

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING  
2600 BLAIR STONE ROAD  
TALLAHASSEE, FLORIDA 32399-2400



BOB MARTINEZ  
GOVERNOR  
DALE TWACHTMANN  
SECRETARY

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Power Generation Facility  New<sup>1</sup>  Existing<sup>1</sup>

APPLICATION TYPE:  Construction  Operation  Modification

COMPANY NAME: Indiantown Cogeneration, Ltd. Partnership COUNTY: Martin

Identify the specific emission point source(s) addressed in this application (i.e. Lime  
Kiln No. 4 with Venturi Scrubber; Peaking Unit No. 2, Gas Fired) See Table I

SOURCE LOCATION: Street SR 710 City Indiantown

UTM: East 548.019 Km North 2990.692 Km

Latitude 27° 2' 20"N Longitude 80° 30' 45"W

APPLICANT NAME AND TITLE: \_\_\_\_\_

APPLICANT ADDRESS: \_\_\_\_\_

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative\* of Indiantown Cogeneration, Limited Partnership

I certify that the statements made in this application for a \_\_\_\_\_ permit are true, correct and complete to the best of my knowledge and belief. Further I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provision of Chapter 403, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permit establishment.

\*Attach letter of authorization

Signed: \_\_\_\_\_

\_\_\_\_\_  
Name and Title (Please Type)

Date: \_\_\_\_\_ Telephone No. \_\_\_\_\_

B. PROFESSIONAL ENGINEER REGISTERED IN FLORIDA (where required by Chapter 471, F.S.)

This is to certify that the engineering features of this pollution control project have been designed/examined by me and found to be in conformity with modern engineering principles applicable to the treatment and disposal of pollutants characterized in the permit application. There is reasonable assurance, in my professional judgment, that

<sup>1</sup> See Florida Administrative Code Rule 17-2.100(57) and (104)

the pollution control facilities, when properly maintained and operated, will discharge an effluent that complies with all applicable statutes of the State of Florida and the rules and regulations of the department. It is also agreed that the undersigned will furnish, if authorized by the owner, the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollution sources.

Signed \_\_\_\_\_

\_\_\_\_\_  
Name (Please Type)

\_\_\_\_\_  
Company Name (Please Type)

\_\_\_\_\_  
Mailing Address (Please Type)

Florida Registration No. \_\_\_\_\_ Date: \_\_\_\_\_ Telephone No. \_\_\_\_\_

**SECTION II: GENERAL PROJECT INFORMATION**

A. Describe the nature and extent of the project. Refer to pollution control equipment, and expected improvements in source performance as a result of installation. State whether the project will result in full compliance. Attach additional sheet if necessary.

See Attached

B. Schedule of project covered in this application (Construction Permit Application Only)

Start of Construction 7/92 Completion of Construction 12/95

C. Costs of pollution control system(s): (Note: Show breakdown of estimated costs only for individual components/units of the project serving pollution control purposes. Information on actual costs shall be furnished with the application for operation permit.)

	Capital	O & M
Selected Non-Catalytic Reduction System	\$ 8,108,000	\$ 2,939,400
Spray Dryer Absorber System	\$32,271,000	\$20,145,000/year
Baghouse	\$20,524,000	\$ 5,999,000/year

D. Indicate any previous DER permits, orders and notices associated with the emission point, including permit issuance and expiration dates.

No previous permits have been issued

II.A.

TABLE I

INDIANTOWN COGENERATION EMISSION SOURCES

Main Boiler Stack

Auxiliary Boiler Stack

Coal Handling Areas

Ash Handling Areas

Cooling Tower

Lime Handling Areas

Requested permitted equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ;  
if power plant, hrs/yr 8760; if seasonal, describe: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

F. If this is a new source or major modification, answer the following questions.  
(Yes or No)

- 1. Is this source in a non-attainment area for a particular pollutant? No
  - a. If yes, has "offset" been applied? N/A
  - b. If yes, has "Lowest Achievable Emission Rate" been applied? N/A
  - c. If yes, list non-attainment pollutants. N/A
- 2. Does best available control technology (BACT) apply to this source?  
If yes, see Section VI. Yes
- 3. Does the State "Prevention of Significant Deterioration" (PSD)  
requirement apply to this source? If yes, see Sections VI and VII. Yes
- 4. Do "Standards of Performance for New Stationary Sources" (NSPS)  
apply to this source? Yes
- 5. Do "National Emission Standards for Hazardous Air Pollutants"  
(NESHAP) apply to this source? No

- H. Do "Reasonably Available Control Technology" (RACT) requirements apply  
to this source? No
- a. If yes, for what pollutants? N/A
  - b. If yes, in addition to the information required in this form,  
any information requested in Rule 17-2.650 must be submitted.

Attach all supportive information related to any answer of "Yes". Attach any justifi-  
cation for any answer of "No" that might be considered questionable.

Refer to PSD Permit Application Documentation

III. C.

Name of Contaminant	Emission		Allowed Emission Rate	Allowable Emission #/Hr.	Potential Emission		Relate to Flow Dia. (Loc.#)
	Max. #/Hr.	Actual T/Yr.			#/Hr.	T/Yr.	
<b>Main Stack (continued):</b>							
Lead	0.064	0.28	None	None	3.19	13.97	12
Beryllium	0.0094	0.041	None	None	0.46	2.03	12
Mercury	0.040	0.172	None	None	0.08	0.34	12
Arsenic	0.175	0.765	None	None	5.81	25.47	12
Fluorides	5.09	22.3	None	None	25.38	111.14	12
<b>Auxiliary Boiler:</b>							
Sulfur Dioxide	17.8	8.9	0.80	27.3	17.8	8.9	11
Particulates	1.4	0.7	0.03	10.2	1.4	0.7	11
Nitrogen Dioxide	68.2	34.1	0.3	102.5	68.2	34.1	11
Carbon Monoxide	47.3	23.7	None	None	47.3	23.7	11
VOC	0.63	0.32	None	None	0.63	0.32	11
<b>Fugitive Emissions:</b>							
Particulate	0.34	1.49	None	None	34.5	151.1	1
Particulate	0.696	3.05	None	None	3.78	16.6	2
Particulate	0.0007	0.0031	None	None	0.352	1.54	3
Particulate	0	0	None	None	0	0	4
Particulate	0.288	1.26	None	None	144.4	632.3	5
Particulate	0.001	0.0044	None	None	0.51	2.26	6
Particulate	0.209	0.915	None	None	104.4	457.3	7
Particulate	0.059	0.26	None	None	29.4	128.8	8
Particulate	0.0012	0.053	None	None	6	26.3	9
Particulate	0.0012	0.0053	None	None	0.6	2.63	10
Particulate	0.0024	0.011	None	None	1.2	5.26	13
Salt	43	188	None	None	43	188	15

**INDIANTOWN  
FUGITIVE DUST EMISSIONS TABLE**

SOURCE NUMBER	EMISSION POINT	CONTROL METHOD	DISCHARGE FLOW CFM	DISCH. ELEV. ABOVE GRADE FT
1	COAL UNLOAD AREA	FABRIC FILTER	30000	25
2	STORAGE/TRANS. TOWER AREA	FABRIC FILTER	30000	60
3	COAL RECLAIM AREA	FABRIC FILTER	20000	25
4	EMERG. RECLAIM AREA	FABRIC FILTER	20000	25
5	CRUSHER TOWER AREA	FABRIC FILTER	10000	75
6	SILO BAY AREA	FABRIC FILTER	10000	180
7	ASH SILO AREA	FABRIC FILTER FABRIC FILTER	3000 5000	120 120
8	ASH RECYCLE SILO	FABRIC FILTER	3000	75
9	LIME SILO AREA	FABRIC FILTER	3000	120
10	LIME SLURRY PLANT	FABRIC FILTER	3000	60
	SODA ASH SILO	FABRIC FILTER	3000	75

D. Control Devices: (See Section V, Item 4)

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles Size Collected (in microns) (if applicable)	Basis for Efficiency (Section V Item 5)
Selected Non-Catalytic Reduction System	Nitrogen Oxides	37%	N/A	Vendor Quote
Spray Dryer Absorber	Sulfur Dioxide	95%	N/A	Vendor Quote
Baghouse	Particulate	99+%	> 0.1	Vendor Data

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
Coal	290,000 #/hr	-	3422
Natural Gas	350,000 Ft <sup>3</sup> /hr	-	358
Fuel Oil	2500 gal/hr	-	341.6

\*Units: Natural Gas--MMCF/hr; Fuel Oils--gallons/hr; Coal, wood, refuse, other--lbs/hr.

Fuel Analysis: Coal

Percent Sulfur: 2% Percent Ash: 12%  
 Density: 45 #/Ft<sup>3</sup> lbs/gal Typical Percent Nitrogen: 1.16  
 Heat Capacity: 11,800 (min.) BTU/lb -- BTU/gal  
 Other Fuel Contaminants (which may cause air pollution): \_\_\_\_\_

F. If applicable, indicate the percent of fuel used for space heating. N/A

Annual Average \_\_\_\_\_ Maximum \_\_\_\_\_

G. Indicate liquid or solid wastes generated and method of disposal.

Attached

H. Emission Stack Geometry and Flow Characteristics (Provide data for each stack):

Main Boiler Stack  
 Stack Height: 495 ft. Stack Diameter: 16 ft.

Gas Flow Rate: 1123665 ACFM 978063 DSCFM Gas Exit Temperature: 140 °F.

Water Vapor Content: 15 % Velocity: 100 FPS

Auxiliary Boiler Stack (see attached table)

SECTION IV: INCINERATOR INFORMATION - N/A

Type of Waste	Type D (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq. & Gas By-prod.)	Type VI (Solid By-prod.)
Actual lb/hr Incinerated							
Uncontrolled (lbs/hr)							

Description of Waste \_\_\_\_\_

Total Weight Incinerated (lbs/hr) \_\_\_\_\_ Design Capacity (lbs/hr) \_\_\_\_\_

Approximate Number of Hours of Operation per day \_\_\_\_\_ day/wk \_\_\_\_\_ wks/yr. \_\_\_\_\_

Manufacturer \_\_\_\_\_

Date Constructed \_\_\_\_\_ Model No. \_\_\_\_\_

	Volume (ft) <sup>3</sup>	Heat Release (BTU/hr)	Fuel		Temperature (°F)
			Type	BTU/hr	
Primary Chamber					
Secondary Chamber					

Stack Height: \_\_\_\_\_ ft. Stack Diameter: \_\_\_\_\_ Stack Temp. \_\_\_\_\_

Gas Flow Rate: \_\_\_\_\_ ACFM \_\_\_\_\_ DSCFM\* Velocity: \_\_\_\_\_ FPS

\*If 50 or more tons per day design capacity, submit the emissions rate in grains per standard cubic foot dry gas corrected to 50% excess air.

Type of pollution control device:  Cyclone  Wet Scrubber  Afterburner  
 Other (specify) \_\_\_\_\_



### III. G. Liquid and Solid Waste Generation and Disposal

#### Liquid Wastes

#### Disposal

Sanitary Wastes  
Wastewater

Sent to Indiantown Municipal System  
Treated, then reused in process  
where possible remainder to deep  
well injection

Spent Solvents  
Coal Pile Runoff/Leachate

Off-site disposal  
Treated and sent to cooling tower

#### Solid Wastes

Office Wastes  
Air Filters  
Resin Beds  
Bottom Ash  
Fly Ash and Reaction Products

Off-site disposal  
Off-site disposal  
Off-site disposal  
Off-site disposal at coal mine  
Off-site disposal at coal mine

III. B

## INDIANTOWN

### AUXILIARY BOILER STACK PARAMETERS

	AUXILIARY BOILER	
	No. 2 FUEL OIL	NATURAL GAS
EXHAUST STACK TEMP	500°F	480°F
STACK EXIT VELOCITY	103 FT/SEC	102 FT/SEC
STACK HEIGHT	90 FT	90 FT
STACK EXIT DIAMETER	5.5 FT	5.5 FT

Brief description of operating characteristics of control devices: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Ultimate disposal of any effluent other than that emitted from the stack (scrubber water, ash, etc.):

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

NOTE: Items 2, 3, 4, 6, 7, 8, and 10 in Section V must be included where applicable.

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

- 1/A 1. Total process input rate and product weight -- show derivation [Rule 17-2.100(127)]
- 2. To a construction application, attach basis of emission estimate (e.g., design calculations, design drawings, pertinent manufacturer's test data, etc.) and attach proposed methods (e.g., FR Part 60 Methods 1, 2, 3, 4, 5) to show proof of compliance with applicable standards. To an operation application, attach test results or methods used to show proof of compliance. Information provided when applying for an operation permit from a construction permit shall be indicative of the time at which the test was made. later
- 3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test). Refer to PSD Permit Application Documents
- 4. With construction permit application, include design details for all air pollution control systems (e.g., for baghouse include cloth to air ratio; for scrubber include cross-section sketch, design pressure drop, etc.) Refer to PSD Permit Application Documents
- 5. With construction permit application, attach derivation of control device(s) efficiency. Include test or design data. Items 2, 3 and 5 should be consistent: actual emissions = potential (1-efficiency). Refer to PSD Permit Application Documents
- 6. An 8 1/2" x 11" flow diagram which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained. Attached (Fig. 3.4.4-1)
- 7. An 8 1/2" x 11" plot plan showing the location of the establishment, and points of airborne emissions, in relation to the surrounding area, residences and other permanent structures and roadways (Example: Copy of relevant portion of USGS topographic map). Attached (Fig. 2.1.0-1)
- 8. An 8 1/2" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram. Attached (Fig. 3.2-4)

9. The appropriate application fee in accordance with Rule 17-4.05. The check should be made payable to the Department of Environmental Regulation.
10. With an application for operation permit, attach a Certificate of Completion of Construction indicating that the source was constructed as shown in the construction permit.

SECTION VI: BEST AVAILABLE CONTROL TECHNOLOGY

A. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?

Yes  No 40 CFR 60 Subpart Da

Contaminant	Rate or Concentration
See tables in PSD Permit Application	
Documents	

B. Has EPA declared the best available control technology for this class of sources (If yes, attach copy)

Yes  No

Contaminant	Rate or Concentration
Refer to PSD Permit Application Documents	

C. What emission levels do you propose as best available control technology?

Contaminant	Rate or Concentration
See Table in PSD Permit Application	
Documents	

D. Describe the existing control and treatment technology (if any).

- |                           |                          |
|---------------------------|--------------------------|
| 1. Control Device/System: | 2. Operating Principles: |
| 3. Efficiency:*           | 4. Capital Costs:        |

\*Explain method of determining

5. Useful Life:

6. Operating Costs:

7. Energy:

8. Maintenance Cost:

9. Emissions:

Contaminant

Rate or Concentration

Contaminant	Rate or Concentration

10. Stack Parameters

- a. Height: ft.
- b. Diameter: ft.
- c. Flow Rate: ACFM
- d. Temperature: °F.
- e. Velocity: FPS

E. Describe the control and treatment technology available (As many types as applicable, use additional pages if necessary). Refer to PSD Permit Application Documents

1.

- a. Control Device:
- b. Operating Principles:
- c. Efficiency:<sup>1</sup>
- d. Capital Cost:
- e. Useful Life:
- f. Operating Cost:
- g. Energy:<sup>2</sup>
- h. Maintenance Cost:
- i. Availability of construction materials and process chemicals:
- j. Applicability to manufacturing processes:
- k. Ability to construct with control device, install in available space, and operate within proposed levels:

2.

- a. Control Device:
- b. Operating Principles:
- c. Efficiency:<sup>1</sup>
- d. Capital Cost:
- e. Useful Life:
- f. Operating Cost:
- g. Energy:<sup>2</sup>
- h. Maintenance Cost:
- i. Availability of construction materials and process chemicals:

<sup>1</sup>Explain method of determining efficiency.

<sup>2</sup>Energy to be reported in units of electrical power - KWH design rate.

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

3.

a. Control Device:

b. Operating Principles:

c. Efficiency:<sup>1</sup>

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:<sup>2</sup>

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

4.

a. Control Device:

b. Operating Principles:

c. Efficiency:<sup>1</sup>

d. Capital Costs:

e. Useful Life:

f. Operating Cost:

g. Energy:<sup>2</sup>

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

F. Describe the control technology selected: See BACT for PSD Permit Application

1. Control Device:

2. Efficiency:<sup>1</sup>

3. Capital Cost:

4. Useful Life:

5. Operating Cost:

6. Energy:<sup>2</sup>

7. Maintenance Cost:

8. Manufacturer:

9. Other locations where employed on similar processes:

a. (1) Company:

(2) Mailing Address:

(3) City:

(4) State:

<sup>1</sup>Explain method of determining efficiency.

<sup>2</sup>Energy to be reported in units of electrical power - KWH design rate.

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:<sup>1</sup>

Contaminant

Rate or Concentration

Contaminant	Rate or Concentration

(8) Process Rate:<sup>1</sup>

b. (1) Company:

(2) Mailing Address:

(3) City:

(4) State:

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:<sup>1</sup>

Contaminant

Rate or Concentration

Contaminant	Rate or Concentration

(8) Process Rate:<sup>1</sup>

10. Reason for selection and description of systems:

<sup>1</sup>Applicant must provide this information when available. Should this information not be available, applicant must state the reason(s) why.

SECTION VII - PREVENTION OF SIGNIFICANT DETERIORATION

A. Company Monitored Data Air quality impact below the level requiring monitoring (see attached PSD application documents.)

1. \_\_\_\_\_ no. sites \_\_\_\_\_ TSP \_\_\_\_\_ ( ) SO<sub>2</sub>\* \_\_\_\_\_ Wind spd/dir

Period of Monitoring \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_ to \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_  
month day year month day year

Other data recorded \_\_\_\_\_

Attach all data or statistical summaries to this application.

\*Specify bubbler (B) or continuous (C).

2. Instrumentation, Field and Laboratory

- a. Was instrumentation EPA referenced or its equivalent?  Yes  No
- b. Was instrumentation calibrated in accordance with Department procedures?  
 Yes  No  Unknown

B. Meteorological Data Used for Air Quality Modeling

1. 5 Year(s) of data from 1 / 1 / 82 to 12 / 31 / 86  
month day year month day year
2. Surface data obtained from (location) West Palm Beach, FL
3. Upper air (mixing height) data obtained from (location) West Palm Beach, FL
4. Stability wind rose (STAR) data obtained from (location) West Palm Beach, FL

C. Computer Models Used

1. ISCST (version 88348) Modified? If yes, attach description.
2. (no modifications) Modified? If yes, attach description.
3. \_\_\_\_\_ Modified? If yes, attach description.
4. \_\_\_\_\_ Modified? If yes, attach description.

Attach copies of all final model runs showing input data, receptor locations, and principle output tables. Attached to DER AQ submittal only

D. Applicants Maximum Allowable Emission Data

Pollutant (Main Stack)	Emission Rate	
ISP	<u>7.8</u>	grams/sec
SO <sup>2</sup>	<u>73</u>	grams/sec

E. Emission Data Used in Modeling

Attach list of emission sources. Emission data required is source name, description of point source (on NEDS point number), UTM coordinates, stack data, allowable emissions, and normal operating time. See PSD Application Documents

F. Attach all other information supportive to the PSD review. See PSD Application Documents

G. Discuss the social and economic impact of the selected technology versus other applicable technologies (i.e., jobs, payroll, production, taxes, energy, etc.). Include assessment of the environmental impact of the sources.

H. Attach scientific, engineering, and technical material, reports, publications, journals, and other competent relevant information describing the theory and application of the requested best available control technology.

see BACT



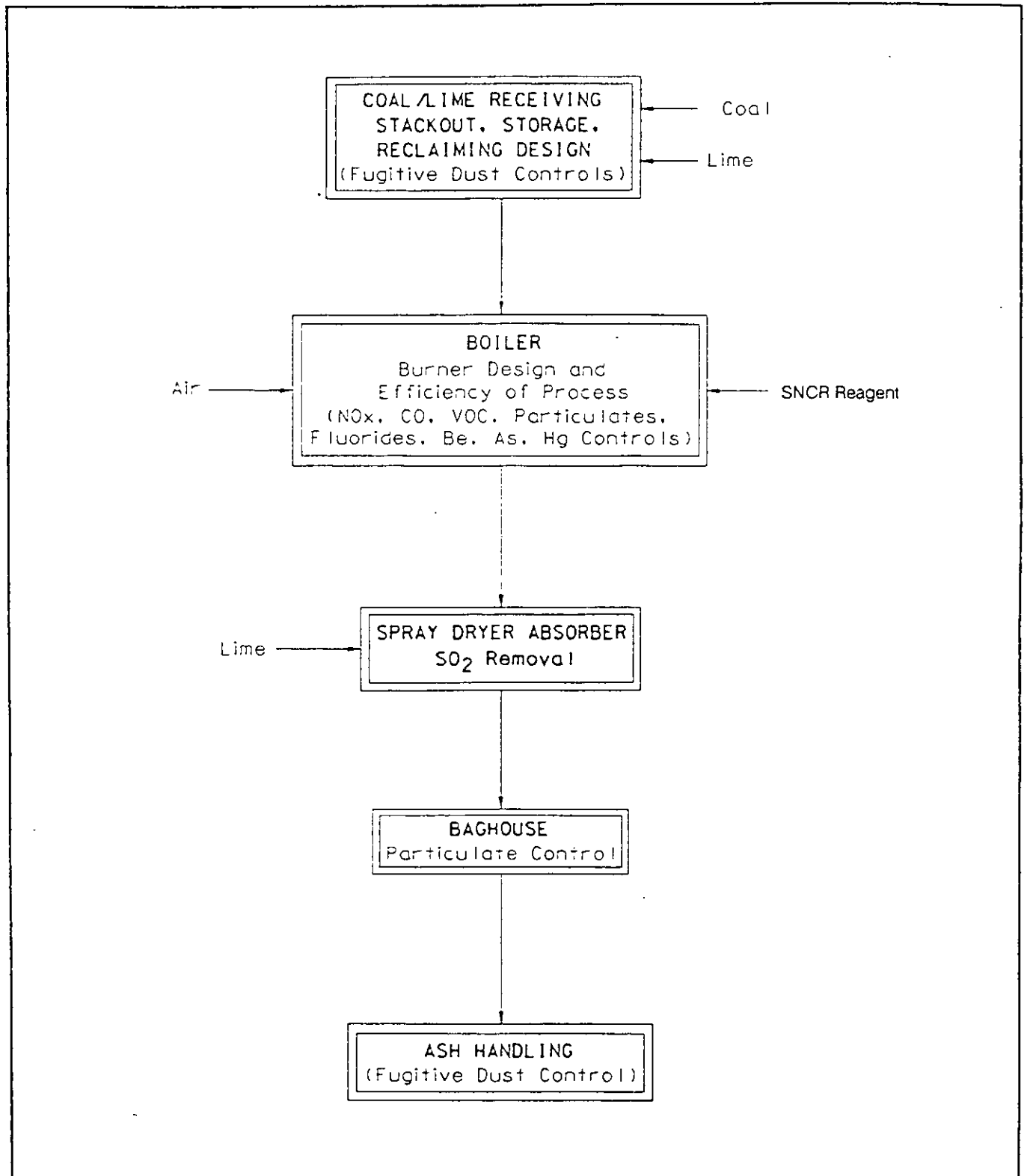


Figure 3.4.4-1.

AIR EMISSIONS CONTROL EQUIPMENT DIAGRAM

INDIANTOWN  
COGENERATION  
PROJECT

Indiantown Cogeneration, L.P.

Source: Bechtel 1990