Implementation of Wastewater Discharge Regulation in Matamoros, Tamaulipas

Texas-Coahuila-Tamaulipas-Nuevo Leon Regional Workgroup

KEY PROJECT HIGHLIGHTS:

- 482 stakeholders trained and educated in 22 events
- 44 compliance inspections
- 63 commercial businesses sampled for compliance with regulation
- 118 area businesses received personal notification letters
- 15 grease traps distribute

In recent years in Matamoros, Tamaulipas, the Water Utility (Junta de Aguas y Drenaje de la Ciudad de Matamoros (JAD)), has observed in wastewater treatment plants and sewer system, large quantities of fats, oil and grease (FOG) substances, generated from a variety of sources (i.e. commercial - restaurants, mechanical shops and industry – maquiladoras). Over time, these FOG substances have accumulated and have obstructed and/or collapsed wastewater sewer lines throughout the city, leading to costly repairs for the city, not only through reconstruction of these lines but costs associated with the treatment of FOG substances at the wastewater plants. The city of Matamoros has approximately 9,098 commercial businesses and industry, of which 633 generators are identified as large quantity generators of FOG. In September 2016, Matamoros established a local ordinance, Regulation for the Control of Wastewater Discharges and Pretreatment of Sewer, to help address issues associated with commercial and industry wastewater discharge, among them FOG substances, and to get them to comply with federal, state regulations. The ordinance established two sets of wastewater discharge parameters, those businesses that discharged more than 26,400 gallons into the sewer waste system and those that discharged less than that amount. Non-compliance to these federal, state and now local regulations not only affect wastewater infrastructure, but ultimately the water quality of receiving water bodies after treated water leaves the plants.

Through a Border 2020 program funded project, financed in 2017 and completed in November 2019, the city provided training workshop and outreach to FOG generators on the 2016 ordinance to bring greater awareness of the ordinance and the importance of complying with the order to protect and prolong the life of existing wastewater infrastructure, as well as, protection of ecosystems. During the planning process of the project, the city of Brownsville collaborated with Matamoros by sharing its outreach resources and experience on their own FOG ordinance, including sampling and inspection. In addition, the Texas Commission of Environmental Quality (TCEQ), provided technical training to Matamoros staff by providing a water quality workshop in McAllen, Texas on state regulations (40 CFR 403 on FOG Best Management Practices) in January 2019.

The educational conferences focused on the 2016 Regulation and the various compliance components of this ordinance. In the training workshops (Figure 1 -3), the City focused on reinforcing pretreatment and control programs of FOG disposal through the installation of grease traps, thereby, reducing sewer system blockages and line failures, whether it's loss of pressure or partial/total collapse. Ultimately, the City hoped to reduce the number of complaints associated with these instances.

Figure 1. Informational pamphlet distributed at training workshops and educational conferences.

Figure 2. Informational pamphlet distributed at training workshops and educational conferences.

Figure 3. Attendees at a JAD (water utilities) educational workshop.

The City launched a public media campaign through electronic media (Facebook, city webpage), TV and print to inform not only commercial and industry users, but residents as well, on the importance of not dumping any fats, oil or grease down their drain. Project information was published in local newspapers, El Bravo and Contacto, over 23 times over the course of the project. Project staff delivered more than 1,000 personal invitations to area commercial and industry businesses. In total, 482 staff from the various commercial and industry sectors attended 11 training workshops (217 attendees) and 11 educational conferences (265 attendees).

In all the events, a post evaluation was conduction. Results of these evaluations are included in Table 1. In 10 of the 11 training workshops, one grease trap was provided to an attendee.

Table 1. Post evaluation results from workshops and conferences.

Training workshops (150 responses out of 217)	Educational Conferences (189 responses out of 269)
97% indicated the workshop clearly explained the impact of fats, oil and grease	97% indicated Ordinance was clearly explained
95% indicated they understood the function of a grease trap	99% indicated they had received a copy of the Ordinance
38% indicated that FOG substances negatively affect the sewer system	74% indicated they were interested in obtaining a permit
59% have a grease trap	54% indicated they conduct wastewater discharge analysis

The City also focused on personal notification letters which were hand-delivered to 118 commercial businesses located in the central part of the city, which has some of the oldest wastewater infrastructure and often accounts for one of the areas within the city that most negatively impacts the sewer system. The notification letters explained to business owners that city personnel are available to meet with them to explain the permit application process. In this outreach, an additional five grease traps were distributed to businesses.

Two additional key activities in the project included wastewater discharge analysis of 63 businesses from 21 different sectors and 44 regulation compliance inspections. Wastewater discharge sampling was conducted to get a baseline of what was going into the system from 63 large quantity generators located throughout the city and various sectors. The 63 sampled businesses (Figure 2) were the first businesses used to register for the discharge permit and to eventually properly enforce the new regulation. The parameters analyzed included: fats and oils, total suspended solids (TDS), chemical oxygen demand (COD), phosphorus, total nitrogen, pH, temperature and conductivity. Table 2 displays a summary of the testing. The one sector that

most impacted negatively in all the parameters, in this small sample size, were restaurants.

Table 2. Results of the 63 samples including % in and out of Regulation Maximum Limit for each parameter.

Parameter	% in Compliance	% out of Compliance
Fats and Oils	33%	64%
Total Suspended Solids	16%	84%
Chemical Oxygen Demand	6%	94%
Phosphorus	81%	19%
Total Nitrogen	46%	54%
pH	65%	35%
Conductivity	81%	19%
Temperature	99%	1%

With regards to the 44 compliance inspections, 13 of the inspections were with industry (i.e. Maquiladoras) and 31 with commercial businesses (i.e. restaurants, hotel, hospitals, food court). Compliance inspections indicated all the industries performed analysis of their wastewater discharge and depending on the type of manufacturing they conducted, determine if they had existing kitchen as well, and if they a grease trap. Any observed non-compliance to the regulation were noted and were given time to correct it, followed by a second visit to check that measures were corrected. The follow-up visits were outside the timeframe for this project. The majority of the 31 commercial business inspected noted that none were doing any testing of their discharge, however, they did have grease traps already installed.

Figure 4. Compliance inspection of Hotel Crown.

Overall, the project was able to achieve the goals and provided the city the opportunity to raise environmental awareness and interest in improving water quality among commercial business through the mass media campaign provided by the funding. The city increased the number of compliance inspections for the year and was also able to identify through sampling throughout the city what problems plague the system throughout the city and what sectors to focus on to improve compliance with the 2016 Regulation.

Figure 5. Javier Trevino, engineer, conference on July 24, 2019.