CORRESPONDENCE/MEMORANDUM

State of Wisconsin

DATE: November 10, 2020 Modified February 8, 2021 FILE REF: 3400

TO: File

FROM: Woody Myers - WCR

SUBJECT: City of Hudson - Groundwater Evaluation Report, WPDES Permit # WI-000024279

Effluent parameters and Limits

Parameter	Unit	Current General Permit WI-0046540		Proposed Individual Permit WI-0024279	
		Limit	Frequency	Limit	Frequency
Flow Rate	MGD	-	Daily	-	Daily
Dissolved Iron	µg/l	-	Monthly	-	Monthly
Dissolved Manganese	µg/l	-	Monthly	-	Monthly

Site Information

The City of Hudson (the City) has been covered under a General WPDES Permit WI-0046540-06 for the discharge of the iron and manganese filtering backwash system used to purify the water for municipal use. Due to recent changes in this General Permit, the City's discharge is no longer eligible, therefore the City has applied for an individual WPDES permit . The address for the permittee is; 503 3rd Street, Hudson, Saint Croix County. This is a municipal facility.

Geology

The bedrock under the majority of these sites is the Prairie du Chien Group. This group includes the Shakopee and Oneota Formations with the Willow River, New Richmond, Hager City and Stockton Hill Members. The Prairie du Chien is comprised of dolomite with some variation in the New Richmond Member which ranges from a sandstone to siltstone. There are a few of the sites over the Tunnel City Group. This Group includes the Mazomanie and the Lone Rock Formation. The Lone Rock Formation is comprised of the Reno, Tomah and Birkmose Members. The Tunnel City Group is comprised of interbedded sandstone and rare occurrences of a flat pebbled conglomerate. The depth to bedrock varies but is not anticipated to be greater than 150 feet below ground surface (bgs). There is at least one high capacity well for each site. The regolith consists of sand, clay sand with some gravel. Surface soil include the Dakota loam, Emmert loamy sand and the Sattre silt loam.

Hydrogeology

Regional groundwater flow is anticipated to be to the west northwest in this area of Saint Croix County. The City of Hudson is bound on the west by the Mississippi River. There should not be any private water supply wells within the City limits.

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Land Treatment Loading Rates

There will be five active outfalls at this facility. All of the Outfalls are being evaluated for groundwater monitoring networks.

Sampling Point (Outfall) Listed in SWAMP			
Number	**Outfall Type**	**Description**	**Location**
Outfall 001	Land Treatment (Disposal)	Well # 3	SE ¼ SW ¼ Sec 30 T29N R19W Tn Hudson
Outfall 002	Land Treatment (Disposal)	Well # 5	NW ¼ SE ¼ Sec 13 T29N R19W Tn Hudson
Outfall 003	Land Treatment (Disposal)	Well # 6	NW ¼ SW ¼ Sec 31, T29N R19W Tn Hudson
Outfall 004	Land Treatment (Disposal)	Wells # 8 and # 9	SE ¼ SW ¼ Sec 32, T29N R19W Tn Hudson
Outfall 005	Land Treatment (Disposal)	Well # 10	SE ¼ NW ¼ Sec 33, T29N R19W Tn Hudson

The average flow (hydraulic loading) to all seepage cells is approximately 20,000 to 25,000 gallons per cycle which occur approximately every seven to ten days.

Proposed Groundwater Monitoring Requirements

Per NR 206.10(3)(d) Wis. Admin. Code the department may require groundwater monitoring systems for municipal and industrial wastewater discharges if the daily volume is equal to or greater than 15,000 gallons per day. The facility will exceed 15,000 gallons per day, but the given the groundwater source of the manganese and iron and that these metals are being returned to the ground surface they appear to pose no potential impacts to groundwater.

Conclusions

Due to the anticipated volume of discharge the department is required to evaluate the need for a groundwater monitoring system. Due to the nature and anticipated concentrations of the effluent discharge a groundwater monitoring system does not appear to be necessary at this time. It is recommended that the effluent be sampled for iron and manganese. Due to the source of iron and manganese it not anticipated that the discharges will increase the overall mass of these compounds to the environment, so therefore no effluent limits are recommended at this time.