

FLORIDA CERTIFIED PILE BURN PROGRAM



FLORIDA FOREST SERVICE
Department of Agriculture and Consumer Services

UF UNIVERSITY of
FLORIDA
IFAS Extension

Florida's Certified Pile Burner Training

Florida Forest Service and IFAS

In-Person Class Agenda

1. Opening Comments and Introduction	08:30 – 09:10
2. Fire Weather	09:10 – 09:50
3. BREAK	09:50 – 10:00
4. Smoke Management	10:00 – 11:20
5. Open Burning Regulations	11:20 – 12:15
6. LUNCH	12:15 – 01:15
7. Planning and Implementation	01:15 – 02:30
8. Safety	02:30 – 03:10
9. BREAK	03:10 – 03:20
10. Public Relations	03:20 – 04:00
11. Wrap Up	04:00 – 05:00 Final Test

Florida's Certified Pile Burner Training Florida Forest Service and IFAS Virtual Class Agenda

Day 1

Unit 1: Introduction	08:00 – 08:30
Unit 1: Weather Factors	08:30 – 09:30
Unit 2: Smoke Management	09:30 – 11:00
Unit 3: Legal Issues	11:00 -12:00
Adjourn Day 1	12:00

Day 2

Unit 4: Planning & Implementation	08:00 – 09:30
Unit 5: Safety	09:30 – 10:30
Unit 6: Public Relations	10:30 – 11:00
Wrap-up and Exam	11:00-12:00

For questions regarding the course, rules, permits, etc., contact:

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Prescribed Fire Manager

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www.FDACS.gov

Florida's Certified Pile Burner Training Frequently Asked Questions



Q: Why should I be a certified pile burner?

A: Certified pile burners are trained to burn piles ***legally, safely and efficiently***. Most importantly, it could save a life. Also, when the weather is dry, certified pile burners will receive priority for authorization to burn by the Florida Forest Service (FFS). Also, certified pile burners are allowed to burn up to two hours longer per day and get multiple day authorizations.

Q: What is a Pile Burner Customer Number?

A: When you call the FFS for an authorization to burn, you will be assigned a personal customer number. This number references your information so it doesn't need to be gathered each time you call for an authorization. You must have your individual FFS customer number in order to be certified.

Q: Is there a test?

A: Yes, the test is 20 questions and open-book. You must receive a score of at least 70% to pass.

Q: What if I don't pass?

A: Very few people fail the test but if you do, you will be provided another opportunity to take the test at a later date. If you fail the second time, you must re-register and take the training again.

Q: Why do you ask for my email on the application form?

A: Email is the fastest and most convenient method to inform registrants of their registration status. If no email address is provided then all correspondence will be sent through the federal mail. This can take several days to relay messages and this may not be practical if changes are made to the course schedule or for last minute registrations.

Q: How much does it cost to register for the training?

A: Registration for the training is \$50 per person and includes lunch, training materials and testing.

Q: How long does my certification last, and how long do I have to complete the certification from the time I finish the class?

A: As long as the person with the certification uses their number at least 5 times in a period of 5 years their certification will not expire under the current program. You **MUST** complete the certification burn within a year of taking the class.

Q: Will certified burners be notified if their certification expires?

A: Yes, notification will be sent out to them to let them know of their upcoming certification expiration date.

Q: Will I be certified at the end of the one day training?

A: No, you will need to follow the written instructions that you will receive from the FFS to become certified. You will need to complete a simple burn plan, have it reviewed and approved locally by the FFS and also have the burn itself reviewed and approved by the FFS.

Q: Is there a minimum age to be a certified pile burner?

A: Yes, you must be at least 18 years old to take the test and be a certified pile burner.

Florida's Certified Pile Burner Training

Training Evaluation

Rate each lesson for its effectiveness. Effectiveness can be indicated for example by, clarity, complexity, audience engagement, and/or relevance to job.

Location:	Effective: If you found the lesson effective, what did you like most?	Not Effective: If you did not find the lesson effective, what needs to be changed to improve this lesson?
Fire Weather (9:10 – 9:50)		
Smoke Management (10:00-11:20)		

Location:	Effective: If you found the lesson effective, what did you like most?	Not Effective: If you did not find the lesson effective, what needs to be changed to improve this lesson?
Planning and Implementation (11:20 – 01:15)		
Open Burning Regulations (01:15 – 02:30)		
Safety (02:30 – 03:10)		

Location:	Effective: If you found the lesson effective, what did you like most?	Not Effective: If you did not find the lesson effective, what needs to be changed to improve this lesson?
Public Relations (03:20 – 04:00)		

We welcome any additional comments you may have regarding the Certified Pile Burner training session:

Presentation Outline	Aids and Cues
8. Understand the requirements for gaining the certified pile burner status and the decertification process for burning irresponsibly. Introduction All forms of burning in the State of Florida have undergone intense scrutiny and change over the last decade. A driving force behind many of the changes is public perception. We have over 1,000 new people moving into the state each day. This <u>emigration</u> brings with it different life experiences in how land management was done “back home.” Many want the same restrictions from their home state applied in Florida now that they are here. Many will not just accept that this is the way we do things here in Florida, and pressure is brought to bear upon the local and state politicians. Another reason for change is <u>emotional</u>. People get upset that the woodlands next to their subdivision are being razed for yet another development. Never mind that it is the same process used to develop their subdivision, but there is deep emotion attached to their complaints and the local politicians listen. If you have been involved in the burning business long, someone has complained about your smoke! Each time a smoke issue hits the news, the future of open burning becomes less certain. It is worse when there is a <u>high profile accident</u> involving multiple vehicles or a fatality. People are also more intolerant of direct smoke intrusions into their lives especially on weekends. It is becoming more prevalent that we also receive complaints on the “smell of smoke,” <i>not an intrusion of smoke</i>. This relates to the emotions people have about land clearing but it also relates to the older generations that have breathing disorders or complications. Conducting burns in urban areas is becoming more costly. There are more complaints than ever from citizens that are upset that the smoke has gotten into their homes and they want it fixed! It is even possible that people might take advantage of your smoke, open their windows, and attempt to make the burner pay for the smoke damage. There are more complaints than ever about ash covering patios, pools, homes, and cars and they want some thing done. Another form of liability is access. Can you really afford not to put a	01-04-CPB-PPT 01-05-CPB-PPT 01-06-CPB-PPT 01-07-CPB-PPT

Presentation Outline	Aids and Cues
pile burn completely out? Sure, the law says “no visible flame after sunset.” But what about urban areas where children have complete access to where you are burning? TRUE STORY: Years ago a child fell into some hot, white ash from a pile burn even though it was considered “out” by the law. Under tort law, what would a reasonable and prudent person do under the same circumstances do.....well that might be up to a jury of your peers. This introduction is not designed to scare you out of the burning business. We just want to gain and keep your attention. Over the next several hours you will learn a lot of things that will keep you within the law, some safety tips, how weather and fuels affect your pile burn, and some <u>alternative methods</u> of open burning. While doing your planning and bidding, consider contract language that allows for non-burning disposal methods. Sure, you meet the laws and setback requirements, did your smoke management planning, addressed the safety for your personnel and the public, and you even have a public relations plan in place! You just never knew about, or thought about, a call-in campaign by someone with a SERIOUS health problem. Consequently, the FFS keeps shutting you down every day because of the “health hazard.” It can, it does, and it will continue to happen when someone has a health problem. We cannot ignore that important part of pile burning. So, include in your bids, <u>alternatives to open burning</u>: air curtain incinerators, mulching, hauling debris away, and even a medical contingency plan to put someone in a motel when you are locked out of normal open burning options. If you think that the ability to burn is a “right,” remember back in 2004 when pigs were included for protection under a voter approved constitutional amendment, and the status of pigs <i>was never in the news</i>. We cannot say that about smoke from all burns. Poorly planned and executed pile burns could result in the public asking for a constitutional amendment to outlaw outdoor burning. Sure, all this sounds ridiculous..... but remember the pigs!! Review Presentation Objectives Upon completion of this presentation, the participants will:	01-08-CPB-PPT 01-09-CPB-PPT 01-10-CPB-PPT

Presentation Outline	Aids and Cues
1. Understand and be able to describe the requirements for Smoke Management. 2. Understand how weather interacts and influences fire. 3. Learn how to Plan and Implement a pile burn that meets the requirements for certification. 4. Understand the legal requirements and liabilities that affect pile burning. 5. Understand safety concepts in conducting a pile burn for burners and surrounding residents. 6. Understand public relations concepts and the importance of burning responsibly. 7. Understand environmental effects of smoke and alternative methods of disposal. 9. Understand the requirements for gaining the certified pile burner status and the decertification process for burning irresponsibly. Questions	01-11-CPB-PPT



Florida's Certified Pile Burn Manager Program

Unit 0i: Introduction

2/9/2023

I-1-CPB-PPT

1

Presentation Objectives

- Understand and be able to describe the requirements for Smoke Management.
- Understand how weather interacts and influences fire.
- Learn how to Plan and Implement a pile burn that meets the requirements of the law and for certification.
- Understand the legal requirements and liabilities that affect pile burning.

2/9/2023

0i-2-CPB-PPT

2

Presentation Objectives

- Understand safety concepts in conducting a pile burn for burners and surrounding residents.
- Understand public relations concepts and the importance of burning responsibly.
- Understand environmental effects of smoke and alternative methods of disposal.
- Understand the requirements for gaining the certified pile burner status and the decertification process for burning irresponsibly.

2/9/2023

0i-3-CPB-PPT

3

Factors Affecting Burning in Florida

- Emigration, 1,000 new people arrive daily
 - The way we did it back home syndrome and want to change the rules like where they came from
- Emotions
 - Upset with losing "the woods" next to them
- High profile smoke related accidents
 - Multiple vehicles
 - Fatalities

2/9/2023

01-4-CPB-PPT

4

Factors Affecting Burning in Florida continued

- People are intolerant of:
 - Direct smoke intrusions, especially on weekends
 - Smell of smoke (old fire smell)
 - Health issues (difficulty breathing, asthma, etc.)

2/9/2023

01-5-CPB-PPT

5

These factors result in:

- People want the damages fixed
 - Home interior smells like smoke
 - Ashes in pool, on home, patios, and cars
- Calls to the media
 - If it is a slow news day and your smoke is bad enough, hourly updates on the smoke plume via doppler radar
- Calls to local governmental regulators and elected politicians

2/9/2023

01-6-CPB-PPT

6

Other Liabilities

- "But I met the law requirements!"
 - Access
 - Tort law claims

"I keep getting shut down, and I can't meet my contractual agreements!"

2/9/2023

01-7-CPB-PPT

7

Protect Yourself

- Include in your bids, **alternatives to traditional open burning**
 - Air curtain incinerators
 - Mulching
 - Hauling debris away
 - Medical contingencies, including temporary housing for affected parties

2/9/2023

01-8-CPB-PPT

8

Think the "ability to burn is a right?"

- Remember back in 2004 when pigs were included for protection under a voter approved constitutional amendment, and the status of pigs was *never in the news*. We cannot say that about smoke from all our outdoor burns.

2/9/2023

01-9-CPB-PPT

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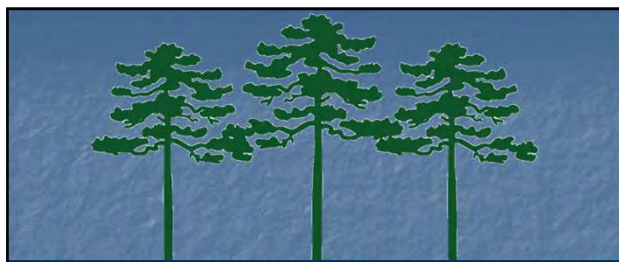
Think this is all silly?

- Remember the Pigs!



2/9/2023

10



Questions?



Contact
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V2-11-OB-EP

11

Instructor Presentation Plan

Course: Florida's Certified Pile Burn Manager Program
Unit Number: 1 – (One)
Presentation Title: Weather Factors
Presentation Time: 1.0 hour

Presentation Objectives:

Upon completion of this presentation, the participants will:

1. Describe weather factors that impact pile burning.
2. Describe impacts on smoke dispersion.

Presentation Outline	Aids and Cues
Title Slide Presentation Objectives Upon completion of this presentation, the participants will be able to: 1. Describe weather factors that may impact pile burning. 2. Describe weather impacts on smoke dispersion. Introduction The Florida Forest Service issues 115,000 – 120,000 authorizations a year under its open burning program. Of these authorizations, a significant percentage is issued for pile burning. Pile burns also make up a large percentage of smoke complaints. Excessive smoke from pile burns may contribute to accidents on adjacent roadways and lead to lawsuits against the burners. The goal of this section is to help the burners understand the weather conditions that may contribute to adverse smoke conditions from pile burns and those that may lead to unsafe burning conditions.	01-01-CPBM-PPT

Presentation Outline	Aids and Cues
Development 1. Factors affecting pile burns include: a. Wind b. Temperature c. Fuel Moisture d. Humidity e. Stability 2. Wind is defined as the horizontal movement of air. Wind may be classified into GENERAL and LOCAL winds. a. General Wind: Large-scale wind associated with high and low pressure systems in the atmosphere. b. Local Wind: Small-scale winds due to local temperature or topographic differences. Some examples include sea breezes, thunderstorms, slope winds and whirlwinds. c. Effects of wind on fire: (1) Wind acts as a catalyst in preheating. (2) Wind may cause spotting if fire brands are carried away from the fire and ignite other areas. (3) Can affect the intensity of the fire by focusing or removing heat. d. Air Movement (transport, dilute or trap air pollution): Air is heated by flame, expands, becomes less dense, and then begins to rise like a cork in the water. Cool, dense air moves in to replace the warm air and is quickly heated and replaced by more cool, dense air, thus setting up a circulation continuing as long as the fire burns. 3. Temperature a. Rays of the sun striking directly upon fuels raise fuel temperature	01-01-CPBM-PPT 01-03-CPBM-PPT 01-04-CPBM-PPT 01-05-CPBM-PPT 01-06-CPBM-PPT 01-07-CPBM-PPT 01-08-CPBM-PPT 01-09-CPBM-PPT 01-10-CPBM-PPT 01-11-CPBM-PPT 01-12-CPBM-PPT 01-13-CPBM-PPT 01-14-CPBM-PPT 01-15-CPBM-PPT

Presentation Outline	Aids and Cues
far in excess of air temperature, thus expelling moisture contained in fuels and less fire heat required to reach ignition point. b. Factors affecting surface temperature. (1) angle of the sun (2) length of day (3) clouds/shade (4) winds (5) type of surface being heated 4. Fuel moisture determines how well the pile will burn and the amount of smoke it will produce. Fuel moisture depends upon: (1) Precipitation (2) Humidity (3) Cloud/Shade (4) Wind (5) Type of fuel 5. Effect of moisture on fire (1) Prevents the fire from receiving sufficient oxygen. (2) Has a cooling effect – part of the heat from the fire chain reaction is required to evaporate moisture from the air near the fuel. (3) Absorbed by the fuel itself thus raising the ignition point. 6. Humidity: Relative humidity is the term that indicates how much moisture is in the air as compared to how much it can actually hold. (1) Minimum relative humidity typically occurs mid-afternoon with the maximum temperature and corresponds to the time of maximum fire danger. (2) Maximum relative humidity usually occurs at the time of the minimum temperature, near dawn. 7. Dispersion: The ability of the atmosphere to remove smoke from the air. Higher dispersion results in better visibility and fewer smoke problems. Lower dispersion results in smoke being trapped	01-16-CPBM-PPT 01-17-CPBM-PPT 01-18-CPBM-PPT 01-19-CPBM-PPT

Presentation Outline	Aids and Cues
near the ground and potentially on roadways. (1) Dispersion Index (DI): Ranges from 0 to over 100 with the ideal range for burning being 35-70. (2) The Low Visibility Occurrence Risk Index (LVORI): A combination of the dispersion index and relative humidity. Indicates the likelihood of smoke and or fog forming and contributing to highway accidents. Values range from 1-10 with 7-10 indicating the highest risk and 1-3 indicating lowest risk. 8. Vortices Knowing conditions that favor the formation of vortices is of high value to the pile burner. The lifting of embers by vortices can be one of the key spotting mechanisms. The presence of dust devils or fire whirls in the area of a pile burn indicates the atmosphere is unstable and the potential exists for spotting and control problems. 9. Weather Forecast Elements (1) Daytime maximum temperature (2) Morning and afternoon wind speed and direction. (3) Daytime minimum relative humidity (4) Precipitation chance (5) Dispersion index (DI) (6) Low Visibility Occurrence Risk Index (LVORI) (7) Mixing height (8) Transport wind speed 10. Sources of weather information (1) Florida Forest Service duty officer (2) National Weather Service (3) NOAA Weather Radio (4) Television and radio (5) Daily newspaper	01-20-CPBM-PPT 01-21-CPBM-PPT 01-22-CPBM-PPT 01-23-CPBM-PPT 01-24-CPBM-PPT 01-25-CPBM-PPT 01-26-CPBM-PPT 01-27-CPBM-PPT 01-28-CPBM-PPT 01-29-CPBM-PPT 01-30-CPBM-PPT 01-31-CPBM-PPT 01-32-CPBM-PPT

Florida's Certified Pile Burn Manager Program

Unit 1: Weather Factors

2/9/2023

01-1-CPBM-PPT

1

Unit 1: Weather Factors

Objectives:

- ❑ Describe weather factors that influence pile burning
- ❑ Describe impacts on smoke dispersion

2/9/2023

01-2-CPB-PPT

2

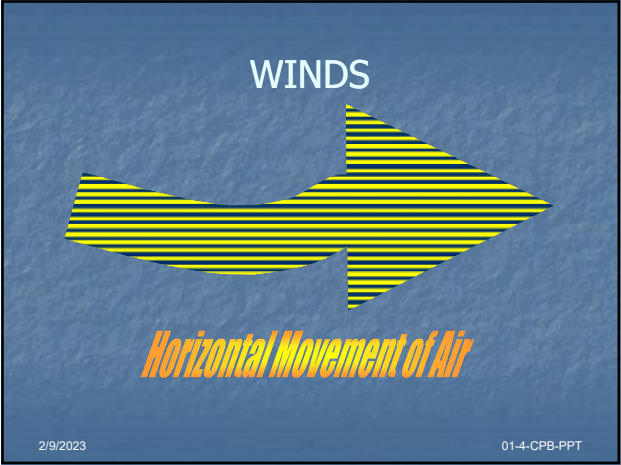
Weather Factors Affecting Pile Burning

- ❑ Wind
- ❑ Temperature
- ❑ Fuel Moisture
- ❑ Humidity
- ❑ Stability

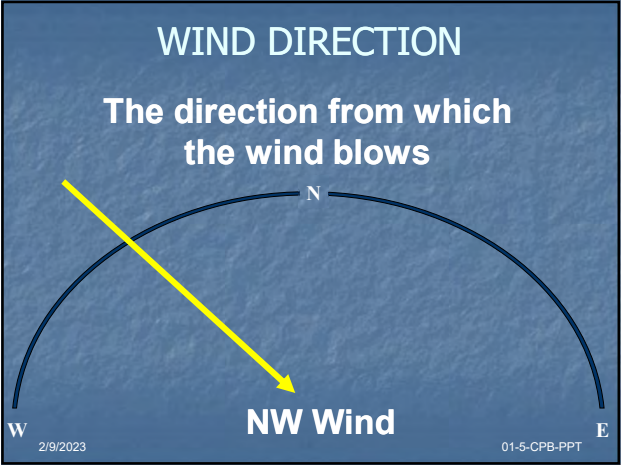
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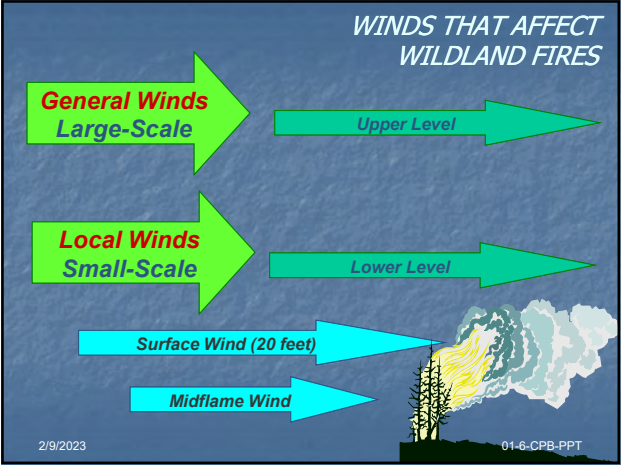
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4



5



6

General Winds

- Large-scale winds caused by the pressure patterns associated with high and low pressure areas.

2/9/2023

01-7-CPB-PPT

7

Local Winds

- Smaller-scale winds caused by local temperature differences.

2/9/2023

01-8-CPB-PPT

8

Other Local Winds

- Thunderstorm gusts
- Slope/valley winds
- Whirl winds

2/9/2023

01-9-CPB-PPT

9

Surface or 20 Foot Winds

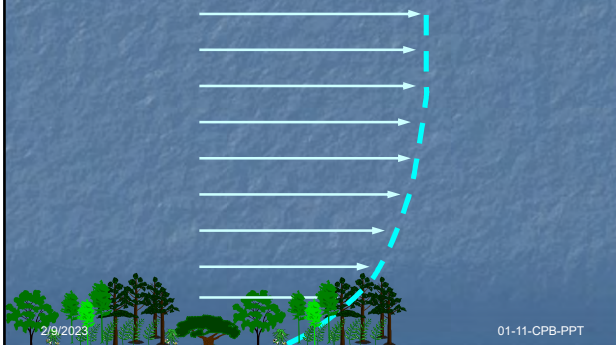
- The wind measured 20 feet above the top of the average vegetation height.
- Combination of general and local winds reduced by frictional effects.

2/9/2023

01-10-CPB-PPT

10

Vegetation / Terrain Slows Wind



2/9/2023

01-11-CPB-PPT

11

How Winds Affect Pile Burning

- Wind acts as a catalyst in preheating.
- Wind may cause spotting if fire brands are carried away from the fire and ignite other areas.
- Can affect the intensity of the fire by focusing or removing heat.

2/9/2023

01-12-CPB-PPT

12

Air Movement

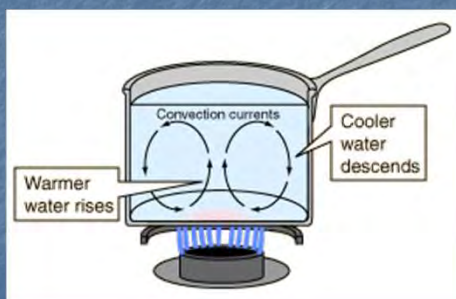
- Air movement can act to help transport, dilute or trap air pollution.
- Air is heated by flame, expands, becomes less dense, and then begins to rise like a cork in the water. Cool, dense air moves in to replace the warm air and is quickly heated and replaced by more cool, dense air, thus setting up a circulation continuing as long as the fire burns.

2/9/2023

01-13-CPB-PPT

13

Convection Cells



2/9/2023

01-14-CPB-PPT

14

Temperature

- Measure of the hotness/coldness of something.

2/9/2023

01-15-CPB-PPT

15

Solar Heating

- Rays of the sun striking directly upon fuels raise fuel temperature far in excess of air temperature, thus expelling moisture contained in fuels and less fire heat required to reach ignition point.
- Factors affecting surface temperature.
 - angle of the sun
 - length of day
 - clouds/shade
 - winds
 - type of surface being heated

2/9/2023

01-16-CPB-PPT

16

Fuel Moisture

Fuel moisture determines how well the pile will burn and the amount of smoke it will produce. Fuel moisture depends upon:

- Precipitation
- Humidity
- Cloud/Shade
- Wind
- Type of fuel

Effect of moisture on fire:

- Prevents the fire from receiving sufficient oxygen.
- Has a cooling effect – part of the heat from the fire chain reaction is required to evaporate moisture from the air near the fuel.
- Absorbed by the fuel itself thus raising the ignition point

2/9/2023

01-17-CPB-PPT

17

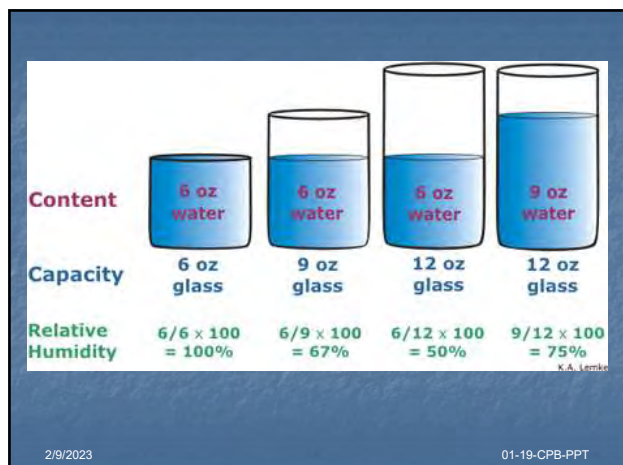
Relative Humidity

- A measure of the amount of water vapor in the air expressed as a percentage of the amount it could hold at that particular temperature.
- Relative humidity = $\frac{\text{water vapor content}}{\text{water vapor capacity}}$

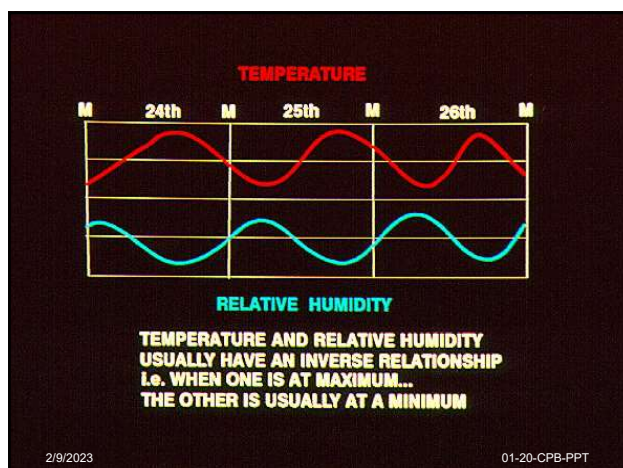
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01-18-CPB-PPT

18



19



20

Unstable Atmosphere Indicators

- High temperatures
- Perpendicular sun angle
- No/few clouds
- Cumulus clouds
- Well developed convection column
- Gusty/erratic winds

2/9/2023 01-21-CPB-PPT

21



22

Stable Atmosphere Indicators

- Stratus (Layered) Clouds
- Low Humidities/No Clouds
- Smoke/Fog Accumulations
- Fire Burns Predictably
- Smoke Columns Disperse and Drift Apart After Limited Rise
- Firebrands not spread downwind

2/9/2023

01-23-CPB-PPT

23



24

Dispersion Index

- A forecast tool used to estimate daytime and nighttime stability.
- Incorporates the stability, transport winds and mixing heights.
- Daytime burning: 30-75
- Nighttime burning: minimum 6

2/9/2023

01-25-CPB-PPT

25

Dispersion Index

DI VALUE	INTERPRETATION
76 or more	Very good, but control problems likely
46 to 75	Good
31 to 45	Fair to Good
16 to 30	Fair
7 to 15	Fair to Poor
4 to 6	Poor
1 to 3	Very Poor

2/9/2023

01-26-CPB-PPT

26

Low Visibility Occurrence Risk Index (LVORI)

- Relative humidity (RH) and Dispersion Index (DI) most closely associated with conditions that promote accidents due to smoke/fog

2/9/2023

01-27-CPB-PPT

27

LVORI	Description
1	Ideally low risk of accidents on highways due to smoke and/or fog formation.
2-3	Relatively low risk of accidents on highways due to smoke and/or fog formation.
4-6	Moderate risk of accidents on highways due to smoke and/or fog formation.
7-10	Particularly high risk of accidents on highways due to smoke and/or fog formation.

RH	Dispersion Index											
	>40	40-31	30-26	25-17	16-13	12-11	10-9	8-7	6-5	4-3	2	1
<55	1	1	2	2	2	2	2	2	2	2	2	2
55-59	1	1	2	2	2	2	2	3	3	3	3	3
60-64	1	1	2	2	2	2	3	3	3	3	3	3
65-69	1	3	3	3	3	3	3	3	3	3	3	4
70-74	3	3	3	3	3	3	3	3	3	3	3	4
75-79	3	3	3	3	4	4	4	4	4	4	4	4
80-82	3	3	3	3	4	4	4	4	4	5	5	6
83-85	4	4	4	4	4	4	4	4	4	5	5	6
86-88	4	4	4	4	4	4	5	5	5	5	6	6
89-91	4	4	4	4	4	5	5	5	5	6	6	7
92-94	4	4	4	4	5	5	5	6	6	6	7	8
95-97	4	4	4	4	5	5	6	6	6	7	8	9
>97	4	4	4	4	5	5	7	8	8	9	9	10

2/9/2023 01-28-CPB-PPT

28

Notes

- Favorable LVORI (≤ 3)
- Unfavorable LVORI (≥ 7)
- LVORI can be used to determine the degree of relative risk

2/9/2023 01-29-CPB-PPT

29

What Can Smoke Tell Us?

- **Stability** in the lower layers.
- Presence of **Inversion** layers
- **Direction** of winds aloft
- **Speed** of winds aloft

2/9/2023 01-30-CPB-PPT

30

Dust Devils/Fire Whirls

- ▣ The presence of dust devils or fire whirls in the area of a pile burn indicates the atmosphere is unstable and the potential exists for spotting and control problems.

2/9/2023

01-31-CPB-PPT

31

Weather Forecast Elements

Daytime maximum temperature
 Morning and afternoon wind speed and direction.
 Daytime minimum relative humidity
 Precipitation chance
 Dispersion index (DI)
 Low Visibility Occurrence Risk Index (LVORI)
 Mixing height
 Transport wind speed

2/9/2023

01-32-CPB-PPT

32

Sources of Weather Information

- Florida Forest Service duty officer
- National Weather Service
- NOAA Weather Radio
- Television and radio
- Daily newspaper
- Internet

2/9/2023

01-33-CPB-PPT

33

Conditions Under Which Burning is Prohibited

- Air stagnation advisory
- Air pollution advisory
- Red Flag Fire Alert (not a Red Flag Weather Warning)
- Air Quality Index (AQI) – Forecast above 100

2/9/2023

01-34-CPB-PPT

34



Questions?



Contact
John Saddler

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John.Saddler@FDACS.gov



V2-35-OB-EP

35

Instructor Presentation Plan

Course: Florida's Certified Pile Burn Manager Program

Unit Number: 2

Presentation Title: Smoke Management

Presentation Time: 1.0 hour

Presentation Objectives:

Upon completion of this presentation, the participants will:

1. List major pollutants associated with pile burning.
2. Identify Smoke Sensitive Areas.
3. List the current legal requirements for managing smoke produced during pile burns.
4. Identify weather situations that can lead to smoke related problems.
5. Identify fuel conditions that can lead to smoke related problems.
6. Describe and implement the smoke screening system taught in this course.

Handouts:

02-01-CPBM-HO - CPBM_02_Smoke Management HO1_5 Step Smoke Screening

Presentation Outline	Aids and Cues
Blank Slide- Title Slide Smoke stacks showing managing smoke is not easy. Presentation Objectives Upon completion of this presentation, the participants will: 1. List major pollutants associated with pile burning. 2. Identify Smoke Sensitive Areas. 3. List the current legal requirements for managing smoke produced during pile burns. 4. Identify weather situations that can lead to smoke related problems. 5. Identify fuel conditions that can lead to smoke related problems. 6. Describe and implement the smoke screening system taught in this course. Front end loader Photo -	02-01-CPBM-PPT 02-02-CPBM-PPT 02-03-CPBM-PPT

Presentation Outline	Aids and Cues
Introduction Of the smoke complaints that the Florida Forest Service receives, smoke from pile burns is frequently the cause. Smoke and ashes do have a negative impact on local residents. Smoke from pile burns have also resulted in serious personal injury and even death by limiting visibility for motorists. Pile burners must be cognizant of the ever present potential for smoke from their burn to cause problems. They must be knowledgeable of <u>weather</u> and <u>fuel conditions</u> and their impact on smoke production and behavior, and be able to reduce the possibility of problems due to smoke, through application of that knowledge. Smoke Management Definition “A plan of action where prescribed burning is conducted in such a way that smoke produced is minimized and/or directed in a direction that keeps any impacts within acceptable limits.” Why Do Smoke Management? <u>Smoke Management Costs:</u> <i>Doing smoke management does make things more difficult and costly for burners.</i> - Reduced number of burning days – wind restrictions -dispersion - Constraints on tonnage consumed – numbers of piles - Constraints on type of burns – ACI required - Increased processing of piles – cleaner, drier - False Starts - Extra cost of mop-up - Monitoring costs Clearly it is more difficult and costly to practice good smoke management. It may take more days of burning, waiting longer from when material is uprooted until burned and other costs. So why expend these costs? <u>Smoke Management Benefits:</u> - The continued use of prescribed fire as an operational tool - Improved air quality through fewer smoke intrusions - Fewer public complaints	02-04CPBM-PPT 02-05 CPBM-PPT def. 02-06-CPBM-PPT costs 02-07-CPBM-PPT benefits

Presentation Outline	Aids and Cues
- Reduction of litigation and liability costs Paramount to why someone should use good smoke management practices is the need to maintain the use of fire to dispose of debris. It would be relatively easy for a constitutional amendment to get put on a ballot calling for the banning of pile burning, like indoor smoking, large fishing nets, and nursing pig crates. This is also aided by the fewer complaints that result from better smoke management. We must be and act professional when conducting our burns. We need to be able to demonstrate that we are taking people's safety and welfare into consideration as we conduct our daily business. And that we are using the best information available to make decisions. This includes daily weather, and training. Definitions: It is important for all of us to be using the same terminology and meanings. It is important for each of us to understand the meaning of many words and concepts that deal with smoke and smoke management. SMOKE SENSITIVE AREA (SSA) FAC Rules 5I-2 Defines "Smoke Sensitive Areas" as areas designated by the Florida Forest Service within which for reasons of visibility, health or human welfare, smoke could unduly adversely impact public safety e.g. interstates, urban areas, airports, and hospitals. CRITICAL SMOKE SENSITIVE AREA (CSSA) – DISTANCE to the burn makes the smoke sensitive area CRITICAL. MIXING HEIGHT –Mixing height is the height below which vigorous mixing is found in the environment. Good smoke management is found with mixing heights of greater than 500 meters (1,640') TRANSPORT WINDS – The "Transport Wind" is the average wind from the surface to the mixing height (average of the wind speeds and directions for all levels). Transport winds should be not be less than 9 mph during burns. Major Products of Rx Fire	02-08-CPBM-PPT Def. 02-9-CPBM-PPT SSA 02-10-CPBM-PPT CSSA 02-11-CPBM-PPT Mixing Ht. 02-12-CPBM-PPT Tran.Wind

Presentation Outline	Aids and Cues
The major products (not pollutants) for wood combustion are Water and carbon dioxide (gas found in carbonated drinks). These are not harmful at normal levels. (CO₂ is a greenhouse gas) Major Pollutants of Rx Fire The most important pollutants given off during pile burning are particulate matter (visible smoke) and carbon monoxide. Particulate Matter Particles can be hazardous to human health and safety by: - Being Inhaled - Reducing Visibility Inhalation of particles is a serious health matter for people with pre-existing health issues such as asthma, emphysema or other breathing difficulties. Reduced visibility on roads is of course of critical importance. There have been many serious motor vehicle accidents due to smoke on the highway from pile burns. Residual Smoke Defined as “Smoke produced from smoldering combustion and NOT contained in the convection column.” This means the smoke is not carried up and away from our targets or diluted by winds and indrafts. Scope of Smoke Management When discussing smoke management we should briefly touch on the two scales (size) of management. Local Viewpoint – This is the scale the local manager has to manage the project from. This includes the direct affects in the local area around the burning, such as smoke across a near by road or ash falling in a nearby neighborhood. Broad Viewpoint - There may be an impact from your burn that is part of the larger viewpoint. Air quality and Fire Agencies will be looking at “area-wide” concerns and conditions (fire and air quality) as it relates to burning in an area. Your authorization may be affected by conditions not immediately seen at the local level. If there is a large number of other burns in the area the number of piles might need to be limited or wind restrictions put on due to those other concerns.	02-13-CPBM-PPT Smoke Product 02-14-CPBM-PPT Pollutants 02-15-CPBM-PPT Vis, and breathing 02-16-CPBM-PPT Residual Smoke 02-17-CPBM-PPT pile smoldering 02-18PBM-PPT 02-19 PBM-PPT

Presentation Outline	Aids and Cues
Smoke Sensitive Areas (SSA) We defined SSA earlier, now we will look at it with more specificity. Areas where smoke could have an ADVERSE impact. Examples of SSA's - Hospital - Airports - Schools - Recreation Areas - Class 1 Areas - Populated Areas - Special Cases - Highways Then talk a little about each Hospitals – Hospitals, nursing homes, assisted living facilities and other facilities with residents that have a low tolerance for smoke. Airports – It is a violation of 5I-2.004(c) Open Burning Not Allowed states that it is a violation to reduce visibility at public airports unless the airport has agreed to control air traffic during burning activities. Schools – Society takes extra precautions with their children. Parents and teachers will not hesitate to protect their students from real or perceived threats. You may need to make a special effort to avoid schools (weekends, summer, wind direction). Recreation Areas – When people come to the outdoors to recreate they have an expectation of “clean fresh air”. They usually have peak use on weekends and holidays. Class 1 Areas – Designated federal lands where no degradation of air quality is permitted. Managers must consider the impacts of smoke. - Wilderness Areas - National Parks over 5,000 acres - St. Marks, Chassahowitzka, Everglades, Bradwell Bay Populated Areas – More people mean more chance of people being sensitive to smoke, and potential impact to their property. Special Cases – Zoos, Horse Farms, Prisons – ask class if they have	02-20-CPBM-PPT 02-21-CPBM-PPT 02-22-CPBM-PPT 02-23-CPBM-PPT 02-24-CPBM-PPT 02-25-CPBM-PPT 02-26-CPBM-PPT 02-27-CPBM-PPT

Presentation Outline	Aids and Cues
had any issues where smoke was a concern of reasons other than covered here so far. Highways 5I-2.004(f) says you may not reduce the visibility on paved public highways to under 1,000 feet unless the regulating authorities have agreed to control traffic, or delegated the authority to control traffic. Smoke on the highway is so serious that it bears some further discussion. Headline of car wreck Guide for Prescribed Fire in Southern Forests says that a LARGE MAJORITY of all smoke related incidents are caused by Pile and Windrow burning. Chart of Smoke/Fog wrecks by month. Fog varies more than smoke, which is more consistent throughout the year, with the most in Jan-May. Chart of Smoke related accidents by time of day. Note there is no “rush hour” effect in the afternoon because this is caused by morning stable conditions. Chart of Smoke related accidents by hour, compared to total accidents (note the different scales for regular accidents and smoke related). It is clear that it is the AM conditions that are most significant for smoke. This is why we do not allow burning before 9:00 AM, and why mop-up to control residual smoke is crucial. Because of this we should be sure we understand dispersion index and LVORI. This information can be found at the Florida Forest Service webpage and on the National Weather Service pages. FFS webpage FFS Dispersion Map LVORI – based on data of accident reports - It is a combination of humidity and dispersion. The scale of 1-10 with 10 being a very, very good likelihood of fog/smoke. Special care should be taken if the LVORI is predicted to be 7 or above. NWS LVORI on forecast. FIRE LAWS THAT RELATE TO SMOKE MANAGEMENT	02-28-CPBM-PPT 02-29-CPBM-PPT 02-30- CPBM-PPT 02-31- CPBM-PPT 02-32- CPBM-PPT 02-33- CPBM-PPT 02-34- CPBM-PPT 02-35- CPBM-PPT 02-36- CPBM-PPT 02-37- CPBM-PPT 02-38- CPBM-PPT

Presentation Outline	Aids and Cues
5I-2.004 says that smoke shall not reduce visibility at airports. Roads – must not reduce visibility under 1,000 feet Hours of burning 0900 to one hour before sunset for regular pile burners, one hour after sunset for certified pile burners. (In non-smoke sensitive areas)	
Smoke Management Basics The basic objective of smoke management is to - Avoid Smoke Sensitive Areas and - Disperse and Dilute Smoke - Reduce Emissions Lets talk about each of these in a little more detail – - Avoid smoke sensitive areas by using proper wind direction - Disperse and Dilute Smoke by having enough wind move smoke away, on a day with good dispersion, mixing height, and transport wind. - Reduce Emissions – with good fuel conditions, dry, good arrangement, good mop up to reduce smoldering	02-39- CPBM-PPT 02-40- CPBM-PPT 02-41- CPBM-PPT 02-42- CPBM-PPT
IN ORDER TO DISCUSS THESE STRATIGIES WE NEED TO BETTER UNDERSTAND COMBUSTION.	
Fuel Characteristics Affecting the Volume of Smoke Produced Type of Fuel – Oak vs pine vs palm Fuel Moisture – It is important to burn dry fuels – More intense, more efficient fires burn more cleanly. The effects of wet fuels is a “Double Effect”. Wet fuels take more heat to dry and then burn so they suck the heat out of your pile (heat sink), and wet fuels release less heat when they do burn. Fuel Size – A good mix of fuel sizes is important. It is difficult to get only large fuels to start burning. It is good to have a mix of finer fuels to keep the intensity up. Larger fuels will take longer to dry out.	02-43- CPBM-PPT

Presentation Outline	Aids and Cues
Fuel Arrangement – Fuels and piles can be arranged from too loose to too compact. I would show a “bell curve” of intensity vs. compacting. When fuels are too loose there is not efficient heat transfer to the next piece of fuel (usually not a big problem on piles) but if piles are too dense there will be too little oxygen to fuel efficient burning.	
Amount of Fuel – More fuel burning will produce more smoke. Limit the size and number of piles to fit the conditions (fuel and weather and location).	02-44- CPBM-PPT
Conditions that Produce More Smoke – Recap the causes of more smoke. (compact, wet, larger, more fuel)	
Phases of Combustion - In order to understand where the smoke comes from let’s look at the phases of combustion.	02-45- CPBM-PPT
Pre-ignition – As temperatures increase the woody material decomposes and releases combustible gases and vapors (pyrolysis). Some of these materials are burned in the flaming phase and others are condensed out into particles that become visible smoke.	02-46- CPBM-PPT
Flaming Phase – The major products of flaming combustion are predominantly CARBON DIOXIDE and WATER VAPOR. Some of the organic compounds produced cool and condense into tar droplets and solid soot particles as they move away from the heat of the fire. These particles make up the visible smoke component we are most concerned with. The more inefficient the burning, the more soot and tar produced.	02-47- CPBM-PPT
Glowing Phase – This is generally a rapid but flameless combustion process. Those familiar with grilling with charcoal know this phase well. This is the phase when the charcoal briquettes are red hot. This phase is an efficient combustion process and produces virtually no smoke.	02-48- CPBM-PPT
Smoldering Phase – (Slow flameless combustion) NOTE: This phase of combustion is the MOST critical in terms of its potential for causing serious injuries, deaths and property damage. Emissions from a smoldering fire are at least twice that of the flaming fire. We define RESIDUAL SMOKE as smoke produced by smoldering combustion but not contained in the convective column.	
	02-49- CPBM-PPT

Presentation Outline	Aids and Cues
SMOKE SCREENING BASICS Locate smoke sensitive areas within 5 miles, also note any SSAs that are prone to fog. Locate areas that might contain peat, muck or large amounts of duff. Make sure the piles are not placed over muck soils. Manage your piles so they burn as efficiently as possible. SMOKE SCREENING – A 5 STEP PROCESS – 1 – Plot Probable Smoke Impact Area 2 – Identify Smoke Sensitive Areas 3 – Identify Critical Smoke Sensitive Areas 4 – Apply Rules for Piles 5 – Minimize Risk Checklist Step 1- Determine Area Affected by Smoke Plume Use the 30 degree smoke plotting tool to identify where on the map your smoke will have an affect. Look 5 miles out to see the big picture of where your smoke might have an affect. Map of 30 degree spread. Step 2 – Identify smoke sensitive areas 2 miles down wind Step 3 – Identify any critical smoke sensitive areas down wind 1/2 mile Step 4 – Ensure there are no major highways or other SSAs within 2 miles DOWN DRAINAGE. If RH is predicted to stay below 80% and surface winds above 4 MPH all night the distances in 2 above should be cut in half. Step 5 – Minimize the Risk – Guidelines for reduced smoke problems The mixing height should be over 1,650 feet Transport winds should be at 9 MPH There should be at least 5 miles back ground Putting piles out 1 hour before sunset FFS Smoke Screening On-line	02-50- CPBM-PPT 02-51- CPBM-PPT 02-52-53- CPBM-PPT Hand out – Screening Steps 02-54-55 CPBM-PPT 02-56-57 CPBM-PPT 02-58- CPBM-PPT 02-59- CPBM-PPT 02-60- CPBM-PPT 02-61- CPBM-PPT

Presentation Outline	Aids and Cues
www.floridaforestservice.com Info on the Screening program Shows areas that will have visibility reduced to 1,000' feet at the surface. Zoom into area of planned pile burn. Select piles vs. acres (broadcast burn) Add info on number of piles, height, and width. And the time and day the burn will start Add the point for the location of the burn Click "submit" and the smoke plume will be shown along with info on any smoke sensitive areas affected. Remember this only shows the area that would have the visibility reduced to less than 1,000'. Not the area that might be subject to ash fall, and smoke smell, or residual smoke problems.	02-62- CPBM-PPT 02-63- CPBM-PPT 02-64- CPBM-PPT 02-65- CPBM-PPT 02-66- CPBM-PPT 02-67- CPBM-PPT
Review Presentation Objectives Upon completion of this presentation, the participants will: 7. List major pollutants associated with pile burning. 8. Identify Smoke Sensitive Areas. 9. List the current legal requirements for managing smoke produced during pile burns. 10. Identify weather situations that can lead to smoke related problems. 11. Identify fuel conditions that can lead to smoke related problems. 12. Describe and implement the smoke screening system taught in this course.. Questions	02-68- CPBM-PPT

Florida's Certified Pile Burn Manager Program

Unit 2: Smoke Management

2/9/2023

02-1-CPBM-PPT

1

2/9/2023

02-2-CPB-PPT

2

Smoke Management Objectives

- List major pollutants associated with pile burning.
- Identify Smoke Sensitive Areas.
- List the current legal requirements for managing smoke produced during pile burns.
- Identify weather situations that can lead to smoke related problems.
- Identify fuel conditions that can lead to smoke related problems.
- Describe and implement the smoke screening system taught in this course.

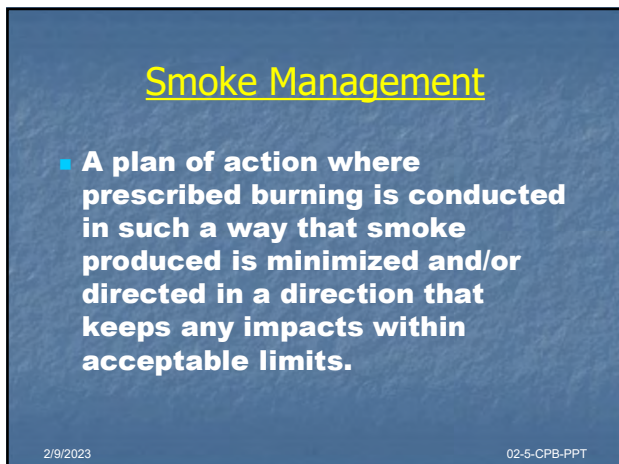
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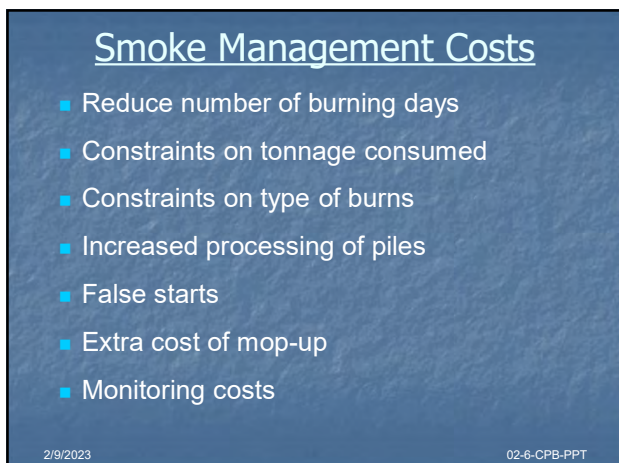
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5



6

Smoke Management Benefits

- The continued use of prescribed fire as a management tool
- Improved air quality through fewer smoke intrusions
- Fewer public complaints
- Reduction of litigation and liability costs

2/9/2023

02-7-CPB-PPT

7

Definitions

- Make sure we are all speaking the same language.
- We need more terminology about our business than the average person

02-8-CPB-PPT

8

Smoke Sensitive Area(SSA)

- FAC Rules 5I-2 Defines “Smoke Sensitive Areas” as areas designated by the Florida Forest Service within which for reasons of visibility, health or human welfare, smoke could unduly adversely impact public safety e.g. interstates, urban areas, airports, and hospitals.

2/9/2023

02-9-CPB-PPT

9

Critical Smoke Sensitive Area (CSSA)

- **Distance** to the burn makes the smoke sensitive area **CRITICAL**.

2/9/2023

02-10-CPB-PPT

10

Mixing Height

- The height to which there is vigorous mixing in the atmosphere.
- Mixing heights of less than 1,640 feet (500 meters) are often associated with air pollution episodes.

2/9/2023

02-11-CPB-PPT

11

Transport Winds

- Average of the wind (speed and direction) from 20' above the average vegetation height to the level of the mixing height.
- Transport wind speeds of less than 9 mph are indicators of stagnant conditions which often result in air pollution episodes.

02-12-CPB-PPT

12

Major Products of Rx Fire

- **Water (H_2O)**
- **Carbon Dioxide (CO_2)**

2/9/2023

02-13-CPB-PPT

13

Major Pollutants

- The most important pollutants given off during woody debris burning are **particulate matter** (visible smoke) and **carbon monoxide (CO)**.

2/9/2023

02-14-CPB-PPT

14

Particulate Matter

- Particulates can be hazardous to human health and safety by:
 - being inhaled
 - reducing visibility

2/9/2023

02-15-CPB-PPT

15

Residual Smoke

- Smoke produced from smoldering combustion and **NOT** contained in the convection column.

2/9/2023

02-16-CPB-PPT

16

Residual Smoke



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02-17-CPB-PPT

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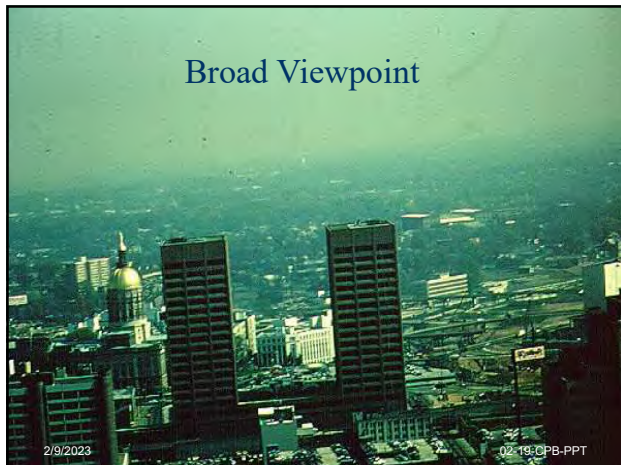
Local Viewpoint



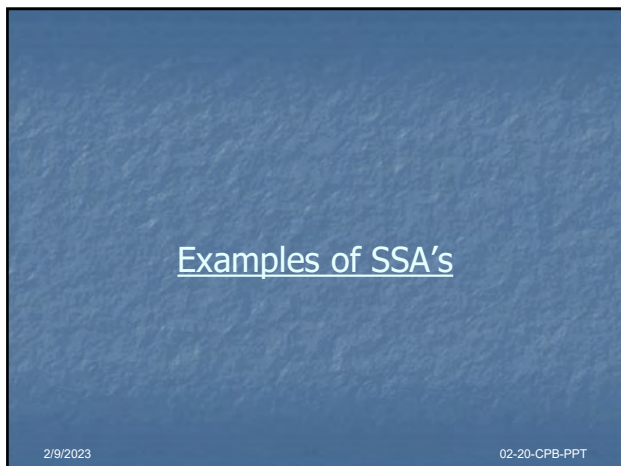
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21

Smoke Sensitive Areas

Airports



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Smoke Sensitive Areas

Schools



2/9/2023 02-23-CPBM-PPT

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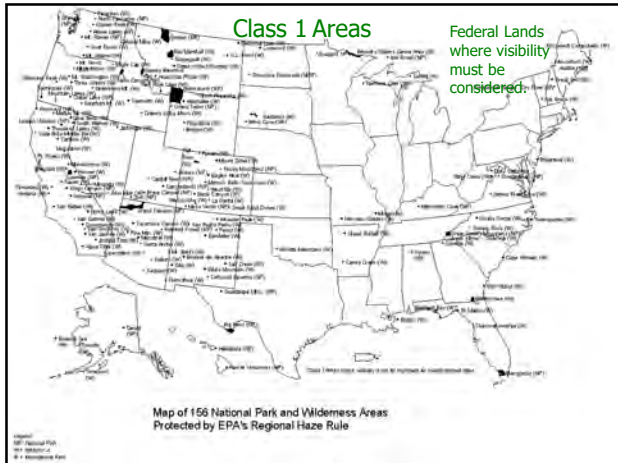
Smoke Sensitive Areas

Recreation Areas



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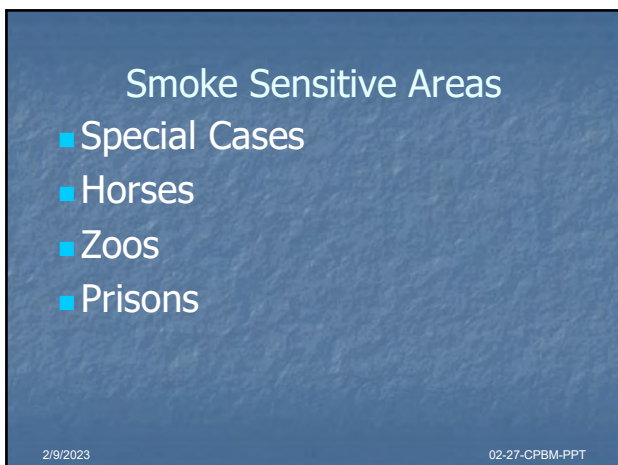
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Smoke Sensitive Areas

▣ Highways



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02-28-CPBM-PPT

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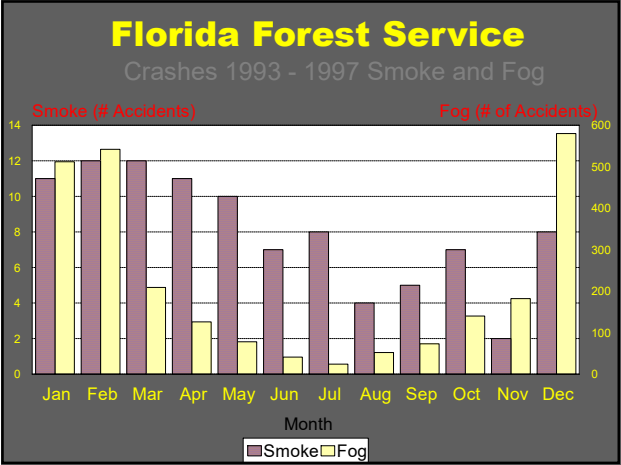
Smoke Related Incidents

- "A Guide for Prescribed Fire in Southern Forests" says
 - A large majority of all smoke related incidents are caused by Pile and Windrows.

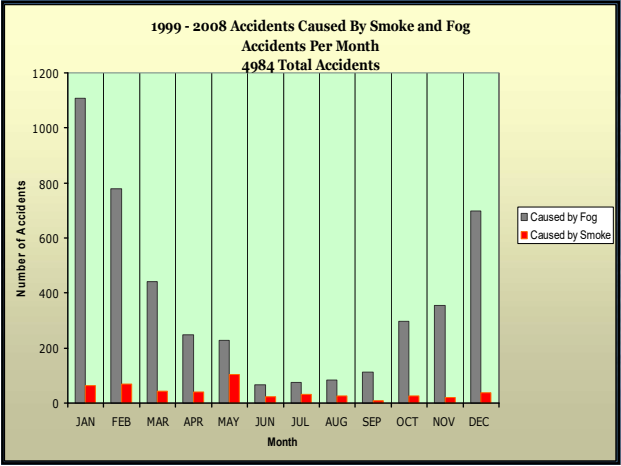
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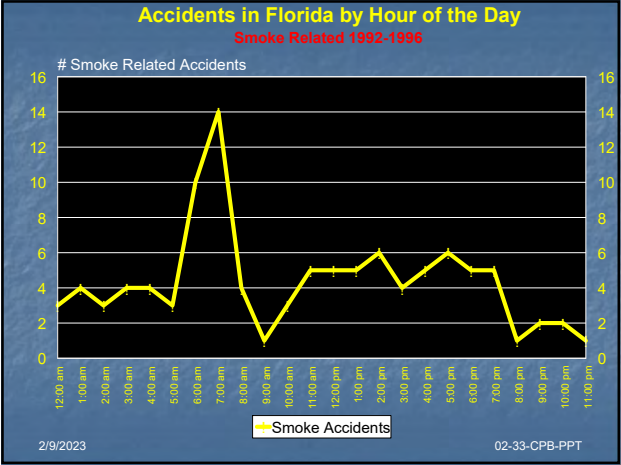
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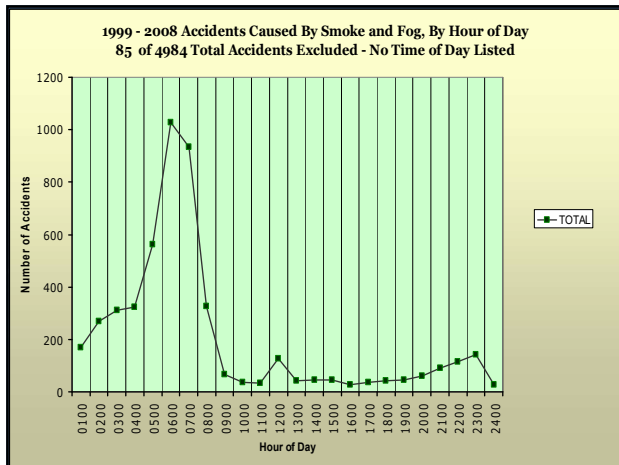
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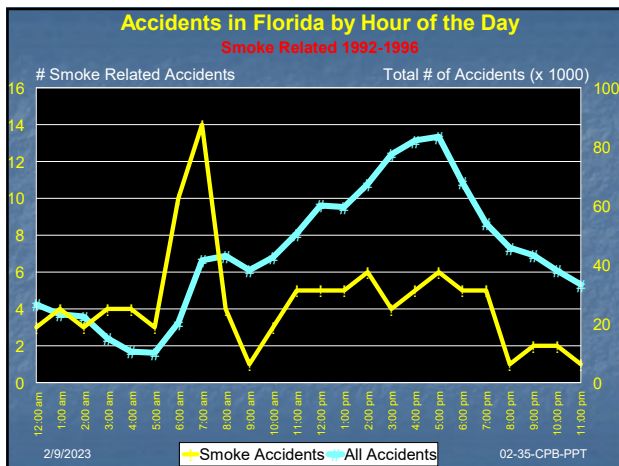
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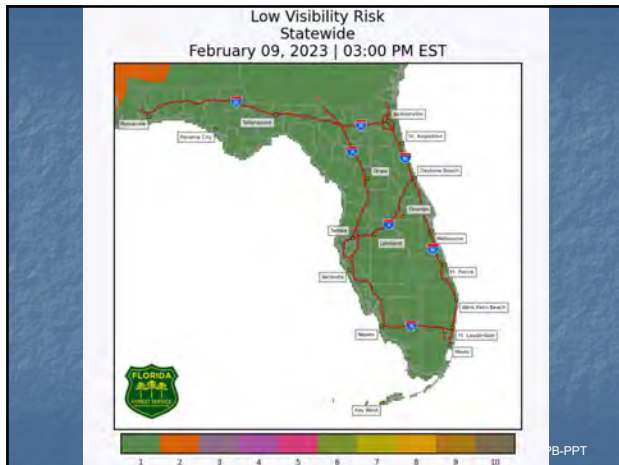
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LVORI
Low Visibility Occurrence Risk Index

Table 3 - Low Visibility Occurrence Risk Index (Stable Conditions such as Nighttime)

RH	Dispersion Index										
	>40	40-31	30-26	25-17	16-13	12-11	10-9	8-7	6-5	4-3	2
<55	1	1	2	2	2	2	2	2	2	2	2
55-59	1	1	2	2	2	2	2	3	3	3	3
60-64	1	1	2	2	2	2	3	3	3	3	3
65-69	1	3	3	3	3	3	3	3	3	3	4
70-74	3	3	3	3	3	3	3	3	3	3	4
75-79	3	3	3	4	4	4	4	4	4	4	4
80-82	3	3	3	3	4	4	4	4	4	5	5
83-85	4	4	4	4	4	4	4	4	5	5	5
86-88	4	4	4	4	4	5	5	5	5	6	6
89-91	4	4	4	4	5	5	5	5	6	6	7
92-94	4	4	4	5	5	5	6	6	6	7	8
95-97	4	4	4	5	5	6	6	7	8	8	9
>97	4	4	4	5	5	7	8	8	9	9	10

2/9/2023 02:38-CPBM-PPT

38

FLZ041-044>046-053-144-282045- INLAND VOLUSIA COUNTY-NORTHERN
CLERMONT 427 AM EDT WED SEP 28 2005

	TODAY	TONIGHT	THU
CLOUD COVER	PCLDY	MCLDY	PCLDY
CHANCE PRECIP (%)	70	40	40
PRECIP TYPE	TSTMS	TSTMS	TSTMS
TEMP	88	71	89
RH %	57	100	51
20FT WND MPH (AM)	LGT/VAR	LGT/VAR	LGT/VAR
20FT WND MPH (PM)	SE 5 LGT/VAR	SW 5	SW 8
PRECIP DURATION	3	3	3
PRECIP BEGIN	12 PM	CONTINUING	11 AM
PRECIP END	CONTINUING	1 AM	CONTINUING
PRECIP AMOUNT	0.25	0.14	0.19
LAL	5	3	3
MIXING HGT (FT-AGL)	4000	100	5000
TRANSPORT WIND (MPH)	SE 8	S 10	SW 9
DISPERSION INDEX	34	5	46
MAX LVORI		9	

2/9/2023 02:39-CPB-PPT

39

Laws

■ State – Florida Forest Service

Can restrict if conditions unfavorable for fire or smoke

In a non-smoke sensitive area - 9:00 A.M. (8 Central) to 1 hour before sunset for non-certified burners, certified burners can burn until 1 hour AFTER sunset. Fire must have no visible flames after these times.

In a smoke sensitive area - 9:00 A.M. (8 Central) until one hour before sunset. There must be no emissions at all after one hour before sunset for both Certified and non-certified burners.

Must not reduce visibility on paved public roads to less than 1,000 feet

Must not reduce visibility at airports

Local Restrictions

2/9/2023

02-40-CPB-PPT

40

Basic Objectives of Smoke Management

■ Identify and avoid Smoke Sensitive Areas

2/9/2023

02-41-CPB-PPT

41

Basic Objectives of Smoke Management

■ Locate SSAs

- Avoid them by using favorable predicted wind direction

2/9/2023

02-42-CPB-PPT

42

Basic Objectives of Smoke Management

- Disperse and Dilute
 - Steady winds (post cold front)
 - Good Dispersion (over 40 daytime, 6 or more at night)
 - Mixing Height (at least 1,640 feet)
 - Transport Wind (at least 9 mph)

2/9/2023

02-43-CPB-PPT

43

Basic Objectives of Smoke Management

- **Reduce Emissions**
 - **Fuel Conditions**
 - Dry fuel
 - Good fuel arrangement
 - Reduce smoldering

2/9/2023

02-44-CPB-PPT

44

Fuel Characteristics Affecting the Volume of Smoke Produced

- Type of fuel
- Fuel moisture
- Size
- Fuel arrangement
- Amount of fuel (loading)

2/9/2023

02-45-CPB-PPT

45

Conditions that Produce More Smoke

- Fuels that are more compact
- Fuels with high moisture content
- Larger fuels
- Higher fuel loading

2/9/2023

02-46-CPB-PPT

46

Phases of Combustion - Pre-ignition

- Pre-ignition - As fuel is heated, combustible gases and vapors are released.



2/9/2023

02-47-CPB-PPT

47

Phases of Combustion - Flaming

- Flaming phase major products: CO_2 & H_2O .
 - Organic compounds released
 - More inefficient the burning, the more soot and tar produced.



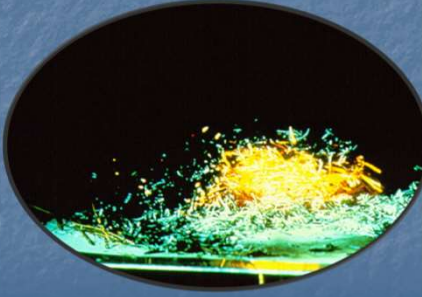
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02-48-CPBM-PPT

48

Glowing Phase

- No smoke problems



2/9/2023 02-49-CPB-PPT

49

Smoldering Phase

- Most Critical Phase
 - Smoldering fire emissions 2 X that of Flaming fires
 - Residual Smoke - smoke produced by smoldering combustion not contained in convective column



2/9/2023 02-50-CPB-PPT

50

Smoke Management Basics

- Use up-to-date maps or aerial photos
 - Locate all SSA's within 5 miles
 - Note if any of these SSA's are prone to fog
- Locate all areas within intended burn that contain muck, peat, or large amounts of duff.
- Use Rx fire under favorable weather conditions with the appropriate firing technique, fuel curing, and pile arrangement to prevent your fire from causing health or safety hazards.

2/9/2023 02-51-CPB-PPT

51

Smoke Screening System

2/9/2023

02-52-CPB-PPT

52

Smoke Screening A 5 Step Process

- 1 – Plot Probable Smoke Impact Area
- 2 – Identify Smoke Sensitive Areas
- 3 – Identify Critical Smoke Sensitive Areas
- 4 – Apply Rules for Piles
- 5 – Minimize Risk Checklist

2/9/2023

02-53-CPB-PPT

53

Step 1 – Plot Probable Smoke Impact Area

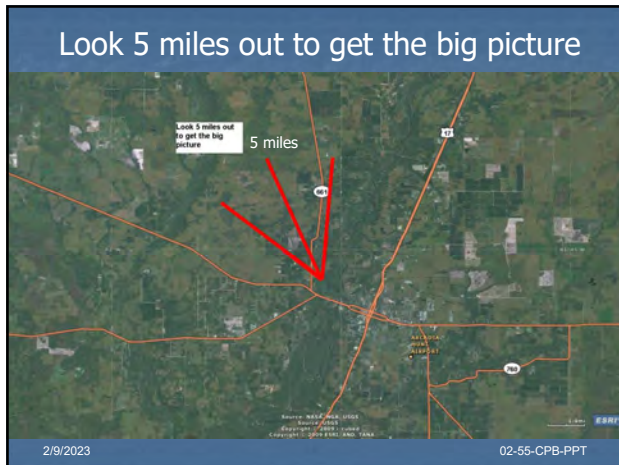
Draw lines from each end of the fire piles at a 30 degree angle from the wind direction and draw arcs at a distance of **5 miles**. This is your probable smoke impact area during the day. (If variable winds, use 45 degrees)

- Look for areas where smoke problems are likely and see if there is a wind direction that would avoid them.

2/9/2023

02-54-CPB-PPT

54



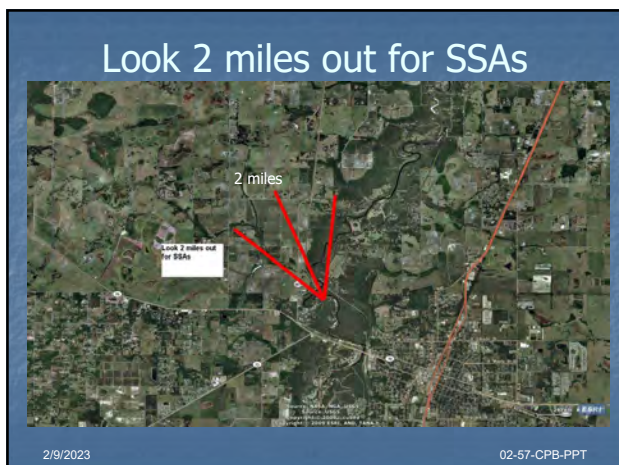
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Step 2 – Identify Probable Smoke Sensitive Areas

- Identify and mark any smoke-sensitive areas located within probable impact areas plotted in step 1 going out **2 miles**
 - If no potential targets are found, you may burn as prescribed.
 - If the area to be burned contains organic soils do not burn.
 - If any targets are found, consider using new direction, if new wind is not feasible, continue screening process.

2/9/2023 02-56-CPB-PPT

56



57

Step 3 – Identify CRITICAL Smoke Sensitive Areas

- Go out **1/2 mile**
 - If any targets are found, prescribe a new wind direction and start screening again.
 - If there are no Critical Smoke Sensitive Areas, proceed with smoke screening

2/9/2023

02-58-CPB-PPT

58

Look 1/2 mile out for Critical SSAs



2/9/2023

02-59-CPB-PPT

59

Step 4 – Apply Rules for Pile Burning

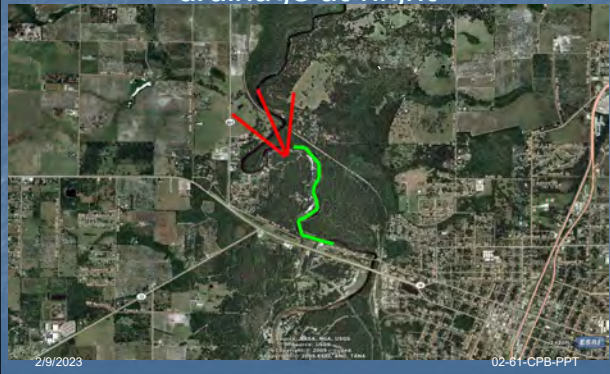
- Ensure there are no major highways or other SSAs within 2 miles DOWN DRAINAGE.
- If Relative Humidity is predicted to stay below 80% and surface winds are to stay above 4 MPH all night, the distance can be cut to 1 mile down drainage.
 - If no targets are located proceed with burn.
 - If Highways or other SSAs are located in the impact area, ensure all of items in STEP 5 are followed

2/9/2023

02-60-CPB-PPT

60

Consider smoke movement down drainage at night



61

Step 5 – Minimizing Risk of Smoke Problems

- The mixing height should be over 1,640 feet
- The transport winds should be over 9 mph
- There needs to be at least 5 mile background visibility
- Put piles out 1 hour before sunset (completely extinguish)

2/9/2023

02-62-CPB-PPT

62

Florida Forest Service On-line Smoke Screening

- The Florida Forest Service on-line screening can be completed
 - The day of or the day before the burn
 - Completed and passed screening should be printed and added to documentation of burn

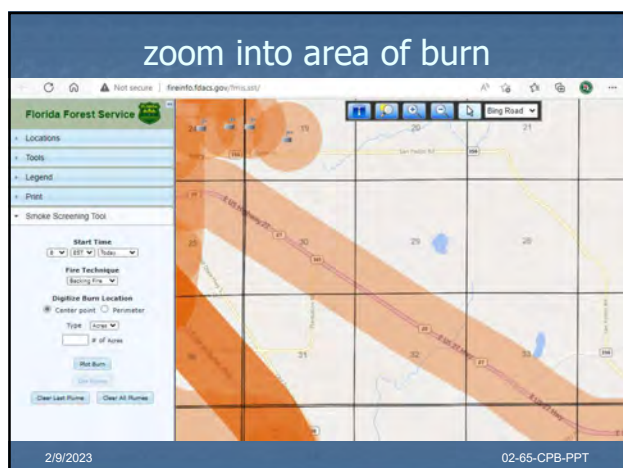
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02-63-CPB-PPT

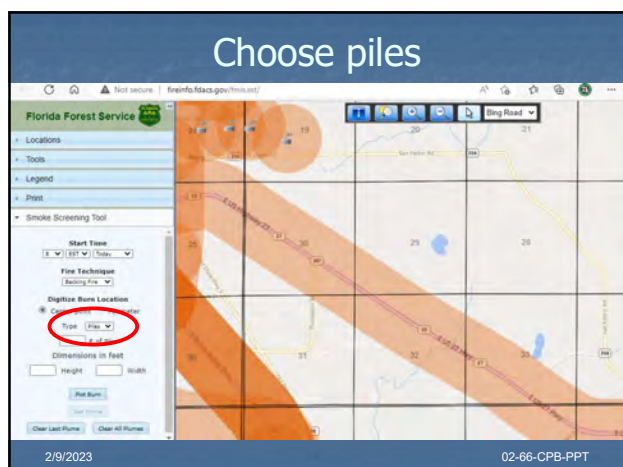
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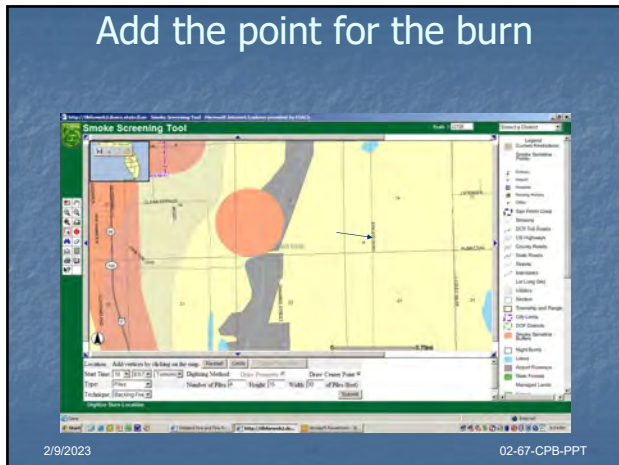
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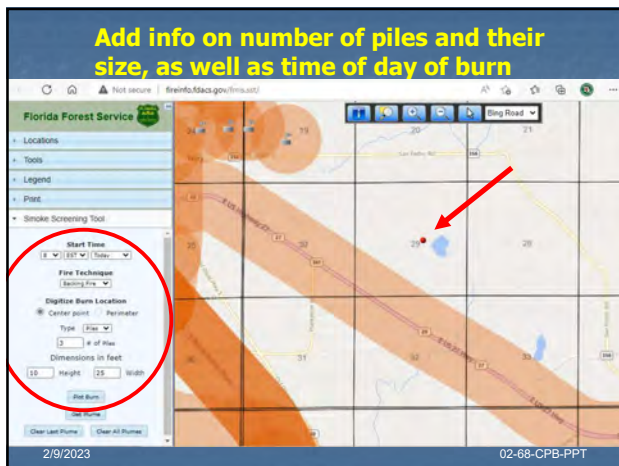
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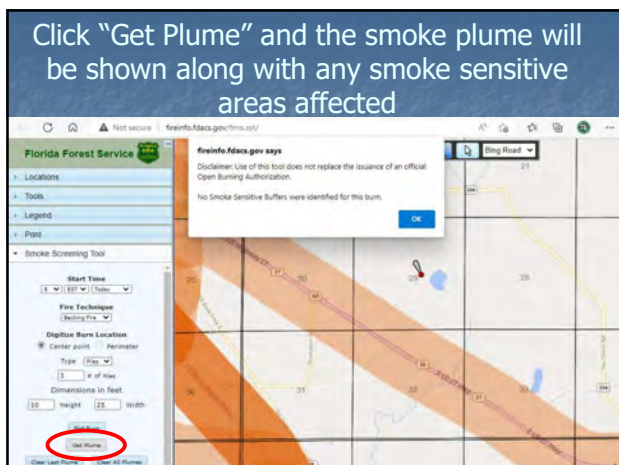
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Smoke Management Objectives

- List major pollutants associated with pile burning.
- Identify Smoke Sensitive Areas.
- List the current legal requirements for managing smoke produced during pile burns.
- Identify weather situations that can lead to smoke related problems.
- Identify fuel conditions that can lead to smoke related problems.
- Describe and implement the smoke screening system taught in this course.

2/9/2023 02-70-CPB-PPT

70



Questions?



Contact
John Saddler
850-681-5928
John.Saddler@FDACS.gov



V2-71-OB-EP

71

Instructor Presentation Plan

Course: Florida's Certified Pile Burn Manager Program

Unit Number: 4

Presentation Title: Pile Burning Legal Issues

Presentation Time: 90 min

Presentation Objectives:

Upon completion of this presentation, the participants will:

1. Understand the difference between Laws, Rules, and Procedures and who is responsible for each one's development.
2. Understand the applicable Laws, Rules and Procedures that pertain to pile burning in Florida

Handouts:

04-01-CPB-HO - CPBM_04_Legal_HO1_590.01-590.29.doc

04-02-CPB-HO - CPBM_04_Legal_HO2_F.A.C.5I-2.doc

Presentation Outline	Aids and Cues
Title Slide	04-01-CPB-PPT
Presentation Objectives Upon completion of this presentation, the participants will: 1. Understand the difference between Laws, Rules, and Procedures and who is responsible for each one's development. 2. Understand the applicable Laws, Rules and Procedures that pertain to pile burning in Florida	04-02-CPB-PPT

Presentation Outline	Aids and Cues
Introduction Conducting pile burns in Florida involves considerably more legal risk today than it did even ten years ago. Many of these types of burns are conducted in what we call the Wildland Urban Interface, or the area where the wildlands meet developed or developing areas. Simply stated, the fact that more people live, work and drive in Florida increases the risk of bodily injury to persons as well as increases the potential risk of damages to property. A pile burn may cause personal injury or property damage in several different ways. In the event of an escape there can be damage to adjoining property or injuries to persons on that property. In urban areas, there is a much greater risk of damage to residential structures as well as commercial structures. Additionally, there are now many more facilities whose occupants are sensitive to smoke from a pile burn including hospitals, schools and day care centers, airports, and nursing homes. Finally, conducting a pile burn in the urban interface can cause impaired visibility on major highways and other roads. Urban areas are more likely to already be impacted by air pollutants, and smoke from a pile burn can increase air pollution problems in those areas. Florida Pile Burning Setting Fire is Considered Inherently dangerous. Madison vs Mydette decision by Florida Supreme Court. The Property Owner and their Agent are Considered Liable for Damages. This Liability is NOT delegable to an independent contractor actually accomplishing the burning. A landowner wishing to accomplish pile burning in Florida MUST know what the “accepted burn standards” are and be certain they are applied. Monitoring Air Quality is the Responsibility of the DEP Florida Statute 590 Laws - Developed by the Legislature FS 590 Covers Agriculture, Silviculture and Landclearing 590.125(2) - General - applies to all.	04-03-CPB-PPT 04-04-CPB-PPT 04-05-CPB-PPT 04-06-CPB-PPT 04-07-CPB-PPT 04-08-CPB-PPT 04-09-CPB-PPT 04-01-CPB-HO 04-02-CPB-HO

Presentation Outline	Aids and Cues
Laws Rules and Procedures (Rules here) Where Do you Learn about proposed changes in FAC? Florida Administrative Register. Show several Web Pages where the information can be found. Admin Weekly is the official way the public learns about changes in the FAC. Not the best because few people pay attention. Procedures Procedures are developed by Divisions and Bureaus Florida Statute 590.125(2) 590.125(2) There is specific consent of the landowner or his or her designee. 590.125(2) Must have an Authorization from the Florida Forest Service or Designated Agent 590.125(2) Adequate Firebreaks at the Burn Site and Sufficient Personnel and Firefighting Equipment for Containment of the fire. 590.125(2) The Fire Remains within the Boundary of the Authorized Piles 590.125(2) Someone is Present at the Burn Site Until the Fire is Completed Florida Administrative Code 5I-2 The moisture content and composition of the materials to be burned shall be favorable to good burning which will minimize emissions. The amount of dirt in the piles or rows shall be minimized to enhance combustion and reduce emissions, and The pile or windrow burning must be set back one hundred (100) feet from any paved public roadway and the prevailing winds will direct the smoke away from any occupied buildings (other than the landowners) or roads. Pile burning for paved public road maintenance and widening is exempt from the 100 foot set back as long as the visibility on the roadway is not reduced to less than 1,000 feet, and	04-10-CPB-PPT 04-11-CPB-PPT 04-12-CPB-PPT 04-13-CPB-PPT 04-14-CPB-PPT 04-15-CPB-PPT 04-16-CPB-PPT 04-17-CPB-PPT 04-18-CPB-PPT 04-19-CPB-PPT 04-20-CPB-PPT 04-21-CPB-PPT

Presentation Outline	Aids and Cues
The pile burning is attended at all times, and The pile burning must meet one of the following setback requirements: 1. Residential, and Agricultural/Silvicultural pile burning must be set back three hundred (300) feet or more away from any occupied building other than that of the landowner and 50 feet from any wildlands, brush or combustible structure. 2. Non-Residential pile burning without an Air Curtain Incinerator must be setback one thousand (1000) feet or more away from any occupied building and 100 feet from any wildlands, brush or combustible structure. Exception to Setbacks – An exception to the setbacks in sub-subparagraph 5I-2.006(3)(d)1. and 2., F.A.C., will be granted if all of the affected parties agree in writing to allow the burn to take place.	04-22-CPB-PPT 04-23-CPB-PPT
The burning will not exceed 6 months on the same site from the date of the initial authorization from the Florida Forest Service, unless the Florida Forest Service is notified of an exemption by DEP, or unless the authorization is for agricultural citrus spot burning as defined in 5I-2.006(9).	04-24-CPB-PPT
5I-2(9) Citrus Spot Burning is a Florida Forest Service (FFS) program. Participation requires: 1. must submit a Citrus Spot Burner Application, to the local FFS District or Center 2. have the site where the burning is to be conducted inspected by the FFS. The application must include a map of the burn sites. 3. The person responsible for the burning that is listed on the application must complete Citrus Spot Burning Training. 4. Citrus spot burns are required to have a setback of at least 400 feet from combustible vegetation (brush or wildlands).	04-25-CPB-PPT
Tree Cutting Debris Burning. Open burning to dispose of tree cutting debris shall be conducted using a DEP permitted air curtain incinerator. Open burning to dispose of tree cutting debris without use of a permitted air curtain incinerator is allowed provided: (a) The tree cutting debris was generated on residential premises of not more than two family units and; (b) The open burning is restricted to the site where the tree	04-26-CPB-PPT

Presentation Outline	Aids and Cues
cutting debris was generated and; (c) The open burning is conducted in accordance with all provisions applicable to pile burning as set forth by the Florida Forest Service at Chapter 5I-2.006(3)(a)(b)(c)(d)1. and (e), F.A.C.; and (d) The open burning is not prohibited by any local, county, or municipal rule or ordinance, or the open burning is conducted in accordance with any such rule or ordinance to the extent that such rule or ordinance is stricter than the provisions of this subsection. Air Curtain Incinerator Burning. The use of an Air Curtain Incinerator is allowed for the combustion of land clearing debris, provided the incinerator has a DEP air permit or has been specifically exempted from air permitting by the DEP. If an air curtain incinerator has been exempted from air permitting by the DEP, prior authorization to use the incinerator must be obtained from the Florida Forest Service. Operation of an exempt air curtain incinerators shall be authorized provided that open burning would otherwise be allowed under this chapter and the following conditions are met: (a) Only kerosene, diesel fuel, drip torch fuel, clean dry wood or lightered pine, virgin oil, natural gas or liquefied petroleum gas may be used to start the fire in the incinerator. The use of used oil, chemicals, gasoline, or tires to start the fire is prohibited. (b) An air curtain incinerator must be located at least 300 feet from any occupied building and 50 feet from any wildlands, brush, combustible structure, or paved public roadway. (c) Incinerators equipped with refractory-lined walls, shall begin charging no earlier than sunrise and must end no later than one hour after sunset. (d) Incinerators not equipped with refractory lined walls shall begin charging no earlier than 8:00 a.m. CT or 9:00 a.m. E.T. and must end no later than one hour after sunset. (e) Regardless of the air curtain incinerator type, after charging ceases, air flow shall be maintained until all material within the air curtain incinerator has been reduced to coals, and flames are no longer visible. A log shall be maintained on site, and available upon request, that documents daily beginning and ending times of charging. (f) If the air curtain incinerator employs an earthen trench, the pit walls (width and length), shall be vertical, and maintained so that the combustion of the waste within the pit will be	04-27-CPB-PPT 04-28-CPB-PPT 04-29-CPB-PPT 04-30-CPB-PPT 04-31-CPB-PPT

Presentation Outline	Aids and Cues
maintained at an adequate temperature and with sufficient air re-circulation to provide enough residence time and mixing for proper combustion and control of emissions. Pit width shall not exceed twelve (12) feet. (g) The waste material shall not be loaded into the air curtain incinerator such that it protrudes above the level of the air curtain in the pit. (h) Ash shall not be allowed to build up in the pit of the air curtain incinerator to higher than 1/3 the pit depth or to the point where the ash begins to impede combustion, whichever occurs first. (i) Excessive visible emissions are not allowed except for a period of up to 30 minutes during start ups. (j) The air curtain incinerator shall be attended at all times while materials are being burned or flames are visible within the incinerator. (k) The burning will not exceed 6 months on the same site from the date of the initial authorization from the Florida Forest Service , unless the FFS is notified of an exemption by DEP. (l) Exceptions to the setback requirements from occupied buildings shall be granted by the Florida Forest Service when the applicant obtains a signed written statement from every affected resident within the setback area that waives their objections to the open burning associated with the land clearing operation and presents the statement to the Florida Forest Service 48 hours in advance of the burning. (m) If the owner or operator of the air curtain incinerator, by lease or other means, grants authority to operate the incinerator to a person not in the employ of the owner, the owner shall provide such person with a copy of this rule section's requirements. Off Site Burning. Any open burning of land clearing debris that is allowed by this chapter is restricted to the site where the material was generated and such material shall not be transported to another property to be burned, unless the land clearing debris has been generated by the person, or their agent, who owns or leases the property where it was generated and to where it is transported, and operates an air curtain incinerator in compliance with all applicable paragraphs of subsection 5I-2.006(5), F.A.C.	04-32-CPB-PPT

Presentation Outline	Aids and Cues
Open Burning Exceptions. The Director of the Florida Forest Service is authorized to grant exceptions in furtherance of public health, safety and welfare, to the open burning rules within Chapter 5I-2, F.A.C., in the event of an emergency that would require the destruction of vegetative debris or animal carcasses in the most expeditious means possible. Examples would include the burning of vegetative matter or animal carcasses resulting from an insect or disease infestation, or resulting from storm damage e.g., hurricanes or tornados. Rule 5I-2, Florida Administrative Code, a copy of which is attached as an appendix to this outline. In order to be protected from liability in Florida, one must burn in accordance with both the Florida Prescribed Burning Act as well as all applicable FFS rules relating to prescribed burning.	04-33-CPB-PPT
Certified Pile Burner Definition	04-34-CPB-PPT
CPB must ensure that all piles are properly placed and that the content of the piles is conducive to efficient burning. This must be documented on the time log both in the morning and at shutdown. (signature of the CPB)	04-35-CPB-PPT
A CPB must ensure that the piles are properly completed no later than 1 hour after sunset unless in a Smoke Sensitive Area, in that case 1 hour before in SSA.	
A burn plan must be completed before authorization is requested. The burn plan must be on site.	04-36-CPB-PPT
Specific consent of the landowner must be obtained before authorization is requested	
Authorization from the FFS must be obtained before ignition.	
Adequate firebreaks & sufficient personnel & equipment to contain the fire to the piles authorized.	
If a burn is conducted in accord with this subsection the property owner and their agent are not liable under 590.13 for damage or injury caused by the fire or smoke and are not in violation of subsection 2 unless gross negligence is proven.	04-37-CPB-PPT
GROSS NEGLIGENCE - conduct so reckless or wanting in care that it constitutes a conscious disregard or indifference to the life, safety, or rights of persons exposed to such conduct.	04-38-CPB-PPT

Presentation Outline	Aids and Cues
A CPB who violates this subsection commits a misdemeanor of the second degree. 5I-2 FAC for Certified Pile Burners Definition: “Certified Pile Burner” is an individual who successfully completes the certification program of the Florida Forest Service as outlined in FAC 5I-2.006(7)(c)1. through 5., and possesses a valid certification number Certified Pile Burner Requirements: Certified Pile Burning. Piles or windrows shall not be ignited before 8:00 a.m. CT or 9:00 a.m. ET and have no visible flame one hour after sunset or anytime thereafter, except in smoke sensitive areas where the piles must have no visible emissions one hour before sunset. The Florida Forest Service will issue multiple day authorizations up to three days when the fire readiness level has been set to 1 or 2. CPB’s must comply with the hours of operation listed in FAC 5I-2.006(7)(b) Authorizations for this type of burn require that the CPB present their certification number at the time the authorization is issued. Certified Pile Burner Plan: Certified Pile Burner Plan: Must be on site available for inspection and prepared prior to the burn. Plan must contain: - Burn Location - Soil type and moisture (KBDI or ERC) - Number of personnel and equipment types to be used on the burn - Desired Weather - Surface winds - Min RH - Drought Index - Days since rain - Max Temp - Dispersion Index	04-39-CPB-PPT 04-40-CPB-PPT 04-41-CPB-PPT 04-42-CPB-PPT

Presentation Outline	Aids and Cues
Burn Plan Continued: Fuel type and condition (how long drying) Time and date Plan was prepared Authorization date and time period for the authorization Smoke Screening Adjacent Landowners to notify Special Precautions Signature of the CPB	04-43-CPB-PPT
Certification Process and Renewal: Certification Process Complete the CPB course and exam Submit completed plan to local FFS office Have burn reviewed by local FFS office that plan was submitted for above Local Manager recommends certification to Tallahassee if everything is done correctly Certification Renewal All Certified Burners must submit their number at least 5 times in the previous 5 years to continue to hold certification number.	04-44-CPB-PPT
Decertification: Decertification: Decertification will be recommended if a CPB accumulates more than 15 points in a two year period. Any burn initiated outside of planned prescription parameters based upon morning forecast (i.e., wind speed, RH, dispersion, temperature, etc.) (5) Points Certified Pile Burner obtains an authorization	04-45-CPB-PPT

Presentation Outline	Aids and Cues
knowingly using false information (i.e., Lat./Long. S-T-R, Certified burn number, equipment on site, personnel). (15) points Fire escapes from the designated area but does not cause damage to property not belonging to the certified pile burner. (3) points The Florida Forest Service or other emergency fire response agency is required to take suppression action. (2) points Failure to pay suppression charges on escaped burn within 15 days following receipt of second notice. (3) points Failure to pay an Administrative Fine within 21 days of receipt of notice of action or request an Administrative Hearing. (1) point per infraction Improper smoke screening [Does not identify or mitigate for smoke sensitive areas. (2) points Certified Pile Burner burns without authorization. (15) points Failure to attempt to shut down burn after notification from FFS. (5) points	
5I-2 Open Burning Not Allowed	04-46-CPB-PPT
5I-2.004 Prohibitions Open burning during a National Weather Service air stagnation advisory or Department of Environmental Protection air pollution episode is Prohibited Reducing Visibility at Airports (unless the local authority agrees to control air traffic)	04-47-CPB-PPT

Presentation Outline	Aids and Cues
Reducing Visibility on Public Roadways to less than 1000 ft. (unless the local authority agrees to control traffic or has delegated this authority). Burning Within Smoke Sensitive Areas Between sunset and 9:00 am. Authorization will be denied to any burner who repeatedly violates Florida law or agency rules. Remains in effect until concern is mitigated.	
5I-2.004 Penalties Willful Violation: Guilty of a felony of the third degree, punishable as provided in FS 775.082 Careless Violation: Guilty of a misdemeanor of the second degree, punishable as provided in F.S. 775.082 The penalties extend to both the violator and the person/s or corporations causing, directing, or permitting such violation.	04-48-CPB-PPT
5I-2.004 Liability for Costs Whoever is responsible for an unauthorized fire in Florida's wildlands will be responsible for payment of all reasonable costs and expenses in suppressing that fire, (minimum of \$150.00). These costs will be payable to the Florida Forest Service. Of course there are other possible losses due to accidents on roadways.	04-49-CPB-PPT
Closed Category No Authorizations issued under ANY circumstances. For example: Non-Attainment Areas (none in Florida at this time (1997), or local ordinances may require no burning.	04-50-CPB-PPT 04-51-CPB-PPT
WebOBA Enhancements Certified Burners are able to place open burn authorization requests online ■ Morning of or night before	04-52-CPB-PPT 04-53-CPB-PPT

Presentation Outline	Aids and Cues
Requires log-in and password Once approved, burner will be able to check the site for approval status and retrieve authorization number Provide the same information ■ Multiple STRs ■ Nearest Intersection Must indicate certified burn Accurate Mapping Request should be processed within an hour 3 Steps to get started Read Quick Start Guide Activate Account Submit Request Check restrictions for that day – by County Update your mailing information Receive email notification	04-54-CPB-PPT 04-55-CPB-PPT 04-56-CPB-PPT 04-57-CPB-PPT 04-58-CPB-PPT 04-59-CPB-PPT 04-60-CPB-PPT
Review Presentation Objectives Upon completion of this presentation, the participants will: Understand the difference between Laws, Rules, and Procedures and who is responsible for each one's development. Understand the applicable Laws, Rules and Procedures that pertain to pile burning in Florida	04-61-CPB-PPT 1

Presentation Outline	Aids and Cues
Questions	04-62-CPB-PPT

Florida's Certified Pile Burn Manager Program

Unit 3: Florida's Laws Governing Pile Burning

John Saddler
Prescribed Fire Manager
Florida Forest Service

2/9/202304-1-CPB-PPT

1

Objectives

- Understand the difference between Laws, Rules, and Procedures and who is responsible for each one's development.
- Understand the applicable Laws, Rules and Procedures that pertain to pile burning in Florida

2/9/202304-2-CPB-PPT

2

Setting a Fire is Considered Inherently Dangerous



2/9/202304-3-CPB-PPT

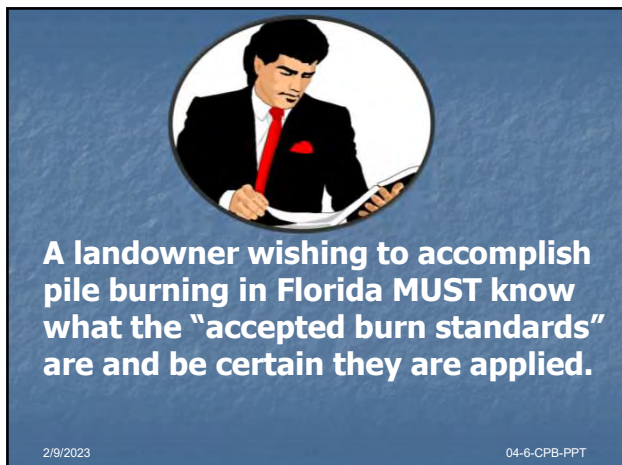
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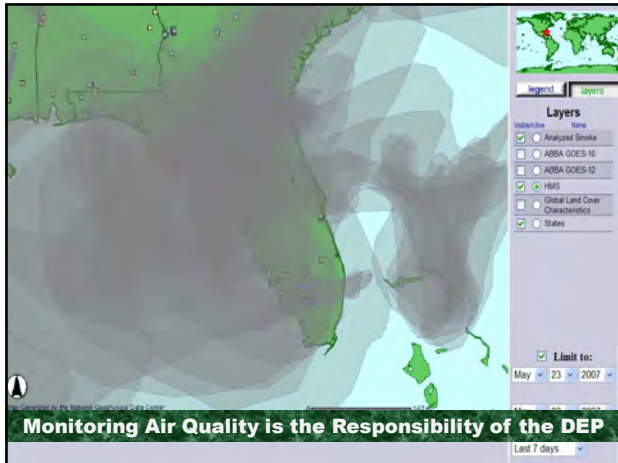
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8



9

Laws, Rules and Procedures

- Rules are Developed by the Departments
- FAC 5I-2 Covers pile burning for our purposes.
- Where do you learn what the proposed changes to the rules might be?

2/9/2023

04-10-CPB-PPT

10

Administrative Register



2/9/2023

11

Open Burning Requirements

- | | |
|---|---|
| <ul style="list-style-type: none"> ■ Non-Certified ■ 590.125(2) ■ 5I-2.006 ■ For Broadcast ■ Section (1 & 3) ■ Pile Burning <ul style="list-style-type: none"> ■ Sections (4, 5, 6, 7 & 9) | <ul style="list-style-type: none"> ■ Certified Burners ■ 590.125(4) ■ 5I-2.006 ■ Broadcast <ul style="list-style-type: none"> ■ Section (1) ■ Section (2) ■ Pile Burning <ul style="list-style-type: none"> ■ Sections (8) ■ Separate Certification |
|---|---|
- Certified Pile Burners
Do Receive Liability Protection**

12

Laws, Rules, Procedures

- Procedures are Developed by the Divisions and Bureaus

2/9/2023

04-13-CPB-PPT

13

FS 590.125(2)

14

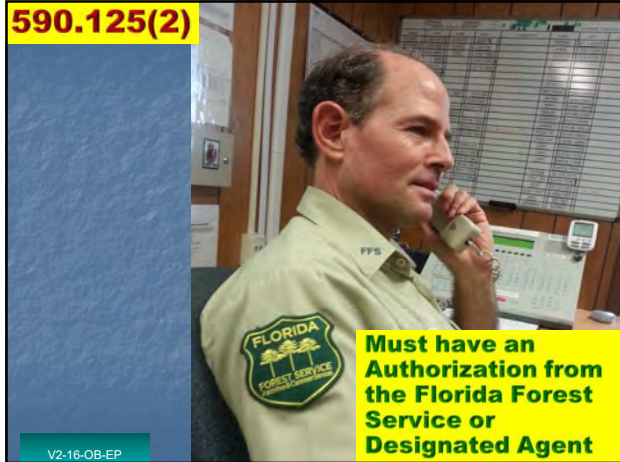
590.125(2)-There is specific consent of the landowner or his or her designee.

A photograph showing two firefighters in silhouette, wearing helmets and carrying equipment, fighting a large, intense fire at night. The fire is bright orange and yellow, with thick smoke rising. The scene is dark, with the fire providing the main light source.

2/9/2023

04-15-CPB-PPT

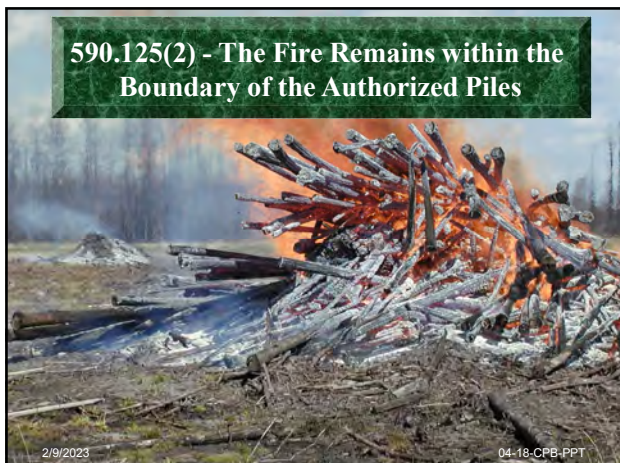
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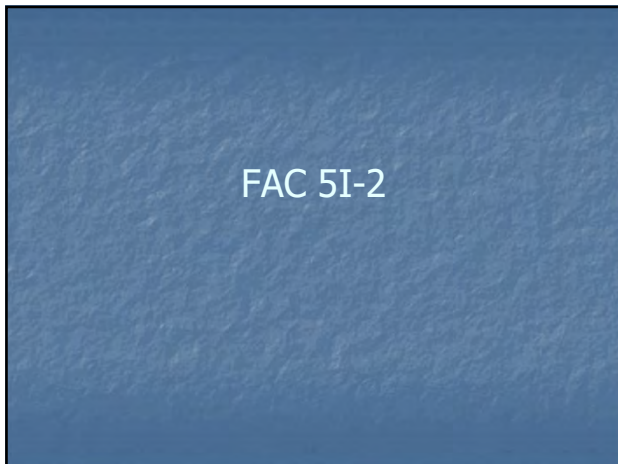
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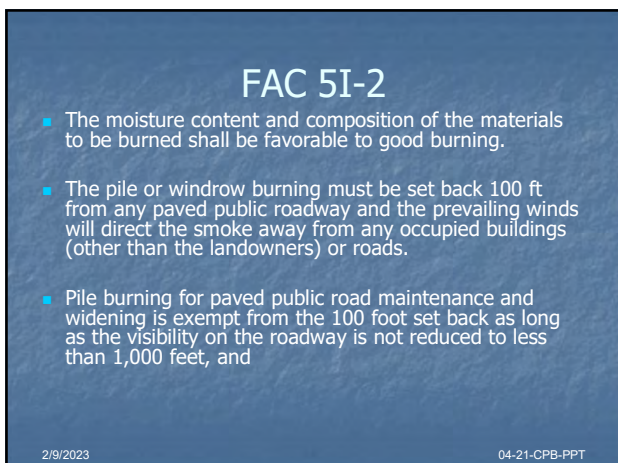
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21

FAC 5I-2

- The pile burning is attended at all times, and
- The pile burning must meet one of the following setback requirements:
- Residential, and Agricultural/Silvicultural pile burning:
 - (300) ft from any occupied building
 - 50 feet from any wildlands, brush or combustible structure.

2/9/2023

04-22-CPB-PPT

22

FAC 5I-2

- Non-Residential pile burning without an Air Curtain Incinerator:
 - (1000) ft or more away from any occupied building
 - 100 feet from any wildlands, brush or combustible structure.
- Exception to Setbacks – An exception to the setbacks will be granted if all of the affected parties agree.

2/9/2023

04-23-CPB-PPT

23

FAC 5I-2

- The burning will not exceed 6 months on the same site from the date of the initial authorization from the Florida Forest Service, unless the Florida Forest Service is notified of an exemption by DEP, or unless the authorization is for agricultural citrus spot burning as defined in 5I-2.006(9).

2/9/2023

04-24-CPB-PPT

24

FAC 5I-2

- 5I-2(9) Citrus spot burning is a Florida Forest Service (FFS) program. Participation requires:
 - 1. must submit a Citrus Spot Burner Application, to the local FFS District or Center
 - 2. have the site where the burning is to be conducted inspected by the FFS. The application must include a map of the burn sites.
 - 3. The person responsible for the burning that is listed on the application must complete Citrus Spot Burning Training.
 - 4. Citrus spot burns are required to have a setback of at least 400 feet from combustible vegetation (brush or wildlands).

2/9/2023

0I-25-CPB-PPT

25

FAC 5I-2

- **Tree Cutting Debris Burning.** Open burning to dispose of tree cutting debris shall be conducted using a DEP permitted air curtain incinerator. Without an ACI is allowed provided:
 - The tree cutting debris was generated on residential premises of not more than two family units;
 - The open burning is restricted to the site where it was generated;
 - The open burning is not prohibited by any local, county, or municipal rule or ordinance.

2/9/2023

04-26-CPB-PPT

26

FAC 5I-2 Air Curtain Incinerators

- **Air Curtain Incinerator Burning.** The use of an Air Curtain Incinerator is allowed for the combustion of land clearing debris, provided:
 - The incinerator has a DEP air permit or
 - Has been specifically exempted from air permitting by the DEP.
 - Operation of an exempt ACI is authorized provided the following conditions are met:
 - **(An airboat backed up to a pile is NOT an ACI)**

2/9/2023

04-27-CPB-PPT

27

FAC 5I-2

- Starting the fire in the incinerator: Only kerosene, diesel fuel, drip torch fuel, clean dry wood or lightered pine, virgin oil, natural gas or liquefied petroleum. The use of used oil, chemicals, gasoline, or tires to start the fire is prohibited.
- Setbacks:
 - 300 ft from any occupied building
 - 50 feet from any wildlands, combustible structure, or paved public roadway.
- Incinerators equipped with refractory-lined walls, may charge from sunrise to one hour after sunset.

2/9/2023

04-28-CPB-PPT

28

FAC 5I-2

- Incinerators not equipped with refractory lined walls :
 - Can start no earlier than 8:00 a.m. CT or 9:00 a.m. E.T. and end no later than one hour after sunset.
 - After charging ceases, air flow will continue until all material within the ACI has been reduced to coals, and no visible flames.
 - A log shall be kept on site that documents daily start & ending times (The certified pile burner log can be used for this).
 - Pit type ACI's will maintain vertical walls. Pit width shall not exceed twelve (12) feet.

2/9/2023

04-29-CPB-PPT

29

FAC 5I-2

- ACI's will not be overloaded as to protrude above the curtain.
- Ash may not build up in the ACI more than 1/3 the pit depth or to the point where the ash begins to impede combustion, whichever occurs first.
- Excessive visible emissions are not allowed except for a period of up to 30 minutes during start ups.
- The ACI shall be attended at all times.

2/9/2023

04-30-CPB-PPT

30

FAC 5I-2

- Exceptions to the setback requirements from occupied buildings shall be granted when the applicant obtains a signed written statement.
- If the owner or operator of the air curtain incinerator grants authority to operate the incinerator to a person not employed by the owner, the owner will provide them with a copy of this rule section.

2/9/2023

04-31-CPB-PPT

31

FAC 5I-2

- **Off Site Burning.** Any open burning of land clearing debris is restricted to the site where the material was generated, unless:
 - The land clearing debris has been generated by the person, or their agent,
 - who owns or leases the property where it was generated and
 - to where it is transported.

2/9/2023

04-32-CPB-PPT

32

FAC 5I-2

- **(11) Open Burning Exceptions.** The Florida Forest Service is authorized to grant exceptions in furtherance of public health, safety and welfare, to Chapter 5I-2, F.A.C., in the event of an emergency that would require the destruction of vegetative debris or animal carcasses in the most expeditious means possible. Examples would include:
 - Incidents resulting from an insect or disease infestation, or
 - Resulting from storm damage e.g., hurricanes or tornados.

2/9/2023

04-33-CPB-PPT

33

Certified Pile Burning FS 590.125(4)

0i-34-CPB-PPT

34

590.125(4)

- 1. CPB must ensure that all piles are properly placed and that the content of the piles is conducive to efficient burning. This must be documented on the time log both in the morning and at shutdown. (signature of the CPB)**
- 2. A CPB must ensure that the piles are properly completed no later than 1 hour after sunset unless in a Smoke Sensitive Area, in that case 1 hour before in SSA.**

04-35-CPB-PPT

35

590.125(4)

- 3. A burn plan must be completed before authorization is requested. The burn plan must be on site.**
- 4. Specific consent of the landowner must be obtained before authorization is requested**
- 5. Authorization from the FFS must be obtained before ignition.**
- 6. Adequate firebreaks & sufficient personnel & equipment to contain the fire to the piles authorized.**

04-36-CPB-PPT

36

590.125(4)

- If a burn is conducted in accord with this subsection the property owner and their agent are not liable under 590.13 for damage or injury caused by the fire or smoke and are not in violation of subsection 2 unless gross negligence is proven.
- A CPB who violates this subsection commits a misdemeanor of the second degree.

2/9/2023

04-37-CPB-PPT

37

Gross Negligence

GROSS NEGLIGENCE - conduct so reckless or wanting in care that it constitutes a conscious disregard or indifference to the life, safety, or rights of persons exposed to such conduct.

38

5I-2 FAC for Certified Pile Burners

2/9/2023

0I-39-CPB-PPT

39

Certified Pile Burner

- **Definition:** "Certified Pile Burner" is an individual who successfully completes the certification program of the Florida Forest Service as outlined in FAC 5I-2.006(7)(c)1. through 5., and possesses a valid certification number

2/9/2023

04-40-CPB-PPT

40

- **Certified Pile Burning.** Piles or windrows shall not be ignited before 8:00 a.m. CT or 9:00 a.m. ET and the fire must be completed by one hour after sunset, if the fire is in or impacting a smoke sensitive area its completion time is one hour before sunset.
- The Florida Forest Service (FFS) will issue multiple day authorizations up to three days when the fire readiness level has been set to 1 or 2.
- CPB's must comply with the hours of operation listed in FAC 5I-2.006(8)(b)
- Authorizations for this type of burn require that the CPB present their certification number at the time the authorization is issued.

2/9/2023

04-41-CPB-PPT

41

- **Certified Pile Burner Plan:** Must be on site available for inspection and prepared prior to the burn.
- **Plan must contain:**
 - Burn Location
 - Soil type and moisture (generalize, dry-wet)
 - Number of personnel and equipment types to be used on the burn
 - Desired Weather
 - Surface winds
 - Min RH
 - Drought Index
 - Days since rain
 - Max Temp
 - Dispersion Index

2/9/2023

04-42-CPB-PPT

42

- **Burn Plan Continued**
 - Fuel type and condition (how long drying)
 - Time and date Plan was prepared
 - Authorization date and time period for the authorization
 - Smoke Screening
 - Adjacent Landowners to notify
 - Special Precautions
 - Signature of the CPB

2/9/2023

04-43-CPB-PPT

43

- **Certification Process**
 - Complete the CPB course and exam
 - Submit completed plan to local FFS office
 - Have burn reviewed by local FFS office that plan was submitted for above
 - Local Manager recommends certification to Tallahassee if everything is done correctly
- **Certification Renewal**
 - All Certified Burners must submit their number at least 5 times in the previous 5 years to continue to hold certification number.

2/9/2023

04-44-CPB-PPT

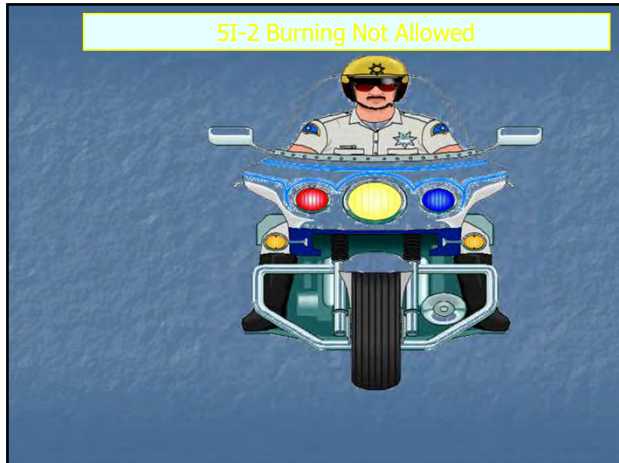
44

- **Decertification:**
 - Certification will be revoked if a CPB accumulates more than 15 points in a two year period.

2/9/2023

04-45-CPB-PPT

45



46

5I-2.004 Prohibitions

- Reducing Visibility at Airports (unless the local authority agrees to control air traffic)
- Reducing Visibility on Public Roadways to less than 1000 ft. (unless the local authority agrees to control traffic or has delegated this authority).
- Burning Within Smoke Sensitive Areas Between sunset and 9:00 am.

2/9/2023 04-47-CPB-PPT

47

Penalties

- The penalties extend to both the violator and the person/s or corporations causing, directing, or permitting such violation.

A person is sitting at a desk with a computer monitor. The monitor displays a red line graph with a downward trend. The person is wearing a yellow shirt and a yellow cap. The background is a dark blue gradient.

2/9/2023 04-48-CPB-PPT

48

Liability for Costs

- Whoever is responsible for an unauthorized fire in Florida's wildlands will be responsible for payment of all reasonable costs and expenses in suppressing that fire, (minimum of \$150.00). These costs will be payable to the Florida Forest Service.

2/9/2023

04-49-CPB-PPT

49

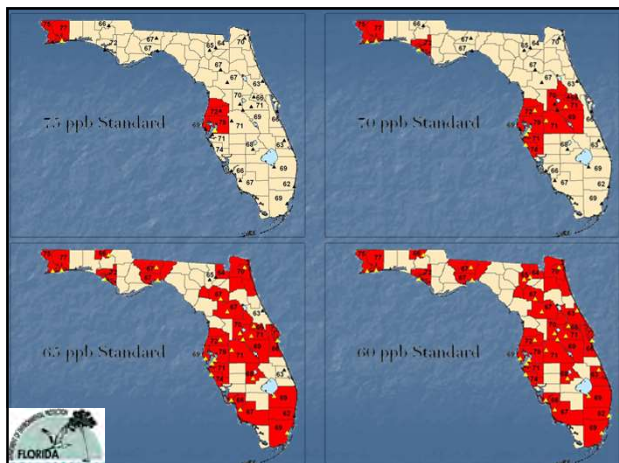
Closed Burning Category

- No Authorizations issued under ANY circumstances.
 - For example: Non-Attainment Areas (none in Florida at this time (1997), or local ordinances may require no burning.

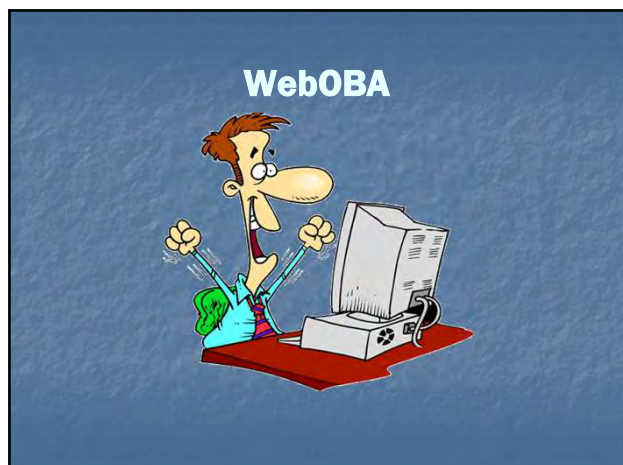
2/9/2023

04-50-CPB-PPT

50



51



52

Online Authorization Request

- Certified Burners are able to place open burn authorization requests online
 - morning of or night before
- Requires log-in and password
- Once approved, burner will be able to check the site for approval status and retrieve authorization number

53

Online Authorization Request (Cont)

- Provide the same information
 - Multiple STRs
 - Nearest Intersection
- Must indicate certified burn
- Accurate Mapping
- Request should be processed within an hour

54

Online Authorization Request (Cont)

3- Steps to get started

1. Read Quick Start Guide
2. Activate Account
3. Submit Request



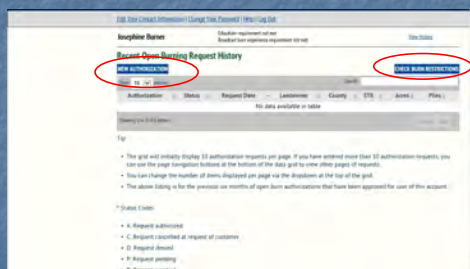
55

WebOBA Enhancements

- Check restrictions for that day – by County
- Update your mailing information
- Receive email notification

56

WebOBA Enhancements



57

WebOBA Enhancements

The page shows a breadcrumb trail: Home > Services & Offices > Florida Forest Service > Open Burning Authorizations. Below the trail are links: View OBA List, Edit Your Contact Information, Change Your Password, and Help / Log Out. The main heading is 'Burn Restrictions'. There is a 'County Selection' dropdown menu set to 'Dade'. Below this is a text box with the instruction: 'BURNING: Restrictive with caution on fire dispersion; no burning in smoke sensitive areas.' At the bottom is a 'RETURN TO RECENT HISTORY LIST' button.

58

WebOBA Enhancements

The page has a breadcrumb trail: View OBA List, Edit Your Contact Information, Change Your Password, and Help / Log Out. The heading is 'Edit Contact Information'. Below the heading is a note: 'Add an email address if you would like email notification of your OBA requests.' The form fields include: Address (123 Main Street), City (Anytown), State (Florida), Zip Code (32222), Email Address (johnson@mail.com), Daytime Phone (888) 555-1234, Extension, Evening Phone, and another Extension. At the bottom are two buttons: 'UPDATE CONTACT INFORMATION' and 'RETURN TO OBA LIST'.

59

WebOBA Enhancements

Authorization 2021001037 is Approved

FFS_WebOBA@freshfromflorida.com
To: Saddler, John

Mon 12:00 PM

Your request for burn authorization 2021001037 in Palm Beach County placed on 5/3/2021 at 12:00 PM has been approved.

Please do not reply to this email. If you have questions, please contact your local Florida Forest Service office.

60

Objectives

- Understand the difference between Laws, Rules, and Procedures and who is responsible for each one's development.
- Understand the applicable Laws, Rules and Procedures that pertain to pile burning in Florida

2/9/2023 04-61-CPB-PPT

61



Questions?



Contact
John Saddler

850-681-5928

John.Saddler@FDACS.gov



V2-62-OB-EP

62

Instructor Presentation Plan

Course: Florida's Certified Pile Burn Manager Program

Unit Number: 3

Presentation Title: Pile Burning Planning and Implementation

Presentation Time: 1.5 Hours

Presentation Objectives:

Upon completion of this presentation, the participants will:

1. Gain working knowledge of the techniques necessary to plan and conduct pile burning operations while keeping problems to a minimum
2. Learn how to write a Pile Burning Plan

Handouts:

03-01-CPBM-HO - CPBM_04_Legal_HO1_Sample Burn Plan

03-02-CPBM-HO - CPBM_04_Legal_HO2_ACI Use Handout

03-03-CPBM-HO - CPBM_04_Legal_HO3_Burning Laws that Apply to Pile Burners

Presentation Outline	Aids and Cues
Title Slide	03-01-CPBM-PPT
Presentation Objectives	03-02-CPBM-PPT
Lesson Objectives 1. Gain working knowledge of the techniques necessary to plan and conduct pile burning operations while keeping problems to a minimum 2. Learn how to write a Burn Plan “Responsible burners build public confidence and acceptance of the use of fire. However, a momentary lapse in judgment can change someone’s life forever.”	
Lesson Overview 1) Fire Science 2) Fuel Characteristics and Variations 3) Pile Location, Construction, and Maintenance 4) Air Curtain Incinerators 5) Extinguishing Techniques 6) Creating a Written Burn Plan	03-03-CPBM-PPT
Combustion Science	03-04-CPBM-PPT

Presentation Outline	Aids and Cues
1) Fire Triangle 2) Changing any one of these elements will either increase or decrease the intensity of the fire. An increase in Oxygen increases intensity and lessens smoke. An increase in fuel moisture decreases intensity and creates more smoke An increase in Heat increases intensity and creates more convection	
Fuel Characteristics 1) Pine It is best to let all fuels dry as long as possible Pine tops and saplings can create a good base for a hot fire. Large Pines should be “bucked up” to burn up faster Due to their high moisture content and density, pine stumps can take a long time to burn. Add them to your pile early and keep them hot.	03-05-CPBM-PPT
2) Citrus Extremely clean burning fuel type. Dries quickly Small root diameters that can be shaken free of soil easily (usually dry, sandy sites. Burns best if “cured”, but can be burned “green” with a hot fire.	03-06-CPBM-PPT
3) Palmetto	03-07-CPBM-PPT

Presentation Outline	Aids and Cues
Due to high moisture content, Palmetto can be difficult to burn. Burns best if cured, but a minimum of one day drying time may suffice depending on how clean they are. Requires a great deal of “shaking” to remove high soil content. This may mean spreading out in the sun and re-raking several times. If not well cured, use other fuel types to create a hotter base. Usually created a ‘compact’ pile so periodic ‘fluffing’ will be required to increase oxygen. If done right, palmetto will burn down to clean ash.	
4) Oak – Smaller oaks burn hot and make a good starter fuel for a fire base Larger oaks may need extensive curing time. Due to the time required to consume larger oaks, consider bucking up.	03-08-CPBM-PPT
FUEL CHARACTERISTICS – SUMMARY All fuels are greatly affected by: - Soil Moisture (affects residual root and live plant moisture) - Weather (humidity, dispersion, temp, wind) - Size (diameter) - Arrangement (amount of surface area exposed to oxygen) - Amount of sand/soil in Pile (absorbs heat – reduces oxygen)	03-09-CPBM-PPT
“This is a good time to discuss “starter fuels.” Make sure you use only approved fuels such as Diesel, Kerosene, a fuel mix, or Dry paper/Straw/Hay.”	03-10-CPBM-PPT

Presentation Outline	Aids and Cues
“The following fuels are prohibited (either as starter fuels or as a component of a land clearing pile): tires, any rubber, tar, treated wood, cross ties, plastics, Styrofoam, used motor oil, or garbage.” How do you decide where to place your pile? 1) Time? Convenience? Cost? The “EASIEST” or “FASTEST” is not always the best spot. “First of all of course, you need to meet legal setbacks. You <u>should</u> also consider practical issues like travel distance and your ability to visually monitor your piles. All this <u>is</u> critically important; but in some cases these considerations may not be enough” a) “You should always consider how your pile location could affect people. For instance, how close are you to homes, commercial areas, or busy roads? Will your fire, smoke, or ash alarm, bother, scare, irritate, or otherwise interfere with anyone’s daily life?” b) “Think about ways to locate your piles in such a way to at least minimize these impacts. This might mean moving your pile to a more inconvenient, time consuming location where it won’t draw as much attention”	03-11-CPBM-PPT
Pile Construction 1) Small Piles Get more oxygen and generally burn cleaner and more quickly. Easier to work, control, and put out if it becomes necessary Hard to get hot enough to consume larger diameter or high moisture content fuels. 2) Large Piles Produces the heat needed to consume larger diameter, higher moisture content fuels.	03-12-CPBM-PPT

Presentation Outline	Aids and Cues
Helps to maintain a hot coal bed for morning startups on multi-day jobs. Can be difficult to work (fluff) with heavy equipment. Can be hard to meet legal requirement of having fire out 1 hour before sunset. Requires a higher skill level for equipment operator	
3) Composition/arrangement “Although each job is unique, you should build your pile with the most volatile (hottest burning) fuels on the bottom. This will help you build a hot fire center and coal bed you can build on later.” “Keep stumps in the hottest part of the fire. They will take the longest to burn. This will save you time and money in the long run.”	03-13-CPBM-PPT
4) Configuration Round Piles – generally easier and safer to manage than Windrows. Round piles also allow for a concentration of heat, helping with complete combustion. If windrows are used; Make sure you have adequate fire breaks between rows; Make sure rows run perpendicular to the prevailing winds; Make sure you break windrows up into manageable lengths.	03-14-CPBM-PPT
5) Soil Content Affects of sand and soil content? SAND WON'T BURN! Soil absorbs heat, stores moisture, reduces oxygen, and generally slows the combustion process.	03-15-CPBM-PPT

Presentation Outline	Aids and Cues
Take time to shake your fuels well before you put them in the pile. You may need to shake roots several times letting them dry in the sun. Air Curtain Incinerators 1) Greatly reduces smoke 2) Lower Setbacks – allows for set back limit to 300’ 3) Lessens impact in populated areas 4) How they work? They are used with a Pit or Box; A high-pressure air manifold creates an “air curtain” trapping smoke and embers; while at the same time oxygenating the fire The result is more complete combustion. If constructed and used properly, emissions can be reduced to near zero; If a pit is used, it must not be any longer than the manifold for the air curtain to work properly. Ideal dimensions are about 8-12’ wide and about 10-12’ deep. Sandy soils may require a shallower “egg shaped” pit that will allow loading equipment to approach pit without caving in sides of getting stuck or disabled. You can have the FFS inspect your setup to see if the operations meet the legal requirements. If your system doesn’t create a true “air curtain” then what you really have is simply a “forced air” system. Advantages of an ACI: Nearly 100% combustion with minimal escaped particulate and smoke. Volume reduction rate of about 98%. (100 tons of wood becomes 2 tons of ash) Very low environmental impact (ash can be back filled in pit or mixed safely with soils) Can be used relatively close to structures Saves time (larger ACIs can dispose of up to 15 tons per hour depending on fuel types). Very affordable if compared to options like chipping, grinding, mulching, or hauling to land fills. (Prices range from \$30,000	03-16-CPBM-PPT 03-17-CPBM-PPT 03-18-CPBM-PPT 03-19-CPBM-PPT

Presentation Outline	Aids and Cues
for a portable tow behind model to \$118,000 for the largest self contained units) Disadvantages: Costly when conventional pile burning is still an option. Portable units may not be suitable for all soil types (Sandy soils will require a shallower pit that may need to be cleaned out every several days) If soil is unsuitable for a sturdy pit, an air curtain incinerator can be used as a “forced air” machine forcing oxygenated air into the pile. Demo video This demonstration video is of a land clearing operation in Florida Watch for the puff of smoke when the material “breaks” the air curtain Then watch how long it takes for the smoke to clear. The next thing you’ll see is the same air curtain incinerator in full operation looking down from above. The high velocity air is running across the top of the box from left to right. The curtain of air works just like a “lid” keeping smoke and particulates inside. This same forced air results in an extremely high temp, clean, fast burn.	03-20-CPBM-PPT
Public Safety and Security When you use fire as a tool every day, it’s easy to become complacent and careless. Professional Burners purposely avoid becoming complacent. You are ultimately responsible for all damages to life and property.	03-21-CPBM-PPT
Extinguishing Techniques 1) With the notable exceptions during post hurricane cleanup and emergency exceptions, the FFS does not issue night time authorizations. 2) Preferred Extinguishing Technique – let it burn itself out 3) “Legally out within 1 hour of sunset – Legally out means “your pile can still be hot, but cannot be emitting visible flame or	03-22-CPBM-PPT

Presentation Outline	Aids and Cues
excessive smoke”. 4) Adding fuel – When to quit? Avoid adding fuel to the pile in the afternoon. Allow time for the pile to burn down. 5) Smoke sensitive areas: If you are within a “Smoke Sensitive Area”, as defined by the FFS, you may need to completely extinguish your burn pile each day. This can be accomplished by burying with dirt, or cooling with water.	
Written Burn Plan 1) “Burn Prescription” defined: A “Burn Prescription” is a written statement defining the range of conditions under which a fire will be allowed to burn to meet stated objectives. 2) Benefits of a written burn plan a) presents a professional image b) Shows intent to comply with regulations c) May give some protection against liability d) Provides an undisputable record 3) Elements of a Good Prescription: a) Objectives of Burn b) Fuel Description c) Smoke Management requirements d) Publicity/Contacts needed e) Legal Requirements f) Map of Burn Area g) Weather Factors including Season and time of day h) Control/Extinguishment Plan i) Evaluation 4) Sample Plan (Handout #2) this is a sample burn plan form. Yours can be different, but needs to be in writing. a) Why a written plan? The main point of a written burn plan is to serve as a tool helping hyou show “due diligence” in planning your burn. If you follow your plan, it can help protect you from liability. b) If you don’t follow your plan it can also be used as evidence against you.	03-23-CPBM-PPT 03-24-CPBM-PPT 03-25-CPBM-PPT 03-26-CPBM-PPT
Practical Exercises: <i>(At this point the ppt presentation contains two scenarios for the class to work through. Below are the notes for each scenario, along with the solution to Scenario # 1. The instructor should work through the first scenario quickly with the class emphasizing the thought processes necessary to come up with reasonable weather factors. A solution is not provided for Scenario # 2. After presenting the scenario, the instructor should allow 10—15 minutes for the class to fill in their weather factors</i>	

Presentation Outline	Aids and Cues
<i>on a sample burn plan form and be prepared to explain their decisions. After the class is finished, select a participant to review their plan with reasons for their decisions. While the instructor can offer constructive criticism, class participation can be encouraged by polling the class for differing opinions on specific weather parameters that may be questionable. After both scenarios are completed, emphasis should be given to practicing this process on all future burns, certified or not, until the participant gains a high level of proficiency and confidence.)</i> Fish Hawk Burn Pile Overview: This is a 400 acre plus Land Clearing Job to expand the Fish Hawk Ridge Subdivision in Hillsborough County. Within 5 miles there are at least 15 public and private schools and daycare facilities. Several shopping centers and commercial retail outlets. Lithia Springs Park is located about ¼ mile to your northwest. Fish Hawk Blvd is directly to the south and County Road 640 is to the Northeast There are at least 9 schools that are between 1 and 2 miles away. And there are about 80 occupied luxury homes directly to your south (phase I of your subdivision) You’ve applied for and received a open burning permit from Hillsborough County Environmental Protection Commission (EPC); which will be good for 30 days from today, and allows you a maximum of 3 piles 30’ x 10’. This permit also requires your pile/piles to be completely extinguished each day, one hour before sunset. You’re burning oak of various sizes (mostly large) that you’ve cleared over the past 7 weeks. All the trees are well cured and have been shaken clean of almost all dirt.	03-27-CPBM-PPT
QUESTIONS This is a closer shot. Note that the aerial does not show phase 1 of the subdivision located about 1200 feet south of the burn pile location. Fish Hawk Project – Weather (day 1) This is the Fire Weather Forecast for the first day of the project. Note the wind directions for the next 4 days. What does the clockwise rotation tell you? <i>(cold front passage coming)</i>	03-28-CPBM-PPT 03-29-CPBM-PPT

Presentation Outline	Aids and Cues
Fish Hawk Scenario Solution: Answer to the Scenario: The burner was limited to three piles, but chose to limit himself to only one pile to minimize smoke. Wind Direction: The condition of the fuel allowed for good combustion and very little smoke production so almost any wind direction was acceptable. He decided to monitor the pile closely for smoke impacts, especially to the school to the SW and the homes a little over 1000' to the south. He decided to increase to two piles on days when winds were either due east or SSW pushing smoke into unpopulated areas. Wind speed wasn't critical other than he didn't want surface winds greater than 12 mph which might cause your smoke to lay on the ground and impact smoke sensitive targets downwind. He decided to stop adding to the pile at 4:00 which would allow the pile to burn down to zero emissions by the "1 hour before sunset time. Mixing height, Drought Index, and dispersion were not considered critical factors since escape wasn't a worry, but high numbers were preferred for all three.	03-30-CPBM-PPT
Scenario # 2: This land clearing job is for the removal of 60 acres of citrus making way for a permitted mobile home retirement community. The nearest occupied building is a single family residence about 1300' to the north. Good Shepherd retirement community is located to the southwest with the closest building about 1450' away from your proposed burn pile site. Lake Arbuckle Road is about 900' to the Southwest and is lightly traveled. Lake Reedy Blvd is about 1900' to the West Northwest with	03-31-CPBM-PPT

Presentation Outline	Aids and Cues
homes lining both sides of the roadway. This road is also lightly traveled. The land to the east is a private game preserve with overgrown natural fuels (300'). The land to the Southeast is a State Forest that has been burned within the last few years. The grove has not been irrigated for several months now. Your last rainfall as of today was 8 days ago. The local drought index is 125. The tighter shot shows the number of homes in the nearest community. Note that the fuels between the homes and the road are overgrown drained swamp with large pine over-story.	03-32-CPBM-PPT



Florida's Certified Pile Burn Manager Program

Unit 04: Planning and Implementation

2/9/2023

1

1

Objectives

- Gain working knowledge of the techniques necessary to plan and conduct pile burning operations while keeping problems to a minimum.
- Learn how to write a Pile Burning Plan

2/9/2023

2

2

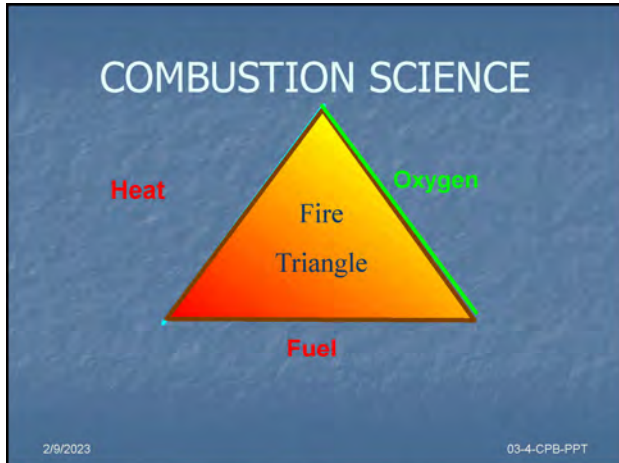
Topics to Cover

- Fire Science
- Fuel Characteristics and Variations
- Pile Location, Construction, and Maintenance
- Air Curtain Incinerators
- Extinguishing Techniques
- Creating a Written Burn Plan

2/9/2023

03-3-CPB-PPT

3



4

Fuel Characteristics



Pine

- Tops
- Logs
- Stumps



2/9/2023 03-5-CPB-PPT

5

Fuel Characteristics



Citrus

Clean Burning
Dries Quickly
Burned Cured or Green



2/9/2023 03-6-CPB-PPT

6



Fuel Characteristics

Palmetto

- High Moisture Content
- High Soil Content
- Requires Hot Base
- Fluff to Increase Oxygen



2/9/2023

03-7-CPB-PPT

7



Fuel Characteristics



Oak

- Burns Hot....Starter Fuel
- May Require Cure Time

2/9/2023

03-8-CPB-PPT

8

All fuels are greatly affected by:

- **Soil Moisture**
- **Weather**
- **Size**
- **Arrangement**
- **Pile Content (Soil)**

2/9/2023

03-9-CPB-PPT

9

Starter Fuels

- Diesel
- Kerosene
- Fuel Mix
- Paper
- Hay

Tires
Used Oil
Treated Wood

2/9/2023

03-10-CPB-PPT

10

LOCATION

- How do you decide where to place your pile or piles?
 - Time?
 - Convenience?
 - Cost?



2/9/2023

03-11-CPB-PPT

11

PILE CONSTRUCTION

Small Piles

Easier to Control and Work

Hard to Get Hot Enough to Burn Large Fuels

Large Piles

Difficult to Work with Heavy Equipment

Hard to Meet Legal Requirements

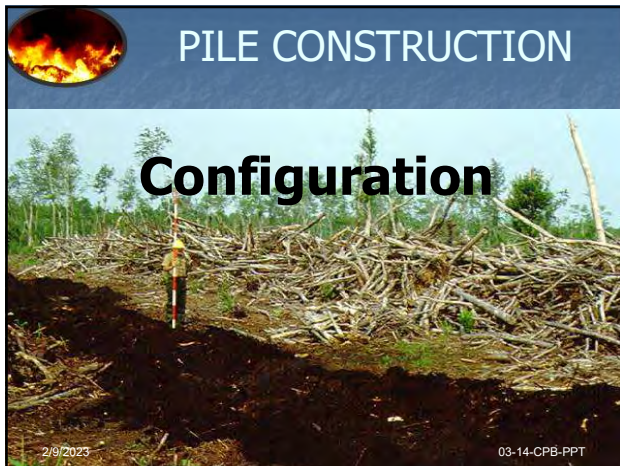
2/9/2023

03-12-CPB-PPT

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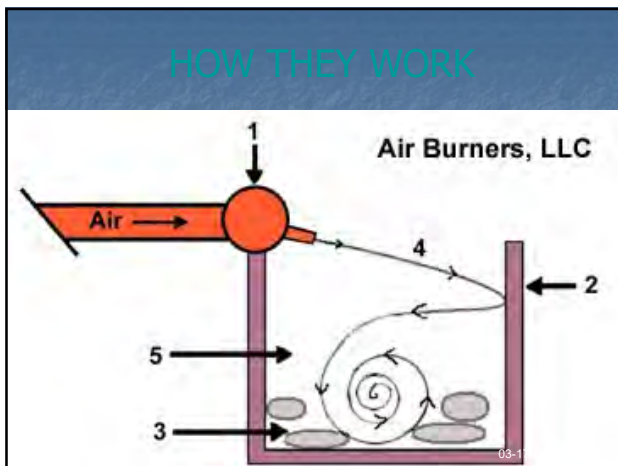
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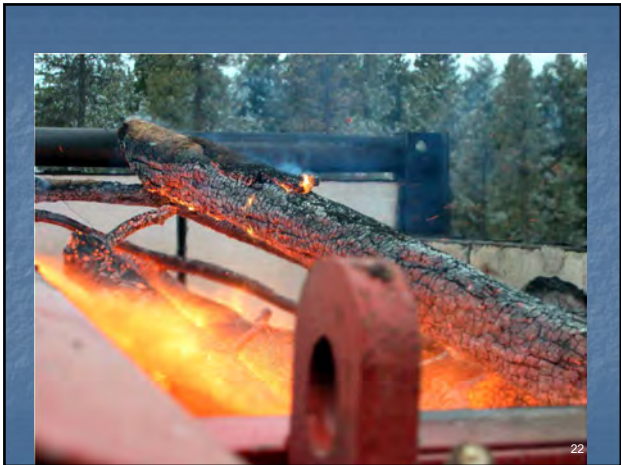
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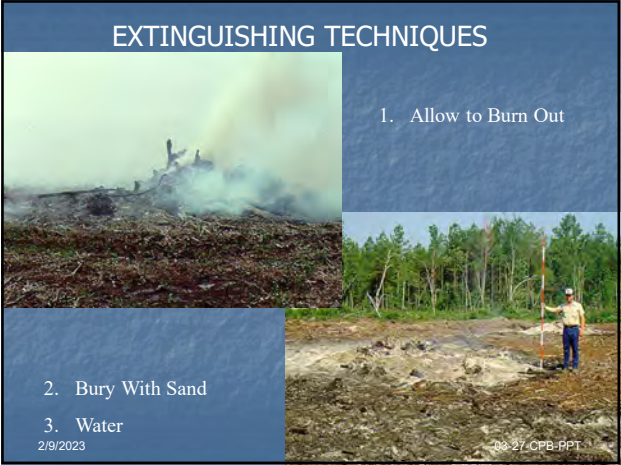
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27

DEVELOPING A WRITTEN BURN PLAN

- A “*Burn Plan*” is a written statement defining the range of conditions under which a fire will be allowed to burn to meet stated objectives.

2/9/2023

03-28-CPB-PPT

28

A Written Burn Plan

- Presents a Professional Image
- Shows Intent to Comply with Regulations
- May Give Added Protection Against Liability
- Provides an Indisputable Record

2/9/2023

03-29-CPB-PPT

29

Elements of a Prescription

- | | |
|-------------------------|------------------------|
| ■ Fuel Description | ■ Publicity Needs |
| ■ Map of Burn Area | ■ Legal Requirements |
| ■ Weather Factors | ■ Ignition and Control |
| ■ Smoke Management Plan | Schedule/Plan |

2/9/2023

03-30-CPB-PPT

30



U.S. Fish and Wildlife Service
BURN PLAN FOR FIRE MANAGEMENT

Florida Department of Agriculture and Consumer Services
Florida Forestry Service

BURN PLAN FOR FIRE MANAGEMENT

Authorized Personnel:		Authorized Agency:	
Burn Location:			
County:	Section:	Township:	Range:
Type of Fire to be Burned: ☒ Agriculture		☒ Silviculture	☐ Land Clearing
Start Date and Time: Date: Time:		End Date and Time: Date: Time:	
Fuel Type:			
Fuel Condition:			
Soil Type: ☒ Sandy		☒ Organic	☐ Other
Soil Moisture: ☒ High		☒ Medium	☐ Low
Equipment Used:			
Personnel Used:			
Water Supply System:			
Weather Service Observed:			
Provide Smoke Direction, Speed:			
Relative Humidity to notify:			
Special Instructions:			

WEATHER FACTORS				
Forecast Date:	Date:	Forecast Time:	Forecast Value:	Actual Value:
Humidity (%)				
Wind Speed				
Wind Direction				
Relative Humidity				
Cloudy Index				
Cloud Cover Index				

Wind Direction:

Temperature:

Other Information:

BURNING SCHEDULE & BURN ATTACHED	
Prescribed Burn by:	Completion Date:
Date:	Date:
Contact the Florida Forestry Service	

31

Fish Hawk Burn Pile Overview



32

Fish Hawk Project



33

Fish Hawk Project - Weather

HILLSBOROUGH-
556 AM EDT MON APR 5 2010

...1 TO 3 HOURS OF HUMIDITIES BELOW 35 PERCENT THIS AFTERNOON...

	TODAY	TONIGHT	TUE
CLOUD COVER	MCLER	MCLER	MCLER
CHANCE PRECIP (%)	0	0	0
WEATHER TYPE	NONE	NONE	NONE
TEMP	85	58	85
RH %	34	100	36
20FT WIND MPH(AM)	E 7		SE 6
20FT WIND MPH(PM)	NE 9	E 4	SE 8
PRECIP DURATION			
PRECIP BEGIN			
PRECIP END			
PRECIP AMOUNT	NONE	NONE	NONE
LAL	1	1	1
MIXING HGT(FT-AGL)	4300	200	4300
TRANSPORT WIND (MPH)	E 15	E 10	SE 14
DISPERSION INDEX	57	4	66
MAX LVORI		10	

REMARKS...NONE.

.FORECAST FOR DAYS 3 THROUGH 5...

.WEDNESDAY...**MOSTLY CLEAR**. PATCHY FOG EARLY IN THE MORNING. LOWS IN THE LOWER 60S. HIGHS IN THE MID 80S. SOUTH WINDS 5 TO 10 MPH.

.THURSDAY...**PARTLY CLOUDY**. LOWS IN THE LOWER 60S. HIGHS IN THE MID 80S. SOUTHWEST WINDS 5 TO 10 MPH.

.FRIDAY...**PARTLY CLOUDY**. **SLIGHT CHANCE** OF SHOWERS. LOWS IN THE LOWER 60S. HIGHS IN THE UPPER 70S. NORTHWEST WINDS 5 TO 10 MPH. CHANCE OF SHOWERS 20 PERCENT.

34

Weather factors on Plan

	Max	Min	Preferred	Actual
Humidity (%)	95%	20%	40%	34%
Temperature	N/A	N/A	>70	85
Surface Wind speed/dir	Any @ 12	Any @ 3	>6 and < 12 East or SW	NE @ 9
Transport wind speed/dir	Any @ 16	Any @ 6	>9 and <13 East or SW	E15
Mixing height	N/A	2500'	>4500	4300'
Dispersion Index	N/A	30	>50	57
Drought Index	700	50	>200 and <500	245
Days since Rain	N/A	1	>5	9
Wind restrictions				

35

Frostproof Pile Burn

36



37

Review Objectives

- Learn techniques necessary to plan and conduct pile burning operations while keeping problems to a minimum.
- Learn how to create a written Pile Burning Plan

2/9/2023 03-38-CPB-PPT

38

Questions?

FLORIDA
FOREST SERVICE
Regulation & Compliance Services

Contact
John Saddler
850-681-5928
John.Saddler@FDACS.gov

V2-39-OB-EP

39



Florida Department of Agriculture and Consumer Services
Florida Forest Service

2/10/2023

WILTON SIMPSON
COMMISSIONER

BURN PLAN FOR PILE BURNERS

Burner's Customer Number:		Authorization Number:	
Burn Location:			
County:	Section:	Township:	Range:
Type of Pile(s) to be Burned	☐ Agricultural	☐ Silvicultural	☐ Land Clearing
Start Date and Time	Date:	Time:	
Expected End Date and Time	Date:	Time:	
Fuel Type			
Fuel Condition			
Soil Type	☐ Sandy	☐ Organic	☐ Other
Soil Moisture	☐ High	☐ Medium	☐ Low
Equipment Needs			
Personnel Need			
Meet Legal Setbacks			
Passed Smoke Screening			
Possible Smoke-Sensitive Areas			
Adjacent Landowners to notify			
Special Precautions			
WEATHER FACTORS			
	Acceptable Range		
	Max	Min	
Humidity (%)			
Temperature			
Wind Speed/Direction			
Dispersion Index			
Drought Index			
Days Since Rain			
Wind Direction Restriction or Other Restrictions			
SMOKE SCREENING & MAP ATTACHED			
Prescription Done by:		Certification Number:	
Title:		Date:	
Certified Pile Burner Signature			

BURNING LAWS AS APLIED TO PILE BURNERS:

62-256 – Covers “yard waste” and “Tree Cutting Debris” rules

“YARD WASTE”

Burning of yard waste **does not** require an authorization from the FFS. Fire can begin at 0900 and extinguished one hour before sunset. No burning in windy conditions. Fire can be built in a not combustible container, or in a pile of no greater that 8’ in diameter, built on the ground that is cleared of combustible material.

Yard Waste Setbacks:

- 25 feet from wild lands, brush, or a combustible structure;
- 50 feet from any paved public road;
- 150 feet from any occupied building other that that owned or leased by the person doing the burning;
- Fire must be attended at all times;
- Adequate fire extinguishing equipment must be there at all times;
- Moisture content and composition of material is favorable to good burning which will minimize smoke;

NOTE: *Yard waste only includes leaves, shrub trimmings, grass clippings, brush, and palm fronds. It does not include land clearing debris, tree trimming debris, or household paper products.*

“TREE CUTTING DEBRIS”

Tree cutting debris **does** require an authorization from the FFS. After authorization is given, fire can begin at 0900 and have “no visible flame” one hour before sunset or later. If the burn pile is in a smoke sensitive area, the fire must be extinguished no later than one hour before sunset.

Tree Cutting Debris Setbacks:

- 50 feet from any wild lands, brush, or combustible structure;
- 100 feet from any paved, public road (except for road maintenance and widening as long as visibility is not reduced to less than 1000 feet).
- For Residential, Agricultural, and Silvicultural: 300 feet from any occupied building other than that of the landowner;
- Adequate fire extinguishing equipment is there at all times;
- Moisture content and composition of material is favorable to good burning which will minimize smoke;
- Exceptions can be granted in writing by affected parties.

NOTE: *Tree cutting debris consists of trees, tree stumps, and tree limbs resulting from tree removal or tree trimming operations. The tree cutting debris can only be generated on residential property of not more than two family units. Burning is restricted to the site where the debris was generated.*

5I-2 Covers Land Clearing Debris, Both Residential and Commercial

LAND CLEARING DEBRIS

Land clearing debris is uprooted or cleared vegetation resulting from a land clearing operation, including any untreated wood generated by the land clearing operation. Land clearing operations are in connection with construction of buildings, right-of-ways, land development, and mining operations. Land Clearing Debris **does not** include items described as “yard waste” and “tree cutting debris.”

Land Clearing Setbacks:

- 50 feet from any wild lands, brush, or combustible structure;
- 100 feet from any paved public road **and** winds direct smoke away from road, except for road maintenance and widening as long as visibility is not reduced to less than 1000 feet)
- For Residential, Agricultural, and Silvicultural: 300 feet from any occupied building other than that of the landowner;
- Adequate fire extinguishing equipment is there at all times;
- Moisture content and composition of material is favorable to good burning which will minimize smoke;
- Exceptions can be granted in writing by affected parties.

NON RESIDENTIAL LAND CLEARING:

Non residential land clearing is the initial clearing of land for development, right of ways, large developments of more than 2 family units.

Setback for Non Residential Land Clearing:

- 1000 feet from any occupied building other than that of the landowner.
- All other setbacks are the same; ExceptionS can be granted in writing by affected parties;

NOTE: USE OF AN AIR CURTAIN INCINERATOR WILL ALLOW NON RESIDENTIAL LAND CLEARING TO BE CONDUCTED WITH THE SAME SETBACKS AS RESIDENTIAL LAND CLEARING

ACI USE Handout

- The use of Air Curtain Incinerators is allowed for the combustion of land clearing debris. No Department of Environmental Protection permits are required for air curtain incinerators that are designed and used as portable units and that will operate on any one site for less than six months in any year. Prior authorization to use a portable Air Curtain Incinerator must be obtained from the Florida Forest Service. Operation of portable Air Curtain Incinerators shall be authorized provided that the following conditions are met:
- Pit width, length, and side walls shall be properly maintained so that the combustion of the waste within the pit will be maintained at an adequate temperature and with sufficient air re-circulation to provide enough residence time and mixing for complete combustion and control of emissions. Pit width shall not exceed twelve (12) feet, and vertical side walls shall be maintained.
- No waste will be burned above the level of the air curtain in the pit.
- Excessive visible emissions are not allowed except for a period of up to 30 minutes during start ups and shutdowns.
- Air Curtain Incinerators that are intended to be stationary units, i.e., continuously operate at one site for more than six months, or operate at any Department of Environmental Protection (DEP) permitted land-fill, must comply with the requirements of Rule 62-296.401(6) F.A.C. in effect on July 7, 1995, Florida Administrative Code.
- Exceptions to the setback requirements from occupied buildings shall be granted by the Florida Forest Service when the applicant obtains a signed written statement from every affected resident within the setback area that waives their objections to the open burning associated with the land clearing operation and presents the statement to the Florida Forest Service 48 hours in advance of the burning.
- Any open burning that is allowed by this Chapter is restricted to the site where the material was generated and such material shall not be transported to another property to be open burned, unless the rural land clearing debris has been generated by the person, or their agent, who owns the property where it was generated and to where it is transported, or operates an Air Curtain Incinerator provided that the following conditions are met:
- It will be transported to property that is owned or leased by the person who generated the land clearing debris, and will not exceed 6 months from the date of the initial authorization and
- Meets a setback distance of three hundred 300 feet from occupied buildings for Air Curtain Incinerators with vertical refractory-lined walls and with forced under draft air, or
- Meets a setback distance of one thousand 1000 feet from occupied buildings for all other Air Curtain Incinerators or
- Meets a setback distance of one thousand 1000 feet from occupied buildings for land clearing debris burned without an Air Curtain Incinerator.

Instructor Presentation Plan

Course: Florida's Certified Pile Burn Manager Program

Unit Number: 5

Presentation Title: Pile Burning Safety

Presentation Time: 1.0 hour

Presentation Objectives:

Upon completion of this presentation, the participants will:

1. Explain why safety must be given the same priority as all industrial practices.
2. Describe 4 general safety considerations.
3. Do's and Don't when working around the burn pile.

Handouts:

Presentation Outline	Aids and Cues
Title Slide	07-01-CPBM-PPT
Presentation Objectives Upon completion of this presentation, the participants will: 1. Explain why safety must be given the same priority as all industrial practices. 2. Describe 4 general safety considerations. 3. Do's and Don't when working around the burn pile.	07-02-CPBM-PPT
Introduction Burning is an art and not a science and through years of experience, professional land clearers have learned many lessons regarding safety procedures at the burn site. Accidents or rather incidents should not occur. Through a common sense approach, these events can be controlled or better yet eliminated. Through proper planning and due caution this can be achieved. Some of the items covered may seem elementary and basic; however, more accidents occur in familiar surroundings than in stressful situations where individuals are cognizant of danger.	07-03-CPBM-PPT 07-04-CPBM-PPT Picture

Presentation Outline	Aids and Cues
Communications Prior to any firing, a briefing with your personnel should be considered a standard procedure Explain to crews what is expected of them and the objectives of the burn. Location of first aid kits and other related items in case of incident. Location of hospitals if a major incident should occur, or how to get hold of emergency personnel. Cell phone on site is almost a must. Crew locations and what you expect of them prior to lighting the pile. Capabilities and limitations of equipment.	07-05-CPBM-PPT 07-06-CPBM-PPT Picture 07-07-CPBM-PPT 07-08-CPBM-PPT
Personnel Safety Equipment Recommended items of personal protective equipment for land clearing and pile burning: Hardhat Eye protection Bandanna or dust mask Ear Protection Clothing Long sleeve shirt (decrease radiant heat burns) Work pants heavy fabric i.e. jeans Important Note - synthetic fabrics will melt and cause injuries more severe when ignited. Loose fitting and layered clothing will offer extra protection. Fabrics such as Nomex and other fire resistant fibers are available and worn as outer garments will offer state of the arts protection.	07-09-CPBM-PPT 07-10-CPBM-PPT 07-11-CPBM-PPT Picture
Safety Hazards Equipment: Heavy equipment work at times is inherently dangerous and requires continuous thinking and application of safety practices by all individuals. When working with equipment, fire personnel must be aware of these inherent hazards. When approaching an equipment operator, make sure that the operator can see you. Do not approach from the rear of the vehicle or another direction where the driver's vision may be impaired. Large equipment may drop or spring branches from the area in which they	07-12-CPBM-PPT 07-13-CPBM-PPT 07-14-CPBM-PPT

Presentation Outline	Aids and Cues
are working and may cause injuries. Do not work too close to heavy equipment. Equipment work may fluff up soils that may hide hazards.	07-15-CPBM-PPT Picture
Equipment will cause dust to be suspended into the air and limit visibility. Do you know where you are in relation to the equipment? When hooking or cabling, use gloves. Backing horns are a must.	07-16-CPBM-PPT 07-17-CPBM-PPT Picture
Keeping equipment clean and in working order is important. Equipment fires can be dangerous and costly.	07-18-CPBM-PPT
Rough terrain: On the fire ground, many items are trip hazards and need to be recognized. Holes from stumps may be covered by loose soils and pose a hazard. Roots and buried branches may be sharp from breakage and being impaled may ruin your whole day.	07-19-CPBM-PPT 07-20-CPBM-PPT Picture
Starter fuels: Over the years, experience has shown that different fuel mixtures provide varying results. The most satisfactory mixture should not produce a dangerous flash and should also not produce unwanted smoke problems.	07-21-CPBM-PPT 07-22-CPBM-PPT Picture
Gasoline alone, because of its characteristics will cause flashing and may burn individuals away from the pile. Vapors settle on the ground and move away from application site. (Don't)	07-23-CPBM-PPT
Diesel has a higher burning temperature but a lower flash point. The fuel may be harder to start but burns hotter than gasoline. Caution...this fuel does produce appreciable smoke and may cause problems at startup.	07-24-CPBM-PPT
Gasoline and diesel mixture has been used in many areas as the gas will lower the ignition point and the diesel will burn hotter. 1/4 to 1/3 gas to diesel mixture have produced reasonable results (kerosene and mineral spirits may be used). Tires and other types of solvents must not be used	07-25-CPBM-PPT
Hazards: Over the years when clearing rough woods there was little worry about unnatural products in the burn pile. However, with population increases, many items are discarded in these areas to save money from proper disposal fees. Plastic items, such as PVC pipe and furniture, fiberglass, Styrofoam and other products that are made of plastic, produce dangerous products when	07-26-CPBM-PPT 07-27-CPBM-PPT Picture 07-28-CPBM-PPT

Presentation Outline	Aids and Cues
burned. Not only is it dangerous, it is illegal Tires produce unwanted smoke and residues from combustion and are dangerous and illegal. Chemicals: this covers any product from discarded paint cans to drums of unknown substances. Don't put these in the burn pile. Not only illegal and dangerous but a rapid oxidation may result. (Explosion) Other: If the product that is part of the burn pile is not natural and not permitted, don't burn it. Instructor's Note: poison ivy, lantana, Brazilian pepper, and oleander produce toxic or irritating smoke Heat exhaustion/heat stroke Heat Exhaustion: Shock caused by overwork in hot environment. Signs Pale tissue moist clammy skin Profuse sweating Weakness, dizziness and headache Procedures Have patient lie down, elevate feet 6 to 12 inches Maintain body temperature Give patient water If no response, seek medical help Heat Stroke Signs Red Tissue Skin hot and usually dry Temperature 105° F Patient not sweating May be disoriented Seizures Procedures Cool Patient Down Call for medical aid Instructor's note: Obtain heat index from the Florida Forest	07-29-CPBM-PPT Picture 07-30-CPBM-PPT 07-31-CPBM-PPT 07-32-CPBM-PPT 07-33-CPBM-PPT 07-34-CPBM-PPT

Presentation Outline	Aids and Cues
Service or National Weather Service. Recent studies have shown that hydration prior to hard work is necessary to keep personnel at peak performance. Show video: NFES 2071-PMS 306-2 Fatigue and the fire fighter environment 22 min. Do's and Don'ts A. Do be aware of your surroundings B. Do communicate with your personnel C. Do make sure all personal protection equipment is worn D. Do watch for all safety violations of the burn site E. Don't let people free lance on the burn site, proper supervision will stop accidents. Questions	NFES 071-PMS 306-2 07-35-CPBM-PPT 07-36-CPBM-PPT



Florida's Certified Pile Burn Program

Unit 5: Pile Burning Safety

Instructor:

2/9/2023

05-1-CPBM-PPT

1

Pile Burning Safety Objectives

The trainee will be able to:

- Explain why safety must be given the same priority as all industrial practices.
- Describe 4 general safety considerations.
- Do's and Don't when working around the burn pile

2/9/2023

05-2-CPBM-PPT

2

Pile Burning Safety

Burning is an art and not a science and through years of experience, commercial pile burners have learned many lessons regarding safety procedures at the burn sites.

2/9/2023

05-3-CPBM-PPT

3

Pile Burning Safety



2/9/2023

05-4-CPBM-PPT

4

Pile Burning Safety

Communications:

Prior to any firing, a briefing with your personnel should be considered a standard procedure.

2/9/2023

05-5-CPBM-PPT

5

Pile Burning Safety



2/9/2023

05-6-CPBM-PPT

6

Pile Burning Safety

- Explain to crews what is expected of them and the objectives of the burn.
- Location of first aid kits and other related items in case of incident.

2/9/2023

05-7-CPBM-PPT

7

Pile Burning Safety

- Location of hospitals if a major incident should occur, or how to get hold of emergency personnel. Cell phone on site is highly recommended.
- Crew locations and what you expect of them prior to lighting the pile.
- Capabilities and limitations of equipment.

2/9/2023

05-8-CPBM-PPT

8

Pile Burning Safety

Recommended Personal Safety Equipment:

- ❑ Hard Hat
- ❑ Eye Protection
- ❑ Dust Mask
- ❑ Ear Protection

2/9/2023

05-9-CPBM-PPT

9

Pile Burning Safety

□ Clothing

- ✓ Long sleeve shirt
- ✓ Work pants made of heavy fabric preferably cotton.
- ✓ Important Note: synthetic fabric will melt and cause injuries more severe when ignited.

2/9/2023

05-10-CPBM-PPT

10

Pile Burning Safety



2/9/2023

05-11-CPBM-PPT

11

Pile Burning Safety

Safety Hazard

Equipment: Heavy equipment work at times is inherently dangerous and requires continuous thinking and application of safety practices by all individuals. When working with equipment, all personnel must be aware of these inherent hazards.

2/9/2023

05-12-CPBM-PPT

12

Pile Burning Safety

- When approaching an equipment operator, make sure that the operator can see you. Do not approach from the rear of the vehicle or another direction where the driver's vision may be impaired.

2/9/2023

05-13-CPBM-PPT

13

Pile Burning Safety

- Large equipment may drop or spring branches from the area in which they are working and may cause injuries. Do not work too close to heavy equipment.
- Equipment work may fluff up soils that may hide hazards.

2/9/2023

05-14-CPBM-PPT

14

Pile Burning Safety



2/9/2023

05-15-CPBM-PPT

15

Pile Burning Safety

- Equipment will cause dust to be suspended into the air and limit visibility. Do you know where you are in relation to the equipment?
- Backing horns are a must.

2/9/2023

05-16-CPBM-PPT

16

Pile Burning Safety



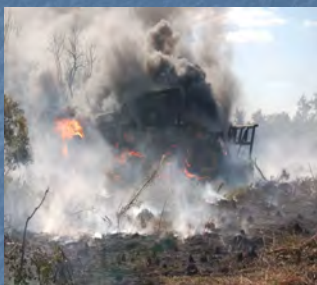
2/9/2023

05-17-CPBM-PPT

17

Pile Burning Safety

- Keeping equipment clean and in proper working order is important. Equipment fires can be dangerous and costly



2/9/2023

05-18-CPBM-PPT

18

Pile Burning Safety

Safety Hazard

- Rough Terrain:
 - ✓ In a recently cleared area where pile burns are being conducted, there are likely to be trip hazards and these need to be recognized.
 - ✓ Holes from stumps may be covered by loose soils and pose a hazard.
 - ✓ Roots and buried branches may be sharp from breakage and being impaled may ruin your whole day.

2/9/2023

05-19-CPBM-PPT

19

Pile Burning Safety



2/9/2023

05-20-CPBM-PPT

20

Pile Burning Safety

Safety Hazard

- Starter fuels: Over the years, experience has shown that different fuel mixtures provide varying results. The most satisfactory mixture should not produce a dangerous flash and should also not produce unwanted smoke problems.

2/9/2023

05-21-CPBM-PPT

21

Pile Burning Safety



2/9/2023

05-22-CPBM-PPT

22

Pile Burning Safety

- Gasoline alone, because of its characteristics will cause flashing and may burn individuals away from the pile. Vapors settle on the ground and move away from application site.

Don't

2/9/2023

05-23-CPBM-PPT

23

Pile Burning Safety

- Diesel has a higher burning temperature but a lower flash point. The fuel may be harder to start but burns hotter than gasoline. Caution...this fuel does produce appreciable smoke and may cause problems at startup.

2/9/2023

05-24-CPBM-PPT

24

Pile Burning Safety

- Gasoline and diesel mixture has been used in many areas as the gas will lower the ignition point and the diesel will burn hotter. $\frac{1}{4}$ to $\frac{1}{3}$ gas to diesel mixture have produced reasonable results (kerosene and mineral spirits may be used)
- Tires and other types of solvents must not be used.

2/9/2023

05-25-CPBM-PPT

25

Pile Burning Safety

- Hazards: Over the years when cleaning rough woods there was little worry about toxic materials being included in the burn pile. However, with population increases, many items are discarded in these areas to save money from proper disposal fees.

2/9/2023

05-26-CPBM-PPT

26

Pile Burning Safety



2/9/2023

05-27-CPBM-PPT

27

Pile Burning Safety

- Plastic items, such as PVC pipe and furniture, fiberglass, Styrofoam and other products that are made of plastic, produce dangerous gases when burned. Not only is it dangerous, it is illegal.
- Burning tires produce excessive smoke and residues which are dangerous and illegal.

2/9/2023

05-28-CPBM-PPT

28

Pile Burning Safety



2/9/2023

05-29-CPBM-PPT

29

Pile Burning Safety

- Chemicals: this covers any product from discarded paint cans to drums of unknown substances. Don't put these in the burn pile. Not only illegal but they can be explosive or harmful in other ways.



2/9/2023

05-30-CPBM-PPT

30

Pile Burning Safety

- Other: make certain that all materials included in your burn are not listed on the prohibited materials list.



2/9/2023

05-31-CPBM-PPT

31

Pile Burning Safety

- Heat Exhaustion: Shock caused by overwork in a hot environment.

Signs

- ✓ Pale tissue moist clammy skin,
- ✓ Profuse sweating
- ✓ Weakness, dizziness and headache.

2/9/2023

05-32-CPBM-PPT

32

Pile Burning Safety

Procedures:

- ✓ Have patient lie down, elevate feet 6 to 12 inches.
- ✓ Maintain body temperature.
- ✓ Give patient water.
- ✓ If no response, seek medical help.

2/9/2023

05-33-CPBM-PPT

33

Pile Burning Safety

Heat Stroke

Signs:

- ✓ Red tissue
- ✓ Skin hot and usually dry
- ✓ Temperature 105°F
- ✓ Patient not sweating
- ✓ May be disoriented
- ✓ Seizures

Procedures:

- ✓ Cool patient down
- ✓ Call for medical aid

2/9/2023
05-34-CPBM-PPT

34

Pile Burning Safety

Do 's and Don'ts

Do be aware of your surroundings

Do communicate with your personnel

Do make sure all personal protection equipment is worn

Do watch for all safety violations

Don't let unauthorized people onto the burn site, proper supervision will stop accidents

2/9/2023
05-35-CPBM-PPT

35



Questions?



FLORIDA
FOREST SERVICE
Conservation & Consumer Services

Contact
John Saddler
850-681-5928
John.Saddler@FDACS.gov



V2-36-OB-EP

36

Pile Burning Safety

Slide 1

Introduction: Instructor introduces him or herself to the class and establishes credibility with the class as someone qualified to teach the safety section.

Slide 2

Have someone in the class read the objectives.
Explain why safety must be given the same priority as all industrial practices.
Describe 4 general safety considerations.
Do's and don't when working around the burn pile

Slide 3

Have someone read this slide.
Burning is an art and not a science and through years of experience, professional landclearers have learned many lessons regarding safety procedures at the burn sites.

Slide 4

Good picture of pile burning.

Slide 5

Have someone read this slide.
Prior to any firing, a briefing with your personnel should be considered a standard procedure.

Slide 6

Fire crew conducting a briefing.

Slide 7

Instructor discusses each point.
Explain to crews what is expected of them and the objectives of the burn.
Location of first aid kits and other related items in case of incident.

Slide 8

Instructor discusses each point.
Location of hospitals if a major incident should occur, or how to get hold of emergency personnel. Cell phone on site is almost a must.
Crew locations and what you expect of them prior to lighting the pile.
Capabilities and limitations of equipment.

Slide 9

Instructor stress how important it is to wear proper PPE and talks about each piece of PPE listed above.

Hard Hat

Eye Protection

Bandanna or dust mask

Ear Protection

Slide 10

Instructor stress how important it is to wear proper PPE and talks about each piece of PPE listed above.

Clothing

Long sleeve shirt

Work pants heavy fabric

Slide 11

Fightfighter in PPE gear.

Slide 12

Instructor stresses the important of this statement.

Equipment: Heavy equipment work at times is inherently dangerous and requires continuous thinking and application of safety practices by all individuals. When working with equipment, fire personnel must be aware of these inherent hazards.

Slide 13

Instructor stresses the important of this statement.

When approaching an equipment operator, make sure that the operator can see you. Do not approach from the rear of the vehicle or another direction where the driver's vision may be impaired

Slide 14

. Instructor stresses the important of these statements.

Large equipment may drop or spring branches from the area in which they are working and may cause injuries.

Do not work too close to heavy equipment.

Equipment work may fluff up soils that may hide hazards

Slide 15

Picture

Tractor in the woods. Instructor stresses safety issues.

Slide 16

Instructor stresses the important of these statements.

Equipment will cause dust to be suspended into the air and limit visibility.

Do you know where you are in relation to the equipment?

When hooking or gabling, use gloves.

Backing horns are a must.

Slide 17

Picture

Tractor moving pile, instructor talks about safety issues associated with this slide.

Slide 18

Statement with picture

Keeping equipment clean and in working order is important. Equipment fires can be dangerous and costly.

Slide 19

Have a student read these statements. Ask if anyone has encountered any of these situations.

On the fire ground, many items are trip hazards and need to be recognized.

Holes from stumps may be covered by loose soils and pose a hazard.

Roots and buried branches may be sharp from breakage and being impaled may ruin your whole day.

Slide 20

Pile ready to be burn.

Slide 21

Instructor stresses the important of this statement.

Starter fuels: Over the years, experience has shown that different fuel mixtures provide varying results. The most satisfactory mixture should not produce a dangerous flash and should also not produce unwanted smoke problems.

Slide 22

Picture of lots of smoke. Stress during pile burning too much smoke is undesirable.

Slide 23

Instructor stresses the important of this statement.

Gasoline alone, because of its characteristics will cause flashing and may burn individuals away from pile. Vapors settle on the ground and move away from application site.

Slide 24

Instructor stresses the important of this statement.

Diesel has a higher burning temperature but a lower flash point. The fuel may be harder to start but burns hotter than gasoline. Caution...this fuel does produce appreciable smoke and may cause problems at startup.

Slide 25

Instructor stresses the important of these statements.

Gasoline and diesel mixture has been used in many areas as the gas will lower the ignition point and the diesel will burn hotter. $\frac{1}{4}$ to $\frac{1}{3}$ gas to diesel mixture have produced reasonable results (kerosene and mineral spirits may be used).

Tires and other types of solvents must not be used.

Slide 26

Firefighter using the proper mixture during a prescribed fire.

Slide 27

Things not to use during pile burning

Slide 28

Instructor stresses the important of this statement.

Hazards: Over the years when cleaning rough woods there was little worry about unnatural products in the burn pile. However, with population increases, many items are discarded in these areas to save money from proper disposal fees.

Slide 29

Instructor stresses the important of these statements.

Plastic items, such as PVC pipe and furniture, fiberglass, styrofoam and other products that are made of plastic, produce dangerous products when burned. Not only is it dangerous, it is illegal.

Tires produce unwanted smoke and residues from combustion and are dangerous and illegal.

Slide 30

Things not to use during pile burning.

Slide 31

Instructor stresses how dangerous chemicals can be in a fire. Have students name some chemicals.

Chemicals: this covers any product from discarded paint cans to drums of unknown substances. Don't put these in the burn pile. Not only illegal and dangerous but a rapid oxidation may result. (EXPLOSION)

Instructor stresses the important of this statement.

Other: If the product that is part of the burn pile is not natural and not permitted, don't burn it.

Slide 32

Have a student read this slide. Discuss how to recognize these effects in ourselves and people we know but how about people who we are working with who we do not know.

Heat Exhaustion: Shock caused by overwork in the hot environment.

Signs

Pale tissue moist clammy skin,

Profuse sweating

Weakness, dizziness and headache.

Slide 33

Stress the important of each of these points.

Procedures:

Have patient lie down, elevate feet 6 to 12 inches.

Maintain body temperature.

Give patient water.

If no response, seek medical help.

Slide 34

Have a student read this slide. Discuss how to recognize these effects in ourselves and people we know but how about people who we are working with who we do not know.

Heat Stroke

Signs

Red tissue

Skin hot and usually dry

Temperature 105°F

Patient not sweating

May be disoriented

Seizures

Procedures:

Cool patient down

Call for medical aid

Slide 35

Have a student read each point and discuss with class.

Do 's and Don't

Do be aware of your surroundings

Do communicate with your personnel

Do make sure all personal protection equipment is worn

Do watch for all safety violation of the burn site

Don't let people free lance on the burn site, proper supervision will stop accidents

Slide 36

Questions

Instructor Presentation Plan

Course: Florida's Certified Pile Burner Program

Unit Number: 6

Presentation Title: Public Relations

Presentation Time: 40 Minutes

Presentation Objectives:

Upon completion of this presentation, the participants will:

1. Understand public relations.
2. Improve public perceptions.
3. Develop a positive image.
4. Plan for public relations.
5. Create better community relations.
6. Work with the media successfully.
7. Learn to deal with smoke complaints.

Handouts:

Presentation Outline	Aids and Cues
Title Slide	06-01-CPB-PPT
Presentation Objectives Upon completion of this presentation, the participants will: 1. Understand public relations. 2. Improve public perceptions. 3. Develop a positive image. 4. Plan for public relations. 5. Create better community relations. 6. Work with the media successfully. 7. Learn to deal with smoke complaints.	06-02-CPB-PPT
Introduction The public's perception of burning is generally negative. They see trees cut and burned for no apparent reason except that they stand in the way of progress. They see or smell smoke and ash and know that it contributes to pollution, and they don't like it.	06-03-CPB-PPT 06-04-CPB-PPT

Presentation Outline	Aids and Cues
Improving Public Perception Improve the public perception of the use of fire as a tool. Routine maintenance of property utilizing pile burning is an environmentally sound practice. Controlled burning can be an effective way to dispose of unwanted vegetation because it saves space in landfills, and helps prevent illegal dumping. It also saves valuable fuel by eliminating the hauling of the material to dump sites. This is why we need to manage our burning practices better. The public's adverse reaction to a mismanaged burn could stop your burning and cause you an expensive alternative. Cooperation with the neighbors will result in better relations with them and ease the burden if problems do occur. Anticipate wind direction, smoke dispersion, and make sure that your piles don't smoke excessively. Identify your project with a sign. Let the public know how to get a hold of you if they have a problem. Your positive attitude will go a long way with the public, they might not agree with what you are doing but they will appreciate your willingness to talk with them and explain your project. Always be professional- your appearance, your language, your mannerisms will all improve your public relations and help you accomplish your goals. Be prepared- have all the necessary tools, equipment, trained personnel and safety devices on scene. When you are adequately prepared, your burn will be successful. Teamwork- a hardworking team of dedicated professionals will make sure all of your bases are covered. Be sure everyone in your organization from the equipment operators to the office staff knows how to answer basic questions about your burn.	06-05-CPB-PPT 06-06-CPB-PPT 06-07-CPB-PPT
Public Relations Planning Research- Identify the issues, Identify the available resources, Identify "the players" Plan of Action- Write the Action Plan: Detail the Who, What, Where, When you will communicate. Implementation- Actually doing the PR project: Calling folks, Submitting articles, Hanging notices on doors, speaking to Civic Groups. Evaluation- Did your Public relations campaign work? You'll soon find out. Listen to the press and the neighbors, did you get any complaints? Successful public relations mean you have created a favorable public image. A periodic assessment is appropriate for individuals, contractors and land management agencies. Have an understanding and appreciation of the human impact. Put yourself in their shoes. Ash in	06-08-CPB-PPT 06-09-CPB-PPT 06-10-CPB-PPT 06-11-CPB-PPT

Presentation Outline	Aids and Cues
your pool, on your car, your asthmatic child, your clean clothes on the line. Be aware of the smoke could have on health. Particulate matter fewer than 10 microns PM10 is carcinogenic and can cause serious health problems for children and the elderly. It is important to give neighbors a chance to close windows to prevent smoke from entering the house or just to go somewhere else for a while. Tell when and why you will be burning to give neighbors the appropriate time to prepare. They may not like the fact that you plan to burn but will appreciate the consideration you have given them. (Draft a <i>Sample letter</i> for future use) Dear Neighbor..... Dealing with Smoke Complaints You may need to wait to burn another day or after the front passes or after the sea breeze kicks in to prevent unwanted smoke drift. Smaller piles create less smoke, wet or dirty piles create much more smoke, try to let your piles dry and sift the dirt out as good as possible. Courtesy will get you everywhere. Remember your neighbors live here too and they can cause problems for you if they are treated poorly. Simple courtesies like advanced notice, and watching your smoke can make a big difference. If you are in charge of the burn, you should be the one responding to the complaint personally. This will give credibility to your burn and possibly ease the neighbors' minds. Review Presentation Objectives Upon completion of this presentation, the participants will: 1. Understand public relations. 2. Improve public perceptions. 3. Develop a positive image. 4. Plan for public relations. 5. Create better community relations. 6. Work with the media successfully. 7. Learn to deal with smoke complaints. Questions	06-12-CPB-PPT 06-13-CPB-PPT 06-14-CPB-PPT 06-15-CPB-PPT 06-16-CPB-PPT



Florida's Certified Pile Burn Manager Program

Unit 6: Public Relations

Instructor:

2/9/2023

06-1-CPBM-PPT

1

Objectives

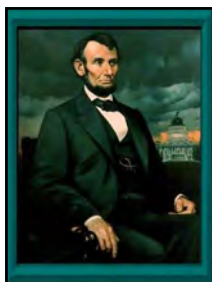
The participants will be able to:

- ❑ Understand public relations
- ❑ Improve public perceptions
- ❑ Develop a positive image
- ❑ Plan for public relations
- ❑ Create better community relations
- ❑ Work with the media successfully
- ❑ Learn to deal with smoke complaints

2/9/2023

06-2-CPB-PPT

2



Public Relations

Webster's' Dictionary:

The methods and activities employed to promote a favorable relationship with the public.

Lincoln:

"Public sentiment is everything. With it, nothing can fail, without it, nothing can succeed"

2/9/2023

06-3-CPB-PPT

3

Public Perception of Pile Burning

Generally Negative

- Smell of Smoke
- Increases Air Pollution
- Don't accept development



2/9/2023

06-4-CPB-PPT

4

Improving Public Perception

- Keeps debris out of landfills and reduces hauling costs.
- Eliminate vegetative debris properly and legally.



2/9/2023

06-5-CPB-PPT

5

Better Burn Management

- Adverse public reactions can stop your burn or lead to expensive alternatives.
- Cooperation with neighbors results in better relations.
- Anticipate wind direction, smoke dispersion and make sure that piles do not smoke excessively.
- Identify your project with a sign.

2/9/2023

06-6-CPB-PPT

6

Image development 4 basic elements:

- **Attitude**
- **Professionalism**
- **Preparedness**
- **Teamwork**



2/9/2023 06-7-CPB-PPT

7

Public Relations Planning 4 Steps

1. **Research**
2. **Plan of Action**
3. **Implementation**
4. **Effectiveness**



2/9/2023 06-8-CPB-PPT

8

PR Plan of Action

Detail projects required
for a successful PR
program

- Dear neighbor letter
- Door notices
- Homeowner groups
- Develop a Fact Sheet!



2/9/2023 06-9-CPB-PPT

9

Be Proactive!

- Don't be secretive.
- Keep adjacent land owners informed.
- Apologize in advance for any inconvenience they may experience.
- Be aware of anyone with respiratory problems.
- Inform law enforcement/fire departments.

2/9/2023

06-10-CPB-PPT

10

Community Relations

- Put your self in their shoes (floating ash, bad smell, respiratory issues)
- Health effects of smoke
- Notify neighbors you will be burning



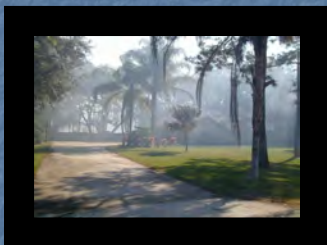
2/9/2023

06-11-CPB-PPT

11

Dealing with Smoke Complaints

- Burn with different wind direction
- Decrease size of piles
- Be courteous of others needs
- Respond to complaints personally

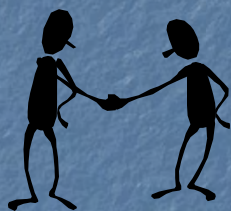


2/9/2023

06-12-CPB-PPT

12

Elements of Good Public Relations



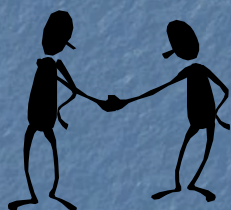
- Every action makes an impression
- Good Public Relations are a prerequisite of success
- Truth and honesty are essential
- Communication is the key to good public relations
- Planning is essential
- Don't take criticisms aimed at industry/agencies personally!

2/9/2023

06-13-CPB-PPT

13

Elements of Good Public Relations cont.



- Don't overreact or respond defensively
- Be helpful and cooperative with public and coworkers (smile)
- Maintain a positive attitude! (This takes practice)
- Keep a sense of humor! But not at someone's expense!
- Give credit where credit is due.

2/9/2023

06-14-CPB-PPT

14

Image is not what we are,
But how we are.....

Perceived



06-15-CPB-PPT

15



Questions?



Contact
John Saddler
850-681-5928
John.Saddler@FDACS.gov



V2-16-OB-EP

16

LVORI	Description
1	Ideally low risk of accidents on highways due to smoke and/or fog formation.
2-3	Relatively low risk of accidents on highways due to smoke and/or fog formation.
4-6	Moderate risk of accidents on highways due to smoke and/or fog formation.
7-10	Particularly high risk of accidents on highways due to smoke and/or fog formation.

RRH	Dispersion Index											
	>40	40-31	30-26	25-17	16-13	12-11	10-9	8-7	6-5	4-3	2	1
<55	1	1	2	2	2	2	2	2	2	2	2	2
55-59	1	1	2	2	2	2	2	3	3	3	3	3
60-64	1	1	2	2	2	2	3	3	3	3	3	3
65-69	1	3	3	3	3	3	3	3	3	3	3	4
70-74	3	3	3	3	3	3	3	3	3	3	3	4
75-79	3	3	3	3	4	4	4	4	4	4	4	4
80-82	3	3	3	3	4	4	4	4	4	5	5	6
83-85	4	4	4	4	4	4	4	4	5	5	5	6
86-88	4	4	4	4	4	5	5	5	5	6	6	6
89-91	4	4	4	4	5	5	5	5	6	6	7	7
92-94	4	4	4	5	5	5	6	6	6	6	7	8
95-97	4	4	4	5	5	6	6	6	7	8	8	9
>97	4	4	4	5	5	7	8	8	9	9	10	10

BURNING LAWS AS APLIED TO PILE BURNERS:

62-256 – Covers “yard waste” and “Tree Cutting Debris” rules

“YARD WASTE”

Burning of yard waste **does not** require an authorization from the FFS. Fire can begin at 0900 and extinguished one hour before sunset. No burning in windy conditions. Fire can be built in a not combustible container, or in a pile of no greater that 8’ in diameter, built on the ground that is cleared of combustible material.

Yard Waste Setbacks:

- 25 feet from wild lands, brush, or a combustible structure;
- 50 feet from any paved public road;
- 150 feet from any occupied building other that that owned or leased by the person doing the burning;
- Fire must be attended at all times;
- Adequate fire extinguishing equipment must be there at all times;
- Moisture content and composition of material is favorable to good burning which will minimize smoke;

NOTE: *Yard waste only includes leaves, shrub trimmings, grass clippings, brush, and palm fronds. It does not include land clearing debris, tree trimming debris, or household paper products.*

“TREE CUTTING DEBRIS”

Tree cutting debris **does** require an authorization from the FFS. After authorization is given, fire can begin at 0900 and have “no visible flame” one hour before sunset or later. If the burn pile is in a smoke sensitive area, the fire must be extinguished no later than one hour before sunset.

Tree Cutting Debris Setbacks:

- 50 feet from any wild lands, brush, or combustible structure;
- 100 feet from any paved, public road (except for road maintenance and widening as long as visibility is not reduced to less than 1000 feet).
- For Residential, Agricultural, and Silvicultural: 300 feet from any occupied building other than that of the landowner;
- Adequate fire extinguishing equipment is there at all times;
- Moisture content and composition of material is favorable to good burning which will minimize smoke;
- Exceptions can be granted in writing by affected parties.

NOTE: *Tree cutting debris consists of trees, tree stumps, and tree limbs resulting from tree removal or tree trimming operations. The tree cutting debris can only be generated on residential property of not more than two family units. Burning is restricted to the site where the debris was generated.*

5I-2 Covers Land Clearing Debris, Both Residential and Commercial

LAND CLEARING DEBRIS

Land clearing debris is uprooted or cleared vegetation resulting from a land clearing operation, including any untreated wood generated by the land clearing operation. Land clearing operations are in connection with construction of buildings, right-of-ways, land development, and mining operations. Land Clearing Debris **does not** include items described as “yard waste” and “tree cutting debris.”

Land Clearing Setbacks:

- 50 feet from any wild lands, brush, or combustible structure;
- 100 feet from any paved public road **and** winds direct smoke away from road, except for road maintenance and widening as long as visibility is not reduced to less than 1000 feet)
- For Residential, Agricultural, and Silvicultural: 300 feet from any occupied building other than that of the landowner;
- Adequate fire extinguishing equipment is there at all times;
- Moisture content and composition of material is favorable to good burning which will minimize smoke;
- Exceptions can be granted in writing by affected parties.

NON RESIDENTIAL LAND CLEARING:

Non residential land clearing is the initial clearing of land for development, right of ways, large developments of more than 2 family units.

Setback for Non Residential Land Clearing:

- 1000 feet from any occupied building other than that of the landowner.
- All other setbacks are the same; ExceptionS can be granted in writing by affected parties;

NOTE: USE OF AN AIR CURTAIN INCINERATOR WILL ALLOW NON RESIDENTIAL LAND CLEARING TO BE CONDUCTED WITH THE SAME SETBACKS AS RESIDENTIAL LAND CLEARING

ACI USE Handout

- The use of Air Curtain Incinerators is allowed for the combustion of land clearing debris. No Department of Environmental Protection permits are required for air curtain incinerators that are designed and used as portable units and that will operate on any one site for less than six months in any year. Prior authorization to use a portable Air Curtain Incinerator must be obtained from the Florida Forest Service. Operation of portable Air Curtain Incinerators shall be authorized provided that the following conditions are met:
- Pit width, length, and side walls shall be properly maintained so that the combustion of the waste within the pit will be maintained at an adequate temperature and with sufficient air re-circulation to provide enough residence time and mixing for complete combustion and control of emissions. Pit width shall not exceed twelve (12) feet, and vertical side walls shall be maintained.
- No waste will be burned above the level of the air curtain in the pit.
- Excessive visible emissions are not allowed except for a period of up to 30 minutes during start ups and shutdowns.
- Air Curtain Incinerators that are intended to be stationary units, i.e., continuously operate at one site for more than six months, or operate at any Department of Environmental Protection (DEP) permitted land-fill, must comply with the requirements of Rule 62-296.401(6) F.A.C. in effect on July 7, 1995, Florida Administrative Code.
- Exceptions to the setback requirements from occupied buildings shall be granted by the Florida Forest Service when the applicant obtains a signed written statement from every affected resident within the setback area that waives their objections to the open burning associated with the land clearing operation and presents the statement to the Florida Forest Service 48 hours in advance of the burning.
- Any open burning that is allowed by this Chapter is restricted to the site where the material was generated and such material shall not be transported to another property to be open burned, unless the rural land clearing debris has been generated by the person, or their agent, who owns the property where it was generated and to where it is transported, or operates an Air Curtain Incinerator provided that the following conditions are met:
- It will be transported to property that is owned or leased by the person who generated the land clearing debris, and will not exceed 6 months from the date of the initial authorization and
- Meets a setback distance of three hundred 300 feet from occupied buildings for Air Curtain Incinerators with vertical refractory-lined walls and with forced under draft air, or
- Meets a setback distance of one thousand 1000 feet from occupied buildings for all other Air Curtain Incinerators or
- Meets a setback distance of one thousand 1000 feet from occupied buildings for land clearing debris burned without an Air Curtain Incinerator.



WILTON SIMPSON
COMMISSIONER

Florida Department of Agriculture and Consumer Services
Florida Forest Service

2/10/2023

BURN PLAN FOR PILE BURNERS

Burner's Customer Number:		Authorization Number:		
Burn Location:				
County:	Section:	Township:	Range:	
Type of Pile(s) to be Burned	☐ Agricultural	☐ Silvicultural	☐ Land Clearing	
Start Date and Time	Date:	Time:		
Expected End Date and Time	Date:	Time:		
Fuel Type				
Fuel Condition				
Soil Type	☐ Sandy	☐ Organic	☐ Other	
Soil Moisture	☐ High	☐ Medium	☐ Low	
Equipment Needs				
Personnel Need				
Meet Legal Setbacks				
Passed Smoke Screening				
Possible Smoke-Sensitive Areas				
Adjacent Landowners to notify				
Special Precautions				
WEATHER FACTORS				
	Acceptable Range		Preferred Value	Actual Value
	Max	Min		
Humidity (%)				
Temperature				
Wind Speed/Direction				
Dispersion Index				
Drought Index				
Days Since Rain				
Wind Direction Restriction or Other Restrictions				
SMOKE SCREENING & MAP ATTACHED				
Prescription Done by:			Certification Number:	
Title:			Date:	
Certified Pile Burner Signature				