The 4M’s of Collection Systems Management: The Saga Continues
Conference & Expo
January 22 – 23, 2014 – San Marcos, TX
TCEQ Chapter 217 Rules Update
History of the Wastewater Treatment Design Criteria in Texas
History of the Wastewater Treatment Design Criteria in Texas

• The first consolidated design criteria was adopted by Texas State Department of Health on 9/18/1950.

PETITION TO ADD REHABILITATION CRITERIA
Definitions

• Maintenance
• Rehab
• Renovation
• Surcharge
• Gravity relief sewer
• Grinder pump
• Inspection
SUBCHAPTER B
TREATMENT FACILITY DESIGN REQUIREMENTS
<table>
<thead>
<tr>
<th>Source</th>
<th>Remarks</th>
<th>Daily Wastewater Flow (gallons/person)</th>
<th>Wastewater Strength (mg/l BOD₅)</th>
<th>Wastewater Strength (mg/l NH₃-N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Municipality</td>
<td>Residential</td>
<td>75-100</td>
<td>200-400</td>
<td>15-75</td>
</tr>
<tr>
<td>Subdivision</td>
<td>Residential</td>
<td>75-100</td>
<td>200-400</td>
<td>15-75</td>
</tr>
<tr>
<td>Trailer Park (Transient)</td>
<td>2½ Individuals per Trailer</td>
<td>50-60</td>
<td>250-350</td>
<td>15-75</td>
</tr>
<tr>
<td>Mobile Home Park</td>
<td>3 Individuals per Trailer</td>
<td>50-75</td>
<td>300</td>
<td>15-75</td>
</tr>
<tr>
<td>School</td>
<td>Cafeteria &amp; Showers</td>
<td>20</td>
<td>300</td>
<td>15-75</td>
</tr>
<tr>
<td></td>
<td>Cafeteria/No Showers</td>
<td>15</td>
<td>300</td>
<td>15-75</td>
</tr>
<tr>
<td>Recreational Parks</td>
<td>Overnight User</td>
<td>30</td>
<td>200</td>
<td>15-75</td>
</tr>
<tr>
<td></td>
<td>Day User</td>
<td>5</td>
<td>100</td>
<td>15-75</td>
</tr>
<tr>
<td>Office Building or Factory</td>
<td>A facility must be designed for the largest shift</td>
<td>20</td>
<td>300</td>
<td>15-75</td>
</tr>
<tr>
<td>Hotel/Motel</td>
<td>Per Bed</td>
<td>50-75</td>
<td>300</td>
<td>15-75</td>
</tr>
<tr>
<td>Restaurant</td>
<td>Per Meal</td>
<td>7-10</td>
<td>1000*</td>
<td>15-75</td>
</tr>
<tr>
<td>Restaurant with bar or cocktail lounge</td>
<td>Per Meal</td>
<td>9-12</td>
<td>1000*</td>
<td>15-75</td>
</tr>
<tr>
<td>Hospital</td>
<td>Per Bed</td>
<td>200</td>
<td>300</td>
<td>15-75</td>
</tr>
<tr>
<td>Nursing Home</td>
<td>Per Bed</td>
<td>75-100</td>
<td>300</td>
<td>15-75</td>
</tr>
<tr>
<td>Alternative Collection Systems (Subchapter D)</td>
<td>Per Capita</td>
<td>75</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td>*Based on a restaurant with a grease trap</td>
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SUBCHAPTER C
CONVENTIONAL COLLECTION SYSTEMS
Pipe Design

• Clarify intent related to gaskets on pressure rated pipe when 9 foot separation from water lines cannot be provided or add a requirement that gaskets operate properly at atmospheric pressure

• Correct 217.53(k)(4) to refer to the structural calculations in 217.53(k)(2)
  – Currently refers to 217.53(k)(3), which provides the pipe stiffness equation required in 217.53(k)(2)
Pipe Design (cont’d)

Clarify requirements for horizontal pipe curvature specified. Joint deflection must be equal to 5 degrees or less than 80% of manufacturer’s recommendation or 80% of ASTM, AWWA, ANSI standard for joint deflection. (DO NOT BEND THE PIPE)
Testing Requirements for Gravity Pipes

• Consider reducing the maximum allowable leakage in the infiltration/exfiltration test
  – Currently 50 gallons per inch diameter per mile of pipe per day
Manholes

• Clarify where bolted and gasketed manholes are required
• Add a requirement for engineer to specify an appropriate national reference standard for sealing manhole covers
Testing Requirements for Manholes

- Allow ASTM testing requirements for manholes
- Correct units in 217.58(b)(2)(d), related to tightening external clamps on the vacuum testing cover
Lift Stations

- Clarify allowable fence types and set 8 feet as the minimum fence height
- Clarify intent for above ground valves
  - Concrete pad adjacent to wet well O.K. (fenced)
  - Locked/chained in the fence
  - Tamper-resistant structure allowable
- Consider swing-type valves that do not have external levers
Lift Stations

• Add backup high water float requirement for wet well level detection
• Other clarifications
  – Control pad must be large enough for personnel to do electrical work safely
  – Ladders and access hatches must also meet OSHA
  – Non-corrosive vents for all lift stations
  – Explosion-proof equipment for all lift stations
  – Dry well pumps must discharge to wet well
Lift Stations

• Other clarifications (cont.)
  – Hoisting equipment and access
  – Separate pipes for sump pumps
  – Expected peak flow for firm pumping capacity
Emergency Provisions for Lift Stations

- Clarify that generators or auxiliary pumps can may be used
- Add minimum fuel tank size requirements based on hours of fuel
- Add a section for gravity relief sewers
- Clarify quick connection design and generator electric loading design
Force Mains

- Add fatigue life calculation requirements
- Consider basing minimum velocities on the smallest pump operating at full speed
  - Consider additional flushing requirement for variable speed pumps that normally operate below minimum velocities
- Clarify that air release valves must be noncorrosive
Reclaimed Water

• Remove requirement that electrical equipment be operable during a 100 year flood event
  – Consider requirement that equipment be operable after a 100 year flood event
• Consider swing-type valves that do not have external levers
Proposed 217.71. Maintenance, Inspection, and Rehabilitation of the Collection System

• The owner must develop a maintenance and inspection program

• P/S for rehabilitation projects must include a surface preparation plan; working in confined spaces; follow the manufacturer procedures; and re-inspection after 6 and 18 months.
Questions or Comments?

In life...

questions are guaranteed

answers are not
What Can Happen If You Have Leaking Pipes?
Smoke Testing

These are stub outs in the phase two area of Cherokee Hills Subdivision.
What is wrong with this picture?
How does your collection system look?
Look Mom, an Artesian Well!
Thank you

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