Illinois Environmental Protection Agency
Bureau of Air
1021 N. Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9276

PROJECT SUMMARY FOR A CONSTRUCTION PERMIT APPLICATION FROM WASHINGTON MILLS FOR A FIFTH FURNACE GROUP AT ITS SILICON CARBIDE PLANT LOCATED IN HENNEPIN, ILLINOIS

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Illinois EPA Contacts
Permit Analyst: Kevin Hecht
Community Relations Coordinator: Brad Frost

I. INTRODUCTION

Washington Mills (formerly Exolon Company) has submitted an application for a permit to construct an additional fifth furnace group at its existing silicon carbide plant located in Hennepin, Illinois. The new furnace group would increase the production capacity of the plant and enhance the plant's ability to produce higher grades of silicon carbide.

The Illinois Environmental Protection Agency (Illinois EPA) has reviewed the applications from Washington Mills and has made a preliminary determination that the application for the additional furnace meets applicable requirements. Accordingly, the Illinois EPA has prepared draft versions of the air pollution control construction permits that it would propose to issue for this project. However, before issuing this permit, Illinois EPA is holding a public comment period to receive comments on the proposed issuance of this permit and the terms and conditions of the draft permit.

II. BACKGROUND

Silicon carbide (SiC) is a very hard, crystalline substance that is used in abrasives and in a variety of roles in the steel industry. Relatively new uses of silicon carbide are in the manufacture of semiconductors and in particulate filters for the exhaust from diesel engines for motor vehicles. Silicon carbide is commonly produced by electrically heating a mixture of sand and petroleum coke to temperatures on the order of 4000 °F. The sand, which is silica or SiO_2, provides the silicon for the silicon carbide. The petroleum coke, which is a byproduct from petroleum refineries, is primarily carbon and supplies the carbon for the silicon carbide. Washington Mills' plant in Hennepin is the only silicon carbide manufacturing plant in the United States.

Washington Mills produces silicon carbide in furnaces that are located outdoors. The furnaces are large piles of a mixture of sand and petroleum coke, carefully arranged around a central graphite electrode. The furnaces are arranged in groups of four, with furnace separate furnace positions and a single electrical transformer. Only one furnace position at a time in each group is heated, with electric power applied to the graphite electrode in the center of the pile. The duration of this "heating phase" for the furnace is approximately 10 days, varying due to the rate at which electric power is actually supplied to the furnace, which is managed to minimize peak electrical rates or match the demand for silicon carbide product. While one furnace in a furnace group is in the heating phase, the other three positions in the furnace group are either: 1) Being cooled, having just completed the heating phase, 2) Being dismantled to recover the raw silicon carbide, or 3) Being built up with fresh material in preparation for the heating phase.

During the heating phase, the hot furnaces generate an off-gas that is mainly steam and hydrogen (H_2) as a byproduct of the reactions by which silicon carbide is formed. This off-gas also contains particulate matter, carbon monoxide (CO), hydrogen sulfide (H_2S), carbon disulfide (CS_2), and carbonyl sulfide (COS). This off-gas is captured and ducted to an emission control system.

The off-gas is captured by slotted piping permanently buried in the porous rock foundation of each furnace position. The off-gas is also captured by a plastic tarp that is placed over the top of the furnace pile and exhausted through another "top" gas collection pipe. When electric power is applied to a furnace during the heating phase, the off-gas collected beneath the tarp lifts the tarp off the surface of the pile and an automatic pressure valve on the top gas collection pipe maintains a slight positive pressure under the tarp to keep the tarp from touching the surface of the pile. The bottom gas collection pipe from the piping beneath the furnace and the top gas collection pipe are merged and connected to the gas main, where blowers move the collected off-gas to the emission control system.

The emission control system consists of series of control devices.[1] A "pre-quench" mist eliminator first removes the particulate matter that is entrained in the off-gases. This is followed by a Sulferox® control system to remove H_2S from the off-gas, recovering it as sulfur. The other gaseous pollutants pass through the Sulferox system to a thermal oxidizer or an afterburner, in which the remaining traces of H_2S and other sulfur compounds in the off-gas are combusted to sulfur dioxide (SO_2) and the carbon monoxide (CO) is combusted to carbon dioxide (CO_2).

The Sulferox process both captures the H_2S in the off-gases and converts the H_2S to elemental sulfur in a single unit using a proprietary solution that contains ferric iron. This sulfur is then filtered from the solution and the iron in the solution is regenerated to enable the solution to be reused. During periodic maintenance of the Sulferox system, which is necessary for its proper functioning, the off-gas bypasses this system and goes directly to the afterburner. (For Furnaces 1, 2 and 3, in the event of maintenance or other outage of the primary afterburner, by-passed off-gas goes to individual secondary afterburners, with 16 meter high stacks, rather than the primary afterburner, which has a 33 meter high stack.) During such periods of bypass, the operating level of the plant must be reduced.

The off-gas collection and control systems also capture and control the residual off-gas in the furnaces while furnaces are in the initial cooling phase after the heating phase is completed and electric power to the furnace is disconnected. During the initial cooling phase, all off-gas under the tarp that can be collected is exhausted to the control system. The off-gas under the plastic tarp is automatically collected by the top gas collection pipe and exhausted to the control system until the pressure of the gas under the tarp drops to the level at which the valve on the gas collection pipe closes. The collection pipe is then manually opened and the remaining off-gas under the tarp that can be collected is exhausted to the control system. The "active cooling" phase then follows, with removal of the plastic tarp from the furnace pile, stripping of several feet of unreacted material from the top of the pile, and application of a water spray to rapidly cool the hot material that has been exposed. The bottom gas collection system continues to operate into the

[1] The original plant, which began operation in 1979, had only three furnace groups. The control system for the off-gas consisted only of afterburners. The plant added a fourth furnace group in 1990 and the Sulferox system was installed in 1998. The Illinois EPA is not aware of any other silicon carbide plants that have an SO_2 control system, as is present at this plant, that is being operating at the source's rather than government expense.

active cooling phase until the oxygen level in the collected off-gas reaches a level at which collection must be terminated to prevent unsafe levels of oxygen in the off-gas in the piping and gas main.

During outages of the capture or control system, emissions are minimized by reducing the operating level of furnace(s). This gradually slows generation of off-gases but does not stop them because of the residual heat and off-gases already contained in the furnace(s). In most cases, the power cannot be completely shut off because electric power must be kept at a level that assures that the integrity of the tarps is maintained.

In addition to the furnaces, the plant also has facilities for handling and processing of raw materials and product silicon carbide. Sand and coke are handled at the plant and mixed in the appropriate ratio for conversion to silicon carbide. Crude silicon carbide from the furnaces is screened, sorted by grade, and stored pending shipping to customers.

III. PROPOSED PROJECT

The existing plant has four furnace groups. Washington Mills is proposing to construct a fifth furnace group. The new furnace group would increase the production capacity of the plant. It would also enhance the ability of the plant to produce higher grades of silicon carbide. The new furnace group would be essentially identical to the four existing furnace groups. The emissions of the new furnace would be controlled by the existing control system, including the existing Sulferox unit, which Washington Mills has determined has sufficient capacity to control the off-gas from a fifth furnace. The existing facilities at the plant for handling of raw materials and crude silicon carbide also have the capacity to support a fifth furnace group.

In conjunction with the proposed project, Washington Mills has also requested revisions to the permitted emissions of particulate matter from its existing furnaces. This request has been made to address the results of recent emission testing for the furnaces, which showed higher mass emissions rates than were previously measured.

IV. PROJECT EMISSIONS

The potential emissions of the proposed project are summarized in Attachment 1.[2] The actual emissions from the project would be less than its potential emissions as the new furnace group operates at less than its maximum capacity and emission rates are normally lower than the applicable standards and limitations.

Based on its potential emissions, the proposed project would be accompanied by significant increases in the emissions of the plant for SO_2 and particulate matter, determined as “total suspended particulate matter” or PM, PM_{10} (i.e., particulate with an aerodynamic diameter that is no more than 10 microns), and $PM_{2.5}$ (i.e., particulate with

[2] Attachment 1 is also Attachment 1 of the draft construction permit for the proposed project.

an aerodynamic diameter that is no more than 2.5 microns).[3] The project would not be significant for other criteria air pollutants.

The potential emissions of hazardous air pollutants (HAPs) from the new furnace group would be less than the de minimis levels established by USEPA in 40 CFR 63.41.[4] Accordingly, this project is not considered a modification for purposes of Section 112 of the Clean Air Act, Hazardous Air Pollutants.

IV. APPLICABLE EMISSION STANDARDS

The emission units at proposed plant will be subject to the general state emission standards for process emission units. The application indicates that the proposed project will comply with applicable state emission standards.

The USEPA has not developed any New Source Performance Standards or National Emission Standards for Hazardous Air Pollutants that apply to the manufacture of silicon carbide.

V. APPLICABILITY OF THE FEDERAL RULES FOR PREVENTION OF SIGNIFICANT DETERIORATION (PSD)

The proposed project is subject to the federal rules for Prevention of Significant Deterioration of Air Quality (PSD), 40 CFR 52.21, for emissions of SO_2 and PM. The PSD rules are potentially applicable to the project as Hennepin is located in Putnam County, which is designated attainment for all criteria pollutants. As already explained, this project would be accompanied by significant increases in emissions of SO_2 and PM, so the proposed project is a major project for these pollutants for purposes of PSD. Since the project is not accompanied by significant increases in emissions for other New Source Review pollutants, the proposed project is not a major project for other pollutants.

The PSD rules require a Best Available Control Technology (BACT) determination for the new furnace group, an ambient air quality analysis for the plant's emissions of SO_2 and PM, and analyses of other potential impacts from the project.

VI. BEST AVAILABLE CONTROL TECHNOLOGY (BACT)

BACT is defined by Section 169(3) of the federal Clean Air Act as:

> An emission limitation based on the maximum degree of reduction of each pollutant subject to regulation under this Act emitted from or which results from any major emitting facility, which the permitting authority, on a case-by-case basis, taking into

[3] For SO_2, the potential emissions of the project as described by Washington Mills are more than 40 tons per year. For particulate matter, the potential emissions are more than 25, 15 and 10 tons per year for particulate matter determined as PM, PM_{10} and $PM_{2.5}$, respectively.

[4] The potential emissions of HAPs from the new furnace group, which would be a new process or production unit at the plant, would be less than 10 tons per year of any HAP or 25 tons per year of any combination of HAP.

> account energy, environmental and other costs, determines is achievable for such facility through application of production processes and available methods, systems and techniques, including fuel cleaning, clean fuels, or treatment or innovative fuel combustion techniques for control of each such pollutant.

BACT is generally demonstrated using a "top-down" methodology. Available control technology options are identified based on knowledge of the source and previous regulatory decisions for other identical or similar sources. These alternatives are then ranked in descending order of control effectiveness (i.e., the "top" option is the most stringent). The feasibility or appropriateness of each alternative as BACT is based on technical feasibility and economic, energy, and environmental impacts. If the top control alternative is technically infeasible or is otherwise rejected as inappropriate after considering site-specific impacts, it is rejected and the next most stringent alternative is then considered. This process continues until a control alternative is determined to be technically feasible and without adverse economic, energy, and environmental impact. This alternative is then selected as BACT.

Under the PSD rules, Washington Mills must demonstrate that BACT will be used to control emissions of SO_2 and PM from the new emission units that would be constructed as part of this project, i.e., Furnace Group 5. BACT is not required to be shown for the existing facilities for handling of raw materials and processing of crude silicon carbide product, which would not be physically modified as part of this project. However, the original facilities for handling of raw materials and processing of crude silicon carbide product and the existing four furnace groups at the plant are already subject to BACT, as established in earlier Construction Permits/PSD Approvals issued for the plant. The BACT demonstration submitted by Washington Mills for the proposed project builds upon and supplements the previous BACT determinations that were made for operations at the plant to determine whether more stringent control measures are now available for the proposed fifth furnace group.

<u>Furnace Off-Gas: Emissions of Sulfur Dioxide (SO_2)</u>

Washington Mills has proposed that BACT for emissions of SO_2 from the proposed fifth furnace group would be provided by the existing Sulferox® sulfur removal system. The application includes an evaluation of the control systems that might be applied to the new furnace group. The two basic approaches available for control of SO_2 emissions are pre-combustion control and post-combustion control. With pre-combustion control, the off-gas from the furnace is processed to remove sulfur before being sent to the afterburner, which acts to reduce the amount of SO_2 emissions that are generated. With post-combustion control, the off-gas is first combusted, with essentially all sulfur in the off-gas converted to SO_2, and the flue gases are then scrubbed to remove SO_2 emissions. With pre-combustion control, a much smaller volume of flue gas must be processed as the off-gas has not been diluted with air needed for combustion. This enables more effective control of the sulfur as the concentration of sulfur in the off-gas is much higher. In addition, the sulfur can be controlled by conventional chemical processes that directly

convert the gaseous sulfur in the off-gas to solid sulfur. This sulfur can be readily disposed of in a landfill if there is not a market for the material.

Post-combustion control does not have the advantages of pre-combustion control. Because the concentration of SO_2 in the flue gas is much lower, effective post-combustion control of SO_2 is more difficult. Scrubbers must be used that rely upon the ability of lime or limestone, depending on the type of scrubber, to absorb and bind with the SO_2 in the flue gas. The scrubber must operate under the more challenging conditions of processing a hot flue gas. In addition, the lime or limestone is consumed by the scrubbing process so that the volume of waste from the scrubber is several times the volume of the SO_2 that is being controlled. Because of these considerations, pre-combustion control is routinely used to remove sulfur compounds from gas streams that will be combusted. There are a number of different proprietary chemical processes available for treatment of gas streams to remove sulfur compounds. The processes have different attributes that make them more suitable for different applications, such as the initial processing of raw natural gas in the field or processing of byproduct fuel gas at petroleum refineries.

Washington Mills has shown that the most effective pre-combustion control technology for its silicon carbide furnaces is Dow's Sulferox® process. The Sulferox process is a robust chemical process that is increasing coming into use for specialty applications. Its ability to control sulfur in the off-gas from silicon carbide furnaces is now well demonstrated by its years of use on Washington Mill's existing furnaces. The Sulferox process can accommodate the variation in the flow rate of off-gas and the presence of some oxygen in the off-gas, as is inherent in certain phases of the silicon carbide production.

The Sulferox process is very effective for control of H_2S, which is the chemical form in which most sulfur is present in the off-gas, achieving over 98 percent control of H_2S. This reduces the concentration of H2S in the off-gas to no more than 500 ppm. However, due to the carbonyl sulfide (COS) and, to a lesser extent, the carbon disulfide (CS_2) that are also present in the off-gas, the overall sulfur removal efficiency of the Sulferox system is only about 82.5 percent. As part of this application, Washington Mills investigated possible improvements to the existing Sulferox system that could be made to enhance control of SO_2 by "pre-treating" the off-gas before the Sulferox to convert COS into H_2S by hydrolysis. This investigation found that this enhancement is not feasible. This is because the oxygen present in the off-gas would have effects that would interfere with the operation of the catalyst needed to facilitate the hydrolysis reaction. Hydrolysis units have only been used on gas streams in which oxygen is not present. Based on these considerations, the Illinois EPA is proposing that the existing Sulferox system generally be accepted as BACT for SO_2 emissions from the proposed fifth furnace group.

The further consideration for the BACT determination for SO_2 is provision for interruption in the operation of the Sulferox system. The flow of off-gas from the silicon furnaces cannot be stopped instantly as the interior of a furnace pile stays hot even after the electrical power is turned off. In addition, the electricity cannot be completely turned

off because the plastic tarp would collapse and melt on the warm surface of the furnace pile so as to no longer capture the off-gas. This would let off-gas containing H_2S be emitted directly to the atmosphere, rather than continuing to be captured, with the H_2S being destroyed by an afterburner, with sulfur being emitted as less noxious SO_2. Washington Mills is currently allowed to continue to have three furnaces operating in the heating or initial cooling phase during scheduled maintenance and malfunction or breakdown of the Sulferox system for up to 504 hours per year (equivalent to three weeks per year). The electricity to the fourth furnace in the heating or initial cooling phase must be reduced to the minimum level possible while still ensuring that the integrity of the tarp would be maintained. Washington Mills must also expeditiously complete necessary maintenance or repairs to return the Sulferox system to normal operation. These provisions reasonably account for outages of the control system for the furnaces, which are a type of emission unit whose operation cannot be readily discontinued. These provisions certainly represented an appropriate approach to operation of the Sulferox system when it was installed in 1998 as the system served to control emissions of SO_2 that had previously not been captured. Actual operation of the Sulferox system has confirmed that the existing allowance for bypass of the Sulferox system reasonably accommodates outages of the system, with such outages averaging about 475 hours per year during recent years, compared to the 504 hours that are allowed.

The Illinois EPA is not proposing to revisit the existing allowance for bypass of the Sulferox system with the proposed addition of a fifth furnace group. However, the Illinois EPA is also not proposing to expand this allowance. Following the addition of a fifth furnace group, Washington Mills would still be required to reduce the number of operating furnaces to three furnaces, consistent with current requirements.

Furnace Off-Gas: Emissions of Particulate Matter (PM)

Washington Mills has proposed that BACT for emissions of PM from the proposed fifth furnace group would also be provided by the existing control system used on the existing furnaces, which removes filterable PM from the off-gas prior to combustion. Similar issues apply for pre-combustion and post-combustion control of PM as present for control of SO_2 emissions. In addition, "pre-cleaning" of the off-gas is needed to minimize the introduction of particulate into the Sulferox system. Both the existing pre-quench-mist eliminator by itself and the combination of the pre-quench-mist eliminator and the Sulferox system are effective in reducing the loading or concentration of filterable particulate in the off-gas to less than 0.01 gr/dscf, measured as total PM. Post-combustion control would not be effective in further reducing emissions as the concentration of particulate in flue gas would be diluted by combustion air. Even assuming that a dry electrostatic precipitator, the feasible post-combustion control device,[5] would actually be effective in further controlling emissions, Washington Mills' cost evaluation showed cost-effectiveness values that are well above the level expended for control of typical particulate matter. Based on these considerations, the Illinois EPA is proposing that the

[5] Fabric filtration was determined to be infeasible because of the high moisture content of the exhaust gas. In addition, an economic evaluation would show similar, if not higher, cost-effectiveness values for control of particulate with fabric filtration as with a dry electrostatic precipitator.

existing control system generally be accepted as BACT for PM emissions associated with the off-gas from the proposed fifth furnace group.

Emissions of SO_2, as they are a precursor to formation of $PM_{2.5}$ in the atmosphere, are controlled by the Sulferox system, as has already been discussed.

Furnace Piles: Emissions of Particulate Matter (PM)

Fugitive emissions of PM from dismantling of furnaces to recover the raw silicon carbide or building up furnace with fresh material in preparation for the heating phase must also be subject to BACT. The Illinois EPA is proposing to set BACT as the implementation of good air pollution control practice to minimize PM emissions. This is because the handling of sand, petroleum coke, and silicon carbide as part of the operation of the furnaces has not normally been found to be a source of PM emissions. If emissions are present, water can be readily added to raw materials or sprayed on a furnace pile to control PM emissions.

Roadways and Open Areas: Emissions of Particulate Matter (PM)

Fugitive emissions of PM or dust from new roadways and other open areas associated with the additional furnace group must also be subject to BACT. The Illinois EPA is proposing that BACT for these units be a fugitive dust control program that provides for the regular application of water or dust suppressant or, for units that are paved, regular treatment to collect or remove material deposited on such units. The proposed BACT determination is intended to require that these emissions be effectively controlled while still providing appropriate operational flexibility in the manner with which this is accomplished in practice by Washington Mills. This general approach has been taken because of the Illinois EPA's experience with fugitive dust control programs. This experience indicates that dust control programs must be flexible to appropriately respond to changing operation and the weather (rain, hot, dry weather in the summer, and snow and ice in the winter). In addition, dust control programs change and evolve over time as new control techniques and service providers become available to control emissions.

VII. IMPACT ANALYSES

Air Quality Impact Analysis

Because this project is considered a major project for emissions of SO_2 and PM under the PSD rules, an air quality analysis has been completed for this project for SO_2 and PM_{10} air quality. Air quality analysis is the process of predicting ambient concentrations in an area due to a project using a combination of computer modeling and ambient air monitoring data. The resulting concentrations are then compared to air quality standards established by the United States EPA. These standards define levels of ambient air quality for the major air pollutants at which adverse human health impacts and welfare impacts may occur. Based upon the nature and effects of a pollutant, appropriate numerical limitation(s) and associated averaging times are set to protect against adverse

impacts on human health and the environment. The analysis for the proposed project was conducted using the latest USEPA-approved dispersion model, AERMOD. The analysis shows that the SO_2 and PM_{10} impacts from the project will meet the National Ambient Air Quality Standards (NAAQS) and PSD increments, as shown below.

The initial analysis necessary for this project under the PSD rules evaluated whether the furnace would have "significant impacts" for SO_2 and PM_{10}. In its guidance for the performance of PSD air quality analyses, USEPA has established Significant Impact Levels for different averaging times and pollutants. If modeled impacts of a project are above the level for a pollutant, a more refined air quality analysis is required under the PSD rules. This more refined analysis must also address existing emission units at the source at which a project is located and other large stationary sources in the surrounding area, in addition to the proposed project. The significant impact levels are a fraction of the applicable National Ambient Air Quality Standards for a pollutant, which are the threshold levels set by USEPA for health and welfare effects from a pollutant.

The initial analysis conducted for the proposed limits showed maximum impacts for SO_2 and PM_{10} air quality are above the applicable significant impact levels. Because the maximum impacts exceeded the PSD significant impact levels, further modeling had to be performed to address to address both the ambient air quality standards and the PSD Increments.

Table 1. Significant Impact Modeling (ug/m^3)

Pollutant	Averaging Period	Maximum Predicted Impact	Significant Impact Level
SO_2	3-hour	69.8	25
	24-hour	16.6	5
	Annual	1.24	1
PM_{10}	24-hour	23.7	5
	Annual	2.74	1

The first part of the further air quality analysis involved modeling to confirm that the National Ambient Air Quality Standards (NAAQS) would not be violated. This modeling combines the maximum modeled impacts for the permitted emissions requested by Washington Mills for the plant and the emissions of existing large sources in the area, with representative background concentrations from ambient monitoring stations operated by the Illinois EPA. The results of this analysis, as provided below, show that the proposed project will not cause or contribute to violations of the applicable NAAQS.

Table 2: Results of the NAAQS Analysis (ug/m^3)

Pollutant	Averaging Period	Maximum* Modeled Impact	Monitored Background	Total Impact	NAAQS
SO_2	3-hour	762.2	206.1	968.3	1300
	24-Hour	245.7	103.3	348.9	365

	Annual	24.9	15.7	40.7	80
PM_{10}	24-Hour	101.5	47.5	149.0	150
	Annual	20.3	27.0	47.3	50

* The maximum air quality impacts are determined using the appropriate procedure for consistency with the applicable measure of air quality impact, as follows: Highest average of annual data for five years for the annual NAAQS and highest second high in five years for the hourly NAAQS.

The other part the further analysis involved modeling the requested increase in emissions and all other new and modified units in the area that consume PSD increment to determine whether the PSD increment will be exceeded. This analysis was done with an inventory of increment consuming emission units supplied by Illinois EPA. The results of the increment consumption modeling, as provided below, show that this project will not result in an exceedance of the SO_2 or PM_{10} increments.

Table 3: Increment Consumption (ug/m^3)

Pollutant	Averaging Period	Maximum* Increment Consumed	Applicable Increment
SO_2	3-Hour	139.4	512
	24-Hour	30.8	91
	Annual	3.54	20
PM_{10}	24-Hour	22.6	30
	Annual	3.2	17

* The maximum air quality impacts are determined using the appropriate procedure for consistency with the applicable measure of air quality impact, as follows: Highest 1st high for the annual increment and highest second high for the 3-hour and 24-hour increments.

The results from the NAAQS analysis for PM_{10} were used to assess impacts on air quality for $PM_{2.5}$. For this purpose, the impacts of the plant for $PM_{2.5}$ were derived from the modeling for consumption of PSD increments for PM_{10} using standard ratios for the fraction of PM_{10} that is $PM_{2.5}$. This is a conservative approach to addressing air quality impacts as the impacts of the existing plant are “double counted” as existing source are generally also accounted for in the background levels of air quality. This assessment shows that this project will not cause an exceedance of the NAAQS for $PM_{2.5}$.

Table 4: Results of the Assessment for $PM_{2.5}$ NAAQS (ug/m^3)

Averaging Period	Maximum Modeled Impact	Monitored Background	Total Impact	NAAQS
24-Hour	6.1	26.7	32.8	35
Annual	1.1	10.4	11.5	15

Additional Impacts Analysis

The application included an additional impact analysis discussing the emissions impacts resulting from general residential, commercial and industrial growth associated with the proposed project. Anticipated growth associated with the proposed project is expected to minimal as any additional employment resulting from the project would likely be supplied by the existing workforce in the area.

Similarly, other impacts of the projects of the project are not expected to be significant as the project involves a proposed expansion of an existing plant.

X. PERMIT CONDITIONS

The conditions of the draft permit would set forth the air pollution control requirements that Washington Mills must meet with the proposed project. These requirements include the applicable emission standards that apply to the project. They also include the measures that must be used and the emission limits that must be met as BACT for emissions of SO_2 and PM. The permit also establishes enforceable limitations on the amount of emissions for which the plant is permitted with a fifth furnace group. In addition to annual limitations on emissions, the permit includes short-term emission limitations and operational limitations, as needed, to provide practical enforceability of the annual limitations.

The permit also establishes appropriate compliance procedures for the ongoing operation of the plant, including requirements of emission testing, required work practices, operational monitoring, recordkeeping, and reporting. These measures are imposed to ensure that the operation and emissions of the plant are appropriately tracked to confirm compliance with the various limitations and requirements established for individual emission units.

XI. REQUEST FOR COMMENTS

It is the Illinois EPA's preliminary determination that the application of the proposed project meets applicable state and federal air pollution control requirements. Illinois EPA is therefore proposing to issue a construction permit for the project.

Comments are requested on this proposed action by Illinois EPA and the conditions of the draft permit.

ATTACHMENT 1: SUMMARY OF PROJECT EMISSIONS

Summary of Project Emissions* (Tons/Year)

Operation	NO_x	CO	SO_2	VOM (w/CS_2 & COS)	PM	H_2S	TRS
Furnace Group 5*	37.8	96.9	507.4	32.0	27.0	8.0	9.0
Material Handling							
Raw Material Handling	-	-	-	-	2.3	-	-
Product Handling	-	-	-	-	4.7	-	-
Subtotal	-	-	-	-	7.0	-	-
Combustion Units							
Sulferox Heater	0.1	0.1	-	0.1	0.1	-	-
Product Dryer	0.4	0.3	-	0.1	0.1	-	-
Subtotal	0.5	0.4	-	0.2	0.2	-	-
Roadways	-	-	-	-	8.0	-	-
Total	**38.3**	**97.3**	**507.4**	**32.2**	**42.2**	**8.0**	**9.00**
PSD Significance Threshold	40	100	40	40	25/15/10	10	10
Greater Than Threshold?	No	No	Yes	No	Yes	No	No

* This summary does not account for fugitive emissions of pollutants other than SO_2, PM (PM, PM_{10} and $PM_{2.5}$) and HAPs from Furnace Group 5.