

- 1  **Smoke Wise**
- 2
- 3  **Smoke Wise**  
Smoke Management  
Smoke Screening
- 4  **Prescribe burners proverb**  
My fire  
My smoke  
My problem  
Wherever they go
- 5  **Responsibility**  
Fire  
Smoke
- 6  **Smoke Screening Is the Process of Reviewing the Proposed Burn for Any Impacts That May Result From Smoke Emissions**
- 7  **5 Fuel situations**  
**Not Behave models**
- Grass and/or light understory
  - Scattered logging debris
  - Small dry piles
  - Large wet piles (windrows)
  - Palmetto-Gallberry
- 8  **Dispersion 30**
- 9
- Dispersion 30+**
- 10  **Dispersion Index**
- |            |                           |
|------------|---------------------------|
| 1 – 6      | Very poor dispersion      |
| • 7 – 12   | Poor dispersion           |
| • 13 – 20  | Generally poor dispersion |
| • 21 – 40  | Fair dispersion           |
| • 41- 60   | Generally good dispersion |
| • 61 – 100 | Good dispersion           |
| • 101 - +  | Excellent dispersion      |
- 11  **Smoke Screening System**  
Daytime  
Night time
- 12  **So you want to do a burn?**
- What wind directions are safe?
  - Strategy
    - Avoidance
    - Dilution
    - Minimize
- 13  **Things we need to know in order to screen**
- Fuel situation
  - Burn objective
  - Acres
  - Where are the SSAs
- 14  **Screening – day or night**

- Plot the tract on a map
  - Identify the SSAs
  - Based on the burn objective determine the fuel situation, season, and ignition pattern.
  - From the DI table determine the impact distance
  - Based on SSA location determine area where smoke cannot be tolerated within the impact distance
  - Determine acceptable wind direction
- 15  **Step 1**
- Plot the burn area on a map.
  - Plot a 5 chain perimeter around the burn - Use 10 chains if the burn area is greater than 300 acres or helicopter ignition is used.
  - Using the Dispersion Index and the burn plan objective, fuel conditions, and stand conditions determine the smoke impact distance for a 41 -60 and 61 - 100 day.
  - If night burning use appropriate DI & distance
- 16
- 17  **Step 2**
- On the same map plot all downwind SSA
  - List the SSA in the burn plan
  - On the map determine and shade the areas in which smoke cannot be tolerated
  - Determine acceptable wind directions based on category day.
  - List acceptable wind directions in the burn plan.
- 18  **Step 3**
- If no acceptable wind direction is available consider changing parameters; size of burn, burn objective and ignition pattern.
  - Consider burning safety zone in alternate season
  - If fuel is piles consider special pile treatment
  - Burn with extreme caution after taking steps to mitigate any possible smoke problem(minimize risk) and plan contingencies
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- 19  **Step 4**
- If a safe wind direction is available proceed with the burn based on the wind direction and DI
- 20  **Night time for Daytime burn**
- On the same map used for daytime downwind identify the night time down drainage SSA for night time DI (note: distance change)
  - List the down drainage SSA in the burn plan
  - In order to avoid night time SSA problems complete ignition so that burn out is complete one hour before sunset and perform intense mop up to prevent residual smoke from smolder
- 21
- 22  **Night time burning**  
Smoke Screening for a planned night time prescribed burn
- 23  **CAUTION !!!!**
- Night time burning should only be done with substantial experience.
  - Night time burning should only be done in very remote areas. ???
  - Night time burning should only be done in very flat terrain. ????
  - Night time burning requires a uniform consistent fuel; wire grass.
  - Night time burning is useful for reducing fuel in young pine plantations.
  - Night time burning is very risky!
- 24  **Night time burning**

- DI and weather change dramatically at night
- 25
- 26  **Night time burning weather**  
passage of a cold front
- 27
- 28  **Gaining Experience**
- Check the production and dispersion of smoke on ALL prescribed burns in your area.
  - Get burn activity from AFC county office daily
  - Observe downwind and down drainage
  - Document distances
- 29  **More experience**
- Check smoke after dark at down drainage SSA (bridges). Monitor all night and at day break.
  - Be aware of where, at what time, and what relative humidity fog occurs.
  - Be conscious of fog prone areas when preparing prescriptions and smoke screening
- 30  **Caution !!!**  
Other sources of smoke
- 31  **Marginal Conditions**
- SSA close to margins
  - Excessive amounts of fuel
  - Fuel is extremely dry/or very loosely arranged
  - Variable winds
  -
- 32  **Be cautious**  
Do not rely solely on tables or guidelines.
- Use judgment on site:  
based on experience!
- YOU ARE THE PROFESSIONAL
- 33  **Remember the strategies**
- Avoidance
  - Dilution
  - Minimization
- 34  **Special Caution**
- Residual smoke/smoldering fire
  - Windrows and large dirty piles
  - Night-time burning
  - Large burns
  - Helicopter burns
  -
- 35  **Residual-smolder smoke**
- The same volume of fuel consumed with a smoldering fire will produce roughly five times the amount of smoke as a flaming fire.
  - Fuels containing waxes (palmetto and gallberry) produce more smoke.
- 36  **Action - for smolder**
- Less volume of fuel (smaller block)
  - Smaller size fuel (merchandising)
  - Dry fuels (weather timing)
  - No stumps or snags (pre-burn prep)

- No dirt in piles
- 37  **Windrows and large piles**  
Windrows are the most polluting woodland fuel burned in Alabama.
- 38  **Action – for piles**
  - Don't allow loggers to build or leave piles
  - Isolate piles and burn under favorable conditions
  - Break up piles
  - Do NOT push windrows
  - Burn with high ventilation
  - Use root rake when piling
  - Burn with low surface wind speed
  - Complete burnout one hour before sunset
- 39  **Night time burning**  
Smoke produced will not lift due to atmospheric stability
- 40  **Action – for night time burning**
  - Wait until cold front moves through and wind is forecast to blow all night
  - Use backing fire
  - Burn when relative humidity is under 80%
  - Burn when there is no inversion
- 41  **Large burns**  
300+ acres.  
1000+ acres.  
total volume of smoke
- 42  **Large tract options**
  - Break area into smaller blocks
  - Scatter blocks to be burned in one day
  - Burn when atmospheric conditions are favorable
  - Give down drainage SSA special attention
  - Check for nearby burns
  - Be sure smoke from different blocks does not come together down drainage
  - Be conscious of down wind urban areas
  - Increase the DI category day
- 43  **Helicopter burns**  
The rapid ignition of helicopter burns has resulted in many downwind SSA problems
- 44  **Helicopter options**
  - Increase DI by one category
  - Do not use a helicopter when RH over 80% or fog are forecast for the night, dew point, LVORI
  - Do not use when an inversion is forecast
  - Ignite only a few lines on one block then go to another
  - Stop ignition early in the day
  - Burn only with 3000'+ mixing height
  - Don't depend on forecast - OBSERVE
- 45  **Inversion**
  - A layer in the atmosphere where the temperature increases with altitude.
- 46  **Caution !!!**  
Smoke flows down drainage at night!

How far is the nearest urban area, 30, 50 miles?

- Smoke flows into low flat areas and spreads out at night
- 47  **Potential Problems**  
When a potential problem is observed, stop burning and plow out.
- 48  **If a problem develops**
- Call 911 – AFC, Sheriff – request traffic control
  - Post road guards
  - Notify potentially affected people
- 49  **What to do**
- Request assistance from all law enforcement – 911
  - If there are injuries call for an EMT/Paramedic
  - Take precautions to prevent further accidents
  - Investigate and document immediately
  - Secure witness info
  - If at night check for fog
  - Take pictures
  - Secure detailed weather records
  - Seek expert independent advice
  - DOCUMENT! DOCUMENT! DOCUMENT!
  - 
  -
- 50
- Avoid tunnel vision**  
**Be safe**  
**Be conservative**  
**Be cautious**  
**Be considerate**
- 51  **No fire is worth a person's life !!!**
- 52  **Follow the guidelines and burn with competent confidence.**
- 53  **Lets resolve today that no one in this room is going to have a smoke related problem!**
- 54  **PRIDE Tom Sullivan**
- Personal
  - Responsibility for
  - Individual
  - Daily
  - Effort
  -
- 55  **MVP Tom Sullivan**
- 1 • Most
  - Valuable
  - Person
  - 2 • Morales
  - Values
  - Principles
- 56  **Face a turning point and be an MVP**
- Tom Sullivan**
- 57  **PASSION**

*is the catalyst for  
PURPOSE*

*As a prescribed burner we are all part of a team that must have passion for burning correctly. Take pride in the people that share this with you.*

*Tom Sullivan*

- 58  *Alabama's forest resources need you and they need more fire.*
- 59

*Zero Defects*

*No smoke related problem!*

- 60  *Questions*
- Comments*
- Discussion*

- 61  *We trained hard – but it seemed that every time we were beginning to form up into teams, we would be reorganized. I was to learn that later in life we tend to meet any new situation by reorganizing, and a wonderful method it can be for creating the illusion of progress while producing confusion, inefficiency, and demoralization.*

*-Petronius Arbiter 66 A.D.*

*(Quoted in David E. Lundstrom's A few Good Men and Univac from The MIT Press)*