# SECTION 2

# PROJECT DESCRIPTION

## 2.1 FACILITY LOCATION

Crawford Renewable Energy, LLC (CRE) is proposing to design, construct, own, and operate a 100 MW gross (90 MW net) Tire Derived Fuel (TDF) facility to be located in Greenwood Township, Crawford County.

The proposed CRE facility will be located in the Keystone Regional Industrial Park off of Adamsville Road in Greenwood Township, Crawford County. The industrial park is part of a Pennsylvania designated Keystone Opportunity Zone, or KOZ.

The area of the proposed facility is an approximately 80-acre parcel of land that is rural in nature and designed specifically for use as an industrial park. The only nearby operation is the Pittsburgh Glass Work's flat glass manufacturing facility. There are no land use issues that would prevent the plant from being located in this area.

Convenient roadway access is available from Interstate 79 and US Route 19. Railroad access is also available to the site. Approximately 80-90% of the tires brought to the site will be delivered by rail. This will significantly minimize truck traffic into and out of the facility.

## 2.2 PHYSICAL FACILITY DESCRIPTION

CRE is proposing to construct, own, and operate a 90 MW (net) electrical generation facility consisting of two (2) CFB steam generators and supporting equipment. The proposed CRE facility will operate continuously (24 hours per day, 365 days a year), with the exception of outages for maintenance purposes. It is anticipated that the facility will operate at near-full capacity. The steam generated in the CFB units will be used to drive a steam turbine to produce electricity for sale to the PJM grid or other large users.

The CFB boiler systems will be designed by Sumitomo Heavy Industries, Inc. (SHI) of Japan. This firm is a licensee of Foster Wheeler, North America and was selected because of its design and operating experience with high pressure steam generators fueled by TDF. Foster Wheeler is a worldwide leader in CFB technology.

The CFB type of combustion was first developed in Europe as a means of combusting low quality fuels indigenous to that part of the world. Fluidized bed combustion units operate by suspending the fuel in a highly turbulent mixture of air and inert particles (sand). This mixture of materials is called the fluid bed. It was also found that by adding a reagent such as limestone into the fluid bed and by limiting the combustion temperature of the bed, two environmental benefits can be achieved:

1. The direct capture of $SO_2$ in the combustion process;
2. The reduced formation of $NO_x$.

These two features made CFB combustion technology attractive in the United States, even with the use of higher quality (higher caloric value) fuels. CFB technology is considered to be state-of-the-art technology for the combustion of solid fuels.

The mixing of air and particles in a CFB is extremely vigorous. The mixture is carried upward through the vertical furnace. At the top of the furnace, hot gases are separated from hot particles. The gas continues into the heat recovery section of the steam generator, where the gas is cooled and steam is generated.

The hot particles are returned to the lower part of the furnace, where air, reagent and fuel are added to continue the process.

The steam generator being used in the system will also be produced by SHI, although this type of generator is made by a number of U. S. and foreign manufacturers.

**Process Design**

Each of the two CFB Steam generators proposed for this project will be designed with the following process objectives:

| | |
|---|---|
| Steam Flow, lb/hr | 420,000 |
| Steam Pressure, psi | 1,650 |
| Steam Temperature, °F | 950 |
| Feed-Water Temperature, °F | 433 |
| Primary Fuel | 100 % TDF |
| Fuel Supply, lb/hr | 38,000 |
| Limestone Feed Rate, lb/hr | 5,460 |
| Heat Input Rate, $10^6$ Btu/hr | 525 |
| Air Heater Outlet Temperature, °F | 294 |
| Bottom Ash Flow, lb/hr | 5900[1] |

Fuel, bed material, and limestone are all fed into the fluidized bed through independent metering equipment. Heated air is fed into the bottom of the bed and provides the fluidizing action. Combustion is initiated by natural gas burners, which are turned off once the temperature of the bed is high enough to sustain combustion. Additional air, called secondary (or over-fire air) is admitted to the furnace above the fuel feed elevation to promote complete combustion of fuel. One of the operating characteristics of CFB technology is the completeness of fuel combustion, which makes CFB units highly efficient. The fuel in the bed is abraded by interaction with sand and reagent and is gradually reduced to near-zero volume with only wire and non-combustible elements remaining. The peak temperature in the fluid bed is approximately 1600°F.

The limestone reagent undergoes a chemical reaction in the CFB, in which limestone (calcium carbonate) is converted to lime (calcium oxide). The lime reacts with sulfur in the fuel to form calcium sulfate, most of which passes through the system as dust, and is collected in each fabric filter.

The non-combustible components of the fuel (ash), fine wires (formerly embedded in the TDF), tramp and some sand bed material are allowed to settle in the bottom of the bed and are constantly being removed to clean the bed of residual material and wires. This process is commonly referred to as bottom ash removal. Collected sand and any un-reacted reagent are readmitted to the furnace to maintain a highly efficient operation. Some sand is lost via the recirculation process, and new sand is added to the bed to make-up the loss. Removed wires will be recycled into the recovered metals market at a rate of 3,650 lb/hr, per steam generator.

The mixture of hot gas and particles rises to the top of the steam generator, where the gas is separated from the particles. The particles are recycled back to the bed to continue the process. In the process of being recycled back to the bed, the particles release heat to generate high temperature steam.

The hot gases (along with a small fraction of particulate) continue through the steam generation portions of the equipment and release heat to generate steam. Further gas cooling is accomplished by heating

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[1] Includes oversize tramp materials, bed loss and metal wires

water being supplied to the boiler in the economizer section of the steam generator. In order to maximize efficiency, final cooling of the gas is achieved by heating the inlet combustion air being used to fluidize the bed to 200°F. The temperature of the exhaust gas is reduced to 294°F at the outlet of the air heater. The air heater outlet is the end of the steam generator package.

The SHI scope of supply will start at the fuel day bins (two, at 5,500 cu. ft. each) and include the fuel metering equipment, fluidized bed and recirculation system, steam generator components (including superheaters and operational controls), evaporation sections, and economizer. Combustion equipment will include the primary and over-fire air fans, and air heater and ductwork. A limestone reagent silo (4,200 cu. ft.) and sand bed silo (1,500 cu. ft.) will also be provided, along with metering equipment for each boiler. The bed recycling system will include ten bed drawdown conveyors equipped with magnetic separators to remove wires remaining after combustion. The bed recycling system will include screens to remove oversize tramp materials from the bed material as it is recycled.

Natural gas will be used as a start-up fuel. Although the systems are scheduled to operate 24 hours/day, 365 days/year, there will be a few cold startups annually after maintenance activities. During startup operations gas will be supplied at approximately 323 MM Btu/hr. Each unit is equipped with three (3) startup burners rated at 87 MM Btu each and three (3) lance burners rated at 21 MM Btu each. Gas usage for a startup will typically ramp-up and wind-down over a 10-hour period. The average natural gas usage during a cold startup will be 178.4 mcf per hour. Hot starts will consume about 30% of the fuel required for a cold startup. Five to 10 hot startups are expected annually. Emissions during the start-up operation on natural gas will be less than during typical operations (combusting 100% TDF). Since emission estimates using 100% TDF are based on 8760 hours per year of operation, start-up emissions are not separately categorized in this application. Emissions during startup will also be processed through each air pollution control system. For these reasons, estimates during start-up are not included as part of the maximum modeling inputs. Additionally, since the emergency fire pump will only be tested when the CFB units are down for maintenance or in case of an emergency when the plant is in shutdown, the fire pump will be modeled separately for short-term standards.

Since the SHI scope of work does not include the flue gas treatment system, SHI's emissions guarantees are not necessarily the project guarantees. The emissions guarantees will be divided between SHI and Babcock Power Environmental (BPE), the supplier of the flue gas treatment system.

### 2.3 Air Pollution Control

The proposed facility's CFB steam generators will be equipped with state-of-the-art air pollution control equipment. Because TDF is not a fossil fuel, this facility is not in one of the 28 source categories in which the Prevention of Significant Deterioration (PSD) Potential to Emit (PTE) threshold is 100-tons per year. Nevertheless, since potential emissions from the facility are greater than 250 tons for CO and $NO_x$, the facility will be subject to PSD regulations and will require a full PSD evaluation, including a Best Available Control Technology (BACT) evaluation. Additionally, because the facility site is located in the Northeast Ozone Transport Region established by the Clean Air Act Amendments of 1990, and since the projected $NO_x$ emissions exceed 100 tons per year (tpy), the facility will be subject to the NSR non-attainment rules in 25 Pa. Code Chapter 127, Sub-chapter E. Because of these requirements, the facility will also be required to offset potential $NO_x$ emissions at a ratio of 1:15 to 1. $NO_x$ emissions will also have to undergo a Lowest Achievable Emission Rate (LAER) analysis to determine the appropriate $NO_x$ emission levels.

Since VOC emissions are projected to be less than 50 tpy, they are not subject to the NSR non-attainment requirements. VOC emissions are also not required to undergo a BACT evaluation because they are below 40 tpy. Nevertheless, a "top-down" evaluation was performed in Section 5 to determine BAT under Pennsylvania's requirements.

In order to meet Pennsylvania's stringent air emissions standards for this project, an extensive post-combustion plant will be added to the air heater outlet of the steam generator. This equipment will be provided by Babcock Power Environmental (BPE). The equipment will clean and convey the flue gas leaving the steam generator and deliver the cleaned flue gas to the stack exhaust. A separate flue gas treatment system will serve each of the SHI steam generators. Flue gases will be ducted to one 325' stack for the facility.

Each emission control system will consist of three major components:

- A Turbosorp® CFB scrubber
- A pulse jet type fabric filter (baghouse)
- A regenerative selective catalytic reactor (RSCR)

An induced draft fan will also be included in this equipment package to convey the gases through the system.

**Turbosorp® Scrubber and Fabric Filter**

BPE is the exclusive U.S. licensee of this technology[2]. The scrubber works in combination with a fabric filter, which is designed to capture and re-circulate solids to the scrubber to improve overall performance. The function of this equipment is to reduce acid gas content in the flue gas, absorb heavy metals, and collect solids resulting from various reactions. More specifically, the reaction of lime with acid gas and the contact of heavy elements with small amounts of activated carbon, if needed, provides the desired reaction to achieve required emission levels.

The Turbosorp® system works as follows: untreated flue gas leaves the steam generator air heater and enters the bottom of the scrubber vessel. The gas is then accelerated to a high velocity by passage through a venturi. Water, lime and activated carbon are injected into the gas stream downstream of the venturi, along with recirculated solids captured by the fabric filter. This mixture of materials forms a fluidized bed (similar to that in the steam generator) in a scrubber vessel called a turbo-reactor. Turbulent flow within the reactor permits intimate contact between the gas and reagents, promoting completeness of the chemical reaction between the gas and the active portions of the reagent. The gas-solid mixture is then cooled to about 165°F by the addition of water. (Scrubber quench water flow is expected to be 40,000 lb/hr.) Both gas and some of the solids exit the turbo-reactor and enter the fabric filter. The fabric filter separates the solids from the gas before exiting. The turbo-reactor and the fabric filter operate in a vacuum due to the location of the induced draft (ID) fan on the outlet of the fabric filter.

Solids collected from the fabric filter contain un-reacted reagent, inert dust and products of chemical reactions from both the steam generator fluid bed and the Turbosorp® fluid bed. These solids are recirculated back to the turbo-reactor to use the available reagent and promote the formation of the fluid bed. A portion of the recirculated solids is drawn out of the system to maintain mass equilibrium. The drawn off material, referred to as fly ash, is conveyed to an ash silo, which is periodically emptied into a closed truck for disposal in an approved manner.

The amount of lime consumption in this process is approximately 125 lb/hr. Provisions to inject activated carbon into the gas stream will be provided, but not implemented in the initial operation until a complete analysis of the exhaust gas is performed. This will allow the facility to fine tune the control system to maximize collection. The efficiency of the Turbosorp® process is expected to achieve extremely low emissions without the addition of activated carbon.

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[2] Austrian Energy & Environment AG, Austria

**Regenerative Selective Catalytic Reactor**

A regenerative selective catalytic reactor (RSCR) will be installed between the outlet of each ID fan and the stack. The purpose of this equipment is to convert $NO_x$ in the cleaned flue gas into nitrogen and water. These conversions result from gas to gas reactions and occur on the clean side of the fabric filter.

Each RSCR device will be a six-chamber reaction vessel, with each chamber containing catalyst and ceramic bed. Each chamber is arranged for vertical flow of gas in both the upward and downward direction. The directional flow of gas is controlled via valves built into the gas ductwork.

The catalyst is mounted directly above the ceramic bed. The catalyst promotes the reduction of $NO_x$ to nitrogen and water, while the ceramic bed is used to recover heat from the processed flue gas. The active reagent in this process is 19% aqueous ammonia.

Flue gas exiting the ID fan enters one of the reaction chambers and passes upward through the ceramic bed. The reagent is added to the gas stream as it enters the vessel. The ceramic bed, which is hot from the previous operating cycle, heats the gas. Since the desired reaction temperature is ~650°F, the flue gas is further heated by a direct fired, natural gas burner in the gas stream. Emissions from the RSCR natural gas burners are included in the stack emissions for the combustion units. The hot gas is then directed to a second chamber where it passes downward over a catalyst bed to achieve the required reduction in $NO_x$. The ceramic bed located immediately below the catalyst is heated by the passage of hot gas over the bed. This process cools the gas to 175°F before it exits the chamber.

Once the ceramic bed achieves a predetermined temperature, gas duct valves reverse the flow of gas to recover the heat captured on the outbound ceramic bed. This process reduces the amount of fuel required to heat the flue gas to the required reaction temperature.

Upon leaving the RSCR equipment, the cleaned flue gas enters the stack. The 11.5 foot diameter chimney is approximately 325 feet high and has an 8.5 foot diameter outlet nozzle. The stack outlet velocity is 82 ft/sec with a gas flow of 1,126,000 lb/hr for both steam generators combined.

As noted in the steam generator discussion, individual emissions will be guaranteed by both SHI and BPE. The conservatively projected emissions are as follows:

**Table 2-1**
**Projected Emissions from CFB Units**

| Pollutants | Emission rate Lbs./MM Btu |
|---|---|
| **Criteria** | |
| PM-10 | 0.02 |
| PM-2.5 | 0.01 |
| $NO_x$ | 0.055 |
| $SO_2$ | 0.031 |
| CO | 0.15 |
| VOC | 0.006 |
| Pb | $7.17 \times 10^{-6}$ |
| **Other Pollutants** | |
| HCl | 0.002 |
| HF | minimal |
| $H_2SO_4$ | 0.002 |
| Hg | $3.3 \times 10^{-7}$ |
| Dioxins/Furans | $7.7 \times 10^{-10}$ |
| $NH_3$ slip | 10 ppm |

Conservative estimates are being used for the air quality dispersion modeling to make sure that worst-case scenario impacts will be within acceptable levels.

The facility will be equipped with a continuous emissions monitoring (CEM) system to assure compliance with the air quality permit as well as applicable provisions in the New Source Performance Standards (NSPS), the Acid Rain requirements, Clean Air Interstate Rule (CAIR) and the $NO_x$ Budget programs. The CEM system will be located in the exhaust flue, downstream of the pollution control equipment. The CEM system will monitor exhaust gas flow, $SO_2$, $NO_x$, opacity, CO, PM, Mercury (if available) and $O_2$. Carbon dioxide monitoring may also be required as part of Greenhouse Gas (GHG) Reporting Rule. Estimates of the GHG,reported as $CO_2e$, is included in Section 3. Periodic source testing along with a consistent quality of TDF will guarantee continued compliance with established limits.

## 2.4 MATERIAL HANDLING AND STORAGE

The fuel for the proposed facility will be TDF processed from waste tires delivered by rail and truck six days per week from a number of suppliers. Most of the tires will be unloaded from rail cars indoors to control possible dust and noise. Tires delivered by truck will be unloaded adjacent to the enclosed tipping floor and transferred immediately indoors. Tires will not be stored in outdoor tire piles at the facility.

### 2.4.1 Tire Processing

The design basis for the tire shredding facility is to process 1,000 tons per day (TPD) of whole passenger car tires and truck tires into minus 2" TDF chips. The design features six processing lines, each rated at 15 tons per hour (TPH). Each line will be identical in terms of process flow and equipment. During normal operation, four of the six lines will be operated for 16 to 20 hours per day, corresponding to a daily rated capacity of 1,000 to 1,200 TPD. The remaining two lines are for standby purposes, utilized when one of the other lines is down for service or routine maintenance.

Whole passenger car and truck tires will be delivered to the facility by railcar and truck trailers. It is estimated that 80-90% of the tires will be received by rail and 10-20% by truck delivery. Tires will be received onto the enclosed tipping floor from rail cars and truck deliveries. Rail cars will be unloaded by a rotary car dumper inside the tire processing building. Trucks will be unloaded by one of two tippers located immediately south of the processing building. Tires will be conveyed immediately to the tipping floor for processing.

All of the truck tires will be de-beaded (*i.e.*, removal of the heavy wire at the rim of the tire) prior to start of the shredding process, and approximately half of the car tires will be de-beaded. Tires will be reclaimed from the tipping floor by loaders with clamshell type buckets and fed to one of four operating horizontal in-feed conveyors. Each horizontal in-feed conveyor meters the tires and places them onto the inclined conveyor, which feeds the tires to a primary shredder. The primary shredder is an hydraulic driven, low speed, self-reversing, high-torque shredder, equipped with a 500 HP motor and 3" cutters and will perform the first rough sizing of the tires (to approximately 4" minus size). The shredded tire chips leaving the primary shredder will be conveyed to secondary shredders, oriented at 90 degrees to the primary shredder. Each secondary shredder is an hydraulic driven, low speed, high-torque shredder, equipped with a 400 HP motor and 2½" cutters.

Following the secondary shredder, the shredded tire chips drop onto a vibrating taper slot finger screen. The finger screen is equipped with slot sizing to screen out chips that are less than 3" in size. Oversize material from this screen is conveyed back to the primary shredder for reprocessing. Undersize (-3") chips from the screen are conveyed to tertiary shredders, which are hydraulic driven, low speed, high-torque shredders equipped with a 250 HP motor and 1¾" cutters. These shredders will perform the final sizing of the fuel chips and will discharge onto a vibrating taper slot finger screen equipped with slot sizing to screen out chips that are less than 2" in size. Oversize material from this screen will be conveyed back to the tertiary shredders for reprocessing. Material passing through this screen is the desired -2" TDF, which will be conveyed via enclosed conveyor to the enclosed storage building for subsequent use in the fluidized bed steam generators.

With the exception of de-beading, the metallic components (fine wires) of the tires will remain in the tire chips throughout the shredding process. These fine wires will be separated from the combustible portion of the TDF during the combustion process.

The shredding and processing of tires has the potential to emit dust inside the tire processing building. Because control of dust is required for worker safety, suppression of fire risk, and elimination of fugitive emissions, dust will be controlled by the use of water sprays within each of the 18 shredder units (six lines of three shredders each). Each shredder will be equipped with a water spray that will be able to supply between 0.3 and 1.3 gpm to the unit to minimize the potential of dust inside the building. The water will be used to lubricate the cutters and suppress the formation of dust. Because of the use of water on each shredder, they will not need to be equipped with hoods or an air pollution control device. The building ventilation system will be such that there will be no fugitive emissions from this operation. The entire shredding area will be equipped with fire protection that will meet all NFPA 850 requirements.

### 2.4.2 TDF Storage Shed

The -2" TDF chips will be conveyed to a completely enclosed TDF storage area by an enclosed conveyor from the processing building to the storage building. The storage building will be sized to store three days of fuel (approximately 3000 tons) to allow continuous operation over periods of intermittent tire processing, such as weekends, processing equipment failures, and possible supply interruptions. This area will also be equipped with a fire protection system to meet NFPA 850 requirements.

### 2.4.3 Fuel Handling and Storage

A wheeled front-end loader will reclaim the TDF from storage onto a separate enclosed conveyor, which will carry TDF from the storage building to the two CFB units. Each CFB unit will be equipped with two, 5500 cu. ft. fuel storage bins to hold the fuel as it is being metered into the CFB unit for combustion.

### 2.4.4 Ash Byproducts Handling and Storage

The CFB combustion process is capable of utilizing TDF, sand and limestone. The limestone/sand ash byproduct material resulting from the combustion process comes from two areas:

- Bottom ash material from the two CFB boilers, and
- Fly ash material from the air pollution control device (fabric filter).

Bottom ash and fly ash material will be conveyed separately to on-site enclosed storage silos and then shipped off-site for re-use or to an approved disposal area, depending on market conditions. CRE and its principals have had numerous inquiries about acquiring the ash for beneficial re-use, which is preferred.

One 1050 cu. ft. capacity bin is provided with each CFB unit to hold bed material during boiler outages. These bins will be equipped with a fabric vent filter to accommodate the filling system. Emissions from these bins will be negligible and will only be used when the boiler is down for maintenance. Emission projections for other material handling based on 8760hrs of operation exceed any emissions from these bins.

Bottom ash comes directly from the fluidized bed. It is low in carbon content, and primarily consists of sand and tramp materials from the fuel (mostly wire fragments remaining after combustion). Wire fragments will be separated from the bottom ash by magnetic separation, then compacted and trucked off-site to a metals recovery facility. The wire component of the bottom ash is estimated to be approximately 3648 lbs/hr per boiler. The non-metallic bottom ash is estimated to be approximately 1332 lbs/hr per boiler, and will be collected from both units in a single 1788 cu. ft. bottom ash silo equipped with a fabric filter designed to handle 212 cfm. The bottom ash will be removed off-site and used as landfill cover or as a component of asphalt paving.

Fly ash exiting the CFB units will be collected from the fabric filters control device at a rate of 7,040 lbs/hr. The fly ash will be conveyed to a common ash silo capable of holding 10,000 cu. ft. (or 250 tons) of ash at 50 lb/ft$^3$ density. Preliminary design indicates that 1500 cfm of conveyance air will be discharged from the bin collector. Accordingly, the ash silo will be equipped with a fabric filter dust collecting system sized to accommodate the transport system. Ash will be unloaded periodically to an enclosed truck for removal from the site to a landfill. All of the truck loading will be done in an enclosed space.

### 2.4.5 Limestone and Hydrated Lime Handling and Storage

Pulverized limestone used for $SO_2$ emissions control will be delivered to the site by either rail or truck, then pneumatically transferred to one of the two 4,200 cu. ft. capacity limestone storage silos. Each limestone silo will be equipped with a bin vent dust collection system to eliminate possible limestone emissions. This limestone will be pneumatically conveyed by blowers from the silo to the CFB units. By transferring the limestone material via an enclosed system, the potential for fugitive dust emissions will be minimized.

Hydrated lime used for the Turbosorp® Scrubber systems will be delivered to the site by either rail or truck. This lime will then be pneumatically transferred to the top of each 750 cu. ft. capacity lime storage silo which will be equipped with a bin vent dust collection system to remove possible hydrated lime emissions.

The hydrated lime will be pneumatically conveyed by blowers from each silo to each Turbosorp® system upstream of each fabric filter for use as a polishing scrubber for additional $SO_2$ control. By transferring the hydrated lime via an enclosed system the potential for fugitive dust emissions will be minimized. It is estimated that 125 lbs/hr. of hydrated lime will be used in each scrubber system.

### 2.4.6 Sand Handling and Storage

Fluidized bed material (sand) will be delivered to the site by either rail or truck, and then transferred pneumatically to the top of each 1500 cu. ft. capacity storage silo. There is one silo for each CFB unit. Each silo will be equipped with a bin vent dust collection system to eliminate possible emissions.

Silo bed material will be pneumatically conveyed by blowers to the CFB steam generators to develop a bed inside the boiler. By transferring the bed material via an enclosed system, the potential for fugitive dust emissions will be minimized.

### 2.4.7 Ammonia Handling and Storage

Aqueous 19% ammonia will be delivered to the site by means of rail or truck. The ammonia will be stored in a 19,500 gallon tank (proposed) equipped with a pressure relief valve designed to fire code standards. Aqueous ammonia will be pumped to the top of the tank for use in each RSCR system.

### 2.4.8 Activated Carbon Storage

Activated carbon will be delivered to the site in 500 lb. bags. A delivery system will be established to deliver the carbon into the system on an as-needed basis. Although it is uncertain if carbon will be needed, a mechanism to inject carbon is being incorporated into the system as a contingency option.

The potential for fugitive emissions from this operation is minimal.

### 2.5 Cooling Tower

A five-cycle cooling tower is planned for this operation. Because wet cooling towers provide direct contact between cooling water and air passing through the tower, some water may be entrained in the air stream and carried out of the tower as drift droplets. Because of this, the particulate matter constituent of the drift droplets are classified as a particulate emission based on the solids content of the liquid. The cooling tower will have a discharge temperature of 70°F and an evaporation rate of 800 GPM. Emissions from the cooling tower are estimated to be 1.55 lbs/hr. In an effort to be conservative for air dispersion modeling all emissions were estimated as PM, PM-10 and PM-2.5.

### 2.6 Ancillary Equipment

Although CRE believes the risk of fire is extremely remote, a firewater pump has been provided as part of the integrated facility emergency response system design. In order to operate the pump in emergency situations, a 250 hp diesel-fired engine will be provided. The firewater pump will meet all of the requirements in the NSPS. Because the firewater pump will only be used for testing and emergencies, emissions from using the pump will be minimal in nature. It has been estimated that the firewater pump will operate for approximately 20 hours per year. The firewater pump will only be tested during unit maintenance outages.

In addition to the above mitigation measures, CRE plans to work closely with both the Township's Fire Department and County Officials to assure that emergency personnel are trained to handle possible site emergencies.