Inland Empire Utilities Agency, California

Provides Real-Time Protection, Safeguarding Public Health & Environment

Case Study

Background

The Inland Empire Utilities Agency (IEUA/Agency) was originally formed as the Chino Basin Municipal Water District in 1950 to supply several communities with supplemental imported water purchased from the Metropolitan Water District of Southern California (MWD). The Agency has since expanded. Today, IEUA operates a regional sewer collection system for 11 communities and is a major provider of recycled water for irrigation and various other uses.

The sewer collection system covers 242 square miles in southern California's western San Bernardino County, serving about 935,000 residents in the cities of Chino, Chino Hills, Fontana, Montclair, Ontario, Upland, Cucamonga Valley Water District (CVWD) in the city of Rancho Cucamonga, and several unincorporated areas. Those communities operate their own collection systems and then discharge wastewater into IEUA's interceptors.

IEUA's system includes more than 135 miles of sewer mains, 90 miles of interceptors, 2,356 manholes, five lift stations, and five regional water recycling plants that handle more than 55 million gallons of wastewater per day.

The Challenge

IEUA staff needed to monitor areas of increasing risk that could impact regional water systems and monitor high numbers of spills and high concentration of fats, oils and greases (FOG). There were concerns about how the system was responding to increasing population growth that raised the level of solids, challenged capacity, and contributed to unpleasant odors from Hydrogen Sulfide (H2S) gas. Around-the-clock visibility was necessary to protect public health and the environment, preserve resources, prevent asset degradation, and to comply with State and federal clean water mandates.

The Solution

IEUA began using smart sewer technology in 2019 after conducting a pilot program that compared three different companies, including SmartCover Systems.

Highlights

- Utilizes around-the-clock visibility and alarms to help protect public health and the environment, preserve resources, and prevent asset degradation
- Assesses infiltration and inflow (I&I) risks and improves emergency response times
- Preserves capital for necessary infrastructure improvements
- Provides proof of operations and reduced issues, such as illegal dumping and vandalism

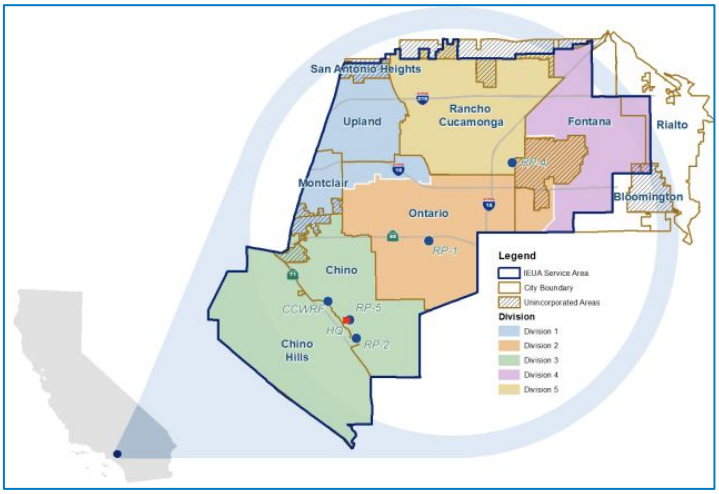

Figure 1: Inland Empire water district map

SmartCover was selected because of its real-time monitoring without confined space entry that identifies potential blockages before an overflow can occur and alerts that warn of sewer surcharging when a system exceeds its capacity due to inflow and infiltration (I&I).

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Additionally, IEUA is now able to collect and analyze data that can be used to seek requests for funding sources to support capital improvements and to help better manage cleanings and inspections with its limited staff and large service area.

The Results

Deploying SmartCover monitors gave IEUA the visibility desired inside the collection system and H2S sensors to detect gas levels. Alarms and notifications are able to alert IEUA personnel of abnormal sewer level changes, and the H2S sensors allow targeted mitigation strategies to reduce odors and optimize application of and spending on odor-mitigating chemicals.

Intrusion detection offers proof of operations and helps combat issues such as illegal dumping, vandalism, and other security issues. The units deliver additional security, especially for distant and remotely located infrastructure assets.

IEUA has taken advantage of the ease of mobility of the SmartCover units by rotating them to high-impact areas to collect data about force main flow and level changes, to monitor a siphon bypass and engineering slip lining projects, and to add surveillance for runoff from industrial and construction sites. IEUA has 28 SmartCover units that cover 32 applications.

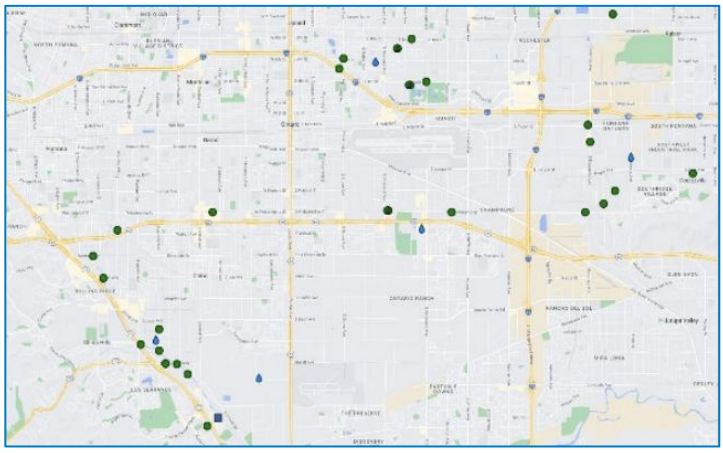

Figure 2: SmartCover units deployed in IEUA service area

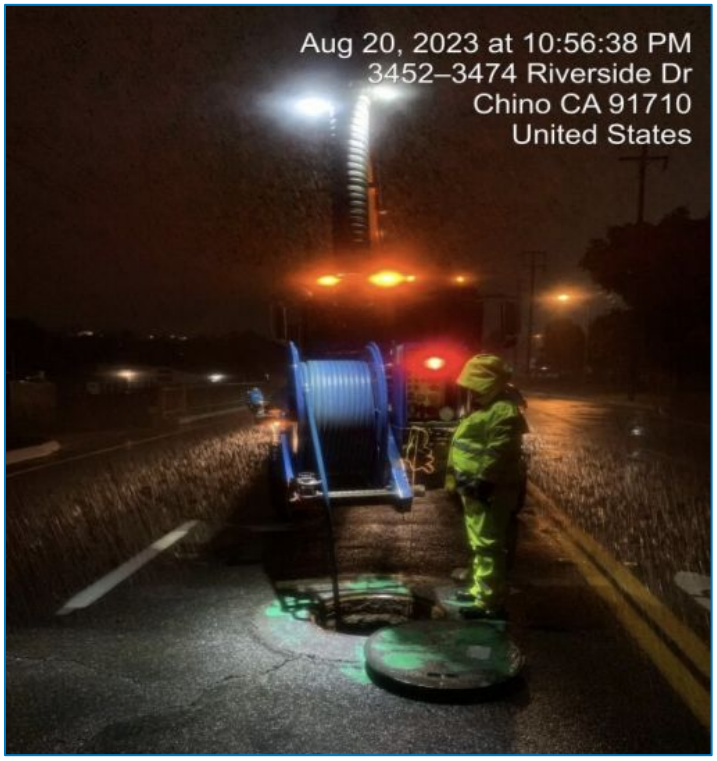

Figure 3: Sewer cleaning

Conclusion

Adopting smart sewer technology has enhanced IEUA's ability to see inside its system and gain data-driven insights that effectively help pinpoint infrastructure issues. IEUA has been able to achieve significant cost savings by optimizing the allocation of resources, equipment, and personnel.

One major benefit of IEUA's smart sewer technology occurred during Tropical Storm Hilary in 2023. A unit was in a high-FOG area and an alarm warned of rising water levels in a nearby manhole. Surcharging was discovered and IEUA personnel were able to clean out the pipes before a backup and spill occurred.