Illinois Environmental Protection Agency
Bureau of Air, Permit Section
1021 N. Grand Avenue East
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Project Summary
Carus Chemical Company
Renewal - Federally Enforceable State Operating Permit (FESOP)
LaSalle, Illinois

Site Identification No.: 099030AAB
Application No.: 72100536

Schedule
Public Comment Period Begins: October 23, 2013
Public Comment Period Closes: November 22, 2013

Illinois EPA Contacts
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I. Introduction

The Carus Chemical Company has applied for renewal of its Federally Enforceable State Operating Permit (FESOP) for their inorganic chemical manufacturing plant. This plant requires an air pollution control operating permit because it is a source of emissions. The Illinois EPA has prepared a draft of the renewed permit that it would propose to issue for the plant. However, before renewing the permit, the Illinois EPA is holding a public comment period to receive comments on this proposed action and the terms and conditions of the draft permit that it would propose to issue.

II. Source Description

Carus Chemical Company produces inorganic chemicals. The equipment at the facility that requires air pollution control permits includes mixing and reacting, storage and dispensing. Two boilers are used for heating the processes. The production of these inorganic chemicals produces particulate matter and hazardous air pollutants (manganese that are emitted to the atmosphere). The facility has limited their material usage such that it will keep the emissions below the major source-threshold levels of 100 tons/year for Carbon Monoxide (CO), Nitrogen Oxides (NO_x), and Particulate Matter less than 10 microns (PM_{10}), 10 tons/year for any single Hazardous Air Pollutant (HAP) and 25 tons/year for any combination of such HAPs, and 100,000 tons of Carbon Dioxide equivalent (CO_2e) per year for Green House Gases (GHG)).

List of Emission Units:
<u>Permanganate Plant:</u>
Surge Hopper #1 (PACK-BIN-260) controlled by Filter Bin (PACK-DCL-005);
Surge Hopper #2 (PACK-BIN-261) controlled by Filter Bin (PACK-DCL-006);
Weigh Hopper (PACK-BIN-913) controlled by Dust Collector (PACK-DCL-007);
Blender Transporter (PACK-COV-015) controlled by Dust Collector (PACK-DCL-004);
South Silo (PACK-BIN-910) (Pilot Plant) controlled by Dust Collector (PACK-DCL-011);
South Center Silo (PACK-BIN-909) controlled by Dust Collector (PACK-DCL-011);
North Center Silo (PACK-BIN-908) controlled by Dust Collector (PACK-DCL-009);
North Silo (PACK-BIN-907) controlled by Dust Collector (PACK-DCL-008);
Recycle TK (PACK-BIN-916) controlled by Dust Collector (PACK-DCL-015);
Cycle Bin (PACK-BIN-905) controlled by Dust Collector (PACK-DCL-016);
Bulk FF Bin & Bulk Tech (PACK-BIN-903) controlled by Dust Collector (PACK-DCL-013);
Packaging Silo (PACK-BIN-802) controlled by Dust Collector (PACK-DCL-014);
Evaporator Marley Cooling towers – Cell 1 (EVAP-COO-001)

Evaporator Marley Cooling towers – Cell 2 (EVAP-COO-002)
North Ore Storage Bin (ORES-BIN-007) controlled by Dust Collector (ORES-DCL-001)
South Ore Storage Bin (ORES-BIN-008) controlled by Dust Collector (ORES-DCL-002)
Cairox Ore Use Bin #1 (ORES-BIN-001) controlled by Dust Collector (ORES-DCL-003)
Cairox Ore Use Bin #2 (ORES-BIN-002) controlled by Dust Collector (ORES-DCL-004)
Cairox Ore Use Bin #3 (ORES-BIN-003) controlled by Dust Collector (ORES-DCL-005)
#1 Oxidizer Cooling/Condensing Tower (OXID-COO-001) controlled by Dust Collector (ORES-DCL-001)
#2 Oxidizer Cooling/Condensing Tower (OXID-COO-002) controlled by Dust Collector (ORES-DCL-001)

Cairox Finished Product Dryer controlled by Old Schneible Wet scrubber & cyclone (PACK-DCL-001)
KOH Surge Tank (CONC-TNK-001)

Cairox Process (Permanganate Process)
Cairox Packaging & Blending Dust Pickups (PACK-BIN-902) controlled by New Schenible wet scrubber & cyclone (PACK-DCL-003)
Cairox Bulk Storage Tank & Loading Station (PACK-BIN-903) controlled by New Schenible wet scrubber & cyclone (PACK-DCL-003)
#3 Oxidizer Cooling/Condensing Tower (OXID-COO-003)
Pneumatic Transfer of Lime to storage Bin from Tank Truck (LIME-BIN-001) controlled by Baghouse (LIME-DCL-001)
Lime Slaker Tank (LIME-TNK-001)
Screw Conveyor #1 for Lime Slaker Tank (LIME-COV-001)
Screw Conveyor #2 for Lime Slaker Tank (LIME-COV-002)
Weigh Hopper for Lime Slaker Tank (LIME-BIN-002)
KOH Concentrator Tank (CONC-TNK-004)
Free flow additive transport system (PACK-BIN-906) controlled by Cyclone and baghouse (PACK-CYC-003/004 & PACK-DCL-019)
Cairox Make-up Liquor Storage Tank (OILS-TNK-004)
#1 Oxidizer Marley cooling Tower (OXID-COO-004)
#2 Oxidizer Marley cooling Tower (OXID-COO-005)
#3 Oxidizer Marley cooling Tower (OXID-COO-006)

Specialty Products Process
USP Vacuum Dryer (USPS-DRY-001) Controlled by Condenser
USP Sievers (USPS-SIV-002 and USPS-SIV-003) controlled by USP Wet Dust Collector (USPS-DCL-001)
Nugget Siever (USPS-SIV-001) controlled by USP Wet Dust Collector (USPS-DCL-001)

Pilot Plant Carulite Process
New Acid Wash Tank (PIL-RE-250) controlled by 400 Scrubber (PIL-SR-9432)
South Oxidizer (PIL-RE-537) controlled by 400 Scrubber (PIL-SR-9432)
East Cooker (PIL-RE-553) controlled by 400 Scrubber (PIL-SR-9432)
200 Centrifuge (PIL-CE-265) controlled by 400 Scrubber (PIL-SR-9432)
Wyssmont Dryer Discharge Bin (PIL-BI-338) controlled by dust collector (PIL-DC-310)
300 Building South Carulite Product Storage Bin (PIL-BI-344) controlled by dust collector (PIL-DC-310)
Wyssmont Dryer Feed Bin (PIL-BI-351) controlled by dust collector (PIL-DC-310)
300 Building North Product Storage Bin (PIL-BI-353) controlled by dust collector (PIL-DC-310)
300 Siever (PIL-SV-318) controlled by dust collector (PIL-DC-310)
300 Elevator (PIL-EL-320) controlled by dust collector (PIL-DC-310)
Pilot Plant 1300 Filter Press Discharge Elevator Dust (PIL-CV-1300)
1300 Filter Press Screw Conveyor Dust (PIL-EL-1300) controlled by Fabric Filter Baghouse PIL-DC-1300
Pilot Plant Carulite Wyssmont Dryer (PIL-DR-337) controlled by dust collector (PIL-DC-385)
Conveyors, Material Storage Bins, dyer/calciner, dry product storage bin, and finished product packaging.
300 Blender (PIL-BL-301) controlled by Jet Pump (PIL-TA-387)
1300 Blender (PIL-BLND-1320) controlled by Jet Pump (PIL-TA-1308)

Sodium Permanganate Process
Pilot Plant Bulk Bin, (PIL-BI-450) controlled by Pilot Plant Bin Filter (PIL-DC-451)
600 Filtrate Tank (PIL-TA-612) controlled by 400 Scrubber (PIL-SR-9432)
North Oxidizer (PIL-RE-547) controlled by 400 Scrubber (PIL-SR-9432)
RE 730 Crystallizer (PIL-RE-730) controlled by 400 Scrubber (PIL-SR-9432)
50% Na Storage tank (PIL-TA-720) controlled by 400 Scrubber (PIL-SR-9432)
RE 750 Crystallizer (PIL-RE-750) controlled by 400 Scrubber (PIL-SR-9432)
500 Dilution Tank (PIL-TA-570) controlled by 400 Scrubber (PIL-SR-9432)
600 Wash Tank (PIL-TA-613) controlled by 400 Scrubber (PIL-SR-9432)
600 Acid Wash (PIL-TA-614) Tank controlled by 400 Scrubber (PIL-SR-9432)
200 Oxidizer (PIL-RE-275) controlled by Pilot Plant De-Mister (PIL-DE-001)
Sodium Permanganate Concentrator (PIL-RE-272) controlled by Pilot Plant De-Mister (PIL-DE-001)
Reactor (PIL-TA-267 200) controlled by Pilot Plant De-Mister (PIL-DE-002)

Phosphate Plant
Phosphate Mixing Tank (PIL-RE-1101)
TPC Mixing Tank (PIL-RE-1119)
Phosphate Blender (PIL-BL-1100) controlled by Dust Collector (PIL-DC-1101)
Zinc Mix Tank (PIL-RE-1121) controlled by scrubber (PIL-SR-9110)

Two Natural gas fired boilers (Boiler #3 - 93 mmBtu/hour and Boiler #4 - 135 mmBtu/hour); and

Space Heaters - 1 mmBtu/hour (each)

III. General Description

Federally Enforceable State Operating Permits (FESOPs) are federally enforceable, that is, the terms and conditions of the permits can be enforced by USEPA under federal law, as well as by Illinois government and the public under state law. These permits can establish federally enforceable limitations on the operation and emissions of a source that restrict the potential emissions of the source.

The source has been operating this plant under a FESOP because the actual emissions of the plant are below the levels at which the plant would be considered a major source under Title V of the federal Clean Air Act. However, in the absence of federally enforceable limitations, the plant's potential emissions would be such that the plant would be considered a major source. The permit acts to restrict the plant potential emissions so that it need not be considered a major source. As a result, the source does not need not obtain a Clean Air Act Permit Program (CAAPP) permit for the plant, as would otherwise be required.

The FESOP limits the operation and annual emissions of the plant to below the major-source-thresholds of 100 tons/year for Carbon Monoxide (CO), Nitrogen Oxides (NO_x), and Particulate Matter less than 10 microns (PM_{10}), 10 tons/year for any single Hazardous Air Pollutant (HAP) and 25 tons/year for any combination of such HAPs, and 100,000 tons of Carbon Dioxide equivalent (CO_2e) per year for Green House Gases (GHG)).

IV. Applicable Emission Standards

All emission units in Illinois must comply with state emission standards adopted by the Illinois Pollution Control Board. These emission standards represent the basic requirements for sources in Illinois. The specific standards for this company are subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Source Category: Chemical Manufacturing Area Sources, 40 CFR 63 Subparts A and VVVVVV for chemical manufacturing process units (CMPU). The application shows that the plant is in compliance with applicable state (AND FEDERAL) emission standards.

The principal air contaminant of concern for this type of operation is Particulate Matter less than 10 microns (PM_{10}) and any single Hazardous Air Pollutant (HAP). During the inorganic chemical manufacturing, PM_{10} and HAP are released. These PM_{10} are collected and ducted to scrubbers and dust collectors. Scrubbers and dust collectors are PM_{10} emission control devices prior to the release into the atmosphere. This plant also combusts natural gas and releases nitrogen oxides (NO_x), carbon monoxide (CO) and Carbon Dioxide equivalent

(CO_2e) per year for Green House Gases (GHG) due to the incomplete combustion of natural gas.

V. Contents of the Permit

The renewed permit that the Illinois EPA is proposing to issue would continue to identify the specific emission standards that apply to the emission units at the plant.

The permit would also contain limitations and requirements to assure that this plant is operated as a non-major source. The permit would limit the operation and annual emissions of the plant to below the major-source-thresholds of 100 tons/year for Carbon Monoxide (CO), Nitrogen Oxides (NO_x), and Particulate Matter less than 10 microns (PM_{10}), 10 tons/year for any single Hazardous Air Pollutant (HAP) and 25 tons/year for any combination of such HAPs, and 100,000 tons of Carbon Dioxide equivalent (CO_{2e}) per year for Green House Gases (GHG)). (Annual emissions of other pollutants from the plant are well below the 100 ton major source threshold.)

The permit would also set limitations on requirements to assure that this facility will be operated as a non-major source. The permit sets limitations on Inorganic Chemical Manufacturing Plant emissions. These limitations are consistent with the historical operation and capacity of the facility.

The permit conditions would also continue to require appropriate compliance procedures, including inspection practices as well as recordkeeping and reporting requirements. The source must carry out these procedures on an on-going basis to demonstrate that the plant is being operated within the limitations set by the permit and the plant's emissions are being properly controlled.

VI. Request for Comments

It is the Illinois EPA's preliminary determination that the source has met the requirements for renewal of its permit. The Illinois EPA is therefore proposing to renew the permit.

Comments are requested on this proposed action by the Illinois EPA and the proposed conditions on the draft permit. If substantial public interest is shown in this matter, the Illinois EPA will consider holding a public hearing in accordance with 35 IAC Part 166.