**Recommended Technology-Based Effluent Limitations (TBELs)**

### Sample Point 101 (Cooling Tower Blowdown):

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Daily Maximum</th>
<th>Daily Minimum</th>
<th>Weekly Average</th>
<th>Monthly Average</th>
<th>Footnote(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow rate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>pH</td>
<td>9.0 s.u</td>
<td>6.0 s.u.</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Chlorine, Free Available</td>
<td>0.5 mg/L</td>
<td></td>
<td>0.2 mg/L</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Chromium, Total Recoverable</td>
<td>0.2 mg/L</td>
<td></td>
<td>0.2 mg/L</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Zinc, Total Recoverable</td>
<td>1.0 mg/L</td>
<td></td>
<td>1.0 mg/L</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Other Priority Pollutants</td>
<td>No detect</td>
<td></td>
<td>No detect</td>
<td></td>
<td>3, 4</td>
</tr>
<tr>
<td>PCBs</td>
<td>No detect</td>
<td></td>
<td>No detect</td>
<td></td>
<td>5</td>
</tr>
</tbody>
</table>

Footnotes:
1. Monitoring shall be in reported in million gallons per day (MGD).
2. As specified in s. NR 290.12(3)(a), Wis. Adm. Code.
3. These are the limits from Table 3 in s. NR 290.12(3), Wis. Adm. Code.
4. Discharge of cooling tower blowdown shall be limited to no detectable amount for the other priority pollutants contained in chemicals added for cooling tower maintenance.
5. As specified in s. NR 290.12(3)(b), Wis. Adm. Code.

### Sample Point 102 (Low Volume Wastewater):

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Daily Maximum</th>
<th>Daily Minimum</th>
<th>Weekly Average</th>
<th>Monthly Average</th>
<th>Footnote(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow rate</td>
<td></td>
<td>6.0 s.u</td>
<td>9.0 s.u.</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>pH</td>
<td>6.0 s.u</td>
<td>9.0 s.u.</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Oil &amp; Grease (Hexane)</td>
<td>20 mg/L</td>
<td>42 lbs/day</td>
<td>15 mg/L</td>
<td>26 lbs/day</td>
<td>3</td>
</tr>
<tr>
<td>TSS</td>
<td>100 mg/L</td>
<td>209 lbs/day</td>
<td>30 mg/L</td>
<td>53 lbs/day</td>
<td>3</td>
</tr>
<tr>
<td>PCBs</td>
<td>No detect</td>
<td></td>
<td>No detect</td>
<td></td>
<td>4</td>
</tr>
</tbody>
</table>

Footnotes:
1. Monitoring shall be reported in million gallons per day (MGD).
2. As specified in s. NR 290.12(3)(a), Wis. Adm. Code.
3. The concentration limits are from Table 3 in s. NR 290.12(3), Wis. Adm. Code.
4. As specified in s. NR 290.12(3)(b), Wis. Adm. Code.
PART 1 – BACKGROUND INFORMATION

LSP Whitewater Limited Partnership (LSP Whitewater) is a 245 megawatt (MW) dual-fuel combined cycle cogeneration plant providing up to 245 MW of electrical energy to WE Energies. The plant began commercial operations in September 1997. It houses two turbines: a combustion turbine and a steam turbine. The primary fuel is natural gas; diesel fuel can be used as a back-up fuel when needed. All process water used by the facility is obtained from the City of Whitewater Water Utility. Contracts to provide steam to the University of Wisconsin-Whitewater and hot water to the commercial greenhouse located west of the facility ended in 2021.

Wastewater generated from this facility consists primarily of cooling tower blowdown (5 cycles), demineralizer regenerant wastes, reverse osmosis reject, and miscellaneous plant and equipment drains. The facility uses sulfuric acid and sodium hydroxide for pH control and for demineralizer regeneration. The facility uses sodium hypochlorite and sodium bromide for cooling tower biogrowth treatment and dechlorinates with sodium bisulfite. Oil and grease and solids are controlled with an oil/water separator. pH is controlled with a neutralization system prior to discharge. The facility utilizes a number of boiler treatment chemicals to maintain proper boiler chemistry and to limit corrosion.

Sampling Point 101 is the cooling tower blowdown. Sampling Point 102 represents all other low volume wastewater. Outfall 001 is the combined effluent from Sample Point 101 and 102. The effluent from the facility travels through a pipe which then combines with the discharge pipe from the City of Whitewater Wastewater Treatment Plant (WPDES Permit No. WI-0020001). This combined effluent then discharges to Whitewater Creek. Effluent limitations have been developed for the combined discharge that protects the receiving water quality. Outfall 002 is the combined effluent from LSP Whitewater and the City of Whitewater WWTP.

PART 2 – INDUSTRIAL CATEGORY

Chapter NR 290, Wis. Adm. Code, and 40 CFR s. 423.15 specify treatment-based limits required for steam electric power generating facilities. LSP Whitewater must comply with the new source performance standards (NSPS), which are applicable to any steam electric facility built after November 19, 1982 (LSP Whitewater was established in 1997). These standards are listed in s. NR 290.12(3), Wis. Adm. Code. New federal regulations on effluent guidelines for steam electric power generating facilities were promulgated in November 2015; however, none of these new effluent guidelines apply to LSP Whitewater.

Cooling Tower Blowdown (Sample Point 101)

Section NR 290.12, Wis. Adm. Code, specifies the discharge standards to which all steam electric facilities must comply. New source performance standards, which can be found in s. NR 290.12, Wis. Adm. Code, specifies the required limits for cooling tower blowdown discharges. Except for total chromium and total zinc, discharge of cooling tower blowdown shall be limited to no detectable amount for the other priority pollutants contained in chemicals added for cooling tower maintenance. If pH is monitored continuously then s. NR 205.06, Wis. Adm. Code would apply.

The TBELs shown in the table on the cover page are more restrictive than the water-quality based effluent limits. Therefore, per s. NR 290.12(g), Wis. Adm. Code, mass limits at Sample Point 101 are not necessary at this time.
Low Volume Wastewater (Sample Point 102)
Section NR 290.12, Wis. Adm. Code, specifies the discharge standards to which all steam electric facilities must comply. New source performance standards, which can be found in s. NR 290.12, Wis. Adm. Code, specifies the required limits for low volume waste discharges.

Metal cleaning waste limits for Iron and Copper at Sample Point 102 are no longer recommended. These limits do not apply because the facility no longer discharges metal cleaning waste through permitted outfalls (per the facility via email on 01/04/2022, “any waste like that would be barreled and disposed”). “Chemical metal cleaning waste” means any wastewater resulting from the cleaning of any metal process equipment with chemical compounds, including, but not limited to, boiler tube cleaning per ch. NR 290, Wis. Adm. Code.

Oil and Grease
The previous permit included mass limits for oil and grease in addition to the concentration limits. The mass limits are reevaluated here to account for flows during the last five years. The mass limit is calculated using the following “pounds” equation:

\[
\text{Mass Limit (lbs/day)} = \text{Concentration Limit (mg/L)} \times \text{Effluent Flow Rate (MGD)} \times 8.34,
\]

where 8.34 is a unit conversion factor.

Daily maximum mass limit
The daily mass limit is calculated using the maximum daily total flow which has occurred under normal operations per s. NR 106.07(2), Wis. Adm. Code, which was 0.47 MGD based on reported flow data from May 2017 through September 2021 at Sample Point 102.

\[
\text{Daily maximum mass limit} = 20 \text{ mg/L} \times 0.47 \text{ MGD} \times 8.34 = 78 \text{ lbs/day}
\]

Since 78 lbs/day is higher than the previous mass limit of 42 lbs/day, the previous mass limit of 42 lbs/day is retained to prevent degradation. For informational purposes, the calculated 1-day P99 is 17 lbs/day.

Monthly average mass limit
The monthly average mass limit is calculated using the maximum annual average flow or the maximum 30-day average flow per s. NR 106.07(2), Wis. Adm. Code. In this case the maximum annual average flow of 0.21 MGD, based on reported flow data from May 2017 through September 2021 at Sample Point 102, is more restrictive.

\[
\text{Monthly average mass limit} = 15 \text{ mg/L} \times 0.21 \text{ MGD} \times 8.34 = 26 \text{ lbs/day}
\]

The calculated mass limit of 26 lbs/day is more restrictive than the current mass limit of 31 lbs/day, so 26 lbs/day replaces the previous limit. For informational purposes, the calculated 30-day P99 is 4.8 lbs/day.

Total Suspended Solids (TSS)
The previous permit included mass limits for TSS in addition to the concentration limits. The mass limits are reevaluated here to account for flows during the last five years. The mass limit is calculated using the following “pounds” equation:

\[
\text{Mass Limit (lbs/day)} = \text{Concentration Limit (mg/L)} \times \text{Effluent Flow Rate (MGD)} \times 8.34,
\]
where 8.34 is a unit conversion factor.

**Daily maximum mass limit**
The daily mass limit is calculated using the maximum daily total flow which has occurred under normal operations per s. NR 106.07(2), Wis. Adm. Code, which was 0.47 MGD based on reported flow data from May 2017 through September 2021 at Sample Point 102.

\[
\text{Daily maximum mass limit} = 100 \text{ mg/L} \times 0.47 \text{ MGD} \times 8.34 = 392 \text{ lbs/day}
\]

Since 392 lbs/day is higher than the previous mass limit of 209 lbs/day, **the previous mass limit of 209 lbs/day is retained is to prevent degradation.** For informational purposes, the calculated 1-day \( P_{99} \) is 8.5 lbs/day.

**Monthly average mass limit**
The monthly average mass limit is calculated using the maximum annual average flow or the maximum 30-day average flow per s. NR 106.07(2), Wis. Adm. Code. In this case the maximum annual average flow of 0.21 MGD, based on reported flow data from May 2017 through September 2021 at Sample Point 102, is more restrictive.

\[
\text{Monthly average mass limit} = 30 \text{ mg/L} \times 0.21 \text{ MGD} \times 8.34 = 53 \text{ lbs/day}
\]

The calculated mass limit of 53 lbs/day is more restrictive than the current mass limit of 63 lbs/day, so **53 lbs/day replaces the previous limit.** For informational purposes, the calculated 30-day \( P_{99} \) is 2.0 lbs/day.