Industrial User Facility Inspection Report
U.S. EPA, Region 8

Name of industry and location:	Control Authority / NPDES Permit No.
Bobcat Company 530 S 26th St Bismarck, North Dakota 58504	City of Bismarck NPDES Permit No. ND-0023434
IU – NPDES ID	NDPU00102
Date of visit:	**Approximate Time of visit:**
June 29, 2022	13:00 – 15:30

Name(s) / Affiliation / email of inspector(s):

U.S. EPA:

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General Facility Information:

Representatives at Inspection:

- Jennifer Seibel – Environmental Health and Safety Manager, Jennifer.seibel@doosan.com
- Dean Kuhn – Site Operations Manager
- Michael Stark – Paint Line and Waste Treatment Manager
- Kevin Bopp – Environmental Health and Safety Manager
- Jeff Leintz – Maintenance Supervisor

Type of Business Operations:

- Manufacturing of mini excavators, mini track loaders and small articulated loaders.

Facility Information:

- 800 employees
- Support (manufacturing, paint line) three 8-hour shifts

- Other operations – two 8-hour shifts
- Days of Operation: five days per week, Monday through Friday

Inspection Description:

Al Garcia, Emilio Llamozas, and Maggie Green from the U.S. Environmental Protection Agency (EPA) and representatives from the North Dakota Department of Environmental Quality and the City of Bismarck conducted an oversight significant industrial user (SIU) inspection of the Bobcat Company (the facility) in Bismarck, North Dakota. The SIU inspection was conducted as part of the EPA Pretreatment audit of the City of Bismarck's Publicly Owned Treatment Works (POTW) Pretreatment Program. The EPA oversight SIU inspection consisted of an evaluation of the wastestreams generated from the unit operations and processes at the facility, including potential for spills and slug discharges. The facility discharges to the City of Bismarck's POTW.

Upon arriving at the facility on June 29, 2022 at approximately 1:00 p.m., the EPA presented credentials to the facility representatives and explained the purpose of the inspection. During the opening interview, the facility representatives provided an overview of the operations and processes at the facility, as well as information regarding wastestreams generated from these unit operations and management of these wastestreams. The opening interview was followed by a facility tour to visually inspect the unit operations. The EPA conducted a closing conference to discuss potential findings and recommendations identified during the inspection.

Process Description:

The Bobcat facility in Bismarck is an integrated manufacturer of mini-excavators, mini-track loaders, and small articulated loaders (SAL) located in an approximately 350,000 square feet facility. The Bobcat Company performs all manufacturing operations for these products at its Bismarck facility, including fabrication (laser cutting), grinding, machining, welding, painting and final assembly. The facility manufactures about fifty-four 3-ton to 8-ton mini-excavator per day, about thirty-four mini-track loaders per day, and about four SALs per day. The Bobcat corporation is global and has other manufacturing facilities for different equipment in the Bobcat brand located in Gwinner, Fargo and Wahpeton North Dakota with North American operations headquartered in West Fargo, North Dakota.

Raw Materials/Chemicals –

The raw materials and chemicals used in the manufacturing process include the following:

- Flat steel – 10,000 square feet
- Tires, tracks for the excavators and loaders
- Plastic components
- Hydraulic oil, antifreeze, engine oil, grease – use in assembly operations
- Machining coolant
- The oils, machining coolant and grease are stored in areas on the main production/assembly floor and transported to the production areas or machine sumps as needed. Based on observations during the plant tour, it appears that the facility is utilizing adequate spill containment equipment and procedures to minimize spills from entering the sanitary sewer.
- Powder coat paint – 2,000 lbs in 250-lb totes, 2 paint color booths. One booth uses charcoal paint and the other booth switches between white and green paints.
- 9-stage washer chemicals – stored in 270-gallon totes, about 4 to 5 of each chemical:
    - Caustic
    - Sealer
    - Phosphoric acid
- Waste treatment chemicals (coagulant, flocculant, acid and caustic)

- The plating, e-coat and waste treatment chemicals are stored in the paint area of the facility and are moved to the large paint preparation or waste treatment tanks as needed. The paint preparation, e-coat and waste treatment lines have trenches that captures and conveys spills or wastewater to the wastewater treatment system.

The flat steel is received and stored into a parts control area (PCA) that is located on the northwest side of the facility. The plastic parts/components, tires, tracks and other parts or hardware are stored in the PCA and transported to the assembly areas as needed. The steel is transported to the fabrication department, consisting of four laser cutting machines and five press brakes to fabricate the flat steel stock into smaller flat stage material or formed into parts. The press brake machines generate about 150 gallons of waste oil per year that is hauled off site by Stericycle. The scrap metal generated from the fabrication department is collected in the scrap metal bin. The fabricated parts are sandblasted and moved back into the PCA or may be transported into the welding stations. The facility has an extensive 4-mile conveyor transport system throughout the fabrication, welding/machining, assembly and paint areas to transport material or parts.

The facility has welding stations that are dedicated to welding different parts for the products manufactured. The appropriate part or flat steel generated from the fabrication department are moved to the appropriate welding station for tack welding. The welded parts are machined in computer numerical control (CNC) machines associated with the welding station. The facility has about 30 CNC machines that provide the appropriate type of machining operations to finish the part for assembly. The CNC machines each have machining coolant sumps with a capacity of about 200 gallons. The facility has a coolant recycling system in place where it removes the contents of the CNC machine sump for reconditioning and reuse on a maintenance schedule about every 2 months, according to facility representatives. The facility removes an individual machine sump in a sump sucker apparatus and transports this to a coolant recycling station to recondition. This helps the facility reuse about 90% of the coolant with about 10% of the coolant discharged as waste to the waste treatment system. The scrap metal generated from the CNC machining are collected in satellite containment bins for each station and collected in a dumpster. The coolant is allowed to drain and is collected. The scrap metal is recycled by EMR Northern Metals Recycling, located in Bismarck.

The parts are ready to be sent either to the PCA for assembly operations or may need to be painted and are sent to the paint area. The facility's large paint area consists of the 9-stage paint preparation line, e-coat process line and waste treatment. The powder coating booths are also located in this area. The process lines are serviced by the facility's overhead conveyor transport system. The paint preparation line, e-coat process line and waste treatment system each have a dedicated containment trench and sumps to protect against spills or slug discharges from entering the waste treatment system.

The parts that need painting are sent to the paint line area through the conveyor system. All parts that need painting, either electrophoretic coating painting (e-coat) for parts that are not visible or powder coat paint for visible parts are first sent to the 9-stage paint preparation line. The facility's conveyor systems transports the parts to be painted through the paint preparation line and the appropriate paint line. The 9-stage paint preparation line consists of the following stages:

1. City-supply water spray (1,500 gallons); dumped weekly to the waste treatment system
2. Caustic cleaner, heated (2,600 gallons); dumped annually to the waste treatment system
3. Caustic cleaner, heated (38,000 gallons), dumped annually to the waste treatment system
4. Countercurrent city-supply water rinse (39,000 gallons); the wastewater in this tank is used as makeup for tanks #2 and 3
5. City-supply water spray (1,500 gallons); dumped weekly to the waste treatment system
6. Phosphoric acid spray, heated (3,200 gallons); the acid is sprayed on parts as they move through this stage on the conveyor. The chemical bath is monitored and may be reconditioned to extend the life cycle of the chemical solution. The contents of this chemical tank are discharged to the waste treatment on an annual frequency, according to facility representatives.

7. City-supply water rinse spray (2,400 gallons); continuous overflow to waste treatment
8. Sealer dip tank (2,500 gallons); dumped weekly to the waste treatment system
9. Reverse osmosis (RO) dip tank (40,000 gallons); the contents of this tank are used as make up water on a countercurrent flow to tanks 6 and 8. The contents of this tank are dumped to waste treatment on an annual preventative maintenance schedule but may be discharged as needed.

The parts prepared for painting are transported via the conveyor to either the e-coat line or powder coat booths. The e-coat line consists of a 40,000-gallon electrically-charged immersive tank. The e-coat tank is supplied with RO water to create a 12% solution for application onto the part and provide corrosion resistance. The e-coated parts are immersed into the 40,000-gallon electrically charged e-coat tank to establish a cathodic reaction and provide coating thickness. The life cycle of the chemical solution is maintained by a filter system. The filters are changed as needed. According to facility representatives, about 5,000 gallon/month is discharged to the two 2,500-gallon e-coat waste tanks. These cone-shaped waste tanks are dedicated to the wastewater generated from the e-coat line; coagulant is added to the wastewater to precipitate the e-coat waste and the contents are continually circulated.

The e-coated parts are moved along the conveyor to the post rinse tank to remove excess coating. The contents of the 400-gallon tank is discharged to waste treatment once per week. The facility operates an RO system located in the paint room near the waste treatment system to generate RO for the e-coat process. The RO system consists of three 200-gallon tanks. The permeate or brine from reverse osmosis process is continuously discharged to the waste treatment system via a conveyance trench at an estimated rate of 20 gallons/minute.

The e-coated parts are then transported via conveyor to the cure oven. The less or non-visible e-coated parts are transported via conveyor to the PCA and the visible parts are sent to the powder coat booths for application of either charcoal or white powder coat. The overspray of the powder coat is captured and about 99% reused. The floor waste is collected, filtered through a sieve and put into the hopper for reuse. Any non-spec paint jobs are reworked on a small batch job basis to meet quality standards. The powder coated parts are cured in an IR oven and sent to the PCA.

The parts are now ready for assembly. The mini-excavators, mini-track loaders, and small articulated loaders (SAL) are assembled along a main assembly track with different progressions of assembly occurring as the part moves and is assembled along the main track. The completed products are checked for leaks and inspected for quality control/assurance. About 60% of the assembled products are washed in final wash bays prior to storage and transportation. The facility has two wash bays, one dedicated for the mini-excavator and the second one for the loaders. According to facility representatives, the excavator wash bay operates every 20 minutes and 16 hours/day while the SAL wash bay operates every 20 minutes for an 8-hour shift. The wastewater from the final wash bays is plumbed to the waste treatment.

The facility also indicated that there is high groundwater in the area. The facility collects groundwater from around the facility in a 6 by 6-foot sump that is 12 feet deep. The sump is pumped to the wastewater equalization tanks. At the time of the inspection, the facility did not have estimates of the amount of groundwater that is sent to the wastewater equalization tanks. The inspectors did not inspect the groundwater sump because it was a confined space entry area.

The wastewater generated from the welding/machining stations, assembly/final wash, 9-stage preparation line, groundwater sump and RO permeate are collected in the two 40,000-gallon wastewater equalization tanks. These tanks are metered about 8 hours/day to the two 2,500-gallon neutralization tanks. The wastewater from the e-coat waste tanks are also metered into these tanks. The facility adds flocculant/coagulant and neutralization chemicals (caustic or acid) to neutralize the wastewater. The effluent from these tanks is sent to a clarifier where solids removal occurs. The solids are removed from the clarifier into a solids tank and are pressed through a filter press to dewater as non-hazardous waste. The facility

collects the filtered solids into supersacks for transport offsite through manifests by Stericycle. At the time of the facility inspection, the facility estimated that they have about 26 supersack bags onsite.

The effluent from the clarifier is sent to a finals tank and is discharged through a weir to the City drain. The facility discharges about 20,000 to 40,000 gallons/day. The treated regulated process wastewater flows south from the facility to a sand interceptor before it flows east under the east parking lot where it connects to the City sanitary sewer system on 26th Street.

EPA Classification of the Industrial User

The facility performs unit operations defined as core processes (phosphoric acid coating) subject to the Metal Finishing Categorical Pretreatment Standards found in 40 C.F.R. Part 433. In addition, the facility performs ancillary operations (machining, testing, and cleaning painting) subject to the Metal Finishing Categorical Pretreatment Standards because of the presence of the core operations. The facility is a new source, and the applicable Pretreatment Standards for New Sources are found in 40 C.F.R. § 433.17.

Summary of Findings

Bobcat

NPDES ID# NDPU00102

June 29, 2022

Pretreatment Inspection Findings	Follow up Action Items
1. During the inspection, EPA observed a pipe discharging permeate from the RO system entering a conveyance trench leading to the waste treatment system. The facility estimated the discharge rate from the RO system is about 20 gallons/minute. The facility also indicated that there is high groundwater in the area. The facility collects groundwater from around the facility in a 6 by 6-foot sump that is 12 feet deep. The sump is pumped to the wastewater equalization tanks. These discharges are not wastewaters subject to the Metal Finishing Categorical Pretreatment Standards and are defined as unregulated wastewaters. The permit limits in the Pretreatment permit applies compliance limits for regulated wastewaters subject to the Metal Finishing Categorical Pretreatment Standards. 40 C.F.R. 403.6(d) of the Federal Pretreatment Regulations prohibit dilution as a substitute for treatment. "Except where expressly authorized to do so by an applicable Pretreatment Standard or Requirement, no Industrial User shall ever increase the use of process water, or in any other way attempt to dilute a Discharge as a partial or complete substitute for adequate treatment to	**Pretreatment Requirement** 40 C.F.R. 403.6(d) 40 C.F.R 403.6(e) **Corrective Actions** Evaluate the discharge of the RO permeate and the groundwater wastewater, both of which are unregulated wastewaters, to the regulated wastestreams by measuring the daily discharge of the RO permeate and groundwater wastewater to the waste treatment system for a production month and reporting the daily average and daily maximum flow volumes to the City.

achieve compliance with a Pretreatment Standard or Requirement." 40 C.F.R. 403.6(e) of the Federal Pretreatment Regulations provides the requirements for using the combined wastestream formula. "Where process effluent is mixed prior to treatment with wastewaters other than those generated by the regulated process, fixed alternative discharge limits may be derived by the Control Authority or by the Industrial User with the written concurrence of the Control Authority. These alternative limits shall be applied to the mixed effluent. When deriving alternative categorical limits, the Control Authority or Industrial User shall calculate both an alternative daily maximum value using the daily maximum value(s) specified in the appropriate categorical Pretreatment Standard(s) and an alternative consecutive sampling day average value using the monthly average value(s) specified in the appropriate categorical Pretreatment Standard(s). The Industrial User shall comply with the alternative daily maximum and monthly average limits fixed by the Control Authority until the Control Authority modifies the limits or approves an Industrial User modification request. Modification is authorized whenever there is a material or significant change in the values used in the calculation to fix alternative limits for the regulated pollutant. An Industrial User must immediately report any such material or significant change to the Control Authority. Where appropriate new alternative categorical limits shall be calculated within 30 days."	

Report Review and Signature		
Drafter Name	Address/Phone Number	Date
Al Garcia	U.S. EPA Region 8 1595 Wynkoop Street 8WD-CWW Denver, Colorado 80202 303-312-6382	**07/21/22**
Supervisor Signature/Name	Address/Phone Number	Date
STEPHANIE DEJONG Digitally signed by STEPHANIE DEJONG Date: 2022.07.21 16:23:55 -06'00' **Stephanie DeJong**	U.S. EPA Region 8 1595 Wynkoop Street 8WD-CWW Denver, Colorado 80202 303-312-6362	**07/21/22**