



**WHEELABRATOR NORTH BROWARD, INC.**  
A WASTE MANAGEMENT COMPANY

2600 N.W. 48th Street  
Pompano Beach, FL 33073  
(954) 971-8701  
(954) 971-8703 Fax

July 24, 2000

CERTIFIED MAIL # Z 239 397 972

Mr. Joseph Kahn, P.E.  
Florida Department of Environmental Protection  
Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, FL 32399-2400

**RECEIVED**

JUL 27 2000

BUREAU OF AIR REGULATION

Re: Wheelabrator North Broward  
Minor Sources - Wet Scrubbers

Dear Mr. Kahn:

*0112120-003-AC*

Wheelabrator North Broward is requesting a minor modification to the facility PSD permit (PSD-FL-122(B)) for the construction of two minor source wet scrubbers. The minor sources are being requested due to expected industrial hygiene concerns arising from the upcoming addition of the SNCR system, required by 40 CFR Subpart Cb. The proposed scrubbers would be installed at the top of the pelletizer room and at the top of the ash loadout bay.

As per the June 13, 2000 telephone conversation with Wendy Alexander of your office, please find attached a cut sheet for the scrubbers, a plot plan identifying the areas of installation of the scrubbers and a processing fee of \$250.00.

No construction shall begin until approval is granted by the Department. If there are any questions, or if further information is required, please contact me at (954) 971-8701.

Sincerely,

*William Roberts*

William Roberts  
Regional Manager

Enclosures

cc: Chuck Faller (with enclosures)  
Timothy Porter (with enclosures)  
Matt Killeen (without enclosures)  
Scott Shannon (without enclosures)  
Wendy Alexander - FDEP -Tallahassee - (without enclosures)  
File: 3.7.3 (without enclosures)  
File: 5.1.3.2 (without enclosures)

*J. Kahn*

*SED*

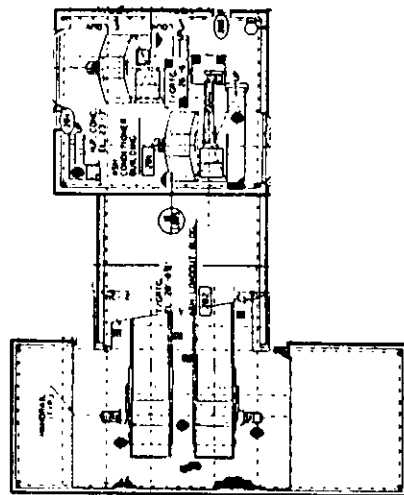
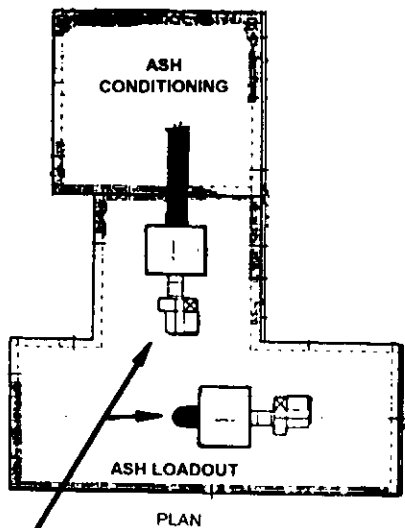
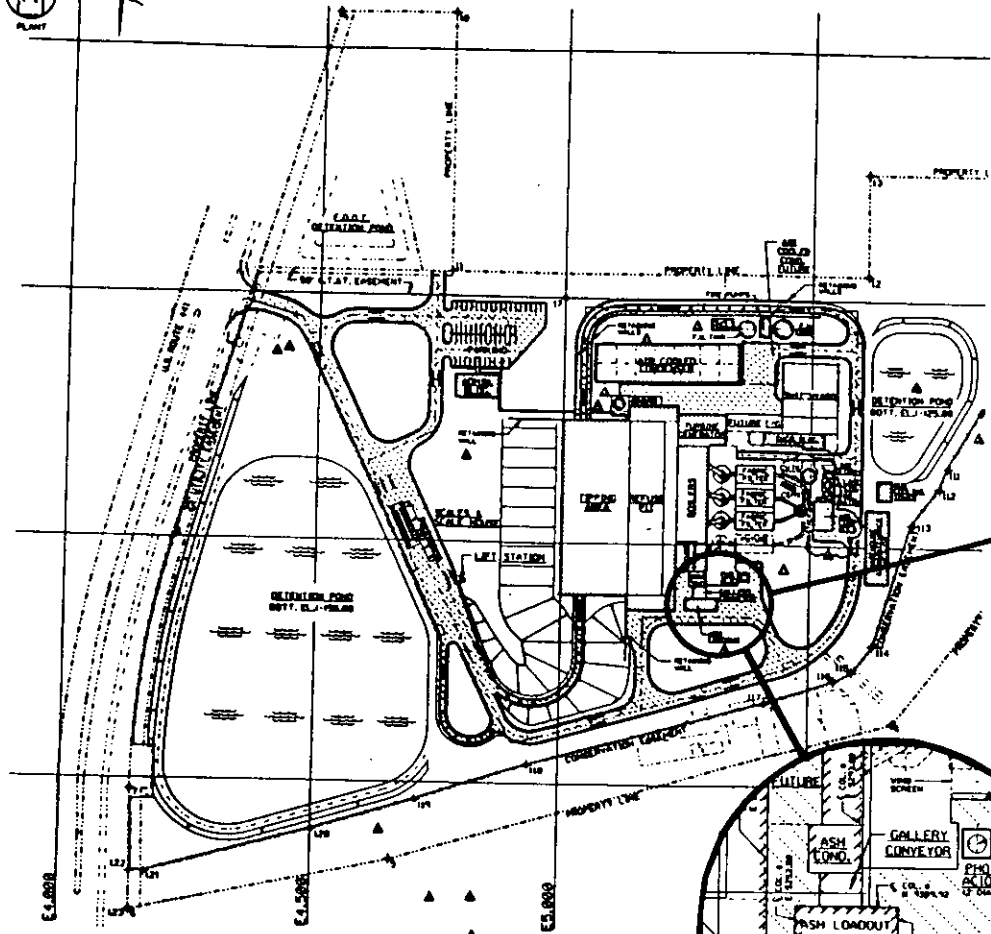
*Broward Co.*

*EPA*

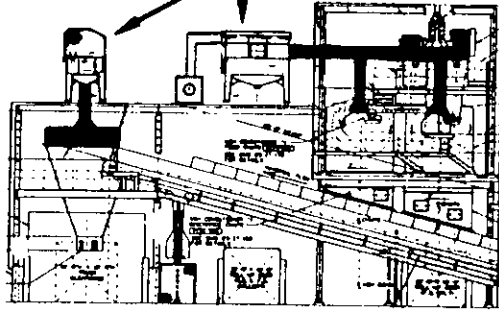
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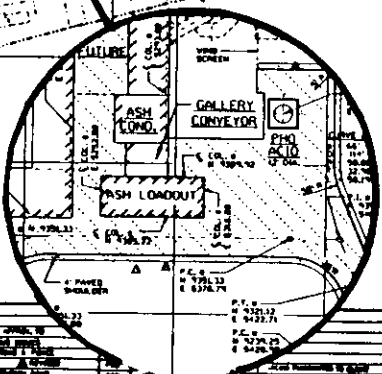
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PROPOSED WET SCRUBBER INSTALLATION (2)



ELEVATION



WHEELABRATOR  
NORTH AND SOUTH  
BROWARD  
PROPOSED  
WET SCRUBBER  
LOCATIONS  
(TWO EACH PLANT)  
(TYPICAL EACH PLANT)  
11-Jul-00



BY THE USE OF THIS PLAN THE USER ASSUMES ALL RESPONSIBILITY FOR ANY DAMAGE TO PROPERTY OR PERSONS. THE ENGINEER WILL NOT BE RESPONSIBLE FOR ANY DAMAGE TO PROPERTY OR PERSONS. THE ENGINEER WILL NOT BE RESPONSIBLE FOR ANY DAMAGE TO PROPERTY OR PERSONS. THE ENGINEER WILL NOT BE RESPONSIBLE FOR ANY DAMAGE TO PROPERTY OR PERSONS.

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PLOT PLAN  
SOUTH BROWARD  
RESOURCE RECOVERY FACILITY

**RUST**  
Contract 01-32-001  
01-32-001 14



## PARTICULATE DUST COLLECTOR SPECIFICATIONS WHIRL/WET® UNIT

### 1.0 GENERAL SCOPE

- 1.1 The particulate collector operates by intensively mixing the air stream, particulates, and scrubbing liquid and then infusing the particulate with water droplets in the whirl chamber. The water/air particulate mix is passed with high velocity through the whirl chamber which is made up of deflectors in a fixed position. Mixing between the dust-laden airstream and the scrubbing liquor takes place in the whirl chamber, gaining further turbulence. A secondary airstream is injected with high velocity through a side channel tangential to this chamber. In the whirl chamber the rotation of the dust-laden air particulate water mixture is further agitated.
- 1.2 Differences between + 5 percent and -15 percent of the normal capacities are acceptable without affecting operating efficiencies. Collectors are designated by model and size capacities, model numbers being "M", "H", or "MCD."

### 2.0 OPERATING PARAMETERS OF WHIRL CHAMBER

- 2.1 Collector has whirl chamber of a fixed blade design specifically laid out in length, curvature, and placement required for centrifugal impingement or specific liquid and particulates in the airstream. Blades are non movable, fixed position blades so as to cause maximum centrifugal action of the gas/liquid particulate stream mixture and are capable of a -15 percent or +5 percent rated CFM capacity. Collector has approximately 7.8" water gauge pressure drop resulting from the whirl chamber action.
- 2.2 Blade system to contain dual or single interlocking opposed directional curved surfaces. Collector also has slotted air inlet activator designed for maximum agitation and centrifugal force necessary to further enhance contaminant removal.
- 2.3 Because of the energy generated by air being injection into the fixed blade assembly at high velocities, particle conditioning and impingement takes place simultaneously. This creates a condition that eliminates the potential build up of particulates on the blade system.

### 3.0 MIST ELIMINATION



**AIRSERVICE inc.**

*Compressed Air Specialists*

ME

VT

**AIRindustries**

*Industrial Air Specialists*

NH

- 3.1 System contains downstream mist eliminator designed for 99 percent efficiency removal on 30 micron droplets and larger.
- 3.2 The mist eliminator section is angled for continual liquid removal and is of a fixed blade design such as chevron blades. Mist eliminator blades are mainly used for mist elimination and some impingement of conditioned particulate.
- 3.2 Specially modified mist eliminators are available for finer micron droplet control when conditions indicate this type of removal is viable. Under standard operating conditions the fixed blade eliminator will function adequately and will prevent any visible liquid droplets from carrying through the collector system.

### ELECTRONIC LEVEL CONTROL

Electronic level controls are standard on all units. The standard control is connected to a N.C. Solenoid valve and the feed adjusted for automatic "Fill On" "Fill Off" and "Low Level Alarm" operation.

### UNIT ACCESSIBILITY

Access ports and cleanout doors are provided to allow inspection of the unit's interior. These doors are placed in appropriate crucial positions for complete access to the unit.

### REMOVAL OF CONTAMINANT AFTER CAPTURE IN COLLECTOR SYSTEM

Model H's hopper-type sludge collector is capable of interfacing with valves, automatic timed drain down or material handling pump-out systems. This is the most used of typical installations.

### FANS

Fans are constructed with high pressure capabilities such as static pressure 8" and water gauge to 30". This is a common type fan construction for particulate handling. Because of the approximate 7.8" of water gauge required by the collector unit, there is usually additional static pressure involved in the duct ventilation system because higher velocities are usually necessary to keep particulates in suspension.

Important to the proper selection of this collector and fan unit, along with knowing the contaminants involved, relates to the airstream capacities.

Fans are supplied complete with motors having a 1.15 service factor and all OSHA required guards. Each fan is factory tested to insure proper balance and operation.

"H" (hopper-type) models are available with automatic drain down systems. This can interface with the flanged drain at the bottom of the WHIRL/WET® and will periodically remove sludge.

907 Main Street  
Westbrook, ME 04092

Phone (207)854-1226  
Fax (207)854-1227

E mail: [bob@airserviceinc.com](mailto:bob@airserviceinc.com)



**AIRSERVICE inc.**  
*Compressed Air Specialists*  
ME

VT

**AIRindustries**  
*Industrial Air Specialists*  
NH

**MODEL H WHIRL/WET® DUST COLLECTOR**

**WHIRL/WET® PARTICULATE DUST COLLECTOR DESIGNED TO EXHAUST  
LOAD INPUT PER FOLLOWING SPECIFICATIONS.**

- |    |  |     |   |
|----|--|-----|---|
| 1. | Material of Construction -<br>UV White Polypropylene.          |     | Opposed Centrifugal Fixed<br>Blade.             |
| 2. | Material Thickness - to ¾".                                    | 8.  | Inspection Ports -<br>Miscellaneous Bolted.     |
| 3. | Exterior Flanges - UV<br>White Polypropylene<br>Standard Duct. | 9.  | Liquid Sump - Internal.                         |
| 4. | Liquid Flanges - Standard<br>150# or Coupling Type.            | 10. | Electronic Level Controls.                      |
| 5. | Moisture Extractor - PVC<br>Chevron Blade.                     | 11. | Water Feed - Plant Water<br>Feed.               |
| 6. | Collector Base - Self<br>Supporting four (4) Legs.             | 12. | Duty Cycle - Continuous.                        |
| 7. | Dust Collector Internal<br>Operational Design - Twin           | 13. | Internal Static - 8" W.G.                       |
|    |  | 14. | Drain Size(s) - (1) 3"<br>diameter 150# Flange. |

**HARTZELL® EXHAUST BLOWER WITH THE FOLLOWING SPECIFICATIONS.**

- |    |  |     |                                 |
|----|--|-----|---------------------------------|
| 1. | Standard Static Design -<br>12" Static Pressure.<br>8" Internal<br>4" External | 6.  | Quick Opening Cleanout<br>Door. |
| 2. | Material of Construction -<br>Mild Steel.                                      | 7.  | Constant Speed V-Belt<br>Drive. |
| 3. | Motor Style - TEFC.  | 8.  | Motor.                          |
| 4. | Wheel Design - Radial<br>Blade High Pressure.                                  | 9.  | Drain.                          |
| 5. | Fan Base - Mild Steel<br>Epoxy Painted.  | 10. | Flanged Outlet.                 |
|    |  | 11. | Flanged Inlet.                  |
|    |  | 12. | Weather Cover.                  |

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**SPECIFICATIONS FOR PVC DUCT & HOOD SYSTEMS**

EXHAUST DUCT

All exhaust duct to be fabricated of Type II, Grade I, High Impact PVC. Extruded Type I, Seamless PVC duct 6" diameter to 24" diameter will be acceptable where applicable. Polypropylene duct will apply to fabricated and rectangular specifications. The following schedule of minimum gauges and reinforcing will apply:

DIAMETER	GAUGE	REINFORCING
Extruded Round 6" to 18" 20" 24"	3/16" 7/32" 1/4"	None None None
Fabricated 4" to 26" 28" to 40" 42" to 78"	1/8" 3/16" 1/4"	None None None
Rectangular 20" Side 40" Side 41" Side Up	1/8" 3/16" 1/4"	None PVC Angle at 4' CC PVC Angle at 4' CC

FITTINGS - ROUND AND RECTANGULAR DUCT

Flanges to be made of PVC Type I angle material, heat formed and continuously back welded to duct section. 0" to 22" diameter - 1½" x 1½" x 3/16" angle. 24" x 60" diameter - 2" x 2" x 1/4" angle. 62" x 78" diameter - 2" x 2½" x 3/8" angle. Bolt holes to be 5/16" diameter for 1/4" stainless steel bolts and no more than 4" apart on centers. Gasket material to be a soft mastic type or foam PVC. Full-face solid gasket materials are not acceptable for use with PVC.

Sleeves to be formed from 4" wide flat Type I PVC material of a thickness equal to or greater than the wall thickness of duct to be joined. Weld to one end of duct section leaving ½ the sleeve length for adjoining section to slip into.

Elbows to have minimum center line radius of 1½ times diameter unless field conditions make it impossible. 90° elbows to have five (5) gores and 45° elbows to have three (3) gores.