Feasibility Analysis for Project 5: Enhance Mexico Wastewater Collection System to Reduce Flows into the Tijuana River

Addendum to the Feasibility Analysis

USMCA Mitigation of Contaminated Transboundary Flows Project

Prepared for:

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1. INTRODUCTION

Under the modified EPA Contract No. 68HERH19D0033, Task Order No. 53, PG Environmental has prepared this addendum to the feasibility analysis for Project 5 to provide more information on methods to identify leaking collectors in the City of Tijuana sanitary sewer system. Specifically, PG looked at the effectiveness of the methods that are currently used and the potential use of smart covers to better identify leaking collectors.

2. CURRENT METHODS USED TO IDENTIFY LEAKS

The Tijuana River channel has point sources—referred to as gates—where untreated wastewater from the city can enter the river. The City of Tijuana currently identifies untreated wastewater discharges into the Tijuana River by visually inspecting the gates to check for flow. During each inspection, a team visually estimates the flow rate at each gate. The Comisión Estatal de Servicios Públicos de Tijuana (CESPT) can use the inspection results to keep an inventory of collector spills into the Tijuana River and priority collectors for rehabilitation and replacement. Additionally, the 2020 environmental impact document[1] identified priority collector repairs in Tijuana.

3. INSTALLATION OF SMART COVERS TO BETTER IDENTIFY COLLECTOR LEAKS

PG focused on smart covers as a way to identify leaking collectors, and expects that analytical methods that measure flow rates in the collector would have similar benefits and challenges.

Smart covers are manhole covers that measure the level of water in a gravity sewer. Statistically significant changes to the water level in the sewer may indicate issues within that collector. If the water level in the collector increases beyond natural variations, the collector may be clogged or experiencing infiltration from groundwater. If the water level decreases beyond natural variations, the collector may be exfiltrating wastewater. Identifying changes in the water level may allow collector issues to be identified and repaired quicker, which would reduce the amount of wastewater that enters the main river channel.

Data management is an operational challenge of using smart covers. Smart covers continuously collect water level data in gravity sewers, which requires processing to be useful in identifying collector issues. The data processing would require the water level sensor to be calibrated to each line to accurately measure depth, the flow rate in the collector to be continuously calculated from the measured water depth, and statistical analysis to be continuously performed to differentiate between changes in flow rates caused by natural variation versus changes cause by disruptions. Additionally, smart covers would have to be secured to prevent theft.

4. CONCLUSION

Overall, visual inspections by CESPT are effective at identifying collectors that are leaking untreated wastewater into the Tijuana River. Monitoring flows in the collectors with smart covers or other methods may aid CESPT in evaluations of river water quality but is not likely to reduce flows into the river by better identifying failing collectors. PG expects that installing smart covers would have a limited benefit to maintaining the sanitary sewer system in Tijuana, while operating the smart

[1] Huitt-Zollars. (2019). *Wastewater Collection Improvements for the City of Tijuana, Baja California.*

covers may syphon off financial resources that could otherwise be spent maintaining collectors that are known to need rehabilitation or replacement.