

September 10, 2018

Water Resources Division  
Michigan Department of Environmental Quality  
P. O. Box 30458  
Lansing, MI 48909-7958



Re: Comments on **NPDES Draft Permit No. MI0060211**  
Cordia at Grand Traverse Commons

To Whom it May Concern,

The Watershed Center Grand Traverse Bay respectfully requests that you consider these comments on the permit application submitted to the Department of Environmental Quality (DEQ) by Cordia at Grand Traverse Commons (Cordia) to discharge up to 0.2 million gallons per day of noncontact cooling water to a wetland network contiguous to Kids Creek in Traverse City, Grand Traverse County. The Watershed Center (TWC) advocates for clean water in Grand Traverse Bay and acts to protect and preserve its watershed. TWC has a special interest in the health of the Kids Creek watershed as we have invested thousands of hours and millions of dollars in restoring, monitoring, and advocating for this urban watershed.

For the last four years, Cordia has discharged hot, chlorinated non-contact cooling water into Kids Creek Tributary AA (Tributary AA) without an NPDES permit. That unpermitted discharge did not meet state water quality standards for temperature or chlorine. TWC initially discovered and alerted the DEQ to Cordia's unpermitted discharge into Tributary AA in 2015. Since 2015, we have been monitoring the effects of this discharge to the stream system and have been outspoken advocates to ensure remedy of the unlawful discharge. Our extensive history of involvement with Cordia's unpermitted discharge is outlined in Exhibit 1<sup>1</sup>.

Recently, Cordia has attempted to remove the cooling system discharge from Tributary AA and relocate it to a wetland network contiguous to Kids Creek. In summer 2018, Cordia installed a system that is intended to divert its cooling system discharge to an underground storage tank, after it comingles with stormwater and a diverted stream. Once water levels in the storage tank reach a certain level, the comingled discharge is pumped to the City of Traverse City's stormwater system on Eleventh Street, which ultimately outlets to the wetland. The current draft NPDES permit outlines water quality standards for Cordia's discharge into this wetland network. Cordia's wetland discharge system has been operational since August 21, 2018.

**Background: Water Temperature and Chlorine Data from Wetland**

On August 22, 2018, TWC installed Onset HOB0 automated temperature monitoring devices about two feet from the mouth of the pipe that outlets comingled stormwater and cooling system discharge into the wetland. This automated device records water temperature every hour. Table 1 summarizes the most recent water temperature data collected in late August and early September in the wetland.

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<sup>1</sup> Clean Water Act Notice of Intent to Sue/60-day Notice Letter. Supplement to May 14, 2018, Notice of Intent Letter. Grand Traverse Senior Living, LLC, d/b/a Cordia at Grand Traverse Commons.

**Table 1: Water temperature in degrees Fahrenheit (°F) in the wetland within two feet of the mouth of Cordia’s discharge pipe collected by TWC August 22-29, 2018 and September 5-10, 2018.**

Date	Temperature standards for rivers, streams, and impoundments capable of supporting warmwater fish	Daily Recorded Max Temperature
August 22	81°F	88°F
August 23	81°F	88°F
August 24	81°F	87°F
August 25	81°F	87°F
August 26	81°F	88°F
August 27	81°F	87°F
August 28	81°F	87°F
August 29	81°F	85°F
September 5	74°F	88°F
September 6	74°F	86°F
September 7	74°F	86°F
September 8	74°F	85°F
September 9	74°F	85°F
September 10	74°F	82°F

The draft permit incorporates Water Quality Standards for rivers, streams, and impoundments capable of supporting warmwater fish in DEQ Rule 323.1075(2)(a). That rule requires that the receiving water shall not receive a heat load would warm the receiving water at the edge of the mixing zone more than 5 degrees Fahrenheit about the existing natural water temperature, which prohibits exceeding the following maximum monthly temperatures:

J	F	M	A	M	J	J	A	S	O	N	D
38	38	41	56	70	80	83	81	74	64	49	39

As shown in Table 1 above, data indicates the discharge to the wetland far exceeds both the August and September maximum monthly temperatures. Moreover, the wetland discharge data for August and September 2018 is consistent with the historic discharge temperature data collected in 2017 and 2018 (previously provided to DEQ), indicating the discharge is likely to violate the proposed maximum monthly temperature limits in the draft permit for all months.

On August 23, 2018, TWC collected a sample of the wetland discharge and submitted it to the Great Lakes Water Quality Lab in Lake Ann, Michigan for analysis. There was no recorded precipitation on August 23, 2018; therefore, it is reasonable to presume the sample only contained cooling water discharge. This sample yielded a chlorine residual of 0.25mg/L and chlorine total of 0.08mg/L. These values far exceed Michigan's Aquatic Maximum Value criteria for Total Residual Chlorine of 0.019mg/L and the General Permit's Water Quality Standard Maximum Daily Limit for Total Residual Chlorine of 0.038mg/L, as reflected in the draft permit. Moreover, this chlorine data in the wetland discharge is consistent with the historic chlorine data collected in 2017 and 2018 (previously provided to DEQ), indicating the chlorine in the wetland discharge is likely to consistently violate the proposed chlorine limit in the permit.

This wetland water temperature and chlorine data illustrates that Cordia cannot rely on the distance the discharge travels to dissipate heat and chlorine. This data further document Cordia will be in violation of the NPDES permit immediately upon issuance.

Based on our review of the recently installed discharge system to the wetland, together with our knowledge and analysis of the historic and current discharge temperature and chlorine content of the discharge, we recommend the following for consideration before issuing a final NPDES permit for this cooling system discharge.

**Recommendation: Require Year-Round Water Quality Monitoring**

The draft permit includes maximum monthly temperature limits for only April through September, although DEQ Rule 75 includes limits for each month of the year. We recommend that the permit impose the water temperature daily maximum limits and associated monitoring requirements for all months of the year. All other parameters are required to be monitored and reported on a daily or weekly basis throughout the entire year, and temperature should not be an exception. There is evidence that Cordia's cooling system has operated outside of the April-September timeframe, as use of the cooling system is weather-dependent. Cooling system discharge temperature data collected by TWC in October and November of 2017 indicate that discharge temperatures were consistently in the 70's (°F). State standard daily maximum temperatures for rivers, streams, and impoundments naturally capable of supporting warmwater fish (the standard applied to this draft NPDES permit) in October and November are 64°F and 49°F. There is no basis to not include these limits in the permit, and doing so may lead to injury to aquatic resources.

**Recommendation: Require Appropriate Temperature Standards**

We recommend that DEQ reconsider daily wetland temperature maximums included in the draft permit. It is unclear why the DEQ is implementing temperature limitations developed for "rivers, streams, and impoundments capable of supporting warmwater fish." Water temperature data collected from the wetland network contiguous to Kids Creek indicates that water temperatures ranged from 66°F on August 8, 2018 to 75°F on August 1, 2018. This does not indicate that the wetland network naturally sustains water temperatures in the 80's (°F) in warmer months. Further, it appears implementing these standards would warm the receiving water at the edge of the mixing zone more than 5°F above the existing natural water temperature. The maximum temperature limits in the draft permit are thus likely to lead to injury to the receiving wetland network and its aquatic resources.

**Recommendation: Prohibit Overflow into Tributary AA**

Cordia's cooling system discharge connects with the nearby stormwater system and a small diverted stream, ultimately outletting into a concrete channel that leads to Tributary AA.

Currently, this comingled discharge is being diverted from the concrete channel to Cordia’s underground storage tank, where it is then pumped at a rate of 150 gallons/minute into Traverse City’s stormwater system that empties into the wetland. Based on engineering documents provided by Apollo Engineering, LLC (engineering firm retained by Cordia to design this system), if the tank exceeds its capacity, the system is designed to overflow back into the concrete channel and ultimately into Tributary AA.

Because the pump system is designed to pump only slightly more than the capacity of the discharge coming from the cooling system, there is the likelihood that stormwater entering the tank will overwhelm the system and overflow comingled water into Tributary AA. We are unaware of any calculations for the volume of stormwater potentially entering the tank during a rain event based on the catchment area of the stormwater system, nor whether the system is designed to handle stormwater from a particular sized storm event. However, observations by TWC staff confirm that recent rains (0.63 inches on August 27, 2018, for example) continually overwhelmed the system and led to overflows of comingled discharge into Tributary AA. In addition, the grate on the intake pipe to the tank is regularly clogged with leaves and debris, which causes discharge water to overflow into Tributary AA despite dry conditions.

TWC staff placed Onset HOB0 automated temperature monitoring devices in Tributary AA 50 feet upstream of where the overflow discharge enters the creek and four feet downstream of the overflow discharge. Temperature data collected August 21- 27, 2018 when discharge was being pumped to the wetland, revealed that the system routinely overflowed hot water into Tributary AA. Stream temperatures immediately downstream of the discharge were up to 23°F warmer than upstream temperatures during this time. Subsets of the results that are representative of the complete data set are in Table 2. The complete data set has been provided to the DEQ.

**Table 2: Water temperature in degrees Fahrenheit (°F) in Tributary AA and collected by TWC in August 2018.**

<b>Date and Time</b>	<b>Air temperature</b>	<b>Tributary AA 50 feet upstream of discharge</b>	<b>Tributary AA 4 feet downstream of discharge</b>	<b>Difference between upstream and downstream temperatures</b>
August 23, 2018 3:06 pm	84°F	63°F	84°F	21°F
August 24, 2018 4:06 pm	77°F	60°F	78°F	18°F
August 25, 2018 5:06 am	65°F	57°F	80°F	23°F
August 27, 2018 12:06 pm	75°F	61°F	67°F	6°F
August 28, 2018 6:06 pm	75°F	62°F	70°F	8°F

A draft NPDES permit released by DEQ for public comment outlines water quality standards for Cordia’s discharge into the wetland network. The draft permit does not incorporate the discharge to Tributary AA. A direct discharge of non-contact cooling water into Tributary AA not only requires a NPDES permit, but continues to raise concerns the discharge will cause harmful impacts to aquatic resources from elevated temperature and chlorine levels.

**Recommendation: Expand Photographic Monitoring Requirements**

We applaud the DEQ for including a permit condition that requires photographic monitoring to ensure existing wetland vegetation remains healthy. However, we recommend requiring monthly photographs at the wetland discharge immediately upon issuance of the permit. Discharge to the wetland began on August 21, 2018, and will likely continue until the cooling system is turned off in the cooler months. The cooling system will turn on again in the spring depending on the weather conditions, potentially leading to less vigorous, discolored vegetation before May/June 2019, which is when the first photos may be required. Monthly photographs would more accurately capture any impacts on vegetation surrounding the discharge site. There is no reasonable basis to limit the photographic monitoring as proposed in the draft permit.

We remain cautiously optimistic that redirecting the discharge of non-contact cooling water to a wetland may result in less resource impact than a direct discharge into Tributary AA. However, adequate permit conditions are necessary to protect the health of the wetland network. Moreover, we remain strongly opposed to the discharge of hot, chlorinated water to Tributary AA, and the installed system that reroutes the outlet of the discharge still directs the discharge to overflow that system and enter Tributary AA. For these reasons, we request the DEQ to modify the permit conditions to more adequately protect the wetland network. Thank you for your consideration.

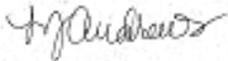
Sincerely,



Christine Crissman  
Executive Director  
The Watershed Center Grand Traverse Bay



Heather Smith  
Grand Traverse **BAYKEEPER**<sup>®</sup>  
The Watershed Center Grand Traverse Bay



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