunset | N/A | OBSCR - Part 2. S. 11(a)(b)(c) | Moisture content < 30%. Piled for > 4 months |
| | OBSCR 2 day burn | GOOD | FAIR+ | OBSCR - Part 2. S14(a)(b) & 15(a)(b) | 1 hour after sunrise | Burn ends by 4 PM on day 2 | N/A | OBSCR - Part 2. S. 11(a)(b)(c) | Moisture content < 30%. Piled for > 4 months |
| | BMP | N/A | N/A | N/A | N/A | N/A | 300 | Build less, but larger piles & OBSCR. | Moisture content < 30%. >Piled for > 4 months |
| MED. | OBSCR 1 day burn | GOOD | N/A | OBSCR - Part 2. S14(a)(b) & 15(a)(b) | 1 hour after sunrise | Burn ends 2 hours before sunset | N/A | OBSCR - Part 2. S. 11(a)(b)(c) | Moisture content < 30%. Piled for > 4 months |
| | OBSCR 2 day + burn | GOOD | FAIR+ | OBSCR - Part 2. S14(a)(b) & 15(a)(b) | 1 hour after sunrise | Burn ends 2 hours before sunset | N/A | OBSCR - Part 2. S. 11(a)(b)(c) | Moisture content < 30%. Piled for > 4 months |
| | BMP | N/A | N/A | N/A | N/A | N/A | 500 | Build less, but larger piles & OBSCR. | Moisture content < 30%. Piled for > 4 months |
| LOW | OBSCR | FAIR+ | FAIR+ | OBSCR - Part 2. S14(a)(b) & 15(a)(b) | N/A | 6 days, end by 4 PM day 6 | N/A | OBSCR - Part 2. S. 11(a)(b)(c) | Moisture content < 30%. Piled for > 4 months |
| | BMP | POOR ₃ | POOR ₃ | OBSCR - Part 2. S14(a)(b) & 15(a)(b) | N/A | 6 days, then re-asses | N/A | Build less, but larger piles & OBSCR. | Moisture content < 30%. Piled for > 4 months |



Burning – (The fun part)

- ❖ The day before burning
 - ❖ Venting forecasts for specific locations
 - ❖ Check fire weather guidelines and forecast
- ❖ Prior to burning
 - ❖ Go-No-Go checklist
 - ❖ Pile burning block information
 - ❖ Resource values and population centers
- ❖ Test Pile
 - ❖ Check smoke direction and venting



Even with all the appropriate planning; things can still go sideways.



Planting

- ❖ Spring and fall planting programs consist of “Roadside” planting
- ❖ Areas burned after initial plant are visited again to plant the previous years burns.
- ❖ Target species are:
 - ❖ Fd
 - ❖ Cw
 - ❖ Minor Yc, Hw, Ss



Planting Statistics

Over last 5 years (2020-2024)

- ❖ Average 17,800 seedlings per year in burned areas
- ❖ Total 89,000 in 5 years (Estimate due to blocks burned before planting)
- ❖ 74.2 hectares worth of land in 5 years or 14.9 hectares per year

Species

- ❖ Cw 56%
 - ❖ Fd 22%
 - ❖ Hw/Yc/Ss/Ba/Pw 22%
-
- ❖ After a couple assumptions(80% survival,1m3 per log), current value of future logs from 5 years of planting burn piles is 16 million dollars (Before harvest cost)



Indicator 4.1.1

- ❖ Average number of piles burned per year is 1100
- ❖ CO₂e/unit(pile) 60.09 tonnes/m³
- ❖ Total per year emissions from pile burning =

66,000 tonnes

Comparison:

14,350 vehicles worth of emissions in a year

Over the life cycle(60 years) of tree planted per year (17,800) in the burn piles they will absorb 9,000 tonnes of CO₂.



Questions?

