Source Category:	**Construction Land Clearing Waste Burning**
SCC Code:	**2610000500**
Pollutants of Concern:	**PM-10, PM-2.5**

How is the National Emission Inventory developed for this category?

Current Methodology (see also the link to the NEI Methodology Description):

- The number of acres disturbed by residential, non-residential and roadway construction are estimated and then these values are added together to obtain a county-level estimate of total acres disturbed by land-clearing. County-level emissions from land clearing debris are then calculated by multiplying the total acres disturbed by construction by a weighted loading factor and emission factor.
- The BELD3 data base in BEIS was used to determine the number of acres of hardwoods, softwoods, and grasses in each county. Average loading factors were weighted according to the percent contribution of each type of vegetation class to the total land area for each county. The loading factors for slash hardwood and slash softwood were further adjusted by a factor of 1.5 to account for the mass of tree that is below the soil surface that would also be subject to burning once the land is cleared.
- Apply weighted county loading factor to number of acres disturbed by land clearing activities to estimate the amount of material or fuel subject to burning.
- Emissions factors for VOC, NOx, CO, SO2, PM10 and PM2.5 obtained from AP- 42 (Table 2.5-1).
- This source is now included in the EPA Area Source Emissions Model (ASEM – see link below).

Current Variables/Assumptions Used:

- National estimate of housing permit data and housing starts [*Census*]
- National estimate of acres cleared per housing unit type. [*Earlier work by MRI*]
- National estimate of 1.6 acres disturbed per $1 million spent on non-residential construction. [*Census*]
- Since average land cover was assumed, no consideration of the particular land cover type for any particular construction activity.
- All acreage from residential construction is assumed to be cleared and all debris burned.
- Emissions from road clearing projects were based largely on the cost of road construction obtained from the NCDOT. [*North Carolina Dept. of Transportation*]

Uncertainties / Shortcomings of Current Methods:

- EPA uses an average of the vegetation type (from BELD3) in each county to

determine fuel loading. Obvioulsy the fuel loading for any specific project will be different from the county average.

- EPA assumes that all debris is burned.
- Similarly EPA uses a single estimate of 1.6 acres of land disturbed per 10^6 dollars spent for all commercial/industrial construction. It is likely that this number varies significantly depending on the type of structure and area of the country where the construction is taking place.
- EPA based the emission estimates for road clearing largely on the cost of road construction obtained from the North Carolina Department of Transportation. These estimates are used for the entire country, even though labor costs, land costs, and costs to prepare the road bed in different types of terrain vary significantly in different locations.

How can States, Locals, and Tribes improve upon this methodology?

- The use of local information on the amount and type of biomass per acre in specific areas, and local information on how much of the land clearing debris that is actually burned would significantly improve this methodology. [*Air Agency or local planning agencies*]
- Estimates of specific counties with burning bans, and specification of counties where wastes are burned. [*Air Agency/ Solid Waste Management Organization*]
- State estimates used to determine costs and corresponding size of road and nonresidential construction projects. [*State Departments of Transportation, Development or Commerce Agencies*]

Where can I find Additional Information and Guidance?

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AP-42, Section 2.5	http://www.epa.gov/ttn/chief/ap42/ch02/final/c02s05.pdf
Area Source Emissions Model	http://www.epa.gov/ttn/chief/software/asem/index.html
Biogenic Emissions Inventory System	http://www.epa.gov/ttnchie1/emch/models/beis/index.html

County Level Emission Density Maps for this Source Category	http://www.epa.gov/ttn/chief/eiip/pm25inventory/densitymaps.pdf
EIIP Document on Conducting Surveys	http://www.epa.gov/ttn/chief/eiip/techreport/volume03/iii24.pdf
EIIP Document on Open Burning	http://www.epa.gov/ttn/chief/eiip/techreport/volume03/iii16_apr2001.pdf
NEI Inventory Methodology Description	ftp://ftp.epa.gov/EmisInventory/finalnei99ver2/criteria/