DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: On-site Inspection

A403359962

FACILITY: The Dow Chemical Company U.S.A., Midland		**SRN / ID:** A4033
LOCATION: 1790 Building, MIDLAND		**DISTRICT:** Bay City
CITY: MIDLAND		**COUNTY:** MIDLAND
CONTACT: Amanda Karapas , Air Specialist		**ACTIVITY DATE:** 08/03/2021
STAFF: Kathy Brewer	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MEGASITE
SUBJECT: EUC3 Inspection portion of FCE Virtual inspection 8/3/2021. Follow up on 9/15 with viewing of equipment and control devices		
RESOLVED COMPLAINTS:		

EUC3 Dow Chemical A4033 Virtual Inspection August 3 and Sept 15 on site 2021

Corteva contact: Amanda Karapas

EUC3 was permitted by PTI #129-06. The PTI was for the wastewater sludge drying process located in 1005 Building that includes sludge feed tank, filter process, dryer, venturi scrubber, packed tower absorber, and two silos for dried solids storage . The processes were previously permitted in PTI 615-95 to 613-95C series.

The process is subject to the requirements of 40 CFR Part 63, Subparts A and DD (National Emission Standards for Hazardous Air Pollutants from off-site Waste Recovery Operations. Dow staff verified that EUC3 is not subject to 40 CFR Part 63 Subparts F, G, H, and I.

Dow has also determined that EUC3 is not subject to 40 CFR Part 64 Compliance Assurance Monitoring.

Emissions for 2019 reported to MAERS were

Pollutant	Amount
VOC	110 Tons
PM10	520 lbs
CO	410 lbs
NOx	1600 lbs
SO2	480 lbs
Ammonia	2.1 Tons

The MAERS description of EUC3 is "The waste water treatment process in the environmental operations plant with treatment ponds and related equipment. Included secondary emissions from the wastewater treatment using TOXCHEM modeling tool. Majority of WWTP operations are grandfathered."

Per MACT DD reports EUC3 operates processes that generated emissions approximately 4,000 hours per year.

During the virtual inspection August 3, 2021 the process flow diagram, vent locations, control devices and emission calculations were reviewed. During the September 15, 2021 on site visit the ROP required emission control and metering devices, vents, and real time process screens were viewed.

At the time of the inspection the facility appeared to be in compliance with the requirements of the EUC3 ROP conditions.

Site Records Review

EU32 Incinerator

- Vent status
- Kiln Temperature
- SCC Temperature

Venturi scrubber

- gpm liquid flow

Packed Tower absober

- gpm liquid flow
- 12 month rolling 2019 and 2020 venting hours

AQD File Review

MAERS emissions

ROP Semi annual Deviation reports March 2020, September 2020, March 2021

MACT Reports Subpart OSWRO March 2019, September 2019, March 2020, Sept 2020, March 2021.

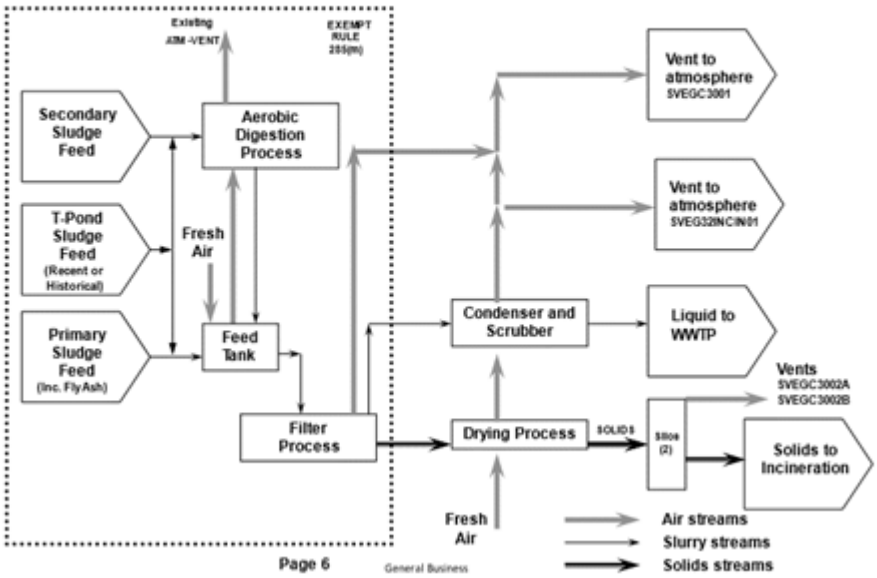
Permit EVAL forms for PTI 129-06 and 615-95 to 615-95C series

Description:

The wastewater treatment plant is utilized to treat wastewater from Dow iPark manufacturing and support activities, stormwater, and groundwater remediation. No sanitary sewage is sent to the on site wastewater treatment system. An aerobic digestion process vents to the atmosphere. Sludge from the wastewater system sludge feed tank is sent to a filter press followed by a belt press prior to drying. The sludge dryer vents to a venturi scrubber and packed tower absorber. Process vents from the dryer, venturi scrubber, and absorber normally vent to vent header 1 that exhausts to EU32INCINERATOR.

The dried solids are transferred to one of two silos prior to incineration in EU32INCINERATOR. Emissions from transfer of dried solids into a silo are vented to one of two fabric filter dust collectors.

The WWTP solids handling operations pre belt sludge presses utilize exemption for an air permit in R336. 1285(m) for wastewater treatment equipment.



EMMISIONS

Emissions for June and November 2020 and April 2021 are provided below.

Parameter	June 2020	November 2020	April 2021
SC I.1 PM (0.008 pph limit), SC I.2 PM (.06 lb / 1,000 lbs of gas, dry gas basis limit) at Silo fabric filter V1500/2500 During silo transfer	No unusual transfer occurred that generated visible emissions which would trigger us to calculate emissions	No unusual transfer occurred that generated visible emissions which would trigger us to calculate emissions	No unusual transfer occurred that generated visible emissions which would trigger us to calculate emissions
SC I.3, PM (0.010 pph), I.4 PM (.01 lb / 1,000 lbs of gas, dry gas basis) all other operations through packed tower absorber	No unusual operations occurred that generated visible emissions which would trigger us to calculate emissions	No unusual operations occurred that generated visible emissions which would trigger us to calculate emissions	No unusual operations occurred that generated visible emissions which would trigger us to calculate emissions
VOC 8 tpy 12 month rolling	0.05 tpy	0.17 tpy	0.02 tpy

Compliance with PM emissions are based on engineering assumptions.

WWTP solids are sampled a minimum of once each year. Emissions in pounds per month are determined by tracking the pounds of WWTP solids dried per month and applying established emission factor. Other emission generating activities and the associated calculated emissions are added.

March 2021 VOC emissions detail.

Inputs: 4, 27.7, 5.08 (Time Venting to atm (hr), Total Volume Processed (Mgal), Average % Solids)

Constants: 9.2, 1.01 (VOC Vent Rate (lb/hr), RR-factor, fraction of compound from ASPEN modeling, normalized concentration)

Value for month _9.3__

Example Categorical based emissions

• Cat 1 – 3 annual avg time (Category 1 Pollutants are all compounds with a screening level of) 0.00002 to <0.0005 (Limit is 0.0002 pph) • Category 2 Pollutants - 0.0005 to <0.001 (limit is 0.005 pph) • **Category 3** Pollutants - 0.001 to <0.01 (limit is **0.011 pph)**	**Hexachlorobenzene** **118-74-1** **(Category 3 Pollutant)** **0.0015 lb/hr**	**0.0043 pph**	**0.00**
Cat 4-5 annual avg time • Category 4 Pollutants - 0.01 to <0.1 (limit is 0.11 pph) • **Category 5** Pollutants - 0.1 to <1 (limit is **1.1 pph**)	**Bis(2-ethylhexyl) phthalate** **117-81-7** **(Category 5 Pollutant)** **0.1405 lb/hr**	**0.2339 pph**	**0.4783 pph**
Cat 6-7 annual avg	**1,3-Diethylbenzene**	**1.3151 pph**	**0.7900 pph**

• **Category 6** Pollutants - 1 to <10 (limit is **11.3 pph**) • Category 7 Pollutants - 10 and above (limit is 30 pph)	**141-93-5** **(Category 6 Pollutant)** **0.2244 lb/hr**		

There are no screening level categorical based emissions with monthly or annual (TPY) limits. Screening Levels are reviewed annually.

Material limits

The ROP does not list any specified material limits.

Process/Operational limits

Operating records reviewed are summarized below. Operation screen shots for the time periods are attached.

Parameter	June 22, 2020 6-8 AM	November 11, 2020 2-4 PM	April 16, 2021 11 am -1 PM	July 30, 2021 instantaneous
SC III.1.Hours packed tower absorber vent to atmosphere (1752 limit annually)	447 hours	495 hours	521 hours	505 hours

Design and Equipment Parameters

Records reviewed are summarized below. Operation screens for the time periods are attached. When the vent to the EU32 incinerator is open, EUC3 is exhausting to the EU32 incinerator.

Parameter	June 22, 2020 6-8 AM	November 11, 2020 2-4 PM	April 16, 2021 11 am -1 PM	July 30, 2021, * 11 AM- 1 PM
SC IV.1Venturi scrubber (J-1430) flow rate (250 gpm min if not venting to EU32)	Avg ~340 gpm	Avg ~255 gpm	Avg ~ 350 gpm	Avg ~ 344 gpm
SC IV.2 Packed tower scrubber (T-1431) flow rate	Avg ~ 220 gpm	Avg ~ 80 gpm	Avg ~ 225 gpm	Avg ~225 gpm

(200 gpm if not venting to EU32)				
SC IV.3 alarm level venturi scrubber	**No level alarm**	**No level alarm**	**No level alarm**	**No level alarm**
SC IV.4 alarm level packed tower scrubber	**No level alarm**	**No level alarm**	**No level alarm**	**No level alarm**
SC IV.6 EU32 vent valve position	**OPEN**	**OPEN**	**OPEN**	**OPEN**
SC IV.6 EU32 kiln temp	**995 C**	**1020 C**	**997 C**	**996 C**
SC IV.6 EU32 SCC temp	**995 C**	**1103 C**	**997 C**	**996 C**

***July 30, 2021 11:30 -12:30 15 minute values attached**

Testing/Sampling

The ROP does not contain any current testing or sampling requirements. An August 2018 emission test on EU32 Incinerator demonstrated a >95% OHAP destruction rate.

Monitoring and Recordkeeping

SC VI.1. The facility monitored and recorded the liquid flow rate for the venturi scrubber as required by the ROP . The most recent calibration of the venturi scrubber flow meter occurred on September 16, 2020

SC VI.2. The facility monitored and recorded the liquid flow rate for the packed tower absorber as required by the ROP . The most recent calibration of the packed tower absorber flow meter occurred on September 24, 2020

SC VI.3. The facility tracks and records low flow alarms for the venturi scrubber. No low flow alarms occurred for the records reviewed.

SC VI.4 The facility tracks and records low flow alarms for the packed tower absorber. No low flow alarms occurred for the records reviewed.

SC VI.5 & 6 The facility conducted monthly VE readings during periods of operation and maintained records as required by the ROP.

Parameter	June 2020	November 2020	April 2021	Aug 2021
SC VI.5, VI.6 visible emissions from each	**No VE 6/22/2020**	**No VE 11/13/2020**	**No VE 4/20/2021**	**No VE 8/3/2021**

dried solids storage silo	7:00 AM	8:00 AM	7:30 AM	6:15 AM

The 40 CFR Part 63 Subpart DD MACT semi annual reports reported no visible emissions

SC VI.7 The facility tracks and records daily hours of discharge directly from the packed tower scrubber to the atmosphere as required by the ROP.

SC VI.8. The facility calculated and recorded 12 month rolling VOC emissions monthly as required by the ROP.

SC VI.9 & 10. The facility monitored and recorded the composition of the solids exiting the belt press, before the solids enter the dryer, at least once per calendar year as required by the ROP.

SC VI.11. The facility calculated the emission rate of each toxic air contaminant from the portions of the wastewater sludge drying process exhausted through the packed tower absorber monthly, within 30 days of the end of each calendar month as required by the ROP.

Stack/Vent Restrictions

The following vent information was confirmed during the inspection.

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Description
1. SVEGC3001A	18	95	Wet WWTP sludge treatment process vent to atmosphere uncontrolled
2. SVEGC3002A		75	
3. SVEGC3003A		75	

Annual and Semi Annual Title 5 Deviation report review

No deviations associated with EUC3

OSWRO MACT DD reports

No excursions, exceedances, monitoring downtime or leaks associated with EUC3.

NAME Kathy Brewer DATE 10/19/2021 SUPERVISOR Chris Hare