Emission Source/Operating Scenario Data **Page 1 of 2**

Coal Crusher/Conveyor Building

If Emission Source has multiple Operating Scenarios, complete one form for each.
(All permitted, insignificant and/or Non-permitted Sources)

Facility Name: University of North Carolina at Chapel Hill

Facility ID #: 6800043
Permit #: 3069T17
County: Orange
DAQ Region: RRO

North Carolina Department of Environment and Natural Resources
Division of Air Quality
Air Pollutant Point Source Emissions Inventory - Calendar Year 2004

1. **Emission Source ID No.** (*same as in permit* - Use "U" prefix for non-permitted and "I" for insignificant)						**ES-010A**
2. **Emission Source Description**	**Coal Crusher / Conveyor Building**					
3. **Operating Scenario Description**	**N/A**					
4. **Maximum Permitted Operating Rate** With Units (Ex. gal/hr, mmBtu/hr)	**60 tons/hr**					
5. **Throughput in CY** (e.g. production or fuel use) With Units (Ex. lbs/yr, gal/yr)		**115,120**				**tons/yr**
6. **Fuel Information** *(if fuel used)*	% Sulfur	N/A	% Ash	N/A	Heat Content (Btu/lb or mmCF)	N/A

If you do not provide annual throughput/fuel use, your inventory will be deemed incomplete and returned to you.

7. **Capture Efficiency** *(% Emissions from Emission Source Vented to Control Device or Stack)*	**100%**

8. **Control Device Information**, if none, write "none"

	Control Device ID # (as listed in permit)	Control Device Description
i. (nearest stack)	**CD-013**	**Bagfilter**
ii.	**N/A**	**N/A**
iii.	**N/A**	**N/A**
iv.	**N/A**	**N/A**

9. Stack Information (sources vented to more than one stack use additional entry lines)

Stack ID #	Height (in whole feet)	Diameter (feet) Circle (enter #), Rectangle (L#, W#) (in 0.1 feet)	Temperature (F)	Velocity (feet/sec)	Volume Flow Rate (acfm)	Release Point Description (Fugitive, Vertical, Vertical w/ cap, Horizontal, Downward - *see instructions*)
EP-12-053	**47**	**1.8**	**Ambient**	**44**	**6,500**	**Vertical**
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10. **Operating Schedule** (Source/Operating Scenario that best characterizes calendar year)

Hours/Day	**6**	Days/Week	**7**	Weeks/Year	**52**	Hours/Year	**1,919**
Typical Start & End Times in CY:				Start:	**N/A**	End:	**N/A**

11. **Seasonal Periods Percent Annual Throughput** (for Emission Source in CY, MUST total 100%)

Jan-Feb, 2002 + Dec, 2002	**31.91%**	Mar-May	**22.84%**	June-Aug	**24.29%**	Sept-Nov	**20.97%**

To review instructions or get a blank copy, go to web page: http://daq.state.nc.us/Offices/Planning/Attainment/est.html

Copy and Use additional Sheets as needed

Emission Source/Operating Scenario Data **Page 2 of 2**

Coal Crusher/Conveyor Building

If Emission Source has multiple Operating Scenarios, complete one form for each.
(All permitted, insignificant and/or Non-permitted Sources)

Facility Name: University of North Carolina at Chapel Hill

Facility ID #: 6800043
Permit #: 3069T17
County: Orange
DAQ Region: RRO

North Carolina Department of Environment and Natural Resources
Division of Air Quality
Air Pollutant Point Source Emissions Inventory - Calendar Year 2004

Emissions: **Attach calculations and documentation of emission factors or other estimation methods used.**

Emission Source ID No. (*same as in permit* - Use "U" prefix for non-permitted and "I" for insignificant) **ES-010A**

Criteria (NAAQS) Pollutants	Pollutant Code	Emissions Criteria (Tons/Year)	Emissions Estimation Method Code (see instructions for code)	Control Efficiency (Net after all controls)
Carbon Monoxide	CO	N/A	N/A	N/A
NOx	NOx	N/A	N/A	N/A
PM Total	PM	0.82	2	99.80%
PM-2.5	PM-2.5	0.78	2	97.90%
PM-10	PM-10	0.82	2	99.60%
SO2	SO2	N/A	N/A	N/A
VOC	VOC	N/A	N/A	N/A
HAP/TAP Pollutants (In Alphabetical Order)	**CAS #** (or other code - see instructions)	**Emissions HAP/TAP** (Pounds/Year)	**Emissions Estimation Method Code** (see instructions for code)	**Control Efficiency** (Net after all controls)

Emissions and data on this form required to report or verify emissions cannot be held confidential.

To review instructions or get a blank copy, go to web page: **http://daq.state.nc.us/Offices/Planning/Attainment/est.html**

Copy and Use additional Sheets as needed.

University of North Carolina at Chapel Hill

Chapel Hill, North Carolina
Orange County
Facility ID # 6800043
Permit # 03069T17

2004 Annual Emissions Inventory

Emissions from the Conveyor/Crusher Building

(ES-010A)

Assume that the total amount of coal conveyed to the crusher is equal to the total amount of coal combusted in 2004.

Boiler #6	58,243	Tons/yr
Boiler #7	56,878	Tons/yr
Total	115,120	Tons/yr

The conveyor transfer points and crushers in the Coal Crusher Building are controlled by a vacuum dust pick-up system ducted to a baghouse. The air flow rate through the baghouse is 6,650 acfm. Emissions from the baghouse are conservatively estimated at 0.015 gr/acfm.

60 ton/hr, conveying rate
1,918.7 hrs/yr, conveying time

lb/yr = (6,650 acfm) (60 min/hr) (hr/yr) (0.015 gr/acfm) (1/7000 lb/gr)

Total Emissions from the Crusher	**11,483,265**	**gr/yr**
	1,640	**lb/yr**
	0.82	**ton/yr**

100% of these emissions are PM-10
95% of these emissions are PM-2.5

University of North Carolina at Chapel Hill

Chapel Hill, North Carolina

Orange County

Facility ID # 6800043

Permit # 03069T17

2004 Annual Emissions Inventory

Ash Silo with Loadout
(ES-030)

Emission Source/Operating Scenario Data **Page 1 of 2**

Ash Silo with Loadout

If Emission Source has multiple Operating Scenarios, complete one form for each.
(All permitted, Insignificant and/or Non-permitted Sources)

Facility Name: **University of North Carolina at Chapel Hill**

Facility ID #: **6800043**
Permit #: **3069T17**
County: **Orange**
DAQ Region: **RRO**

North Carolina Department of Environment and Natural Resources
Division of Air Quality
Air Pollutant Point Source Emissions Inventory - Calendar Year 2004

1. **Emission Source ID No.** (*same as in permit* - Use "U" prefix for non-permitted and "I" for insignificant)						**ES-030**
2. **Emission Source Description**	**Ash Silo with Loadout**					
3. **Operating Scenario Description**	**N/A**					
4. **Maximum Permitted Operating Rate** With Units (Ex. gal/hr, mmBtu/hr)	**16 tons/hr**					
5. **Throughput in CY** (e.g. production or fuel use) With Units (Ex. lbs/yr, gal/yr)	**24,314**					**tons/yr**
6. **Fuel Information** (*if fuel used*)	% Sulfur	**N/A**	% Ash	**N/A**	Heat Content (Btu/lb or mmCF)	**N/A**

If you do not provide annual throughput/fuel use, your inventory will be deemed incomplete and returned to you.

7. **Capture Efficiency** (*% Emissions from Emission Source Vented to Control Device or Stack*)	**100%**

8. **Control Device Information,** if none, write "none"

	Control Device ID # (as listed in permit)	Control Device Description
i. (nearest stack)	**CD-031**	**Bagfilter**
ii.	**N/A**	**N/A**
iii.	**N/A**	**N/A**
iv.	**N/A**	**N/A**

9. Stack Information (sources vented to more than one stack use additional entry lines)

Stack ID #	Height (in whole feet)	Diameter (feet) Circle (enter #), Rectangle (L#, W#) (in 0.1 feet)	Temperature (F)	Velocity (feet/sec)	Volume Flow Rate (acfm)	Release Point Description (Fugitive, Vertical, Vertical w/ cap, Horizontal, Downward - *see instructions*)
Fugitive						
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10. **Operating Schedule** (Source/Operating Scenario that best characterizes calendar year)

Hours/Day	10	Days/Week	7	Weeks/Year	52	Hours/Year	4,544
Typical Start & End Times in CY:				Start:	N/A	End:	N/A

11. **Seasonal Periods Percent Annual Throughput** (for Emission Source in CY, MUST total 100%)

Jan-Feb, 2002 + Dec, 2002	**31.91%**	Mar-May	**22.84%**	June-Aug	**24.29%**	Sept-Nov	**20.97%**

To review instructions or get a blank copy, go to web page: http://daq.state.nc.us/Offices/Planning/Attainment/est.html

Copy and Use additional Sheets as needed

Emission Source/Operating Scenario Data **Page 2 of 2**

Ash Silo with Loadout

If Emission Source has multiple Operating Scenarios, complete one form for each.
(All permitted, Insignificant and/or Non-permitted Sources)

Facility Name: University of North Carolina at Chapel Hill

Facility ID #: 6800043
Permit #: 3069T17
County: Orange
DAQ Region: RRO

North Carolina Department of Environment and Natural Resources
Division of Air Quality
Air Pollutant Point Source Emissions Inventory - Calendar Year 2004

Emissions: **Attach calculations and documentation of emission factors or other estimation methods used.**

Emission Source ID No. (*same as in permit* - Use "U" prefix for non-permitted and "I" for insignificant) ES-030

Criteria (NAAQS) Pollutants	Pollutant Code	Emissions Criteria (Tons/Year)	Emissions Estimation Method Code (see instructions for code)	Control Efficiency (Net after all controls)
Carbon Monoxide	CO	N/A	N/A	N/A
NOx	NOx	N/A	N/A	N/A
PM Total	PM	1.63	2	99.80%
PM-2.5	PM-2.5	1.55	2	97.90%
PM-10	PM-10	1.63	2	99.60%
SO2	SO2	N/A	N/A	N/A
VOC	VOC	N/A	N/A	N/A
HAP/TAP Pollutants (In Alphabetical Order)	**CAS #** (or other code - see instructions)	**Emissions HAP/TAP** (Pounds/Year)	**Emissions Estimation Method Code** (see instructions for code)	**Control Efficiency** (Net after all controls)

Emissions and data on this form required to report or verify emissions cannot be held confidential.

To review instructions or get a blank copy, go to web page: **http://daq.state.nc.us/Offices/Planning/Attainment/est.html**

Copy and Use additional Sheets as needed.

University of North Carolina at Chapel Hill

Chapel Hill, North Carolina
Orange County
Facility ID # 6800043
Permit # 03069T17

2004 Annual Emissions Inventory

Ash Silo with Loadout
(ES-030)

Ash is conveyed to the silo and loaded into trucks for off-site transport. The ash is pneumatically conveyed to the silo with the conveying air filtered through a baghouse (CD-031) prior to discharge. The ash loadout to the transfer trucks is via a pipe within a pipe configuration. The annular space between the internal and external pipes is under a vacuum. This vacuum system collects the dust generated during truck loading and ducts it to the baghouse (CD-031). Ash is composed of coal flyash and $CaCO_3$ / $CaSO_3$ from desulfurization. Ash is similar to flyash used in concrete batching operations.

24,314.00 ton/yr, ash loaded in 2003

1. Uncaptured Truck Loading Fugitives

Truck loading operations are in an enclosure with discharge into an enclosed truck bed. The vacuum at the ash discharge point and enclosures should insure a minimum of 95% capture. Uncontrolled emissions based on conservatively high estimated 0.5 lb/ton emission factor (0.02 lb/ton AP-42 for batch truck loading at concrete plants).

24,314	ton/yr, Ash Generated
0.5	lb/ton, Emission Factor
95%	Capture Efficiency
607.9	lb/yr, Emissions
0.30	ton/yr, Emissions

Fugitives from the Enclosure:

0.016	ton/yr, Emissions

2. Baghouse Emissions

The air flow rate through the baghouse is 4,490 acfm. Emissions from the baghouse are conservatively estimated at 0.015 gr/acfm.

lb/yr = (4,490 acfm) (60 min/hr) (hr/yr) (0.015 gr/acfm) (1/7000 lb/gr)

4,490	acfm, Baghouse Flow Rate
4,544	hrs/yr, Operating Hours
0.015	gr/acfm, Emission Factor from Baghouse
2,623	lb/yr, Emissions
1.31	ton/yr, Emissions

3. Total Emissions

0.30	ton/yr, Emissions Truck Loading
0.016	ton/yr, Emissions, Truck Fugitives
1.31	ton/yr, Emissions, Baghouse
1.63	ton/yr, Total Emissions PM
1.63	ton/yr, Total Emissions PM-10
1.55	ton/yr, Total Emissions PM-2.5

100% as PM-10
95% as PM-2.5

University of North Carolina at Chapel Hill

Chapel Hill, North Carolina

Orange County

Facility ID # 6800043

Permit # 03069T17

2004 Annual Emissions Inventory

Wet Ash Loadout
(ES-030A)

(This unit was not in operation during CY 2004)

Emission Source/Operating Scenario Data **Page 1 of 1**

Wet Ash Loadout

If Emission Source has multiple Operating Scenarios, complete one form for each.
(All permitted, Insignificant and/or Non-permitted Sources)

Facility Name: **University of North Carolina at Chapel Hill**

Facility ID #:	**6800043**
Permit #:	**3069T17**
County:	**Orange**
DAQ Region:	**RRO**

North Carolina Department of Environment and Natural Resources
Division of Air Quality
Air Pollutant Point Source Emissions Inventory - Calendar Year 2004

1. **Emission Source ID No.** (*same as in permit* - Use "U" prefix for non-permitted and "I" for insignificant)							**ES-030A**
2. **Emission Source Description**	**Wet Ash Loadout**						
3. **Operating Scenario Description**	**N/A**						
4. **Maximum Permitted Operating Rate** With Units (Ex. gal/hr, mmBtu/hr)	**N/A**						
5. **Throughput in CY** (e.g. production or fuel use) With Units (Ex. lbs/yr, gal/yr)		**0**					**ton/yr**
6. **Fuel Information** *(if fuel used)*	% Sulfur	N/A	% Ash	N/A	Heat Content (Btu/lb or mmCF)		N/A

If you do not provide annual throughput/fuel use, your inventory will be deemed incomplete and returned to you.

7. **Capture Efficiency** *(% Emissions from Emission Source Vented to Control Device or Stack)*	**N/A**

8. **Control Device Information**, if none, write "none"

	Control Device ID # (as listed in permit)	Control Device Description
i. (nearest stack)	**None**	**None**
ii.	**None**	**None**
iii.	**None**	**None**
iv.	**None**	**None**

9. Stack Information (sources vented to more than one stack use additional entry lines)

Stack ID #	Height (in whole feet)	Diameter (feet) Circle (enter #), Rectangle (L#, W#) (in 0.1 feet)	Temperature (F)	Velocity (feet/sec)	Volume Flow Rate (acfm)	Release Point Description (Fugitive, Vertical, Vertical w/ cap, Horizontal, Downward - *see instructions*)
N/A	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
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10. **Operating Schedule** (Source/Operating Scenario that best characterizes calendar year)

Hours/Day	N/A	Days/Week	N/A	Weeks/Year	N/A	Hours/Year	N/A
Typical Start & End Times in CY:				Start:	N/A	End:	N/A

11. **Seasonal Periods Percent Annual Throughput** (for Emission Source in CY, **MUST** total 100%)

Jan-Feb, 2002 + Dec, 2002	**0%**	Mar-May	**0%**	June-Aug	**0%**	Sept-Nov	**0%**

This Unit Was Not in Operation During CY 2004.

To review instructions or get a blank copy, go to web page: http://daq.state.nc.us/Offices/Planning/Attainment/est.html

Copy and Use additional Sheets as needed

University of North Carolina at Chapel Hill

Chapel Hill, North Carolina

Orange County

Facility ID # 6800043

Permit # 03069T17

2004 Annual Emissions Inventory

Three Enclosed Railcar Dump Pits
(ES-010)

Emission Source/Operating Scenario Data **Page 1 of 2**

Railcar Dump Pits

If Emission Source has multiple Operating Scenarios, complete one form for each. (All permitted, Insignificant and/or Non-permitted Sources)

Facility Name: University of North Carolina at Chapel Hill

Facility ID #: 6800043
Permit #: 3069T17
County: Orange
DAQ Region: RRO

North Carolina Department of Environment and Natural Resources
Division of Air Quality
Air Pollutant Point Source Emissions Inventory - Calendar Year 2004

1. **Emission Source ID No.** *(same as in permit* - Use "U" prefix for non-permitted and "I" for insignificant*)*							**ES-010**
2. **Emission Source Description**	**Three Enclosed Railcar Dump Pits**						
3. **Operating Scenario Description**	**N/A**						
4. **Maximum Permitted Operating Rate** With Units (Ex. gal/hr, mmBtu/hr)	**350 tons/hr**						
5. **Throughput in CY** (e.g. production or fuel use) With Units (Ex. lbs/yr, gal/yr)		**115,120**				**tons/yr**	
6. **Fuel Information** *(if fuel used)*	% Sulfur	N/A	% Ash	N/A	Heat Content (Btu/lb or mmCF)		N/A

If you do not provide annual throughput/fuel use, your inventory will be deemed incomplete and returned to you.

7. **Capture Efficiency** *(% Emissions from Emission Source Vented to Control Device or Stack)*	**N/A**

8. **Control Device Information,** if none, write "none"

	Control Device ID # (as listed in permit)	Control Device Description
i. (nearest stack)	N/A	Enclosed Dump Pits
ii.	CD-018	Wet Spray Dust Suppression System
iii.	N/A	N/A
iv.	N/A	N/A

9. Stack Information (sources vented to more than one stack use additional entry lines)

Stack ID #	Height (in whole feet)	Diameter (feet) Circle (enter #), Rectangle (L#, W#) (in 0.1 feet)	Temperature (F)	Velocity (feet/sec)	Volume Flow Rate (acfm)	Release Point Description (Fugitive, Vertical, Vertical w/ cap, Horizontal, Downward - *see instructions*)
Fugitive						
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10. **Operating Schedule** (Source/Operating Scenario that best characterizes calendar year)

Hours/Day	1.5	Days/Week	5	Weeks/Year	52	Hours/Year	390
Typical Start & End Times in CY:				Start:	N/A	End:	N/A

11. **Seasonal Periods Percent Annual Throughput** (for Emission Source in CY, MUST total 100%)

Jan-Feb, 2002 + Dec, 2002	31.91%	Mar-May	22.84%	June-Aug	24.29%	Sept-Nov	20.97%

To review instructions or get a blank copy, go to web page: http://daq.state.nc.us/Offices/Planning/Attainment/est.html

Copy and Use additional Sheets as needed

Emission Source/Operating Scenario Data **Page 2 of 2**

Railcar Dump Pits

If Emission Source has multiple Operating Scenarios, complete one form for each.
(All permitted, Insignificant and/or Non-permitted Sources)

Facility Name: University of North Carolina at Chapel Hill

Facility ID #: 6800043
Permit #: 3069T17
County: Orange
DAQ Region: RRO

North Carolina Department of Environment and Natural Resources
Division of Air Quality
Air Pollutant Point Source Emissions Inventory - Calendar Year 2004

Emissions: **Attach calculations and documentation of emission factors or other estimation methods used.**

Emission Source ID No. (*same as in permit* - Use "U" prefix for non-permitted and "I" for insignificant) **ES-010**

Criteria (NAAQS) Pollutants	Pollutant Code	Emissions Criteria (Tons/Year)	Emissions Estimation Method Code (see instructions for code)	Control Efficiency (Net after all controls)
Carbon Monoxide	CO	N/A	N/A	N/A
NOx	NOx	N/A	N/A	N/A
PM Total	PM	7.60E-03	2	67%
PM-2.5	PM-2.5	1.13E-03	2	40%
PM-10	PM-10	3.60E-03	2	63%
SO2	SO2	N/A	N/A	N/A
VOC	VOC	N/A	N/A	N/A
HAP/TAP Pollutants (In Alphabetical Order)	**CAS #** (or other code - see instructions)	**Emissions HAP/TAP** (Pounds/Year)	**Emissions Estimation Method Code** (see instructions for code)	**Control Efficiency** (Net after all controls)

Emissions and data on this form required to report or verify emissions cannot be held confidential.

To review instructions or get a blank copy, go to web page: **http://daq.state.nc.us/Offices/Planning/Attainment/est.html**

Copy and Use additional Sheets as needed.

University of North Carolina at Chapel Hill

Chapel Hill, North Carolina
Orange County
Facility ID # 6800043
Permit # 03069T17

2004 Annual Emissions Inventory

Fugitive Losses from the unloading of coal from railcars into a dump pit.
(ES-010)

Assume that the total amount of coal unloaded is equal to the total amount of coal combusted in 2004.

Boiler #6	58,243	Tons/yr
Boiler #7	56,878	Tons/yr
Total	115,120	Tons/yr

From section 13.2.4 of the AP-42, coal handling is well approximated by aggregate handling operations. The following equation represents the particulate emissions generated by the dropping of coal into the dump pit.

$$E = k\,(0.0032)\,\frac{(u/5)^{1.3}}{(m/2)^{1.4}}$$

E = Emission Factor (lb/ton)

k = Particle Size Multiplier
u = Mean Wind Speed (mph)
m = Material Moisture Content (%)

k Value	Particulate Size	Emission Factor (lb/ton)
0.74	PM	1.32E-04
0.35	PM-10	6.25E-05
0.11	PM-2.5	1.96E-05

Average moisture content of coal is 4.5%
The dump area is fully enclosed, therefore the minimum wind speed of 1.3 mph was used.

Total Coal **115,120 tons/yr**

Emissions from the unloading of coal:

	Emission Factor (lb/ton)	Emissions (lb/yr)	Emissions (ton/yr)
PM	1.32E-04	15.20	7.60E-03
PM-10	6.25E-05	7.19	3.60E-03
PM-2.5	1.96E-05	2.26	1.13E-03

University of North Carolina at Chapel Hill

Chapel Hill, North Carolina

Orange County

Facility ID # 6800043

Permit # 03069T17

2004 Annual Emissions Inventory

Coal Silos
(ES-1, ES-2)

Emission Source/Operating Scenario Data **Page 1 of 2**

Coal Silos

If Emission Source has multiple Operating Scenarios, complete one form for each.
(All permitted, Insignificant and/or Non-permitted Sources)

Facility Name: University of North Carolina at Chapel Hill

Facility ID #: 6800043
Permit #: 3069T17
County: Orange
DAQ Region: RRO

North Carolina Department of Environment and Natural Resources
Division of Air Quality
Air Pollutant Point Source Emissions Inventory - Calendar Year 2004

1. **Emission Source ID No.** (*same as in permit* - Use "U" prefix for non-permitted and "I" for insignificant)							**ES-1 and ES-2**
2. **Emission Source Description**		**Two Coal Storage Silos**					
3. **Operating Scenario Description**		**N/A**					
4. **Maximum Permitted Operating Rate** With Units (Ex. gal/hr, mmBtu/hr)		**350 tons/hr**					
5. **Throughput in CY** (e.g. production or fuel use) With Units (Ex. lbs/yr, gal/yr)		**115,120**				**tons/yr**	
6. **Fuel Information** (*if fuel used*)	% Sulfur	N/A	% Ash	N/A	Heat Content (Btu/lb or mmCF)		N/A

If you do not provide annual throughput/fuel use, your inventory will be deemed incomplete and returned to you.

7. **Capture Efficiency** (*% Emissions from Emission Source Vented to Control Device or Stack*)	**100%**

8. **Control Device Information**, if none, write "none"

	Control Device ID # (as listed in permit)	Control Device Description
i. (nearest stack)	**CD-011**	**Bagfilter Installed on Silo ES-1**
ii.	**CD-012**	**Bagfilter Installed on Silo ES-2**
iii.	**N/A**	**N/A**
iv.	**N/A**	**N/A**

9. Stack Information (sources vented to more than one stack use additional entry lines)

Stack ID #	Height (in whole feet)	Diameter (feet) Circle (enter #), Rectangle (L#, W#) (in 0.1 feet)	Temperature (F)	Velocity (feet/sec)	Volume Flow Rate (acfm)	Release Point Description (Fugitive, Vertical, Vertical w/ cap, Horizontal, Downward - *see instructions*)
EP-12-028	**140**	**0.9**	**Ambient**	**61**	**2,500**	**Horizontal**
EP-12-036	**140**	**0.9**	**Ambient**	**61**	**2,500**	**Horizontal**
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10. **Operating Schedule** (Source/Operating Scenario that best characterizes calendar year)

Hours/Day	1.5	Days/Week	5	Weeks/Year	52	Hours/Year	390
Typical Start & End Times in CY:				Start:	N/A	End:	N/A

11. **Seasonal Periods Percent Annual Throughput** (for Emission Source in CY, MUST total 100%)

Jan-Feb, 2002 + Dec, 2002	**31.91%**	Mar-May	**22.84%**	June-Aug	**24.29%**	Sept-Nov	**20.97%**

To review instructions or get a blank copy, go to web page: http://daq.state.nc.us/Offices/Planning/Attainment/est.html

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Emission Source/Operating Scenario Data **Page 2 of 2**

Coal Silos

If Emission Source has multiple Operating Scenarios, complete one form for each.
(All permitted, insignificant and/or Non-permitted Sources)

Facility Name: University of North Carolina at Chapel Hill

Facility ID #: 6800043
Permit #: 3069T17
County: Orange
DAQ Region: RRO

North Carolina Department of Environment and Natural Resources
Division of Air Quality
Air Pollutant Point Source Emissions Inventory - Calendar Year 2004

Emissions: **Attach calculations and documentation of emission factors or other estimation methods used.**

Emission Source ID No. (*same as in permit* - Use "U" prefix for non-permitted and "I" for insignificant) **ES-1 and ES-2**

Criteria (NAAQS) Pollutants	Pollutant Code	Emissions Criteria (Tons/Year)	Emissions Estimation Method Code (see instructions for code)	Control Efficiency (Net after all controls)
Carbon Monoxide	CO	N/A	N/A	N/A
NOx	NOx	N/A	N/A	N/A
PM Total	PM	5.25E-03	2	99.80%
PM-2.5	PM-2.5	4.99E-03	2	97.90%
PM-10	PM-10	5.25E-03	2	99.60%
SO2	SO2	N/A	N/A	N/A
VOC	VOC	N/A	N/A	N/A
HAP/TAP Pollutants (In Alphabetical Order)	**CAS #** (or other code - see instructions)	**Emissions HAP/TAP** (Pounds/Year)	**Emissions Estimation Method Code** (see instructions for code)	**Control Efficiency** (Net after all controls)

Emissions and data on this form required to report or verify emissions cannot be held confidential.

To review instructions or get a blank copy, go to web page: **http://daq.state.nc.us/Offices/Planning/Attainment/est.html**

Copy and Use additional Sheets as needed.

University of North Carolina at Chapel Hill

Chapel Hill, North Carolina
Orange County
Facility ID # 6800043
Permit # 03069T17

2004 Annual Emissions Inventory

Emissions from the loading of 2 coal storage silos.
(ES-1, ES-2)

Assume that the total amount of coal fed to the silos is equal to the total amount of coal combusted in 2004.

Boiler #6	58,243	Tons/yr
Boiler #7	56,878	Tons/yr
Total	115,120	Tons/yr

The bulk density of coal is 47 lb/ft^3

Total volume of coal combusted is = 4,898,743 ft^3/yr
(Volume of coal combusted = volume of displaced air through bin filter)

These emissions are routed through bin filters (baghouses). Emissions from the bin filters are conservatively estimated at 0.015 gr/acfm (displaced air through bin filters).

lb/yr = (volume of coal, ft^3/yr) (0.015 gr/acf) (1/7000 lb/gr)

Total Emissions from the silos	**73,481**	**gr/yr**
	10.497	**lb/yr**
	0.005	**ton/yr**

100% of these emissions are PM-10
95% of these emissions are PM-2.5

University of North Carolina at Chapel Hill

Chapel Hill, North Carolina

Orange County

Facility ID # 6800043

Permit # 03069T17

2004 Annual Emissions Inventory

Silo Feed Conveyors
(ES-3)

Emission Source/Operating Scenario Data **Page 1 of 2**

Silo Feed Conveyors

If Emission Source has multiple Operating Scenarios, complete one form for each.
(All permitted, Insignificant and/or Non-permitted Sources)

Facility Name: **University of North Carolina at Chapel Hill**

Facility ID #: **6800043**
Permit #: **3069T17**
County: **Orange**
DAQ Region: **RRO**

North Carolina Department of Environment and Natural Resources
Division of Air Quality
Air Pollutant Point Source Emissions Inventory - Calendar Year 2004

1. **Emission Source ID No.** *(same as in permit* - Use "U" prefix for non-permitted and "I" for insignificant*)*						**ES-3**
2. **Emission Source Description**	**Silo Feed Conveyors**					
3. **Operating Scenario Description**	**N/A**					
4. **Maximum Permitted Operating Rate** With Units (Ex. gal/hr, mmBtu/hr)	**700 tons/hr**					
5. **Throughput in CY** (e.g. production or fuel use) With Units (Ex. lbs/yr, gal/yr)		**115,120**				**tons/yr**
6. **Fuel Information** *(if fuel used)*	% Sulfur	N/A	% Ash	N/A	Heat Content (Btu/lb or mmCF)	N/A

If you do not provide annual throughput/fuel use, your inventory will be deemed incomplete and returned to you.

7. **Capture Efficiency** *(% Emissions from Emission Source Vented to Control Device or Stack)*	**100%**

8. **Control Device Information,** if none, write "none"

	Control Device ID # (as listed in permit)	Control Device Description
i. (nearest stack)	**CD-019**	**Bagfilter**
ii.	**N/A**	**N/A**
iii.	**N/A**	**N/A**
iv.	**N/A**	**N/A**

9. Stack Information (sources vented to more than one stack use additional entry lines)

Stack ID #	Height (in whole feet)	Diameter (feet) Circle (enter #), Rectangle (L#, W#) (in 0.1 feet)	Temperature (F)	Velocity (feet/sec)	Volume Flow Rate (acfm)	Release Point Description (Fugitive, Vertical, Vertical w/ cap, Horizontal, Downward - *see instructions*)
EP-12-6901	**200**	**2**	**Ambient**	**45**	**8,500**	**Vertical**
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10. **Operating Schedule** (Source/Operating Scenario that best characterizes calendar year)

Hours/Day	N/A	Days/Week	N/A	Weeks/Year	N/A	Hours/Year	N/A
Typical Start & End Times in CY:				Start:	N/A	End:	N/A

11. **Seasonal Periods Percent Annual Throughput** (for Emission Source in CY, MUST total 100%)

Jan-Feb, 2002 + Dec, 2002	**25.00%**	Mar-May	**25.00%**	June-Aug	**25.00%**	Sept-Nov	**25.00%**

To review instructions or get a blank copy, go to web page: http://daq.state.nc.us/Offices/Planning/Attainment/est.html

Copy and Use additional Sheets as needed

Emission Source/Operating Scenario Data **Page 2 of 2**

Silo Feed Conveyors

If Emission Source has multiple Operating Scenarios, complete one form for each.
(All permitted, Insignificant and/or Non-permitted Sources)

Facility Name: University of North Carolina at Chapel Hill

Facility ID #: 6800043
Permit #: 3069T17
County: Orange
DAQ Region: RRO

North Carolina Department of Environment and Natural Resources
Division of Air Quality
Air Pollutant Point Source Emissions Inventory - Calendar Year 2004

Emissions: **Attach calculations and documentation of emission factors or other estimation methods used.**

Emission Source ID No. (*same as in permit* - Use "U" prefix for non-permitted and "I" for insignificant) **ES-03**

Criteria (NAAQS) Pollutants	Pollutant Code	Emissions Criteria (Tons/Year)	Emissions Estimation Method Code (see instructions for code)	Control Efficiency (Net after all controls)
Carbon Monoxide	CO	N/A	N/A	N/A
NOx	NOx	N/A	N/A	N/A
PM Total	PM	5.25E-03	2	99.80%
PM-2.5	PM-2.5	4.99E-03	2	97.90%
PM-10	PM-10	5.25E-03	2	99.60%
SO2	SO2	N/A	N/A	N/A
VOC	VOC	N/A	N/A	N/A
HAP/TAP Pollutants (In Alphabetical Order)	**CAS #** (or other code - see instructions)	**Emissions HAP/TAP** (Pounds/Year)	**Emissions Estimation Method Code** (see instructions for code)	**Control Efficiency** (Net after all controls)

Emissions and data on this form required to report or verify emissions cannot be held confidential.

To review instructions or get a blank copy, go to web page: **http://daq.state.nc.us/Offices/Planning/Attainment/est.html**

Copy and Use additional Sheets as needed.

University of North Carolina at Chapel Hill

Chapel Hill, North Carolina
Orange County
Facility ID # 6800043
Permit # 03069T17

2004 Annual Emissions Inventory

Emissions from silo feed conveyors.

(ES-3)

Assume that the total amount of coal fed to the silos is equal to the total amount of coal combusted in 2004.

Boiler #6	58,243	Tons/yr
Boiler #7	56,878	Tons/yr
Total	115,120	Tons/yr

The bulk density of coal is 47 lb/ft^3

Total volume of coal combusted is = 4,898,743 ft^3/yr
(Volume of coal combusted = volume of displaced air through bin filter)

These emissions are routed through bin filters (baghouses). Emissions from the bin filters are conservatively estimated at 0.015 gr/acfm (displaced air through bin filters).

lb/yr = (volume of coal, ft^3/yr) (0.015 gr/acf) (1/7000 lb/gr)

Total Emissions from the conveyors	**73,481**	**gr/yr**
	10.497	**lb/yr**
	0.005	**ton/yr**

100% of these emissions are PM-10
95% of these emissions are PM-2.5

University of North Carolina at Chapel Hill

Chapel Hill, North Carolina

Orange County

Facility ID # 6800043

Permit # 03069T17

2004 Annual Emissions Inventory

Enclosed Sorbent Railcar Dump Pit
(Insignificant Source)
IS-53

Only 1,390.3 tons of sorbent delivered by rail in 2004. The remainder of the sorbent used was delivered by truck. There are no emission sources associated with truck delivery.

Emission Source/Operating Scenario Data **Page 1 of 2**

Enclosed Sorbent Railcar Dump Pit

If Emission Source has multiple Operating Scenarios, complete one form for each.
(All permitted, Insignificant and/or Non-permitted Sources)

Facility Name: University of North Carolina at Chapel Hill

Facility ID #: 6800043
Permit #: 3069T17
County: Orange
DAQ Region: RRO

North Carolina Department of Environment and Natural Resources
Division of Air Quality
Air Pollutant Point Source Emissions Inventory - Calendar Year 2004

1. **Emission Source ID No.** (*same as in permit* - Use "U" prefix for non-permitted and "I" for insignificant)						**"I" Insignificant - ID No. 020**
2. **Emission Source Description**		**Enclosed Sorbent Railcar Dump Pit**				
3. **Operating Scenario Description**		**N/A**				
4. **Maximum Permitted Operating Rate** With Units (Ex. gal/hr, mmBtu/hr)		**50 ton/hr**				
5. **Throughput in CY** (e.g. production or fuel use) With Units (Ex. lbs/yr, gal/yr)		**1,390**				**tons/yr**
6. **Fuel Information** *(if fuel used)*	% Sulfur	N/A	% Ash	N/A	Heat Content (Btu/lb or mmCF)	N/A

If you do not provide annual throughput/fuel use, your inventory will be deemed incomplete and returned to you.

7. **Capture Efficiency** *(% Emissions from Emission Source Vented to Control Device or Stack)*	N/A

8. **Control Device Information**, if none, write "none"

	Control Device ID # (as listed in permit)	Control Device Description
i. (nearest stack)	None	None
ii.	None	None
iii.	None	None
iv.	None	None

9. Stack Information (sources vented to more than one stack use additional entry lines)

Stack ID #	Height (in whole feet)	Diameter (feet) Circle (enter #). Rectangle (L#, W#) (in 0.1 feet)	Temperature (F)	Velocity (feet/sec)	Volume Flow Rate (acfm)	Release Point Description (Fugitive, Vertical, Vertical w/ cap, Horizontal, Downward - *see instructions*)
Fugitive						
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10. **Operating Schedule** (Source/Operating Scenario that best characterizes calendar year)

Hours/Day	1	Days/Week	3	Weeks/Year	52	Hours/Year	156
Typical Start & End Times in CY:				Start:	N/A	End:	N/A

11. **Seasonal Periods Percent Annual Throughput** (for Emission Source in CY, MUST total 100%)

Jan-Feb, 2002 + Dec, 2002	31.91%	Mar-May	22.84%	June-Aug	24.29%	Sept-Nov	20.97%

To review instructions or get a blank copy, go to web page: http://daq.state.nc.us/Offices/Planning/Attainment/est.html

Copy and Use additional Sheets as needed

Emission Source/Operating Scenario Data **Page 2 of 2**

Enclosed Sorbent Railcar Dump Pit

If Emission Source has multiple Operating Scenarios, complete one form for each. (All permitted, Insignificant and/or Non-permitted Sources)

Facility Name: University of North Carolina at Chapel Hill

Facility ID #: 6800043
Permit #: 3069T17
County: Orange
DAQ Region: RRO

North Carolina Department of Environment and Natural Resources
Division of Air Quality
Air Pollutant Point Source Emissions Inventory - Calendar Year 2004

Emissions: **Attach calculations and documentation of emission factors or other estimation methods used.**

Emission Source ID No. (*same as in permit* - Use "U" prefix for non-permitted and "I" for insignificant) **"I" Insignificant - ID No. 020**

Criteria (NAAQS) Pollutants	Pollutant Code	Emissions Criteria (Tons/Year)	Emissions Estimation Method Code (see instructions for code)	Control Efficiency (Net after all controls)
Carbon Monoxide	CO	N/A	N/A	N/A
NOx	NOx	N/A	N/A	N/A
PM Total	PM	1.24E-03	2	N/A
PM-2.5	PM-2.5	1.85E-04	2	N/A
PM-10	PM-10	5.88E-04	2	N/A
SO2	SO2	N/A	N/A	N/A
VOC	VOC	N/A	N/A	N/A
HAP/TAP Pollutants (In Alphabetical Order)	**CAS #** (or other code - see instructions)	**Emissions HAP/TAP** (Pounds/Year)	**Emissions Estimation Method Code** (see instructions for code)	**Control Efficiency** (Net after all controls)

Emissions and data on this form required to report or verify emissions cannot be held confidential.

To review instructions or get a blank copy, go to web page: **http://daq.state.nc.us/Offices/Planning/Attainment/est.html**

Copy and Use additional Sheets as needed.

University of North Carolina at Chapel Hill

Chapel Hill, North Carolina
Orange County
Facility ID # 6800043
Permit # 03069T17

2004 Annual Emissions Inventory

Enclosed Sorbent (Aragonite) Railcar Dump Pit

(Insignificant Source - ID No. 020)

Sorbent is transported from the railcar dump pit in enclosed conveyors to the storage area. Emissions can be best estimated using the drop equation.

From section 13.2.4 of the AP-42: The following equation represents the particulate emissions generated by the dropping of sorbent into the dump pit.

$$E = k\,(0.0032)\,\frac{(u/5)^{1.3}}{(m/2)^{1.4}}$$

E = Emission Factor (lb/ton)

k = Particle Size Multiplier
u = Mean Wind Speed (mph)
m = Material Moisture Content (%)

k Value	Particulate Size	Emission Factor (lb/ton)
0.74	PM	1.787E-03
0.35	PM-10	8.45E-04
0.11	PM-2.5	2.66E-04

Average moisture content of sorbent is 0.7%
The dump area is fully enclosed, therefore the minumum wind speed of 1.3 mph was used.

Total Sorbent **1,390 tons/yr**

Emissions from the unloading of sorbent into the dump pit:

	Emission Factor (lb/ton)	Emissions (lb/yr)	Emissions (ton/yr)
PM	1.32E-04	2.48	1.24E-03
PM-10	6.25E-05	1.18	5.88E-04
PM-2.5	1.96E-05	0.37	1.85E-04

University of North Carolina at Chapel Hill

Chapel Hill, North Carolina

Orange County

Facility ID # 6800043

Permit # 03069T17

2004 Annual Emissions Inventory

Fuel Oil Storage Tanks

(T-001 and T-002)

Emission Source/Operating Scenario Data **Page 1 of 2**

Enclosed Sorbent Railcar Dump Pit
If Emission Source has m

Facility Name: **University of North Carolina at Chapel Hill**

Facility ID #: **6800043**
Permit #: **3069T17**
County: **Orange**
DAQ Region: **RRO**

North Carolina Department of Environment and Natural Resources
Division of Air Quality
Air Pollutant Point Source Emissions Inventory - Calendar Year 2004

1. **Emission Source ID No.** (*same as in permit* - Use "U" prefix for non-permitted and "I" for insignificant)						**T001,T002**
2. **Emission Source Description**	**Fuel Oil Storage Tanks**					
3. **Operating Scenario Description**	**N/A**					
4. **Maximum Permitted Operating Rate** With Units (Ex. gal/hr, mmBtu/hr)						
5. **Throughput in CY** (e.g. production or fuel use) With Units (Ex. lbs/yr, gal/yr)		**66,846**				**gallon**
6. **Fuel Information** *(if fuel used)*	**% Sulfur**	**N/A**	**% Ash**	**N/A**	**Heat Content** (Btu/lb or mmCF)	**N/A**

If you do not provide annual throughput/fuel use, your inventory will be deemed incomplete and returned to you.

7. **Capture Efficiency** *(% Emissions from Emission Source Vented to Control Device or Stack)*	**N/A**

8. **Control Device Information,** if none, write "none"

	Control Device ID # (as listed in permit)	Control Device Description
i. (nearest stack)	**None**	**None**
ii.	**None**	**None**
iii.	**None**	**None**
iv.	**None**	**None**

9. Stack Information (sources vented to more than one stack use additional entry lines)

Stack ID #	Height (in whole feet)	Diameter (feet) Circle (enter #), Rectangle (L#, W#) (in 0.1 feet)	Temperature (F)	Velocity (feet/sec)	Volume Flow Rate (acfm)	Release Point Description (Fugitive, Vertical, Vertical w/ cap, Horizontal, Downward - *see instructions*)
Fugitive						
--	--	--	--	--	--	--
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10. **Operating Schedule** (Source/Operating Scenario that best characterizes calendar year)

Hours/Day	NA	Days/Week	NA	Weeks/Year	NA	Hours/Year	NA
Typical Start & End Times in CY:				Start:	N/A	End:	N/A

11. **Seasonal Periods Percent Annual Throughput** (for Emission Source in CY, **MUST** total 100%)

Jan-Feb, 2002 + Dec, 2002	**25.00%**	Mar-May	**25.00%**	June-Aug	**25.00%**	Sept-Nov	**25.00%**

To review instructions or get a blank copy, go to web page: http://daq.state.nc.us/Offices/Planning/Attainment/est.html

Copy and Use additional Sheets as needed

Emission Source/Operating Scenario Data **Page 2 of 2**

Enclosed Sorbent Railcar Dump Pit
If Emission Source has m

Facility Name: University of North Carolina at Chapel Hill

Facility ID #: 6800043
Permit #: 3069T17
County: Orange
DAQ Region: RRO

North Carolina Department of Environment and Natural Resources
Division of Air Quality
Air Pollutant Point Source Emissions Inventory - Calendar Year 2004

Emissions: **Attach calculations and documentation of emission factors or other estimation methods used.**

Emission Source ID No. (*same as in permit* - Use "U" prefix for non-permitted and "I" for insignificant) **"I" Insignificant - ID No. 020**

Criteria (NAAQS) Pollutants	Pollutant Code	Emissions Criteria (Tons/Year)	Emissions Estimation Method Code (see instructions for code)	Control Efficiency (Net after all controls)
Carbon Monoxide	CO	N/A	N/A	N/A
NOx	NOx	N/A	N/A	N/A
PM Total	PM	N/A	N/A	N/A
PM-2.5	PM-2.5	N/A	N/A	N/A
PM-10	PM-10	N/A	N/A	N/A
SO2	SO2	N/A	N/A	N/A
VOC	VOC	0.23	02	N/A
HAP/TAP Pollutants (In Alphabetical Order)	**CAS #** (or other code - see instructions)	**Emissions HAP/TAP** (Pounds/Year)	**Emissions Estimation Method Code** (see instructions for code)	**Control Efficiency** (Net after all controls)

Emissions and data on this form required to report or verify emissions cannot be held confidential.

To review instructions or get a blank copy, go to web page: **http://daq.state.nc.us/Offices/Planning/Attainment/est.html**

Copy and Use additional Sheets as needed.

University of North Carolina at Chapel Hill

Chapel Hill, North Carolina

Orange County

Facility ID # 6800043

Permit # 03069T17

2004 Annual Emissions Inventory

No.1 - 2,000 kW Generator
Cogeneration Facility

(ES-007)

This unit was not in operation during CY 2004.

University of North Carolina at Chapel Hill

Chapel Hill, North Carolina

Orange County

Facility ID # 6800043

Permit # 03069T17

2004 Annual Emissions Inventory

No.2 - 2,000 kW Generator
Cogeneration Facility

(ES-008)

This unit was not in operation during CY 2004.

University of North Carolina at Chapel Hill

Chapel Hill, North Carolina

Orange County

Facility ID # 6800043

Permit # 03069T17

2004 Annual Emissions Inventory

No.3 - 2,000 kW Generator
Cogeneration Facility

(ES-009)

This unit was not in operation during CY 2004.

University of North Carolina at Chapel Hill

Chapel Hill, North Carolina
Orange County
Facility ID # 6800043
Permit # 03069T17

2004 Annual Emissions Inventory

Four Coal Bunkers
(ES-01, 02, 03 and 04)

(These units do not discharge to the ambient air.)

Emission Source/Operating Scenario Data **Page 1 of 2**

Coal Storage Bunkers

If Emission Source has multiple Operating Scenarios, complete one form for each.
(All permitted, Insignificant and/or Non-permitted Sources)

Facility Name: **University of North Carolina at Chapel Hill**

Facility ID #: **6800043**
Permit #: **3069T17**
County: **Orange**
DAQ Region: **RRO**

North Carolina Department of Environment and Natural Resources
Division of Air Quality
Air Pollutant Point Source Emissions Inventory - Calendar Year 2004

1. **Emission Source ID No.** *(same as in permit* - Use "U" prefix for non-permitted and "I" for insignificant*)*						**ES-01, 02, 03, 04**
2. **Emission Source Description**	**Four Coal Storage Bunkers**					
3. **Operating Scenario Description**	**N/A**					
4. **Maximum Permitted Operating Rate** With Units (Ex. gal/hr, mmBtu/hr)	**60 tons/hr (each)**					
5. **Throughput in CY** (e.g. production or fuel use) With Units (Ex. lbs/yr, gal/yr)	**115,120**				**tons/yr**	
6. **Fuel Information** *(if fuel used)*	% Sulfur	**N/A**	% Ash	**N/A**	Heat Content (Btu/lb or mmCF)	**N/A**

If you do not provide annual throughput/fuel use, your inventory will be deemed incomplete and returned to you.

7. **Capture Efficiency** *(% Emissions from Emission Source Vented to Control Device or Stack)*	**100%**

8. **Control Device Information,** if none, write "none"

	Control Device ID # (as listed in permit)	Control Device Description
i. (nearest stack)	**CD-014**	**Bagfilter on Bunker ES-01**
ii.	**CD-015**	**Bagfilter on Bunker ES-02**
iii.	**CD-016**	**Bagfilter on Bunker ES-03**
iv.	**CD-017**	**Bagfilter on Bunker ES-04**

9. Stack Information (sources vented to more than one stack use additional entry lines)

Stack ID #	Height (in whole feet)	Diameter (feet) Circle (enter #), Rectangle (L#, W#) (in 0.1 feet)	Temperature (F)	Velocity (feet/sec)	Volume Flow Rate (acfm)	Release Point Description (Fugitive, Vertical, Vertical w/ cap, Horizontal, Downward - *see instructions*)
EP-14-054	**137**	**0.52**	**Ambient**	**78**	**1,000**	**Horizontal**
EP-14-056	**137**	**0.52**	**Ambient**	**78**	**1,000**	**Horizontal**
EP-15-054	**137**	**0.52**	**Ambient**	**78**	**1,000**	**Horizontal**
EP-15-056	**137**	**0.52**	**Ambient**	**78**	**1,000**	**Horizontal**

10. **Operating Schedule** (Source/Operating Scenario that best characterizes calendar year)

Hours/Day	1.5	Days/Week	7	Weeks/Year	52	Hours/Year	546
Typical Start & End Times in CY:				Start:	N/A	End:	N/A

Jan-Feb, 2002 + Dec, 2002

Jan-Feb, 2002 + Dec, 2002	**31.91%**	Mar-May	**22.84%**	June-Aug	**24.29%**	Sept-Nov	**20.97%**

These Sources are Vented Inside the Boiler Building. There is NO Discharge to the Ambient Air.

To review instructions or get a blank copy, go to web page: http://daq.state.nc.us/Offices/Planning/Attainment/est.html

Copy and Use additional Sheets as needed

Emission Source/Operating Scenario Data **Page 2 of 2**

Coal Storage Bunkers

If Emission Source has multiple Operating Scenarios, complete one form for each.
(All permitted, Insignificant and/or Non-permitted Sources)

Facility Name: University of North Carolina at Chapel Hill

Facility ID #: 6800043
Permit #: 3069T17
County: Orange
DAQ Region: RRO

North Carolina Department of Environment and Natural Resources
Division of Air Quality
Air Pollutant Point Source Emissions Inventory - Calendar Year 2004

Emissions: **Attach calculations and documentation of emission factors or other estimation methods used.**

Emission Source ID No. (*same as in permit* - Use "U" prefix for non-permitted and "I" for insignificant) **ES-01, 02, 03, 04**

Criteria (NAAQS) Pollutants	**Pollutant Code**	**Emissions Criteria** (Tons/Year)	**Emissions Estimation Method Code** (see instructions for code)	**Control Efficiency** (Net after all controls)
Carbon Monoxide	CO	**N/A**	**N/A**	**N/A**
NOx	NOx	**N/A**	**N/A**	**N/A**
PM Total	PM	**0**	**2**	***Source is vented inside the boiler building.***
PM-2.5	PM-2.5	**0**	**2**	***Source is vented inside the boiler building.***
PM-10	PM-10	**0**	**2**	***Source is vented inside the boiler building.***
SO2	SO2	**N/A**	**N/A**	**N/A**
VOC	VOC	**N/A**	**N/A**	**N/A**
HAP/TAP Pollutants (In Alphabetical Order)	**CAS #** (or other code - see instructions)	**Emissions HAP/TAP** (Pounds/Year)	**Emissions Estimation Method Code** (see instructions for code)	**Control Efficiency** (Net after all controls)

Emissions and data on this form required to report or verify emissions cannot be held confidential.

To review instructions or get a blank copy, go to web page: **http://daq.state.nc.us/Offices/Planning/Attainment/est.html**

Copy and Use additional Sheets as needed.

University of North Carolina at Chapel Hill

Chapel Hill, North Carolina
Orange County
Facility ID # 6800043
Permit # 03069T17

2004 Annual Emissions Inventory

4 Coal Bunker Storage Areas
(ES-01, 02, 03, 04)

Coal is transported from the coal crusher building in enclosed conveyors to the boiler building. Inside the boiler building the coal is stored in four coal bunkers.

Assume that the total amount of coal fed to the bunkers is equal to the total amount of coal combusted in 2004.

Boiler #6	58,243	Tons/yr
Boiler #7	56,878	Tons/yr
Total	115,120	Tons/yr

The bulk density of coal is 47 lb/ft^3

Total volume of coal combusted is = 4,898,743 ft^3/yr
(Volume of coal combusted = volume of displaced air through bin filter)

These emissions are routed through bin filters (baghouses). Emissions from the bin filters are conservatively estimated at 0.015 gr/acfm (displaced air through bin filters).

$lb/yr = (ft^3/yr)\ (0.015\ gr/acfm)\ (1/7000\ lb/gr)$

Total Emissions from the bunkers	**73,481**	**gr/yr**
	10.497	**lb/yr**
	0.005	**ton/yr**

*This baghouse is vented inside the Boiler Building, therefore there are **no emissions** to the ambient air.*