

WHEELABRATOR NORTH BROWARD-(PPSC-86-22)

2600 NW 48th Street

Pompano Beach, FL 33073

ASH RESIDUE MANAGEMENT PLAN

Waste-to-Energy Facility Contact

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- A. Waste Control Plan
- B. Ash Handling System Diagram
- B1. Ferrous Separation
- C. Comprehensive Quality Assurance Plan submitted to Sylvia Labie, FDER
- D. Standard Operating Procedure for Performance Standards and Operational Criteria "North Broward Resource Recovery Facility Ash processing Addition"

**WHEELABRATOR NORTH BROWARD
ASH RESIDUE MANAGEMENT PLAN**

I. OVERVIEW

The ash residue management plan encompasses the ash as it exits the plant, transport, disposal, monitoring, testing and management. This plan is in compliance with the applicable sections of chapter 17 of the Florida Administrative Code (FAC) pertaining to solid waste combustor ash. Implementation of this plan will be under the direction of the Plant Manager to ensure day to day operations and maintenance are consistent with this plan.

Wheelabrator North Broward (WNB) is committed to execute and manage its operations in a safe, and environmentally conscientious manner.

II. ASH HANDLING & TRANSPORT

WNB's trash to energy plant is permitted to process 2,419 tons per day of processable waste. Processable waste is defined as combustible materials including without limitation, all household and other refuse, wood, furniture, tires, yard waste and light industrial waste. There are a number of items that are not accepted commonly known as unprocessable waste (cement, wire cable, appliances, etc.) and unacceptable waste. Unacceptable waste is pathological, biological, sludges, motor vehicles, sewerage, manure, asbestos, chemicals, car batteries, ozone depleting chemicals, etc. In order to ensure that correct wastes are being disposed of, a quality assurance program is in place. This program consists of trash inspections based on random

spot checks. Haulers will be directed by WNB personnel to dump their loads on the tipping floor, where it will be inspected and either accepted or rejected (see attachment A) depending on its content. A letter as well as informational packets have been issued to the haulers informing them of acceptable and unacceptable waste.

When the Plant is operating at design capacity, it is estimated that approximately 700 tons per day of Ash Residue will be generated. Ash residue generated by the Resource Recovery Process consists of two, different streams, "Bottom ash" and "Fly ash". Bottom ash is the noncombustible heavy fraction of the ash which remains on the grates after processing. Bottom ash exits the facility, through the ram ash expellers via the vibrating pan and belt conveyor system (see Attachment B). The ash residue may be processed into either landfill daily cover or construction aggregate product streams; ferrous metal will be removed via magnet. The processing system description is included in Attachment E. Ash not processed for reuse will be disposed of in accordance with F.A.C. 17-702.

When construction aggregate is produced, flyash which is entrained in the furnace flues, and is collected in the boiler, scrubber, and baghouse enters a surge bin where it is metered into the fly ash pelletizer for conditioning. When the conditioning is complete, the conditioned Flyash is transported via drag chain conveyors to the truck load out area. The fly ash is fed into dump type container trucks appropriately sized to provide uninterrupted plant operations. There are two trucks in continuous operation

with a third truck available as a spare when preventive or corrective maintenance is being performed or for additional capacity for operating flexibility. The trucks are designed with climate controlled cabs to minimize personnel exposure to the ash.

The ventilation system is designed to maintain a slight vacuum in the area to capture any fugitive dust emissions. All personnel working in the area have been instructed regarding any health related issues. It is Wheelabrator's policy that there is no eating, drinking or smoking in the area and proper respiratory protection should be worn when conditions warrant. Signs are prominently displayed identifying the area and special requirements. The truck's container and/or tailgate is water tight to prevent ash or liquid from discharging during transit. Prior to departing the ash loading area, the container transporting the ash is covered by a tarpaulin and properly secured for transport. The cover has been designed to cover the entire length of the body, ensuring that no dust emanates from the truck or through the cover. The ash will begin transport without any free liquids present, but with a moisture content sufficient to allow good placement without creating a dust nuisance. Ash that could potentially spill over the side rail, and any ash that has collected on the exterior of the truck is required to be removed prior to hauling. Any spillage of ash on the floor is collected with a front end loader and loaded into trucks and hauled to the landfill when full. If necessary, trucks will be washed prior to leaving the loading area. A high-pressure cleaner is installed in the

ash handling area to wash down trucks, equipment and ash areas. The floor in the loading area is designed to contain run-off from the trucks and wash water. This contained wash water is reused within the facility process. A truck washing facility is available at the landfill. Each truck will be weighed at the monofill scalehouse upon entrance and departure.

III. HOURS OF OPERATION

The Central Disposal Sanitary Landfill (CDSL) which is owned and operated by WMX will accept residue from the WNB trash to energy plant 24 hours per day, seven days a week. The trash-to-energy plant accepts trash from 4:00 A.M.-6:00 P.M., Monday through Saturday.

IV. PERSONNEL AND FACILITIES

CDSL employs personnel responsible for overall operation of the landfill, including record keeping, heavy equipment operation, general site maintenance and maintenance of access roads. Signs are posted at the entrance gate identifying the company as the operator of the landfill and warning signs prohibiting unauthorized entrance into the area are also posted. The landfill access gate is equipped with an automatic opener. Each truck is equipped with a wireless transmitter for entry to the landfill. All visitors must sign in at the facility's Administration building. The equipment maintenance portion of the building is sized to house and maintain all on-site equipment. A truck wash area has been provided to clean the tires and container of the trucks upon departure of the landfill. The

wash water is collected back into the contact water collection system. The equipment operators and drivers are equipped with radio communication and fire extinguishers in the event of an accident or other emergency.

All personnel working around the ash have been trained in the proper techniques of ash handling. This includes the use of personal protective equipment such as gloves, safety glasses, dust masks and other respiratory protection. The items previously mentioned are company provided along with uniforms, shoes, locker rooms and showers.

EQUIPMENT/MAINTENANCE

The equipment required for operation at the landfill consists of diesel powered dozers and loaders which are utilized to spread and compact the ash residue. A light tower is on-site to allow for a safe working environment during night hours of ash delivery. Other equipment such as water trucks will be available for dust control as necessary.

Preventive maintenance of all landfill equipment and machinery will be performed as required to sustain reliable equipment availability. Preventive maintenance will be performed by CDSL's on-site maintenance staff. Major repairs requiring specialized equipment may be made by local, private repair services, or dealers. Fuel tanks and a fueling truck are on-site to provide fuel to the equipment.

VI. TRAFFIC CONTROL

Under normal operating conditions, approximately 35 ash truck deliveries will be made to the landfill during the 24 hour-a-day operating period. A private access road from the plant to the landfill is the travel route for the ash trucks. The trucks travel in a East-West direction.

The haul route is approximately 1 mile round trip. The on-site speed limit for all traffic is 10 mph. Access to the landfill is secured by a perimeter fence, and a remote control motorized gate. This fence arrangement will control entry from the private road entering the landfill. The employees at the facility will be responsible for monitoring activities at the landfill.

VII. WORK AREA CONTROL

Ash will be placed in a manner which will allow for adequate compaction by the dozer track, truck tire and vibratory roller. The operational sequence is patterned in a manner which phases each section and subsection to allow for site drainage and visual screening of operations as practicable. Each cell will be brought to an operational final grade before proceeding to the next subsection. The outside exterior side slopes of the landfill will be graded and provided with intermediate cover by either grassing or hydroseeding with materials to promote plant growth. Intermediate cover will be periodically applied to the exterior side slopes as needed to provide dust and erosion control of the slopes until such time as a permanent or

final cover is added. This procedure may be modified according to the demands of actual site conditions and success of using various trial products such as synthetic or organic mats which provide similar protection, containment and aesthetic appearance.

VIII. LEACHATE COLLECTION

Leachate collection pipes have been installed throughout the developed landfill. Leachate reduction is achieved by filling to promote storm water runoff. Ash residue leachate is delivered to the trash-to-energy facility via tanker or pipeline for use in the process. A quarterly leachate sampling program has been instituted by CDSL to trend leachate composition, as required by applicable state laws and permits.

IX. STORM WATER CONTROL

Surface water control will be managed to minimize water infiltration and maximize water runoff. In order to achieve these objectives, several steps will be implemented. These steps are:

1. Filling Area Size: As previously discussed in paragraph VII, the active filling area will be kept to a minimum dimension. Orderly operations will be accomplished by maintaining a narrow working face. The working face will be wide enough to prevent a backlog of incoming truck deliveries but not so wide as to be unmanageable. By maintaining a small fill area, it

will enable the proper arrangements and preparation for:

- ° supply of cover material
- ° vertical control
- ° proper drainage
- ° waste deposition
- ° general maintenance

The ash residue will be spread and compacted in layers within a confined area. These sections of the overall landfill will be rapidly brought up to an operational final grade, properly contoured and covered.

2. Proper Slope: The fill area will be sloped to ensure ponding will not occur. Each grade on site will be developed to provide rapid removal of rainwater. All lifts will be graded to minimize leachate generation. Elevation control benchmarks will be established to ensure reliable horizontal and vertical control as each section of the landfill is developed.
3. Tarps/Cover Material: Tarps or cover material can be utilized to cover exposed ash areas in the event of severe weather conditions. The impermeable cover will limit rainwater contact with the ash, promote runoff and reduce the formation of leachate.

4. Final Grades: Exterior final side slopes will be covered with a low permeability impervious material. The slope will either be grassed or hydroseeded to promote good vegetative growth in an effort to reduce the open area exposed to rainfall and erosion. Drainage swales will be incorporated to intercept overland flow before it can be concentrated to form gullies. Storm water runoff will be diverted into drainage swales to move water off the landfill quickly without eroding final cover soils. The quick transfer of storm water reduces the amount of leachate generation. In addition, runoff will be directed away from the working face and newly prepared base.

5. Compaction: The compaction of the ash will be accomplished with the landfill equipment. Several passes with the landfill equipment will provide the necessary compaction to reduce ash permeability thereby reducing leachate constituent concentrations.

6. Hay bales and Screen Fences: Hay bales and screen fences may be used at the perimeter of the filling area. This technique will provide additional water management control to divert runoff to desired locations. Also, their use will maintain the ash at the filling area boundary providing additional protection to outlying areas.

In summary, all storm water which comes in contact with the ash residue will be retained and collected by the leachate collection system or lost via evaporation. All other storm water will be collected in the adjoining drainage swales and retention pond and dispatched via percolation, evaporation or exfiltration. After a heavy rain, the entire landfill will be inspected, and corrective measures will be taken to repair any damage from the rainfall event. As noted above, by initiating effective surface water management control measures, leachate generation will be minimized.

X. VECTOR AND PEST CONTROL

A fully licensed outside contractor will bait the area as necessary to insure against any type of rodent or pest infestation. Due to the type of waste to be disposed, little or no rodent and pest problems are expected.

XI. LITTER CONTROL

The landfill will be inspected and patrolled for litter. Litter will be collected when present.

XII. ODOR CONTROL

Odor is not expected to be a problem during residue filling operations because the material that is being disposed of contains no significant amount of organic or putrescible matter.

XIII. BYPASSED WASTE PROVISIONS

It is not anticipated that a bypass condition will ever occur at the WNB facility. If an unexpected shutdown at the facility results in the inability of the plant to accept solid waste, waste will be directed to an alternate solid waste receiver.

XIV. RECORD KEEPING

Records are kept identifying the tonnage of trash received at the plant, total ash residue disposed of at the landfill and gallons of ash leachate received at the plant. These records can be reviewed and are on file at the WNB Administrative Office.

XV. CONTINGENCY PLANS

In the event of unexpected or abnormal conditions or circumstances impacting the normal operation of the landfill, the following contingency plans and provisions will be in effect:

1. Loss of Power: The main area of concern for this event is the operation of the leachate pumping station. An emergency power generator connection was provided at the power supply panel for the pumps. A temporary fuel driven power generator would be rented or purchased as needed upon the occurrence of such an event.

2. Loss of Leachate Pump: The pump station is a duplex configuration with a lead and lag control arrangement. Each pump is over-sized for normal flow conditions. A spare pump will be available for replacement purposes.

3. Loss of Dozer Equipment: A short term loss of dozer equipment will not result in a crisis situation. Routine maintenance and repair to this equipment will not impact operations to any major extent. Should major equipment repair become necessary, a rental replacement will be provided for that period.

4. Hurricanes and Natural Disasters: In the event of a hurricane, flood, or other natural disaster, the landfill, storm water management system, leachate collection and removal systems are designed and will be maintained in such a manner as to allow, within limitations, unattended operation for an extended period assuming the cessation of deliveries to the landfill.

XVI. ASH RESIDUE QUALITY ASSURANCE AND SAMPLING PLAN

(See Attachment C)

COMPREHENSIVE QUALITY ASSURANCE PLAN

XVII. ASH REUSE

Wheelabrator has evaluated the use of treated ash residue as a road sub-base or a substitute in asphaltic concrete, FDER # permit SC 29-183237. The project evaluated potential environmental effects of ash residue aggregates as a substitute for commercially available aggregates. The project demonstrated that the processed ash residue may be used as an equivalent material without adverse environmental consequences. This project also compared the performance of the ash aggregate vs. commercially available materials.

An application to modify our siting certificate, in order to begin processing the ash residue into a reusable product has been submitted to the department. A system description and process flow diagram has been included in Attachment D.

031.RD

WHEELABRATOR NORTH BROWARD

ASH RESIDUE MANAGEMENT PLAN

ATTACHMENT A

WASTE CONTROL PLAN

NORTH BROWARD RESOURCE RECOVERY FACILITY

"WASTE CONTROL PLAN"

Revised NO. 1
March 15, 1994

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INTRODUCTION

This program is designed to ensure that the facility receives and treats only household, nonhazardous commercial, nonhazardous industrial, and other solid waste specifically authorized by the Florida Department of Environmental Protection.

The key elements of the program are:

- (A) Random inspections of incoming loads.
- (B) Inspections of suspicious loads.
- (C) Records of all inspections
- (D) Training of facility personnel to recognize if a regulated hazardous waste is discovered.
- (E) Identification of personnel trained to detect and handle hazardous waste.

II. RESPONSIBILITIES

The responsibilities of ensuring that the facility accepts and processes only authorized waste rests with the following representatives of the North Broward Resource Recovery Facility.

- (1) Plant Manager
- (2) Operations Manager
- (3) Director, Health Safety and Environmental Compliance
- (4) Loader Operators
- (5) Crane Operators
- (6) Scalehouse Operators
- (7) Shift Supervisors

III. TRAINING PROGRAM

A training program has been developed to ensure that responsible facility personnel are able to recognize unacceptable waste. This program is conducted periodically.

The program contains - but is not limited to - the items listed below.

- (A) Load inspection for suspicious loads
- (B) Records retention
- (C) Recognition and handling
 - (1) Hazardous/Toxic materials
 - (2) Radioactive materials
 - (3) Biohazardous/Pathological materials
 - (4) Unprocessable waste
- (D) Notification requirements

ACCEPTABLE WASTE GUIDELINES

Acceptable Waste

All municipal or commercial solid waste consistent with the following size limitations will be considered acceptable:

- o Nothing exceeding an overall length of 6' will be accepted. (Some discretion relative to lengths of light pliable pieces of lumber may be used by the Weigh Scale Operator). All bulky items will be restricted to 6' x 4' x 4' overall dimensions.

Non-Acceptable Waste - "Will not be accepted"

- o All hazardous wastes
- o Radioactive, toxic, pathological or biological wastes
- o 55-gallon chemical drums, whether empty or full
- o Concrete, dirt, sand, or gravel
- o Trees or branches in excess of six feet in length or eight inches in diameter
- o Tree trunks or stumps (WATCH CAREFULLY)
- o Other materials which may adversely affect the operation of the facility
- o White Goods (appliances) or items containing any Ozone-Depleting chemicals.

Any food products, controlled substances, confidential or security items requiring special handling must be referred to the Plant Manager, or Director Health Safety and Environmental Compliance, and handled on an individual load or prearranged basis.

On a day-to-day basis, any questionable loads will be checked by the Operations Manager, Shift Supervisor or Director Health Safety and Environmental Compliance (DHSEC), or the Loader Operator. If any questions arise, the final decision will be made by the Shift Supervisor, Operations Manager, or DHSEC.

Non-Acceptable waste also includes all "Untreatable Waste" which includes, but is not limited to: batteries, such as dry cell batteries, mercury batteries and vehicle batteries; refrigerators; stoves; washers; dryers.

The NBRRF will adhere to the provisions of FDER Rule 17-712-Biohazardous and Biological Waste Management Rule.

If hazardous waste is discovered on-site in the tipping floor areas, and the responsible truck cannot be identified, the NBRRF would be considered under the Treatment, Storage, and Disposal Facility Provision of 40 CFR 264. The NBRRF would be allowed to properly maintain such waste on-site for 180 days before it would be required to have it removed by a reputable transporter to an approved treatment/disposal facility.

V. RADIOACTIVE WASTE

This facility will accept no radioactive waste. The following control measures have been installed to prevent material from entering the property along with procedures for handling such material.

Procedure for Radioactive Loads:

A radiation detector is installed and functional in the scale house. In the event that an incoming truck trips the radiation detector, the following procedure will apply:

- 1) The scalehouse operator will immediately call the shift supervisor and the operations manager.
- 2) "THE SCALE OPERATOR WILL NOT WEIGH IN THE TRUCK OR PERMIT THE TRUCK TO PROCEED PAST THE SCALE."
- 3) The truck drivers will be directed to park his truck off to the side, where the shift supervisor will measure the radiation with a portable detector.
- 4) If radiation levels as detected by the shift supervisor are below background levels, the truck will be permitted to return to the scalehouse, weigh in, and unload.
- 5) If radiation levels as detected by the shift supervisor are above background levels, the shift supervisor will:
 - a) Inform the driver that his load is radioactive and therefore can not be accepted at the plant.
 - b) Inform the driver that the truck must be removed immediately from our property.
 - c) Neither the shift supervisor nor the scale operator will suggest to the driver where to haul the load. If asked, the driver will be told to contact his dispatcher for directions.
- 6) Once the truck is off our property, the shift supervisor will notify the following:
 - a) Office of Natural Resource Protection
 - b) Department of Public Health (305) 467-4800.
 - c) The hauler's office.
- 7) A radiation detection report will be filled out and submitted to the Operations Manager.

RADIOACTIVE WASTE

To: Distribution

FROM: _____ DATE: _____

RADIATION DETECTION REPORT

Time: Arrived _____ Departed: _____

Scale Operator: _____

Shift Supervisor: _____

Vehicle Identification:

Truck Registration Number: _____

Company/Community _____

Company/Community Telephone Number: _____

Radiation Meter Reading:

Scale House _____ Counts/Min.

Portable _____ MR/HR

CONTACTS:

Office of Natural Resource Protection: _____

Department of Public Health: _____

Hauler: _____

Source of Origination (if known) _____

RETURN COMPLETED REPORT TO OPERATIONS MANAGER

Distribution:

Plant Manager
EH&S Director

VI. INSPECTION PROCEDURE

All trucks entering the facility are subject to inspection.

- (A) Random inspections will be performed as outlined in the Waste Screening Procedure.
- (B) Any load deemed suspicious will be inspected.
- (C) All records of inspection will be maintained in the EHSD's office. All records will be maintained for seven years.
- (D) If unacceptable waste is found, proper authorities will be notified. Such notification may include (but is not limited to):
 - (1) Plant Manager, Operations Manager
 - (2) Office of Natural Resource Protection
 - (3) Florida Department of Environmental Regulation
- (E) If unacceptable waste is found it will be reloaded into the truck in which it came and then moved from the site after all authorities have been notified, as outlined in the Waste Screening Procedure.

MUNICIPAL SOLID WASTE SCREENING

To ensure that unacceptable waste or wastes that may create special environmental pollution problems will not be processed at the NBRRF, a waste screening and control plan will be implemented.

This is a multitiered program that requires a cooperative effort between the serviced clients and NBRRF. The program includes identifying potentially hazardous waste sources, checking delivery trucks, imposing deterrent penalties on violators, and removing any hazardous material from the waste stream.

The following is an outline of NBRRF's procedure for controlling hazardous waste deliveries:

1. A joint effort between NBRRF and its serviced clients will be made to identify all private collectors that service generators of hazardous waste.
2. All contracts signed with collectors will clearly identify what types of wastes and chemicals are not accepted at the Facility. These contracts will also identify the penalties imposed on the delivery of such materials.
3. A list of identifying unacceptable waste will be posted at the Facility. The driver will be asked to identify the load and the source. If it is determined that the load is unacceptable waste, the driver will be denied access to the tipping floor.
4. NBRRF will conduct random spot checks of incoming loads by periodically dumping a load on the tipping area floor for inspection by an approved "Inspector". Acceptable waste will be pushed into the pit by a front-end loader. If the load contains any unacceptable waste, the entire load will be rejected and will be loaded back on the delivering vehicle. Spot check inspections will be appropriately documented as illustrated previously in the Waste Control Plan. In addition to visual spot checks, all loads entering the facility are scanned by continuous radiation monitors to prevent disposal of any radioactive materials at the facility.
5. Crane operators, in the course of stockpiling and mixing refuse in the pit, will be required to scan the waste pile for any questionable contents. Unacceptable materials will be removed from the refuse pit for disposal in an acceptable manner.

6. NBRRF has developed hazardous waste identification and response procedures as part of the Hazardous Material Training Program for the Facility. All personnel undergo this training program. This procedure will clearly address the following:
 - a. Policies for controlling the delivery of any hazardous waste to the site.
 - b. Indicators and other information about potentially hazardous materials.
 - c. Employees' responsibilities in preventing hazardous waste from being accepted at the Facility.
 - d. Reporting procedures if questionable wastes are found.

In the even unacceptable waste does enter the Facility, it would be isolated and placed in a designated area for such material. An effort would be made to identify the sender for removal of the material first. If that is not possible, the material will be properly disposed of in accordance with all Federal and State regulations.

Waste screening will be conducted on a random basis as necessary to ensure compliance with the Waste Screening Program.

Prerequisites

1. Safety equipment including appropriate personnel protective gear (i.e. Scott Air Packs, respirators, protective clothing, gloves, boots, first aid kit, etc.), emergency fire fighting equipment, and clean up equipment will be stored near the tipping floor and be readily available. Appropriate materials (e.g., rope, pylons, etc.) needed to isolate any potentially dangerous waste will also be stored nearby and be readily available.
2. The Facility Manager will assign a "trained" employee to serve as Inspector. He will conduct the screening and complete the necessary report.
3. A front end loader and operator will be standing by the help with the screening.

Types of Screening

- I. On-Board Screening (only done on open type vehicles)
 1. The Inspector shall select a vehicle for screening and, upon entering the tipping floor, inform the driver of this fact.
 2. The driver will be asked to fold back the screens or tarpaulin covering his load.
 3. The Inspector shall then position himself such as to obtain the maximum possible view of the load.
 4. If the load is observed to contain unacceptable materials, the Inspector will immediately notify the Facility Manager or other designated management representative who will inspect the load and determine if the hauler is to be turned away.
 5. If the load is acceptable, the driver will be directed where to unload.
 6. In unsure, the Inspector will direct the driver to a designated area of the Tipping Hall where Floor Screening will be conducted, as described below.

4. The Inspector will watch the unloading process and, if possible, stop the process if he observes unacceptable or potentially dangerous material.
5. If Unacceptable Waste is found, the Facility Manager or designated management representative is to be notified and the hauler may be required to remove it from the facility. A screening report and notice of infraction will be issued as appropriate.
6. The Inspector will complete the Waste Screening Report which will be submitted to the Facility Manager for appropriate disposition. The driver will be asked to sign the Report before leaving the Facility.
7. After conclusion of screening, acceptable waste will be charged to the pit by the front end loader and the hauler will leave the Facility.
8. In cases where potentially dangerous materials are found and considered to present a possible immediate threat (such as explosives or large quantities of infectious materials), no attempt will be made by facility personnel to move these materials. The material will be left in place and that portion of the tipping floor or tipping bay roped off. Personnel and traffic will be prevented from operating in that section of the plant. Danger signs and warnings will be posted. No attempt will be made to open suspect waste containers. The Company will notify appropriate government agencies, including the local Fire and Rescue Department and/or Police Department, for dispatch to the Facility.

WASTE SCREENING REPORT

Waste Hauler: _____ Date: _____ Time: _____

Truck Permit #: _____ Scale Ticket #: _____

Driver's Signature: _____

Screening Location { } On Board Truck { } On Tipping Floor { } In Pit

A. Waste Description Acceptable Waste (Do Not Complete Parts B, C, D)

Primary Composition Based on Appearance

- { } Residential { } Commercial
- { } Other (Provide Description Below)

B. Unacceptable Waste

- { } Explosives { } Sealed Drums
- { } Liquid Wastes { } Pressurized Containers
- { } Demolition Debris { } Tar or Asphalt
- { } Biohazardous { } Hazardous or Suspected Hazardous
(Complete Part C below)

{ } Large Bulky Objects

{ } Other (Provide description, documentation with photos if appropriate)

{ } White goods, materials containing chlorofluorocarbons

C. Hazardous or Suspected Hazards (DO NOT MOVE ANY SUSPECT WASTES! CALL PLANT MANAGER AT ONCE! Complete all items below:

- { } Identifying Marks (specify) _____
- { } Number/Quantity of items _____
- { } Description of Materials (Document with photos if appropriate) _____

D. Disposition of Unacceptable Waste (Removal Date: _____)

- { } Returned to vehicle
- { } Isolated and monitored for removal by hauler
- { } Other (describe)

E. Inspector: Name: _____ Date: _____

Signature _____

Shift Supervisor _____

File No _____

PROCEDURES FOR SCREENING AND HANDLING OF
UNACCEPTABLE WASTE AT TRANSFER STATIONS

Although not currently set up for use by the NBRRF, if transfer stations are used by the Facility in the future, any materials arriving at the transfer stations that is identified as unacceptable waste will be handled in the following manner.

1. Should the load arriving at the scale house be deemed unacceptable waste, the load will be rejected by the transfer station (TS) employees operating the scale house at the transfer station.
2. Should such a load or part of a load reach the tipping floor and be suspected as containing unacceptable waste, that load will be rejected by the TS personnel on duty. At which time, the lead man in control of the floor will notify the office that such a material is present on the floor and has been rejected and is being reloaded onto the carrier's truck. The office will then notify the scale house the load is being rejected and the carrier is returning to the scale with the load. It will be the responsibility of the carrier to dispose of the load according to applicable County, State, and Federal regulations.
3. Should the material be dumped and go unnoticed at the time of the off-loading - such as in a mixed load of compacted waste - the operators will attempt to identify the waste by continuously scanning the waste for any contaminated product. This is an ongoing practice that is in place at all times for the purpose of spotting any materials that will either damage the equipment or be in any way a contaminant.
4. If, in the course of the day-to-day operation, such material is identified by the operators on duty, they will immediately notify the office. The office will in turn notify the TS personnel operating the scale house. The material in question will be segregated and - wherever possible - the carrier that has dumped the material will be identified and then contacted to remove the material in accordance with applicable regulations.
5. If it is impossible to identify the carrier, the TS will keep a record of the time, place, and type of material identified and the material will be removed by a licensed carrier and disposed of in accordance with the applicable regulations.

VIII. RECORDS RETENTION

All records will be maintained on file for a minimum of seven years. This to include but is not limited to:

- (A) Load Inspection
- (B) Radiation Reports
- (C) Personnel Training Records

CONTACT PERSONNEL

A. INTERNAL

	<u>Name and Title</u>	<u>Office Phone</u>	<u>Home Phone</u>
1.	Paul Claerbout Plant Manager	305/971-8701	305/345-5512
2.	Eric Selya Environmental Health and Safety Director	305/971-8701	305/344-0132
3.	Paul Grego Operations Manager	305/971-8701	-305/753-9327

B. REGULATORY AGENCIES

1. National Response Center 1-800-424-8802 (24 hours)
2. FDER - West Palm Beach 407-433-2650
Emergency Response Department - Jeff Tobergte
3. Broward County Office of Natural Resource Protection
305-765-4900
4. South Florida Water Management District
Enforcement/Right-of-Way Department
Broward Field Office - Rusty Huckabee 305-434-1100

C. CLEAN-UP CONTRACTORS

Chemical Waste Management 305-973-6666
2700 N.W. 48th Street
Pompano Beach, FL. 33073

D. LOCAL AUTHORITIES

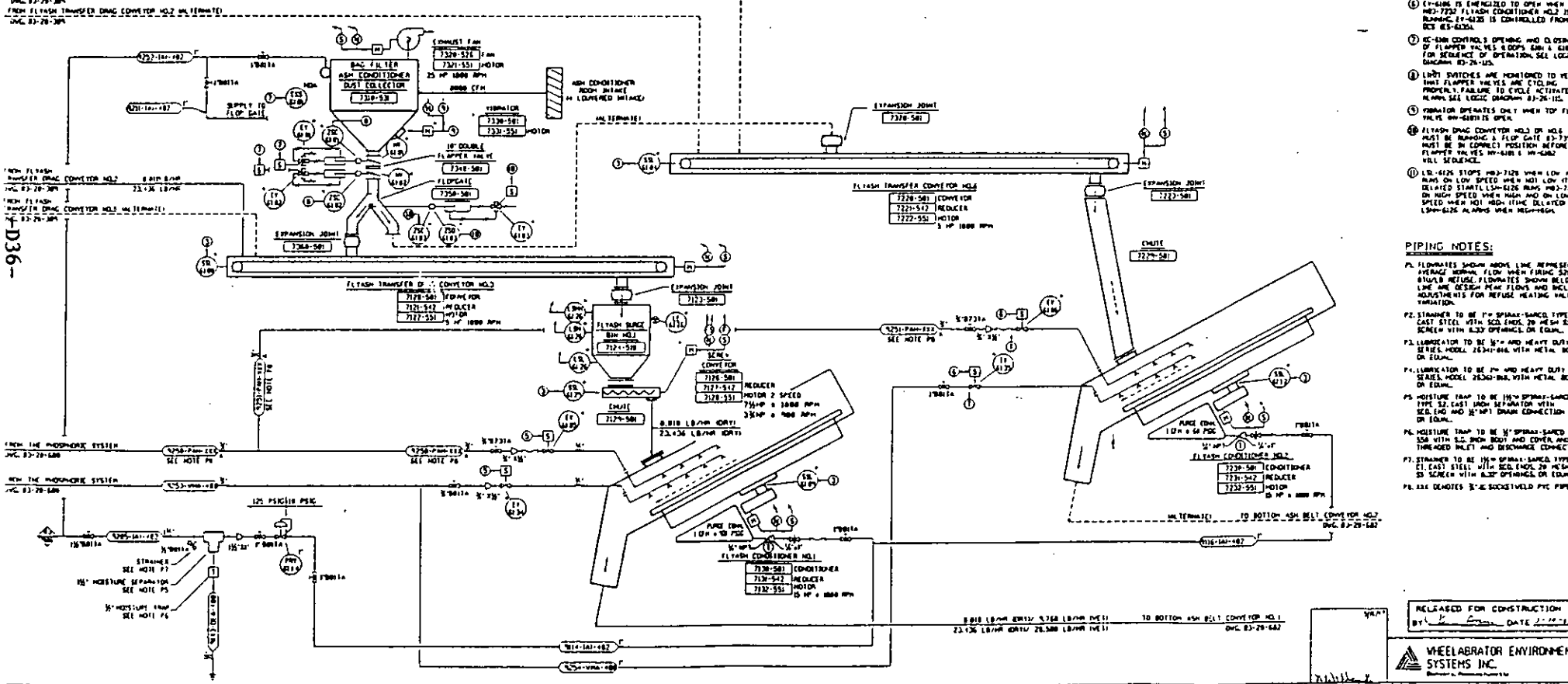
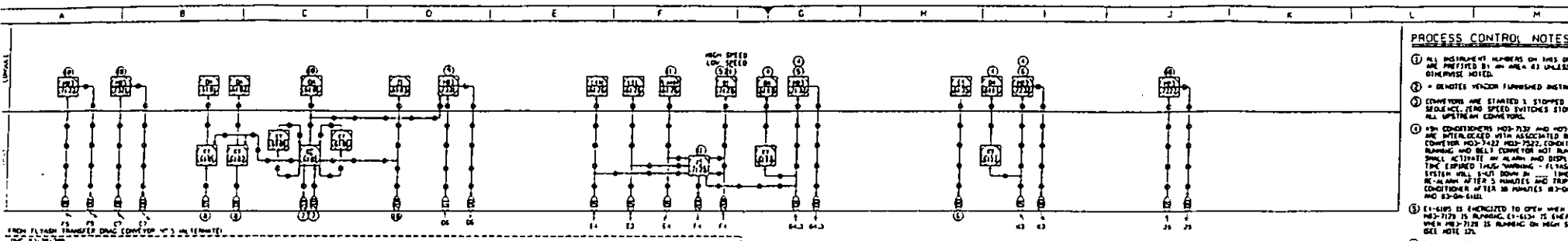
1. Police (Pompano Beach) 305-786-4200
2. Fire (Pompano Beach) 305-786-4510
3. North Broward Regional
Wastewater Treatment Plant 305-357-7585
4. North Broward Medical Center 305-786-6400
5. Broward County Department of Health
and Rehabilitative Services 305-467-4298
6. Emergency 911

WHEELABRATOR NORTH BROWARD

ASH RESIDUE MANAGEMENT PLAN

ATTACHMENT B

ASH HANDLING SYSTEM



PROCESS CONTROL NOTES:

1. ALL INSTRUMENT NUMBERS ON THIS DRAWING ARE PRECISE BY AN AREA #3 UNLESS OTHERWISE NOTED.
2. 'C' DENOTES VENDOR FURNISHED INSTRUMENTS.
3. CONVEYORS ARE STARTED & STOPPED IN SEQUENCE FROM SPEED SWITCHES STOP ALL UPSTREAM CONVEYORS.
4. ASH CONDITIONERS HD-7222 AND HD-7223 ARE INTERLOCKED WITH ASSOCIATED BELT CONVEYOR HD-7422 HD-7423. CONDITIONER RUNNING AND BELT CONVEYOR NOT RUNNING SHALL ACTIVATE AN ALARM AND DISPLAY AT THE CONTROL PANEL. NORMAL - FLASH SYSTEM SHALL SHUT DOWN IN RE-ARM AFTER 5 MINUTES AND TRIP CONDITIONER IF YES IN MINUTES HD-7400-614 AND HD-7400-6141.
5. E1-6145 IS ENERGIZED TO OPEN WHEN HD-7128 IS RUNNING. E1-6143 IS ENERGIZED WHEN HD-7128 IS RUNNING ON HIGH SPEED SEE NOTE 12.
6. E1-6146 IS ENERGIZED TO OPEN WHEN HD-7222 FLASH CONDITIONER HD-72 IS RUNNING. E1-6142 IS CONTROLLED FROM BOX HD-61234.
7. AS-614 CONTROL'S OPENING AND CLOSING OF FLAPPER VALVES & COYS. EMB & G123 FOR SEQUENCE OF OPERATION. SEE LOGIC DIAGRAM HD-72-125.
8. LIGHT SWITCHES ARE MOUNTED TO HEART THAT FLAPPER VALVES ARE CYCLING. PROPERLY FAILURE TO CYCLE ACTIVATES ALARM. SEE LOGIC DIAGRAM HD-72-125.
9. F1-614 OPERATES ONLY WHEN TOP FLAPPER VALVE HD-61411 IS OPEN.
10. FLASH DRAG CONVEYOR HOLD ON HD-614 MUST BE RUNNING & FLOP GATE HD-7324 MUST BE IN CORRECT POSITION BEFORE FLAPPER VALVES HD-6141 & HD-6142 WILL SEQUENCE.
11. L1-6142 STOPS HD-7128 WHEN LOW AND HD-614 ON LOW SPEED WHEN HD-7128 DELAYED START. L1-6142 STOPS HD-7128 ON HIGH SPEED WHEN HD-614 ON LOW SPEED WHEN HD-614 HD-7128 DELAYED L1-6142 ALARM WITH MESSAGE.

PIPING NOTES:

- P1. FLOWRATES SHOWN ABOVE LINE REPRESENT AVERAGE NORMAL FLOW WHEN FURNAC STARTS. REFUSE. FLOWRATES SHOWN BELOW LINE ARE DESIGN PEAK FLOWS AND INCLUDE ALLOWANCES FOR REFUSE HEATING VALUE VARIATION.
- P2. STRAINER TO BE 1/2" SPIN-ON TYPE C1. CAST STEEL WITH 300 MESH. 20" DIA. 24" SCREW WITH 433 OPENHOLE OR EQUIV.
- P3. LUBRICATOR TO BE 1/2" AND HEAVY DUTY SERIES MODEL 2534-04A WITH METAL BOWL OR EQUIV.
- P4. LUBRICATOR TO BE 1/2" AND HEAVY DUTY SERIES MODEL 2534-04A WITH METAL BOWL OR EQUIV.
- P5. MOUNTING TANK TO BE 1/2" SPIN-ON-SERIES TYPE S2. EAST IRON SEPARATOR WITH 300 MESH AND 1/2" DIA. CONNECTION OR EQUIV.
- P6. MOUNTING TANK TO BE 1/2" SPIN-ON-SERIES TYPE S2. EAST IRON BODY AND COVER AND THROATED INLET AND DISCHARGE CONNECTIONS.
- P7. STRAINER TO BE 1/2" SPIN-ON-SERIES TYPE C1. CAST STEEL WITH 300 MESH. 20" DIA. 24" SCREW WITH 433 OPENHOLE OR EQUIV.
- P8. SIZE DENOTES 3/4" SOCKET WELD PVC PIPE.

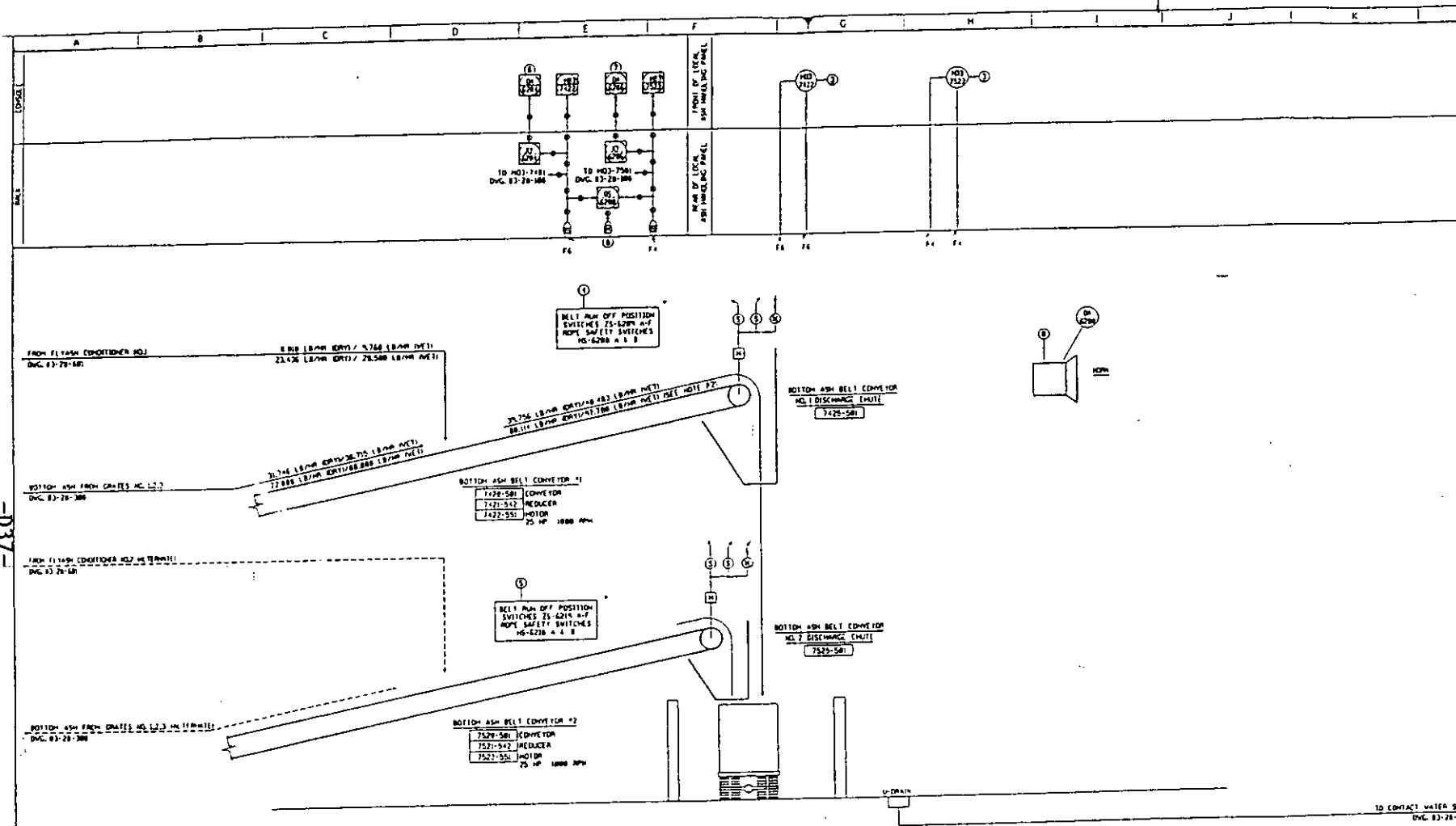
RELEASED FOR CONSTRUCTION
BY: [Signature] DATE: 2/19/74

WHEELABRATOR ENVIRONMENTAL SYSTEMS INC.
Contract No. 21-3457

RUST
Contract No. 21-3457

FLASH HANDLING SYSTEM
P&ID DIAGRAM
FLASH CONDITIONERS
NORTH BROWARD
RESOURCE RECOVERY FACILITY

03-28-601



PROCESS CONTROL NOTES:

- ① ALL INSTRUMENT NUMBERS ON THIS DRAWING ARE PREFIXED BY AN 83 AREA DESIGNATION UNLESS OTHERWISE NOTED.
- ② * DENOTES VENDOR FURNISHED INSTRUMENT.
- ③ BELT CONVEYOR STOPS ON ZERO SPEED SWITCH SIGNAL.
- ④ BOTTOM ASH BELT CONVEYOR NO. 1 STOPS ON SPEED RUN OFF OR MOTOR SAFETY SWITCH SEE MOTOR ELEMENTARY NO. 7522.
- ⑤ BOTTOM ASH BELT CONVEYOR NO. 2 STOPS ON SPEED RUN OFF OR MOTOR SAFETY SWITCH SEE MOTOR ELEMENTARY NO. 7522.
- ⑥ BELT CONVEYOR #1 NOT RUNNING FOR 10 SECS SHALL ACTIVATE AN ALARM AND STOP BELT MOTOR ELEMENTARY NO. 7422. (SEE DRAWING 83-28-6811)
- ⑦ BELT CONVEYOR #2 NOT RUNNING FOR 10 SECS SHALL ACTIVATE AN ALARM AND STOP BELT MOTOR ELEMENTARY NO. 7522. (SEE DRAWING 83-28-6811)
- ⑧ WHEN ON-TIME DELAYS IN SECONDS BEFORE BELT CONVEYOR NO. 1-222 ON NO. 2-7522 STARTS.

PIPING NOTES:

- P1 FLOW RATES SHOWN ABOVE LINE REPRESENT AVERAGE NORMAL FLOW AND P FLOWING LOW. BUBBLE REFUSE FLOW RATES SHOWN BELOW LINE ARE DESIGN PEAK FLOWS AND INCLUDE ADJUSTMENTS FOR REFUSE HEATING VOLUME VARIATION.
- P2 MAXIMUM BOTTOM ASH AND MAXIMUM FLY ASH DO NOT OCCUR AT THE SAME TIME AND ARE NOT ADDED. MAXIMUM COMBINED ASH FLOW OCCURS WITH ZERO BUBBLE REFUSE GROWTH FUTURE 1/4" BUBBLE AND IS:
 - 7,226 LB/HR (ENTY) BOTTOM ASH
 - 7,226 LB/HR (ENTY) FLY ASH
 - 14,452 LB/HR (ENTY) TOTAL

RELEASED FOR CONSTRUCTION
BY *[Signature]* DATE *1/11/67*

WHEELABRATOR ENVIRONMENTAL SYSTEMS INC.
 2000 S. Main Street
 Denver, Colorado 80202

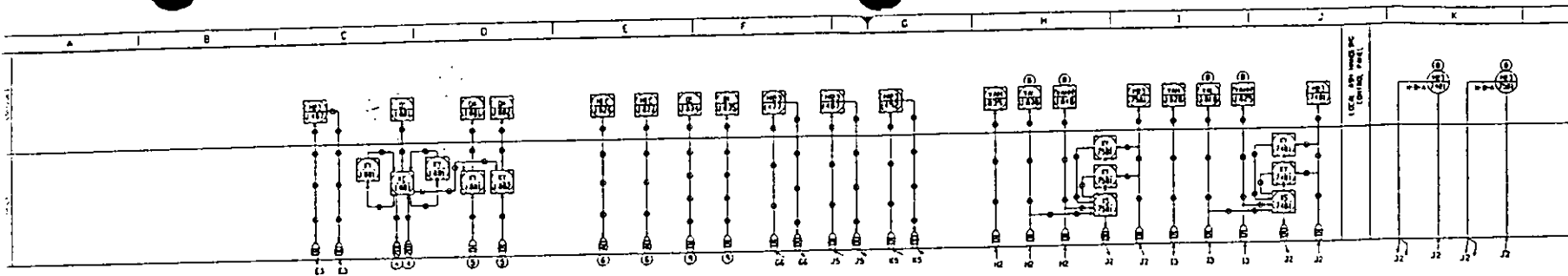
RUST
 Contract No. 21-3457

ASH HANDLING SYSTEM
 P & I DIAGRAM
 ASH HANDLING BUILDING
 NORTH BROWARD
 RESOURCE RECOVERY FACILITY

Drawing Number: 03-28-602

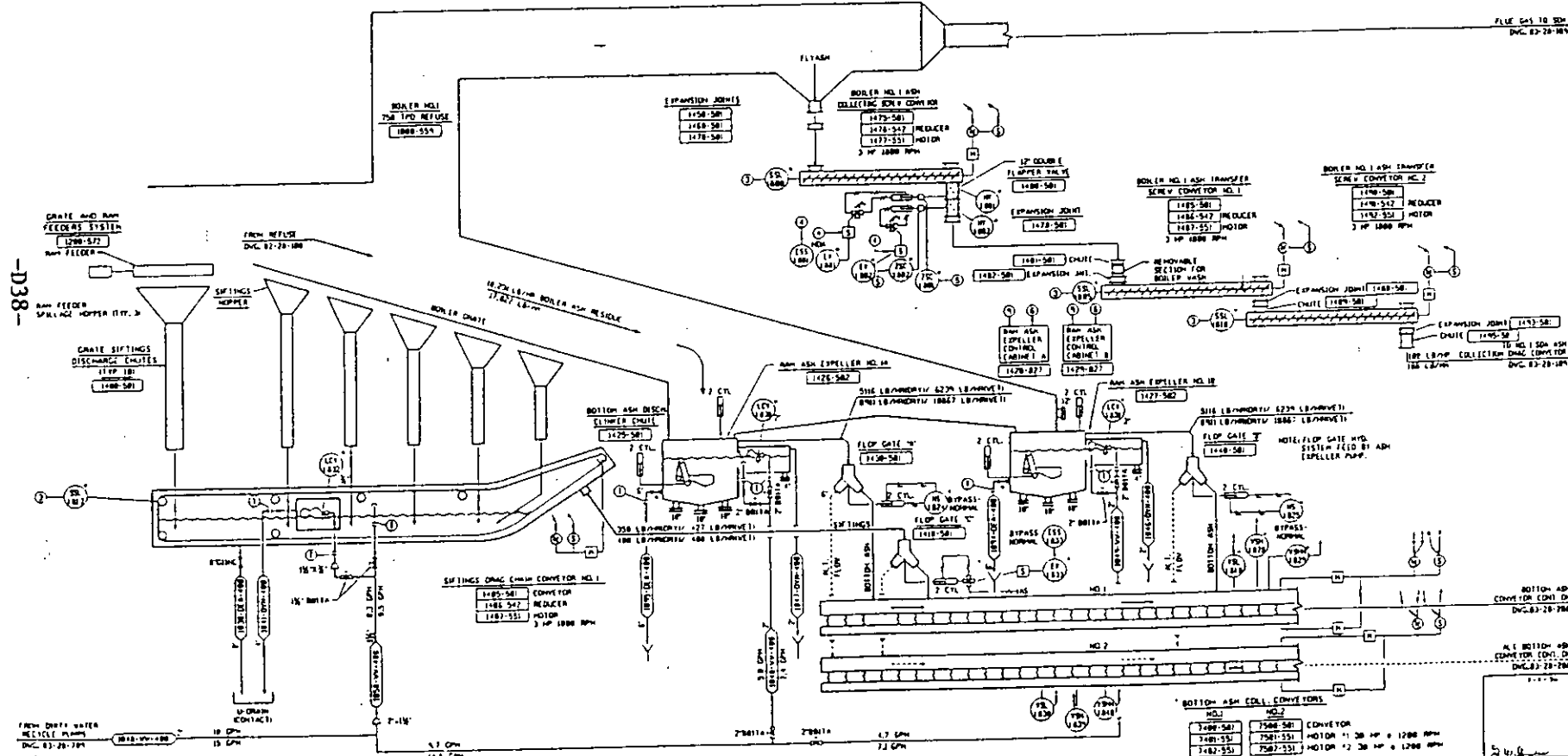
NO.	DATE	DESCRIPTION
1	1/11/67	ISSUED FOR CONSTRUCTION
2	1/11/67	REVISION
3	1/11/67	REVISION
4	1/11/67	REVISION
5	1/11/67	REVISION
6	1/11/67	REVISION
7	1/11/67	REVISION
8	1/11/67	REVISION
9	1/11/67	REVISION
10	1/11/67	REVISION

INSTRUMENT NUMBERS-8000 6000 LAST NUMBER USED-0427 MEMBERS NOT USED



PROCESS CONTROL NOTES:

- ① ALL INSTANT NUMBER ON THIS DRAWING ARE PREFIXED BY AREA 03 UNLESS OTHERWISE NOTED.
- ② - DENOTES MOUNTED INSTRUMENT.
- ③ CONVEYERS ARE STARTED AND STOPPED IN SEQUENCE. ZERO SPEED SWITCHES STOP ALL UPSTREAM CONVEYERS.
- ④ (C-100) CONTROLS OPENING AND CLOSING OF FLAPPER VALVES & SIZES 1000 AND 1000 FOR SEQUENCE OF OPERATION. SEE LOGIC DIAGRAM 03-26-105.
- ⑤ LIMIT SWITCHES ARE MOUNTED TO VERIFY THAT FLAPPER VALVES ARE CYCLING PROPER. FAILURE TO CYCLE ACTIVATES ALARM. SEE LOGIC DIAGRAM 03-26-105.
- ⑥ OPERATION SELECTS SPOOL SPEED (H-HOOD MC-1025 SEIS HYDRAULIC VALVE MC-1031-1034 DMC 03-26-104) FOR EXPELLER MC 10. MC-1027 SEIS HYDRAULIC VALVE 03-26-102 FOR EXPELLER MC 10.
- ⑦ CONVEYER 03-7500 JOCS IN LOCAL. CYCLES ONCE IN 10 SECONDS WITH ON EVELL ADJUSTING REDUNDANT 10 SECONDS ON AND 10 SECONDS OFF. SAME FOR CONVEYER 03-7500.
- ⑧ CONVEYER 03-7500 STOPS ON HIGH-MED VIBRATION (VIBRATION MONITOR 1000-1000) FOR 15 SECONDS. LOW VIBRATION (VIBRATION MONITOR 1000-1000) FOR 15 SECONDS. VIBRATION MONITOR 1000-1000 ON LOW VIBRATION 1000-1000.
- ⑨ D-1024 INDICATES RUN AND EXPELLER MC 10. RUNNING. D-1025 INDICATES RUN AND EXPELLER MC 10 RUNNING.



PIPING NOTES:

- P1 FOR GENERAL NOTES SEE DWG 03-26-101.
- P2 FLOWRATES SHOWN ABOVE LINE. REFERENCE TO BEING. NORMAL FLOW RATE SHOWN BELOW LINE. THE DESIGN PIPE FLOW RATE INCLUDES ADJUSTMENTS FOR REFUSE HEATING VALUE VARIATION.

RELEASED FOR CONSTRUCTION BY: _____ **DATE:** 03-28-108

WHEELABRATOR ENVIRONMENTAL SYSTEMS INC.

PROJECT: BOILER NO. 1 P & I DIAGRAM BOTTOM ASH HANDLING

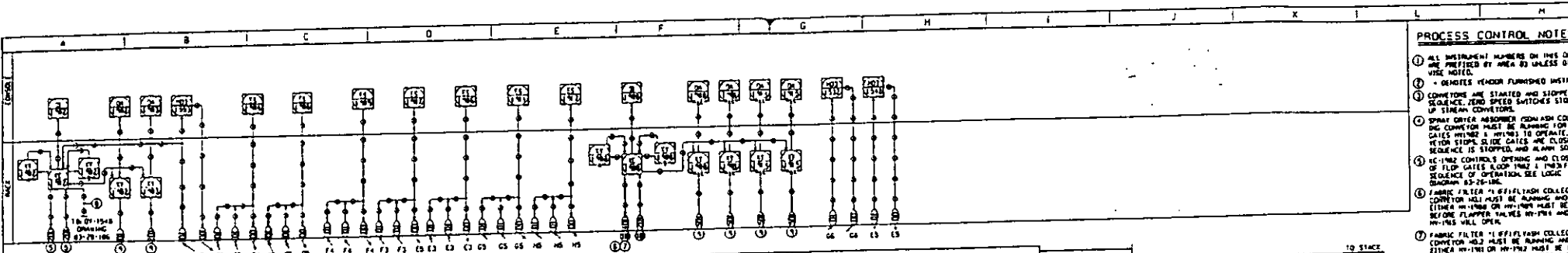
CLIENT: NORTH BROWARD RESOURCE RECOVERY FACILITY

DATE: 03-28-108

3480-501	7500-501
3481-501	7501-501
3482-501	7502-501
3483-501	7503-501
3484-501	7504-501
3485-501	7505-501
3486-501	7506-501
3487-501	7507-501

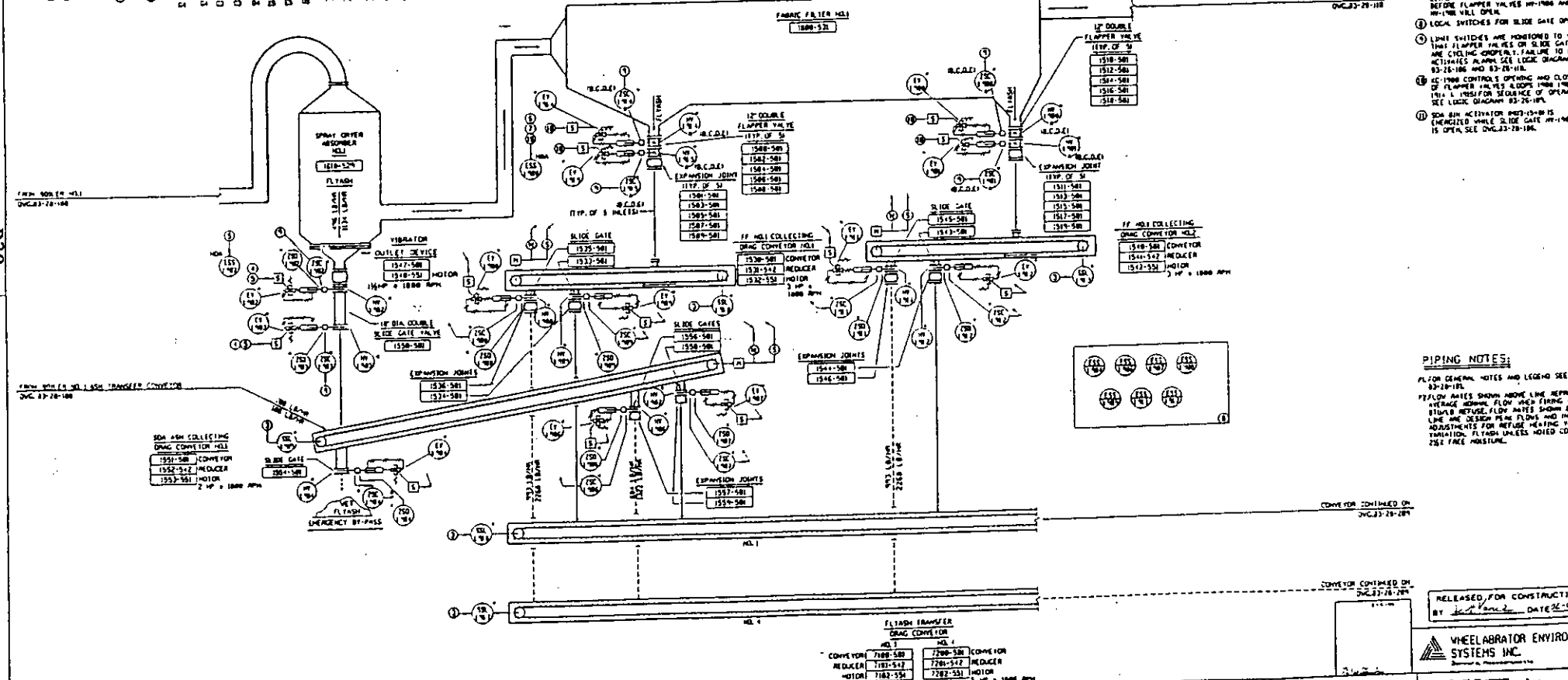
INSTALLMENT NUMBER: 1000-1074 **LAST NUMBER USED:** _____ **NUMBERS NOT USED:** _____

-D39-



PROCESS CONTROL NOTES:

- 1 ALL INSTRUMENT NUMBERS ON THIS DRAWING ARE PREFIXED BY AREA B3 UNLESS OTHERWISE NOTED.
- 2 - DENOTES VENDOR FURNISHED INSTRUMENT.
- 3 CONVEYORS ARE STARTED AND STOPPED IN SEQUENCE. ZERO SPEED SWITCHES STOP ALL UP STREAM CONVEYORS.
- 4 SPRAY DRYER ASSEMBLY (ASH) COLLECTING CONVEYOR MUST BE RUNNING FOR SLIDE GATES WITHIN 5 MINUTES TO OPERATE. IF CONVEYOR STOPS, SLIDE GATES ARE CLOSED. FLYASH SEQUENCE IS STOPPED AND ALARM SOUNDED.
- 5 ACTING CONTROLS OPENING AND CLOSING OF FLYASH GATES LOOP MUST BE OPEN FOR SEQUENCE OF OPERATION. SEE LOGIC DIAGRAM 83-25-104.
- 6 FABRIC FILTER #1 (FF) FLYASH COLLECTING CONVEYOR MUST BE RUNNING AND EITHER #1-100 OR #1-101A MUST BE OPEN BEFORE FLAPPER VALVES #1-101 AND #1-101B WILL OPEN.
- 7 FABRIC FILTER #1 (FF) FLYASH COLLECTING CONVEYOR #2 MUST BE RUNNING AND EITHER #1-101 OR #1-101A MUST BE OPEN BEFORE FLAPPER VALVES #1-101 AND #1-101B WILL OPEN.
- 8 LOCAL SWITCHES FOR SLIDE GATE OPERATION.
- 9 LINE SWITCHES ARE MONITORED TO VERIFY THAT FLAPPER VALVES OR SLIDE GATES ARE CLOSING PROPERLY. FAILURE TO CLOSE ACTIVATES ALARM. SEE LOGIC DIAGRAM 83-25-106 AND 83-25-108.
- 10 ACTING CONTROLS OPENING AND CLOSING OF FLAPPER VALVES & GATES MUST BE OPEN FOR SEQUENCE OF OPERATION. SEE LOGIC DIAGRAM 83-25-104.
- 11 SOA AIR ACTIVATOR #101-15-101 IS ENERGIZED WHILE SLIDE GATE #1-102 IS OPEN. SEE DVC 23-29-104.



PIPING NOTES:

FLYASH GENERAL NOTES AND LEGENDS SEE DVC 83-25-101.
 FLYASH NOTES SHOWN ABOVE LINE REPRESENT AVERAGE NOMINAL FLOW WHEN FEEDING +500 STUBS. REFUSE FLOW NOTES SHOWN BELOW LINE ARE DESIGN PIPE FLOWS AND INCLUDE ADJUSTMENTS FOR REFUSE HEATING VALUE. EMERGENCY BY-PASS
 FLYASH VALVES NOTED CONTAINS 25% FREE MOISTURE.

RELEASED FOR CONSTRUCTION BY *Jeff Jones* DATE 03-26-03

WHEELABRATOR ENVIRONMENTAL SYSTEMS INC.

ROBUST
 CONSTRUCTION 28-3057

BOILER NO. 1
 P & I DIAGRAM
 FLYASH HANDLING SYSTEM
 NORTH BROWARD
 RESOURCE RECOVERY FACILITY

03-28-109

REV	DATE	DESCRIPTION
1	03-28-109	ISSUE FOR CONSTRUCTION
2	03-28-109	REVISIONS
3	03-28-109	REVISIONS
4	03-28-109	REVISIONS
5	03-28-109	REVISIONS
6	03-28-109	REVISIONS
7	03-28-109	REVISIONS
8	03-28-109	REVISIONS
9	03-28-109	REVISIONS
10	03-28-109	REVISIONS

FLYASH TRANSFER DRAG CONVEYOR NO. 3
 CONVEYOR 7180-500
 REDUCER 7181-512
 MOTOR 7182-554
 5 HP @ 1800 RPM

FLYASH TRANSFER DRAG CONVEYOR NO. 4
 CONVEYOR 7200-500
 REDUCER 7201-512
 MOTOR 7202-551
 5 HP @ 1800 RPM

WHEELABRATOR NORTH BROWARD

ASH RESIDUE MANAGEMENT PLAN

ATTACHMENT B1

FERROUS RECOVERY SYSTEM_



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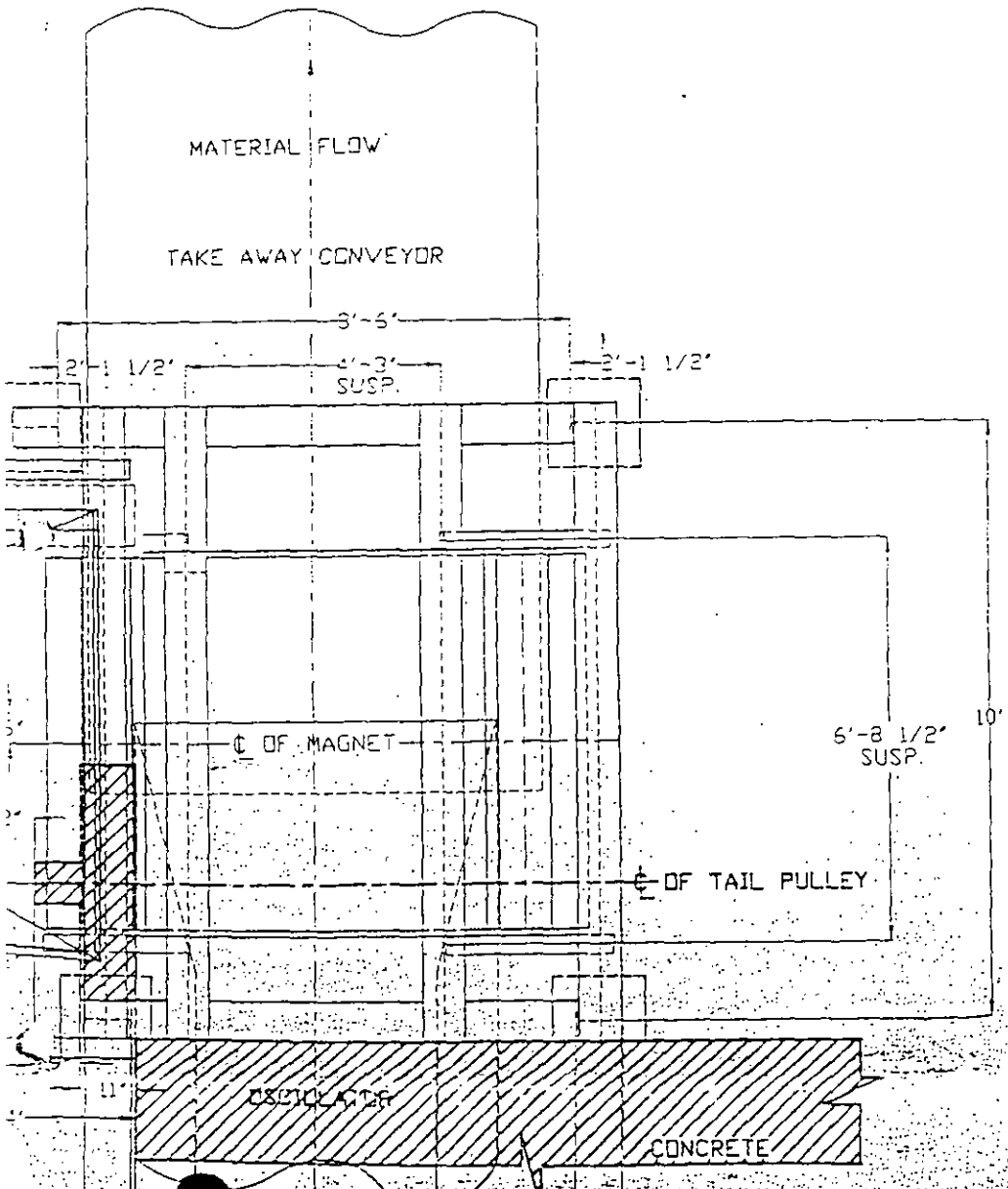
1881 Florida Ave., New Orleans, LA 70117 USA • P.O. Box 26867 • New Orleans, LA 70138 • (504) 586-3371

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NORTH BROWARD MAGNET & CONVEYOR ASSEMBLY FOR WHEELABATOR

LOCATION: TAMPA DATE: 11-14-91 EQUIP:

DWG #: TA-119 REV. #: SCALE: 1/2"=1' DEPT:



-D41-

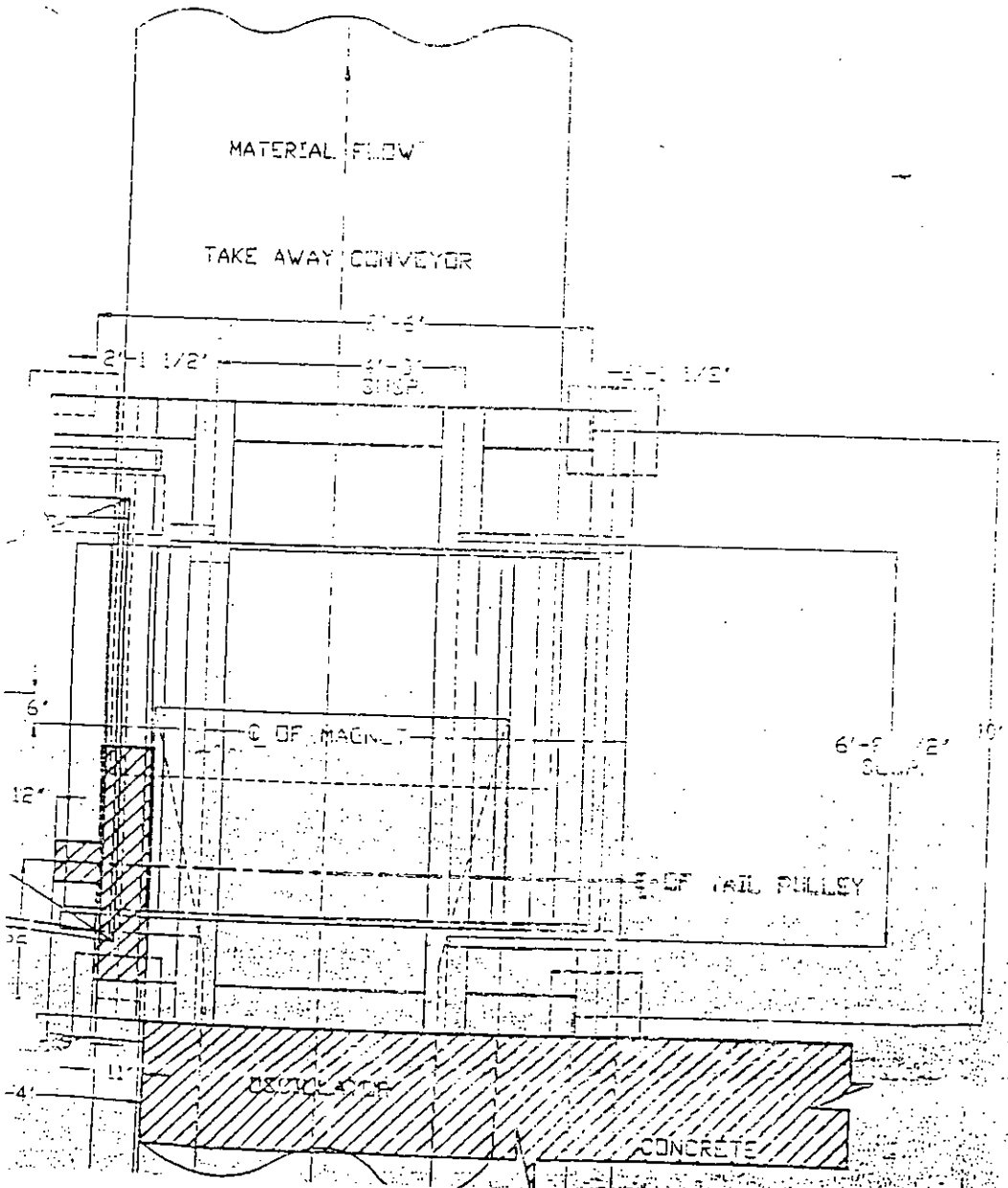


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NORTH BROWARD MAGNET & CONVEYOR ASSEMBLY FOR WHEELABATOR

LOCATION: TERCA DATE: 11-14-91 EQUIP:
DWG: 11-10-119 REV: A SCALE: 1/2"=1' DESPT:



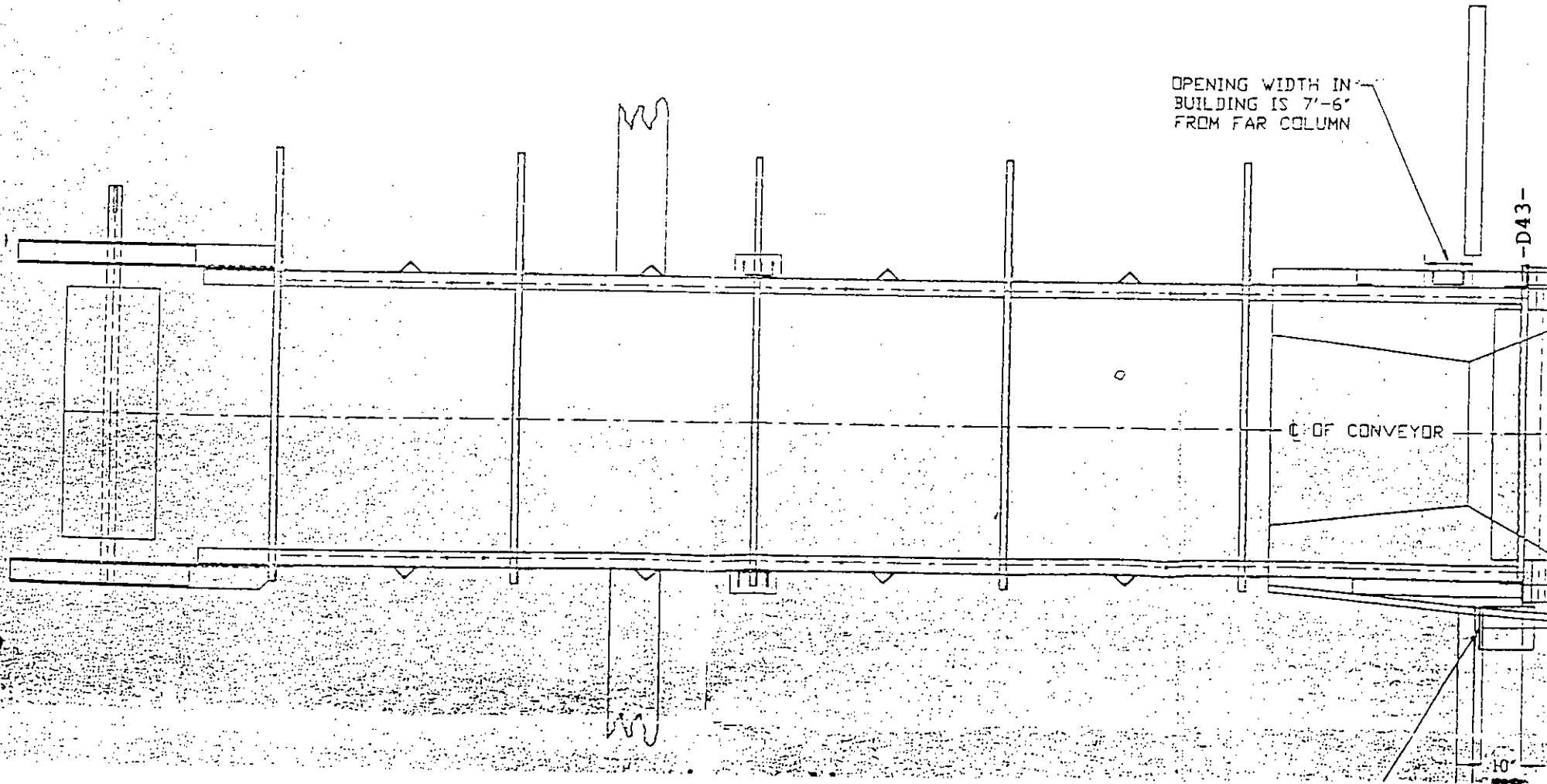
-D42-

OPENING WIDTH IN
BUILDING IS 7'-6"
FROM FAR COLUMN

-D43-

C OF CONVEYOR

10'

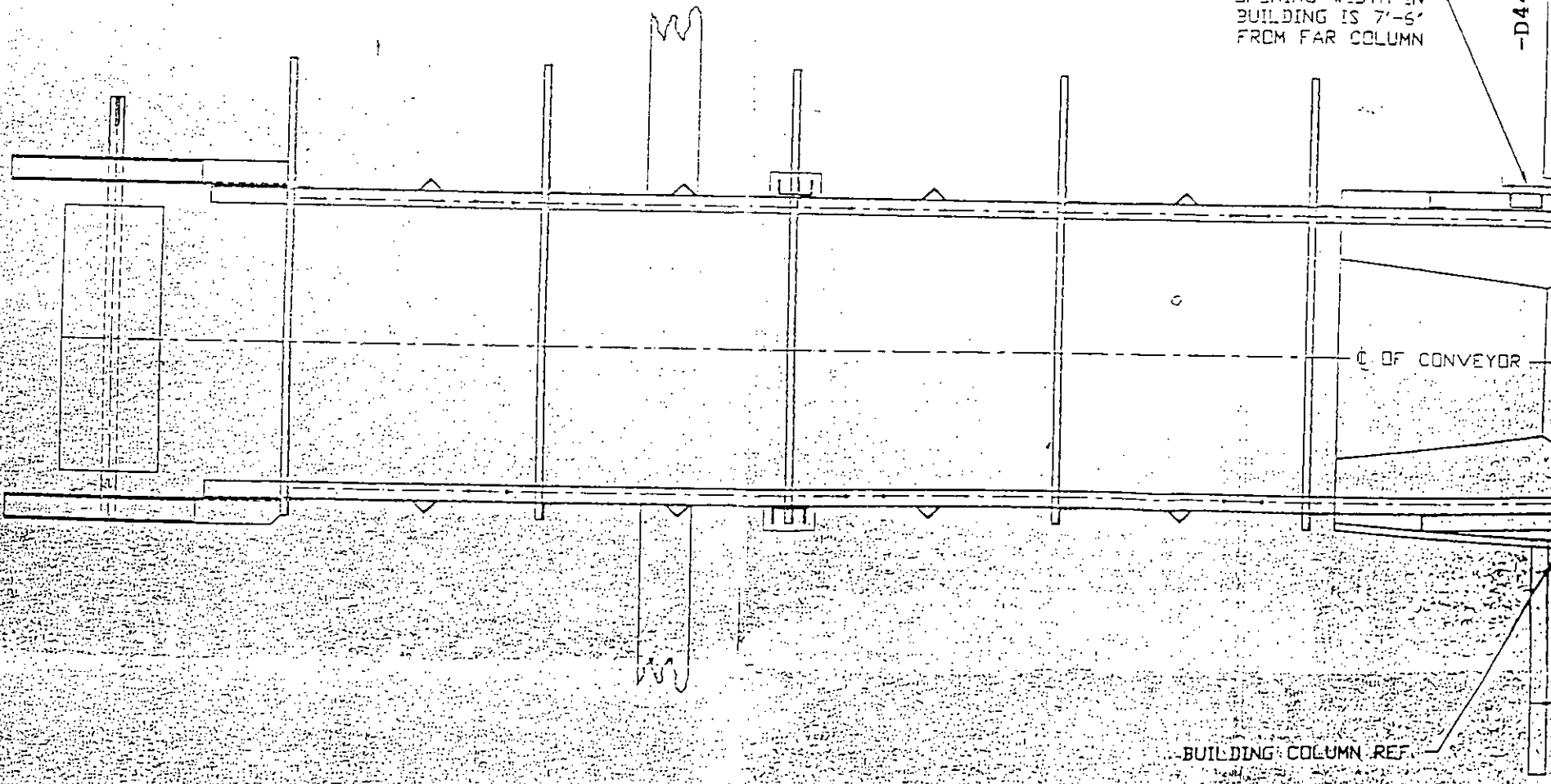


OPENING WIDTH IN
BUILDING IS 7'-6"
FROM FAR COLUMN

-D44-

C OF CONVEYOR

BUILDING COLUMN REF



WHEELABRATOR NORTH BROWARD

ASH RESIDUE MANAGEMENT PLAN

ATTACHMENT C

QUALITY ASSURANCE PLAN (QAP)

April 6, 1994

Certified Mail #P 092 622 518

Florida Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL. 32399-2400
Attn: Sylvia Labie, Administrator
Quality Assurance Section

Dear Ms. Labie:

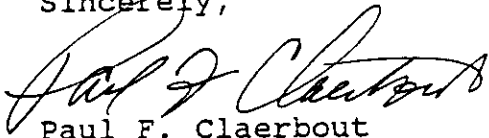
Wheelabrator North Broward (WNB) respectfully submits a Statement of Intent to comply with the Department of Environmental Protection Standard Operating Procedures (SOPs) for Sample Collection Activities. It is anticipated that when the Statement of Intent is approved, it will become WNB Comprehensive Quality Assurance Plan (Comp QAP), and replace the Comp QAP initially submitted with the facility ash residue management plan.

WNB will implement these quality assurance (QA) procedures for the ash sampling required pursuant to FAC 17-702.570(2) for solid waste combustor ash, which is disposed of in the landfill and 17-702.600(1) for ash residue which is processed into an ash reuse product. The sampling of ash and processed ash for reuse will be performed in accordance with the Departments "Quality assurance Standard Operating Procedures Manual for Sampling of Ash Residue from Solid Waste Combustors". The sampling frequency of the reused ash product is outlined in the attached Standard Operating Procedure for Performance Standards and Operational Criteria for the North Broward Resource Recovery Facility Ash Reuse Processing Facility.

Based on the above requirements, WNB wishes to have ash sampling and ash reuse product sampling activities covered by this Statement of Intent. Sampling will be performed by WNB personnel or personnel from a laboratory with and approved QAP on file with the State. Analyses of these samples will be conducted by an outside laboratory that has an approved Comp QAP. Field instrumentation requiring calibration procedures (SOP Section 7.0), maintenance procedures (SOP Section 8.0), and reagent and calibration standard storage (SOP Section 4.4.4), are not used for these activities.

Please do not hesitate to call me if you have any questions regarding the submittal.

Sincerely,



Paul F. Claerbout
Plant Manager

cc:	E. Selya	WNB
	C. Faller	WNB
	F. Ferraro	Hampton
	J. Lurix	FDEP S.E.

Q.A. CERTIFICATION

Part II: CERTIFICATION

I, the undersigned, PAUL F. CLAERBOUT (name)
PLANT MANAGER (title) NORTH BROWARD RESOURCE RECOVERY
FACILITY (organization), and ERIC SELYA
(name) ENVIRONMENTAL HEALTH AND SAFETY DIRECTOR (title)
NORTH BROWARD RESOURCE RECOVERY FACILITY (organization), hereby certify that they have

obtained copies of all documents pertinent to the protocols that they have identified on the document titled "Standard Operating Procedures to be Incorporated into Comprehensive QA Plans" and that these documents shall be incorporated by reference into the Comprehensive Quality Assurance Plan attached hereto or identified herein. They further certify that the organization of which they are officials or officers as identified herein has the instrumentation and/or equipment and capability to perform the protocols specified by these documents and that they will be responsible for the implementation of said protocols when performing the specified activity. They certify that the officials and employees of the organization identified herein are committed to generating data of a known and verifiable quality. They further certify that they understand that final approval of the Comprehensive Quality Assurance Plan attached hereto or identified herein is contingent upon satisfying the Department's review requirements.

They further certify that the information, statements, facts and representations given and made above are true and correct to the best of their knowledge and belief, and that they are aware that any misrepresentations or falsifications constitute grounds for rejection of approval of the Comprehensive QA Plan attached hereto or identified herein, and that anyone who knowingly makes a false statement in writing with the intent to mislead a public servant in the performance of his official duty shall be guilty of a misdemeanor, of the second degree in violation of Section 837.06, Florida Statutes.

4/6/94
DATE

Paul F. Claerbout
(print name PAUL F. CLAERBOUT)
(Title: PLANT MANAGER)
(Organization NORTH BROWARD RRF)

4/6/94
DATE

Eric Selya
(print name(s) ERIC SELYA, EH&SD AND QUALITY ASSURANCE
OFFICER)
Quality Assurance Officer(s)
(Organization NORTH BROWARD RRF)

Part I: STANDARD OPERATING PROCEDURES TO BE INCORPORATED INTO COMPREHENSIVE QA PLANS, cont.

Preservatives are:

- Provided by the laboratory in separate containers
- Provided by the laboratory already premeasured into the containers
- Provided by the field consultant

Field-Related Activities:

- Sample Dispatch (4.4.3)
- Reagent and Standard Storage (4.4.4)
- Field Waste Disposal (4.4.5)

SAMPLE CUSTODY AND DOCUMENTATION (Chapter 5):

- General Requirements (5.1)
- Preparation of Field-Sampling Supplies (5.2)
- Custody and Documentation for Field Operations (5.3)
- Custody and Documentation for Laboratory Operations (5.4)
- Electronic Data Documentation (5.5)
- Legal or Evidentiary Custody (5.6)

ANALYTICAL PROCEDURES (Chapter 6):

- Laboratory Glassware Cleaning and Storage Protocols (6.1)
- Laboratory Reagent Storage (6.2)
- Laboratory Waste Disposal (6.3)

CALIBRATION PROCEDURES AND FREQUENCY (Chapter 7):

- General Requirements and Documentation (7.1, 7.2, 7.8 and 7.9)
- Standard Receipt and Traceability (Sec. 7.3)
- Frequency of Standard Preparation and Standard Storage (Sec. 7.4)

Field:

- General Requirements (7.5.1)
- pH (7.5.2)
- Temperature (7.5.3)
- Dissolved Oxygen (7.5.4)
- Automatic Wastewater-type Samplers (7.5.8)
- Specific Conductance (7.5.5)
- Chlorine Measurements (7.5.6)
- OVAs (7.5.7)

Laboratory:

- Laboratory Instruments (7.6)
- Support Equipment Calibration (7.7)

PREVENTATIVE MAINTENANCE (Chapter 8.0)

QUALITY CONTROL REQUIREMENTS AND ROUTINES TO CALCULATE AND ASSESS PRECISION, ACCURACY AND METHOD DETECTION LIMITS (Chapter 9):

- Documentation (9.4)

Field Quality Control Requirements:

- Minimum Field Quality Control Requirements (9.1.1)

Laboratory Quality Control Requirements:

- Chemical Analysis (9.1.2.1)
- Microbiological Analysis (9.1.2.2)
- Formulae for Calculating and Assessing Precision and Accuracy (9.2)
- Formulae for Calculating Method Detection Limits (9.3)
- Toxicity (Bioassay) Tests (9.1.2.3)
- Macroinvertebrate Species Identification (9.1.2.4)

DATA REDUCTION, VALIDATION AND REPORTING (Chapter 10)

CORRECTIVE ACTION (Chapter 11)

PERFORMANCE AND SYSTEMS AUDITS (Chapter 12)

QUALITY ASSURANCE REPORTS (Chapter 13)

**STATEMENT OF INTENT TO COMPLY WITH
THE DEPARTMENT OF ENVIRONMENTAL REGULATION
STANDARD OPERATING PROCEDURES FOR LABORATORY OPERATIONS AND
SAMPLE COLLECTION ACTIVITIES**

FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION
Quality Assurance Section

Part I: STANDARD OPERATING PROCEDURES TO BE INCORPORATED INTO COMPREHENSIVE QA PLANS

Name of Organization:

NORTH BROWARD RESOURCE RECOVERY FACILITY

Address:

2600 N.W. 48TH STREET POMPANO BEACH, FL. 33073

Comprehensive QA Plan Number:

Check the specific protocols that your organization will be using while collecting and/or analyzing environmental samples. NOTE: check only documents and protocols as listed in the "DER Standard Operating Procedures for Laboratory Operations and Sample Collection Activities" (DER-QA-001/92) dated September 30, 1992 for which your organization has current equipment capabilities.

THIS FORM MUST BE ACCOMPANIED BY THE SUPPORTING DOCUMENTATION SPECIFIED IN DER-QA-001/92

ORGANIZATION AND RESPONSIBILITY (Chapter 3)

FIELD ACTIVITIES (Chapter 4):

Field Decontamination and Cleaning Protocols:

Container Cleaning protocols (4.4.1):

- Sample containers cleaned by organization
 Sample containers obtained precleaned from commercial vendor
 Sample containers obtained precleaned from laboratory with an approved Comprehensive QA Plan

General Considerations and Reagents (4.1.1 through 4.1.3)

- | | |
|--|--|
| <input checked="" type="checkbox"/> Sampling Equipment (4.1.4) | <input type="checkbox"/> Pumps used only for Purging (4.1.8.1 and 4.1.8.2) |
| <input type="checkbox"/> Automatic Samplers (4.1.5) | <input type="checkbox"/> Pumps used for Purging and Sampling (4.1.8.1 and 4.1.8.2) |
| <input type="checkbox"/> Field Filtration Equipment (4.1.6) | <input type="checkbox"/> Non-Sampling Equipment (Augers, etc.) (4.1.9) |
| <input type="checkbox"/> Teflon Tubing (4.1.7.1) | <input checked="" type="checkbox"/> Analyte-Free Water Containers (4.1.10) |
| <input type="checkbox"/> Non-teflon Tubing (4.1.7.2 through 4.1.7.5) | <input checked="" type="checkbox"/> Ice Chests and Shipping Containers (4.1.11) |
| <input type="checkbox"/> Field Meters, Flow Meters and Other Field Instruments including Lanyards, Well Sounders and Tapes (4.1.9) | |

Sampling Protocols:

General (4.0)

Aqueous Matrices:

- | | |
|--|---|
| <input type="checkbox"/> General Concerns and Special Sample Handling Procedures (4.2.1 and 4.2.2) | |
| <input type="checkbox"/> Surface Water (4.2.3) | <input type="checkbox"/> Drinking Water Supply System (4.2.8) |
| <input type="checkbox"/> Wastewater (4.2.4) | <input type="checkbox"/> Temporary Well Points (4.2.9) |
| <input type="checkbox"/> Groundwater (4.2.5) | <input type="checkbox"/> Air Stripper and Remedial Treatment Systems (4.2.10) |
| <input type="checkbox"/> Wells with in-place Plumbing (4.2.5) | <input type="checkbox"/> Bioassay (4.2.11) |
| <input type="checkbox"/> Potable Well Sampling (4.2.7) | |

Solid Matrices:

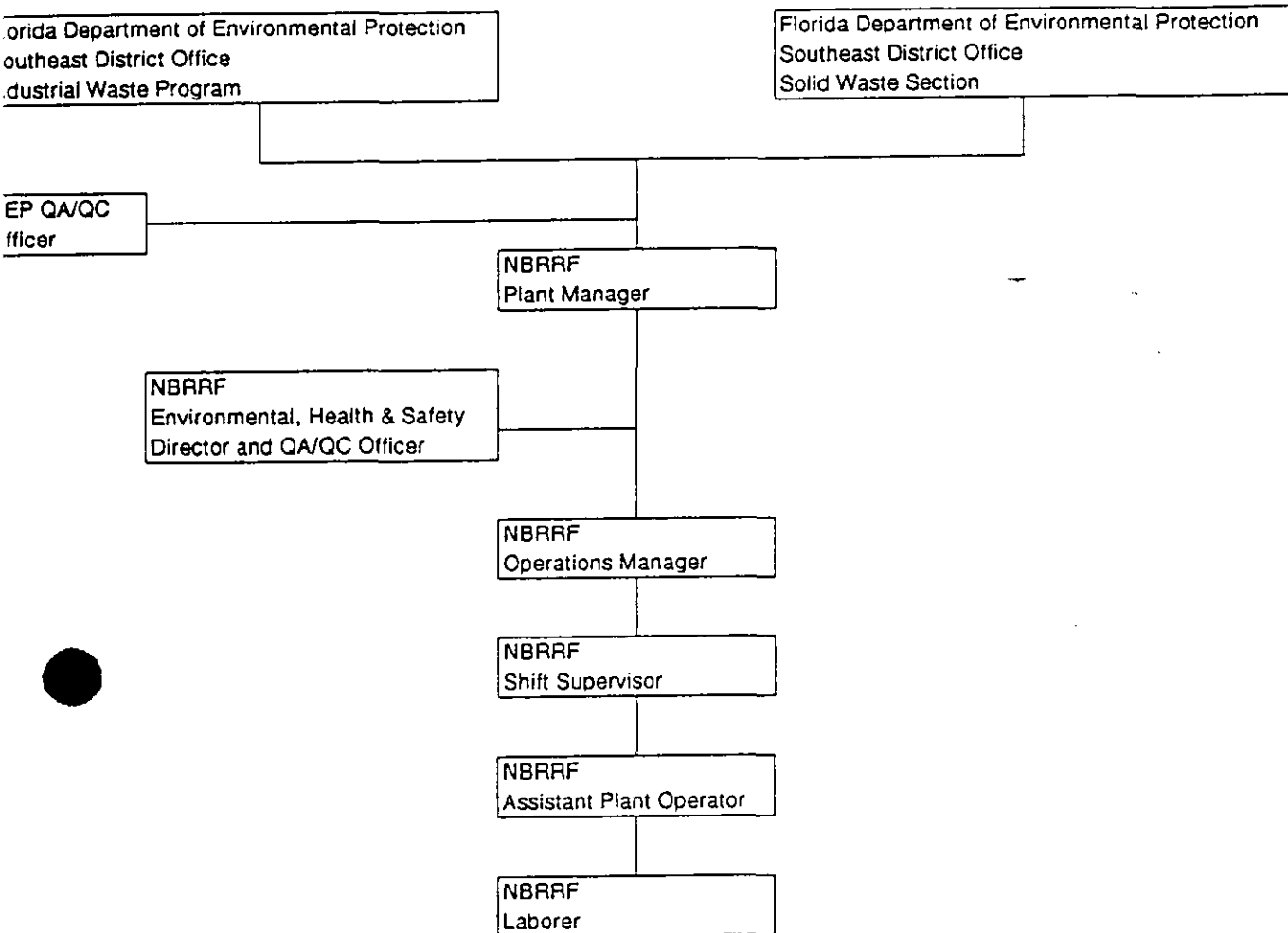
- | | |
|---|---|
| <input checked="" type="checkbox"/> General Concerns and Special Sample Handling Procedures (4.3.1 through 4.3.3) | |
| <input type="checkbox"/> Soil (4.3.4) | <input type="checkbox"/> Domestic Waste Sludges (Residuals) (4.3.8) |
| <input type="checkbox"/> Sediment (4.3.5) | <input type="checkbox"/> Sludges - Solid and Hazardous Wastes (4.3.9) |
| <input type="checkbox"/> Fish Tissue (4.3.6) | <input type="checkbox"/> Liquid Hazardous Wastes (4.3.9) |
| <input type="checkbox"/> Shellfish (4.3.7) | <input type="checkbox"/> Macrobenthic Invertebrates (4.3.10) |

Preservation, Holding Times and Containers Types:

- | | |
|---|---|
| <input type="checkbox"/> Aqueous samples - 40 CFR Part 136, Table II (4.4.2) | <input checked="" type="checkbox"/> SAMPLING OF ASH RESIDUE FROM SOLID WASTE COMBUSTORS |
| <input type="checkbox"/> Aqueous samples - 17-160.700, F.A.C., Table 4 (4.4.2) | |
| <input type="checkbox"/> Aqueous samples - 17-160.700, F.A.C., Table 8 (4.4.2) | |
| <input checked="" type="checkbox"/> Solid samples - 17-160.700, F.A.C., Table 5 (4.4.2) | |

TABLE 1	
SAMPLING CAPABILITIES*	
PARAMETER GROUP	SAMPLE SOURCE
PRIORITY POLLUTANT METALS	1. LANDFILLED MUNICIPAL SOLID WASTE COMBUSTOR ASH 2. ASH DERIVED PRODUCTS

Since the North Broward Resource Recovery Facility does not plan to use field instrumentation to monitor combined bottom and fly ash analyze, QA objectives for field measurements parameters do not apply.



KEY PERSONNEL

NORTH BROWARD RESOURCE RECOVERY FACILITY (NBRRF)

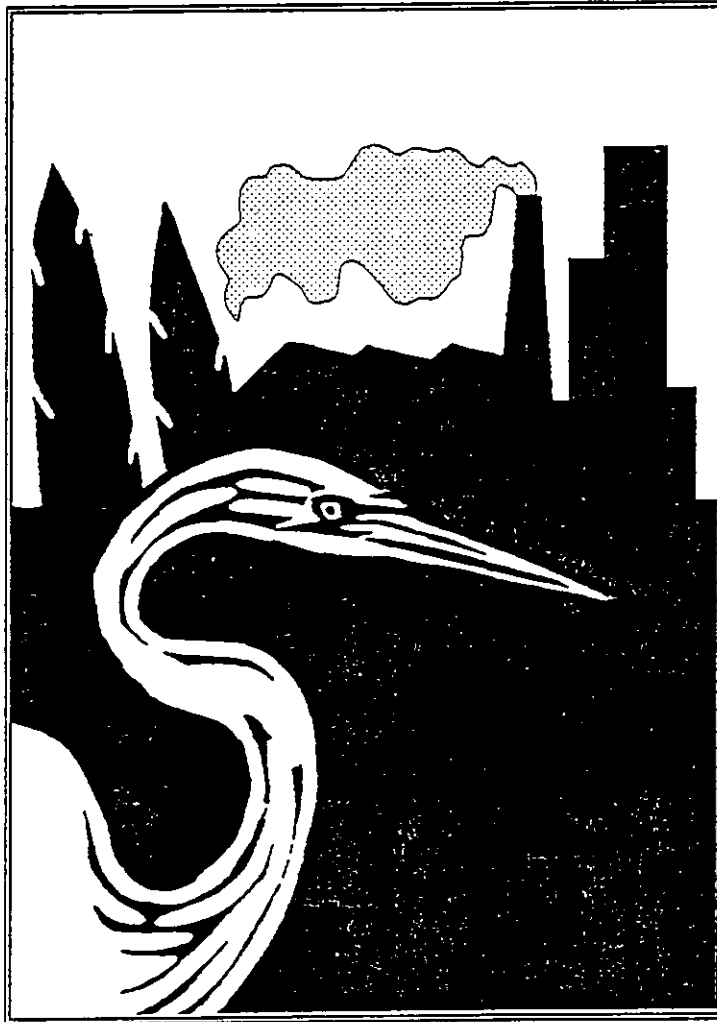
COMPREHENSIVE QUALITY ASSURANCE PLAN

TABLE 2
SAMPLING EQUIPMENT, MATERIALS AND APPROPRIATE USE

EQUIPMENT TYPE	CONSTRUCTION	USE	PERMISSIBLE PARAMETER GROUPS
SOLID SAMPLING			
1. TROWEL, SCOOP, SPOON, SPATULA	STAINLESS STEEL, TEFLON	SAMPLING AND COMPOSITING	PRIORITY POLLUTANT METALS
2. SHOVEL	STAINLESS STEEL	SAMPLING	PRIORITY POLLUTANT METALS
3. MIXING TRAY	STAINLESS STEEL POLYETHYLENE/PVC	COMPOSITING OR HOMOGENIZING	PRIORITY POLLUTANT METALS
4. BLENDER/MIXER	STAINLESS STEEL POLYETHYLENE/PVC	COMPOSITING OR HOMOGENIZING	PRIORITY POLLUTANT METALS
MICELLANEOUS EQUIPMENT			
1. HARD HAT		PROTECTION/SAFETY	X
2. STEEL TOE FOOTWEAR		PROTECTION/SAFETY	X
3. DISPOSABLE GLOVES	LETEX	PROTECTION/SAFETY	X
4. BUCKETS	PVC, POLETHYLENE	DECONTAMINATION	PRIORITY POLLUTANT METALS
5. BRUSHES		DECONTAMINATION	PRIORITY POLLUTANT METALS
6. ALCONOX OR EQUIVALENT TRISODIUM PHOSPHATE SOAP		DECONTAMINATION	PRIORITY POLLUTANT METALS
7. BOUND FIELD BOOK		FIELD NOTES	PRIORITY POLLUTANT METALS
8. INDELIBLE PENS		FIELD NOTES	PRIORITY POLLUTANT METALS
9. ICE CHESTS		SAMPLE TRANSPORT	PRIORITY POLLUTANT METALS
10. WET ICE (BLUE ICE IS PHOGIBITED)		SAMPLE TRANSPORT	PRIORITY POLLUTANT METALS
11. DEIONIZED WATER	POLYETHYLENE, ON DEMAND AT GENERATING STATION	FINAL DECONTAMINATION RINSE	PRIORITY POLLUTANT METALS
12. NITRIC ACID	REAGENT GRADE	DECONTAMINATION RINSE	PRIORITY POLLUTANT METALS

Department of Environmental Protection

Quality Assurance Standard Operating Procedures Manual for Sampling of Ash Residue from Solid Waste Combustors



Solid Waste Section
December, 1993

Florida Department of
Environmental Protection

Memorandum

TO: District Waste Program Administrators

FROM: Mary Jean Yon, Administrator
Solid Waste Section

DATE: March 1, 1994

SUBJECT: Ash Sampling SOP Manual

A question has arisen regarding the applicability of the Ash Sampling SOP Manual, dated December, 1993. The Manual refers to ash residue from "solid waste combusters," which are defined to include any incinerator which burns solid waste. However, the intent of the Manual was to address the routine ash testing requirements for waste-to-energy facilities for the purpose of compliance with Rule 17-702.570, F.A.C. The procedures set forth in the Manual may not be appropriate for other types of incinerators, including biomedical waste incinerators, and may not be sufficient to demonstrate compliance with State and Federal hazardous waste regulations. In addition, waste-to-energy facilities that have requested permission to recycle/reuse their ash should check with the Department to ensure that the sampling procedures listed in this manual are applicable to their situation.

Please attach a copy of this memorandum to each Ash SOP Manual you provide to the public. Future editions of the Manual will include this clarification in the Introduction.

QUALITY ASSURANCE
STANDARD OPERATING PROCEDURES MANUAL
FOR SAMPLING ASH RESIDUE
FROM SOLID WASTE COMBUSTORS

TABLE OF CONTENTS

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I. INTRODUCTION

The Department of Environmental Protection has compiled the following document in order to establish comprehensive procedures which address the sampling of ash residue from solid waste combustors. Chapter 17-702.570(2), Florida Administrative Code (F.A.C.), requires that ash residue sampling and analysis be conducted in accordance with an approved Comprehensive Quality Assurance Plan (Comp QAP). In accordance with Rule 17-160.700(3), F.A.C., all sampling and analysis will be conducted in a manner consistent with Category 2C as specified in Table 3 of that rule. All parties conducting ash residue sampling should follow these Standard Operating Procedures. Subsequent analyses of collected samples must be performed by a laboratory which has an approved Comp QAP.

The intent of this document is to clarify Department regulations and requirements dealing with the sampling of solid waste combustor ash. These procedures have been developed in cooperation with the Bureau of Laboratories, Quality Assurance Section, and reflect the current rules governing solid waste combustor ash.

II. SAMPLING PROCEDURES

A. Ash Residue Sampling

Chapter 17-702.570(2), F.A.C. requires at least quarterly sampling for those priority pollutant metals listed in Table I.

B. Sampling Location

(1) A composite sample of the ash residue (combined fly ash, bottom ash and scrubber residue) shall be taken from the ash residue, either at the conveyance mechanism or in the ash load-out building. Grab samples shall be collected every 10 minutes for 4 consecutive hours during a single day each month. This specifically means that 6 samples shall be collected each hour with each individual sample weighing approximately 1 pound. At the end of the sampling day approximately 24 pounds of ash residue will have been collected. These monthly samples shall be composited and stored in a locked cabinet which is maintained at 4 degrees Centigrade. At the end of the sampling quarter (e.g. January-March) 3 composite samples, one composite sample for each month for that calendar quarter, will have been collected. The 3 monthly composite samples shall then be composited into 1 composite sample weighing approximately 2 pounds.

(2) If the fly ash and scrubber residue are not normally mixed with the bottom ash at the facility, then equal parts of fly ash and scrubber residue shall be collected in accordance with Section II.C. below and thoroughly mixed with the bottom ash prior to testing to obtain a representative sample.

C. Composite Ash Residue Sampling Procedure

The following composite and residue sampling procedures shall be used for collecting samples for the priority pollutant metals listed in Table I.

(1) At 10 minute intervals over the 4-hour sampling period, gather random sequential grab samples with a decontaminated stainless steel or plastic spoon, taking a cross section of the entire conveyance mechanism or the ash load-out building. The total amount sampled each 10 minutes should be approximately 1 pound.

(2) Place the samples into a stainless steel or glass tray until the sample has reached ambient air temperature. Place each sample into a clean plastic container and seal it with a screw top plastic lid. Store the samples in a locked cabinet at 4 degrees Centigrade.

(3) At the end of the sampling period, transfer the 24 samples into a clean stainless steel or glass tray for mixing.

(4) Thoroughly mix the daily composite ash residue sample with a large, precleaned, stainless steel or plastic spoon. To promote mixing, the stainless steel or plastic spoon should be slotted.

(5) Screen the mixed daily composite ash residue sample through a 3/8-inch stainless steel screen.

(6) Place \leq 3/8 inch ash residue into a clean mixer which is large enough to accommodate the daily composite ash sample.

(7) Remove $>$ 3/8 inch noncrushable ash residue from the sample (e.g. wheels, batteries, rebar, metal frames, etc.), weigh it and discard it. Record in a bound log the weight, type and approximate size of the discarded material.

(8) Pass $>$ 3/8 inch crushable ash residue through a crusher and then recombine crushed ash residue with \leq 3/8 inch ash residue in a mixer.

(9) Turn on the mixer for 10 minutes to assure thorough mixing of the composite sample. Remove the sample from the

mixer with stainless steel or plastic spoon and obtain a quarter of the total sample for the daily composite sample. The remaining 3/4 of the original sample may be discarded.

(10) Place the daily composite sample into a clean container and seal with a screw top plastic lid. Store this sample in a locked cabinet which is maintained at 4 degrees Centigrade. The third monthly composite sample of each sampling quarter (i.e. March, June, September and December) shall be analyzed separately from the quarterly composite sample for Mercury. The laboratory holding time for Mercury is 28 days.

(11) After 3 monthly composite samples are obtained, combine all three monthly composite samples in the mixer. Remove the sample after mixing for 10 minutes and divide it into four equal portions. Two of these portions may be discarded. Place each of the remaining two quarterly composite samples into separate clean containers and seal them with screw top plastic lids.

(12) Label containers for all composites as to location, date, samples and composite number.

(13) Ship one quarterly composite sample to the approved laboratory using the chain of custody form found in Figure I.

(14) Archive the other quarterly composite sample on-site in the locked refrigerated cabinet as a control and/or for future analyses for a maximum of 6 months, depending on the holding times for each analyte.

D. Cleaning Procedures

Equipment utilized to obtain samples must be decontaminated before every 4-hour sampling event.

(1) Wash equipment thoroughly with detergent and tap water using a brush to remove any particulate matter or surface film. Cleaning detergent shall be metal-free (Acationox or equivalent).

(2) Rinse equipment with tap water.

(3) Rinse equipment with 10% nitric acid rinse. The 10% nitric acid shall be made with 1 part reagent grade concentrated nitric acid and 5 parts deionized water.

(4) Rinse all non-metallic sampling and compositing equipment with deionized water and allow to air dry.

(5) Wrap equipment completely with plastic wrap to prevent contamination during transportation to or within a sampling site.

E. Sample Identification, Storage, and Holding Time

(1) Immediately after each monthly sample is collected, the container shall be sealed and labeled to identify the sample by location, date and time of collection, collector's name and analysis type.

(2) All samples must be shipped in wet ice, and access to samples must be restricted to only those persons identified in the chain of custody record.

III. SAMPLE CUSTODY

A. Sample Control Log

A sample control log must be maintained which will show the field ID number, the name of the sample collector, the date, shift, and location of collection. The field ID number also must be written on the sample label. A numbering system should be used for the field ID numbers which will allow accurate identification of ash samples with no ambiguity.

B. Chain of Custody Record

(1) A chain of custody record must be completed for every monthly composite sample collected. All parties accepting custody of the samples including the collector, coordinator, transporter, laboratory custodian, etc., must provide signatures on the chain of custody forms. In this record every sample will be identified by the following: field ID number, date, time, sampling method, sampling location, shift, container, and analytical methods. A chain of custody record must be filled out per sample collector per shift.

(2) A binder containing copies of chain of custody records must be maintained by the party which collects the sample. Two copies of a chain of custody record form must accompany the sample to the laboratory. Once the sample transporter signs out and the receiver signs in, one copy must be retained by the laboratory and one retained by the transporter who will deliver it to the party collecting the sample.

IV. REFERENCES

(1) Test Methods For Evaluating Solid Waste, Physical/Chemical Methods, Third Edition (EPA SW-846), 1986 as amended by Final Update 1, November 1990.

TABLE I

PRIORITY POLLUTANT METALS

Antimony	(mg/kg)
Arsenic	(mg/kg)
Beryllium	(mg/kg)
Cadmium	(mg/kg)
Chromium	(mg/kg)
Copper	(mg/kg)
Lead	(mg/kg)
Mercury	(mg/kg)
Nickel	(mg/kg)
Selenium	(mg/kg)
Silver	(mg/kg)
Thallium	(mg/kg)
Zinc	(mg/kg)

FIGURE I
CHAIN OF CUSTODY FORM

SAMPLE DATE _____ SAMPLE TIME _____

SAMPLE NUMBER _____ SAMPLE TYPE _____

ANALYTICAL METHOD REQUESTED _____

PARAMETERS TO BE MEASURED _____

FIELD INFORMATION _____

SAMPLE COLLECTOR: NAME _____

TITLE _____

ADDRESS _____

TELEPHONE _____

LABORATORY REPORT TO _____

LABORATORY INVOICE TO _____

CHAIN OF CUSTODY

1.	_____ Printed name	_____ Signature	_____ Date
2.	_____ Printed name	_____ Signature	_____ Date
3.	_____ Printed name	_____ Signature	_____ Date
4.	_____ Printed name	_____ Signature	_____ Date
5.	_____ Printed name	_____ Signature	_____ Date
6.	_____ Printed name	_____ Signature	_____ Date

WHEELABRATOR NORTH BROWARD

ASH RESIDUE MANAGEMENT PLAN

ATTACHMENT D

STANDARD OPERATING PROCEDURE FOR PERFORMANCE
STANDARDS AND OPERATIONAL CRITERIA
"NORTH BROWARD RESOURCE RECOVERY FACILITY ASH PROCESSING ADDITION"

STANDARD OPERATING PROCEDURE
FOR
PERFORMANCE STANDARDS AND OPERATIONAL CRITERIA
NORTH BROWARD RESOURCE RECOVERY FACILITY
ASH PROCESSING ADDITION

INTRODUCTION

This standard operating procedure supplements the Ash Residue Management Plan for the Wheelabrator North Broward Facility. The procedure will be implemented when ash residue is processed for reuse either for landfill daily cover or construction aggregate for road construction applications at the facility. A comprehensive demonstration, as required by Chapter 17-702 F.A.C. and authorized by FDEP Permit No. SC29-183237 concluded that McKaynite construction aggregate meets the requirements of a recovered material pursuant to Section 403.7045 (1)(f) Florida statutes and Rule 17-702.600, F.A.C..

In addition to the recovered materials determination Chapter 17-702 F.A.C. requires that performance standards and operational criteria be established to demonstrate reliable operation.

The process was patented in 1989 and has undergone rigorous field testing with the oversight by FDEP. This standard operating procedure details the operational standards that will be employed during ash processing to assure compliance with the ash rule.

PROCESS DESCRIPTION

The ash reuse process was developed for the purpose of manufacturing both landfill cover or a marketable aggregate product from the ash residue remaining from the combustion of municipal solid waste. The modification will allow for the processing of ash residue into recovered materials. These materials meet the criteria for landfill daily cover as described in F.A.C. 17-701 and also qualify as a recycled material pursuant to F.A.C. 17-702.

The process begins when the ash residue exits the facility. While the refuse processing in the Resource Recovery Facility is a continuous 24 hours per day operation, the ash reuse process is designed as a single shift operation. Therefore, the ash residue is conveyed to a storage bunker prior to processing.

The process is divided into four phases: initial ferrous recovery and processing; initial size gradation, reagent introduction and curing; final sizing; and shipping. A description of each phase of the process is provided below and is shown in Figure 1 and 2.

LANDFILL DAILY COVER

Ferrous Recovery

Recovery of ferrous metal from the ash residue stream is important for three reasons. Ferrous metal recovery avoids consumption of ash monofill air space and therefore extends its useful life. Recovered ferrous scrap is a valuable scrap metal product which enhances recycling efforts and is easily reused. Thirdly, removal of the ferrous metal, which varies in size from large bulky objects to small nails, screws, etc., enhances the ability to produce a homogeneous product.

The ash residue is conveyed to a finger screen where the stream is divided into plus 4" and minus 4" fractions. The plus 4" is primarily ferrous metal and is conveyed to a bunker for storage prior to shipping.

Initial Size Gradation

The minus 4" fraction from the finger screen is conveyed to a sizing screen. The ferrous metal in this fraction is magnetically removed from the screen oversize stream. The screen undersize stream is then either shipped as landfill daily cover or further processed into a construction aggregate.

CONSTRUCTION AGGREGATE

The process was developed and patented for the purpose of manufacturing a marketable aggregate product from the ash residue remaining from the combustion of municipal solid waste. The product meets the Florida Department of Transportation criteria for a road construction material either as a substitute for natural granular sub-base or as a substitute for aggregate in asphaltic concrete.

During the production of construction aggregate, the bottom ash and fly ash streams will be separated. The bottom ash stream will be diverted to the aggregate production facility and the fly ash will be conditioned and transported to the adjacent landfill as described in the ash residue management plan. The ferrous recovery and initial sizing operations will be performed as previously described for landfill daily cover.

Reagent Introduction

The production of construction aggregate requires the addition of a portland cement based reagent blend to the remaining ash stream after ferrous metal recovery.

The discharge from the ash storage silo is weighed and reagents are proportioned into a mixer. After mixing is complete; the blend is discharged into an interim curing bunker.

Final Sizing and Shipping

After the curing period, the blend is removed from the interim storage bunker by a front end loader and introduced to another sizing screen. A final cleanup magnet removes any remaining ferrous metal. The cured aggregate product discharges into a truck and is shipped to the purchaser. The oversize material is crushed and returned to the final screen.

Process Results

The system is designed with the capability of processing all of the ash residue generated at the Wheelabrator North Broward Facility. Approximately 80% of the ash will be processed, while approximately 10% of the initial ash residue will be recovered as marketable ferrous metal. The processed aggregate will be sold as landfill cover or construction aggregate. Approximately 10% of the initial ash is expected to be process reject material and will be disposed of in accordance with F.A.C. 17-702.

MATERIAL SPECIFICATIONS

Processed Ash will be available for road construction applications as a substitute aggregate for several phases of road construction. The primary applications will be sub-base aggregate and asphalt aggregate. Processed Ash will be produced to provide a substitute equal to currently specified base materials consisting of limestone, sand-clay, crushed shell, soil cement or other suitable materials. Grain size distribution will generally be less than 3/8 inch, but can be adjusted to meet customer specifications.

LOADING AND SHIPPING CONTROLS

Truck Loading

Trucks will be loaded by two independent means:

By conveyor - The facility is designed so that the product from the final phase of production can be loaded directly onto trucks.

Front end loader - The aggregate product may be placed in an interim short-term stockpile during times when trucks are not available or aggregate is being stockpiled prior to sale. When the aggregate is loaded, a front end loader will be used to load directly from the stockpile onto trucks. Trucks will be covered prior to exiting the facility.

Identification of Product

Upon arriving at the facility, all haul trucks shall enter the scale house where the following information shall be entered by the scale operator:

Truck number and owner
Code number of the material
Tare weight of the vehicle

After loading, the operator shall complete a Bill of Lading containing the following information:

Name of customer
Description of product
Destination of shipment
Name of hauler
Truck ID No.

The completed bill of lading will be given to the truck driver who shall proceed to the scale house. Upon presenting the bill of lading to the scale operator, the weight ticket shall be completed and the code for the aggregate product will be entered on the scale ticket.

After the material is loaded, the driver shall proceed across the exit scale where the operator shall enter gross, tare and net weights in addition to the above information. The scale operator will ascertain that the material in the loaded truck is what it is stated to be. A scale ticket will not be issued until the identification of the material is certain.

SAMPLING PLAN

A representative sample shall be obtained monthly from each product stream and tested for grain size distribution and moisture content. In addition, each sample will be analyzed for metals concentration according to SW-846 for priority pollutant metals. The sampling shall be performed by Wheelabrator personnel or a state certified laboratory. Analysis will be performed by a laboratory having an approved quality assurance plan.

Sampling Location

A composite sample of the aggregate shall be taken from the discharge of the load-out conveyor. Grab samples shall be collected every 10 minutes for four consecutive hours during a single day on which aggregate is produced each week. This specifically means that six samples shall be collected each hour with each individual sample weighing approximately one pound. At the end of the sampling period, approximately 24 pounds of aggregate will have been collected. These weekly samples shall be composited and stored in a locked cabinet. The weekly composite samples shall then be composited into 1 monthly sample weighing approximately 2 pounds.

Composite Sampling Procedure

The following composite sampling procedure shall be used for collecting samples for the priority pollutant metals listed in Table I.

1. At ten minute intervals over the 4-hour sampling period, gather random sequential grab samples with a decontaminated stainless steel spoon, taking a cross section of the entire conveyor. The total amount sampled each ten minutes should be approximately 1 pound.
2. Place the samples into a container until the sample has reached ambient air temperature. Place each sample into a clean plastic container and seal it. Store the samples in a locked cabinet.
3. At the end of the sampling periods, transfer the 24 samples into a clean container for mixing.
4. Thoroughly mix the daily composite sample with a large, precleaned, stainless steel or plastic spoon. To promote mixing, the spoon should be slotted.
5. Place the composite sample into a clean mixer which is large enough to accommodate the sample.

6. Turn on the mixer for 10 minutes to assure thorough mixing of the composite sample. Remove the sample from the mixer with a stainless steel or plastic spoon and obtain a quarter of the total sample for a daily composite sample. The remaining 3/4 of the original sample may be discarded.
7. Place the daily composite sample into a clean container and seal. Store this sample in a locked cabinet.
8. After 4 weekly composite samples are obtained, combine all the composite samples in a mixer. Remove the samples after mixing for 10 minutes and divide it into four equal portions. Two of the portions may be discarded. Place each of the two remaining weekly composite samples into separate clean containers and seal them.
9. Label containers for all composites as to location, date, samples and composite number.
10. Ship one quarterly sample to the approved laboratory using the chain of custody form shown in Figure 1.
11. Archive the other monthly sample in the locked refrigerated cabinet as a control and or for future analysis for a maximum of six months, depending on the holding time for each analyte.

Cleaning Procedure

Equipment used to obtain samples must be decontaminated before every four hour sampling event.

1. Wash equipment thoroughly with detergent and tap water using a brush to remove any particulate matter or surface film. Cleaning detergent shall be metal-free (Acationox or equivalent).
2. Rinse with tap water.
3. Rinse equipment with 10% nitric acid rinse. The 10% nitric acid shall be made with 1 part reagent grade concentrated nitric acid and 5 parts deionized water.
4. Rinse all non-metallic sampling and compositing equipment with deionized water and allow to air dry.
5. Wrap equipment completely with plastic wrap to prevent contamination during transportation to or within a sampling site.

Sample Identification, Storage, and Holding Time

1. Immediately after each weekly sample is collected, the container shall be sealed and labeled to identify the sample by location, date and time of collection, collector's name and analysis type.
2. All samples shall be shipped in wet ice, and access to samples must be restricted to only those persons identified in the chain of custody record.

Sample Custody

-Sample Control Log

A sample control log must be maintained which will show the field ID number, the name of the sample collector, the date, shift, and location of the collection. The field ID number must also be written on the sample label. A numbering system should be used for the field ID numbers which will allow accurate identification of samples with no ambiguity.

Chain of Custody Record

A chain of custody record must be completed for each composite sample collected. All parties accepting custody of the samples including the collector, coordinator, transporter, laboratory custodian, etc., must provide signatures on the chain of custody forms. In this record, every sample will be identified with the following: field ID number, date, time, sampling method, sampling location, shift, container, and analytical methods. A chain of custody record must be filled out per sample collected. The chain of custody records will be maintained at the facility.

TABLE I

PRIORITY POLLUTANT METALS

Antimony
Arsenic
Beryllium
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
Selenium
Silver
Thallium
Zinc

Availability of Data

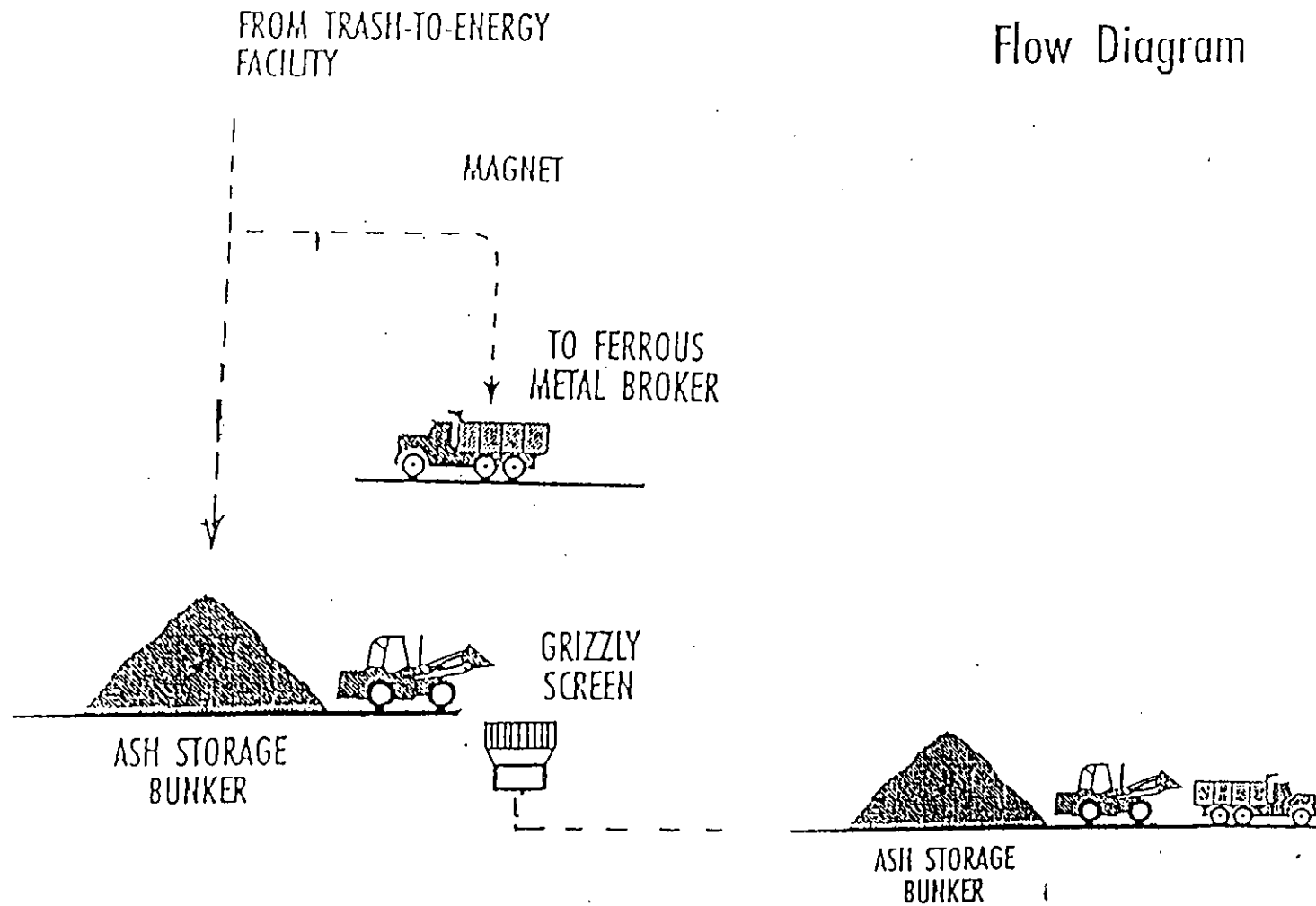
Chemical and physical properties of commercially used aggregate will be characterized monthly and submitted to the FDEP Southeast District office on a quarterly basis. Chemical and physical properties of the bottom ash used to manufacture aggregate will be determined monthly and compared to baseline data developed during the FDEP permitted research, development and demonstration project. These results will be filed at the facility for a minimum of three years following the production of aggregate.

Testing laboratory

A testing laboratory shall be selected which has a demonstrated ability to perform the required tests. The laboratory shall have an approved Quality Assurance Plan on file with FDEP.

LANDFILL DAILY COVER

Flow Diagram



-D74-

FIGURE 1

ROAD CONSTRUCTION AGGREGATE

Flow Diagram

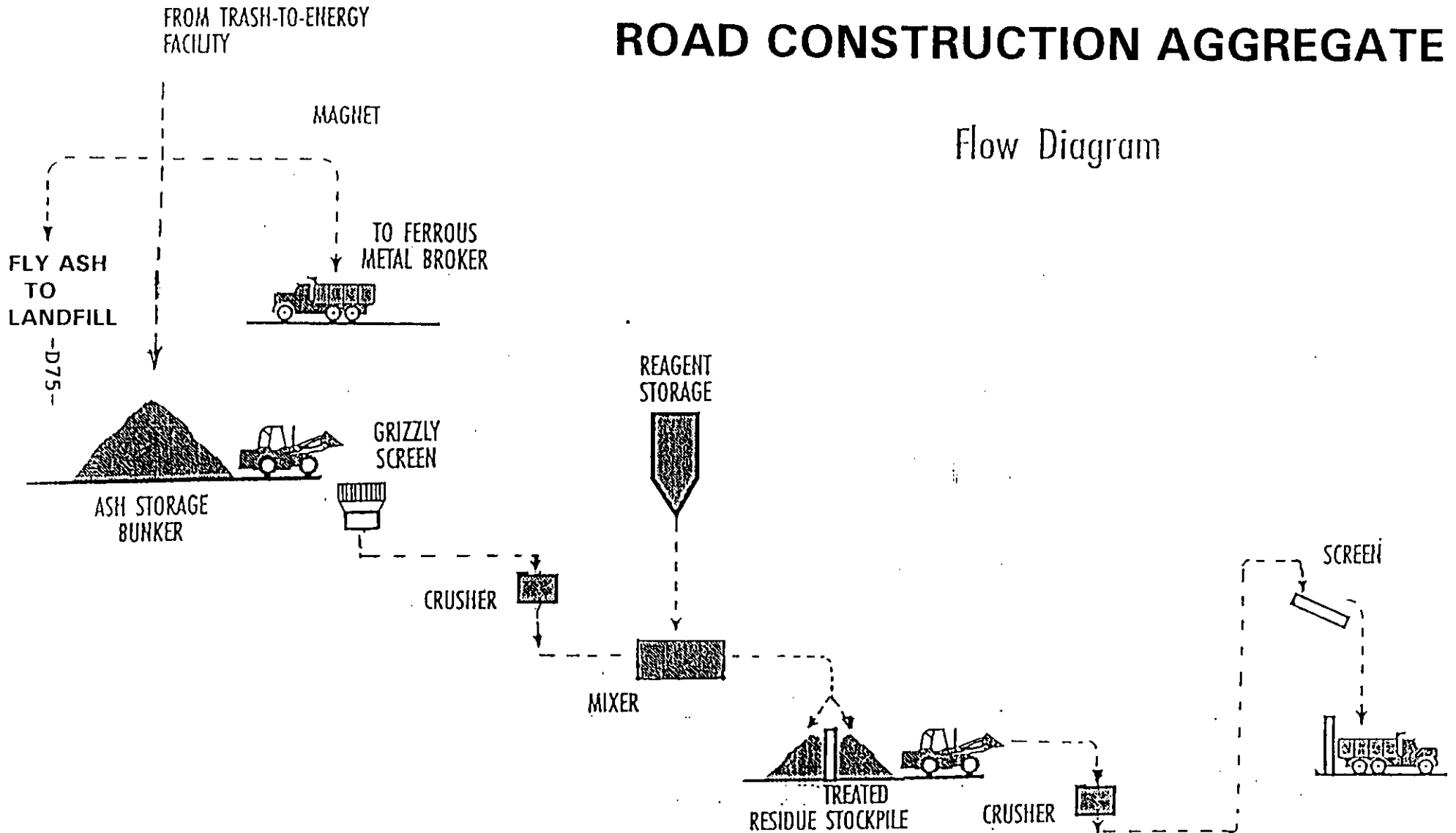


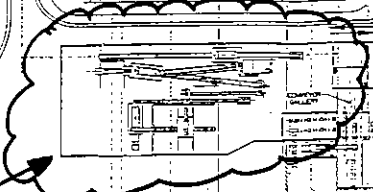
FIGURE 2

DRAWINGS

1. 07-27-0001 Revised Site Plan, Ash Reuse Addition.
2. 07-27-0002 Plan View, Ash Reuse Process
3. 07-24-0001 North & South Elevations, Ash Reuse Process
4. Certified Site Conformance Diagram
5. Revised Surface Water Drainage Map

es#5/519/ocr

ADDITION



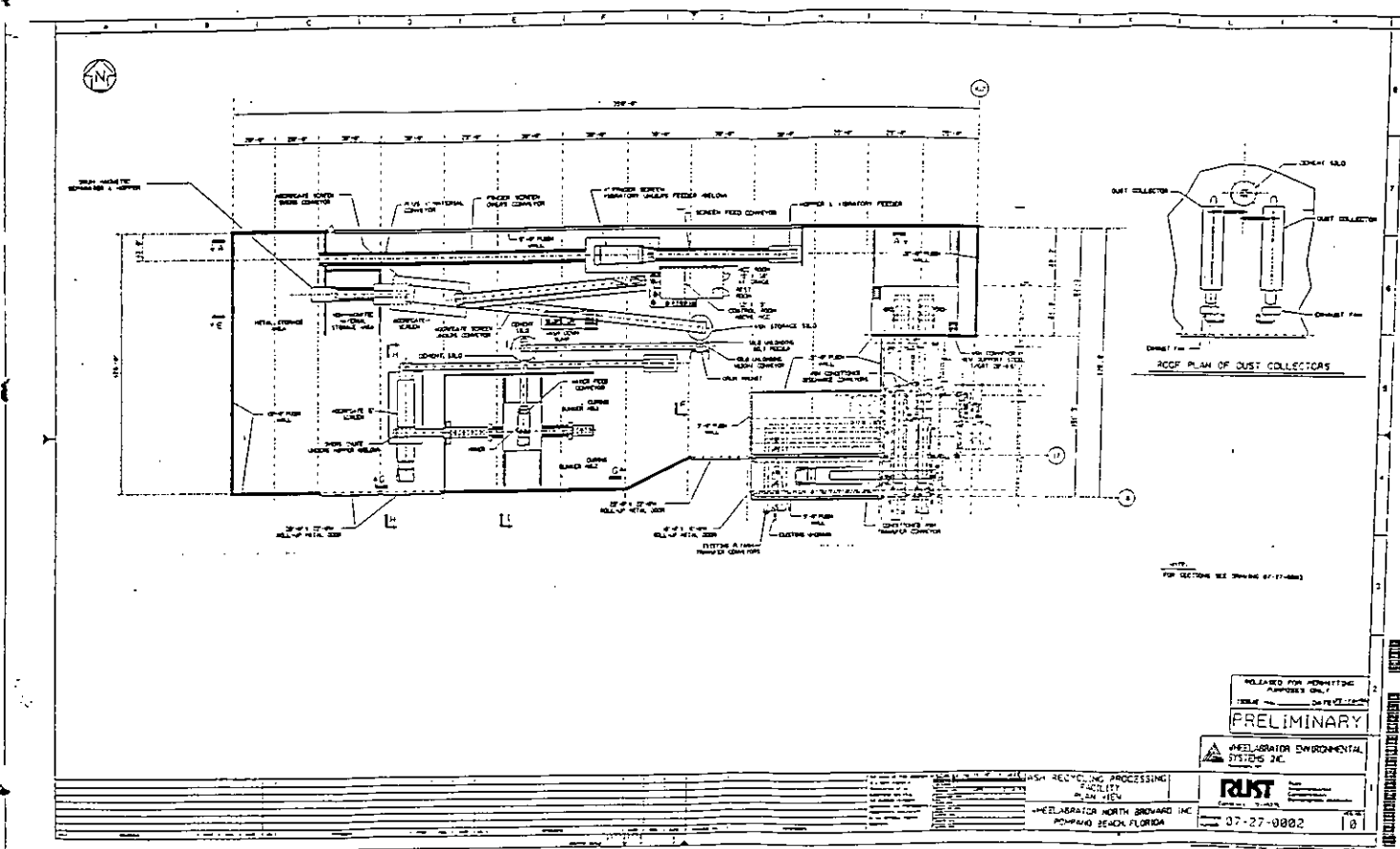
RELEASED FOR PERMITTING PURPOSES ONLY
DATE: 07-27-2001
PRELIMINARY

WHEELABRATOR ENVIRONMENTAL SYSTEMS, INC.

rust
General Office

ASH RECYCLING PROCESSING FACILITY
GENERAL ARRANGEMENT
WHEELABRATOR NORTH RICHARD, INC.
HOPKINS BEACH, FLORIDA

07-27-2001 10



NOTE:
FOR SECTIONS SEE DRAWING 87-11-0001

NOTED FOR PERMITTING
APPROVED ONLY
PRELIMINARY

WHEELABRATOR ENVIRONMENTAL
SYSTEMS, INC.

WELAB

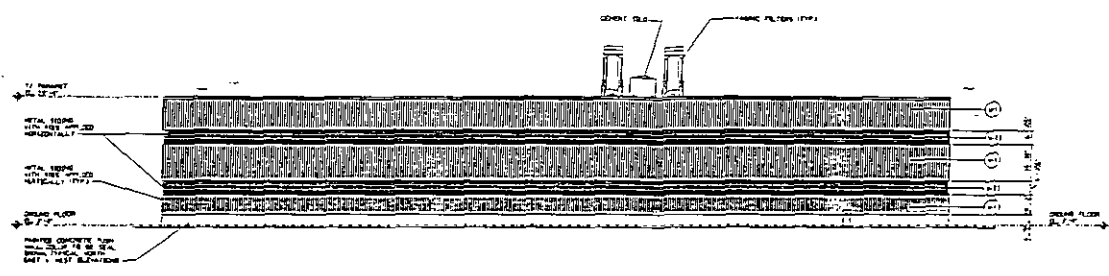
WHEELABRATOR NORTH BROWARD, INC.
POMEROY BEACH, FLORIDA

07-27-0002

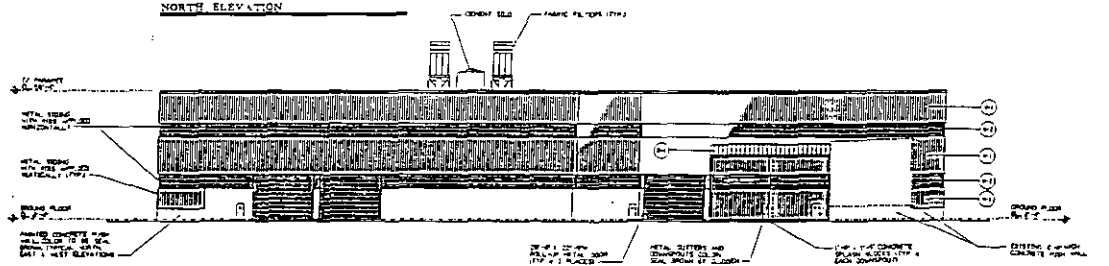
10

REVISIONS

- ROOFING AND SIDING DESCRIPTIONS**
- (1) 1/2" CORRUGATED METAL SIDING TO MATCH EXISTING COLOR AND FINISH. USED BY DESIGN.
 - (2) 1/2" CORRUGATED METAL SIDING TO MATCH EXISTING COLOR AND FINISH. USED BY DESIGN.
 - (3) UNPAINTED STEEL SIDING WITH 1/2" CORRUGATED METAL FINISH TO MATCH EXISTING COLOR AND FINISH. USED BY DESIGN.



NORTH ELEVATION



SOUTH ELEVATION

RELEASED FOR PERMITTING PURPOSES ONLY
 PRELIMINARY

WHEELABRATOR ENVIRONMENTAL SYSTEMS INC.

RUJST
 37-24-0001

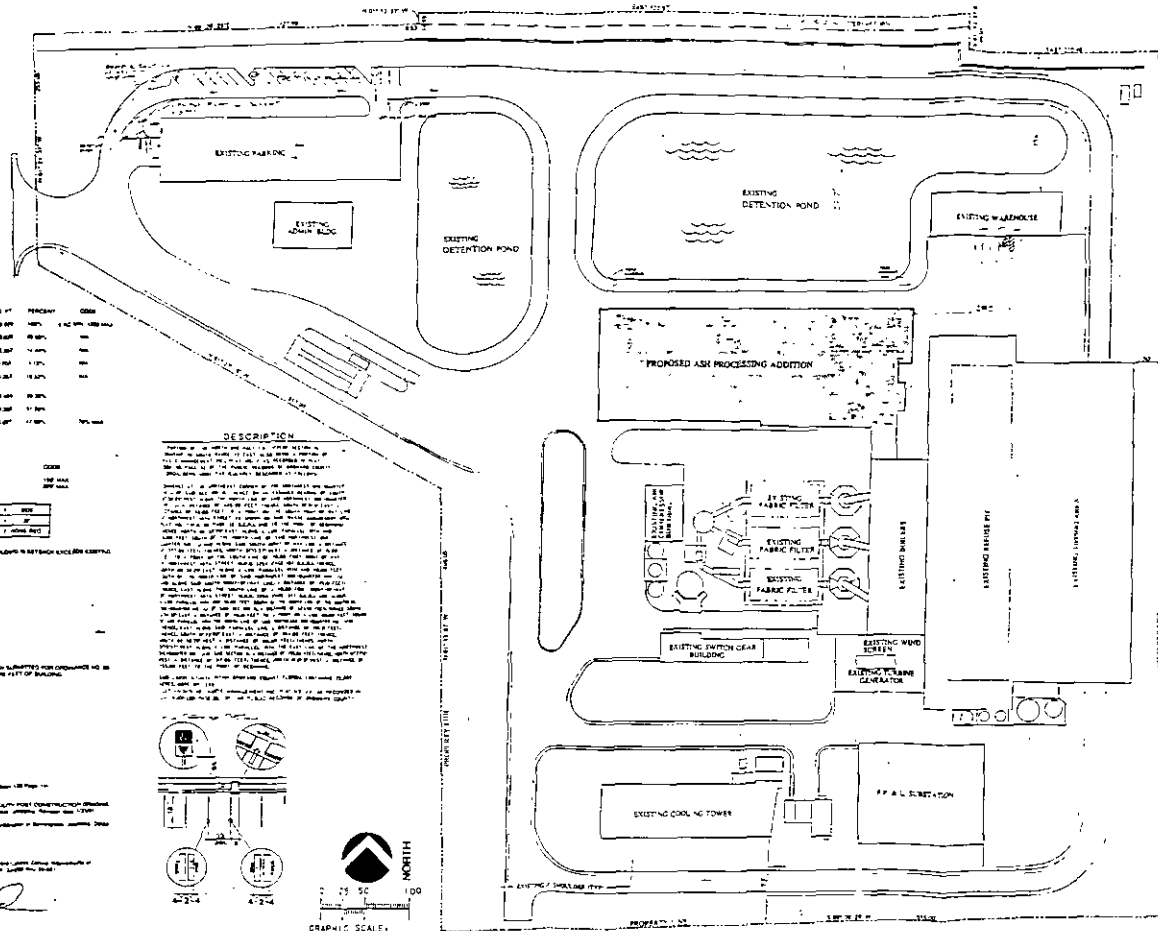
WHEELABRATOR NORTH BRANCH INC.
 POMPANO BEACH, FLORIDA

DATE	REVISIONS

DATE: 3/24/09
 SCALE: AS SHOWN
 FIELD NO.:
 DRAWN BY:
 CHECKED BY: J.E.

**NORTH BRUNNARD RESOURCE RECOVERY FACILITY
 MAINWARD GENERALLY ASH PROCESSING ADDITION**
 STANDARD
SITE CONFORMANCE DIAGRAM

SHEET NO. 1
 OF 1 SHEETS
 PROJECT NO. 09-00000001
 DATE: 3/24/09



EXISTING

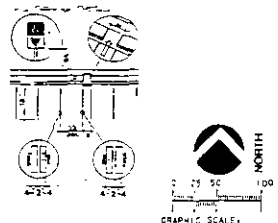
AREA CALCULATIONS	ACRES	SQ FT	PERCENT	CODE
EXISTING BLDG	18.76	824,927	18.8%	1
EXISTING POND	2.14	927,840	21.2%	2
EXISTING DRIVEWAY	0.17	742,560	17.4%	3
EXISTING ROAD	0.10	436,320	10.1%	4
EXISTING OTHER	0.01	43,632	1.0%	5
TOTAL EXISTING	21.18	2,445,279	58.5%	

PROPOSED

AREA CALCULATIONS	ACRES	SQ FT	PERCENT	CODE
PROPOSED BLDG	1.77	771,840	18.8%	1
PROPOSED DRIVEWAY	0.17	742,560	17.4%	3
PROPOSED ROAD	0.10	436,320	10.1%	4
PROPOSED OTHER	0.01	43,632	1.0%	5
TOTAL PROPOSED	2.05	954,352	23.3%	

DESCRIPTION

This diagram illustrates the site layout for the North Brunnard Resource Recovery Facility, Mainward Generally Ash Processing Addition. The diagram shows the existing and proposed buildings, parking areas, and detention ponds. The proposed ash processing addition is the central focus of the diagram, showing the layout of the existing fabric filter, baghouse, switch gear building, mud screen, and cyclone collector. The existing warehouse, cooling tower, and mud screen are also shown. The diagram is a site conformance diagram, showing the layout of the facility and the proposed addition. The diagram is a site conformance diagram, showing the layout of the facility and the proposed addition.



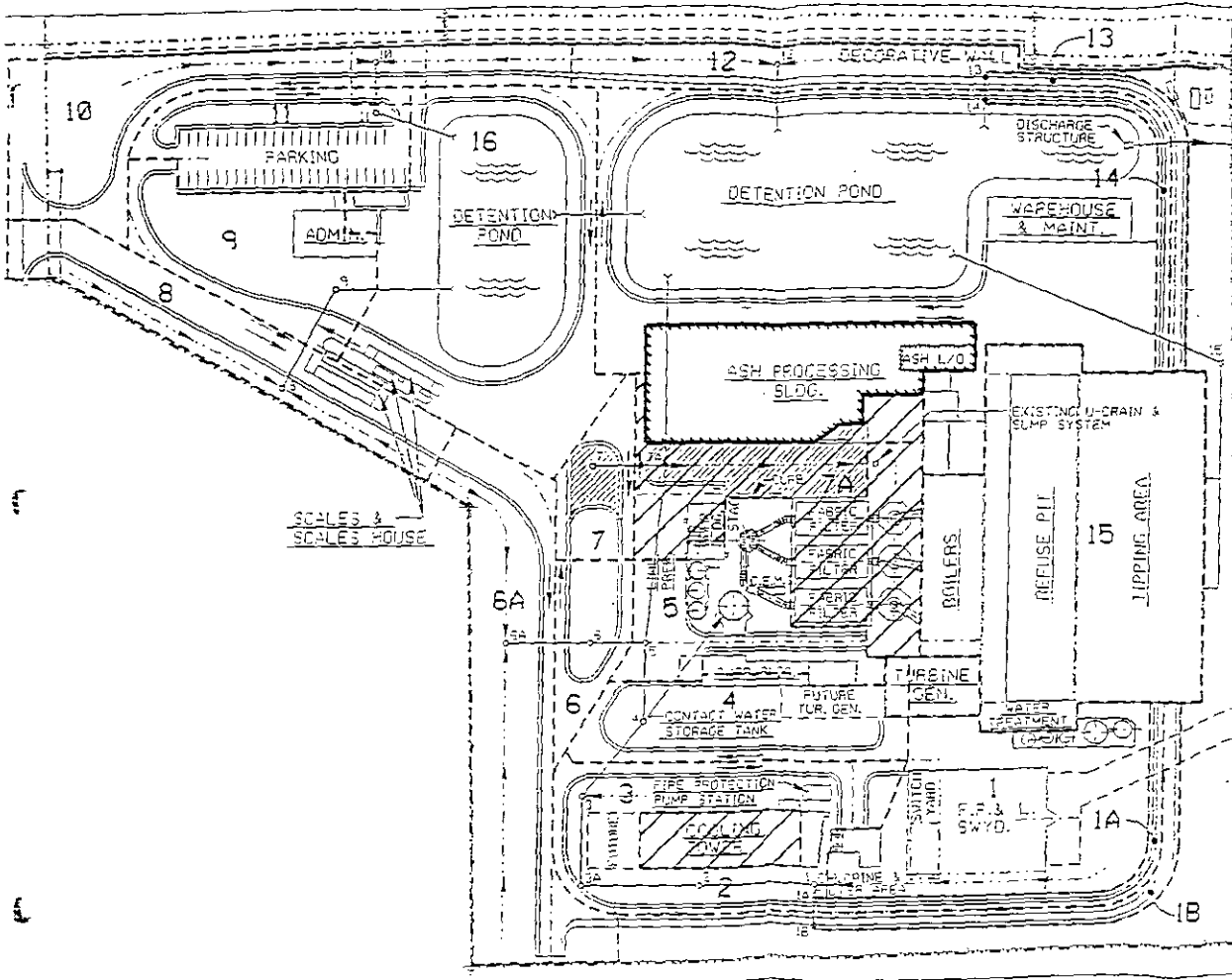
NOTES:

1. THE PROPOSED ADDITION IS SHOWN IN A DOTTED LINE. THE EXISTING FACILITY IS SHOWN IN A SOLID LINE. THE PROPOSED ADDITION IS SHOWN IN A DOTTED LINE. THE EXISTING FACILITY IS SHOWN IN A SOLID LINE.

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







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PLANT NORTH

LEGEND

-  EXIST. FACILITIES
-  NEW FACILITIES
-  NEW PAVED AREA
-  DEMOLITION
-  DRAINAGE AREA BOUNDARY
-  DRAINAGE AREA CONTAINED (EXCLUDED) FROM STORM DRAINAGE
-  DRAINAGE AREA
-  DRAINAGE STRUCTURE NO.
-  EXIST. CATCH BASIN CAPPED

Jack Frank
 L. P. E. No. 45416
 4/6/94

RUST Rust Engineering Company
 Birmingham, Alabama
 Contract: 21-4527

DRAINAGE AREA MAP
 NORTH BROWARD
 RESOURCE RECOVERY FACILITY

DRAWING NO. 4527-21
 SCALE: 1"=20'
 REVISED 4/5/94

DRAWING No. 3

FIGURES

1. Landfill Cover Production
2. Construction Aggregate Production

LANDFILL DAILY COVER

Flow Diagram

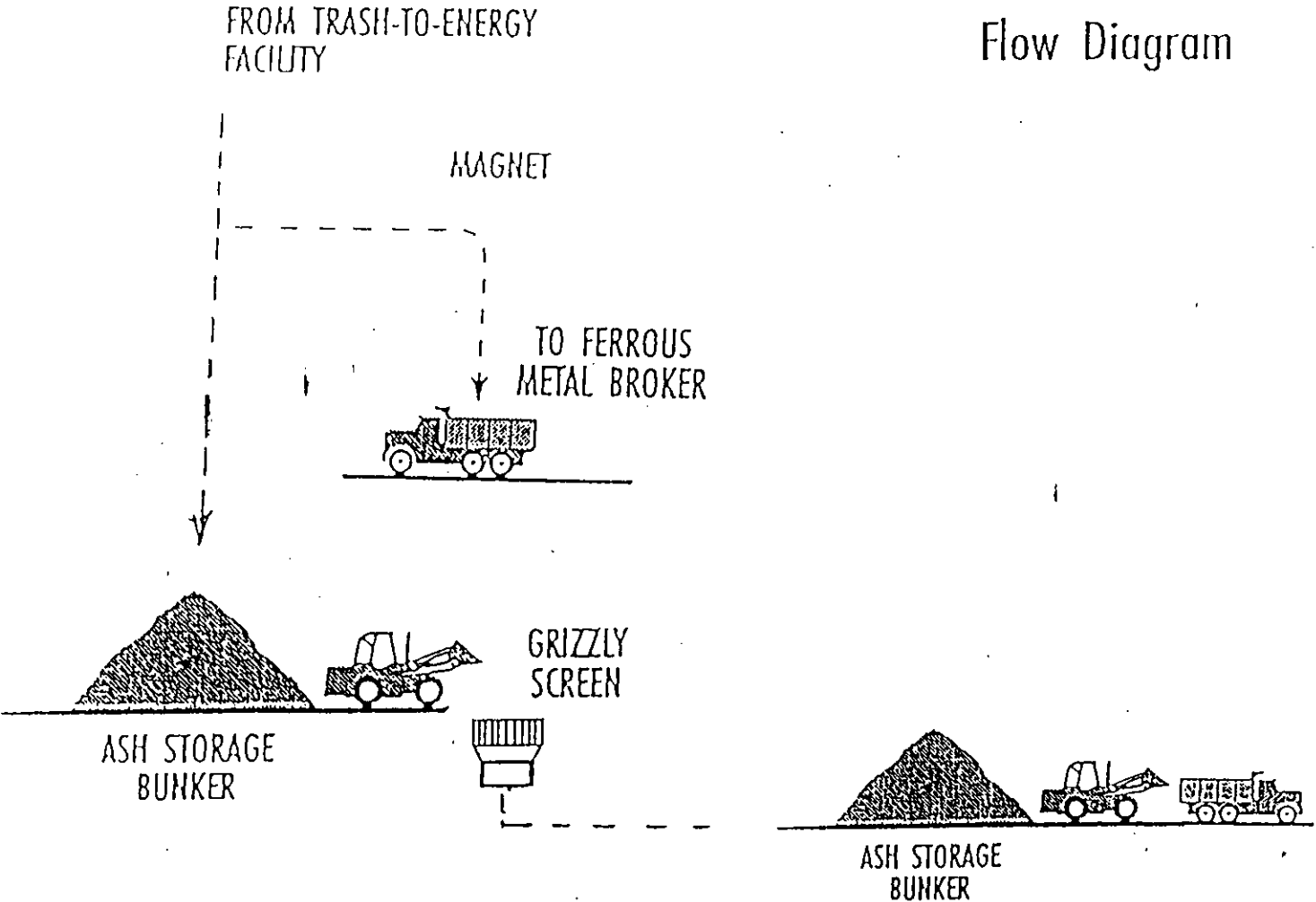


FIGURE 1

ROAD CONSTRUCTION AGGREGATE

Flow Diagram

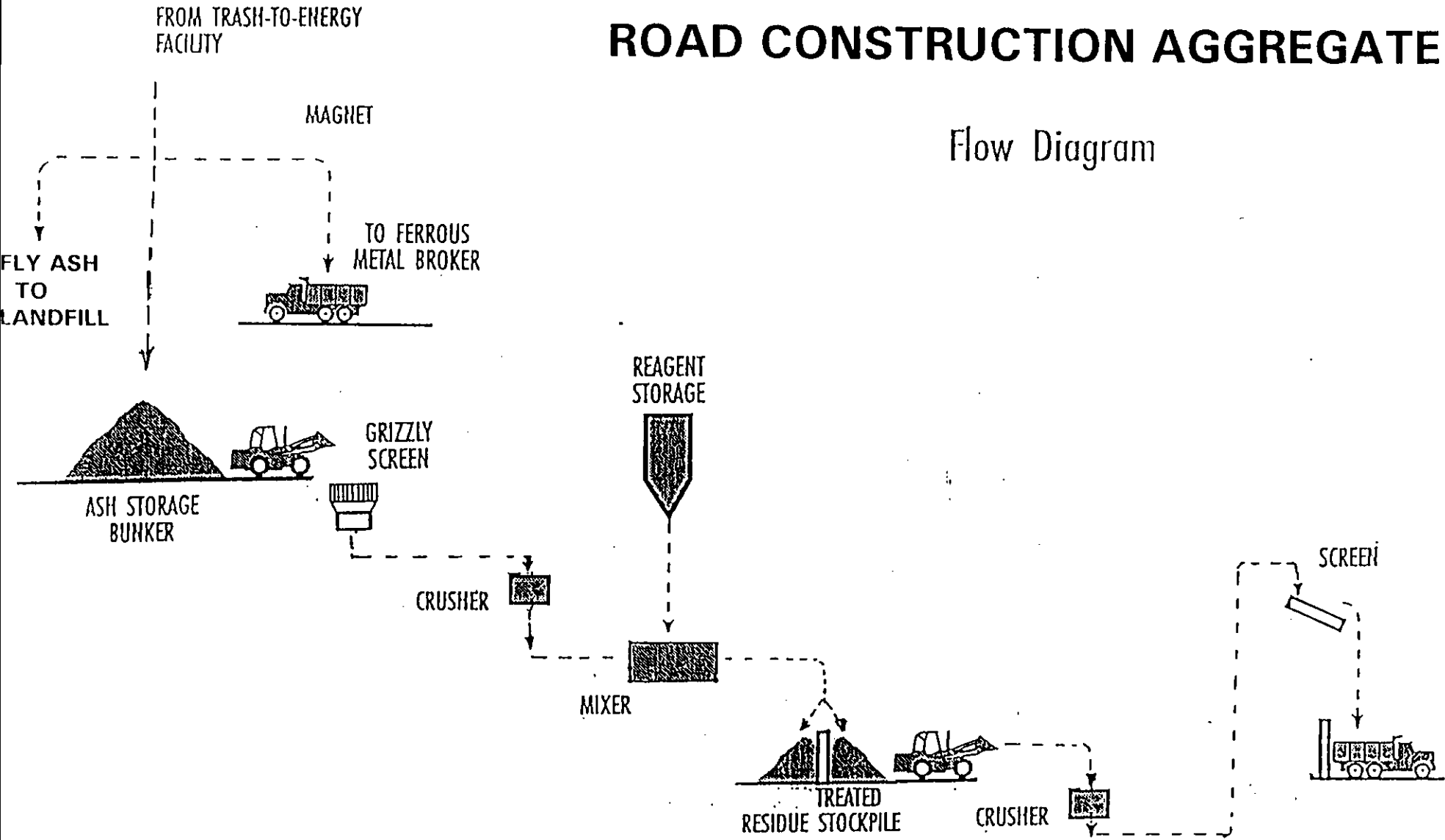


FIGURE 2