



RESTORING EFFICIENCY

## PRO-PIPE TACKLES COMPLEX CLEANING OF THE NOGALES INTERNATIONAL OUTFALL INTERCEPTOR (IOI) SEWER LINE

### PRO-PIPE'S EXPERTISE AND ADVANCED SOLUTIONS DELIVER ON TIME FOR CRITICAL INFRASTRUCTURE MAINTENANCE

#### PROJECT BACKGROUND

The Nogales International Outfall Interceptor (IOI) is a vital sewer line spanning eight miles from the U.S.-Mexico border in Nogales, Sonora, to a treatment facility in Rio Rico, Arizona. With pipe diameters ranging from 35 to 42 inches, this infrastructure plays a critical role in managing binational wastewater flows, protecting public health and regional water resources.

Over time, the IOI pipeline experienced significant challenges due to heavy debris accumulation, including stormwater inflows from the Nogales Wash and other obstructions. These issues compromised pipeline efficiency and posed potential environmental and operational risks, necessitating a thorough cleaning effort to restore its functionality and prepare for future rehabilitation.



## CHALLENGES

The Nogales IOI project presented significant challenges that required meticulous planning, advanced technology and expert execution to address. This critical sewer line faced issues that threatened its functionality, safety and environmental compliance:

### ○ Heavy Debris Accumulation

The pipeline was severely impacted by stormwater inflows from the Nogales Wash, which carried silt, sand and other large debris into the system. The debris included manhole lids and other obstructions, with material volumes measured in tons. Thoroughly removing these blockages was essential to restoring pipeline capacity.

### ○ Large Diameter and Length

Spanning eight miles with diameters ranging from 35 to 42 inches, the IOI's size demanded specialized equipment and expertise to effectively clean the pipeline. Certain segments stretched as long as 1,650 feet, requiring advanced tools and coordination to navigate and maintain efficiency.

### ○ Adverse Weather and Terrain

The project encountered harsh conditions, including heavy rains and muddy terrain that created access challenges for equipment and crews. At times, vehicles became stuck in washes, further complicating operations.

### ○ Environmental Sensitivities

Located in a desert region with limited water resources, the project required environmentally friendly cleaning methods. Additionally, the IOI's role in managing binational wastewater emphasized the importance of minimizing disruptions and maintaining continuous operation throughout the project.

### ○ Strict Timelines

The cleaning work was divided into five phases, each with a rigid two-week deadline to prepare the pipeline for cured-in-place pipe (CIPP) lining. Completing each phase on time required seamless coordination with contractors and efficient execution to prevent delays in the rehabilitation schedule.



## INNOVATIVE SOLUTIONS

Pro-Pipe, a trusted member of the National Underground Group's family of service lines, approached the IOI cleaning project with advanced equipment, innovative methods and highly skilled personnel, delivering exceptional results in a challenging environment.

### **Advanced Equipment: Hvidved Larson Recycler 315**

Pro-Pipe utilized the Hvidved Larson Recycler 315, a state-of-the-art water recycling cleaning truck, to efficiently clean the IOI pipeline. This cutting-edge equipment offered several advantages:

- **Water Recycling**

The truck recycled existing sewer water within the pipeline, eliminating the need for a continuous freshwater supply. This was particularly critical in the arid conditions of southern Arizona, where water conservation is paramount.

- **Reduced Hydrant Fills**

By minimizing reliance on hydrants, the Recycler 315 significantly increased operational efficiency and reduced project costs.

- **Enhanced Safety**

Equipped with remote operation capabilities and efficient vacuum technology, the equipment ensured safe handling of debris while maintaining a high standard of worker safety.

This innovative equipment enabled Pro-Pipe to tackle the large diameter and debris-laden sections of the IOI pipeline with precision and efficiency.

### **Expert Personnel and Proven Experience**

- Pro-Pipe's project manager brought 27 years of expertise to the project, ensuring seamless execution and meticulous oversight of every phase.
- The field crew, including operators with over a decade of hands-on experience, demonstrated a deep understanding of large-diameter sewer systems and the complexities of cleaning pipelines under challenging conditions.
- This experienced team managed not only the cleaning operations but also coordinated closely with contractors to meet strict two-week deadlines for each of the project's five phases.

### **Strategic Approach and Precision Execution**

- The cleaning operation involved systematically addressing eight miles of 35- to 42-inch pipeline, divided into five phases. Each phase required removing tons of debris, including obstructions such as manhole lids, and navigating pipeline segments as long as 1,650 feet.
- Pro-Pipe's use of advanced technology, including robotic crawlers and GIS-based data management systems, enhanced precision by allowing the team to identify blockages and document progress in real-time.
- This approach ensured the pipeline was thoroughly cleaned and prepared for seamless rehabilitation with CIPP lining, meeting the project's environmental and operational objectives.



## RESULTS

Pro-Pipe successfully completed the cleaning of the Nogales IOI, restoring its functionality and ensuring readiness for future rehabilitation. The team's expertise and advanced equipment enabled the removal of significant debris from eight miles of pipeline.

The use of water-recycling cleaning trucks not only enhanced operational efficiency but also conserved water resources, an important factor in the arid Arizona region. Despite challenging weather and terrain, the project was completed on schedule, meeting the strict two-week deadlines for each phase and aligning seamlessly with the CIPP contractor's timeline.

By leveraging cutting-edge technology and a highly experienced team, Pro-Pipe provided a sustainable, cost-effective solution that minimized disruption and ensured the pipeline's long-term performance. This project underscored Pro-Pipe's ability to handle complex, large-scale pipeline cleaning projects with precision and reliability.



## CONCLUSION

The successful cleaning of the Nogales IOI highlights Pro-Pipe's expertise in addressing large-scale sewer line challenges. By combining advanced technology, a skilled team and environmentally conscious methods, Pro-Pipe delivered a cost-effective solution that restored the pipeline's functionality and prepared it for future rehabilitation. This project underscores the value of Pro-Pipe's innovative approach to infrastructure maintenance, reinforcing their reputation as a trusted partner for complex pipeline projects.

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