



THE CITY OF SAN DIEGO

Metropolitan Wastewater Department Press Release

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City Acquires New Tool to Fight Sewer Spills

Standard Operating Procedure for handling a sewer spill for Metropolitan Wastewater Department's Collection Division is to Contain, Control and Correct. Contain the spill, preventing any escape to public waters. Control the spill, in effect ending the risk of spill. And Correct, fixing the source of the problem. Of the three elements "Containment" can be the most challenging.

The average sewer spill is generally no more than a few dozen gallons, a large portion of which is often recovered with Vactor trucks or simply dissipates in the surrounding dirt or storm drain. If discovered early enough, some larger sewer spills can often be diverted to a manhole further down the sewer line. But when a larger volume of sewage escapes into a storm drain, containment means stopping the overflow in a storm channel before it can reach public waters. Under the best circumstance, Wastewater Collection crews can build a barrier in a storm drain well downstream of the spill site before the overflow sewage has reached that point. As the overflow rises behind the barrier, crews can pump it into another sewer manhole, avoiding a public water spill.

Usually, this sort of containment meant using sandbags or backfill dumped from a truck. However, both methods of containment are labor intensive and time consuming. Sandbags have to be taken to the site, filled and stacked in the channel, assuming there is 'fill' nearby. Backfill from a dump truck might be used for the sandbags or dumped directly into the channel, but that, too, has to be ordered up for the site. And in the event that the wastewater flow is nearing or has reached the stopgap point and the flow is heavy, sandbags and earthen dams can be easily swept away by the volume of flow. Hours spent building an effective containment mean hours without effective control. This was the case with the sewer spill in February 2004 at 20th and B Streets where a sewer blockage sent more than 1,000 gallons a minute directly into a 50 foot wide storm channel.

All this has changed for Metro Wastewater with a new containment tool – a portable dam that can be deployed in less than 20 minutes and becomes an effective containment barrier even in a flooded channel.

The concept and function of the portable dam are relatively simple. A large rolled-up inflatable ‘bladder,’ sheathed in a polypropylene cover and looking much like a very large inner tube cut open and stretched out, is taken to the targeted site. The sheath protects the portable dam from cuts and damage from broken glass, and other ragged edges on the bottom of the channel. Portable pumps pull in water or wastewater upstream of the site, and pump it into the open end of the bladder. The bladder fills, unrolling itself across the channel. As the bladder fills, the bottom of it adapts to the contours of the surface below, forming a barrier. As the new dam continues to grow in size, it effectively blocks off the flow coming from upstream. Containment is complete and control measures can now happen. In a worst case scenario (such as the 20th & B Streets spill), the bladder can be unrolled and allowed to float across a filled channel, then filled in place. The engorged bladder sinks to the bottom of the channel, damming the flow. The entire operation, from arrival at the site to an effective damming of a channel, takes approximately 20 minutes.

According to Mike Rosenberg, Senior Water Utilities Supervisor with the Collection Division, the new portable dam system is both mobile and adaptable. “Our portable dams are kept on one trailer, along with two four and half inch pumps, multiple hoses, and a few tools,” said Rosenberg. “The trailer can be dispatched to a sewer spill site and set up within minutes. That’s a far cry from hauling in sandbags, filling them and trying to get them in place before they’re overwhelmed by a sewage flow.”

The key to the system’s adaptability is the customized dams ordered by Metro Wastewater. Not every storm water channel is 50 feet wide and so a variety of portable dams, all stored on the one trailer, are available. The dams come in four sizes – 15, 48, 77 and 103 feet. Once inflated, the dams form a barrier that stands three to four feet tall. These new dams also play a pivotal role in environmental protection by reducing the need to bring in heavy earth moving equipment during an emergency. The lightweight design allows the crews maneuverability and speed. Since the dams use liquid to expand, no adverse damage occurs downstream of a site, protecting the environment.

Once the spill is contained, controlled and corrected, the portable dams can be safely emptied in a number of ways. If fresh water or storm water has been used to fill the bladders, the dams can simply be opened and the water released into the channel. If wastewater was used to fill the bags, it can either be pumped from the dam into an open sewer manhole or vacuumed out by a Vactor truck (which in turn would pump it back into the sewer system). A high pressure water hose on a Vactor truck would then rinse out the bladder with a disinfectant. The now deflated portable dam can then be rolled up and taken back to the Metro Wastewater work yard where it would unrolled, air dried, re-rolled and be ready for the next time it is needed.

Scott Tulloch, Director of Metropolitan Wastewater Department, noted that the reduction in sewer spills in the City of San Diego is the result of this kind of innovative action.

“Adding the portable dams to our collection of tools to fight sewer spills is indicative of how far thinking our staff can be,” Tulloch said. “This device was investigated, researched and studied by our Collection crews, the people who respond to sewer spills, before the decision was made to purchase the system. It was the field crews who saw its worth and recommended its purchase. It’s another indication of our staff’s commitment to protecting San Diego’s environment and why we’ve been able to reduce sewer spills by more than 60 percent in the last three years.”



Trailer holding portable dams and pumps.



Wastewater Collection crews train to unroll the portable dam system.



Inflated portable dam extended across storm channel, effectively blocking flow of water (storm water run-off in this case).