Frontera Force Mains: Background

- Since the 1990s, these dual force mains collected all wastewater from West El Paso and delivered an average of about 10 MGD of flows to the Hickerson Water Reclamation Facility (about 3.5 miles away).
- 2017, completed visual assessment on select segments impacted by TXDOT project; no measurable corrosion identified
- 2018-2019, detailed engineering condition assessment completed after a pipeline break identified the need to replace the line; replacement budgeted for 2020.
- In March 2020, a rupture occurred in one line, triggering an emergency declaration and expedited construction of the replacement line.
- New pipeline construction was 60% complete when both lines experienced multiple breaks in August 2021.
Frontera Force Mains – Breaks clustered in one area

<table>
<thead>
<tr>
<th>South Pipe</th>
<th>North Pipe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doniphan Park Circle</td>
<td>Best Western</td>
</tr>
<tr>
<td>Constitution Prkg Lot</td>
<td>Doniphan Park Circle</td>
</tr>
<tr>
<td></td>
<td>Constitution Prkg Lot</td>
</tr>
<tr>
<td></td>
<td>Constitution Storage Facility</td>
</tr>
<tr>
<td></td>
<td>Frontera Lift Station</td>
</tr>
</tbody>
</table>
Original plan of action

- Repair south pipe and regain pipeline operation
- Abandon north line in place, highly unreliable
- Continue installation of new pipeline, which was 60% complete

Shift to alternate plan

- When south pipe also started failing, only feasible option to mitigate wastewater spills near homes and businesses by discharging wastewater to the river
- EPWater worked with engineering contractor Oscar Renda on a plan to accelerate the installation of the new pipeline
Replacement Project Accelerated
Completed December 31, 2021
1.2 miles of 36” main

Carbon Fiber Wrap:
100% on North Main
40% on South Main

FRONTERA Lift Station

GMC DEALERSHIP

BOB-O’S
River Discharge Mitigation Plan

River bypass with pump and treat mitigation started in October:

- Phase 1: Diversion of flows into cement-lined canals and into Bustamante Wastewater Treatment Plant. Bustamante is an estimated 20 miles downstream from the discharge point.

- Phase 2: Diversion of flows from American Canal to treat at Haskell Plant. Haskell is an estimated 9 miles downstream from the discharge point.
Bustamante diversion pumping operation

WW in Canal Before Treatment

Clean Water After Treatment

February 24, 2022  El Paso Water
New pipeline operational in early January
Wastewater discharge to riverbed gradually decreased starting January 4
and completely stopped on January 11

Herculean effort
- 4 ½ months
- 15 vendors
- Long days, weekends, significant overtime
- Expedited delivery of equipment and supplies
- Onsite manufacturing
- Hickerson WRF start-up and commissioning over holiday
Clean-up and remediation

- EPWater conducted sampling and had access to International Boundary and Water Commission (IBWC) monthly water quality sampling data to establish baseline environmental conditions.
- Ponding areas and impacted stormwater structures were disinfected and deodorized.
Ecological assessment

EPWater hired environmental engineering consultant expert Arcadis to perform the ecological assessment: 30 miles of Rio Grande channel; 65 observation locations.

- Wildlife observed within and around Rio Grande
- No adversely impacted wildlife
- Noticeable shorebird and waterfowl activity
- No live or dead freshwater mussels
- No fish species were observed
- Water temperature was generally higher in locations upstream of the American Dam.
Ecological assessment

- Wastewater and waste solids were observed throughout the project area.
- Decreasing solids downstream.
- Turbid/gray-green water color observed through entire active portion of the project area.
- Algal growth was observed within the active portion of the Rio Grande main channel and diversion canals.
- Arcadis will continue to monitor conditions along the river through April.
Clean-up and remediation
Multi-agency effort

- Irrigation District is cleaning cement-lined Riverside Canal
- IBWC has authorized cleanup and sediment removal; assisting with cleaning American Dam
- EPWater stormwater crews have focused on removal of solids and impacted soil in River
- Additional contracts are in place to help expedite the cleanup so work is completed in time for irrigation season
Overview: Cleanup Sites

- Rio Grande ~10,000 feet
- American Canal ~11,000 feet

Discharge point

American Dam

American Canal Settling Basin

Estimated Date of Completion: Late May 2022
We have stayed true to our commitment to the community

- Acceleration of replacement line
- Mitigation of impacts
- Transparency with public
- Working with stakeholders and neighbors
- Environmental remediation
- Responsiveness to regulators
### Water quality sampling results during discharge

**February 17, 2022**

<table>
<thead>
<tr>
<th>Sampling for:</th>
<th>Pre-discharge – Site 1</th>
<th>Site 1 Findings During Discharge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic (ppb)</td>
<td>9.19</td>
<td>5.79-8.84</td>
</tr>
<tr>
<td>Chromium (ppm)</td>
<td>&lt;0.005</td>
<td>&lt;0.005</td>
</tr>
<tr>
<td>Copper (ppm)</td>
<td>&lt;0.005</td>
<td>&lt;0.005 – 0.013</td>
</tr>
<tr>
<td>Mercury (ppm)</td>
<td>&lt;0.0002</td>
<td>&lt;0.0002</td>
</tr>
<tr>
<td>Lead (ppb)</td>
<td>&lt;0.781</td>
<td>&lt;0.09 – 2.03</td>
</tr>
<tr>
<td>E-Coli (MPN/100ml)</td>
<td>136</td>
<td>▲ &gt;2420</td>
</tr>
<tr>
<td>Fecal Coliform (CFU/100ml)</td>
<td>246</td>
<td>▲ 24,000</td>
</tr>
<tr>
<td>pH</td>
<td>8.3</td>
<td>6.9 – 7.7</td>
</tr>
<tr>
<td>Dissolved Oxygen (ppm)</td>
<td>6.6</td>
<td>▲ 0.28 – 7.4</td>
</tr>
<tr>
<td>BOD (ppm)</td>
<td>3.32</td>
<td>▲ 25.5 - 109</td>
</tr>
<tr>
<td>COD (ppm)</td>
<td>19</td>
<td>▲ 24.7 – 438</td>
</tr>
<tr>
<td>Nitrate (ppm)</td>
<td>0.466</td>
<td>&lt;0.1 – 0.722</td>
</tr>
<tr>
<td>Ammonia (ppm)</td>
<td>0.427</td>
<td>▲ 9.19 – 16.6</td>
</tr>
</tbody>
</table>

EPWater is awaiting water quality sampling results taken after discharge stopped.