How SWQM/CRP Data is Used in Water Program Permitting

Erika Crespo, Water Quality Division
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Thank You!

* For collecting and processing water quality and quantity data
* For ensuring that such data are of high quality
* For enabling the TCEQ to write better permits based on actual environmental conditions
* For enabling the TCEQ to make better rules
TCEQ Water Permitting Programs

- Wastewater permits – Water Quality Division
- Water rights permits – Water Availability Division
Wastewater Permits

- Permit applications go through multiple technical reviews:
  - Standards
  - Critical Conditions
  - Dissolved Oxygen (DO) Modeling
  - Permit Writer’s Technical Review
States the uses and criteria of the receiving water body

Antidegradation requirements

Nutrient screening
  * Chlorophyll $a$
  * Total phosphorous
  * Secchi depth
Critical Conditions

- Provides critical flow and mixing conditions
- Provides targeted flow measurement locations
- Assigns TEXTOX menu information
* Dissolved oxygen
  * Temperature
  * Chlorophyll $a$
  * Salinity (conductivity, TDS)

* Diffusers
Permit Writer

- Standards Review
- Critical Conditions Review
- Dissolved Oxygen Modeling Review
- Permit Writer
### Ambient Data

#### Table D-12 Segment-Specific Values for Basin 12, Brazos River

<table>
<thead>
<tr>
<th>Segment Number</th>
<th>TSS (mg/L)</th>
<th>pH (s.u.)</th>
<th>Total Hardness (mg/L as CaCO₃)</th>
<th>TDS (mg/L)</th>
<th>Chloride (mg/L)</th>
<th>Sulfate (mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1201</td>
<td>10</td>
<td>7.7</td>
<td>232 (c)</td>
<td>5150</td>
<td>3220</td>
<td>412</td>
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<tr>
<td>1202</td>
<td>36</td>
<td>7.6</td>
<td>160</td>
<td>438</td>
<td>88</td>
<td>60</td>
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<tr>
<td>1203</td>
<td>3.0</td>
<td>7.9</td>
<td>230 (d)</td>
<td>888</td>
<td>371</td>
<td>180</td>
</tr>
<tr>
<td>1204</td>
<td>4.3</td>
<td>7.8</td>
<td>230 (d)</td>
<td>1294</td>
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<td>234</td>
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<tr>
<td>1205</td>
<td>4.0</td>
<td>7.9</td>
<td>230 (d)</td>
<td>1418</td>
<td>893</td>
<td>311</td>
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<td>7.8</td>
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<tr>
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<td>2.0</td>
<td>8.1</td>
<td>230 (d)</td>
<td>1870</td>
<td>893</td>
<td>371</td>
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<td>Menu #</td>
<td>Immediate Receiving Water</td>
<td>Water Body Within 3 Miles</td>
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<tr>
<td>-------</td>
<td>----------------------------------------------------------------</td>
<td>---------------------------------------------------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Intermittent water body</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Intermittent water body</td>
<td>Perennial ditch, stream, or river</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Perennial ditch, stream, or river</td>
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<td></td>
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<td></td>
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<tr>
<td>4</td>
<td>Lake or lake-like water body</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>5</td>
<td>Wide tidal water body or narrow tidal with no upstream flow data</td>
<td></td>
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</tr>
<tr>
<td>6</td>
<td>Narrow tidal water body with upstream flow data</td>
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<tr>
<td>7</td>
<td>Intermittent stream w/ perennial pools</td>
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<td>8</td>
<td>Intermittent water body</td>
<td>Lake or lake-like water body</td>
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</tr>
<tr>
<td>9</td>
<td>Intermittent water body</td>
<td>Narrow tidal water body w/ upstream flow</td>
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<td></td>
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<tr>
<td>10</td>
<td>Intermittent water body</td>
<td>Wide tidal water body or narrow tidal with no upstream flow data</td>
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<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**DISCHARGE INFORMATION**

- Receiving Waterbody:
- Segment No.:
- TSS (mg/L):
- pH (Standard Units):
- Hardness (mg/L as CaCO₃):
- Chloride (mg/L):
- Effluent Flow for Aquatic Life (MGD):
- Critical Low Flow [7Q2] (cfs):
- % Effluent for Chronic Aquatic Life (Mixing Zone):
- % Effluent for Acute Aquatic Life (ZID):
- Effluent Flow for Human Health (MGD):
- Harmonic Mean Flow (cfs):
- % Effluent for Human Health:
- Public Water Supply Use?  
  - yes or no
TSS is used to determine how metals partition between the dissolved (bioavailable) and total forms for:

- Arsenic
- Cadmium
- Chromium
- Copper
- Lead
- Mercury
- Nickel
- Silver
- Zinc
Freshwater aquatic life criteria for the following metals depend on the hardness of the receiving water:

- Cadmium
- Trivalent Chromium
- Copper
- Lead
- Nickel
- Zinc
pH

* pH is part of freshwater aquatic life criteria for pentachlorophenol
* Ensure that permit limits for pH will maintain pH standards in receiving water
Determine whether permit limits are needed to ensure criteria for TDS, chloride, and sulfate are met in the receiving water

Determine whether monitoring is appropriate
Water quality data is or has been used in the following water rights programs:

* Environmental reviews of water right applications
* Environmental Flows rulemaking (SB3) – effects of proposed stream flow standards on water quality
* Instream Flows program (SB2) – studies and analyses to determine flow conditions in rivers and streams necessary to support a sound ecological environment
Questions?

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