

# Tijuana River Wastewater Spill Investigation February 2017

U. S. International Boundary and Water Commission

# Introduction

- USIBWC received multiple complaints of wastewater odors in the Tijuana River Valley in the US beginning in early February 2017. The USIBWC requested information from its counterpart, the IBWC Mexican Section, several times on the source of these odors. The strong odors were confirmed by U.S. Section personnel several times during the period, the last time being February 17, 2017.
- Mexican Section of IBWC informed the US Section on February 23, 2017 that a sewer main had collapsed in the vicinity of the confluence of the Rios Tijuana and Alamar, a bypass was created to repair the line and that work was complete.
- USIBWC filed a spill report with the Regional Board. Spill discharge was based on limited information, stating as much as 143 million gallons had been discharged to the river.
- USIBWC informed the stakeholders on March 2, 2017 that a formal investigation would be conducted and a report issued in 30 days.

# Investigation of the February spill

- A binational meeting was held on March 9, 2017 at CESPT offices with members of the Minute 320 Water Quality Workgroup.
- CESPT reported that high volumes of stormwater entered the City of Tijuana wastewater collection system during December 2016, causing damage to several collectors. Stormwater carrying sediment and debris caused blockages of many other lines resulting in sewer overflows that drain to the Tijuana River.
- CESPT identified seven areas in the wastewater collection system that sustained some degree of damage due to collapse. Six were repaired and were made operational without discharges to the river.
- Aging concrete infrastructure is suffering from hydrogen sulfide corrosion and pressurized flow + grit loading during storms = collapse.

# Investigation of the February spill

- CESPT provided the following information at the meeting:
- On January 1, 2017, there was a collapse of the 42-inch diameter *Insurgentes/Oriente* Collector in the vicinity of the confluence of the Alamar River and Tijuana River. This resulted in a sinkhole that caused the sidewalk and a bus shelter to collapse into the sinkhole.
- January 2, 2017- Work to clear the area began with demolition of the pavement, testing to determine extent of damage, excavation, and then bypassing of flows to the old *Poniente* Collector until the section that collapsed could be operated as an open channel. Work was compound by rain events, abandoned underground structures, the failure of the bus shelter, overhead and buried power lines, and heavy traffic in the area. The repair involved both a 42" and a 40" diameter line as well as a junction structure leading to a 60" dia pipe.



Poniente interceptor

Insurgentes/Oriente collector break

Location of bypass into Rio Alamar

Rio Alamar

Tijuana River

Location of bypass into Tijuana River

Location of bypass into old Poniente collector

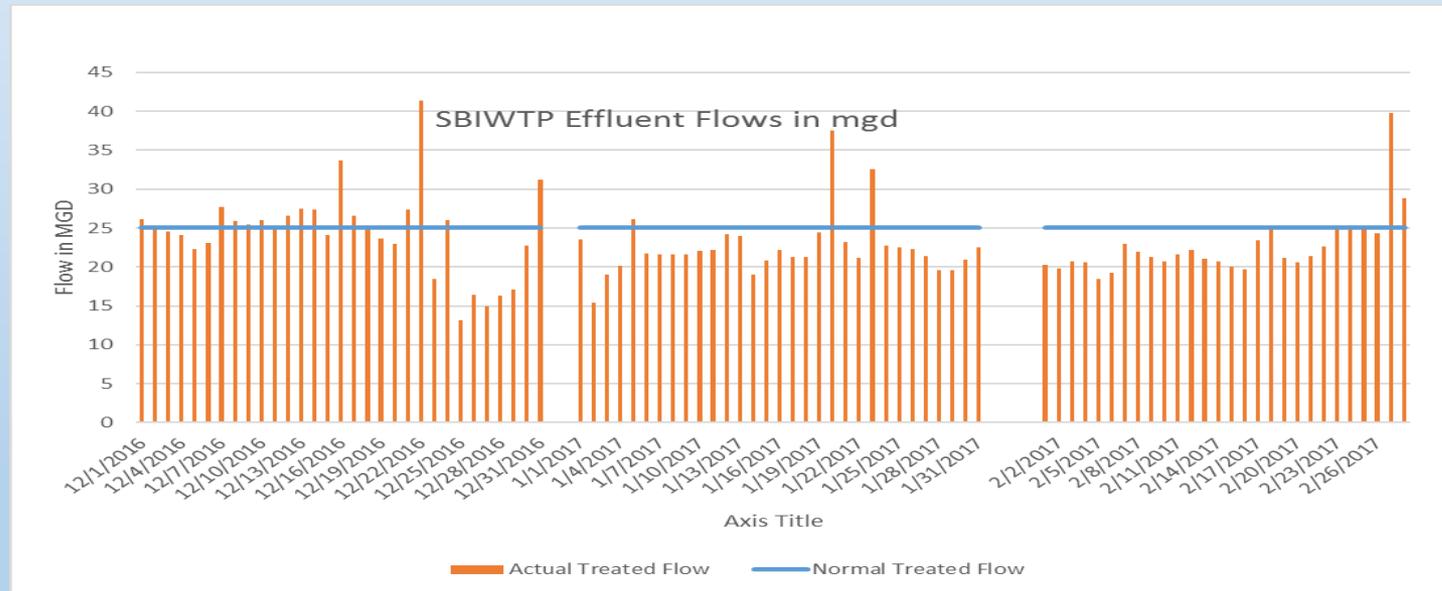


# Investigation of the February spill

- On February 1, 2017, emergency repairs were undertaken. During this time, flow was bypassed from two 24-inch pipes; one into the Alamar River and one into the Tijuana River, just upstream of their confluence. These bypasses could have been made with pumping equipment to maintain the wastewater within the collection system, however CESPT lacked pumps of sufficient capacity to handle the flow.
- Repairs concluded on February 4, 2017 and the bypasses were removed. CESPT informed the group that the bypasses were estimated to total 300 lps or 7 million gallons per day (MGD) for an approximate total of up to 28 million gallons (MG) into the Tijuana River.

# Investigation of the February spill

- Flow records from the SBIWTP and flow data from CESPT indicate that approximately 256 MGD of wastewater was not received at the SBIWTP or SABWTP during the months of January and February 2017.

















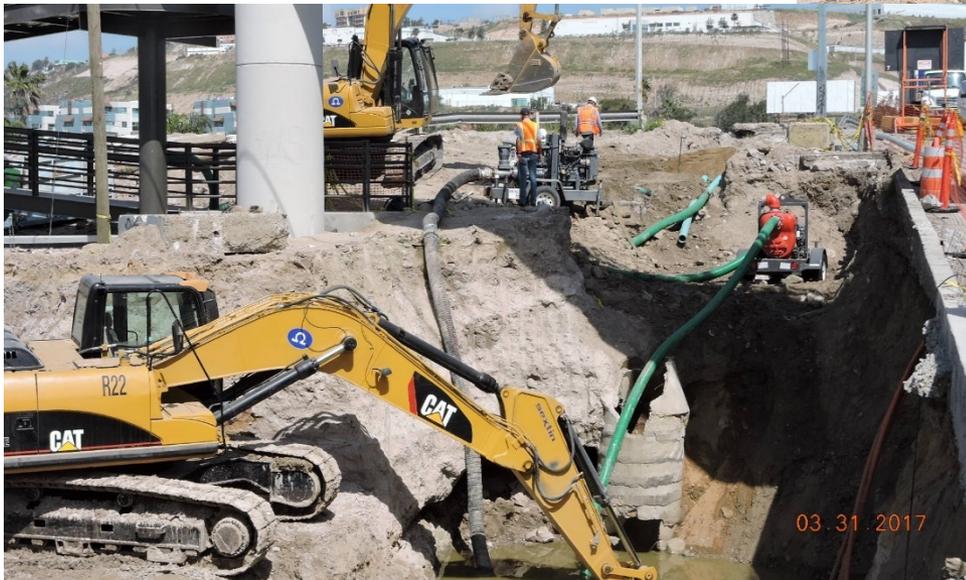








Repair of the 60" line began in March and was completed in April of 2017



# Investigation of the February spill

- During the meeting, CESPT identified 5 critical areas and 35 other pipeline reaches that are in near critical condition. These are pipelines that were installed in the 1970s and 1980s, some as late as 1992. Their estimate to rehab is \$590M pesos or \$33M USD.
- CESPT noted that they prepared a proposal of emergency declaration to request assistance from the City of Tijuana and CONAGUA. CESPT received approx. \$8.2M USD to repair work on 6 collectors, including the *Insurgentes/Oriente* collector, and to purchase equipment. CESPT has ordered and received a large truck mounted bypass pump to allow manhole to manhole bypasses for future work.
- Thus far no additional funding has been made available for Mexico infrastructure improvements.

# Recommendations - Investigative Report

- Equipment needed to address emergency situations.
  - Bypass pumps have been purchased and are in use.
- Communication.
  - Binational Protocol, Minute 320 Working Group on Spill Notification Process – 2<sup>nd</sup> draft has been circulated. MOU between State of Baja California and MXIBWC; CESPT Emergency Protocol - pending.
- Quarterly River Inspection
  - On April 6, 2017 Mexico notified the US that they had constructed a temporary weir in Canon del Sainz to capture discharges and convey them to other collectors. This effectively eliminated discharge from Canon del Sainz to the Tijuana River. River Inspection conducted on April 12, 2017. Noted several drains with discharges, Mexico has been officially requested to correct these problem areas.

# Continued Monitoring

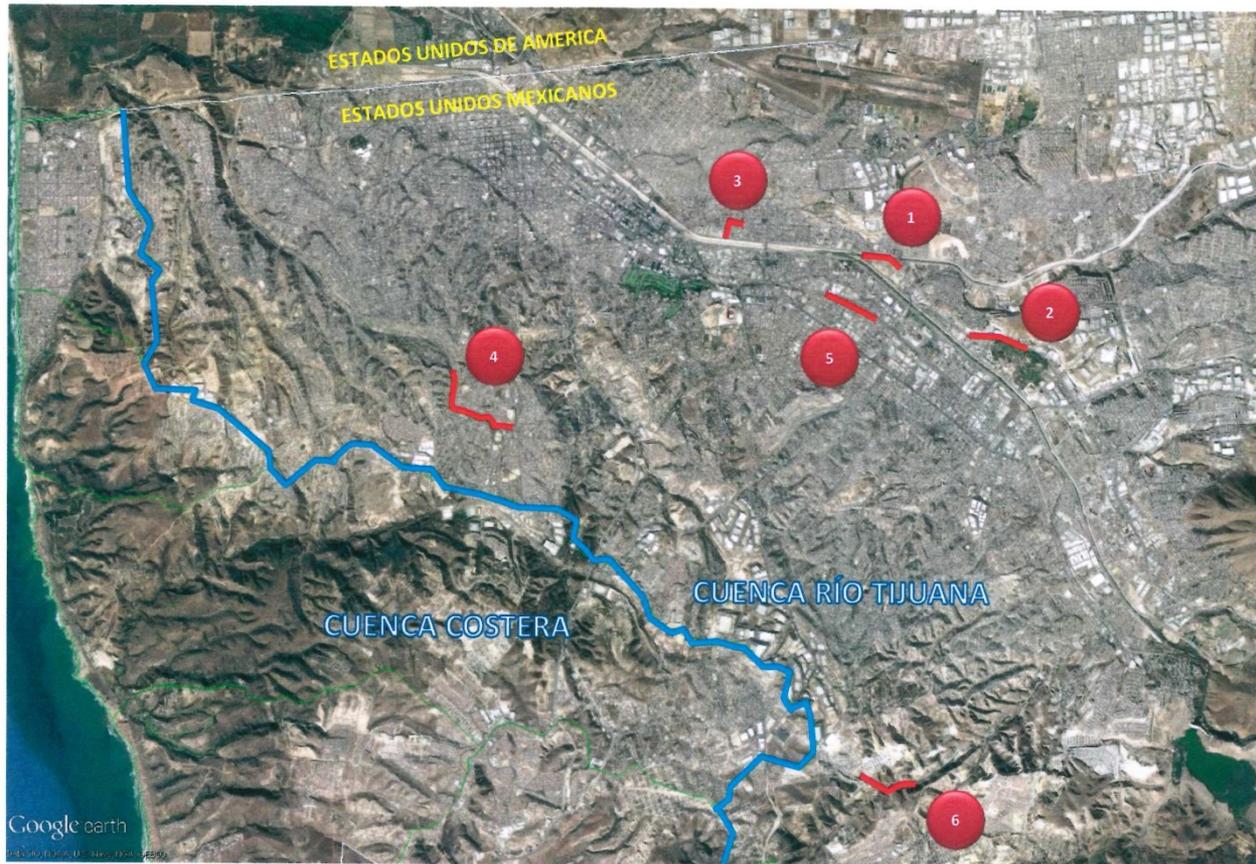
- Pump Station CILA Metering and Notification
  - Work should be completed in 2 months
- US Side Infrastructure
  - Proposed draft scope of work to study improvements to PS CILA and additional pumping infrastructure on US side. Seeking funding for this study.
- Data Collection
  - Additional water quality sampling and flow measurement in the Tijuana River- US delegation (Surfrider/EPA/USIBWC) is working on a proposed sampling plan to enhance/complement existing sampling data.
- Infrastructure Assessment (CESPT)
  - Updated plan to address aging infrastructure, plan has been drafted by BECC/NADBANK with revisions by CESPT.
    - Immediate emphasis is on repair of damaged collectors and design of a new treatment plant at San Antonio de los Buenos. Medium term is to divert (pump) effluent flow to Valle de las Palmas from La Morita and Arturo Herrera WWTPs. Total Estimated Cost to implement this plan is approximately \$276 M USD

# AVANCES de OBRA

Declaratoria de Emergencia  
SUBDIRECCION DE CONSTRUCCION

NO.	OBRA	AVANCE	INVERSION A LA FECHA	PERIODO DE EJECUCION
1	REHABILITACION <b>COLECTOR INSURGENTES</b> , TRAMO "EL MEXICANO-PUENTE ERMITA".	SE INSTALARON 70 ML. TRABAJANDO EN EL REPLANTEO Y AJUSTE DE ALCANCES DEL TRAMO A CONSTRUIR Y EN ESPERA DE SUMINISTRO DE TUBERIA PARA INICIAR LOS TRABAJOS	\$ 8,000,000.00	6 MESES
2	REHABILITACION <b>COLECTOR INSURGENTES</b> , TRAMO "PARQUE MORELOS- LOS ALAMOS".	EN EL TRANSCURSO DE ESTA SEMANA SE TIENE PROGRAMADO INICIAR CON LOS TRABAJOS, SE ACABA DE OBTENER EL PERMISO DEL AYUNTAMIENTO.	Inicia próxima semana	6 MESES
3	REHABILITACION <b>COLECTOR INV</b> , TRAMO "FUNDADORES-ESTEBAN CALDERON".	SE ESTA ELABORANDO PROYECTO. CONTRATISTA SEÑALA QUE PRESENTARA PROPUESTA PARA SU APROBACION PARA INICIAR CON LOS TRABAJOS	\$ 530,000.00	6 MESES
4	REHABILITACION <b>COLECTOR ORIENTE</b> , TRAMO "BUENA VISTA".	SE ESTA TRABAJANDO EN SONDEOS Y EN EL REPLANTEO DEL PROYECTO. EN ESPERA DEL SUMINISTRO DE LA TUBERIA PARA INICIAR LOS TRABAJOS	inicia 2 semanas	7 MESES
5	REHABILITACION <b>COLECTOR PONIENTE</b> , TRAMO "ALISIOS-CUAUHEMOC".	SE INSTALARON 24 ML. DE TUBERIA DE 24" Ø PVC	\$ 446,440.00	3.5 MESES
6	REHABILITACION <b>SUBCOLECTOR SAN MARTIN- CAÑON DEL SAINZ</b> .	SE TRABAJA EN REPLANTEO DE PROYECTO POR DESVIOS PROVOCADOS POR LAS RECIENTES LLUVIAS. SE INICIARA CON TRAMO AGUAS ARRIBA UNA VEZ QUE SE SUMINISTRE LA TUBERIA	inicia 2 semanas	4 MESES
7	DESAZOLVE <b>COLECTOR PONIENTE DE 36"</b> DIAMETRO, TRAMO CENTRAL DE ABASTOS-ALAMOS A BLVD. SAN MARTIN	AVANCE DE 1,200 ML	\$ 1,000,000.00	
			<b>\$ 9,976,440.00</b>	
				<b>8 DE JUNIO 2017</b>

# UBICACIÓN DE OBRAS EMERGENTES



# Nuevo Esquema del SAAR



PTAR	Diseño LPS	Q Actual	Propuesto
Binacional	1,100	1,100	1,100
San Antonio de los Buenos	950	950	<b>1,100</b>
Arturo Herrera	460	326	<b>426 (400 Reúso)*</b>
La Morita	254	220	<b>220 (200 Reúso)</b>

\* Se incluye los 100 LPS Adicionales de PB-Cañón del Sainz.

# Update on Five Year Action Plan- Minute 320

- There have been significant accomplishments by IBWC since the Board was presented with the 5 year action plan in March 2015: first and foremost is the signing of Minute 320, and establishment of Binational Working Groups for Water Quality, Sediment and Solid Waste.

# Update on Five Year Action Plan- Minute 320 – Water Quality Workgroup

- Initiation of Meter Installation at PB CILA for quantifying flows and notification of on/off status of pump station – complete by Summer 2017
- Development of PB CILA operation and maintenance protocol (Principal Engineers Joint Report) – final draft ready
- Development of a Formalized Binational Spill Notification Process (ongoing, 2<sup>nd</sup> draft being routed)
- Agreement on Need for Additional US side Infrastructure and Improvements to PS CILA - pending funding availability
- Exchange of WWTP data for Mexico and the US - ongoing
- Quarterly River Inspections in Mexico (with BTC - most recent April 12, 2017)
- Update of Mexico's (CESPT) Infrastructure Rehabilitation Plan – 8.2 M available, total estimated at \$276 M

# Update on Five Year Action Plan- Minute 320 – Sediment Workgroup

- MOU between City of San Diego and Army Corps of Engineers on Hydraulics and Hydrology Study – Phase 1 has been completed on the US side.
- Agreement by Mexico to participate in Phase 2 of the study. Study will analyze dams, flows, sediment transport in the watershed. A request has been made by the City for Mexico data – and the request has been sent by USIBWC to MXIBWC.
- Binational Exchange of Existing Sediment Management Activities
- Information Sharing on Use of Dedicated Sites for Sediment Disposal in Mexico and the US.

# Update on Five Year Action Plan- Minute 320 – Solid Waste Workgroup

- Development of SOW for Feasibility Study for Solid Waste Traps at 3 Locations in Mexico and the US – completed, seeking funding (\$150,000).
- TRNERR/SWIA Information Exchange on Marine Debris Grant-technology and transborder information transfer to control single use plastic and Styrofoam products
- TRAM (Binational Cleanup Activities)
- Development of Socio- Environmental Impact Bond for Solid Waste Reuse, utilizing public/private funding - 4 Walls International

# Update on Five Year Action Plan- Minute 320 – Integrated Program

- Mexico NGO proposal to Foundation Gonzalo Rio Arronte, called “Integrated Water Management Program for the Tijuana River Watershed”. The Tijuana Watershed is one of a number of watersheds that have been identified by the Foundation.
- The Foundation is a source of funding for watershed based water projects, primarily in Latin America.
- The NGOs (COLEF, Pronatura Noroeste, PFEA) will provide the research, technical and administrative support. Members of the Minute 320 workgroups attended and participated in a workshop on March 29 to identify goals and objectives for the program.