Carmen Johnson

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OPERATIONS AND MAINTENANCE MANUAL

FOR THE

BCH ENERGY PROJECT

APPROVED
DIVISION OF SOLID WASTE MANAGEMENT
DATE 8/28/95 BY SCH

APPROVED
DIVISION OF SOLID WASTE MANAGEMENT
DATE

AUG 1995
Received
Solid Waste
Section

PART I

FOR THE

MATERIAL RECOVERY FACILITY AT

ANN STREET

FAYETTEVILLE, NORTH CAROLINA

Revision 1
8/7/95

8/7/95

SECTION 1.0 PROJECT DESCRIPTION

Introduction

This Operations and Maintenance Manual has been developed to comply with NC DEHNR requirements and will serve as a guide for all personnel involved in facility operations. It provides basic information on the Project and will be available to all employees.

The BCH Energy Limited Partnership Mixed Waste Processing Facility also referred to as a Materials Recovery Facility (MRF), is a facility designed in accordance with State of North Carolina requirements for the receipt, processing, recovery and transfer of materials of 70 tons per hour per processing line of municipal solid waste.

Project Management

Project management is provided by the General Partner of the BCH Limited Partnership. Vedco Energy Corporation as an affiliate of the general partners, BCE and ARMCO, executes the responsibility and authority of the general partners. Vedco has two offices.

Alan McDonald
Vedco Energy Corp.
Suite 1420
11757 Katy Freeway
Houston, TX. 77079
Tele No. 713-558-4300
FAX No. 713-293-0240

Farrell Scott
Vedco Energy Corp.
4600 Marriott Drive
Raleigh, NC. 27612
Tele. 919-781-7522
FAX 919-781-8944

Operations and Maintenance

BCH Energy L. P. has contracted with Quixx Power Services Inc., (QPS) a Texas Corporation, to provide the operation and maintenance of both the MRF and the Electric Generating Facility (EGF). QPS is responsible for the expenditure of all funds, (relative to maintenance and operation), acquiring staff and the administration of all personnel matters, the planning and carrying out of all maintenance activities. QPS has three offices.

Dale Williams
Quixx Power Services Inc.
Tyler at 6th, Suite No. 1510
Amarillo, TX. 79170
Tele. 806-378-2728
Fax. 806-378-2515

Duane E Hopkins or
Clinton Evans
Quixx Power Services Inc.
450 First Street, The EGF
Fayetteville, NC. 28306
Tele. 910-484-3373
Fax. 910-484-3786

Boudewyn Beukenkamp
Quixx Power Services Inc.
710 Ann Street, The MRF
Fayetteville, NC. 28301
Tele. 910-483-0863
Fax. 910-483-4655

Transportation

BCH Energy has contracted Bulk Materials Inc. (BMI) to provide the material transportation needs of the project. It is the responsibility of BMI to provide drivers, tractors and the supervision of drivers necessary to transport Municipal Solid Waste (MSW) from Bladen, Hoke and Brunswick Counties and Refuse Derived Fuel (RDF) from the MRF to the EGF. BMI has two offices.

David Keck
Bulk Materials, Inc.
6500 Pearl Road
Pram Heights, OH. 44130
Tele. 216-888-6500
Fax. 216-664-6060

Gary Ladson
Bulk Materials, Inc.
710 Ann Street
Fayetteville, NC. 28301
910-486-0044

SECTION 2.0 DESCRIPTION OF OPERATION

Material Infeed

Front-end loaders will place the MSW into an apron conveyor which is recessed within the existing MSW tipping floor. This conveyor shall convey the MSW past Picking Station No. 1 where pickers will manually remove large and non-processable material , newspaper , cardboard, and blue bags , (when the program is developed) before screening in the Trommel.

Trommels

Each Trommel is equipped with suitable blades or spikes to break open plastic bags and separate the material into three streams, i.e. fines (-2" size), middles (+ 2" to -6") and overs (+ 6")

Fines(-2") Stream

Fines leaving the Trommels will be conveyed under Magnet No. 1 and thence to a stoner for separation of the fines into light and heavy components. The light material will be recombined with the RDF stream. Heavy material will be conveyed to a crusher and an additional screen/shaker for additional classification. The resultant aggregate will be marketed as road base

Middles (+2" to -6") Stream

Material 2 to 6 inches in size will discharge from the Trommels under Magnet No. 2 to separate ferrous material. It is then conveyed to an Eddy Current Separator to recover the aluminum in the waste stream. The waste stream then enters Picking Station No. 2 where aluminum and plastic are separated from the waste stream. The remaining combustible material is Refuse Derived Fuel (RDF).

Overs (+6") Stream

The material from the Trommels, which is larger than six inches, will be conveyed to Picking Station No. 3 where plastics, bulky aluminum and ferrous metal can be separated. The stream from Picking Station No. 3 will pass under Magnet No. 3 to remove ferrous not removed at Picking Station No. 3. After passing Magnet No. 3, the remaining combustible material is Refuse Derived Fuel (RDF). This stream is combined with the stream from Picking Station No. 2.

Compactors

The RDF streams from Picking Stations no.2 and no 3 are combined and conveyed to two AMFAB solid waste compactors. The AMFAB compactors are capable of producing four 12.5 ton compacted loaves each hour for an hourly capacity of 50 tons per hour. Two loaves are loaded onto each live bottom trailer for a payload of 20 to 24 tons. The RDF is then transported by an independent contractor to the Electric Generating Facility (EGF).

Picking Station No. 1

A. Products removed from the process stream at Picking Station No. 1 shall be processed as follows:

1. Bulky waste shall be placed into roll-off type bins for removal from the MRF to the land fill via truck.

2. Cardboard is conveyed to a baler via a Walking Floor- type conveyor for baling.

3. Paper and newsprint are conveyed to the same baler via a Walking Floor type conveyor for baling.

4. Picking and baling of newspaper and cardboard will be based on market conditions. All equipment downstream of Picking Station No. 1 is sized on the basis that none of these materials are removed from the process stream.

5. Baled paper and cardboard will be stored on the floor of the MRF prior to removal from the building by truck.

Picking Station No. 3

A. Products removed from the process stream (plus 6" material) at Picking Station No. 3 shall be processed as follows:

1. Aluminum products can be placed into drop chutes that combine the picked aluminum with the out-feed from the eddy current separators

2. Plastics are conveyed to the Perforator and Plastic Baler for perforation and compacting. The Plastics baler also receives plastic material (+ 2" to -6") from Picking Station No. 2. All material entering the Plastic baler First passes through a Perforator to facilitate compaction.

3. Baled plastics shall be stored on the floor of the building prior to removal from the site by truck.

Eddy Current Separator

A. The Eddy Current Separators process all + 2" to -6" material (except for the ferrous removed by the Magnets)from the Trommel to remove aluminum.

B. Aluminum is conveyed to an aluminum clean-up picking station where household aluminum, pie plates, and other metallic but non-aluminum material is removed. The clean aluminum stream is then conveyed to the aluminum baler.

Picking Station No. 2

A. Products removed from the process stream (+2" to -6") at Picking Station No. 2 shall be processed as follows:

1. Aluminum cans will be combined with the aluminum cans from Eddy Current Separator out-feed and conveyed past an aluminum quality control (clean-up) station.

2. The aluminum quality control station will be a hand picking operation for removal of any non-aluminum cans or material unsuitable for the aluminum contract. .

4. The aluminum can baler produces bales for stacking and storage on the floor of the building prior to removal from the site by trucks.

Ferrous Material

A. Ferrous material is removed from all of the RDF process streams by the following procedures:

1. By a self-cleaning magnet on the -2" material prior to stoner operation.

2. At Picking Station No. 3 drop chutes are provided that allow ferrous material to be picked and dropped onto a conveyor that transports the ferrous material to ferrous roll-off bin located outside the processing floor.

3. By self-cleaning magnets located down stream of Picking Station No. 3. Magnetically sorted ferrous material is conveyed to the common ferrous roll off bins.

4. By a head pulley magnet upstream of the aluminum baler. Ferrous material drops into a separate tote box for transfer by fork lift truck to the ferrous roll-off bin described above.

6. By a self-cleaning magnet on the +2" to -6" line upstream of each Eddy current separator. Material catch shall be fed to the common ferrous conveyor .

RDF Removal

A. Organic fines, +6" material from Picking Station No. 3 and +2" to -6" material from Picking Station No. 2 combined prior to being conveyed to one of two compactors. The compactors operate alternatively to permit loading of one RDF trailer at a time. Each compactor is designed to load up to 25 tons of RDF into walking floor trailers.

B. RDF is compacted prior to being loaded into the trailer.

C. The compactor/trailer interface is designed to reduce spillage of material during the transfer.

D. A compactor by-pass arrangement to allow top filling of trailers is provided to continue operations with one compactor out of service.

Recyclable Removal

Recyclable products are removed as bales

Heavy Fines

Heavy fines removed from the Trommels shall be conveyed to a roll-off bin for truck removal to markets for road base.

Dust Control

Both Trommels are held under negative pressure by means of an induced draft fan and baghouse system. Other dust generating points such as transfer points are also connected to the dust control system as required. Dust from the baghouse shall be directed to the RDF fraction. Cleaned air from the baghouse passes through an activated charcoal type filter for odor control prior to discharge to the atmosphere. A separate baghouse and activated charcoal type filter is provided for the Stoner System.

External to MRF

A. Weighing Station

1. The weigh station consists of one fully automated weigh scale and scale house. Trucks will be weighed after loading RDF fuel prior to transport to the EGF. Trucks carrying recycled products shall also be weighed. Scale has a gross capacity of 120,000 pounds and is furnished with a 70 foot platform.

2. The weigh station is provided with a computer for monitoring and recording truck outflow. NEMA-4 magnetic card readouts are provided for outgoing vehicles. Data to be recorded includes the following:

    a. Time and Date of Truck Loading
    b. Net Weight of RDF or Recycled Product
    c. Truck Identification Number
    d. Minimum of 30 days of data storage

3. System provides for a receipt to the trucker. Weigh system does not require the presence of an operator/attendant at the weigh scale/weigh scale house.

B. Truck Scale House

1. One 10' x 10' x 8' (ceiling) scale house is be provided. The scale house is insulated and includes a wall-mounted air conditioner and heater.

2. Three sides contain a window area of 12 ft^2 each. One man-door with window is provided. The scale house includes forty inches of countertop with shelves.

SECTION 2.1 OPERATIONS PROCEDURES

Definitions

The following definitions are specifically developed for this facility. All other definitions are as near as possible from the North Carolina **Solid Waste Management Rules 15A NCAC 13B** as amended through January 4, 1994.

RESIDUE - Material (Solid Waste) that has been processed but that can not be converted into RDF, economically marketed, or is rejected from the process.

PROCESSED SOLID WASTE - Solid waste that after it has been deposited on the tipping floor and has been placed on the first in-feed conveyor for conversion to RDF and materials recovery.

NON-PROCESSABLE WASTE - Solid waste that enters the facility that has physical or chemical characteristics which render it either unsafe or may interfere with processing. It is the responsibility of the operator to use reasonable efforts to prevent NON-PROCESSABLE WASTE from entering the facility or the processing system.

DEHNR - Department of Environment, Health, and Natural Resources, Division of Solid Waste Management, Solid Waste Section.

Procedures for the disposal of Bypass and Non-Processable Waste

All Municipal Solid Waste (MSW) will enter the facility via the Cumberland County Scale House except for after hours operations and occasions that the Cumberland county scale is out of service.

Bypass Waste generated in Cumberland County may be disposed in the Cumberland County Landfill.

Bypass Waste generated from the service area outside Cumberland County can not be disposed at the Cumberland County landfill and must be disposed at Sampson County Landfill, the landfill of the generating County, or other site approved by DEHNR. However, since it is impossible to determine origin, disposal will be prorated based on input waste percentages on an annual basis.

Incoming MSW vehicles are directed to the desired area of the tipping floor for unloading and to determine that they do not contain Non-Processable Waste. All waste that is processable is then loaded onto the horizontal feed conveyors C-100 and -C-200. In the event that Non-Processable is found on the tipping floor the material will be classified as to type.

The classification Non-processable waste in general includes Hazardous waste, regulated medical waste, and bypass waste (Oversized Bulky waste (OBW) , construction and demolition , and tires. Once classified the following procedures will be used to manage Non-Processable Waste.

Procedure for Bypass Waste

A. Collect material in roll-off bins provided on the tipping floor.

B. Obtain the weight of material collected.

C. Move material as required to the Cumberland Landfill, Sampson County Landfill or other approved landfill prorated on the basis of incoming waste flow.

Procedure for Managing Suspected Hazardous Waste

A. Identify generating source when possible.

B. Isolate material on the tipping floor.

C. Don protective equipment as required by the material identified .

D. Contain and isolate the material as appropriate . (Store in a secure area or rolloff container)

E. Call City of Fayetteville HAZMAT response team at Telephone No. 433- 1777 or Emergency 911 or Hazardous Waste Contractor.

Procedure for managing Regulated Medical Waste

A. Identify generating source when possible.

B. Isolate material on the tipping floor.

C. Don .full face respirator, TYVEC disposable suit, and rubber gloves.

D. Place material in the vessels provided on the tipping floor.

E. Call the generating source if it is possible identify source. If generating source can not be identified then call qualified regulated medical waste Transporter from the attached list.

Procedure for managing Explosive waste and Munitions

A. Identify generating source when possible.

B. Isolate material on the tipping floor.

C. Call Fort Bragg Demolition???? Talk to Larry

SECTION 3.0 MAINTENANCE PROCEDURES

Removing Equipment from service for maintenance, inspection or detailed cleaning.

A. Review the task with involved individuals. Schedule and obtain necessary permits and work orders. Make a list of all inspection, cleaning materials, protective safety equipment, and tools required for the task. Reference should be made to equipment manuals, drawings and work orders

B. Obtain protective clothing - gloves, safety glasses, barriers and signs as required by task.

C. Notify Control Room that work is to proceed.

D. Perform unit shut-down per system operation instructions.

E. Lock-out, Tag-out and Try all energy sources related to equipment being cleared for maintenance.

F. Notify all personnel concerned that equipment is ready for maintenance, inspection, or cleaning.

Returning equipment to service.

A. Check for tools, replace guards and cleanup work area.

B. Verify that all personnel involved with maintenance, inspection, or cleaning are clear of the equipment and that equipment is ready to be put back in service.

C. Notify Control Room that clearance is released.

D Control will verify all personnel are clear and equipment is ready for service and remove locks and tags from all energy sources.

E. Return equipment to service per system operation instructions.

General Maintenance Safety Procedures.

A All employees are responsible for individual safety. Each employee should always make every effort to prevent all types of hazards while in the work place. Employees should always make sure that proper safety equipment is available when maintenance on equipment is performed. If the proper safety equipment is not available or if you are asked to perform a duty that you believe to be unsafe, contact your supervisor so that the proper equipment can be made available and the specific duty/task made safe. Never enter a situation that you believe to be unsafe.

B. Clean up all spills with the appropriate cleaning equipment.

C. Be constantly aware of your surroundings.

D. Report any mechanical or electrical malfunctions to supervisor, lead person or the control room.

Safety Equipment requirements and procedures.

A. Safety glasses and hearing protection shall always be worn when outside of the following areas:

1. The business office.
2. Restroom/Locker Room.
3. The control room.
4. The breakroom.

B. Face Shields and or Goggles shall be worn when the potential for splashing or the production of projectiles is evident.

C. Safety toed shoes will be worn by all personnel involved with operations or maintenance activities.

D. Hard hats shall be worn when outside of the following areas:

1. The business office.
2. Restroom/Locker Room.
3. The control room.
4. The breakroom.
5. Grapple crane and front end loaders.

SECTION 4.0 VECTOR AND LITTER CONTROL MEASURES

The local Orkin office has been contracted to treat all areas for pest control. Bait traps will be set and maintained by Orkin for rodent population control.

Operating personnel will be trained and licensed to apply pest control chemicals.

Cleanliness of this site will be the first line of defense.

The Tipping floor will be cleaned off each day before the plant is shut down. The tipping floor will be swept daily, washed weekly and more frequently as required. The only exception to this will be circumstances beyond the control of the operator such as extended power outages, storms, catastrophic failure of equipment, etc. etc. .

All processing equipment will be cleaned daily by blowing with air.

High pressure washers will be used on equipment and in areas that air is not effective.

The processing floor will be swept daily after processing is complete and will be water washed weekly and more frequently when required.

The exterior areas of the plant will be cleaned using appropriate sweepers as needed to control the litter in the plant area.

SECTION 5.0 EMERGENCY RESPONSE

SECTION 6.0 STAFFING

DRAFT

BCH ENERGY PROJECT

SAFETY PROGRAM

IMPLEMENTATION DATE October 1, 1995

29 CFR 1910
REGULATORY STATUTE

Dale Williams
Vice President
Quixx Corporation

Duane Hopkins
Facilities Manager - BCH Energy Project

Clinton Evans - Energy Generating Facility Plant Manger

Boudewyn Beukenkamp - Materials Recovery Facility Plant Manager

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Everette Compton
SAFETY and Training Coordinator

Evans M. Jenkins
Environmental Chemist

Quixx Power Services, Inc.
Occupational Health and Safety Program

Corporate Policy Statement

The Occupational Safety and Health Act of 1970 clearly states our common goal of safe and healthful working conditions. The safety and health of our employees continues to be the first consideration in the operation of this business.

Safety and health in our business must be a part of every operation. Without question it is every employee's responsibility at all levels.

It is the intent of this company to comply with all laws. To do this we must constantly be aware of conditions in all work areas that can produce injuries. No employee is required to work at a job he or she knows is not safe or healthful. Your cooperation in detecting hazards and, in turn, controlling them is a condition of your employment. Inform your supervisor immediately of any situation beyond your ability or authority to correct.

The personal safety and health of each employee of this company is of primary importance. The prevention of occupationally-induced injuries and illnesses is of such consequence that it will be given precedence over operating productivity whenever necessary. To the greatest degree possible, management will provide all mechanical and physical facilities required for personal safety and health in keeping with the highest standards.

We will maintain a safety and health program conforming to the best management practices of organizations of this type. To be successful, such a program must embody the proper attitudes toward injury and illness prevention not only on the part of supervisors and employees, but also between each employee and his or her co-workers. Only through such a cooperative effort can a safety program in the best interest of all be established and preserved.

Our objective is a safety and health program that will reduce the number of injuries and illnesses to an absolute minimum, not merely in keeping with, but surpassing, the best experience of operations similar to ours. Our goal is nothing less than zero accidents and injuries.

_____

Duane Hopkins
Facilities Manager
Quixx Power Services, Inc.

Quixx Power Services, Inc.

Occupational Health and Safety Program

Health and Safety Guidelines

Date of Last Revision: May 30, 1995

Program Responsibility: The BCH Energy Project is operated and maintained by Quixx Power Services, Inc. (QPS). The QPS Safety and Training Coordinator is Everette T. Compton. He, in conjunction with the facilities manager and plant managers are responsible for all managerial facets of this program and each shares the authority to make necessary decisions to ensure success of the program. Safety is also the responsibility of every employee of this company. The Safety and Training Coordinator will develop written detailed instructions covering each of the basic elements in this program, and is authorized to amend these instructions by the facility manager and plant managers. This company has expressly authorized any employee to halt any operation of the company where there is danger of serious personal injury. This policy includes respiratory hazards.

Program Content

The QPS safety and health program will include, but is not limited to development and maintenance of the following:

1. Company Health and Safety Program Guidelines.
2. Written Programs.
3. Safety Committee.
4. Routine Safety and Health Inspections.
5. Safety Meetings.
6. Accident and Incident Reporting.
7. Accident Investigation.
8. General Safety Rules for all Departments.
9. Recordkeeping Requirements.
10. Disciplinary Actions for Willful Unsafe Acts.

1. Safety Program Guidelines

1. Company Health and Safety Program Guidelines. Quixx Power Services, Inc. will review and evaluate this document:

1.1 On an annual basis.

1.2 When changes occur to 29 CFR that prompt a revision.

1.3 When changes occur to any related regulatory document that prompts a revision of this document.

1.4 When facility operational changes occur that require a revision of this document.

2. Written Individual Programs. This company will maintain written individual procedures for the types of hazards/issues that our employees will or could potentially be exposed to. Each program will be reviewed/revised on an annual basis or as required by the respective governing OSHA Standard. Each program insofar as possible will be maintained as an independent program to avoid situations where it is unclear where responsibility for given issues belong. Effective implementation of these programs require support from all levels of management within this company. Each written program will be communicated to all personnel that are affected by it. Each will encompass the total workplace, regardless of number of workers employed or the number of work shifts. They will be designed to establish clear goals, and objectives. The following individual safety programs will be maintained.

2.1 Department Safety Analysis
2.2 Job Hazard Analysis
2.3 Process Safety
2.4 Accident Investigation
2.5 Hazard Communication
2.6 Fire Prevention
2.7 Lock-Out/Tag-Out
2.8 Confined-Space
2.9 Occupational Ergonomics Program
2.10 Slings Safety
2.11 Cranes and Hoists
2.12 New Rebuilt and Altered Equipment
2.13 Electrical Safety

2. Written Individual Programs (cont'd)

2.14 Machine Guarding
2.15 First Aid/Injury Procedures
2.16 Power Tools Safety
2.17 Welding and Cutting safety
2.18 Compressed Gas Safety
2.19 Ladders and Stairs
2.20 Working in Hot Conditions
2.21 Working in Cold Conditions
2.22 Slips, Trips and Falls
2.23 Protective Clothing Selection Policy
2.24 Protective Clothing/Equipment
2.25 Head Protection
2.26 Eye and Face Protection
2.27 Hand Protection
2.28 Skin Protection
2.29 Foot Protection
2.30 Hearing Conservation
2.31 Bloodborne Pathogens
2.32 Forklifts/Powered Industrial Trucks
2.33 Hazardous Waste Op. and Emergency Response (HAZWOPER)
2.34 Preparation for Workplace Emergencies
2.35 Office Safety
2.36 Compressed Gas Safety
2.37 Laboratory Safety
2.38 _____

3. Safety Committee.

3.1 Composition. The company safety committee will be comprised of (8) members. Four members of management and four members of plant personnel, two from each facility. The make up of the committee will consist of the following:

Safety Committee

Title	Member
Chairperson, S&T Coord.	Everette Compton
Facilities Manager	Duane Hopkins
Energy Generation Facility Plant Mgr.	Clinton Evans
Materials Recovery Facility Plt. Mgr.	Boudewyn "Dutch" Beukenkamp
Members	(2) EGF Mechanic EGF Operator
Members	(2) MRF Mechanic MRF Operator

3.2 Principal Responsibilities. The principal responsibilities of the company safety committee will be as follows:

3.2.1 Assemble on a quarterly basis to conduct safety meetings and more often if necessary to address safety issues.

3.2.2 Conduct and oversee departmental safety inspections.

3.2.3 Review accident/injury reports and discuss corrective actions.

3.2.4 Direct and monitor departmental training and safety meetings.

SECTION 1.0 INTRODUCTION

The EFG is located on approximately 11 acres of land in the E.I. DuPont's industrial facility. The major purpose of the EGF facility is to provide steam and electrical power to E. I. DuPont. Major equipment includes two RDF fired bubbling fluidized-bed type steam generators, baghouse for each steam generator, one steam turbine generator and associated auxiliaries, boiler water treatment facility, cooling tower, ash silo, controls and all associated electrical components. Approximately 290,000 tons/year of RDF will be delivered to the EGF (from the MRF) where it will be finally processed for combustion in the steam generators. Materials handling equipment is provided to off-load RDF and convey it to the steam generators fuel feed system. Areas are provided for parking of RDF trucks.

The EGF is designed with the objective for a minimum annual capacity factor of 92% for 40 years. It is anticipated that the facility's annual outage shall be for a duration of two weeks (336 hours). Scheduled and unscheduled outages during the remainder of the year are not expected to exceed 400 hours.

The Energy Sales Contract is with Du DuPont and requires the plant to normally run at full capacity 7 days a week, 24 hours per day. The Contractor's recognizes this mode of operation and provides technical features to facilitate steady operation at full output while meeting all environmental requirements. The maximum continuous rating (MCR) for each boiler is 124.5 MMBTU/hr.

The major design objectives of the EGF using Refuse Derived Fuel (RDF) are to:

A. Provide the capability to supply 0-100,000 lbs/hr of steam at 275 psig, 414°F to DuPont's Fayetteville Plant, 24 hours/day, 7 days/week.

B. Provide the capability to supply 0 to 11 MW to DuPont's Fayetteville Plant, 24 hours/day, 7 days/week.

C. Operate in a full condensing mode with excess power delivered to Carolina Power & Light.

SECTION 2.0 DETAILED DESCRIPTION OF OPERATION

TURBINE GENERATOR AND AUXILIARIES

Turbine generator

A. The steam turbine generator is a multi-valve, double extraction, condensing type unit. One extraction is automatic and the other non-automatic. The Generator is directly coupled to turbine.

B. The turbine generator package consists of the following: steam turbine, stop valve, throttle valves, inlet steam chest, lube oil system, water to air-cooled generator, excitation system, gland seal system, electrohydraulic control system, extraction non-return valves for extraction points, turning gear, exhaust hood diaphragm and exhaust hood spray system for low load operation, insulation blanket and oil purification equipment as required.

C. The turbine generator is capable of operation at constant speed in parallel with the CP&L (utility) system controlling the frequency or isolated from the Utility at 60 Hz.

D. The plant is designed to supply up to 100,000 lb/hr of steam to DuPont; however, the extraction from the steam turbine is limited to 80,000 lb/hr.

E. The unit is equipped with a stop valve, which includes provisions to actuate the main circuit breaker when the valve is closed. On-line testing is included to check the trip valve stem movement while the turbine is running. The control solenoid for the trip valve has 125V D.C. coil. Stop valve isolates the turbine from the boiler during start-up and provides for emergency overspeed trip following loss of electrical load.

F. The shaft packings are of the spring backed labyrinth type. They are supported so that their movement relative to the shaft is minimized.

G. A complete gland evacuation system with gland condenser is furnished. The system is designed for the complete condensation and removal of all surplus leak-off steam.

Governor

A. A Woodward turbine speed control system is provided, which automatically regulates the steam flow to the turbine through the governing system. The speed control system is furnished with speed/load control adjusting devices.

In the event of an instantaneous change from full load (with maximum extraction) to no load, the speed governing system is designed to prevent any overspeed trip.

B. In addition to the turbine speed control system, a separate quick-acting emergency governor is furnished that shall causes the steam flow to be shut off to the unit when it reaches approximately 10% overspeed but can be reset when the speed is reduced to approximately normal. The emergency governor is of the type which can be tested at no load. One mechanical and one electric overspeed trip is provided.

Turbine Overspeed Protection

A. An independent emergency overspeed trip device which acts at 10% overspeed closes all steam admission valves and the main turbine stop valve is provided.

B. In accordance with turbine generator manufacturer's requirements, the turbine must be protected against the possibility of the high pressure extraction points providing an energy source for the turbine. Every extraction point has a power-assisted non-return valve. These valves trip closed upon a turbine trip. There are two non-return valves in the extraction line feeding the deaerator.

C. To guard against possible overspeed due to circumventing isolation valves via drain lines, the drains are routed to the condenser

Bearings

A. All bearings are split to permit removal of the upper half for inspection without removal of the turbine casing and are removable without removing the rotor.

B. All main bearings are provided with a positive visual check for oil flow through the bearings via sight flow indicators.

C. All bearings are provided with temperature and vibration monitors which input to the control system.

Hydraulic and Lubrication System

A. A combined hydraulic and lubricating oil console, skid mounted is furnished to provide hydraulic fluid to turbine control and emergency trip system and lubricating oil to the turbine and generator bearings.

B. The hydraulic and lubrication system includes the following:

1. A full size oil reservoir with minimum three (3) minute retention time and level indicator to alarm at high and low levels. Provisions for draining and cleaning are provided. A reservoir heater is provided.

2. There are twin oil coolers with transfer valves Each cooler has 100% cooling capacity when supplied with 100°F cooling water, which has a pressure not-to-exceed 150 psig. Cooler tubing is stainless steel.

3. Twin oil filters with transfer valve are provided. Filtration level is 10 microns (max.).

4. Two full size, 100% system capacity A.C. motor-driven pumps are provided so that the main pump has one backup. A D.C. emergency pump for coast down is available .

5. Provisions for remote tripping of lubrication pumps is provided in the event of a fire emergency.

6. A suction strainer on each pump, a bearing pressure regulator, and low bearing pressure alarm and trip switches.

7. Solenoid trip with low oil pressure trip to shut trip and control steam valves when hydraulic pressure is low (and non-return valves when applicable).

8. Provisions for testing backup and D.C. emergency pump via their associated pressure switches.

9. Stainless steel lube oil supply piping between the filter and the turbine.

C. Instrumentation at the lube console includes for the following:

1. Temperature indication in and out of oil coolers.

2. Bearing oil pressure indication.

3. Control oil pressure indication.

4. Differential pressure switch for oil filter alarm.

Water Induction Prevention

A. ASME Standard No. TWDPS-1 entitled "Recommended Practices for the Prevention of Water Damage to Steam Turbines used for Electric Power Generation" and specific turbine generator manufacturer's recommendations has been followed to prevent water from entering the turbine.

B. All drain lines and drain valve ports have an inside diameter of not less than one inch to minimize risk of plugging by foreign material.

C. Power actuated valves are located in the main steam line drains, turbine drains, extraction line drains and exhaust line drains. Valves open automatically on a turbine trip and can be remotely operated from the control room. These power actuated valves are used for start-up, shutdown and no-load operation. Steam traps in parallel with the power actuated valves in the steam line drains provide draining for steady state operation.

D. The extraction lines and feedwater heaters are designed such that no single failure of equipment results in water entering the turbine. Two independent means of automatically preventing water from entering the turbine from the extraction system is provided as follows:

1. An automatic heater drain system that drains directly to the condenser on high level in the heater.

2. Automatic shut-off valves in the extraction steam line between the feedwater heater and the turbine.

General Generator Design Criteria

A. The generator is a synchronous, air-to-water cooled machine and includes necessary grounding, instrument transformers, surge protection, and excitation equipment. The generator lube oil system is integrated with the turbine system.

B. The generator is capable of withstanding without mechanical injury, any type of short circuit at its terminals for times not exceeding the short time thermal capabilities, when operating at rated kVA and power factor and 5% over voltage, provided the maximum phase current is limited by external means to a value which does not exceed the maximum phase current obtained from the three-phase fault. In the case of stator windings, the criterion for no injury is that the windings will satisfactorily withstand a normal maintenance high-potential test.

C. The generator is capable of operation at rated kVA, power factor, and frequency at any voltage not more than 5% above or below rated voltage, but not necessarily in accordance with the standards of performance established for operation at normal rating.

D. The generator is equipped with integral plate fin surface air coolers with suitable surface area to maintain the generator temperature within the operating range. The coolers are of sufficient size and number so that the unit may operate at a minimum of 66% rated kVA with one cooler section out of service. The air coolers are arranged in sections and are mounted in the generator housing in such a manner that permit removal of the water box for cleaning of any one section when required without shutting down the generator. Cooler tubing material is 90/10 CuNi. The generator is capable of operating at a cooling water temperature of 100°F.

Accessories

In addition to those accessories already mentioned above, the following are included:

A. A 100 ohm platinum bearing temperature detector is inserted in the lower half of each bearing, to monitor bearing temperatures and actuate alarms or shut downs. minimum).

B. Platinum resistance type temperature detectors, embedded in the stator windings are provided.

C. Platinum resistance type temperature detectors in the generator air paths are provided

D. High voltage terminal box with:

1. Three (3) CT's on outgoing lines (one on each phase) for generator differential.

2. All necessary CT's and PT's for voltage regulator as per manufacturer's recommendations.

3. Three (3) lightning arresters and surge capacitors Are provided on the incoming lines. Outgoing lines are connected into a neutral bus bar.

Brushless Excitation System

A. The generator includes a direct connected brushless exciter overhung on an extension of the generator shaft complete with a rotating fused diode assembly, including a lead assembly that connects the D.C. output to the field windings of the main generator.

B. A full wave 3-phase diode bridge assembly is used to rectify the exciter armature output. Parallel fully rated diodes are used to provide 100% redundancy.

C. A permanent magnet pilot exciter are furnished to provide a power source for the voltage regulator and eliminate the need for field flashing and voltage regulation power transformer.

D. A plate-mounted dual automatic voltage regulator is provided.

Generator Control and Protection Panel

A. Provides one generator control and protection panel with protective relays, metering and controls as indicated below.

B. Generator Protective Relays

All relays shall be utility grade in accordance with ANSI C37.1 standards.

Device 51V	-	Voltage controlled overcurrent relay
Device 87-G1	-	Generator differential
Device 32	-	Generator reverse power

Device 40	-	Loss of field
Device 46	-	Negative sequence overcurrent relay
Device 86-G1	-	Lockout relay
Device 64-G	-	Generator field ground fault
Device 86M	-	Lockout relay
Device 24	-	Volts per Hertz Relay
Device 49G	-	Generator over temperature relay
Device 59G	-	Generator ground fault
Device 60	-	Blown fuse

C. Generator Metering

All meters shall be 4-1/2 inch square switchboard type, 1% accuracy.

- AC ammeter
- Four position ammeter selector switch, OFF 1-2-3
- AC voltmeter
- Three position voltmeter selector switch
- Megawatt meter
- Megawatt hour meter
- MVAR meter
- Frequency meter 55-65 Hz
- Power factor meter 0.5 leading - 1.0 - 0.5 lagging
- Voltage/VAR control switch
- Synchroscope
- Synchronizing lamps
- Synch selector switch, auto/off/manual
- Generator breaker control switch with indicator lamps
- Generator coolant and stator temperature recorder
- Bus voltmeter
- Generator voltmeter

D. Synchronizing

Provide equipment for both manual and automatic synchronizing.

STEAM GENERATOR

Combustor

A. Two balanced draft combustors and steam generators (collectively called the boilers) are provided. Each combined unit is designed to combust 124.5 x 10^6

Btu/hr of RDF fuel. Superheater outlet conditions are designed to be 700 psia, 750°F.

B. The combustors are of the bubbling fluidized bed type, field erected and designed for balanced draft operation. The combustors shall be capable of burning the range of RDF fuel as specified in SECTION 0080. **Add fuel spec from sec 80**

C. The boiler superheater is an integral, two-stage convective type. The superheater outlet temperature control is by attemperation between superheater sections. A complete automatic attemperating water spray control system is provided.

D. A digital solid state flame safety system is furnished for auxiliary firing of propane in the Combustor for start-up . System supervises and controls transient and steady state operation of the Combustor in order to prevent a catastrophic accident. Flame safety system provides for operator control of the boiler from the control room.

E. Sootblowers are provided for maintaining boiler performance. Superheater and convective sections are provided with sootblowers. Sootblowers are motor driven and are automatically and sequentially operated from the control room. Steam supplied from the boiler drum is used as the cleaning medium. Soot blower system includes all necessary controls, piping, valves and drains necessary for a complete system.

F. Solid fuel is fed into the lower portion of the combustion chamber of each unit. A design utilizing overbed fuel feeding chutes located in the side walls of the combustion chamber is provided. High turbulence in each bubbling bed will cause the fuel to mix quickly and uniformly with the bed material. Sand is used as the bed material. Limestone is added to control sulfur emissions.

G. Primary air for each Combustor is introduced through the fluidizing grid located in the lower portion of the chamber, where the heavier bed material is fluidized and retained. The upper portion contains the entrained, less dense material, that is separated from the bed. Secondary air is introduced at two levels to ensure complete combustion and reduced NOx emissions.

Air Preheating

A. All combustion air including primary (i.e. underbed) air and secondary air (i.e. overfire air) is preheated.

Flue Gas Recirculation

A. A flue gas recirculation system is provided to control fluidized Combustor bed temperature while maintaining low furnace excess air and high boiler efficiency. The gas is taken from the baghouse outlet and discharged into lower furnace. The system consists of a flue gas recirculation fan, flow control, damper, ducts, expansion joints, and supports.

NO_X Reduction System

A. The steam generator is provided with an ammonia based selective non-catalytic NO_X reduction system.

B. Aqueous ammonia (~ 25% solution) is the reagent. Ammonia slip meets the emissions requirements.

B. Content of reagent in the flue gas measured at the location of the CEM equipment shall not exceed guarantee.

Sand Bed System

A. Sand will be delivered to a storage silo from truck delivery. The silo is common for both boilers and sized for a minimum of 7 days of full load operations. A dense phase pneumatic conveyor system conveys the sand to two small surge tanks, one for each boiler. From the surge tank sand falls through chutes into the boiler.

B. The sand will be delivered to the plant in pneumatic delivery trucks, with the sand being conveyed pneumatically into the storage silo by the delivery vehicle blower and system fill pipe. The silo is equipped with a self-cleaning filter to control the release of fugitive dust to the atmosphere.

CIRCULATING WATER SYSTEM

General

A. The circulating water system consists of the cooling tower, circulating water pumps, piping, steam turbine condenser, dump condenser and equipment heat exchangers.

B. The design wet bulb temperature is 76°F.

C. Approach temperatures in the steam turbine condenser, cooling tower and closed cooling water heat exchangers permit a maximum of 2.5" HgA operating backpressure in the steam turbine at full net electrical output at the design ambient wet bulb temperature.

Main Steam Turbine Condenser

A. The main steam turbine condenser is a one pass shell and tube type specifically designed for steam surface condenser service. This unit is designed to condense the steam from the turbine at maximum rated electrical output while maintaining a maximum of 2.5" HgA vacuum. The condenser is designed to accept steam from the bubbling fluidized bed type Combustor/steam generator during plant start-up and shut down and during off normal plant operating conditions.

B. Water boxes are carbon steel with epoxy coating. Water boxes are of divided type to permit tube cleaning with plant on line. Waterboxes are provided with hinged manways for servicing the unit..

C. Condenser vacuum is maintained by means of two 110% capacity service steam jet air ejectors. A separator hogging ejector is provided for start-up operations.

D. Each steam jet air ejector is capable of maintaining the condenser vacuum at 1.5 in. HgA. The hogging capacity of each unit is capable of reducing the condenser pressure from atmospheric pressure to 2.5 in. HgA within 1/2 hour.

Cooling Tower

A. The cooling tower is a counter flow, induced draft type with two individual cells. The cooling tower is supported by a concrete basin. Cells are individually operable.

B. The mechanical draft fans are two-speed, adjustable pitch type. Fan blades are manually adjustable.

C. Structural members are of redwood material. Structural fittings are corrosion resistant.

Equipment Heat Exchangers

A. Heat exchangers listed below are cooled by circulating water (directly from the cooling tower).

- Turbine Lube Oil Coolers
- Generator Air Coolers
- Exciter Air Coolers
- Air Compressors
- Miscellaneous Lube Oil Coolers
- Boiler Feed Pumps

Circulating Water Pumps

A. The system has 3-50% capacity electric motor-driven circulating water pumps which take their suction from the cooling tower sump and supply water to the plant condensers and other heat exchangers through a single buried water line. The pumps are of the vertical mixed flow design with flooded suction..

B. A low water trip is provided to protect the pumps from low water level in the cooling tower basin.

Circulating Water System Chemical Treatment

A. The circulating water is treated by chemical injection to control pH and minimize fouling in the main condenser, dump condenser, equipment heat exchangers and biological growth in the cooling tower.

Cooling Tower Blowdown

A. Cooling Tower Blowdown shall be discharged directly to the woodlined ditch that returns to the Cape Fear River.

CONDENSATE/FEEDWATER SYSTEM

Condenser(s) Hotwell

A. The condenser hotwell is located above the floor elevation of the plant and serves as the ultimate receiver of all condensate from steam systems throughout the plant. The primary source of condensate will be from the condenser which is located directly over the condenser hotwell. The condenser hotwell shall provide a minimum of three (3) minutes of active storage for the plant with the storage tank providing additional standby storage.

B. Condensate taken from the condensate (demineralized water) storage tank enters the cycle via the condenser hotwell for deaeration.

Condensate Pumps

A. Two, multi-stage 100% capacity condensate pumps take suction from the condenser hotwell and deliver condensate to the deaerator. The pumps are of the vertical can type, electric motor driven designed specifically for this type of operation.

Deaerator and Deaerator Storage Tank

A. The deaerator is a direct contact spray atomizing tray-type with separated storage tank. The storage tank has an operating capacity (between level alarms) equivalent to 5 minutes of feedwater flow at rated conditions.

B. Steam supply to the deaerator is normally from the uncontrolled extraction point on the turbine-generator. During low load operation minimum pressure (pegging) auxiliary steam is provided.

Boiler Feed Pumps

A. The plant is provided with three, 100% capacity (plant) high pressure boiler feed pumps. Each boiler feed pump supplies feedwater through a common header system to the economizer inlet of both boilers.

B. Two pumps are motor-driven at constant speed for full-load operations. One pump is steam turbine driven. The steam source for turbine pump is from the main steam system and the turbine pump exhausts to the atmosphere.

C. Water for desuperheating process steam may be taken from the boiler feed pumps or separate desuperheating water pumps may be provided.

PLANT WATER SYSTEMS

The plant water systems include the following systems:

A. River Water System

B. Circulating Water System (previously described)

C. Potable Water System

D. Make-up Water Treatment

E. Plant Service Water

F. Plant Drains and Waste Water Treatment

G. Fire Protection

H. Sanitary Waste Water System

River Water System

A. River water is supplied to the facility from a Du DuPont river water line contiguous to the site. River water is used as a make-up supply for the circulating water (cooling water) system, the make-up water treatment system and plant service water system.

B. The river water passes through a clarifier and gravity filter prior to use in the facility.

Potable Water System

A. This system provides water for human consumption and sanitary plumbing applications.

B. Water is provided from a Du DuPont interface.

Boiler Make-up Water Treatment

A. The source of water to this system will be clarified and filtered water from the river water system.

B. The treatment of make-up water to the power generation cycle is accomplished by installation of a two-train demineralizer system designed to meet the boiler manufacturer's requirements and with 2% continuous blowdown.

Service Water Pumps

Two 100% capacity electric motor-driven centrifugal pumps are provided to transfer clarified/filtered water through the make-up water treatment system to the condensate (demineralized water) storage tank.

Service Water System

A. This system supplies water from the river water system and provides make-up water to the cooling tower (circulating water system) and distributes service water throughout the plant for wash down of selected areas and non-potable applications such as cooling medium for bottom ash conveyors.

Plant Drains and Wastewater Treatment

A. All process waste stream which have a potential for oil contamination are collected and processed for oil separation prior to discharge to the DuPont process sewer system.

B. Boiler and effluent from the neutralization system shall discharge directly to the existing DuPont process sewer system.

C. A system of floor drains and sumps are incorporated into the overall design of the plant buildings. The system consists of collection troughs, sumps, piping, fittings and valves for gravity drainage of wastewater to various

collection points for delivery to the DuPont process sewer system via the oil/water separator.

D. Equipment, floor drains, area sumps and storm water from the transformer area are collected and pumped through the oil/water separator prior to discharge to DuPont process sewer system

E. The process sewer line is metered at its exit from site.

F. Storm runoff from roof drains is collected and routed to the DuPont storm runoff system with no additional treatment.

Fire Protection System

A. The fire protection system for the EGF consists of fire suppression and detection systems. This fire protection system includes an underground fire water loop, above grade sprinklers, hose stations, portable extinguishers and a zoned fire detection system. This design is based on using water from the DuPont firewater system at the required pressure and flow rate. No new fire pumps are required for this plant. Design firewater pressure from the DuPont system is 60 - 125 psig.

B The fire water loop supplies firewater on demand to the hydrants and standpipes located at key locations around the EGF and to the water sprinkler systems.

C. A fire hose station standpipe system is installed at key areas within the Plant. This system includes open rack type hose stations equipped with hoses and nozzles suitable for safe and effective use on identified hazards and involved equipment.

Sanitary Water System

A. This system provides collection of sanitary plumbing applications.

B. Water collection from the sanitary plumbing is discharged to a single collection point and routed to DuPont sanitary sewer system.

RDF RECEIVING/HANDLING SYSTEM)

General Description

A. The fuel handling system receives presorted MSW loaded on 20 ton/105 cubic yard self unloading trailers from the MRF. The trucks are coordinated to match the EGF fuel receiving system.

B. The RDF receiving system provides for unloading of 16 walking floor trailers into walking floor type fuel lanes. All floors are variable speed and are tied into the DCS which in turn controls fuel demand. Each pair of the fuel lanes holds approximately 135 tons of unshred RDF.

C. Two hammermill shredders are provided, each capable of handling 30 tons per hour of RDF. A separate apron conveyor with a metering system feeds the RDF from the fuel lanes into each of the shredders. Movement of the RDF through the fuel lanes into the shredder areas will be controlled by a PLC.

D. Two self-cleaning magnetic separators shall be located downstream of the two shredders.Each magnetic separator automatically feeds ferrous material to a single top-loading roll off container.

E. Shredded RDF is moved into three additional walking floor fuel rooms. Shredded RDF in each room is maintained at a height of about 18 ft providing storage of approximately 200 tons per fuel room. Oscillating vertical are employed to prevent bridging or surging as the RDF in each room advances over a pit apron conveyor located perpendicular to the end of the walking floor room for reclaim to the boilers.

F. The boilers are fed by two separate inclined conveyors which can reclaim from any of the three shredded RDF storage rooms.

G. Each boiler is provided with two separate fuel metering bins which ultimately supply the shredded RDF to the combustors. Each metering bin system is sized to provide 100% of fuel to the Combustor.

H. The entire fuel unloading, processing, conveying and feeding system is enclosed and ventilated to control release of fugitive dust and odors. Combustion air for both boilers is drawn from the ventilation system header, thus creating a slight negative draft throughout the fuel storage areas. Booster fans are provided.

FLUE GAS SYSTEM

General

A. The combustion gases exiting each fluidized bed boiler economizer is ducted through a separate flue gas cleaning system and to the stack for discharge to the atmosphere. The system for each boiler includes a mechanical collector and baghouse, induced draft fan, a common stack with two internal flues, dampers, ducting, breeching and the necessary supports.

Mechanical Dust Collector

A. The mechanical dust collector for each boiler is located immediately downstream of the boiler and provides removal of particulate from the gas stream to reduce particulate loading on the bag house and to protect the ID fan from excessive wear.

Induced Draft Fan

A. One induced draft fan located downstream of the baghouse is provided for each boiler.

B. Damper control is provided by pneumatic positioning using instrument quality air.

Baghouse

A. A baghouse is provided for each boiler to further enhance flue gas particulate removal to meet air quality permit requirements. The unit is a modular, pulse jet type self-cleaning filter with housing of carbon steel construction designed for ± 26"_W.C. Each module includes a clean air plenum with access features to facilitate inspection and bag removal. The lower section of each module is fitted with an ash hopper. The fly ash hopper includes an access hatch to allow internal inspection and maintenance of the "dirty side" of the module.

B. A by-pass duct, with pneumatically operated damper is provided between the baghouse "dirty gas" inlet manifold and the "clean gas" outlet manifold. This arrangement will permit the baghouse to be bypassed during start-up when the gas temperatures are below the dew point.

C. Capture of sulfur, chlorine and mercury emissions is enhanced through the use of a filter bag pre-coat system. The system injects dry pulverized

hydrated lime and activated carbon into the flue gas stream upstream of the baghouse. Separate storage silos are provided for hydrated lime and activated carbon. Each silo provides for seven days of full operation without recharging.

Stack

A. The stack is ground-mounted free-standing design with two internal flues. Stack is provided with lighting arresters and markings to satisfy local and FAA code requirements. Stack is of steel design and constructed in accordance with ASME/ANSI specification STS-1.

B. Stack height is 150 ft above grade. Each flue diameter is designed to achieve 48 ft/sec exit gas velocity at boiler MCR conditions.

C. The stack is provided with 360° access platforms, handrails and toeplates, ladders to provide access to test ports and gas sampling stations.. The foregoing allows for maintenance and compliance testing. A davit capable of supporting 500 lb is provided to lift test equipment to the test platform. Two 110V, 20A electrical circuits are provided at the platform.

Continuous Emissions Monitoring Equipment

A. Continuous Emissions Monitoring is provided to monitor the emissions from the flues of each of the two boilers.

B. Continuous Emissions Monitoring (CEM) and recording equipment is provided for the following parameters:

- Nitrogen Oxides, expressed as NO_2
- Carbon Monoxide, CO
- Opacity
- Oxygen, O_2
- Sulfur Dioxide, SO_2
- Carbon Dioxide, CO_2
- Ammonia, NH_3

ASH AND RESIDUE HANDLING SYSTEMS

Ash Systems

A. The ash handling system is of the pneumatic type conveying system used in conjunction with mechanical conveyors. The system collects and transports fly ash from each boiler, mechanical collector and baghouse to a common ash silo.

B. The outlet of the ash hoppers of each boiler is located at the low point of the vertical flue gas paths. Mechanical screw conveyors are provided to collect the flyash from the boiler ash hoppers and mechanical collector ash hoppers and convey the ash to a pneumatic conveying system. A means is provided in the pneumatic conveying line that permits the ash to be directed to the common ash silo.

C. The system for collecting and transporting ash from the ash hoppers of each baghouse module is combined with system described above.

D. The pneumatic ash transport system conveys the collected ash from the various collection points to the top of the ash silo where the ash is discharged into the silo. The conveying air is discharged to atmosphere through a self-cleaning fabric filter unit. The common ash silo provides (for each boiler) six days of fly ash storage capacity based on normal plant operating conditions. An air based system is provided to be used in conjunction with conveying equipment for discharge of ash from silo to a enclosed trailer.

Residue System

A. Residue bed material removal from each fluidized bed combustor is accomplished using an automatically operated bed classifiers and drain systems, discharging into a mechanical bed drain conveyor. Each bed classification system removes oversize material and discharges it to the drain conveyor for disposal via the ash system. The bed material fines are returned to the fluidized bed to maintain the bed mean particle size and minimize bed material consumption. The bed drain conveyor discharges to a residue container.

SECTION 3.0 MAINTENANCE PROCEDURES

Maintenance procedures for the EGF are still in development.

SECTION 4.0 VECTOR AND LITTER CONTROL MEASURES

The local Orkin office has been contracted to treat all areas for pest control. Bait traps will be set and maintained by Orkin for rodent population control.

Cleanliness of this site will be the first line of defense.

Transport trailers will be cleaned with high pressure washers each week.

The exterior areas of the plant will cleaned using "bobcat" type sweepers as needed to control litter in the area.

SECTION 5.0 EMERGENCY RESPONSE

Emergency Evacuation & Fire Procedure

Signal for evacuation

Notify coordinator of type of hazard

Coordinator to call appropriate Emergency Personnel

Go to closest and safest assembly point

Person located at each assembly point will get head count and report to coordinator via radio or runner

Have MSDS available at assembly Point

Provide all employees with diagram of all assembly points and exits

(Diagram of all Assembly Points and Exits will be posted)

EMERGENCY RESPONSE PROCEDURES ARE STILL IN DEVELOPMENT.

SECTION 6.0 STAFFING

STAFFING REQUIREMENTS ARE STILL IN DEVELOPMENT.

SECTION 7.0 SAFETY PROGRAMS

THE SAFETY POLICY FOR THE EGF SITE IS THE SAME AS THE POLICY DEFINED IN SECTION 7 OF PART I FOR THE MRF SITE.

SECTION 8.0 TRAINING

PERSONNEL TRAINING PLANS ARE NOT YET DEVELOPED.