Application Note

CSO/SSO Wireless Monitoring & Reporting

Features	Products	Measurements
• Remote data monitoring using wireless technology • CSO/SSO alarms • Real-time notification • Automatic regulatory report generation • More information faster, at a lower cost	• Telog Enterprise • Ru-33 remote telemetry unit • Ru-32 remote telemetry unit • PFE-32 remote telemetry unity • Wireless cellular network configurations	• Time and duration of events • Level • Flow • Rainfall • Pressure, ultrasonic and float sensors • Water quality

CSO/SSO Wireless Monitoring System

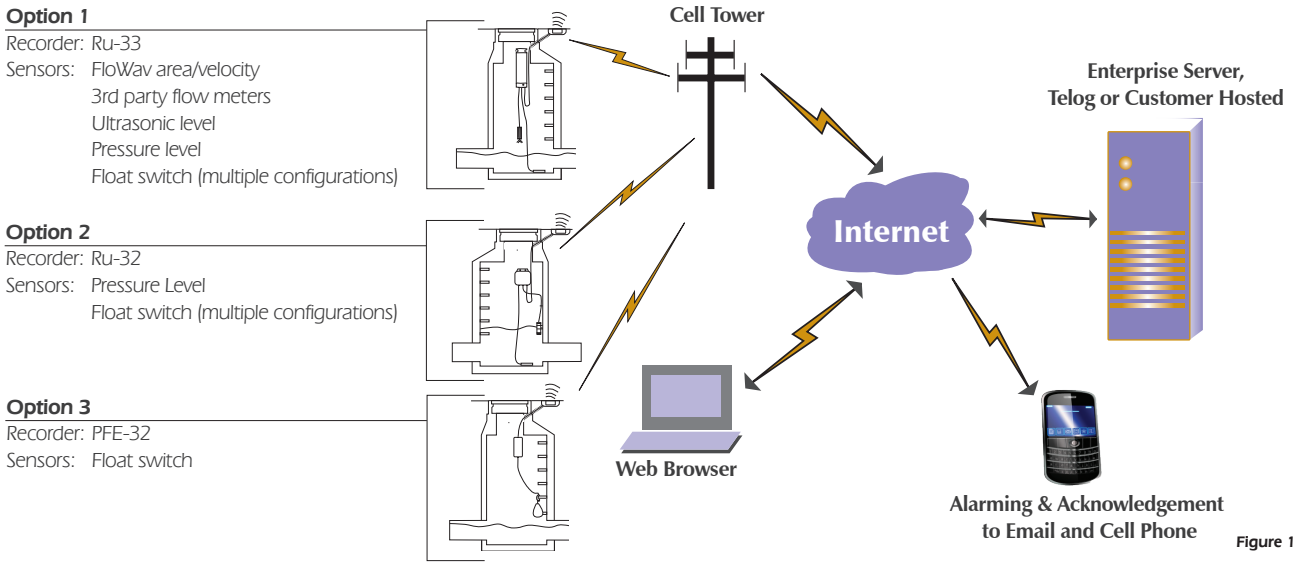

Figure 1

Application

A combined sewer system is often found in older communities where single pipe systems were originally installed to collect sewage and stormwater. Combined sewer overflows (CSO) happen during wet weather events when the discharge of wastewater and stormwater flows into a river, stream lake or ocean. These overflow events can cause serious water pollution problems therefore CSO sites require a permit from regulatory agencies.

- A requirement of holding a CSO permit is to report all overflow events and duration for each CSO site when they occur. Failure to properly report events can result in heavy fines to the permit holder. The challenge is to find an effiecient, cost effective method of:
- Monitoring CSO sites remotely
- Collecting data without a costly, time-consuming and hazardous site visitation
- Creating reports

Solution

Use a Telog **R**emote **T**elemetry **U**nit and Telogers Enterprise software, an information management system, to:

- Eliminate the lag time in your reporting system
- Remotely transfer data from the field
- Automatically download data for real-time reporting

The RTU provides real-time monitoring and alarming of instruments and sensors found in the harsh environment of sewers and underground water vaults. It forwards data wirelessly over existing packet switched 1xRTT cellular networks, to a host computer operating Telogers Enterprise software.

Data communication may be scheduled as frequently as every five minutes, on an hourly or daily basis, or as an immediate, automatic response to site alarm of an overflow condition.

Real-time Data at a Lower Cost

With only a 6-volt lantern battery, the RTU can operate for six months to two years eliminating hard-wired power sources and telephone lines so Telog RTUs can provide immediate cost savings over more complex, wire-dependent systems. Site visits to retrieve data from installed monitors are eliminated as well, with a resulting savings in time as field technicians spend more time on repairs and inspections and less time accessing devices in harsh underground or outdoor conditions.

CSO Event

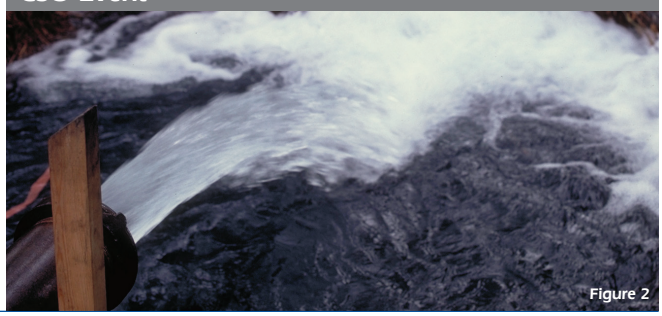

Figure 2

From RTU to Enterprise

Once transferred data reaches Enterprise, users have immediate access to gain a clear understanding of the extent of the CSO event and the initial action required—without visiting the CSO site.

Data is available for analysis and reporting to water utility authorities, consulting engineers and the regulatory agency. Real-time information also aids in the use of modeling programs, helping municipalities predict CSO events and their potential hazards to adjacent waterways, beaches, and public or private lands.

Using Telogers Enterprise easy-to-use templates for required regulatory reporting, your reports can be sent via email to all relevant offices.

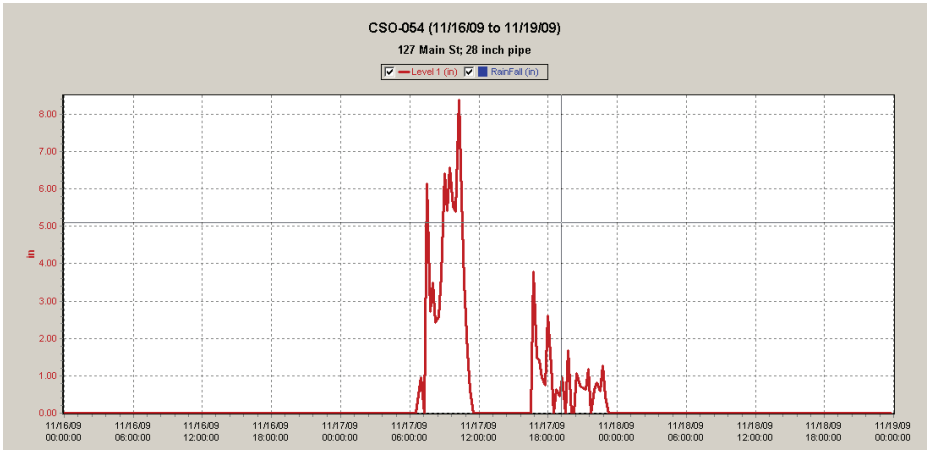

Figure 3

This screen capture shows a dry weather overflow. During this event, no rain was detected in or near the site location. This would indicate a line blockage maintenance issue in the system.

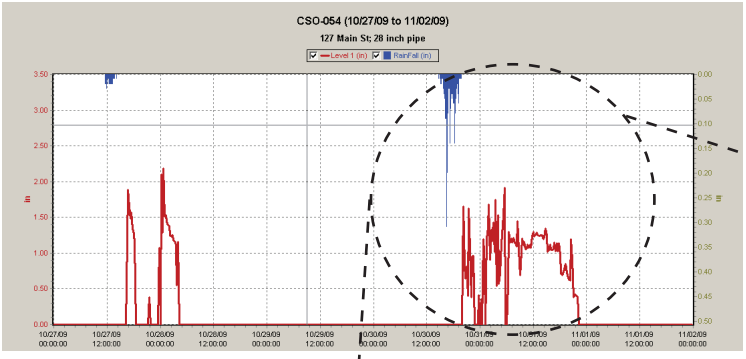

Figure 4

Figure 4 is a graph of a wet weather overflow event. Figure 5 is the close up detail of the same event.

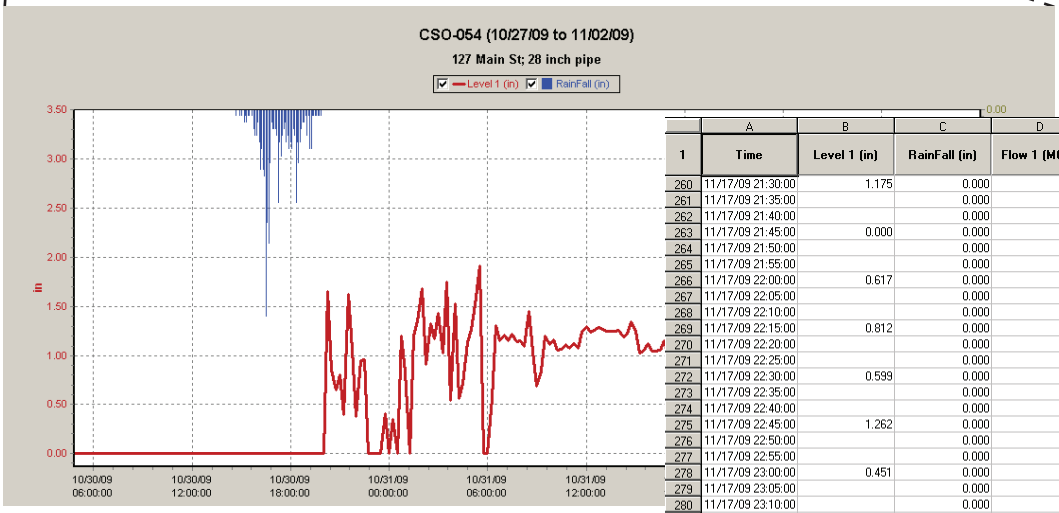

Figure 5

The tabular graph shown in Figure 6 provides additional information such as total flow.

	A	B	C	D
1	Time	Level 1 (in)	RainFall (in)	Flow 1 (MGD)
260	11/17/09 21:30:00	1.175	0.000	0.299
261	11/17/09 21:35:00		0.000	
262	11/17/09 21:40:00		0.000	
263	11/17/09 21:45:00	0.000	0.000	0.000
264	11/17/09 21:50:00		0.000	
265	11/17/09 21:55:00		0.000	
266	11/17/09 22:00:00	0.617	0.000	0.089
267	11/17/09 22:05:00		0.000	
268	11/17/09 22:10:00		0.000	
269	11/17/09 22:15:00	0.812	0.000	0.207
270	11/17/09 22:20:00		0.000	
271	11/17/09 22:25:00		0.000	
272	11/17/09 22:30:00	0.599	0.000	0.061
273	11/17/09 22:35:00		0.000	
274	11/17/09 22:40:00		0.000	
275	11/17/09 22:45:00	1.262	0.000	0.384
276	11/17/09 22:50:00		0.000	
277	11/17/09 22:55:00		0.000	
278	11/17/09 23:00:00	0.451	0.000	0.056
279	11/17/09 23:05:00		0.000	
280	11/17/09 23:10:00		0.000	
281	11/17/09 23:15:00	0.000	0.000	0.000
282	11/17/09 23:20:00		0.000	
283	11/17/09 23:25:00		0.000	
284	11/17/09 23:30:00	0.000	0.000	0.000
285	11/17/09 23:35:00		0.000	
286	11/17/09 23:40:00		0.000	
287	11/17/09 23:45:00	0.000	0.000	0.000
288	11/17/09 23:50:00		0.000	
289	11/17/09 23:55:00		0.000	
290	**Minimum**	**0.000**	**0.000**	**0.000**
291	**Average**	**0.998**	**0.000**	**0.707**
292	**Maximum**	**8.384**		**10.180**
293	**Total**			

Figure 6