Permit No. MI0000868

FACT SHEET

PERMITTEE/FACILITY NAME: The Dow Chemical Company / Michigan Operations Midland Site

COUNTY: MIDLAND

DESCRIPTION OF EXISTING & PROPOSED WASTEWATER TREATMENT FACILITIES

The influent to the wastewater treatment plant (WWTP) is a combination of process wastewaters from on-site and off-site operations, wastewater from on-site and off-site remediation operations, incinerator scrubber wastewater, commercial hazardous waste combustor wastewater, power and feedwater operations wastewater, groundwater, landfill leachate, noncontact cooling water, sanitary wastewater, miscellaneous plant service wastewaters, dredging dewatering water from the maintenance of the surface water intake lagoon, and storm water runoff. The 'on-site and off-site remediation operations' authorization includes some previously authorized discharges consisting of wastewaters from the Revetment Groundwater Interception System (RGIS), the Auburn pipeline, sludge dewatering, the brine site clean-up, and the Dow Corning Corporation's Site Interceptor System (SIS). The majority of the wastewater streams are gravity fed to the treatment plant through underground sewers. Other waste streams are pumped through underground or above ground piping, or are hauled to the site.

In the wastewater treatment plant, the combined wastewater is neutralized and screened to remove large solids. The screened wastewater receives primary treatment in two primary clarifiers. Equalization of flow is provided prior to or after primary clarification by the use of diversion tanks. Biological treatment is provided in two activated sludge basins. Nutrients are added to the primary effluent and to the recycled activated sludge. The effluent from the aeration basins receives clarification in two secondary clarifiers. The secondary effluent is pumped across the Tittabawassee River to the equalization pond system (known as tertiary ponds or T-ponds). A maintenance facility is operated on the site to recover and dewater solids from the T-ponds. Tertiary treatment is provided to the T-pond effluent by clarification followed by sand filtration. Some filtrate from the sand filters can receive further treatment through activated carbon beds for trace organic removal. The sand filter backwash and clarifier sludge are returned to the head of the WWTP. The final effluent is discharged through Outfall 031 to the Tittabawassee River via a diffuser. Under emergency conditions, the Department may authorize the discharge of the final effluent through Outfall 001 if Outfall 031 is not operational.

The waste activated sludge is treated in an aerobic digester. The combined digested secondary and primary sludge are dewatered by belt filter press and/or a plate and frame pressure filter. Filter cake from the belt press is fed into a dryer. This dried sludge and the filter cake from the plate and frame press are burned in the incinerator. Solids removed from the screening operations are dewatered and incinerated.

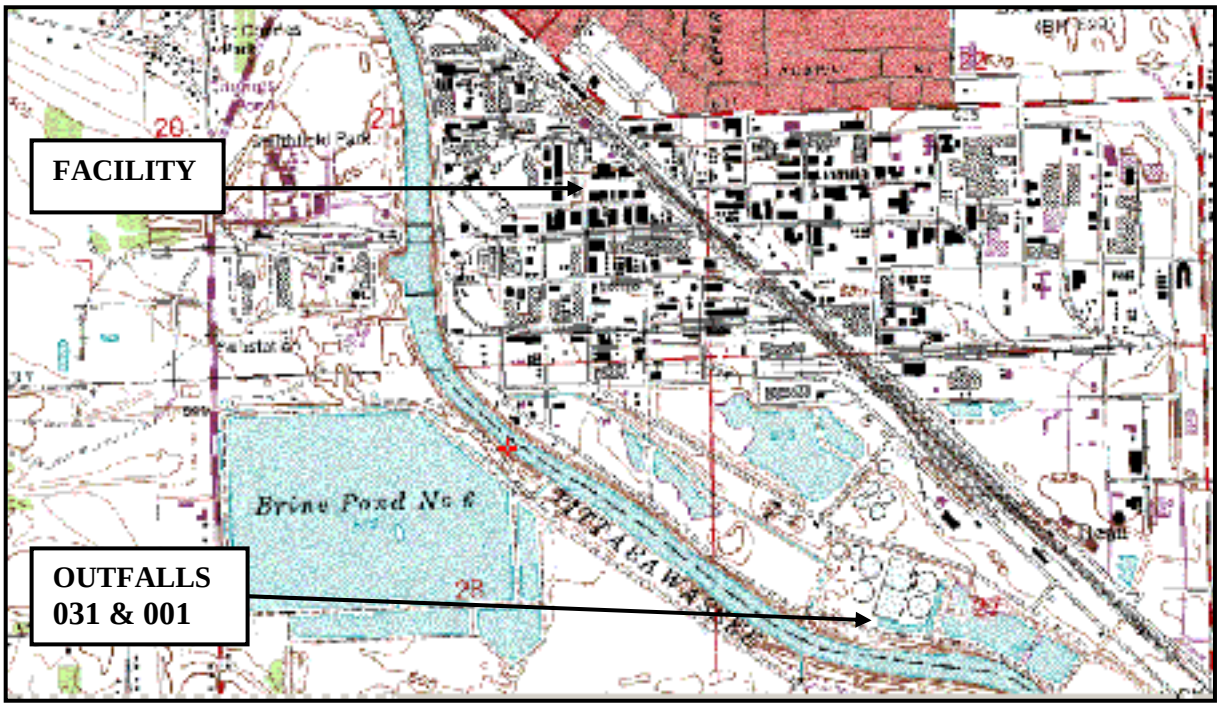
RECEIVING WATER

The Tittabawassee River is protected for agricultural uses, navigation, industrial water supply, public water supply in areas with designated public water supply intakes, warm-water fish, other indigenous aquatic life and wildlife, partial body contact recreation, total body contact recreation (May through October), and fish consumption.

The receiving stream flows used to develop effluent limitations are a 95 percent exceedance flow of 300 cfs, a harmonic mean flow of 990 cfs, and a 90-day, 10-year low flow of 480 cfs.

MAP OF DISCHARGE LOCATION

Facility Public Land Survey System Coordinates:
NW1/4, NW1/4, Section 27, T14N, R2E
Midland Township, **MIDLAND COUNTY**



MIXING ZONE

For total dissolved solids, the mixing zone is defined as the Tittabawassee River from the point of discharge to the Freeland Road bridge.

For toxic pollutants, the volume of the Tittabawassee River used in assuring that effluent limitations are sufficiently stringent to meet Water Quality Standards is 25% of the applicable design flows of the receiving stream for acute values and 75% of the design flows of the receiving stream for chronic values based on the evaluation of the rapid diffuser at Outfall 031.

For other pollutants, the volume of the Tittabawassee River used in assuring that effluent limitations are sufficiently stringent to meet Water Quality Standards is the applicable design flows of the receiving stream.

EXISTING EFFLUENT QUALITY:
(Data for Outfall 031A was taken from the application and Discharge Monitoring Reports: September 2004-August 2009)

Parameter	Minimum Daily	Maximum Monthly	Maximum Daily
Flow (MGD)	---	20.7	25.1
Carbonaceous Biochemical Oxygen Demand ($CBOD_5$)(lbs/day)			
June - August	---	420	682
September - May	---	883	1186
Total Suspended Solids (lbs/day)	---	1722	5627
Ammonia Nitrogen (as N) (lbs/day)			
July	---	41	---
August	---	87	---
September - October	---	757	---
November - June	---	411	---
Total Phosphorus (as P) (mg/l)	---	0.9	---
(lbs/day)	---	122	---
2,3,7,8-TCDD (ppq)	---	< quantification level (QL)	---
2,3,7,8-TCDD TEC (ppq)	---	0.001	---
Chlorpyrifos (ug/l)	---	< QL	---
Hexachlorobenzene (µg/l)	---	< QL	---
Pentachlorobenzene (µg/l)	---	---	0.046
Whole Effluent Toxicity			
Acute Toxicity (TU_A)	---	---	6.9
Chronic Toxicity (TU_C)	---	7.5	---
Fecal Coliform (cts/100 ml)	---	---	104
Temperature (^oF)	---	79	87
Conductivity (umho/cm^2)	---	9597	10124
Total Dissolved Solids (mg/l)	---	---	5862
Bromoform (µg/l)	---	---	< QL
Phenol (µg/l)	---	---	< QL
1,3-Dichlorobenzene (lbs/day)	---	0.2	0.2
1,4-Dichlorobenzene (lbs/day)	---	0.36	0.39

Parameter	Minimum Daily	Maximum Monthly	Maximum Daily
1,2,4-Trichlorobenzene (lbs/day)	---	0.3	0.5
Chloroform (lbs/day)	---	1.6	1.7
Chlorobenzene (lbs/day)	---	0.2	0.4
Methylene Chloride (lbs/day)	---	1.5	1.7
Tetrachloroethylene (lbs/day)	---	0.7	0.9
Chloride (mg/l)	---	---	3400
Lithium (µg/l)	---	---	240
Sulfate (mg/l)	---	---	109
2,4-Dichlorophenoxyacetic Acid (µg/l)	---	3.8	---
2,3,4,6-Tetrachlorophenol (µg/l)	---	---	< QL
Dissolved Oxygen (mg/l)	7.3	---	---
pH (S.U.)	6.6	---	9.4
Chlorpyrifos (lbs/day) (Monitoring Point 031B)	---	0.27	1.04
2,4-Dichlorophenoxyacetic Acid (lbs/day) (Monitoring Point 031C)	---	0.14	0.32

PROPOSED EFFLUENT LIMITATIONS: (see draft permit)

BASIS FOR PROPOSED EFFLUENT LIMITATIONS

Based on this facility's application for an NPDES discharge permit, the Michigan Department of Environmental Quality (Department) proposes to issue the applicant a permit to discharge, subject to effluent limitations and certain other conditions within the permit. Monthly average effluent limitations for $CBOD_5$ are based on antibacksliding and treatment technology. Daily maximum effluent limitations for $CBOD_5$ are based on water quality and treatment technology. Total suspended solids limitations are based on antibacksliding and treatment technology. Effluent monitoring requirements for flow and outfall observation are based on permit writer judgment. Effluent limitations for ammonia nitrogen, total phosphorus, 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD), 2,3,7,8-TCDD toxicity equivalence concentration, chlorpyrifos, hexachlorobenzene, pentachlorobenzene, whole effluent toxicity, fecal coliform, total dissolved solids, dissolved oxygen, total mercury, and pH are based on water quality. Effluent monitoring requirements for temperature, conductivity, chloride, lithium, sulfate, 2,4-dichlorophenoxyacetic acid (2,4-D), 1,2,3,4-tetrachlorobenzene, 1,2,4,5-tetrachlorobenzene, n-nitrosodiphenylamine, o-phenylphenol, ethyl parathion, and 2,3,4,6-tetrachlorophenol are based on water quality. Effluent limitations for acrylonitrile, hexachlorobutadiene, phenathrene, total copper

(during current operations), and total cyanide are based on water quality standards that are more restrictive than treatment technology requirements or treatment technology. During commercial hazardous waste combustor operations, effluent limitations for total arsenic, total cadmium, total chromium, total copper, total lead, total silver, total titanium, and total zinc are based on best professional judgment and treatment technology. Effluent limitations for chlorpyrifos at Monitoring Point (MP) 031B and 2,4-D at MP 031C, and effluent limitations for all of the remaining parameters listed in the permit are based on antibacksliding and treatment technology.

ADDITIONAL INFORMATION

The Department proposes that the applicant's Antidegradation Demonstration, based on information required by Subrule (4) of R323.1098, shows that lowering of water quality is necessary to support the identified important social and economic development in the area. This is solely for purposes of satisfying state water quality regulations and is not intended to supplant local requirements, including land use or zoning laws. It is not, and should not be construed as, a finding by the Department that the proposed development meets local requirements or ordinances.

In accordance with 40 CFR 122.44(m), the Department is proposing to issue an NPDES permit to The Dow Chemical Company for a privately-owned treatment works serving multiple users. At this time, the Department will not require separate permits or applications for any other user to the system and will not include separate permit conditions of any user of the system. With the issuance of this permit, the permittee accepts all liability for the discharges related to this permit and is responsible for establishing any necessary pre-treatment requirements to safeguard the treatment system and ensure compliance with effluent limitations.

REGISTER OF INTERESTED PERSONS

Any person interested in a particular application, or group of applications, may leave his/her name, address, and telephone number as part of the file for an application. The list of names will be maintained as a means for persons with an interest in an application to contact others with similar interests.

PUBLIC COMMENT

Comments or objections to the draft permit received between August 5, 2011 , and September 6, 2011, will be considered in the final decision to issue the permit.

If submitted comments indicate significant public interest in the application or if useful information may be produced, the Department, at its discretion, may hold a public hearing on the application. Any person may request the Department to hold a public hearing on the application. The request should include specific reasons for the request, indicating which portions of the application or draft permit constitute the need for a hearing.

Public notice of a hearing will be provided at least thirty days in advance. The hearing will normally be held in the vicinity of the discharge. The Department will consider comments made at the hearing when making its final determinations on the permit. Further information regarding the draft permit, and procedures for commenting or requesting a public hearing may be obtained by contacting Tarek Buckmaster, Permits Section, Water Resources Division, Department of Environmental Quality, PO Box 30273, Lansing, Michigan 48909, telephone: 517-241-7503, buckmastert@michigan.gov.