PVC News
TECHNOLOGY FOR A CLEANER, SAFER PLANET

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One lucky registrant will receive a 15-inch flat panel monitor.

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Beginning next year, the *PVC News* will no longer be mailed the old-fashioned way. To conserve paper, ink, transportation fuels, and delivery costs, we will provide you – our readers – with direct electronic notification of each issue via e-mail.

You will still get the same great articles and information, but it will be sent electronically rather than by the post office.

In order to be notified when each new issue becomes available, we need your e-mail address. To register your e-mail address, go to www.uni-bell.org/join_list.html and follow the link to the *News* e-mail sign up page. You have our assurance our e-mail list will only be used by the Uni-Bell PVC Pipe Association and its members. We will not sell or provide your e-mail address to anyone outside of the Uni-Bell PVC Pipe Association.

If you register before March 1, 2003, you will be entered in a drawing. The grand prize is a 15-inch flat panel monitor. The second prize is two DVD/CD-R/MP3 players. Twenty CD-ROM editions of *The Handbook of PVC Pipe, Design and Construction* will be given away as third place prizes.

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Two registrants will win a DVD/CD-R/MP3 player.

Dealing with Disaster

By David Chorley
Manufacturer's Representative,
Diamond Plastics Corporation

For most of us, the weekend is a welcome respite from the frantic pace of today's workplace. The folks at Pima County Wastewater Management in Tucson, Arizona, are no different than the rest of us. They had high hopes for their weekend on Friday, September 6, 2002. Those plans were dashed when disaster struck the next day.

The Tucson police spotted the first sign of trouble. They noticed two sags in the pavement on West Speedway Boulevard and gushing water near North Melrose Avenue. What began as two sags in the pavement became two enormous sinkholes and a multi-million dollar crisis for county officials.

The sink holes were fifteen to twenty feet deep. Pumps were brought in from across the southwest to clean-up the spilled sewage.

Crews were immediately dispatched on Saturday to assess the problem and found two broken utilities: an asbestos cement water line and a 42 inch, reinforced concrete, sanitary sewer interceptor. The water line proved to be the more manageable problem. It was repaired that night. The interceptor, however, was far beyond the realm of the quick fix. The sinkholes resulting from the failed utilities measured fif-

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Corrosion Burden Tagged at $36 Billion Annually

By Bob Walker, P.E.
Executive Director

SOS – Distressing news! Escalating deterioration of water and sewer systems due to corrosion threatens the ability of this and future generations to provide safe drinking water and essential sanitation services.

Good news! – To break the cycle and relieve future generations of the anticipated burdens associated with replacing deteriorated pipes, water and sewer utilities are opting for corrosion-free PVC pipes and fittings. Evaluations of in-service PVC water and sewer pipes ranging in age from 10 to 35 years and under a wide range of soil types, have shown that time and buried environments have had negligible influence on their mechanical and physical properties. Such findings are providing further confirmation that

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Dealing with Disaster

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The reason for the sink holes was traced to corrosion at the crown of the concrete sewer interceptor.

teen to twenty feet deep and were quickly filled when 25 million gallons of sewage spilled into them and overflowed into the Santa Cruz River.

Officials faced a host of technical issues. One of the main sewer lines to the Roger Road Wastewater Facility had to be rerouted with temporary bypass piping. Traffic had to be redirected. Two vast ponds of spilled sewage had to be drained and the contaminated soil disinfected. Neighboring water faucets needed to be tested for possible cross-contamination. Local residents had to be temporarily housed. A network of underground utilities had to be relocated. A collapsed 42-inch sewer line had to be replaced. The soft sand caving in all around the sinkholes had to be stabilized and backfilled. And four lanes of roadway had to be restored.

These problems had to be solved quickly under the glaring spotlight of the media, while responding to the constant pleas of local residents and the complaints of area businesses. Under the best of circumstances, citizens are often quick to criticize and slow to praise their public servants. During this crisis, county officials had an even more challenging environment to operate in.

They rose to the challenge, though. Huge pumps were brought in from across the southwest to assist in the temporary bypass operation. Traffic was rerouted over to St. Mary's Road, and police officers were mobilized to attend to traffic problems and to watch over the vacated houses. Back-ups into two dorms and a recreation area at the Arizona State Schools for the Blind and Deaf were professionally cleaned. The Santa Cruz River was cleared of the muck deposited by the spilled sewage, and the riverbed was injected with lime to kill any bacteria that remained. Bottled water was distributed while water samples were tested for contamination. Thankfully, no contamination was found, and the tap water exhibited normal levels of chlorine. And roughly 95 households from the Barrio Hollywood and El Rio Acres neighborhoods were temporarily housed.

Two loads of 48-inch, F1803, sanitary sewer pipe were delivered three days after it was ordered.

The nylon sling was rigged as a choker around the sewer pipe and connected the backhoe. Tight space necessitated this approach for joint assembly.

All the while, work on-site was proceeding at a feverish pace. Pima County had contracted with Dar-Hill Construction to keep things rolling at West Speedway Boulevard. After days of around-the-clock bypass pumping, the sites were finally drained and dry enough to begin the delicate work of replacing the collapsed concrete interceptor.

It was at this time that our product, PVC pipe, was put to the test, as well as the planning of the county officials and the on-site contractors. However, that was not where our involvement – and that of our distributor (Hughes Supply) – in this project began. We were first contacted by Ray Morgan, a Pima County Engineer, at the onset of the crisis. He was looking for 42-inch PVC pipe with a pipe stiffness of 46 lb/in-in, and we were pleased to inform him we had it in stock at our plant in Lubbock, Texas. After further in-house consultation in his department, Mr. Morgan called back looking for 48-inch pipe.

Pima County was interested in maintaining the full 42-inch, inside diameter and in making provisions for future flows. The answer, again, was that the PVC pipe was available in Lubbock. So in 2002, the County was able to do what they could not have done in 1957 when the interceptor was first installed: They placed an order for 910-feet of 48-inch, ASTM F1803, closed-profile, PVC sewer pipe.

Had PVC been available in this diame-

ter in the late 1950s, Pima County would not have been faced with the dire consequences from the combination of sulfuric acid and concrete sewer pipe. Regrettably, history is what it is and not what we would like it to be. The current administration has inherited an aging infrastructure vulnerable to sulfuric acid corrosion, and they have to do their best with the resources they have been given. Part of that fiscal responsibility meant using PVC this time instead of concrete. PVC's chemical resistance makes it impervious to sulfuric acid. The missing crown of the collapsed concrete interceptor is a sad reminder of concrete's susceptibility to sulfuric acid attack.

Three days after the order was placed, two loads of PVC pipe were delivered. The order was completed two days after that and two weeks before pipe replacement could begin. Replacement of the line was subcontracted to K. E. & G. Not wanting a novice for this high profile project, Pima County and Dar-Hill Construction turned to K. E. & G. because it was a seasoned contractor with a great deal of large diameter pipe installation experience. The soft shifting sands and tight working environment made K. E. & G's job difficult. A thirteen-foot trench box was carefully placed between an existing water line and a sewer line. Then the installation of the new PVC sewer pipe began. To assemble the joint, K. E. & G. used a rope-sling to provide the assembly force. Using the backhoe bucket for assembly was not an option due to space limitations. There just was not enough room to maneuver. As an experienced contractor, K. E. & G. made sure the joint was in straight alignment before pulling the joint together with the rope-sling. Due to the harsh conditions, it took approximately three 24-hour days to complete the installation of the replacement pipe. Pima County officials and K. E. & G. were very pleased with the performance — and the relative light weight — of PVC pipe. Both made a difficult installation more manageable.

After installation was complete, the line was tested. Pima County officials originally were going to perform a hydrostatic-exfiltration test, but they changed their minds because of the time involved and the need to get the new line in service. Instead, they chose to conduct a low-pressure-air test. Having never air tested pipe this large, Pima County went to Uni-Bell for information. Uni-Bell's recommendations state that the test may be successfully concluded after an hour if there is no pressure loss. The first test was conducted on a run of 500 feet of pipe, from manhole to manhole; and the second test was approximately 400 feet, from manhole to manhole. In both cases, the pipe held the pressure without any pressure loss.

With the new PVC pipe in, backfilling and paving could begin. With the most complex part of the job completed, surface restoration was started. Yards, sidewalks, and parking lots were restored, and the Barrio Hollywood and El Rio Acres neighborhoods were left better than they were before the interceptor failed.

The end of construction does not mean the end of the project, though. Claims will have to be processed, and the budget will have to be re-worked to cover construction expenses, to expedite the rehabilitation of the rest of the interceptor, and to fast track inspection of the 230 miles of the County's major sewer lines.

Those of us in the wastewater industry know the difficulties we face. The public all too often turns a deaf ear on officials that ask for the appropriate funding level to do the rehabilitation and replacement that our sanitary systems need; that same public then cries mismanagement when years of under-funding result in the inevitable failures. Those of us in the industry appreciate a job well done under adverse conditions even when the public does not.

Due to the harsh conditions, it took approximately three 24-hour days to complete the installation of the replacement pipe. Pima County officials and K. E. & G. were very pleased with the performance — and the relative light weight — of PVC pipe. Both made a difficult installation more manageable.

Plugs required for the low-pressure-air test are on-site and available for the acceptance test for system integrity.

Regional Engineer Employment Opportunity

As the demand for PVC piping products continues to grow, so does the need to provide technical services to an ever-growing customer base. This market growth, coupled with the favorable feedback we have received from Uni-Bell's regional approach to servicing the industry's customers, has resulted in the expansion of the program. Our new Regional Engineer position will enable us to better serve the engineering and contracting communities. Uni-Bell is searching for the right engineer to enhance and expand this important, service-oriented program.

Uni-Bell is seeking a motivated, self-starter to join its Regional Engineer Team. Applicants must have a degree in Civil Engineering from an ABET accredited program. Work experience in water and wastewater design is preferred. Initiative and leadership qualities are a must. The successful candidate will be an excellent communicator, both written and oral, who will travel throughout their region.

The work will include providing technical support to utilities, design engineers, and contractors; assisting professionals with specification development; representing the Association at professional organizations; and making educational presentations.

Finding the right person for this high exposure position is of prime importance. This position provides a competitive salary commensurate with the experience and education of the candidate. In addition, Uni-Bell offers an excellent benefits package, which includes the employee's family. If you are interested, submit your resume and cover letter to our offices, at the address below. (Written or electronic submissions only please. Confidentiality will be maintained and guarded.)

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